

Maximal and Minimal Beta open set in Topological Space

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Abstract. Minimal open sets for a topology are defined and investigated. They are found to form an Alexandroff space on X . Decompositions of open sets and continuity are provided using minimal open sets. Also minimal regularity and minimal normality are defined and studied. While Hausdorffness implies minimal regularity, the product of normal spaces are found to be minimal normal. we introduce new classes of sets called maximal β -open sets and minimal β -open sets and investigate some of their fundamental properties

Key word and phrases: θ -open, maximal open sets, minimal open sets, minimal closed, maximal θ -open sets and minimal θ -closed.

I. INTRODUCTION.

Now a days topological approaches are being investigated in a big way in various diverse field such as computer graphics, evolutionary theory, robotics etc.[6, 9, 16] to name a few. One such approach to computer graphics utilizes finite, connected order topological space[8]. In a finite topological space, the intersection of all open neighbourhoods of a point p is again an open neighbourhood of p , which is the smallest one. It is called the *minimal neighbourhood* of p . The topology of a finite space is completely determined by its minimal neighbourhoods. However, in a general framework of all topological spaces this is not true. Nevertheless, the sets which are realized as arbitrary intersection of open sets in topology are quite interesting. The study of β -open sets and their properties were initiated by Njastad [13] in 1965; his introduction of β -open sets. Andrijevic [17] gave some properties of β -closure of a set A is denoted by $\beta Cl(A)$, and defined as intersection of all β -closed sets containing the set A .

F. Nakaok and N. Oda [19] and [20] introduced the notation of maximal open sets and minimal open sets in topological spaces. In (2010) Miguel Caldas, Saeid Jafari and Seithuti P. Moshokes [18]; introduce the notion of maximal θ -open, minimal θ -closed, θ -semi maximal open and θ -semi minimal closed and investigate some of the fundamental properties.

In this paper, we have made an investigation of all these type of sets. The minimal open sets, as we call them, being a weaker form of open sets, are studied here in the light of other generalized form of open sets. And the concept of a new class of open sets called maximal β -open sets and minimal β -closed sets. We also investigate some of their fundamental properties

II. PRELIMINARIES

2.1 Definition

Let (X, τ) be a topological space. Then a subset A of (X, τ) is called,

- I. Semi-open [10] if $A \subseteq cl\ int(A)$.
- II. α -open [13] if $A \subseteq int\ cl\ int(A)$.
- III. Pre-open [11] if $A \subseteq int\ cl(A)$.
- IV. β -open [1] if $A \subseteq cl\ int\ cl(A)$.
- V. Regular open (regular closed resp.,)[5] if $A = int\ cl(A)$ ($A = cl\ int(A)$ resp.,)

The complement of a semi-open (resp. α -open, pre-open, β open) set is known as semi-closed (resp. α -closed, pre-closed, β -closed) set.

2.2 Definition

A subset S of a topological spaces (X, τ) is said to be

- I. An A -set[14] if $S = U \cap C$, where U is open and C is regular closed.
- II. A t -set [15] if $int(clS) = intS$.
- III. A B -set [15] if there is an open set U and a t -set A in X such that $S = U \cap A$.

Let $f: X \rightarrow Y$ be a mapping, V be an arbitrary open set in Y . Then f is said to be semi-continuous[10] (resp. pre-continuous[11], α -continuous[12], β -continuous[14]). If $f^{-1}(V)$ is semi-open (resp. pre-open, α -open, β -open) in X . f is said to be A -continuous [14] (resp. B -continuous[15]) if $f^{-1}(V)$ is an A -set (resp. B -sets) in X whenever V is open in Y . It is known that α -continuity implies pre-continuity and semi-continuity, A -continuity implies semi-continuity[14]. It can be shown that a subset S in X is open if and only if it is an A -set and an α -set [14] or equivalently, it is pre-open set and B -set[15]

2.3. [13] Definition

A subset A of a space X is said to be β -open set if $A \subseteq Cl(Int(Cl(A)))$. The complement of all β -open set is said to be β -closed. As in the usual sense, the intersection of all β -closed sets of X containing A is called the β -closure of A . also the union of all β -open sets of X contained in A is called the β -interior of A .

2.4. [21] Definition

A subset A of a space X is said to be θ -open set if for each $x \in A$, there exists an open set G such that $x \in G \subseteq Cl(G) \subseteq A$

2.5. [20] Definition

A proper nonempty open set U of X is said to be a maximal open set if any open set which contains U is X or \emptyset

FUZZY SEMIOPEN SETS AND FUZZY SEMICLOSED SOFT SETS IN FUZZY TOPOLOGICAL SPACES

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ciences for women (Autonomous) Tiruchengode Namakkal(Dt),Tamilnadu,India.

Abstract: This paper introduces fuzzy semi open and fuzzy semi closed soft sets in fuzzy soft topological spaces. A detail study is carried out on properties of fuzzy semi open, fuzzy semi closed fuzzy soft sets, fuzzy semi interior, fuzzy semi closure and fuzzy soft set in a fuzzy soft topological space. Further fuzzy soft semi compactness, fuzzy soft semi connectedness are introduced and studied.

Indexterms: Fuzzy Soft topological space, Fuzzy semi open soft set, Fuzzy soft semi compactness, Fuzzy soft semi continuity, 2000MSC:06D72

1. INTRODUCTION

The notion of fuzzy topological space for fuzzy soft sets was formulated by Shabir et.al[3]. Of late many authors have studied various properties of fuzzy soft topological spaces. This paper aims to introduce and give a detail study of fuzzy semi open soft set, fuzzy semi closed soft set, fuzzy semi continuity, fuzzy semi compactness, fuzzy. Here are some definitions are results in the sequel.

1.1 Definition

[8] A fuzzy set f on X is a mapping $f: X \rightarrow I$. The value $f(x)$ represents the degree of membership of $x \in X$ in the fuzzy set f , for $x \in X$.

Let I^X denotes the family of all fuzzy sets on X . If $f, m \in I^X$ then some basic set operation for fuzzy sets are given by Zadeh [1] as follows:

- (1) $f \leq m \Leftrightarrow f(x) \leq m(x)$, for all $x \in X$.
- (2) $f = m \Leftrightarrow f(x) = m(x)$, for all $x \in X$.
- (3) $n = f \vee m \Leftrightarrow n(x) = f(x) \vee m(x)$, for all $x \in X$.
- (4) $k = f \wedge m \Leftrightarrow k(x) = f(x) \wedge m(x)$, for all $x \in X$.
- (5) $t = f^c \Leftrightarrow t(x) = 1 - f(x)$, for all $x \in X$.

1.2 Definition

A pair (F, A) is called a soft set over X if F is a mapping defined by $F: A \rightarrow 2^X$, where 2^X is the power set of X . In other words, a soft set is a parameterized family of subsets of the set X . Each set $F(e)$, $e \in A$, from this family may be considered as the set of e -elements of the soft set (F, A) .

1.3 Definition

[3] A pair (f, A) is called a fuzzy soft set over X , where $f: A \rightarrow I^X$ is a function. That is, for each $a \in A$, $f(a) = f_a: X \rightarrow I$ is a fuzzy set on X . A soft set (F, A) can be extended to a soft set type (F, E) , where $F(e) \neq \emptyset$ if $e \in A \subseteq E$ and $F(e) = \emptyset$ if $e \in E - A$.

1.4 Definition

A soft set F_A on the universe X is a mapping from the parameter set E to 2^X , i.e., $F_A: E \rightarrow 2^X$, where $F_A(e) \neq \emptyset$ if $e \in A \subseteq E$ and $F_A(e) = \emptyset$ if $e \notin A$.

The subscript A in the notation F_A indicates where the image of F_A is non-empty. A soft set can be defined by the set of ordered pairs $F_A = \{(e, F_A(e)): e \in E, F_A(e) \subseteq 2^X\}$

The value $F_A(e)$ is a set called the e -element of the soft set for all $e \in E$.

1.5 Definition

A fuzzy soft set f_A on the universe X is a mapping from the parameter set E to I^X , i.e., $f_A: E \rightarrow I^X$, where $f_A(e) \neq 0_X$ if $e \in A \subseteq E$ and $f_A(e) = 0_X$ if $e \notin A$, where 0_X is empty fuzzy set on X .

From now on, we will use $\mathcal{F}(X, E)$ instead of the family of all fuzzy soft sets over X .

Obviously, a classical soft set F_A over a universe X can be seen as a fuzzy soft set by using the characteristic function of the set $F_A(e)$:

$$f_A(e)(a) = \chi_{F_A(e)}(a) = \begin{cases} 1, & \text{if } a \in F_A(e) \\ 0, & \text{otherwise.} \end{cases}$$

1.6 Definition

Let $f_A, m_B \in \mathcal{F}(X, E)$. Then f_A is called a fuzzy soft subset of m_B if $f_A(e) \subseteq m_B(e)$, for each $e \in E$, and we write $f_A \subseteq m_B$. Also f_A is called a fuzzy soft superset of m_B if m_B is a fuzzy soft subset of f_A , and we write $f_A \supseteq m_B$.

1.7 Definition

Let $f_A, m_B \in \mathcal{F}(X, E)$. Then f_A and m_B are said to be equal, denoted by $f_A = m_B$, if $f_A \subseteq m_B$ and $m_B \subseteq f_A$.

ON TYPE-2 FUZZY SOFT TOPOLOGICAL SPACES

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Abstract: In the present paper, a notion of type-2 fuzzy soft topological spaces is introduced and some of its important properties are studied. For this we have defined product of type-2 fuzzy soft sets, type-2 fuzzy soft product spaces, type-2 fuzzy soft continuous mappings etc. and their topological behaviours are examined.

Indexterms: Fuzzy soft sets, Fuzzy soft mappings, Fuzzy soft topologies, Type-2 fuzzy soft sets, Type-2 fuzzy soft mappings, Type-2 fuzzy soft topologies

INTRODUCTION:

In natural occurrence of events, uncertainty is the most prevalent aspect and several theories were developed to deal with it. Probability theory deals with the uncertainties caused by the randomness of a situation but it can not handle other type of situations where the uncertainties evolving out of imprecise informations, limitations of computability and perceptibility etc. L.A. Zadeh [18], in 1965 introduced fuzzy set theory (FST) and attempted to formalize this grey area. Afterwards many generalizations, modifications and extensions of FST came up with different perspectives and several research works were published on fuzzy subgroups, fuzzy topological spaces, fuzzy topological groups etc. In 1975, Zadeh [19] coined the notion of type-2 fuzzy sets which are characterized by fuzzy membership functions that are themselves type-1 fuzzy in nature. In the theory of fuzzy set as well as type-2 fuzzy sets, membership function play the main role and this function depends, on various factors and because of this many complexities are encountered while dealing with it. In 1999, D. Molodstov [11] proposed soft sets as an alternative way. He took parameterized family of sets instead of membership function. He also proved that Zadeh's fuzzy sets were special types of fuzzy soft sets. Therefore, it might be stated that in the field of applications in real life problems the parameterization approach of fuzzy soft set theory is better user friendly as compared to the membership function approach of fuzzy set theory. Since then research activities are going on with all these theories in their pure form as well as in their hybridizations. Currently research on fuzzy soft set theory are progressing at a very fast pace and in areas involving fuzzy soft groups [7, 9], fuzzy soft topology [3, 5, 6, 17], fuzzy soft topological groups [13, 14] etc. which are applied to decision making problems including texture classification, data analysis etc.

Recently in 2015, Rajashi Chatterjee et al. [4] proposed a parameterized structure for type-2 fuzzy sets and named it type-2 fuzzy soft sets. As a continuation and observing a huge potential of fuzzy soft set theory, it is natural to investigate the behavior of the topological structures in type-2 fuzzy soft set settings. In this paper, we have introduced a notion of type-2 fuzzy soft topologies and investigate some of its Important properties.

PRELIMINARIES

In this section, following [7, 8, 11, 15, 16], some definitions and results of fuzzy soft sets, fuzzy soft mappings and type-2 fuzzy soft mappings are given. Unless otherwise stated, X will be assumed to be an initial universal set, E will be taken to be a set of parameters, $P(X)$ denote the power set of X .

1 Definition :[11, 8]

A pair (F, A) where F is a mapping from $A \subseteq E$ to $P(X)$, is called a fuzzy soft set or type-1 fuzzy soft set over X . Let $S_1(X, E)$ denotes the set of all fuzzy soft sets or type-1 fuzzy soft sets over X under the parameter E .

2 Definition :

Let $(F, A), (G, B) \in S_1(X, E)$. Then

- (i) (F, A) is said to be fuzzy soft subset of (G, B) if $A \subseteq B$ and $F(\alpha) \leq G(\alpha), \forall \alpha \in A$. This relation is denoted by $(F, A) \tilde{\subseteq} (G, B)$ [11, 8].
- (ii) The complement of a fuzzy soft set (F, A) is defined as $(F, A)^c = (F^c, A)$, where $F^c(\alpha) = X - F(\alpha), \forall \alpha \in A$ [11, 8].
- (iii) (F, A) is said to be a null fuzzy soft set (an absolute fuzzy soft set) if $F(\alpha) = \phi (F(\alpha) = X), \forall \alpha \in A$. This is denoted by $(\tilde{\phi}, A) ((\tilde{X}, A))$ [10].

3 Definition : [11, 8]

Let $(F, A), (G, B) \in S_1(X, E)$. Then their

- (a) Union, is a fuzzy soft set $(H, A \cup B) \in S_1(X, E)$, denoted by $(F, A) \tilde{\cup} (G, B) = (H, A \cup B)$, is defined by $\forall \alpha \in (A \cup B)$

$$H(\alpha) = \begin{cases} F(\alpha) & \text{if } \alpha \in (A - B) \\ G(\alpha) & \text{if } \alpha \in (B - A) \\ F(\alpha) \cup G(\alpha) & \text{if } \alpha \in (A \cap B) \end{cases}$$



AN INTUITIONISTIC FUZZY IDEAL IN FIELD

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Abstract: In this paper, We study intuitionistic fuzzy field and introduce intuitionistic fuzzy subfield and anti intuitionistic fuzzy ideal of field. And investigate some related theorems.

Index Terms: Fuzzy set, Intuitionistic fuzzy set, fuzzy field, intuitionistic fuzzy field, intuitionistic fuzzy sub-field, intuitionistic fuzzy ideal, anti intuitionistic fuzzy ideal.

I. INTRODUCTION:

The concept of Fuzzy set (IF was short) was introduced Zadeh.L.A [12] in 1965 has showed meaningful applications in many field of studies and the theory of intuitionistic fuzzy set (IFS for short) as an extension of fuzzy set is introduced Atanassov.K [2] in 1983. The notion of fuzzy subgroups, anti-fuzzy subgroups, fuzzy fields and fuzzy linear spaces was introduced by Biswas.R [6,7]. In this paper, we introduce some new kind of intuitionistic fuzzy subfield and intuitionistic fuzzy ideal (IFSF and IFI for short) of a field. Intuitionistic fuzzy fields which are regarded as a generalization of field have been found useful in solving problems in different areas of mathematics and Engineering.

1.1 Definition:

Let X be a non-empty set. A fuzzy set A drawn from X is defined as

$$A = \{ \langle x, \mu_A(x) \rangle : x \in X \}$$

Where, $\mu_A(x) : x \rightarrow [0,1]$ is the membership function of the fuzzy set A . fuzzy set is a collection of object with graded membership. i.e) having degrees of membership.

1.2 Definition:

An intuitionistic fuzzy set A of a non-empty set F is a object of the form

$$A = \{ \langle x, \mu_A(x), V_A(x) \rangle : x \in F \}$$

Where, $\mu_A(x) \rightarrow F[0,1]$ and $V_A(x) \rightarrow F[0,1]$ are membership and non-membership functions such that for each $x \in F$. we have, $0 \leq \mu_A(x) + V_A(x) \leq 1$.

1.3 Remark:

- When $\mu_A(x) + V_A(x) = 1$ i.e) $V_A(x) = 1 - \mu_A(x)$ then A is called fuzzy set.
- We denote the intuitionistic fuzzy set,

$$A = \langle x, \mu_A(x), V_A(x) \rangle : x \in F$$

By $A = (\mu_A, V_A)$.

1.4 Definition:

Let F be a field and A is a fuzzy set of F if the following conditions hold,

- $\mu_A(x + y) \geq \min\{\mu_A(x), \mu_A(y)\}$
- $\mu_A(-x) \geq \mu_A(x)$
- $\mu_A(xy) \geq \min\{\mu_A(x), \mu_A(y)\}$
- $\mu_A(x^{-1}) \geq \mu_A(x)$

We call A is a fuzzy field of F . denoted by (A, F) . Also (A, F) is called a fuzzy field of F .

1.5 Definition:

Let F be a field and $A \in IFS(F)$. If for all $x, y \in F$ the following conditions are valid then A is called an intuitionistic fuzzy field over F . shortly $IFF(F)$.

- $\mu_A(x + y) \geq \min\{\mu_A(x), \mu_A(y)\}$
- $\mu_A(-x) \geq \mu_A(x)$
- $\mu_A(xy) \geq \min\{\mu_A(x), \mu_A(y)\}$
- $\mu_A(x^{-1}) \geq \mu_A(x)$
- $V_A(x + y) \leq \max\{V_A(x), V_A(y)\}$
- $V_A(-x) \leq V_A(x)$
- $V_A(xy) \leq \max\{V_A(x), V_A(y)\}$
- $V_A(x^{-1}) \leq V_A(x)$

1.6 Definition:

Let F be a field. An intuitionistic fuzzy ,

$$A = \{ \langle x, \mu_A(x), V_A(x) \rangle : x \in F \}$$

Of F is said to be intuitionistic fuzzy subfield (in short IFSF) of F if,

- $\mu_A(x + y) \geq \min\{\mu_A(x), \mu_A(y)\}$

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CHARACTERIZATION OF FUZZY SOFT INTERSECTION USING NEAR RINGS

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Abstract In this paper, we first define fuzzy soft intersection near ring by using the intersection operation of sets. This new notion can be regarded as a connection among fuzzy soft set theory, soft set theory, set theory and near ring theory. Further, We have also discussed about basic properties and we analog the applications of fuzzy soft intersection near ring to near ring theory.

Key words Near ring, Fuzzy soft set, Fuzzy soft near rings, Soft intersection near rings, Fuzzy soft intersection near rings, Image, and Pre-image.

I. INTRODUCTION

Most of our traditional tools for formal modelling, reasoning and computing are crisp, deterministic, and precise in character. However there are many complicated problems in economics, medical science, etc., The soft set theory was introduced by Molodstov [7] in 1999. Soft set theory has a rich potential for applications in several directions. The fuzzy soft set theory was initiated by L.A.Zadeh[11] in 1965. These set have a broad utility for expressing the gradual transition from membership to non membership and conversely. By fuzzy set theory we can express vague concepts into natural language.

The notion of near ring was first introduced by Dickson and Leonard in 1905. The primary step towards near rings was an axiomatic research done by Dickson. It is a generalization of a ring. If in a ring we ignore commutativity of addition and one distributive law then we get a near ring. G.Pilz [8], J.D.P.Meldrum [6] and many other researchers have contributed and are contributing the near ring theory

In this paper, we analyzed the fuzzy soft intersection near ring by using the intersection operation of sets. This new notion can be regarded as a connection among fuzzy soft set theory, soft set theory, set theory and near ring theory. Finally, We have also discoursed about basic properties and we analog the applications of fuzzy soft intersection near ring to near ring theory with respect to the image and pre image.

II. PRELIMINARIES

In this section we first all recall the basic definitions related to near rings, fuzzy soft intersection near ring, image and pre image which would be used in the sequel.

2.1 Definition

Let U be an initial universal set, E be the of parameters. Let A be a subset of E . Let $P(U)$ denote the power set of U . A pair (F, A) is called a **Soft Set** over U , where F is a mapping given by $F: A \rightarrow P(U)$.

2.2 Definition

Let X be the collection of objects denoted generally by x then a **Fuzzy Set** A in x is defined as, $A = \{ \langle x, \mu_A(x) \rangle \mid x \in X \}$

Where,

$\mu_A(x)$ is called the membership value of x in A and $0 \leq \mu_A(x) \leq 1$

2.3 Definition

Let U be an initial universe set and E be the parameters. Let A be a subset of E . A pair (F, A) is called a **Fuzzy Soft Set** over U , where F is a mapping given by $F: A \rightarrow I^U$,

Where, I^U denotes the collection of all fuzzy subsets of U .

i.e. For each $a \in A$, $F(a) = F_a: U \rightarrow I$ is a fuzzy set on U .

2.4 Definition

A non empty set R with two binary operations '+' and '·' satisfying the following axioms :

- $(R, +)$ is a group
- (R, \cdot) is a semi- group
- $x \cdot (y + z) = x \cdot y + x \cdot z$ for all $x, y, z \in R$.

It is a **Left Near - Ring**, because it satisfies the left distributive law.

- $(x + y) \cdot z = x \cdot z + y \cdot z$ for all $x, y, z \in R$.

It is a **Right Near - Ring**, because it satisfies the right distributive law.

Example

Let $R = \{0, 1, 2, 3\}$ be a non empty set with two binary operations '+' and '·' Defined as follows:
Then $(R, +, \cdot)$ is a near ring.



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FUZZY SOFT IDEALS OF A FUZZY SOFT LATTICE

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Abstract In this paper, we define the concept of fuzzy soft ideals and filters over a collection of fuzzy soft sets, study their related properties and illustrate them with some examples. We also define the maximum and minimum conditions in fuzzy soft lattice. In addition, we characterized fuzzy soft modularity and fuzzy soft distributivity of fuzzy soft lattices of fuzzy soft ideals.

Index Terms Fuzzy soft ideals and filters, Prime fuzzy soft ideals and filters, Principal fuzzy soft ideal and filter, Modular fuzzy soft lattices, Distributive fuzzy soft lattices.

I. INTRODUCTION

The theory of soft sets was firstly introduced by Molodtsov [11] in 1999 as a general Mathematical tool for dealing with uncertainty. At present, research works on soft set theory and its application are making progress rapidly. The theory of fuzzy set was introduced by L.A.Zadeh [14] in 1965. Fuzzy set is used in many areas of daily life such as Engineering, Medicine, Meteorology. The theory of lattices was introduced by Richard Dedekind. Faruk karaaslam and Naim cagman [7] defined the concept of modular fuzzy soft lattice and distributive fuzzy soft lattice. In this paper we define the concept of fuzzy soft ideal and filter, prime fuzzy soft ideal and filter, principal fuzzy soft ideal and filter. Also, we prove that set of fuzzy soft ideals of a fuzzy soft lattice. Further, we prove fuzzy soft lattice f_L is modular if and only if the fuzzy soft ideal lattice $f_i(f_L)$. We also prove that the fuzzy soft lattice f_L is distributive if and if the fuzzy soft ideal lattice $f_i(f_L)$ is distributive.

The readers are asked to refer [10,11] for basic definitions and results of fuzzy soft set theory and [7,12,13] for results on fuzzy soft lattices.

Throughout this work, X refers to the initial universe, $P(X)$ is the power set of X , E is a set of parameters and $A \subseteq E$. $F(X)$ denotes the set of all fuzzy soft sets over X .

II. FUZZY SOFT IDEALS AND FUZZY SOFT FILTERS

In this section we introduce the concept of fuzzy soft ideals and fuzzy soft filters with examples. We prove that every fuzzy soft ideal and fuzzy soft filter of a fuzzy soft lattice f_L is a convex fuzzy soft sublattice of f_L and conversely. We also study about prime fuzzy soft ideals and prime fuzzy soft filters. Throughout this work, the fuzzy soft lattice f_L means the fuzzy soft lattice (f_L, \wedge, \vee) .

2.1 Definition

A non – empty fuzzy soft subset f_i of a fuzzy soft lattice f_L is said to be fuzzy soft ideal if

$$(f_{i1}) \quad f_i(x), f_i(y) \in f_i \text{ implies } f_i(x) \vee f_i(y) \in f_i.$$

$$(f_{i2}) \quad f_i(x) \in f_i \text{ implies } f_i(x) \wedge f_i(a) \in f_i \text{ for every element } f_i(a) \text{ of } f_L \text{ or equivalently}$$

$$f_i(x) \in f_i \text{ and } f_L(a) \leq f_i(x) \text{ implies } f_i(a) \in f_i.$$

2.2 Definition

A non – empty fuzzy soft subset f_F of a fuzzy soft lattice f_L is said to be fuzzy soft filter if

$$(f_{F1}) \quad f_F(x), f_F(y) \in f_F \text{ implies } f_F(x) \wedge f_F(y) \in f_F.$$

$$(f_{F2}) \quad f_F(x) \in f_F \text{ implies } f_F(x) \vee f_F(a) \in f_F \text{ for every element } f_L(a) \text{ of } f_L \text{ or equivalently}$$

$$f_F(x) \in f_F \text{ and } f_F(x) \leq f_L(a) \text{ implies } f_F(a) \in f_F.$$

2.3 Note

Every fuzzy soft ideal of a fuzzy soft lattice of f_L is a fuzzy soft sublattice of f_L .

2.4 Example

Let $X = \{x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8, x_9\}$, be the universe and $E = \{e_1, e_2, e_3\}$

be the set of parameters, $P = \{e_1\}$, $Q = \{e_2\}$, $R = \{e_3\}$, $S = \{e_1, e_2\}$, $T = \{e_1, e_3\}$, $U = \{e_2, e_3\}$, $V = \{e_1, e_2, e_3\}$ where $P, Q, R, S, T, U, V \subseteq E$ and

$f_L = \{f_L(\emptyset), f_L(P), f_L(Q), f_L(R), f_L(S), f_L(T), f_L(U), f_L(V)\} \subseteq F(X)$ with the operations $\bar{\cup}$ and $\bar{\cap}$.

Assume that, $f_L(\emptyset) = \emptyset$

$$f_L(P) = \{(e_1, \{x_1\})\}$$

$$f_L(Q) = \{(e_2, \{x_2\})\}$$

$$f_L(R) = \{(e_3, \{x_3\})\}$$

$$f_L(S) = \{(e_1, \{x_1, x_4\}), (e_2, \{x_2, x_5\})\}$$

$$f_L(T) = \{(e_1, \{x_1, x_6\}), (e_3, \{x_3, x_7\})\}$$

$$f_L(U) = \{(e_2, \{x_2, x_8\}), (e_3, \{x_3, x_9\})\}$$

$$f_L(V) = \{(e_1, \{x_1, x_4, x_6\}), (e_2, \{x_2, x_5, x_8\}), (e_3, \{e_3, e_7, e_9\})\}$$



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INTERVAL VALUED FUZZY SET OF FUZZY HEMIRINGS

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Abstract In this paper, we first present the concepts of interval valued fuzzy set of fuzzy hemirings and we introduce the notion of $A = [\mu^-, \mu^+]$. Interval valued fuzzy set of fuzzy hemirings and explore some of their attribute.

Index Terms Fuzzy set, Interval valued fuzzy set, hemirings, fuzzy hemirings.

I. INTRODUCTION

In dealing with the intricate problems in economics, engineering and environmental sciences, we are ordinarily in effective to apply the classical methods because there are various suspense in their problem. The construction of fuzzy sets and fuzzy set operations, introduced by L.A. Zadeh[12] (1965) have been all inclusive to a great deal scientific field of operation. Zadeh bring in and used interval valued fuzzy sets. In algebra, Rosenfeld[6] first used fuzzy set, he introduced fuzzy group and explore some of its attribute. So fuzzy of hemirings became significant tools in lots of branches of applied mathematics and engineering.

But greatly of the researches of fuzzy hemirings[8]s are based on their ideals. In this paper, we have the concepts of interval valued fuzzy set of fuzzy hemirings and studied some some of its attribute. The complement, union, intersection operations have been defined on the interval valued fuzzy set of fuzzy hemirings.

II. PRELIMINARIES

2.1 Definition

Let X be the collection of objects denoted generally by x . Then a fuzzy set A in X is defined as,

$$A = \{ \langle x, \mu_A(x) \rangle / x \in X \}$$

Where $\mu_A(x)$ is called the membership value of x in A and

$$0 \leq \mu_A(x) \leq 1.$$

2.2 Definition

An interval valued fuzzy set \tilde{X} on a universe U is a mapping such that $\tilde{X} : U \rightarrow \text{Int}([0, 1])$. Where $\text{Int}([0, 1])$ stands for the set of all closed subinterval of $[0, 1]$, the set of all interval valued fuzzy sets on U is denoted by $\tilde{P}(U)$.

Suppose that $\tilde{X} \in \tilde{P}(U) \forall x \in U$. $\mu_x(x) = [\mu_x^-(x), \mu_x^+(x)]$ is called the degree of membership of an element x to \tilde{X} . Where $\mu_x^-(x)$ and $\mu_x^+(x)$ are referred to as the lower and upper degree of membership of x to \tilde{X} respectively such that

$$0 \leq \mu_x^-(x) \leq \mu_x^+(x) \leq 1.$$

2.3 Definition

A semiring is an algebraic system $(R, +, \cdot)$ consisting of a non- empty set R together with two binary operations on R called addition and multiplication such that $(R, +)$ and (R, \cdot) are semigroups and the following distributive laws

$$a.(b + c) = a.b + a.c$$

$$(a + b).c = a.c + b.c$$

are satisfied for all $a, b, c \in R$. By zero of a semiring $(R, +, \cdot)$ we mean an element $0 \in R$ such that $0.x = x.0 = 0$ and $0 + x = x + 0 = x$ for all $x \in R$. A semiring with zero and a commutative semigroup $(R, +)$ is called a hemiring.

2.4 Definition

Let R be a hemiring. A fuzzy set μ in R is defined as a mapping from R to $[0, 1]$, the usual interval of real number. We denote by I^R the set of all fuzzy sets in R .

2.5 Definition

Suppose $\mu \in I^R$. For any $s \in]0, 1]$, the set $\mu_s = \{x \in R : \mu(x) \geq s\}$ and the set $\text{supp}(\mu) = \{x \in R : \mu(x) > 0\}$ are called s - level set and supporting set of μ .

2.6 Definition

Suppose R is a hemiring and μ is a fuzzy set of R with support $\{x\}$. Then μ is called a fuzzy point if

$$\mu(y) = \begin{cases} s \in]0, 1] & \text{if } y = x \\ 0 & \text{otherwise} \end{cases}$$

We denote the fuzzy point with support $\{x\}$ and value s by x_s .



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FUZZY PRE GENERALIZED SEMI-CLOSED SETS

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Abstract : In this paper, we introduced a new classes of sets called fuzzy pre-generalized semi-closed sets in fuzzy topological spaces is introduced and investigate their properties. As an application of this set we also introduces the new kinds of separation axioms namely, $F_{pg}T_{1/2}$ -space F_{pgs} -continuity and F_{pgs} irresolute mappings. Fuzzy pre generalized semi $T_{1/2}$ fuzzy pre generalized semi $T_{3/4}$ spaces and fuzzy pre semi $T_{1/3}$ and characterized them.

Key words and phrases : Fuzzy pre generalized semi-closed sets, Fuzzy pre generalized semi-continuity, Fuzzy pre generalized semi-irresoluteness, Fuzzy semi- $T_{1/2}$ space.

INTRODUCTION :

We define a new class of fuzzy pre generalized sets namely, fuzzy semi-closed sets and investigate their properties. The X denote a fuzzy topological spaces (X, τ) . Fuzzy sets in X will be denoted by $(\nu, \eta, \lambda, \mu)$. The operators can be denoted by fuzzy closure and fuzzy interior. The concept of fuzzy semi-preopen sets and introduced fuzzy pre generalized $T_{1/2}$ spaces, F_{pgs} continuity and F_{pgs} - irresoluteness. The aim of this paper is to introduce the notion of fuzzy pre generalized semi-closed sets, an alternative generalization of fuzzy semi pre open set in fuzzy topological spaces. We introduce a class of fuzzy topological spaces, called $F_{pg}T_{1/2}$ - spaces and obtain some of its characterizations. Further, we also introduce F_{pgs} - continuity and F_{pgs} - irresoluteness.

1.1 Definition : A fuzzy set A of (X, τ) is called

- 1) Fuzzy semi open (shortly, Fs - open) if $A \leq Cl(int(A))$ and a fuzzy semi closed (shortly, Fs -closed) if $Int(Cl(A)) \leq A$.
- 2) Fuzzy pre open (shortly, Fp -open) if $A \leq Int(Cl(A))$ and a fuzzy pre closed (shortly, Fp - closed) if $Cl(Int(A)) \leq A$.
- 3) Fuzzy pre semi open (shortly, Fps - open) if $A \leq Int Cl(Int(A))$ and a fuzzy pre semi- closed (shortly Fps - closed) if $Cl Int(Cl(A)) \leq A$.

1.2 Definition :

A fuzzy set ν in fuzzt topological space (X, τ) is called

- 1) Fuzzy generalized closed set if $Cl\nu \leq \eta$ whenever $\nu \leq \eta$ and η is fuzzy open. We shortly denoted it as Fg - closed.
- 2) Fuzzy pre- generalized closed set if $pCl\nu \leq \eta$ whenever $\nu \leq \eta$ and ν is fuzzy semi open. We shortly denoted it as F_{pg} - closed set.
- 3) Fuzzy generalized semi- closed set if $sCl\nu \leq \mu$ whenever $\nu \leq \eta$ and η is fuzzy open. We shortly denoted it as F_{gs} - closed set.
- 4) Fuzzy pre generalized semi- closed set if $psCl\nu \leq \eta$ whenever $\nu \leq \eta$ and η is fuzzy open. We shortly denoted it as F_{pgs} - closed set.

1.3 Definition :

A fuzzy topological space (X, τ) is said to be a

- 1) Fuzzy - $T_{1/2}$ space if every F_g - closed set is fuzzy closed.
- 2) Fuzzy semi- $T_{1/2}$ space if every F_{sg} - closed set is fuzzy semi- closed.
- 3) Fuzzy pre- $T_{1/2}$ space if every F_{pg} - closed set is fuzzy pre closed.

FUZZY SEMI – CLOSED SETS

2.1 Definition :

Let η be a fuzzy set in a fuzzy topological spaces (X, τ) . Then ν is called a fuzzy semi- closed set X if $spCl\eta \leq \nu$, whenever $\eta \leq \nu$ and ν is a F_g - open set in X .

2.2 Proposition :

Every fuzzy semi pre-closed set in a fuzzy topological space (X, τ) is fuzzy pre semi-closed.

Proof :

Let η be a fuzzy semi pre-closed set in a fuzzy topological space (X, τ) . Suppose that $\eta \leq \nu$ and ν is a fuzzy generalized-open set in X . Since $spCl\eta = \eta$, it follows that $spCl\eta = \eta \leq \nu$. Hence, η is fuzzy pre-semi-closed in X . The reverse implication in the above proposition is not true as seen in the following example.

Example :

Consider the fuzzy topological space (X, τ) , where $X = \{a, b, c\}$ and

$$\tau = \{0, 1, \eta = \frac{0.9}{a} + \frac{0.2}{b} + \frac{1}{c}, \nu = \frac{0.9}{a} + \frac{0}{b} + \frac{0}{c}\}.$$

Fuzzy closed sets in X are



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ANALYSIS OF $M^X/G/1$ QUEUE WITH STATE DEPENDENT ARRIVAL, FEEDBACK AND VACATION

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Abstract: This paper investigates on batch arrival queuing system with feedback and vacation. If the server is idle upon the arrival, then one of the customers in the arriving batch receives service immediately and the rest joins the queue. On the other hand, if the server is found to be busy or on vacation, then all the customers in the batch joins the queue and waits for service until the busy server becomes free. If the customer is satisfied with the service provided, then he may depart the system otherwise he is allowed to join the tail of the queue as a feedback customer. After completion of service, the server takes a compulsory vacation of random length. The Steady state distributions of the server state are deduced and the mean number of customers in the system and mean number of customers in the queue are obtained.

Keywords: Batch arrival, state dependent, feedback and compulsory vacation.

I INTRODUCTION

The service rendered by a single server queuing system has been founds to be useful to analyse many practical situations arising in packet transmissions of communication networks, multimedia communication, central processors etc., and the first use of the term "queuing system" occurred in 1951 in the Journal of the Royal Statistical Society, when D.C.Kendall [1] published his article on "Some Problems in the Theory of Queues" A comprehensive review of vacation queuing models, method and applications can e found in the survey of Doshi [2] and the text book of Tian and Zhang [3]. A short survey by Jain and Upadhyaya [4] analyzed the recent developments in the field. For an M/G/1 queue with Bernoulli feedback. Thangaraj and Vanitha [8], Choi and Tae-Sung [5], Borthakur and Choudhurya [6] derived on a batch arrival Poisson queue with generalized vacation. Saravananarajan and Chandrasekaran [7] analyzed on batch arrival queuing system with state dependent arrival, feedback and vacation. It is quite evident that batch arrival queuing systems have real life application. As we finds there is no model that combines batch arrival queue with state dependent analysis, feedback and vacation.

This paper is organized as follows. In Section II, we give a brief description of the mathematical model. Section III with the governing equations of the model. Derivation of the Steady state probability generating function has been done in Section V. Some performance measures of this model are derived in Section VI. Finally in Section VII, mean queue size and mean system size is presented.

II MATHEMATICAL DESCRIPTION OF THE MODEL

Arrival: Assume that batch of customers arrive at the system according to a compound Poisson process with state dependent rates $\lambda_1, \lambda_2, \lambda_3$ (i.e., in arrival state, busy state, vacation state). At every arrival epoch, a batch of k customers arrive at the system with probability $C_k, k=1,2,\dots$. Let $C(z) = \sum_{k=1}^{\infty} C_k z^k$, be the generating function of the batch size distribution with first two moments m_1 and m_2 . The server will provide service on FCFS discipline.

Service: The server provides service to the customers one by one in the batch. If the arriving batch of customers finds the server is free, one of the arrivals receives service immediately and the rest joins the queue. Otherwise,

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A NEW CLASS OF DELTA FUZZY GENERALIZED β -CLOSED SETS IN FUZZY TOPOLOGICAL SPACES

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Abstract: The aim of this paper is to introduce a new class of sets called fuzzy delta generalized β -closed sets and a new class of functions called fuzzy delta generalized β -continuous functions in fuzzy topological spaces. Some of their properties and characterizations are studied.

Indexterms: Fuzzy β -closed sets, $f\delta g\beta$ -closed sets, $f\delta g\beta$ -continuous, $f\delta g\beta$ -irresolute.

I INTRODUCTION

Among various fuzzy generalized open sets, the notion of fuzzy β -open sets introduced by abd El-Monsef et al. [1] which is equivalent to the notion of semi-preopen sets due to Andrijevic, plays a significant role in General Fuzzy Topology and Real Analysis. Many results have been obtained by using the concept of fuzzy β -closed sets. Dontchev [6] introduced and established the concept of fuzzy generalized semi-preclosed sets as a fuzzy generalization of semi-preclosed sets which is equivalent to the notion of fuzzy generalized β -closed sets due to Tahiliani. In this paper, the concepts of $f\delta g\beta$ -closed sets, $f\delta g\beta$ -continuous, $f\delta g\beta$ -irresolute and fuzzy pre $f\delta g\beta$ -continuous functions are introduced and studied their properties and characterizations.

Throughout this paper, (X, τ) , (Y, σ) and (Z, η) (or simply X , Y and Z) represent fuzzy topological spaces (or simply spaces) on which no separation axioms are assumed unless explicitly stated.

PRELIMINARIES

Let us recall the following definitions which are useful in the sequel:

1.1 Definition

A fuzzy subset A of fuzzy topological spaces X is called a

- Fuzzy β -closed sets [2] (or fuzzy semi-preclosed[7]) if $\text{int}(cl(\text{int}(A))) \leq A$.
- Fuzzy pre-closed [11] if $cl(\text{int}(A)) \leq A$.
- Fuzzy b -closed [5] if $cl(\text{int}(A)) \wedge \text{int}(cl(A)) \leq A$.
- Fuzzy regular-closed [10] if $A = cl(\text{int}(A))$.
- Fuzzy α -closed [10] if $cl(\text{int}(cl(A))) \leq A$.
- Fuzzy semi-closed [11] if $\text{int}(cl(A)) \leq A$.
- Fuzzy δ -closed [10] if $A = cl_{\delta}(A)$
where $cl_{\delta}(A) = \{x \in X : \text{int}(cl(U)) \wedge A \neq \phi, U \in \tau \text{ and } x \in U\}$

1.2 Definition

A fuzzy subset A of fuzzy topological spaces X is called,

- Fuzzy generalized β -closed (briefly, $g\beta$ -closed) [3] if $\beta cl(A) \leq G$ whenever $A \leq G$ and G is open in X .
 - Fuzzy δ generalized b -closed (briefly, $g\beta b$ -closed) [7] if $\beta cl(A) \leq G$ whenever $A \leq G$ and G is open in X .
 - Fuzzy generalized pre regular closed (briefly, gpr -closed) [9] if $pcl(A) \leq G$ whenever $A \leq G$ and G is regular open in X .
 - Fuzzy generalized δ -semiclosed (briefly, $g\delta s$ -closed) [7] if $scl(A) \leq G$ whenever $A \leq G$ and G is δ -open in X .
 - $f g \delta$ -closed [3] if $cl(A) \leq U$ whenever $A \leq G$ and G is δ -open in X .
 - $f g \delta^*$ -closed [3] if $cl_{\delta}(A) \leq G$ whenever $A \leq G$ and G is δ -open in X .
 - Fuzzy regular generalized b -closed (briefly, rgb -closed) [8] if $bcl(A) \leq G$ whenever $A \leq G$ and G is regular open in X .
 - Fuzzy generalized b -closed (briefly, gb -closed) [5] if $bcl(A) \leq G$ whenever $A \leq G$ and G is open in X .
- The complements of the above mentioned closed sets are their respective open sets.

1.3 Definition

A function $f: X \rightarrow Y$ from a topological space Y is called a

- Fuzzy β -continuous [1] (resp, β -irresolute, δ -continuous and δ -open) if for every β - $g\beta$ -continuous (if $f^{-1}(G)$ is β -closed (resp, β -closed, β -closed, $g\beta$ -closed and $g\beta$ -closed) set G of Y .
- Fuzzy pre β -closed (resp, pre β -open, δ -closed and δ -open) if for every δ -closed (resp, β -open, δ -closed and δ -open) subset A of X , $f(A)$ is β -closed (resp, β -open, δ -closed and δ -open) in Y .

1.4 Definition

A fuzzy topological space X is said to be a

- Extremely disconnected if the closure of every open set of X is open in X .
- Submaximal if every dense set of X is open in X .

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A Hyperbolic PDE-ODE System with Delay-Robust Stabilization

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ABSTRACT

This paper is concerned with a new development of a delay-robust stabilizing feedback control law for linear ordinary differential equation coupled with two linear first order hyperbolic equations in the actuation path. A second change of variables that reduces the stabilization problem of the PDE-ODE system to that of a time-delay system for which a forecaster can be constructed. Hence, by choosing the pole placement on the ODE when constructing the forecaster, enabling a trade-off between convergence rate and delay-robustness. The proposed feedback law is finally proved to be robust to small delays in the actuation.

Keyword: Hyperbolic partial differential equation, Time-delay systems, Stabilization.

INTRODUCTION

In this paper we develop a linear feedback control law that achieves delay-robust stabilization of a system of two hetero directional first-order hyperbolic Partial Differential Equations (PDEs) coupled through the boundary to an Ordinary Differential Equation (ODE). It has been observed, that for many feedback systems, the introduction of arbitrarily small time-delays in the loop may cause instability under linear state feedback. In particular, for coupled linear hyperbolic systems, recent contributions have highlighted the necessity of a change of paradigm in order to achieve delay-robust stabilization. The main contribution of this paper is to provide a new design for a state-feedback law for a PDE-ODE system that ensures the delay-robust stabilization. The original system can then be rewritten as a distributed delay equation for which it is possible to derive a stabilizing control law.

Problem Formulation

In this section we detail the notations used through this paper. For any integer $p > 0$, $\|\cdot\|_{\mathbb{R}^p}$ is the classical euclidean norm on \mathbb{R}^p . We denote by $L^1([0,1], \mathbb{R})$, or $L^1([0,1])$ if no confusion arises, the space of real-valued functions defined on $[0,1]$ whose absolute value is integrable. This space is equipped with the standard L^1 norm, that is, for any $f \in L^1([0,1])$

$$\|f\|_{L^1} = \int_0^1 |f(x)| dx.$$

We denote $L^2([0,1], \mathbb{R})$ the space of real-valued square-integrable functions defined on $[0,1]$ with the standard L^2 norm, i.e., for any $f \in L^2([0,1], \mathbb{R})$

$$\|f\|_{L^2}^2 = \int_0^1 f^2(x) dx.$$

The set $L^\infty([0,1], \mathbb{R})$ denotes the space of bounded real-valued functions defined on $[0,1]$ with the standard L^∞ norm, i.e., for any $f \in L^\infty([0,1], \mathbb{R})$

$$\|f\|_{L^\infty} = \sup_{x \in [0,1]} |f(x)|.$$

In the following, for $(u, v, X) \in (L^2([0,1]))^2 \times \mathbb{R}^p$, we define the norm $\|(u, v, X)\| = \|u\|_{L^2} + \|v\|_{L^2} + \|X\|_{\mathbb{R}^p}$.

The set $C^p([0,1])$ stands for the space of real valued functions defined on $[0,1]$ that are P times differentiable and whose P th derivative is continuous. The set τ is defined as

$$\tau = \{(x, \xi) \in [0,1]^2 \text{ s.t. } \xi \leq x\}$$



Application of Adaptive Filter in Neural Network

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ABSTRACT

The snag of common linear filtered-ε Adaptive Inverse Control (AIC) method is modify to hold with the characteristic of non-linear object with time delay and corresponding filtered ε-adaptive Algorithm based on Real-Time Recurrent Learning (RTRL) is presented to identify the parameters and design the controller. The simulation result on a non-linear ship model of “The R.O.V. Zeefakkel” and Adaptive PID control keeps the same dynamic response performance, and also mathematical model for ship Course keeping be discussed. A neural network adaptive filter is introduced for the removal of impulse noise in digital images.

Keyword: Filtered-ε Adaptive Inverse Control, Ship course keeping, impulse noise detection and removal.

INTRODUCTION

Adaptive Inverse Control (AIC) is novel approaches which can make a plant track the input command signal with a controller whose transfer function approximates the inverse of plant transfer function. Compared with traditional methods, AIC can achieve specified dynamic responses more easily and has better ability of disturbance rejection. Simulation comparison with previous scheme and adaptive PID control are performed on the non-linear ship maneuvering to test the effect of improved algorithm. The impulse noise detection and removal of impulse noise while preserving the integrity of an image expressed mathematically be discussed.

The Improved Filtered-ε Adaptive Inverse Control

The Single Input Single Output (SISO) discrete-time nonlinear system to be considered is described by n dimension state equations as below

$$\begin{cases} x(k+1) = f[x(k), u(k)], f(0,0) = 0 \\ y(k) = h[x(k)] \end{cases} \quad (1)$$

Where $f(\cdot)$ is a non-linear function, $u(k)$ and $y(k)$ respect output and input variables, respectively. The principles of inverse control can be extended to deal with non-linear system, through non-linear system has no strict inverse model. Whereas a linear system possesses a unique inverse, non-linear systems have only local inverses, valid in a bounded region of the signal space. The non-linear system is supposed to has Bounded-Input Bounded Output(BIBO) stability, i.e., there are existing constants C_1 and C_2 , and for the input $u(k) \in s_u, s_u = \{u: |u(k)| \leq C_1, \forall k \geq k_0\}$, the system output $y(k)$ satisfies: $|y(k)| \leq C_2$. If its linearized system is observable at balance point $x = 0$, the non-linear system described by (1) has local NARMA (Non-linear Auto-Regressive Average) model as follows

$$y(k+d) = F[y(k), \dots, y(k-n_y), u(k), \dots, u(k-n_u)] \quad (2)$$

Where n_u and n_y are the orders of input time series and output time series respectively: $n_u < n_y$, d is system delay which can ensure the existence of system inverse model, and $F(\cdot)$ is certain non-linear function. If $F(\cdot)$ is monotonic change with (k) , system (1) is invertible in the input spectrum S_u . If the input signal is $y_m(k+1)$ at time $(k+1)$, the controller can be expressed as $u(k) = g[y_m(k+1), y(k), \dots, y(k-n_y + 1), u(k-1), \dots, u(k-n_u + 1)]$ (3)

Function $F(\cdot)$ and $g(\cdot)$ are both unique. Under the drive of $u(k)$, the plant output will track the input signal of the inverse controller.

AFFINE CONTROL SYSTEMS ON NON-COMPACT LIE GROUP

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Keywords:

Affine algebra, automorphism non-compact Lie group, state space $Ef(1)$, automorphism orbit of $Ef(1)$, affine control system.

Abstract:

In this paper we deal with affine control systems on a non-compact Lie group $cx+e$ group. First we study topological properties of the state space $Ef(1)$ and the automorphism orbit of $Ef(1)$. Affine control system, non-compact Lie group state space $Ef(1)$. Affine control systems on the generalized Heisenberg Lie groups are studied. Affine algebra, automorphism.

Introduction:

The purpose of this paper affine control systems on some specific lie group is called $cx+e$ group by relating to associated bilinear parts.

Related to the affine control system on lie groups, in $Ef(1)$. The authors Ayala and San Martin have the subalgebra of the Lie algebra $Ef(G)$ generated by the vector fields of a linear control system the drift vector field X is an infinitesimal automorphism i.e., $(X_K)_{K \in M}$ is a one-parameter subgroup of $Aut(G)$; have lifted the system itself to a right-invariant control system on Lie group $Ef(1)$ for compact connected and non-compact semi-simple Lie group.

The affine control systems on a non-compact Lie group $cx+e$ group have been investigated and given characterization.

1. Affine Control Systems On Lie Groups

If G is a connected Lie group with Lie algebra $L(G)$, the affine group $Ef(G)$ of G is the semi-direct product of $Aut(G)$ with G itself i.e., $Ef(G) = Aut(G) \times G$. The group operation of $Ef(G)$.

The identity element of $Aut(G)$ and e denotes the neutral element of G , then the group identity of $Ef(G)$ is $(1, a)$ and $(\Phi^{-1}, \Phi^{-1}(h^{-1}))$ In the invers of $(\Phi, h) \in Ef(G)$. Hence, $h \rightarrow (1, h)$ and $\Phi \rightarrow (\Phi, a)$ embed G into $Ef(G)$ and $Aut(G)$ into $Af(G)$ respectively. Therefore, G and $Aut(G)$ are subgroups of $Ef(G)$. The natural transitive action

$$Ef(G) \times G \rightarrow G$$

$$(\Phi, h_1).h_2 \rightarrow h_1\Phi(h_2)$$

Odd – Order Nonlinear Neutral Functional Differential Equations of H^*

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Abstract— In this present paper we exhibit some less amount of similar theorems and the for the odd – order nonlinear neutral functional differential equation of H^* oscillation.

$$[x(t) + p(t)x(T(t))]^{(n)} + l(t)x(\mu(t)) + m(t)x(\tau(t)) + n(t)x(\psi(t)) = 0 \quad (H^*)$$

Where $0 \leq p(t) \leq p_0 < \infty$.

Key words: Odd- Order Neutral Differential Equation of H^* , First Order Differential Inequality, Odd Nonlinear Neutral Functional Differential Equation of H^* Oscillation

I. INTRODUCTION

This article is primarily deals with the asymptotic and odd nonlinear neutral functional differential equation of H^* oscillation

$$[x(t) + p(t)x(T(t))]^{(n)} + l(t)x(\mu(t)) + m(t)x(\tau(t)) + n(t)x(\varphi(t)) = 0$$

Where $n \geq 3$ is an odd integer $p(t), l(t), m(t), n(t), T(t), \mu(t), \tau(t), \psi(t) \in C([t_0, \infty))$ and

$$(H_1^*) l(t) > 0, m(t) \geq 0, n(t) \geq 0, 0 \leq p(t) \leq p_0 < \infty;$$

$$(H_2^*) \lim_{t \rightarrow \infty} \mu(t) = \lim_{t \rightarrow \infty} \tau(t) = \lim_{t \rightarrow \infty} \psi(t) = \infty;$$

$$(H_3^*) T(t) = a + bt, \text{ with } b > 0.$$

Then

$$T(t) \in C'([t_0, \infty)), T(t) \leq t,$$

$$T'(t) = T_0 > 0,$$

$$T \circ \mu = \mu \circ T, T \circ \tau = \tau \circ T,$$

$$T \circ \psi = \psi \circ T;$$

We fixed $\omega(t) = [x(t) + p(t)x(T(t))]$ then we define a function $x(t) \in C([T_x, \infty))$, $T_x \geq t_0$ which has the property $\omega(t) \in C^n([T_x, \infty))$ and satisfies (H^*) on $[T_x, \infty)$. we mentioned only those solutions $\omega(t)$ of (H^*) which deals with $\{[x(t)]: t \geq T\} > 0$ for all $T \geq T_x$. The equation (H^*) is said to be oscillatory. Its solutions are oscillatory or asymptotically convergent to zero. The differential equations have a major results in population models, movement of electricity, modelling chemical reactions, to find optimum investment strategies.

Then there is a prevailing sufficient conditions for the oscillation of the solution of different kinds of odd order differential equations;

They researched the H^* oscillatory behavior of the odd – order neutral differential equations.

$[x(t) + p(t)x(T(t))]^{(n)} + l(t)x(\mu(t)) = 0$ and exhibited some standard oscillation results for the case when $0 \leq p(t) \leq p_0 < \infty; T'(t) > T_0$ and $T \circ \mu = \mu \circ T$.

To the finest of our principle the search of oscillatory behavior of odd – order neutral differential equations has not enough.

In this paper we try to accept the some of new oscillation results for H^* . To exhibit our response we utilise the upcoming definitions and remarks.

A. Definition .1

Consider the sets

$$\mathbb{R}_0 = \{(u, v): u > v > u_0\} \text{ and}$$

$$\mathcal{R} = \{(u, v): u \geq v \geq t_0\}.$$

Assume $H^* \in C(\mathcal{R}, \mathcal{D})$ satisfies the following assumptions:

(A₁) $H^*(u, u) = 0, u \geq u_0; H^*(u, v) > 0, (u, v) \in \mathbb{R}_0;$

(A₂) H^* has a negative (include zero) continuous partial derivative with respect to the second variable in \mathbb{R}_0 .

Then the function H^* has the property P.

B. Definition .2

Let X be a convex set in a real vector space and let $f: X \rightarrow \mathbb{R}$ be a function. Then f is called convex, if $\forall x_1, x_2 \in X, \forall t \in [0, 1]$

$$f(tx_1, tx_2) \leq tf(x_1) + tf(x_2).$$

C. Lemma .3

Assume that $\gamma \geq 1, i, j, k \in \mathbb{R}$. If $i \geq 0, j \geq 0$ and $k \geq 0$, then

$$i^\gamma + j^\gamma + k^\gamma \geq \frac{1}{3^{\gamma-1}}(i + j + k)^\gamma \quad (1)$$

1) Proof:

1) Suppose $i = 0$ or $j = 0$ or $k = 0$ then we have (1)

2) Suppose that $i > 0, j > 0$

and $k > 0$. Define the function f , by $f(x) = (x)^\gamma, x \in (0, \infty)$, then $f'(x) = \gamma(x)^{\gamma-1}$

$f''(x) = \gamma(\gamma - 1)x^{\gamma-2} \geq 0$ for all $x > 0$.

Thus by the definition of convex function

$$f\left(\frac{i + j + k}{3}\right) \leq \frac{f(i) + f(j) + f(k)}{3}$$

That is,

$$i^\gamma + j^\gamma + k^\gamma \geq \frac{1}{3^{\gamma-1}}(i + j + k)^\gamma.$$

II. MAIN RESULTS

For our deliberate references, let us denote

$$L(t) = \min\{l(t), l(T(t))\}$$

$$M(t) = \min\{m(t), m(T(t))\}$$

$$N(t) = \min\{n(t), n(T(t))\} \quad (2)$$

A. Theorem 2.1

Assume that

$$\int_{t_0}^{\infty} [L(t) + M(t) + N(t)] dt = \infty \quad (3)$$

Then by assuming first order neutral differential inequality

$$\left[y(t) + \frac{p_0}{\lambda} y(T(t)) \right]' + \frac{\beta}{(n-1)}$$

$$|L(t)\mu^{n-1}(t)y(\mu(t))M(t)\tau^{n-1}(t)y(\tau(t)) +$$

$$N(t)\psi^{n-1}y(\psi(t))| \leq 0 \quad (H_4^*)$$

Has negative solution for some

$\beta \in (0, 1)$. Then, H^* is oscillatory.

STABILITY ANALYSIS
 FOR RECURRENT NEURAL NETWORKS WITH TIME-VARYING DELAYS

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ABSTRACT

In this paper global asymptotic stability analysis of static recurrent neural networks with time-varying delay is studied by the LMI approach. Firstly, a novel Lyapunov functional is introduced, which involves the integral terms of the neuron state. Furthermore, a new technique is applied when estimating the upper bound of the derivative of the Lyapunov functional. Based on this, some less conservative criteria are obtained for the concerned static neural networks. Throughout this paper, R^n and $R^{n \times n}$ denote the n -dimension Euclidean space and set of all $n \times n$ real matrices, respectively. A real symmetric matrix $P > 0$ (≥ 0) denotes P being a positive definite matrix. I is used to denote an identity matrix with proper dimensions. Matrices, if not explicitly stated, are assumed to have compatible dimensions. The symmetric term in a symmetric matrix are denoted by $*$.

Keywords: Stability Analysis, Recurrent Neural Networks, Time-Varying Delays.

AMS CODE: 03C45, 92B20.

INTRODUCTION:

In the past few decades, recurrent neural networks (RNNs) have found many successful applications in signal processing, image processing, pattern classification, realizing associative memories, solving certain optimization problems and so on. Because the integration and communication delays are unavoidably encountered in RNNs, often constituting a source of instability and oscillations, considerable attention has been focused on the stability problem of neural networks with time delays. The stabilities can be classified into two types: delay-independent stability and delay dependent stability. Since delay-dependent criteria make use of information on the size of delay, they are generally less conservative than delay-independent ones especially when the delay is small in size.

Neural networks can be classified as static neural networks or local field neural networks. Nowadays, many results have been obtained for the local field neural networks. For example, several criteria are proposed to deal with the exponential stability analysis. The linear matrix inequality (LMI) technique is developed to derive the criteria, which can guarantee the globally asymptotic stability of the static neural networks with time-varying delays. Less conservative results have been established based on a Lyapunov functional. However, there is some conservatism in these analysis results, and it is necessary to make further investigation into static neural networks.

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Structure, Spectroscopic Measurement of 4-(Diethoxymethyl) benzaldehyde

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ABSTRACT

The structural of 4-(Diethoxymethyl)benzaldehyde (DTMB) are determined by B3LYP method with 6-311++G** basis set. The fundamental vibrations are analyzed with the help of FT-IR (4000-400 cm⁻¹) and FT-Raman (3500-100 cm⁻¹) spectra. The theoretically calculated vibrational frequencies are compared with experimental FT-IR and FT-Raman frequencies. The ¹H and ¹³C NMR spectra have been analyzed and compared with theoretical ¹H and ¹³C NMR chemical shifts calculated by gauge independent atomic orbital (GIAO) method.

Keywords: DTMB, NMR, B3LYP

I. INTRODUCTION

Benzaldehyde does not possess α -hydrogen, therefore, benzaldehyde cannot form enolate (enol) reaction intermediates. This precludes intermolecular aldol condensation reactions. The electronic character of phenyl ring is perfectly suited for the benzoin condensation. Electron donating substituents on the phenyl ring inhibit benzoin condensation because the carbanion intermediate is destabilized. Conversely, electron withdrawing groups on the phenyl ring stabilize the analogous carbanion and subsequent nucleophilic addition reaction will not occur.

Benzaldehyde is the simplest aromatic aldehyde and the substitution of a functional group in benzaldehyde changes the spectra markedly. The vibrational spectra of benzaldehyde and its derivatives have been extensively investigated by many earlier researchers [1, 2]. In the present study 4-(Diethoxymethyl)benzaldehyde have been discussed.

II. EXPERIMENTAL DETAILS

The compound under investigation namely 4-(Diethoxymethyl)benzaldehyde (DTMB) is purchased from Sigma-Aldrich chemicals, U.S.A with spectroscopic grade and it was used as such without any further purification. The band width on half height is 3.0 nm. ¹³C (100 MHz: CDCl₃) and ¹H (400 MHz: CDCl₃)

nuclear magnetic resonance (NMR) spectra were recorded on a Bruker HC 400 instrument. Chemical shifts for protons are reported in parts per million scales (δ scale) downfield from tetramethylsilane (TMS).

III. COMPUTATIONAL DETAILS

Quantum chemical calculations (QCC) were carried out for DTMB with Gaussian 09W program package [3] using the Becke's three-parameter (B3) hybrid functional with Lee-Yang-Parr (LYP) correlation functional [4, 5] with the standard 6-311++G** basis set. We have scaled the numbers with standard scaling factor 0.965.

The Raman activities (S_i) calculated by the Gaussian 09W program was converted to relative Raman intensities (I_i) using the following relationship derived from the intensity theory of Raman scattering [6, 7].

$$I_i = \frac{f(\nu_0 - \nu_i)^4 S_i}{\nu_i [1 - \exp(-hc\nu_i / KT)]} \quad (1)$$

where ν_0 is the laser exciting wavenumber in cm⁻¹ (in this work, we have used the excitation wavenumber $\nu_0 = 9398.5$ cm⁻¹, which corresponds to the wavelength of 1064 nm of a Nd:YAG laser), ν_i is the vibrational wavenumber of the i^{th} normal mode (cm⁻¹), while S_i is the Raman scattering activity of the normal mode ν_i , f is a constant equal to 10^{-12} is a suitably chosen common



Synthesis, Optical and Morphological Studies of ZnO Nanoparticles Capped with PVP as a Surfactant

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Abstract

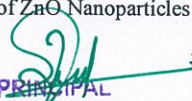
ZnO nanoparticles have been successfully synthesized by a chemical precipitation method using non-ionic surfactants such as PVP in aqueous medium. The particles were prepared in air atmosphere at 80°C. X-ray Diffraction (XRD), Scanning electron microscope (SEM), Fourier transform infrared spectrometer (FT-IR), UV-visible and photoluminescence (PL) studies were used to investigate the effect of capping agent on the size, morphology and optical properties of the ZnO nanoparticles.

Keywords: ZnO nanoparticles; PVP; Optical; Morphological

Introduction

ZnO is a semiconducting material which has a wide band gap of 3.27 eV in bulk. This makes it a very useful material for nano electronics and photonics applications. Its high exciton binding energy of 60 meV, breakdown strength and its multifunctional (piezoelectric, ferroelectric and ferromagnetic) properties make this material more advantageous over other materials for electronic applications [1,2]. Compared to common semiconductor materials such as Si, GaAs and CdS, ZnO is much more resistant to radiation damage. ZnO finds a lot of applications in UV-emitting diodes, cathode-ray phosphors, transparent conductors, varistors, chemical sensors, UV-protection films and ultrafast nonlinear optical devices [1]. Due to their enhanced optical and electrical properties, polymer capped nanoparticle composites are studied extensively. Polymers can interact with metal ions by complex or ion pair formation and can be designed to certain physical properties of semiconductor nanoparticles. This makes it a good choice for stabilizers [3]. The polymeric PVP capping molecule, when added to the reaction mixture, simply attach to surface of growing particles, preventing further growth of the particles, either by electrostatic or steric repulsion. For the role of PVP, the surface regulating polymer is believed to play a key role in preventing the flocculation of particles, controlling the particle size and its morphology [4,5]. PVP, which contains nitrogen

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Pollination, Pollen Biology, Stigma Receptivity, Seed Dormancy Breaking Treatments on Hibiscus Rosa- Sinensis L.

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Abstract: Normally the Pollination and natural product set is exceptionally uncommon in *Hibiscus rosa-sinensis* L. The investigation was centered around fake cross hand Pollination on four varieties of *Hibiscus rosa-sinensis* L. For the present examination Therkkumedu town, Salem area was picked. The investigation started from November 2017 to June 2018. Common Pollination of *Hibiscus rosa-sinensis* L. come about 0% natural product set, on the grounds that there were no pollinators or creepy crawly guests. In controlled Pollination medicines one sort of Pollination were analyzed. The fake cross hand - Pollination came about 100% on one assortment of *Hibiscus rosa-sinensis* L. since some quality groupings explanation behind Pollination actuating. Pollen science, shame receptivity, structure of ovule, seed lethargy breaking medicines were inspected. High rate Pollen feasibility, high level of shame receptivity, germination of Pollen tubes were analyzed in that specific natural product shaping assortment of *Hibiscus rosa-sinensis* L.

Key word: Pollination, Cross hand-pollination, *Hibiscus rosa-sinensis* L. , Pollen biology, Stigma receptivity, Seed dormancy breaking treatments.

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I. Introduction

Fundamental piece of the Polination is a Flower. *Hibiscus Rosa-Sinensis* an outstanding individual from the family Malvaceae, *Hibiscus rosa-sinensis* develops as an evergreen herbaceous plant. A local to tropical and sub-tropical areas, this plant is broadly developed as an elaborate plant. It bears substantial blooms on the rugged supports. These tremendous blossoms are typically dull red in shading and are not normally fragrant. Force, appealing foliage, solid root framework, life span, simple to keep up, great blossoming attributes, and so on are a portion of the qualities which are should have been remembered while cross reproducing the hibiscus plant. Today, different new assortments have been developed and created through cross rearing. These new assortments bear all the mixed attributes and are expanding in prominence also. Distinctive cultivars and half breeds have been created and created with blossoms extending in hues and different highlights. Unmistakable hues that have been advanced in the ongoing past are white, yellow, orange, red and distinctive shades of pink. Some portion of the Flower: Pedicellate, bisexual, substantial, flashy, pentamerous, actinomorphic, finish, hypogynous. Epicalyx: 5-7 bracteoles constitute epicalyx beneath calyx. Calyx: Five sepals, gamosepalous, green, sub-par, valvate aestivation. Corolla: Five petals, polypetalous, somewhat joined underneath, adnate to the stamina tube, mediocre contorted aestivation. Androecium: Stamens uncertain, monadelphous, stamens from a stamina tube round the style, epipetalous, anthers monothealous, reniform, basifixed. Gynoecium: Five carpels (pentacarpellay), syncarpous ovary unrivaled, pentalocular, axile placentation, style long and goes through the stamina tube finishing in five unmistakable adjusted marks of disgrace.

Pollination is the consequence of Pollen being exchanged from the anther (male part) to the Stigma (female part) of another blossom. In spite of the fact that this can occur by abiotic implies (by means of transport in water or by wind) the lion's share happens through transport on the groups of blossom going by creatures. A wide assortment of life forms can go about as pollinators including winged animals, bats, different warm blooded creatures and creepy crawlies (Willmer 2011). For this examination Malvaceae family were chosen.

The family Malvaceae is in the real gathering Angiosperms (blossoming plants). The family malvaceae also called Mallow or cotton family. This family comprises of around 243 genera and no less than 4,225 types of herbs, bushes, and trees. The individuals from this family are cosmopolitan in their appropriation. They are uncommonly found in tropical locales of the world. A few types of this family have been accounted for from our nation *H. rosasinensis* is a vast decorative bush with lovely red blooms. Various species are financially critical, including cotton (different *Gossypium* species), cacao (*Theobromacacao*), linden (*Tilia* species), durian (*Durio* species), *Hibiscus*, and okra (*Abelmoschusculentus*) (Paul E. Berry).



LEAF TRAIT ANALYSIS OF FIVE ENDANGERED PLANT SPECIES OF WESTERN GHATS

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ABSTRACT

Recent studies have revealed variation of leaf traits across various plant life-forms on a global scale. This study aims to analyze and compare the leaf-trait strategies of selected RET (Rare Endangered and Threatened) plant species of Western Ghats. The present study was carried out in an experimental plot established in KFRI Nilambur, a tropical moist deciduous site on the Nilgiri biosphere of India. We selected five RET plant species to analyze and compare their leaf-trait strategies. For each species, we collected 30 healthy leaves from at least five individuals. The collected leaf samples were analyzed for various leaf functional traits using standard protocol. Leaf area was analyzed using Image J (IJ) software. Leaf thickness was measured using digital screw-gauze. The study also checks whether these five species differ in their anatomical traits. Cluster analysis was made among them to check for relationship between different leaf traits.

KEYWORDS: Anatomical traits, leaf-lamina area, leaf nitrogen, leaf thickness, leaf tissue density, specific leaf area.

INTRODUCTION

Plant functional traits are robust indicators of how plant species survive and establish in constraints of their biotic and abiotic environment using physiological, morphological and phenological adaptations (Gallagher *et al.*, 2012). Globally, there is growing consensus that functional traits can provide greater insight into the diverse ecological and life-history strategies among plant species (Grime, 1977; Diaz and Cabido, 2001; Westoby and Wright, 2006; Lavorel and Grigulis, 2012) with the recognition that there are inevitable trade-offs in strategies associated with particular suits of traits (Bloom *et al.*, 1985; Grime *et al.*, 1997; Reich *et al.*, 1997; Diaz *et al.*, 2004). Therefore, as a result, plant functional traits are being largely used rather than their taxonomic identity for understanding diversity and dynamics of vegetation world-wide (Westoby and Wright, 2006; Kattege *et al.*, 2011).

In the present study anatomical, morphological and biochemical trait of five RET (Rare Endangered and Threatened) plant species *Garcinia morella* (Gaertn.) Desr., *Kingiodendron pinnatum* (DC) Harms. *Syzygium stocksii* (Duthie) Gamble, *Knema attenuate* Warb. and *Aglaia barberi* Gamble were studied. By doing the micrometry of sections of leaf, petiole and trichomes, a comparative analysis and taxonomic importance of the selected plants were determined.

Objective

1. To assess the morphological and anatomical properties of the endemic plant species.
2. In this study, we will discuss the adaptive value of some morphological and anatomical traits in the various organs of endemic plants growing under the changing climatic conditions.
3. To analyse whether multiple species coexist with diverse leaf trait strategies within Western Ghats.
4. To study the characterisation of plant functional traits within the Western Ghats, which is vital for our understanding of key ecological processes.
5. To explore whether plants of Western Ghats exhibit similarities or dissimilarities in their traits.

MATERIALS AND METHODS

Study area

The data for this study were collected from KFRI (Kerala Forest Research Institute) sub centre Nilambur. The Kerala Forest Research Institute Sub Centre (KFRI Sub Centre) is situated in the fringe area of the Nilgiri Biosphere Reserve (76° 15' 28" E longitude and 11° 18' 14" N latitude).

30 healthy leaves were collected from four individuals of the selected RET plant species such as *Garcinia morella* (Gaertn.) Desr., *Kingiodendron pinnatum* (DC) Harms, *Syzygium stocksii* (Duthie) Gamble, *Knema attenuate*

Home Remedy For Veterinary Health Care – A Field Survey In Dharmapuri District

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Abstract: The main aim of the present investigation is to evaluate the medicinal plants used for various diseases in Dharmapuri district. Based on the abundance of plant diversity, we have selected the Dharmapuri district. Totally we have visited 7 villages around the district and evaluate the medicinal plants through direct interview with traditional medicinal practitioners. In this study we have screened 104 medicinal plants belong to 41 families used for 42 disease, also we have recorded the medicine preparation particularly the plant parts used for the treatment in this present investigation we have evaluated more number of medicinal plants are available among the total plant bio diversity also Dharmapuri district found to be the comparatively best medicinal plants source for making healthy society.

Key words: Ethnoveterinary medicine, evolution, Livestock production.

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I. Introduction

WHO defines traditional medicine involved in diverse health practices, approaches. Knowledge and beliefs incorporating plant, animal, and mineral based medicines, manual techniques and exercises which can be used to maintain well-being, as well as to prevent number of ailments.

India is primarily an agricultural country with predominance of rural populations. Hence, the animals, particularly cattle, play a great role in economy and social welfare. Ancient literature like the Vedas, Puranas and Nighantus are replete with references to animal health care. There are Puranas like Ashwapuran, Garudpuran and Hastipuram devoted to animal husbandry. (Jain and Sumita Srivastava, 2003)

Despite recent efforts to promote the use of ethnoveterinary knowledge worldwide, very few information is only documented in field reports and scientific publications. Few practical manuals have been written to help animal healthcare workers, farmer leaders and farmers to actively train others in the use of effective and validated ethnoveterinary practices. This manual is intended to fill that void. Herbal medicine has long been recognized as one of the oldest forms of remedies used by humans.

Many people in developing countries still rely on traditional healing practices and medicinal plants for their daily healthcare needs, in spite of the advancement in modern medicine. There is abundant undocumented traditional knowledge of herbal remedies used to treat disease in most cultures. Different traditional healing practices worldwide are designed for either therapeutic or prophylactic use in human or animal diseases. (Alves *et al.*, 2010).

Medicinal plants, also called medicinal herbs, have been discovered and used in traditional medicine practices since prehistoric times. Plants are synthesis hundreds of chemical compounds for functions including defense against insects, fungi, diseases, and herbivore (mammals). Economic dependence on livestock, lack of veterinary infrastructure has forced the local farmers even today to apply their indigenous knowledge to look after maintain their livestock population. The interest in medicinal plants has been shown all over the world because

II. Aim And Objectives

This attempt was made on the survey of veterinary practices in certain villages of Dharmapuri district, Tamil Nadu. The study focuses the problems associated with livestock might be overcome by folk medicines derived from one or combination of several plants with the following objectives.

- To estimate the total number of villages in and around Dharmapuri district
- To estimate the Traditional knowledge of healers around the Dharmapuri district
- To Document the plant species used in veterinary practices
- To Document the veterinary drug preparation from traditional healers

Antimicrobial, Antioxidant Properties And Phytochemical Analysis Of *Opilia Amentaceae*

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Abstract: Plants produce thousands of specialized metabolites, many of which have medicinal uses. Over the next few years, the study of medicinal plants as antimicrobial agents should be focused on ascertaining specific information about the plant's antimicrobial activity. In the present investigation the phytochemical, antimicrobial and DPPH radical scavenging activities were screened by using two plants namely *Opilia amentaceae* and *Anogeissus latifolia*. Different solvent extracts were used in the phytochemical analysis to elucidate the tannins, Saponins, Flavonoids, Catachins and Sugars from these plants. Significantly Anthroquinones are present only in *Anogeissus latifolia*. Both of these plants inhibit the growth of *Escherichia coli* ATCC 25922, *Salmonella entericatyphimurium*, *Shigella dysenteriae*, *Klebseilla pneumoniae*. In DPPH assay maximum inhibition (70.800) was observed at 200 µg/ml concentration of *Anogeissus latifolia* and maximum percentage of inhibition (66.426) was observed at 500 µg/ml concentration of *Opilia amentaceae*.

Key words: *Anogeissus latifolia*, *Opilia amentaceae*, phytochemical, antimicrobial and DPPH.

Date of Submission: 06-10-2018

Date of acceptance: 21-10-2018

I. Introduction

A vast knowledge of medicinal plants usage against various diseases and illness may be expected and accumulated in the areas of traditional knowledge and ethno medicinal practice. Medicinal plants have been used for the treatment of a large number of human diseases in different parts of the world throughout the history of human kind. About 80% of rural population and communities of many developing countries were still dependent on traditional medicines both in health care and practice. (Palombo, 2006). Traditional healers pass the plant knowledge to their families or relatives orally or practically. Traditional knowledge is secured for future by showing the geographic habitation with vernacular/local names and with various methods drug preparations for a particular disease (Kokwaro, 2009). Around 20% of people in rural areas consult herbalists before seeking treatment in government clinics and hospitals. Traditional medicine is a major source of treatment for African patients (Dejong, 1991). The most important of these bioactive compounds of plants are alkaloids, flavanoids, tannins and phenolic compounds. Rural communities, in particular the tribal people depend on plant resources for herbal medicines, food, forage, construction of dwellings, making household implements, sleeping mats, and for fire and shade. The use of medicinal plants as traditional medicines is well known in rural areas of many developing countries.

Opilia amentaceae is a climbing shrub, also had tree like behavior. Leaves are ovate, tip pointed, leathery with leaf stalk to 8 mm. Flowers are born in racemes at leaf axils, 1-5 together, up to 3 cm long. *Fragratopilia* is found in Peninsular India through Srilanka to Tropical Australia and Africa.

Anogeissus latifolia is a small to medium sized tree, grows up to 20 m and closely related to the Button tree. The species name is *latifolia* with reference to its wider leaves. Leaves are oppositely arranged, simple, entire, with greyish-yellow or whitish hairs at nodes and internodes. Flowers are small and have part in fives with sepals are joined together to form a stalk like tube. There are no petals and the Fruit is a 2-winged Pseudoachene, packed into a dense head. In the Present study the antibacterial activity of *Opilia amentaceae* Roxb and *Anogeissus latifolia* were screened against human pathogens.

II. Materials And Methods

Collection of plant samples

The leaves of *Opilia amentaceae* Roxb and *Anogeissus latifolia* were collected in the month of January 2018 from Siriyakalvarayan hills of Eastern Ghats present in Villupuram district of Tamilnadu. Samples were shade dried and pulverised under the room temperature for 48 hrs.



ANTIBACTERIAL ACTIVITY OF *BRASSICA OLERACEA* L. VAR. *CAPITATA* F. *RUBRA*
NATURAL DYE

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ABSTRACT

Objective: The present study has been designed to evaluate the *in-vitro* antibacterial activities of the natural dye of *Brassica oleracea* L. var. *capitata* f. *rubra*. **Methods:** Bacterial strains were subjected to antibiotic sensitivity testing by Kirby–Bauer’s disc diffusion method. The antibacterial activity was calculated based on the zone of inhibition and activity index by using Muller–Hinton broth in a spread plate method. **Results:** The antibacterial analysis showed that the dye extract of *Brassica oleracea* L. var. *capitata* f. *rubra* inhibits growth of the bacteria. Natural dye of *Brassica oleracea* L. var. *capitata* f. *rubra* possessed highest antibacterial activity against *Staphylococcus aureus*. **Conclusions:** *Brassica oleracea* L. var. *capitata* f. *rubra* natural dye has the potential to be developed as antibacterial agents against some bacteria.

KEYWORDS: Antibacterial, activity index, *Brassica oleracea* L. var. *capitata* f. *rubra*, Kirby– Bauer’s disc diffusion method and *Staphylococcus aureus*.

INTRODUCTION

Dyeing is an art of imparting colour to fabrics, food stuff, paper, leather, cosmetics, etc. Dyes can be obtained from both natural and synthetic sources. Synthetic dyes impart vibrant colours which are widely used. But in the recent decades, there is an increasing interest towards the natural dyes due to the toxic and allergic reaction associated with synthetic dyes. Many European countries have banned the use of numerous synthetic dyes. Germany was the first to take initiative to ban on numerous specific azo-dyes for their manufacturing and applications. Netherlands, India and some other countries also followed the ban (Patel, 2011).^[1] A variety of harmonizing, gentle and soft natural colours can be obtained from different bio-sources. Plants are the major sources of these natural dyes. Natural dyes are considered as eco-friendly, non-toxic, medicinal properties and can be recycled after use which is very important for maintaining environmental balance. Most of the natural dyes are safe and many of them have medicinal properties. There has been a growing interest in the investigation of the natural products from plants for the discovery of new antibacterial agent. It has been reported that the higher plants have shown as a potential source for the new antibacterial agents (Lalitha *et al.*, 2011).^[2] Many of the dye yielding plants are classified as medicinal and some of them have antimicrobial effect.

Brassica oleracea L. var. *capitata* f. *Rubra* is a member of Brassicaceae family. It is a cool season cruciferous vegetable. *Brassica oleracea* L. var. *capitata* f. *rubra* is a type of cabbage, also well - known as red cabbage or purple cabbage and is widespread in the Mediterranean region. Red cabbage is a herbaceous, biennial, dicotyledonous flowering plant. The leaves of red cabbage are purple in colour and the pigment of Red cabbage has purple anthocyanin. These anthocyanins can be utilised as an excellent natural colorant and are dominant antioxidants that have anti-inflammatory properties which help to protect cells. So, the aim of this research work is to explore the antibacterial efficacy of natural dye of *Brassica oleracea* L. var. *capitata* f. *rubra*.

Materials and methods Preparation of Extraction

50g of fresh leaves of *Brassica oleracea* L. var. *capitata* f. *rubra* were weighed and cleaned with distilled water. They are cut into small pieces and grinded into paste with 100ml of distilled water. Then the mixture was stirred and filtered through Whatmann No.1 filter paper. The extract was concentrated with the help of rotary evaporator under few reduced pressure to yield semisolid mass which was dried in a desiccators and stored properly for further study.

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Sugar Mill Effluent Induced Changes in Growth and Yield of African Marigold (*Tagetes erecta* L.)

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Abstract: Sugar mills play a major role in creating environmental pollution. It releases a larger amount of wastewater as effluent into the nearby water bodies which create serious problem in the aquatic ecosystem. Due to water scarcity, the farmers are started to use these polluted water for agricultural irrigation. In the present study, the impact of different concentrations (10, 25, 50, 75 and 100%) of sugar mill effluent on growth and yield of African marigold (*Tagetes erecta* L.) was reported. The morphological growth parameters such as root length, shoot length, total leaf area, fresh weight and dry weight were recorded at 30, 60 and 90 DAS respectively. The yield parameters like number of flowers per plant, diameter of flower, fresh weight and dry weight of flower were recorded at harvest stage. The highest growth and yield was recorded in the plant irrigated with lower concentration (10%) of sugar mill effluent. These parameters were found to be gradually decreased with increase of effluent concentrations. From this study, it is suggested that the lower concentration (10%) of sugar mill effluent can be used for irrigation.

Keywords: Agriculture, Pollution, Sugar Mill Effluent, *Tagetes erecta* and Yield

1. Introduction

The sugar mill is one of the agro-based industries in India. It plays a major role in rural economy of our country. It works only for four to six months per year due to availability of sugarcane, an important raw material for sugar production. During the manufacture of sugar, a large amount of wastewater released into nearby water bodies. The effluent contains high Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), suspended solids and dissolved solids [1]. The higher amount of organic and inorganic compounds was reported to be present in the sugar mill effluent. It alters the physico-chemical properties of the receiving water bodies and adversely affects the aquatic flora and fauna [2], the soil and biological systems [3]. It has also rich plant nutrients which are very much essential for plant growth. The farmers are utilizing this wastewater to grow their agricultural crops [4]. If the farmers used this effluent continuously for irrigation, the soil properties of agricultural land determined by accumulating the heavy metals deposited in the soil [5]. The uptake of the heavy metal from polluted

soil might cause the reduction in plant growth and yield [6]. The effluent irrigation not only affects the yield of crop and also affects the health of the consumers [7].

Since the waste water irrigation affects the soil fertility, plant growth, yield and consumers. It is planned to cultivate the ornamental plants under effluent irrigation. The plant marigold was selected because their wild cultivation and economic importance. This practice not only reduces the pollution load and but also reduce the water scarcity for irrigation. Thus, the present research work was carried to find out the effect of different concentrations of sugar mill effluent on growth and yield of the African marigold.

2. Materials and Methods

2.1. Effluent Collection and Analyses

The effluent sample was collected in the plastic container from the outlet of the N.P.K.R. Ramaswamy Co-operative sugar mill in Thalainayar, Mayiladuthurai Taluk, Nagapattinam District, Tamil Nadu, India. The effluent was


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A STUDIES IN HYDROGRAPHY OF DRINKING WELL WATER OF METTUR BLOCK, SALEM DISTRICT, TAMIL NADU, INDIA

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ABSTRACT

The present study deals with studies in hydrography of drinking well water of Mettur block, Salem District, Tamil Nadu India. For the present study water samples from the well were collected at fifteen places in Mettur Block, Salem District, Tamil Nadu, India. Physico-chemical characteristics such as pH, electrical conductivity, total dissolved solids, total hardness, chloride, sulphate, total alkalinity, calcium, magnesium and dissolved carbon-di-oxide were analysed as per APHA, 1990. In the study the concentration of all the parameters in all samples were found within the permissible limits prescribed by WHO, ICMR and BIS standards. Regular estimation of the above mentioned parameters would be helpful to improve water quality. From the study done, it can be said that the well water in does not have the quality of a potable drinking water and can therefore constitute a health hazard to the population. Understanding the quality of water is important as that of its quality, since it is the main factor determining the suitability of water for drinking, agricultural, domestic and industrial purposes.

Keywords:

Physico-chemical Characteristics, APHA, BIS, Mettur, Drinking water.

Introduction

Water quality assessment is one of the prime concerns and a major challenge in all over the world. Seasonal variation study of water quality parameters provides information about the health of the water over a period of time. Water is vital to health and it influences in socioeconomic development of human being. Increasing population growth, agriculture advancement, urbanization as well as industrialization made water pollution a great problem and depleting the availability of potable water. Many parts of the world face such a scarcity of water related diseases are among the most common causes of illness and death, affecting mainly the poor in developing countries. The quality of water at any monitoring location reflects several major influences, including the anthropogenic inputs, atmospheric inputs, climatic condition, etc.

The majorities of the populations in developing countries is not adequately supplied with potable water and are there by compelled to use water from sources like shallow wells and boreholes that render the water unsafe for domestic and drinking purposes due to high possibilities of



PHYTOCHEMICAL SCREENING AND ANTIBACTERIAL ACTIVITY OF NATURAL DYE FROM *BETA VULGARIS* L.

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ABSTRACT

Betalain pigment of Beta vulgaris (L.) comprises an excellent natural dye. Beta vulgaris (L.) is good source of much health promoting and protective phytochemicals. The present study was conducted to assess the qualitative phytochemical analysis and in-vitro antibacterial activities of the Beta vulgaris natural dye. Methods: The Beta vulgaris (L.) natural dye was screened to determine the presence of alkaloids, carbohydrates, glycosides, phytosterols, tannins, phenolic compounds, flavonoids, terpenoids, saponins and quinones through preliminary phytochemical screening. And bacterial strains were subjected to antibiotic sensitivity testing by Kirby–Bauer’s disc diffusion method. The antibacterial activity was calculated based on the zone of inhibition and activity index using Muller–Hinton broth in a spread plate method. Results: The dye extract of Beta vulgaris (L.) revealed the presence of carbohydrates, glycosides, phytosterols, phenolic compounds, tannins, flavonoids, terpenoids, saponins and quinones. The antibacterial analysis showed that Beta vulgaris dye extract does not allow the growth of bacteria due to its antibacterial activity. Natural dye of Beta vulgaris (L.) possessed highest antibacterial activity against Staphylococcus aureus. Conclusions: Beta vulgaris natural dye has the potential to be developed as antibacterial agents against some bacteria due to the presence of active phytochemicals.

KEY WORDS

Activity index, Antibacterial, Beta vulgaris, Kirby–Bauer’s disc diffusion method and Phytochemical screening.

INTRODUCTION

In recent years, there has been an increasing tendency towards the natural dyes due to the increasing awareness of toxicity and serious health hazards of synthetic dyes. Unlike synthetic dyes, natural dyes are non-toxic, non-allergic, non-carcinogenic, non-poisonous, less polluting, easily available and produce soothing and soft shades as compared to synthetic dyes. Practically not or mild chemical reactions are involved in the production of natural dyes. Above all, they are environment-friendly and can recycle after use. Natural dyes are obtained from renewable and sustainable bio resource products. Plants are the major source of

natural dyes. Almost all parts of plants produce natural dyes.

Besides of its colouring property, several natural dyes possess bioactive properties and have been used as therapeutic agents and as diagnostic tools. Some natural dyes have been reported for analgesics, antibacterial, antifungal, antileprotic, antiviral and anti-inflammatory effects. Medicinal potential of the plants lies in bioactive phytochemical constituents such as alkaloids, flavonoids, essential oils, tannins, terpenoids, saponins, phenolic compounds, etc. and that produce definite physiological action on the human body. Some phytochemicals produced by the plants have antimicrobial activity and used for the development of



Research Article

EFFECTS OF ZINC SULPHATE ON THE BIOCHEMICAL CHANGES IN THE FISH *CYPRINUS CARPIO*

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ABSTRACT

The toxicity of the heavy metals are affects the morphometry as well as the biochemical constituents in the aquatic organisms. The present observation was aimed to assess the effect of heavy metals on tissue of *Cyprinus carpio* and the fish was sampled from the fish farm of Tamil Nadu Fisheries Development Corporation Limited, Mettur, Tamil Nadu, India. The vital organs of fishes like gill, liver and kidney were found to be most affected organs due to the toxicity of the heavy metal accumulation like Zinc Sulphate, Copper, Mercury etc., in the present findings exhibits the graduate accumulation of Zinc sulphate in the muscle fiber and gill region predominantly. The severity of the heavy metal toxicity were depicted by the gradual decrement of glucose level in the gill and muscle region of the experimental animals and the toxicity level increased based on the duration of the exposure, concentration of the toxin, age of the fishes and sex of the experimental fishes.

Keywords: Zinc, Sulphate, Muscle, Sub-lethal concentration.

INTRODUCTION

Biochemical alter are altruistic imperative sign on the component of activity of metals on the cell. Metal may interact with cell film (Rothstein, 1971) and with intracellular organelles and Nucleus. The biochemical change is viewed as for the most part as a result of impedance of metals with catalyst framework which thus lead of useful change. Substantial metals include the most broadly disseminated gathering of very lethal and since quite a while ago held substances among the living creatures. Mercury, cadmium and lead are typically considered as the most unsafe toxicants. Zinc and Copper are utilized in horticultural works and known as fundamental components in creature and plants (Singh & Singh, 2005). The substantial metal complex development in amphibian and marine species is most unsafe, noxious to alternate creatures through the sustenance web or natural way of life and made a variety in the basic physiological and biochemical exercises in the creatures (Rothstein, 1971). Change in physiological and biochemical parameters of toxicant regarded angle has as of late developed as critical device for the water quality evaluation

of fish culture condition and the neurotic status of fish in the field of ecological toxicology (Radhaiah *et al.*, 1987). Radhakrishnan, (1991) detailed the sublethal impacts of substantial metals, for example, mercury, cadmium and lead on some physiological and biochemical parameters of *Channa striatus* and the helpfulness of these parameters in the water quality appraisal in the fish culture condition.

The poisonous impact of zinc and Cadmium identified with mortality, development, conceptive conduct and vertebral harm in phoxinus (Bengtsson *et al.*, 1975; Geetha *et al.*, 1996) watched the lethal impact of overwhelming metal copper on the fish *Lepidocehalichthys thermalis* in here and now introduction and reasoned that the protein content was most extreme in control fish and least in treated fishes. Subramaniyam *et al.* (2006) the lethality of divalent mercury on liver and muscle glycogen demonstrates consumption in its substance. Palanichamy & Baskaran, (1995) detailed the impact of substantial metals on chosen biochemical and physiological reactions of the fish *Channa striatus* and watched the protein content in muscle and liver diminished. Khan *et al.* (2001) considered the lethal impact of cadmium chloride in glycogen level of

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ASSEMBLAGE OF NEST SOIL BACTERIA AND EVALUATE THE ANTIBACTERIAL ACTIVITY OF CARPENTER ANT (*CAMPONOTUS COMPRESSUS*) MANDIBULAR EXTRACTS AGAINST SELECTIVE GRAM STAINING BACTERIA

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ABSTRACT

The present study was under taken to explore the assemblage of ant nest soil microbes and potential of mandibular gland extraction of carpenter ant *Camponotus compressus*. The microbial assemblages in nest soil from different habitats like Grasslands, Shola forest, Wattle plantation, Pine and Tea plantations were investigated. Among the isolated microbes from the nest soil bacteria, *Staphylococcus aureus* was robust in three sites of the study area. Disc diffusion method was used to evaluate the antimicrobial activity of mandibular gland extraction against two robust microbial strains like *S. aureus* and *Escherichia coli*. The result revealed that the maximum zone of inhibition was observed against the *S. aureus* in both 10 µl and 20 µl of the mandibular sample and the minimum in gram negative bacteria *Escherichia coli*. The presences of mandibular gland proved have good capability more than commercially available antimicrobial products to kill or inhibit the growth of microbes inside the nests.

Keywords: Antibacterial, Ant nest, *Camponotus compressus*, Mandibular gland, Mukurthi National Park.

INTRODUCTION

The ant nests are frequently accumulated by the stored food and waste materials, other organic debris by the foragers. This kind of nest alterations leads to determine the changes, size and activity of soil microbial assemblages inside the ant nests (Boulton & Amberman, 2006; Savin, *et al.*, 2004). Microbes play an important role in ant communities like mutualists, commensals or pathogens. Ants are able to stimulate a broad range of physiologically different groups of microorganisms (Dauber & Wolters, 2000; Jakubczyk *et al.*, 1972). This microbial-rich environment may lead to the risk of infections and disease transmissions in ants. In such pathogenic risk conditions, ants use their unique defense mechanism to cope with the diseases (Hughes, 2005; Poulsen *et al.*, 2002). According to (Wilson Rich *et al.*, 2008) the social insects have evolved a variety of adaptations to cope with the intense pathogenic pressures in

their environments. The secretions of metapleural and mandibular glands of ants contain antimicrobial substances that defend infections. Bot *et al.* (2002) and Poulsen *et al.* (2002) found many ants are secrete the metapleural gland, spreading them over the cuticle, while termites secrete antibiotics from the salivary glands and sternal gland.

The *Camponotus* ant genus the metapleural gland is clearly absent (Ayre & Blum, 1971; Holldobler & Engel Siegel, 1984) possibly making more susceptible to infection and disease transmission. However, orally associated mandibular glands and salivary glands are also known to produce the antimicrobial factors. The ant mandibular glands are a pair of thin-walled sacs filled with mixture of alcohol, aldehydes and ketones (Blum & Hermann, 1978). These volatile compounds also have sturdy effects on ant behavior. The mandibular gland secretions are the main source of nest mate recognition odor and modulators of

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DISTRIBUTION AND BIOACCUMULATION OF ²¹⁰Po AND ²¹⁰Pb IN ABIOTIC AND BIOTIC COMPONENTS OF THE BAY OF BENGAL

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Marine environment is enriched source of heavy minerals associated with radionuclides which are largely responsible for human exposure to radiation. Bay of Bengal is one among the important marine ecosystems in the world because of its high biodiversity. The aim of this work was to generate a comprehensive data on distribution and bioaccumulation of ²¹⁰Po and ²¹⁰Pb in marine environment of the Bay of Bengal. For this water and sand samples (10 stations), shellfishes (21 species) and fishes (43 species) were collected and the concentrations of ²¹⁰Po and ²¹⁰Pb were measured by radiochemical separation followed by alpha counting method using ZnS(Ag) detector. ²¹⁰Pb concentration in the marine water (mean: 7.6 ± 3.31 mBq l⁻¹) is always higher than ²¹⁰Po (mean: 4.1 ± 1.97 mBq l⁻¹). The mean ²¹⁰Po and ²¹⁰Pb concentration in sand was 5.2 ± 1.87 and 3.1 ± 1.20 Bq kg⁻¹, respectively; indicating that ²¹⁰Po concentrations in the sand sample is always higher than that of ²¹⁰Pb. The concentration of both ²¹⁰Po and ²¹⁰Pb depends on grain size of the sand. Surface samples of depth 0–10 cm recorded maximum ²¹⁰Po (6.37 Bq kg⁻¹) and ²¹⁰Pb (4.07 Bq kg⁻¹) concentration. The concentrations of ²¹⁰Po and ²¹⁰Pb in biota are following decreasing order: Oyster > Clam > Squid > Crab > Prawn > Fish. The committed effective dose rate calculated for shellfish species maintained a higher range of 81.0–281.2 μSv y⁻¹. However, dose transfer rate from fish species fluctuated from 14.4 to 165.6 μSv y⁻¹ and this indicated that fish is radiologically safe as compared to shellfish.

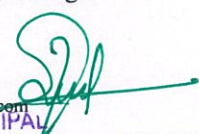
INTRODUCTION

Naturally occurring, radioactive materials present in the marine environment are responsible for delivering the majority of radiation dose to marine fauna. The short-lived decay products of ²²⁶Ra (viz., ²²²Rn, ²¹⁸Po, ²¹⁴Pb, ²¹⁴Bi, ²¹⁴Po, ²¹⁰Pb, ²¹⁰Bi and ²¹⁰Po) are a source of radiation dose to marine fauna, especially the alpha-emitters ²¹⁸Po, ²¹⁴Po and ²¹⁰Po. Radium-226 in the crust of the earth decays into ²²²Rn gas that diffuses into seawater and is the origin of the short-lived decay products in the water. Of these, ²¹⁰Pb has the longest half-life (22.2 years) and is the parent of ²¹⁰Po, an alpha-emitting isotope with a half-life of only 138.4 days⁽¹⁾. Polonium-210 is responsible for a large fraction of the natural radiation dose delivered to many of the living species in seawater^(2–5).

Carvalho and Fowler⁽⁶⁾ stated that most of the marine species are highly enriched with ²¹⁰Po and ²¹⁰Pb and they contribute ~8% of the total internal dose received by man. They also studied the kinetics of ²¹⁰Po and ²¹⁰Pb accumulation from water to sea-food. Yamamoto *et al.*⁽⁷⁾ observed that the ²¹⁰Po and ²¹⁰Pb concentrations are relatively low in meat,

medium in milk, vegetables and cereals, and high in most of the marine organisms. The fact of ²¹⁰Pb that enters the sea surface of North Pacific was first examined by Rama *et al.*⁽⁸⁾. The concentrations of ²¹⁰Po and ²¹⁰Pb have been studied extensively in the biosphere and more particularly in the human environment^(9–11). Indian peninsula is the second largest peninsula in the world which covers 20 72 000.85 km² and it is the sixth largest producer of marine fishes⁽¹²⁾. In India the annual per capita consumption of fish is ~5–6 kg, further fish is the staple food for any coastal environment so there is a distinct need for investigation of the accumulation of ²¹⁰Po and ²¹⁰Pb by aquatic organisms that constitute human food sources.

Considering the importance of radiological status of the Bay of Bengal, the present investigation of measuring the concentration of ²¹⁰Po and ²¹⁰Pb in water, sediment and marine food organisms such as shellfishes like prawn, crab and molluscs and several species of fin fishes were undertaken. This data would be helpful in the future in case of any changes in the environment like Tsunami.



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SCREENING AND ISOLATION OF EXOPOLYSACCHARIDE PRODUCING BACTERIA FROM RAMESWARAM MANDAPAM AREA

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Abstract: Marine biofilm samples boat scrapings were taken from Rameswaram, Mandapam area. The samples were serially diluted and plated for screening of efficient EPS producing bacteria. After 24 hours of incubation, the plates were kept at 37°C. Thirty four different bacterial strains were isolated from boat scraping samples and they are designated as SK1 to SK34. Among these strain SK14 was selected based on maximum EPS production on Zobell marine agar.

Key words: EPS, biofilm, Zobell marine agar.

1. INTRODUCTION

Exopolysaccharide are often found in the surrounding as the outer most structures of both prokaryotic and eukaryotic microbial cells. Many bacterial cultures produce different types of EPS during its life cycle. For example, most bacteria produce capsular form of EPS during the exponential growth phase and slime type EPS during the stationary growth phase. Most of them are chemically or enzymatically modified in order to improve their rheological properties, e.g. cellulose, starch, pectin, alginate and carrageenan.

Polysaccharides commonly found in plants, are also produced by some microorganisms where they act as nutrient stores components in the cell walls some are secreted in form of EPS [1]. EPS may exist as capsules, sheaths, slimes (loosely attached to the cell wall), apical pads or mesh like fibrils in the natural environment. Capsules are tightly bound to the cell wall by non-covalent linkages whereas sheaths are linear EPS containing structures surrounding

chain of cells. Slime layer is a less organised form of capsule or sheath that diffuses into the surrounding environment. The presence of side linkages and organic molecules influence the overall charge, stability, binding capacity, rheology and solubility of the polymer [2].

Many microorganisms can synthesise exopolysaccharides (EPSs) and excrete them out of cell either as soluble or insoluble polymers EPS are high molecular weight compounds and are sticky in nature [3]. The production and chemical characteristics of EPS are controlled by nutrient dynamics, microbial physiology, phytoplankton species, age of phytoplankton bloom etc. EPS produced by microorganisms may exist either as tight capsules or as loosely attached slime that generally differ in their physico-chemical characteristics. EPS in the natural environment is generally heteropolymeric (made of different monomeric units) [4].

EPS contain non-sugar components like uronic acid, methyl esters, sulphates, pyruvates, proteins, nucleic acids and lipids. Marine microbes grown in laboratory cultures produce EPS when nutrients such as nitrogen, phosphorus, sulfur and

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Article

Prioritization of Drugs for Fungal Keratitis Eye Infections: An In-Silico Analysis

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Abstract: The fungal keratitis (FK) infections that cause cornea inflammations are more virulent than other bacterial keratitis infections and remain one of the most ethereal and challenging infections for ophthalmologists to diagnose and treat. Thus, the urgency in understanding the current perspectives of antifungal agents and their interactions with novel therapeutic targets and the identification of novel anti-fungal agents are at the frontline of studies in the pharmaceutical industry. In this study, DNA dependent RNA polymerase was modelled and virtually screened against eight antifungal agents, and it was found that Itraconazole (-22.0427 kJ/mol), Ketoconazole (-20.2194 kJ/mol), and Voriconazole (-12.6388 kJ/mol) exhibited better binding interactions. further, the structural and electronic properties of Itraconazole calculated through density functional theory studies revealed the sites of chemical reactivity that are vital in the compounds for possible interactions with RNA polymerase (RNAP). Hence, this study explores the binding efficacies of various anti-fungal agents through docking studies and their chemical entities, which might pave a significant path for the design of novel anti-fungal agents against hyalohyphomycetes causing keratitis.

Keywords: fungal keratitis; hyalohyphomycetes; *Aspergillus flavus*; *Aspergillus fumigatus*; docking; density functional theory (DFT)

1. Introduction

Cornea inflammations caused by fungal infections (fungal keratitis or keratomycosis) remain one of the most ethereal and challenging infections for ophthalmologists to diagnose and treat [1]. These fungal keratitis (FK) infections are more likely to perforate the cornea and more virulent than other bacterial keratitis infections [2]. Many cases of ocular trauma are reported as major predisposing factors of fungal keratitis infections in developing countries, including India and Ghana [3]. The incidence of fungal keratitis has been reported to range between 25.6% and 36.7% in various parts of India [4–6]. FK infections are believed to usually occur in the population engaged in agricultural or outdoor work where the fungal conidia of plant or animal origin, including dust particles, might directly lodge in the corneal stroma and allow exogenous fungi invasions [7].

It is evident that species of filamentous fungi, such as *Aspergillus* and *Fusarium*, are most commonly associated with keratitis in tropical countries, including India [8,9]. *Aspergillus* is a very large genus,



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MURRAYA KOENIGII MEDIATED SILVER NANOPARTICLE SYNTHESIS AND ITS ACTIVITY AGAINST ENTERIC PATHOGENS

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Keywords:

Antibacterial activity, Nanoparticles, Phytochemical, UV-visible spectroscopy, X-ray diffraction, TEM, Human pathogens

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ABSTRACT: Objective: The objective of this research was a synthesis of silver nanoparticles from *Murraya koenigii* leaves in which the particles were characterized by various techniques and to evaluate the potential antibacterial activity of synthesized nanoparticles against various human pathogens. **Methods:** *Murraya koenigii* aqueous extract of leaves were prepared by the Soxhlet method, and the bioactive compounds were analyzed by phytochemical analysis. Silver nanoparticles were synthesized which are characterized by UV-visible spectroscopic analysis, XRD, TEM, FTIR analysis and antimicrobial activity was evaluated by agar well diffusion method. **Results:** Phytochemical analysis of *Murraya koenigii* aqueous extract of leaves showed the presence of alkaloids, phenols, flavonoids, terpenoids, coumarins, and steroids. The aqueous AgNO₃ solution changed from green to dark brown color after incubation. UV-visible spectroscopic analysis showed the absorbance peak at around 420 nm which indicates the synthesis of Ag NPs. TEM image showed the formation of well-dispersed silver nanoparticles in the range of 5-25 nm. X-ray diffraction (XRD)-spectrum as evidenced by the peaks at 2θ values of such peaks 38.43°, 44.40°, and 67.57°, is corresponding to 111, 200 and 220 planes for silver, respectively. Silver nanoparticles showed the antimicrobial activity against *Staphylococcus aureus* (16mm), *Escherichia coli* (15mm), *Salmonella sps.* (15 mm), *Bacillus sps.* (16mm), *Vibrio sps.* (14mm), *Enterococcus sps.* (13mm) and *Candida* (21 mm). **Conclusion:** This study demonstrated that the silver nanoparticles from curry leaf extract showed that the remarkable antibacterial activity against human pathogens. The extract of *Murraya koenigii* has the bioactive compounds like alkaloids, phenols, flavonoids, terpenoids and it will become a drug for the therapy of infectious diseases.

INTRODUCTION: Nanotechnology means handling of matter on an atomic and molecular scale. Generally, nanotechnology deals with the structure sized between 1 to 100 nanometer in at least one dimension and involved in developing materials or devices within that size¹.

Nanoparticle synthesis is an essential area of research in nanotechnology deals with the diverse chemical composition, dimension and controlled mono disparity. Indeed, nanoparticles shape control is a recent addition to the list of demands being made of newly emerging synthetics method².

Nanoparticles are the fundamental building blocks of nanotechnology. The most important and distinct property of nanoparticles is that they exhibit a larger surface area to volume ratio. Nanoparticles are made from noble metals; in particular Ag, Pt, Au, and Pd. Metal nanoparticles have marvelous applications in the area of catalysis,

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SYNTHESIS AND ANTIMICROBIAL ACTIVITY OF NOVEL 4-AMINO BENZAMIDE DERIVED 1,2,3 - TRIAZOLE LINKED PYRAZOLINES

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ABSTRACT

In the view of investigating the antimicrobial potential of novel 4- amino benzamide derived 1, 2, 3 triazole-linked chalcones and their pyrazolines derivatives, the present work was designed and synthesized as given in the scheme mentioned. All the compounds were characterized by the physicochemical methods and all the compounds were subjected to in vitro antimicrobial studies.

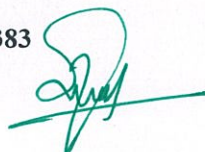
Keywords: 1, 2, 3- Triazole, Chalcone, Pyrazoline, FTIR, ¹H NMR, ¹³C NMR, Mass Spectra and Antimicrobial Activity.

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INTRODUCTION

There is a need to focus on developing new molecules to treat infectious diseases due to the resistance acquired by the microbes towards the chemical compounds on prolonging the interaction.^{1,2} Binding capacity of 1,2,3-triazole moiety³ towards the biological targets is attributed to its physical and chemical features like high aromatic stability and dipole moment⁴. We designed a molecule containing both the important heterocycles namely triazole and pyrazoline and to compare the microbial activity of the 1,2,3-triazole linked chalcone and their pyrazoline derivatives. The previous results⁵ on the above-mentioned chalcones prompted us to carry out the present work. Chalcones and its derivatives have attracted the attention of the chemists owing to their many fold pharmacological activities like antimalarial, anticancer, antiprotozoal, anti-inflammatory, antifungal⁶⁻¹⁰, larvicidal, anticonvulsant, antioxidant, enzyme inhibition and antimitotic activity¹¹. Similar to triazoles the chalcones and the pyrazoline derivatives also reported to possess diverse biological activities. Many numbers of different heterocyclic moieties containing organic compounds like azetidinones¹², benzothiazole¹³, quinazoline¹⁴, pyrazole -3-carboxamide¹⁵ have been studied for their anti-microbial activity. The anti-microbial nature of an organic compound is not specific to any chemical moieties or elements was concluded from the results of those studies. Hence, in the present work, the title compounds were subjected to microbial activity and the results are presented in Tables 1 and 2. Pyrazolines linked heterocyclic compounds constitute an important class of compound for new drug development due to their diverse pharmacological activities such as antimicrobial activity^{16,17}, anticancer¹⁸, antihyperglycemic activity¹⁹, antimalarial activity²⁰, antidepressant and anticonvulsant²¹, MAO inhibitors^{22,23}, antitubercular activity^{24,25}, Cannabinoid receptor antagonist activity²⁶, COX-2 inhibitor activity²⁷, antihepatotoxic activity.²⁸ The present study is to ensure the microbial activity of

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Isolation, Identification and Screening of Enzyme Producing Bacteria from Groundnut Rhizospheric Soil Samples Collected from Idappadi Block of Salem District in Tamil Nadu, India

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ABSTRACT

The use of associated plant-based, native beneficial microbes for sustainable farming is increasing worldwide acceptance as they colonize effectively under stress conditions at specific plant habitat to maximize crop productivity. In the present study, indigenous plant growth promoting bacterial isolates were isolated from the rhizospheric soil of groundnut plants aiming to investigate their enzyme producing capability. Totally 24 bacterial isolates were isolated from the two rhizospheric soil samples collected from the agricultural field. Out of twenty four bacterial isolates were 13 isolates were amylase positive, 13 isolates were protease positive, 4 isolates were phosphatase. As a result, this study revealed novel native microbes are potential for the development of groundnut plants.

Keywords: Groundnut, Amylase, Protease, Phosphatase, Enzyme.

INTRODUCTION

Food security issues are growing daily as demand for cereals to increase production by 50 percent from agricultural land, which is expected to be 30% lower than today by using less water, chemical fertilizer and labor. As per capita availability of cultivated area to 0.11 ha by 2020 CE [1], in an agricultural priority country such as India, it could be negative and a threat to food security for ever-increasing world population. Among the crops producing oil, groundnut (*Arachis hypogaea* L.) is one of the major, productive crops grown all year round in India and India is a

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Screening and Characterization of Cellulase by *Bacillus megaterium* Isolated from Marine Sediments and its Antimicrobial Activity

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Abstract: Cellulase produced by *Bacillus megatarium* SSI, isolated from marine sediment was purified to homogeneity by ammonium sulphate precipitation, ion exchange chromatography on DEAE cellulose and gel filtration on Sephadex G-100. Purification of cellulase was achieved such as 1.36, 4.6 and 8.2 by ammonium sulphate precipitation, ion exchange chromatography and gel filtration respectively. The study revealed that the optimal conditions required for the maximum activity was cellulase were 9.0 pH and 50°C temperature. Significant enhanced activity of the enzyme was possible with carboxymethyl cellulose and other forms such as avicel. An additional input of metal ion like calcium supplemented to the medium influenced increased activity of the enzyme, however, EDTA did show a comparative effect. Apart from the enzyme activity, the designated purified protein *Bacillus megatarium* SSI inhibited the growth of *Fusarium oxysporum*, *F. odum*, *Botrytis cinera*, *Alternaria alternate*, *Aspergillus niger* and *Penicillium sp.* Therefore, it was possible to establish *Bacillus megatarium* as a source of cellulase and antifungal agent.

Key words: CMC · Sephadex G-100 · DEAE · *Bacillus megatarium*

INTRODUCTION

The enzyme cellulase provides a key opportunity for achieving tremendous benefits of biomass utilization [1]. Cellulase is an extracellular enzyme, which is a polymer of β -1, 4-linked glucose units, a major polysaccharide constituent of plant cell walls. Therefore, it has become a considerable economic interest to develop processes for the effective treatment and utilization of cellulosic wastes as inexpensive carbon sources. Cellulases are inducible enzymes which are synthesized by microorganisms during their growth on cellulosic materials [2]. The breakdown of lignocellulose polysaccharides requires a combination of enzymes, which split off glucosidic linkages between β -D-xylopyranosyl and glucopyranosyl residues. A complete cellulase systems consists of three classes of enzymes: exo-1, 4- β -glucan cellobiohydrolase (EC 3.2.1.91), which

cleave cellobiosyl units from the ends of cellulose chains; endo-1, 4- β -glucanases (EC 3.2.1.4), which cleave internal glucosidic bonds; β -D-glucosidase (EC 3.2.1.21), which cleaves glucose units from cellular oligosaccharides [3]. For cellulase system, a number of components and functional characteristics lead to efficient hydrolysis of cellulose [4].

The marine biosphere is one of the richest habitats of microorganisms. The oceans cover around 70% of the earth's surface and present themselves as an unexplored area of opportunity [5]. Microorganisms are increasingly becoming an important source in the production of medical and industrially important enzymes. Considering the fact that marine environment is saline in nature, which provides rare and unique microbial products particularly enzymes that could be safely used for human therapeutic purpose [6].

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GREEN SYNTHESIS OF NANOPARTICLES USING FRUIT EXTRACTS OF *Murraya koenigii* AGAINST UTI CAUSING *P.aeruginosa*

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Abstract

In the present study, two different extracts of *Murraya Koenigii* fruit were screened for their phytochemicals composition. Among them, methanol extract showed highest phytochemicals (60%) and then acetone extract (40%). Both extracts were utilized for the green synthesis of silver nanoparticles with 2mM of silver nitrate. The synthesized silver nanoparticle was carried out to assess the antimicrobial activity against MBL producing UTI causing *P.aeruginosa*. The highest antimicrobial activity was observed when using methanol extract than acetone extract. The zone of inhibition was ranged between 9mm to mm to 16 mm. Different concentration was used for this susceptibility study when using 10µg of extract, the best inhibition was observed.

Key words : UTI, MBL, *P.aeruginosa*, *Murraya Koenigii*, AgNPs

INTRODUCTION

The plants are a plentiful source of the beneficial substance. A vast range of medicinal plants extracts are used to cured various infections as they have strong antimicrobial activity. Some of these beneficial substances are evaluated and traded in the market as raw material for many herbal industries (Renisheya *et al.*, 2011). From the last decades, experts have selected the medicinal plants for treatments, because no side effects compare then synthetic drugs (Bushra *et al.*, 2012). It is estimated that about 35,000 to 70,000 plants species are used as medicinal plants out of 422127 reported worldwide plant species (Bibi *et al.*, 2011).

In India, more than thousands of plants are used as medicinal plants because of their antimicrobial traits, which are due to beneficial compounds produced in the secondary metabolism of the plants. A number of mechanisms were underlain for that antimicrobial activity of plant extracts, such as plant containing phytochemicals were inhibit the microbial cell wall, denature the bacterial capsule, reduced the level of toxin and biofilm (Mikayel *et al.*, 2017).

Furthermore, Plant metabolites can also act as resistance-modifying agents (RMAs). Nowadays RMAs are recognized as one of the utmost eventual ways to conflict bacterial resistance. Many researchers have developed a keen interest for enhanced antimicrobial activity and their use as anticancer agents. Among the number of technology, nanoparticles and their characterization is a rising field of nanotechnology from the past few years, due to their immense applications in the fields of medical (Song, 2008).

Apart from chemical and physical methods, biological methods have been developed to synthesise nanoparticles with plants. The biological methods are inexpensive, safe, reliable and eco-friendly. A number of research was reported that silver nanoparticles (SNPs) are non-toxic to humans and most effective against microbes.

Drug resistance is one of the most serious and widespread problems in all developing countries (Stevanovic *et al.*, 2012). Day by day treating bacterial infection is rising with complicated because of the ability of the pathogens to develop resistance to common antimicrobial agents and existing antibiotics. One way to prevent antibiotic resistance of pathogenic species is by using new compounds that are not based on existing synthetic antimicrobial agents some medicinal plants are more efficient to treat infectious diseases than synthetic antibiotics (Shah, 2005). In the present work, an attempt has been made to synthesize silver nanoparticles using solvents fruit extract of *Murraya koenigii*. The synthesized silver nanoparticles were evaluated for their synergistic antimicrobial activity against metallo betalactamase (MBLs) producing isolates.

MATERIALS AND METHODS

Test pathogens

The clinical isolates of *P.aeruginosa* were procured from Microtech, Microbiology Laboratory, Coimbatore and used for the study. All isolates were confirmed with standard biochemical tests and selective media.

Identification of Metallo betalactamase producing isolates

Multiplex PCR amplification for the simultaneous detection of blaIMP and blaVIM metallo betalactamase genes. The composition of the reaction mixture was as follows: Each PCR reaction mixture (25µl) contained 2µl of template DNA (plasmid DNA), 10 µl of 10 X PCR mix, 0.5 µl of (0.5 µM) each of the primers and 12 µl of molecular grade water ().

The PCR program was performed in a Thermal Cycler and it consisted of an initial denaturation step at 94°C for 5 min, followed by 30 cycles of DNA denaturation at 94°C for 1 min, primer annealing at 54°C for 1 min, and extension at 72°C for 1.5 min.

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PREVALENCE AND MOLECULAR CHARACTERIZATION OF *bla*_{CTX-M-15}-PRODUCING PATHOGENIC GRAM-NEGATIVE BACTERIA FROM VARIOUS CLINICAL SAMPLES

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ABSTRACT

Objective: The objective of this study was to describe the prevalence and molecular characterization of *bla*_{CTX-M-15}-producing pathogenic Gram-negative bacteria from various clinical samples isolated from clinically suspected patients.

Methods: In this study, clinical samples of urine, stool, sputum, and pus were collected from 244 patients with nosocomial infections. The phenotypic identification of extended-spectrum β -lactamases (ESBL) was confirmed by double-disk synergy test and combined disk diffusion test. *In vitro*, the susceptibility pattern of antimicrobial agents against pathogenic isolates was performed by Kirby-Bauer disk diffusion method. The identification of *bla*_{CTX-M-15}-producing *Escherichia coli* was assessed by polymerase chain reaction method.

Results: The frequency of ESBL-producing pathogenic bacteria from screened was 6 (46.15%). *In vitro*, susceptibility to pathogenic bacteria showed that the majority of isolates were highly susceptible to amoxicillin-clavulanic acid (97.87%), ofloxacin (93.33%), and *Pseudomonas aeruginosa* showed 100% sensitive to ceftazidime, cefotaxime, cefixime, cefoperazone, and meropenem (92.30%). The rates of resistance to other antibiotics varied from <26.66%. Among six tested isolates, only one *E. coli* isolates showed *bla*_{CTX-M-15} gene.

Conclusion: Due to the increase of *E. coli* with multiple ESBL genes, continuous surveillance should be needed in clinical field to use of appropriate antibiotics and the control of infections.

Keywords: CTX-M-15 gene, Clinical samples, Extended-spectrum β -lactamases, *Escherichia coli*, Multidrug resistance.

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INTRODUCTION

Extended-spectrum β -lactamases (ESBLs) are enzymes produced by pathogens belonging to *Enterobacteriaceae*, most commonly *Escherichia coli* and *Klebsiella pneumoniae* [1]. The most common bacterial infections in humans are the urinary tract infections (UTIs), both in the community and the hospitals. In India, the incidence of UTI is about 50,000/million persons per year. Beta-lactam (β -lactam) antimicrobials are characterized by having a four-membered cyclic amide (β -lactam ring) as part of their chemical structure. A β -lactam ring is a four-membered lactam (a lactam is a cyclic amide). It is named as such because the nitrogen atom is attached to the β -carbon atom relative to the carbonyl [2].

ESBLs are known for their ability to hydrolyze β -lactam antibiotics such as penicillins, cephalosporins, and monobactams, resulting in antimicrobial therapy failure [3]. The CTX-M enzymes are the predominant type of ESBL found in many regions of the world, including Asia, South America, Europe, and Africa [4]. In the past 5–10 years, the incidence of infections caused by *Enterobacteriaceae* producing ESBL has increased rapidly mainly attributed to the successful distribution of CTX-M enzymes between *E. coli* causing urinary tract and bacteremic infections [5]. CTX-M-type β -lactamases (CTX-Ms) are broad-spectrum β -lactamases derived from the chromosomally encoded β -lactamases of *Kluyvera* sp. So far, >70 CTX-M types have been isolated and have been divided into five clusters because of amino acid sequence: CTX-M-1, CTX-M-2, CTX-M-8, CTX-M-9, and CTX-M-25. Native CTX-Ms are cefotaximases that usually hydrolyze cefotaxime rather than ceftazidime. However, point mutations can extend their target spectrum to ceftazidime. Thus, CTX-M-15 and CTX-M-27 are derived by a single Asp240Gly substitution from CTX-M-3 and CTX-M-14, respectively [6].

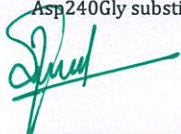
Infections by ESBL-producing organisms are a worldwide problem. Extensive use of broad-spectrum antibiotics in hospitals has contributed to an increased carriage of *Klebsiella*, and subsequently, the development of multidrug-resistant strains that produce ESBL [7]. Critical care units provide a favorable environment for the antimicrobial-resistant organisms to disseminate. There is recent increase in number of ESBL producers because of the emergence of CTX-M beta-lactamases produced by *Enterobacteriaceae*. They colonize the intestinal flora and spread with greater intensity in the community and hospital. This study was designed to assess the prevalence and molecular characterization of CTX-M-15 (ESBL)-producing pathogenic Gram-negative bacteria (GNB) from various clinical samples.

MATERIALS AND METHODS**Study design**

The study was designed to investigate the prevalence and molecular characterization of CTX-M-15-producing pathogenic GNB in various clinical samples. The collection of clinical sample and identification of isolates were carried out in Vivekanandha Medical Care Hospital (VMCH), Elayampalayam, Tiruchengode, Tamil Nadu (India), to purpose of microbiological culture and sensitivity test. In our study, the clinical isolates and its secondary data were obtained from VMCH, and farther process was carried out at the Department of Microbiology in Vivekanandha College of Arts and Science for Women, Elayampalayam, Tiruchengode, Tamil Nadu (India), during the period of March 2016–July 2016.

Inclusion and exclusion criteria

While collecting clinical samples, those clinically suspected subjects who have not taken antibiotic therapy had been included in the study and if the suspected cases that have undergone therapy were excluded from the study.



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Statistical Optimization of Significant Variables for Exopolysaccharide Production by *Lactobacillus plantarum*

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Abstract: The optimal level of the key variables (Dextrose, peptone, MgSO₄, glutamine, inoculum concentration) used to determine the effect of their interactions on EPS production by *Lactobacillus plantarum* using the statistical tool (CCD of RSM). The second-order quadratic model with the optimum conditions (Dextrose-1.0%, peptone-0.7%, MgSO₄-0.02%, glutamine-0.2%, inoculum concentration- 2.0%). The nearness of the coefficient of determination (R²=0.8716) to 1 ensures the satisfactory adjustment of the quadratic model to the experimental data. The bacterial EPS recovered from optimized medium was 258 ± 0.4 mg/100ml of dry weight.

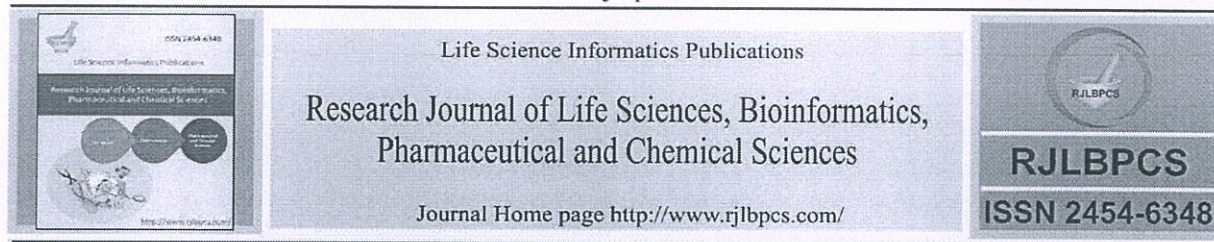
Key words: Exopolysaccharide · CCD · RSM · *Lactobacillus plantarum*

INTRODUCTION

The physiological role of EPS depends on the ecological niches and the natural environment in which microorganisms have been isolated. Indeed, the EPS production is a process that requires a noticeable energy cost of up to 70% of total energy reserve, representing a significant carbon investment for microorganisms. However, the benefits related to EPSs production are significantly higher than costs considering the increasing growth and survival of microorganisms in their presence [1]. In their natural environment, most bacteria occur in microbial aggregates whose structural and functional integrity is based on the presence of a matrix of extracellular polymeric substances and the EPS production seems to be essential for their survival [2]. A vast number of microbial EPSs were reported over the last decades and their composition, structure, biosynthesis and functional properties have been

extensively studied. In recent years the increased demand for natural polymers for pharmaceutical, food and other industrial applications has led to a remarkable interest in polysaccharides produced by microorganisms [3]. Further, this method is time consuming and requires a large number of experiments to determine the optimum levels in the production medium. These limitations of the single factor optimization method can be overcome by developing a non-linear multivariate process model. Response surface methodology (RSM) is a well-known method applied in the optimization of medium constituents and other critical variables responsible for the production of biomolecules [4]. Response surface methodology (RSM) is an efficient statistical strategy for designing experiments, building models, searching optimum conditions of factors for desirable responses and evaluating the relative significance of several affecting factors even in the presence of complex interactions [5, 6]. The importance of this method is that it states the amount

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Original Research Article

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BIODIVERSITY OF XYLANASE PRODUCING FUNGI PRESENT IN THE LEAF LITTER SOIL OF MUNNAR HILLS, KERALA

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ABSTRACT: Enzymes play crucial roles in producing the valuable commodities in our day to day routine life and also producing fuel for automobiles. Enzymes are also important in reducing both energy consumption and combating environmental pollution. Enzymes are a type of protein in all biological entities and perform as biological catalysts. Several fungi and bacteria are capable of producing multiple groups of enzymes. The increasing consciousness among the people to use chemical free food has made the production of these enzymes very valuable as such enzymes in turn can be used in the processing of various food substances. Xylan is the most widely used as a valuable substrate for enzyme production next to cellulose so this investigation has got a prime focus on xylanase enzyme. Leaf litter soil samples were collected from ten different sites of Munnar hill, Kerala. The soil samples were serially diluted and the potential fungal strains were isolated from the soil. These fungal strains were designated as SJ1 to SJ12. Among the twelve strains xylanase producing fungi were confirmed by Congo red method. The potential xylanase producing fungal strain was conformed as *Fusarium* sp. by morphology on Sabouraud's Dextrose agar plate and Lacto Phenol Cotton Blue staining. The *Fusarium* sp. was sequenced by 18S rDNA and the fungal gene sequence was submitted in the NCBI with accession number KX092008 and confirmed as *Fusarium sporotrichoides*.

KEYWORDS: Xylanase, Leaf litter, 18S rDNA sequencing, *Fusarium sporotrichoides*

Biodiversity of cellulolytic fungi isolated from KattalagarKovil, Tamilnadu

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Abstract: Cellulose is the primary structural constituent of plant cell wall. Cellulase is a multi-enzyme composed of several enzymes with numerous isoenzymes, which act in synergy. Fungi are the chief cellulase producing microorganisms. Cellulases have vast potential in industrial application. Cellulases are used in food processing, feed preparation, waste water treatment, detergent formulation, textile production etc. In the present study, the leaf litter soil samples were collected from ten different locations of KattalagarKovil (Tamilnadu, India). The soil samples were serially diluted and plated on Sabouraud's Dextrose Agar (SDA). The fungal strains were identified based on the morphology on Lacto phenol cotton blue mount and were designated as F1 to F12. Among the 12 isolates, cellulase producing fungi were confirmed by Congo red method. The potential cellulase producing fungal strain was confirmed as *Aspergillus* sp. by colony morphology on Sabouraud's Dextrose agar plate and Lacto Phenol Cotton Blue Staining. The potential cellulase producing fungi was identified as *Aspergillus niger* by 18S rRNA sequencing. The fungal gene sequence was submitted in NCBI with the accession Number MF621961.

Keywords: Cellulose, cellulase, *Aspergillus niger*, 18S rRNA sequencing, SDA.

1. INTRODUCTION

Fungi are well known agents of decomposition of organic matter, in general, and of cellulosic substrate in particular [1]. Fungi play important role as a biocatalysts for the production of food, chemicals and fuels. They secrete extracellular enzymes to degrade polymers outside the cell and absorb the released nutrients and transport water through the cell membrane [2].

In the kingdom of fungi, most of the individuals are saprophytic and are efficient in degradation of major polymers such as cellulose and lignin. The availability of a high active cellulase is the prime requirement for a successful process of enzymatic conversion of cellulose into useful product. This depends on proper selection and improvement of suitable strains for enzyme production and development of the process for production of enzyme of high quality [3].

Many fungi produce cellulases to release sugar for cell growth and product formation. More than 14,000 species of fungi have been found to be active in cellulose degradation. *Trichoderma* sp. have been extensively studied due to their strong cellulolytic activity against crystalline celluloses which results into saccharification [4].

Among most widely studied organisms having notably high cellulolytic activity, include various fungal species like *Humicola*, *Trichoderma*, *Penicillium* and *Aspergillus*. Some bacterial species include *Pseudomonas*, *Bacillus*, *Actinomycetes*, *Streptomyces*, *Cellulomonas*, *Streptomyces* and *Actinomucor*. Because of the ability of fungi to consume cellulose for energy consumption, only certain species could be used practically for cellulose hydrolysis. Despite of *T. reesei*, other fungal species include *Aspergillus*,



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Research Article

CENTRAL COMPOSITE DESIGN (CCD) FOR CELLULASE PRODUCTION USING *ASPERGILLUS NIGER* ISOLATED FROM KATTALAGARKOVIL, TAMILNADU

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Cellulose, cellulase, *Aspergillus niger*, 18S rRNA sequencing, SDA, CCD, RSM

ABSTRACT

In the present study, the leaf litter soil samples were collected from ten different locations of Kattalagarkovil (Tamilnadu, India). The soil samples were serially diluted and plated on Sabouraud's Dextrose Agar (SDA). The fungal strains were identified based on the morphology using Lacto phenol cotton blue mount and cellulase producing fungi were confirmed by Congo red method. The potential cellulase producing fungal strain was confirmed as *Aspergillus* sp. by colony morphology on Sabouraud's Dextrose agar plate and Lacto Phenol Cotton Blue Staining. The potential cellulase producing fungi was identified as *Aspergillus niger* by 18S rRNA sequencing. The fungal gene sequence was submitted in NCBI with the accession Number MF621961. In this study optimum parameters for cellulase production by *Aspergillus niger* using central composite design (CCD) model was analyzed. The optimal level of the key variables (pH, temperature, peptone and KCl) was used to determine the effect of their interactions on cellulase production using the statistical tool (CCD). At these optimized conditions the maximum cellulase production was found to be 0.977 IU/ml.

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INTRODUCTION

Cellulose is most abundant compound of plant formed by stoking of glucose units obtained through photosynthesis. The major components of plant cell walls are cellulose, hemicellulose and lignin, with cellulose being the most abundant component (Anderson et al., 2007).

Enzymatic hydrolysis of cellulose involves the sequential action of a group of enzymes known as cellulase, which belongs to the super family of glycosylhydrolases, they catalyze the hydrolysis of the glycosidic bond between two or more carbohydrates. The enzyme activity was defined as the amount of an enzyme that, at optimum conditions of temperature, pH and ionic strength are able to transform into their respective products a micromole of substrate in one minute, and is known as IU unit international and specific enzymatic activity refers to mg protein (Solis et al., 2016).

Cellulases are the inducible bioactive compounds produced by microorganisms during their growth on Cellulosic matters. Cellulases are the inducible bioactive compounds produced by microorganisms during their growth on Cellulosic matters. Cellulolytic activity is a multicomplex enzyme system and

consists of three major components; endo-β-glucanase (EC 3.2.1.4), exo-β-glucanase (EC 3.2.1.91) and β-glucosidase (EC 3.2.1.21) (Shankar, 2012).

RSM is now considered as a standard statistical approach for designing experiments, building models, evaluating the effects of many factors and finding the optimal conditions for desirable responses and reducing the number of required experiments. In biological processes, especially in the production of enzyme, RSM has been adopted to optimize the growth of microorganisms and the production of enzyme (Shankar and Isaiarasu, 2012).

In this study, RSM was adopted to determine the optimal conditions for the production of cellulase from *Aspergillus niger* and the interactions among the factors that influence the response of the cellulase production.

MATERIALS AND METHODS

Microorganism and cultural conditions

Cellulose hydrolyzing fungi *Aspergillus niger* isolated from the leaf litter soil sample of Kattalagarkovil, Tamilnadu, was used in this study. The culture was maintained on CMC (Carboxy

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Targeting Notch signalling pathway of cancer stem cells

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Contributions: (I) Conception and design: V Venkatesh, SB Kaginelli, KM Basalingappa; (II) Administrative support: CG Kallappa, KM Basalingappa; (III) Provision of study material or patients: None; (IV) Collection and assembly of data: V Venkatesh, R Nataraj, GS Thangaraj, KM Basalingappa; (V) Data analysis and interpretation: None; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

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Abstract: Cancer stem cells (CSCs) have been defined as cells within tumor that possess the capacity to self-renew and to cause the heterogeneous lineages of cancer cells that comprise the tumor. CSCs have been increasingly identified in blood cancer, prostate, ovarian, lung, melanoma, pancreatic, colon, brain and many more malignancies. CSCs have slow growth rate and are resistant to chemotherapy and radiotherapy that lead to the failure of traditional current therapy. Eradicating the CSCs and recurrence, is promising aspect for the cure of cancer. The CSCs like any other stem cells activate the signal transduction pathways that involve the development and tissue homeostasis, which include Notch signaling pathway. The new treatment targets these pathway that control stem-cell replication, survival and differentiation that are under development. Notch inhibitors either single or in combination with chemotherapy drugs have been developed to treat cancer and its recurrence. This approach of targeting signaling pathway of CSCs represents a promising future direction for the therapeutic strategy to cure cancer.

Keywords: Cancer stem cells (CSC); Notch signaling pathway; γ -secretase inhibitors (GSIs); monoclonal antibodies (mAb); delta like ligand 4 (DLL-4); metastasis; angiogenesis; epithelial-mesenchymal transition (EMT); Notch intracellular domain (NICD)

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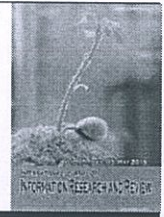
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Introduction

Cancer stem cells (CSCs) are the undifferentiated cell of tumor cell with infinite proliferation, self-renew, differentiation and growth. These stem cells play a vital role in growth and development of the cancerous tumors. Many studies have shown that the CSCs are the progenitor of the tumor and are the reason for recurrence of cancer. CSCs being chemo and radio resistance have shown metastases several years after curative treatment of the tumor which

leads to recurrence (1). Current cancer treatment has minimum survival rate as these conventional cancer therapies target neoplastic cells that are largely fast-growing in abnormally, suggesting that CSCs may survive due to their high resistance to drugs and slower proliferation rate which leads to treatment failure (2,3). There are various molecular mechanisms i.e. signaling pathways that control and regulate the development of stem cells, the abnormal activity of these pathways regulates the growth, differentiation and development of these CSCs that include



REVIEW ARTICLE

A DESCRIPTIVE STUDY TO ASSESS THE MENOPAUSAL SYMPTOMS AMONG MENOPAUSAL WOMEN RESIDING IN SELECTED VILLAGES AT NAMAKKAL DISTRICT

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Menopausal Women.

ABSTRACT

Menopause is a part of a women's natural ageing process.

Objectives: To assess the level of Menopausal symptoms among menopausal women. Design: A Descriptive research design.

Sample: Menopausal women with menopausal symptoms at Namakkal (Dt).

Sampling Technique: Convenient sampling technique.

Data collection: MRS (Menopause Rating Scale) was used to assess the level of Menopausal symptoms.

Results: 15% of menopausal women had moderate symptoms, 50% of menopausal women had severe symptoms and 35% of menopausal women had very severe symptoms.

Conclusion: There was no significant association between levels of menopausal symptoms with their demographic variables. It concluded that Psychological symptoms were more common among menopausal women.

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INTRODUCTION

Menopause is a normal part of life, just like puberty. It is the time of last menstrual period. Menopause is a normal condition that all women experience as they age. The term "menopause" is commonly used to describe any of the changes a woman experiences either just before or after she stops menstruating, marking the end of her reproductive period. Every woman experiences her midlife years differently. The changes that occur during this period, including changes in sexual well-being, are typically caused by a mix of both menopause and aging as well as by typical midlife stresses and demands. Menopausal women have been associated with increased anxiety. Anxiety measures are typically composed of items measuring somatic and affective symptoms, (The Northern American Menopause Society, 2010). It is a challenging period of difficult physical and emotional changes as they find that menopause affects sex life, triggers mood swings, causes debilitating hot flushes and takes them down the road to bone and hearing problems. A women's experience of menopause can be related to many things including genetics, diet, lifestyle, social, and cultural attitude towards older women (Nayak, 2009).

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In India 96% of women suffer from menopausal problems. Among these; 46.6% from Tamilnadu, 31.4% from Andrapradesh, 21% from Bihar, 20.25% from Rajasthan, 11.6% from Kerala (Yoshiki, 2007). Mojgan Asadi, Zahra, *et al.*, (2012) – a cross sectional study done between January 2011 and January 2012, among 134 Turkish women, the mean age of natural menopause onset was 47.35. The symptoms associated with menopause were hot flushes (59.5%) , mood swing (42.65%), vaginal dryness (41.1%), sleep problems (40.4%), night sweats (38.2%), memory loss (32.2%), urinary symptoms (18.3%), palpitation (6.6%), anxiety (5.8%), joint and muscle pain (59.9%), depression (4.4%), irritability (3.6%), and the study showed that hot flushes, mood swing, and vaginal dryness were the most common symptoms associated with menopause. Geetha (2008) conducted a descriptive study to assess the health problems experienced by the post menopausal women and the coping strategies adopted by them and the results revealed that under the physiological problems about 88% indicated loss of energy, 73% had hot flushes, 72% insomnia, 52% had vaginal dryness, 80% had joint pain, and 72% had urinary incontinence. Under the psychological problems, 71% had reported irritability, 75% had depression, 68% had tension headache, and 55% had anxiety.

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RESEARCH ARTICLE

A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE ON MENOPAUSAL SYMPTOMS AMONG MENOPAUSAL WOMEN RESIDING IN SELECTED VILLAGES AT NAMAKKAL DISTRICT

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Menopause, Knowledge,
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ABSTRACT

Menopause is a transitional phase in a women's midlife encompasses a transition from reproductive to non-reproductive stage. **Objectives:** To assess the level knowledge of Menopausal symptoms among menopausal women. **Design:** A Descriptive research design. **Sample:** Menopausal women at Namakkal (Dt). **Sampling Technique:** Multistage sampling technique. **Data collection:** Structured Knowledge questionnaires were used to assess the level of knowledge on Menopausal symptoms. **Results:** Frequency and percentage distribution of knowledge scores on menopausal symptoms among menopausal women depicts that, majority 16 (80%) of them had poor knowledge and 4 (20%) of menopausal women had good knowledge. **Conclusion:** There was no significant association between levels of knowledge scores on menopausal symptoms with their demographic variables. It concluded that IEC (information, education, and counseling) on menopausal symptoms to be prepared, so as to help the women to live their lives more healthy and active.

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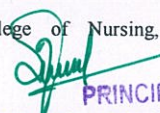
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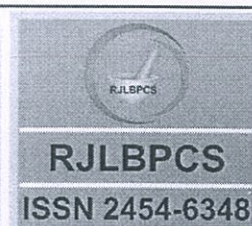
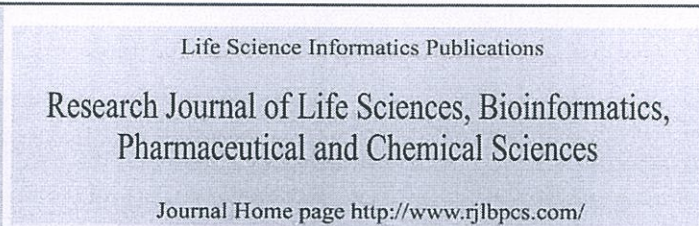
INTRODUCTION

Menopause, the universal and unavoidable physiological change in a women's reproductive life. It may be a smooth experience for some women with only symptoms of cessation of menstrual flow while for others it is bothersome phase with lots of troubles. Knowing more about menopause might empower women to cope better with menopausal changes and use effective measures for its management, (Bradshaw KD, 2008). Climacterium is the phase in a woman's life that corresponds to the gradual transition from a reproductive to a non reproductive stage. It begins around the age of 40 years, when the first endocrine alterations are detected. These alterations signify not only the exhaustion of ovary follicles but also the desynchronization of the neural signals in the hypothalamus and central nervous system. Menopause takes place within the climacteric phase, at around the age of 50 years, and is characterized by at least 12 months of amenorrhoea (Sammel MD, Freeman EW, et al, 2005).

Ms. Syamala and Sivagami (2010) conducted a study based on National family health survey and result shown in her study that the onset of menopause is different in various states of India. Naturally the Menopause takes place usually at young age of women in Andhra Pradesh, Karnataka, and also in Bihar, but it occur relatively at old age of women in west bengaland in Kerala. Her study shows that In Andhra Pradesh, pre mature menopause also quiet high and Indian women are experiencing menopause at the age of 40 years itself, so they have longer expose of menopausal time and its associated problems. Varuna Pathak, Neetu Ahirwar (2017) conducted an analytical study among postmenopausal women attending outdoor in Department of Obstetrics and Gynaecology Sultania Zanana Hospital, Bhopal, India. The results revealed that, only 32.72% of menopausal women had knowledge of menopausal symptoms and concluded that majority of women have a negative outlook towards menopause considering as a loss of youth and higher susceptibility towards health problems and also recommended that the awareness towards menopause should be increased by IEC (information, education, and counseling), so as to help these women to live their postmenopausal years more healthy and active.

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TAMILNADU

**Original Research Article**

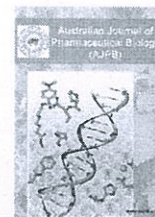
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BIODIVERSITY OF XYLANASE PRODUCING FUNGI PRESENT IN THE LEAF LITTER SOIL OF MUNNAR HILLS, KERALAT. Shankar^{1*}, B. Harinathan², S. Palpperuma², S. Sankaralingam², B. Jamunadevi³

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ABSTRACT: Enzymes play crucial roles in producing the valuable commodities in our day to day routine life and also producing fuel for automobiles. Enzymes are also important in reducing both energy consumption and combating environmental pollution. Enzymes are a type of protein in all biological entities and perform as biological catalysts. Several fungi and bacteria are capable of producing multiple groups of enzymes. The increasing consciousness among the people to use chemical free food has made the production of these enzymes very valuable as such enzymes in turn can be used in the processing of various food substances. Xylan is the most widely used as a valuable substrate for enzyme production next to cellulose so this investigation has got a prime focus on xylanase enzyme. Leaf litter soil samples were collected from ten different sites of Munnar hill, Kerala. The soil samples were serially diluted and the potential fungal strains were isolated from the soil. These fungal strains were designated as SJ1 to SJ12. Among the twelve strains xylanase producing fungi were confirmed by Congo red method. The potential xylanase producing fungal strain was conformed as *Fusarium* sp. by morphology on Sabouraud's Dextrose agar plate and Lacto Phenol Cotton Blue staining. The *Fusarium* sp. was sequenced by 18S rDNA and the fungal gene sequence was submitted in the NCBI with accession number KX092008 and confirmed as *Fusarium sporotrichoides*.

KEYWORDS: Xylanase, Leaf litter, 18S rDNA sequencing, *Fusarium sporotrichoides*



Original Article

The prevalence of mupirocin resistance-producing wound isolates of *Staphylococcus aureus*

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ABSTRACT

Staphylococcus aureus is one of the predominant nosocomial pathogens which causes a wide range of diseases and post-operative infections. Coagulase-negative *Staphylococcus* is frequently reported in nosocomial bloodstream infections. It is also associated with implanted medical devices. Mupirocin (MUP) is as an antimicrobial agent. The aim of the present work is to investigate the prevalence of low-level and high-level MUP resistance *S. aureus* isolates from different wound samples. Three types of samples, skin infection, burn, and accident wound samples, were collected. Out of 45 samples, 18 isolates are accident samples that had highest prevalence of *S. aureus* and the second highest prevalence of *S. aureus* was observed in skin infection samples. Among the 18 isolates, 14 (77.7%) of *S. aureus* were coagulase negative. The highest coagulase negative result was observed in skin infected sample (83.3%), accident and burn infection 77.7% and 66.6%, respectively. Among the 18 isolates, 14 isolates produce low-level MUP-resistant gene. In high-level resistance isolates, the remaining 4 isolates produce high-level MUP resistant gene and were observed by polymerase chain reaction amplification of MUP-resistant genetic and plasmid DNA.

Keywords: Coagulase-negative *Staphylococcus aureus*, multidrug resistant, mupirocin, nosocomial infection

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INTRODUCTION

Skin is the outer covering which protects us from the environment. But when damaged or opened by means of trauma and wounds, it is constantly exposed to bacteria and hence preventing infections becomes a great challenge. When the skin gets damaged, the bacteria may harbor and multiply to most dangerous levels, which delays the healing activity, which risks in developing bacteremia and septicemia and hence wound infections need to be treated quickly to avoid the consequences (Sukumaran and Senanayake, 2016).

Wounds contain a high bacterial prevalence and even if they tend to heal normally, a limited amount of pathogenic bacteria will be present in it. Consequently, when the bacterial count increases, the wound may become infected again that requires

antibiotic treatment. If the wound is not healing, it may be a sign of infection. In the wound, the following symptoms indicate the development of infection; odor, elevated exudate level, absent or abnormal granulation, tissue increased pain. The most common causative organisms associated with wound infections include *Staphylococcus aureus*/methicillin-resistant *S. aureus* [MRSA], *Streptococcus pyogenes*, *Enterococci*, and *Pseudomonas aeruginosa* (Klein *et al.*, 2007).

The emergence of antibiotic-resistant microorganisms and their spread is a life-threatening risk in the medical community. *S. aureus* is the most common cause of nosocomial infection. Its tendency to multiple antibiotic resistances which often complicates treatments tend the researchers to study more about antibiotic-resistant *S. aureus*. Special interest in *S. aureus* surgical site infections is mainly due to its predominant role

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PREVALENCE OF EXTENDED-SPECTRUM BETA-LACTAMASE PRODUCING ENTEROBACTERIACEAE MEMBERS ISOLATED FROM CLINICALLY SUSPECTED PATIENTS

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ABSTRACT

Objective: Emergence of extended-spectrum beta-lactamases (ESBLs) production poses another clinical problem with Gram-negative bacterial infections. The present study was aimed to evaluate the ESBL producers among various clinical samples of clinically suspected patients.

Methods: A total of 1279 samples (urine [918], pus [207] and stool [154]) were collected and 465 isolates (*Escherichia coli* [320], *Enterobacter aerogenes* [119] and *Klebsiella pneumoniae* [26]) were isolated and screened for the presence of ESBL producers using combination disc method and double disc synergy test.

Results: Of the 465 culture positive isolates, 130 (*E. coli* 93 [29.06%], *E. aerogenes* 35 [29.41%] and *K. pneumoniae* 2 [7.69%]) were identified as ESBL producers. Among the three *Enterobacteriaceae* members, *E. coli* 93 (29.06%) was found to be predominant ESBL producer next in order *E. aerogenes* 35 (29.41%) and *K. pneumoniae* 2 (7.69%). Maximum number of ESBL producers were recovered from urine (n=111) followed by pus (n=14) and stool (n=5). All the ESBL-producing isolates were subjected to antibiotic sensitivity test using 10 different antibiotics. ESBL producers were chiefly resistance to ceftriaxone followed by ceftazidime and cefotaxime. Of 130 ESBL producers, 15 (*E. coli* (8), *E. aerogenes* (6) and *K. pneumoniae* (1)) strains were selected for genotypic identification. Among, only two strains of *E. aerogenes* were positive isolates for CTX-M type ESBL in polymerase chain reaction.

Conclusion: This study concluded that among *Enterobacteriaceae* members, *E. coli* was the predominant ESBL producers and urine was noted as the prime source for the ESBL positive isolates when compared to other source. Genotypic identification was the best method to differentiate ESBL types which were essential to provide proper treatment.

Keywords: Extended-spectrum beta-lactamase, *Enterobacteriaceae*, *Escherichia coli*, *Enterobacter aerogenes* and *Klebsiella pneumoniae*.

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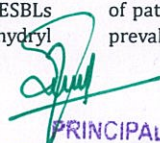
INTRODUCTION

Infections caused by extended-spectrum beta-lactamase (ESBL)-producing, Gram-negative bacteria are associated with increased morbidity and mortality, which is linked to inappropriate or delayed antimicrobial treatment [1]. Since the introduction to the extended spectrum cephalosporins into clinical use, strains expressing ESBL have been reported from to the world in increasing numbers [2]. There is no consensus on the precise definition of ESBLs. A commonly used working definition is that the ESBLs are β -lactamases capable of hydrolysis of the antibiotics such as penicillins, first-, second- and third-generation cephalosporins and aztreonam (AT) (but not the cefamycins or carbapenems) and which are inhibited by β -lactamase inhibitors such as clavulanic acid [3]. The first report on plasmid-encoded β -lactamases capable of hydrolyzing the extended-spectrum cephalosporins was published in 1983 [4]. Among the family Enterobacteriaceae, the production of plasmid-mediated extended-spectrum β -lactamase (ESBLs) has emerged as an important mechanism of resistance to β -lactam drugs [5]. ESBLs have been found mainly in *Klebsiella* spp., and *Escherichia coli*, but have been also reported on other genera worldwide, such as *Citrobacter*, *Enterobacter*, *Morganella*, *Proteus*, *Providencia*, *Salmonella*, *Serratia* and *P.seudomonas* [6,7].

The ESBL genes are mostly plasmid-encoded [8], and most ESBLs can be divided into three genotypes: Temoniera (TEM), sulfhydryl

variable (SHV), and CTX-M [3]. The predominant ESBL genotypes were TEM and SHV [9]. Most ESBLs are TEM and SHV enzyme derivatives characterized using a few point mutations at selected loci within the gene [2,10]. This enzyme was found in a blood culture isolate of *E. coli* from a Greek patient named TEM, hence the designation TEM [11]. The SHV-type ESBLs may be more frequently found in clinical isolates than any other type of ESBLs [12]. SHV refers to SHV. In addition, a genotype the CTX-M enzyme emerged worldwide when compared to TEM and SHV [9]. The plasmid-mediated ESBLs, which preferentially hydrolyze cefotaxime (CE) and are better inhibited by tazobactam than by sulbactam and clavulanate so-called as CTX-M enzymes [11]. In the 1990s, a novel type of ESBL, the CTX-M enzyme, emerged worldwide [9]. The CTX-M types, now exceeding 50 different types, can be divided into five groups based on their amino acid identities: CTX-M-1, CTX-M-2, CTX-M-8, CTX-M-9, and CTX-M-25 [13]. These enzymes are not very closely related to TEM and SHV β -lactamases as they show only 40% identity with these enzymes [14].

Infections caused by ESBL-producing bacteria often involve immunocompromised patients, making it difficult to eradicate these organisms in high-risk wards, such as intensive care units [15,16]. Drug susceptibility data are of major importance to the clinical management of patients infected by these organisms [10]. Thus, monitoring of the prevalence and the types of extended-spectrum β -Lactamase enzymes



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RESEARCH ARTICLE

PURIFICATION AND CHARACTERIZATION OF NOVEL EXTRACELLULAR KERATINASE ENZYME FROM POULTRY FEATHER WASTE

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ABSTRACT

Keratinolytic microorganisms have great importance in the production of protein hydrolysates. *Bacillus* sp., a potential chicken feather degrading bacterium was isolated and identified by morphological and biochemical methods was used in the present study. The interactions of various factors such as temperature, pH, substrate concentration and composition of carbon and nitrogen sources as well as the level of inoculants were determined. The optimum conditions for keratinase production and feather degradation was at pH 6 and 31°C. The maximum amount of enzyme production was observed in yeast extract 15.83 U/ml at 72 hours, fructose (5.64 U/ml) at 48 hours and 0.5 mg of chicken feather as substrate produced 11.44 U/ml at 96 hours in *Bacillus* sp. The maximum keratinase production was recorded at 96 hours in 100 µl of inoculum for specific activity 3.49 U/ml. *Bacillus* sp. can be used as an effective tool for the melanised feather degradation and gives a remedy for environmental concern over abundant feather waste conversion to value added product formation in biotech industry with its promising keratinolytic abilities.

Key words: Feather-degradation, Keratin, Keratinase, Poultry waste.

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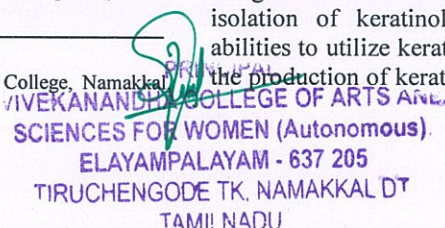
INTRODUCTION

Keratins are a family of important structural proteins found in feathers, wool, horn, hooves, nails, claws, beaks and hair. Feather keratin exhibits an elevated content of several amino acids such as glycine, alanine, serine, cysteine and valine. Because of a high degree of cross-linking by cysteine disulfide bonds, hydrogen bonding, and hydrophobic interactions, keratin is insoluble and not degradable by proteases such as trypsin, pepsin, and papain (Williams *et al.*, 1990). Worldwide, millions of tons of feathers were released annually as a waste product mainly from poultry processing plants. The poultry feather are dumped, used for land filling and incinerated or buried, which involves problems in storage, handling, emission control and ash disposal (Mazotto *et al.*, 2011). Discarded feathers also considered to be a serious source of pollution and cause various infections including chlorosis, mycoplasmosis and fowl cholera (Xu *et al.*, 2009). There are several methods are available for degrading feathers but the major demerit of mechanical and chemical degradation methods over biological procedures that certain amino acids might be destroyed that leads to low protein quality and digestibility but also consume

large amounts of energy (Xu *et al.*, 2009). Keratinase is an extracellular enzyme used for the biodegradation of keratin. Keratinase is produced only in the presence of keratin substrate. Bacterial strains are known which are capable of degrading feathers. These bacterial strains produce enzymes which selectively degrade the beta-keratin present in feathers. These enzymes make it possible for the bacteria to obtain carbon, sulfur and energy for their growth and maintenance from the degradation of beta keratin. Biodegradation of poultry waste by keratinases is an environmentally friendly process that can play an important role in biotechnological such as enzymatic improvement of feather meal, production of rare amino acids (serine, cystein and proline) and peptides, used in the leather industry as well as medicine and cosmetic production. Alternatively, they can be used in the conversion of feathers into value-added products including fertilizers, glues, films and foils (Jin- Ha Jeong *et al.*, 2010; Mohorcic *et al.*, 2007; Zerdani *et al.*, 2004). Additionally, the accumulation of some of these wastes in nature is considered to be a serious source of pollution and health hazards. The present work was designed to screen keratin disposal sites in Erode district for the isolation of keratinolytic bacteria and to determine their abilities to utilize keratin substrates from the feather wastes for the production of keratinases. One of the isolate, a *Bacillus* sp.,

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QUALITATIVE AND QUANTITATIVE ANALYSIS OF SECONDARY METABOLITES, ANTIMICROBIAL AND ANTICANCER PROPERTY OF *Azadirachta indica*

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ABSTRACT

Plant secondary metabolites play a vital role in herbal medicine and these metabolites possess immense pharmacological activities. Hence the present study focused on to identify the antibacterial, antifungal and anticancer activity and GC- MS analysis of secondary metabolites of *Azadirachta indica* stem extracts. The phytochemical screening of *A. indica* stem extracts showed better compounds separation with methanol extract. Antibacterial activity of *A. indica* methanol extract at 100 µg concentration showed highest zone of inhibition in *E. coli*, *B. subtilis*, *P. vulgaris* and *S. shigella* with 18 mm zone when compared to other extracts. Antifungal activity of *A. indica* methanol extract at 100 µg concentration showed highest zone of inhibition in *P. chrysogenum* with 24 mm zone. DPPH assay for different extracts of *A. indica* showed highest percentage inhibition in the ethyl acetate extract of *A. indica*. *A. indica* methanol extract showed better cytotoxic effect in lung cancer cell line (A549) at 500 µg concentration when compared to control. GC- MS analysis exhibited the 97 active secondary metabolites in all the extracts of *A. indica*.

Keywords: Phytochemical screening, *Azadirachta indica*, antibacterial and antifungal activity and MTT assay.

INTRODUCTION

Plants used as food and in traditional medicine are more likely to yield pharmacologically active compounds. The medicinal properties of plants have been investigated in the recent scientific developments throughout the world, due to their potent therapeutic efficacy and antioxidant activities, no side effects and economic viability. Plants synthesize phytochemicals, which are beneficial for our health as they cannot be synthesized in the human body (Martinez *et al.*, 2008).

Generally variety of plants has pharmacological effects due to the presence of metabolites. Secondary metabolites are alkaloids, flavanoids, terpenoids, saponins, glycosides, steroids, tannins and volatile oils. The therapeutic efficacy of plants is because of these secondary metabolites for curing many diseases. Phytochemicals are pharmacologically active compounds include alkaloids have an antispasmodic, anti-malarial, analgesic, diuretic activities (Maurya *et al.*, 2008; Chopra and Doiphode, 2002).

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EFFECTIVE XYLANASE PRODUCING YEASTS FROM IDLI BATTER- A REVIEW

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ABSTRACT

The use of fermented foods for improved livelihoods is continuously increasing with the alarming increase in the human population. Idli is one of the very old and ancient fermented food that is consumed by the people even before the word 'fermentation' is coined. The fermentation of idli batter is mainly due to the action of diverse range of microbial populations and yeasts takes up the major place in the process. During fermentation, the density of the idli batter will also increase due to the production of different useful enzymes by yeasts and bacteria. Several enzymes have been isolated and purified by downstream processing for various industrial applications. Xylanase is one of the glycoside hydrolases that degrade the linear poly saccharide xylan into xylose. Xylose is a low energy sugar used as sweetener for diabetic patients in food and beverages. This class of enzymes are also used in the biobleaching of wood pulp and in the bioprocessing of textiles, food processing etc. Enzymatic treatment has been shown to improve different physical properties of paper, such as tensile strength, viscosity, tear factor and breaking length.

Key Words : Ancient foods, Fermentation, Idli batter, Yeasts and Xylanase

INTRODUCTION

Development in science and technology brought wide variety of changes across the globe in both positive and negative aspects. In agriculture sector increased production and productivity improved the food security however nutritional and ecological security has become a big question. Narrowed food basket and excess consumption of certain cereals like rice, wheat and maize lead to excess intake of carbohydrate food with less fibre lead to increased diabetics. Though attempts are being made to improve upon fibre rich crops like millets (Gopinath, et al., 2017) the immediate need is also to identify effective pathway for low energy sugar substitutes like xylose which is naturally occur through our tradition food preparing methods like idli batter.

Decreased level of reducing sugars and a non protein nitrogen is produced during the fermentation of Idli (a popular breakfast dish in South India) batters; the batters are usually prepared by soaking rice (*Oryzasativum*) and decuticled black gram (*Phaseolusmungo*) dhal in water, grinding them separately, mixing, and allowing the mixture to ferment overnight. Both titratable acidity and the volume of the batter increase as a result of fermentation and have been used as criteria for judging the progress of fermentation. A temperature range of 25-30 °C has been found to be optimal for the fermentation. Temperatures around 40°C speeds up the rate, but at some cases, unwanted odour will be developed at elevated temperatures. Presoaking of black gram dhal before grinding with the help of conventional methods has been recognized to be a necessary step in the fermentation. The possibilities of a 'Flour Presoaking method' and a 'Composite Dry Mix Method' for Idli making to eliminate the need for wet grinding of black gram dhal and rice. Both yeasts and bacteria participate in the fermentation process using penicillin G and chlortetracyclin as selective inhibitors. Acid and gas production have been found to be mostly dependent on the growth of microbes belonging to this kind of microbial group (Desikacharet al, 1960).

Yeast flora accountable for gas production during the idli batter fermentation (wet ground mixture of rice and *Phaseolusmungo*) was found to possess *Hansenulaanamola*, *Candida glabrata*, *C. tropicalis*, *C. sake*, *Torulopsis candida*, *C. krusei*, *T. holmii* and *Trichosporonpullulans*. There are number of sources of yeast strains which will be found on the surfaces of stone grinders used for preparation of batter and also parboiled rice used in batter preparation. Among the several yeast strains identified, *Torulopsisholmii* had a higher fermentation rate than other strains. Addition of glucose (1%) did not significantly improve fermentation efficiency. GLC analysis of constituent gases released during batter fermentation by yeasts indicated mainly distinct CO₂ peaks compared to H₂ produced in batter fermented by *Leuconostocmesenteroides*.

Role of yeasts in food fermentation

Food fermentation is practiced traditionally worldwide in the human society since many generations with the primary objectives to increase the shelf life, taste, aroma and nutritional properties of the fermented products. The art of fermentation, particularly with a particular starter is increasingly recognised recently, which has also led in application of specific culture and increased the importance of controlled fermentation

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ISOLATION AND IDENTIFICATION OF EFFECTIVE HYDROCARBON DEGRADING BACTERIA FROM HYDROCARBON POLLUTED SOIL

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ABSTRACT

Degradation by microbial population represents one of the significant mechanisms by which petroleum and other hydrocarbon pollutants can be removed from the environment and is cheaper than other remediation technologies. Various colonies of microbes were isolated through serial dilution and plating methods from hydrocarbon polluted soil environment. The morphology of the microbial population was identified through gram's staining and the strain name was evaluated through Biochemical tests procedure thorough Bergey's manual. A concentration of about 4% of crude oil was inoculated along with the microbes and incubated. It was observed every day for its growth and found that it has higher growth rate with high rate of emulsification. A comparative significance of the bacterial isolated was done by calculating the percentage of bacterial count every day.

INTRODUCTION

Polycyclic aromatic hydrocarbons (PAHs) are considered as one of the omnipresent pollutant, released mostly as a consequence of fossil fuel combustion and as by-products of industrial activities. Since many hydrocarbons are identifiable or suspected carcinogens and mutagens, exposure to PAHs may indicate a health hazard to the growing human populations (White *et al.*, 1986), and therefore the future is of great ecological concern. Microorganisms with the capability to degrade many PAHs and their mechanisms of action is specific to certain hydrocarbons.

Petroleum hydrocarbons such as crude oil are highly related to the environmental contaminants around the world. During production, transport, storage and refinery of crude oil, the contamination of ground and surface water bodies, soils and sediments results from accidents and improper handling. Due to their toxicity, oil-containing liquid and solid matrices pose great hazards to terrestrial and marine ecosystems. Petroleum hydrocarbons represent a complex mixture of several hundred compounds, including saturated and unsaturated compounds, which are, despite their toxicity and hydrophobicity, prone to transformation and mineralization by a variety of naturally occurring microorganisms. These processes can be supported by different engineered measures to support contaminant biodegradation, which are commonly referred to as bioremediation (Hua *et al.*, 2004).

Liberation of hydrocarbons into the environment inadvertently or owing to human activities is a chief cause of the water and soil pollution (Holliger *et al.*, 1997). Soil contamination with hydrocarbons causes widespread damage of confined system since building up of pollutants in animals and plant tissue may lead to death or mutations (Alvarez *et al.*, 1991). The technology generally used for the soil remediation includes mechanical burying, evaporation, distribution and washing. However, these technologies are high-priced and can lead to incomplete decomposition of contaminants. In addition, bioremediation technology is believed to be non-invasive and comparatively cost-effective (April *et al.*, 2000).

Phytochemical and antimicrobial activity of *Andrographis neesiana* against clinical pathogens and to analyze the antioxidant activity of active phytoconstituents

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Abstract:

Medicinal plants are significant resource to traditional society's health care systems. Most of antibacterial, antifungal, antioxidant drugs have been discovered through random screening of plant materials. From the present study it is concluded that the ethanol extracts of *Andrographis neesiana* has good free radical scavenging, reducing power and chelating activity could be explored as a natural antioxidant that could have great importance as therapeutic agents in preventing or slowing the progress of aging and age associated oxidative stress related degenerative diseases. The result obtained the type of phytochemical present in ethanol extracts such as Gum and oil, Steroids, Saponins, Tannins, Terpenoids, and Glycoside. Type of phytochemical present in chloroform extract such as Gum and oil, Terpenoids, Glycoside. The high probability compounds present in the ethanolic extract of *Andrographis neesiana* were identified by GC-MS.

Keywords : *Andrographis neesiana*, Phytoconstituents, GC-MS

INTRODUCTION

Medicinal plants are mainly used for their synergic effect, the ingredients of plants cure the disease and also, can complement or damage or neutralize their possible negative effects. The phytochemical constituents act as a great support for official medicine, in the treatment of complex diseases like cancer and the phytochemical substituents of the plants proved to be very effective. It has been proved that the active components of the plants also characterize by their ability to prevent the appearance of some diseases, hence it is called Preventive medicine. Plants can be used as alternative source of chemical remedies for the currently available medical system. Traditional medicine is an evolutionary process as communities and individuals continue to discover new techniques that can transform practices (Bassam *et al.*, 2012).

The importance of traditional medicine as a source of primary health care was first officially recognized by the WHO in the Primary Health Care Declaration of Alma-Ata has globally addressed since 1978 by the traditional programmers of WHO. The importance of genetic resources of medicinal plants as traditional medicine was also recognized in 1992 by the Maastricht declaration of the world congress on medicinal and aromatic plants for human welfare.

The modern medical revolution of the past 50 years includes a part of the plant ingredients have been isolated from plants. These chemical ingredients exhibit therapeutic properties of plant and animal drugs. Due to the lower and affordable cost the WHO promotes the addition of herbal drugs in national health care programs to reach the common man and are time tested and thus considered to be much safer than the modern synthetic drugs. Modern pharmacology's contains at least 25% of the drugs as derived from a plant and many others, which are synthetic analogues, built on prototype compounds isolated from plants.

Andrographis neesiana (Acanthaceae) is an endemic medicinal herb found in wild in tropical Asia. The works plants of Species of *Andrographis spp* (Acanthaceae) are used in the Indian systems of medicine namely, Siddha, Ayurveda, Unani, Naturopathy, Homeopathy, Amachi and Modern. The genus *Andrographis* as a whole is of potentialities significance to India. (Alagesaboopathi and Balu, 1999). The Present study deals with the qualitative analysis of phytochemical, antimicrobial activity of *Andrographis neesiana* against clinical pathogens and to analyze the antioxidant activity, active Phytoconstituents using Thin layer chromatography and GC-MS.

MATERIALS AND METHODS

COLLECTION OF PLANT

In the present study fresh plants were collected and washed several times under running tap water. The natural process of plant material was shade dried for about 20 days then coarse powdered and stored in a sterile bag. Anita Mehta *et al.*, 2017

METHOD OF EXTRACTIONS

About 50g of dried coarse powder of *Andrographis neesiana* leaves were soaked with Ethanol and chloroform (150ml) in Soxhlet extraction to obtain the bioactive compounds



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Qualitative and Quantitative Analysis of *Z. jujuba* Leaf, Fruit and Seed Extracts

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Abstract

Zizyphus jujuba belongs to *Rhamnaceae* family which comprises about fifty genera and more than 900 species. It is well known for its biological properties and there may be unknown phytochemical compounds present in the plant. Present work was studied on the qualitative and quantitative analysis of *Z. jujuba* leaf, fruit and seed using different extracts. Many compounds show presence in methanol extract and the quantitative analysis shows high in phenolic compounds.

Keywords

Phytochemical analysis, compounds

INTRODUCTION

Medicinal plants are a pool of biologically active compounds with therapeutic properties has been well-known, and in view of the fact that ancient time they have been used worldwide for the treatment of various ailments, like asthma, skin disorders, gastro-intestinal problems, urinary and respiratory complications, hepatic and cardiovascular disease (Cousins and Huffman, 2002; Tian *et al.*, 2014). The interest on insist for more plant derived drugs, are considered as safe while compared to synthetic drugs, is increasing fast. The medicinal value of these plants deception in chemical substances that produce an encouraging physiological action on the human body and because plants synthesize tremendously assorted range of chemical

compounds, they represent an immense potential for the development and discovery of new pharmaceuticals (Chesney *et al.*, 2007).

The phytochemical compounds or secondary metabolites are well known for its biological properties such as antioxidant activity, antimicrobial activity, anticancer activity, detoxification enzymes, immune system stimulation, diminish of platelet aggregation and modulation of hormone metabolism. There are more over thousand known and many unknown metabolites in plant system. It is clearly known that plants produce these phytochemicals to protect themselves, however recently scientists reveal that many phytochemicals can also protect human against many diseases (Narasinga Rao, 2003).

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SCREENING AND QUANTIFICATION OF SECONDARY METABOLITES FROM DIFFERENT PARTS OF A MULTIPURPOSE TREE - *Moringaoleifera*

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Abstract

Since from the ancient times *Moringa oleifera* is used as a multipurpose medicinal plant for curing many ailments all over the world. Many researches focused on analyzing its medicinal value in which some of them became a pool proof for the present research work. The above work was done to analyze the presence of high amount of secondary metabolites from different parts of *Moringa oleifera* with six different solvents. In such a way, the photochemicals like alkaloids, Flavanoids, lignins, tannins, phenols, terpenoids, sterols, glycosides, Saponins, proteins and carbohydrates were screened highly from the four different solvents like aqueous, methanol, ethanol and acetone when compared with other solvents. Among the three different parts (Leaf, pods and bark) of *Moringa oleifera* high amount of secondary metabolites were quantified from the leaf sample when compared with the other two samples.

Key Words: Secondary metabolites, Solvents, Leaf, Bark, Pod.

Introduction

Cancer is a dreadful disease and becomes a second leading cause for the death of many lives after the heart related diseases (Benjamin, *et al.*, 2014). It is caused by a variety of abnormal exposure of living organisms to biotic and abiotic factors. Only in the recent past cancer has been identified as the disease characterized by uncontrolled growth of cells and increasing in occurrence rapidly with increasing xenobiotic compounds resulting from industrialization process. However, symptoms of cancer are also reported in the past (Cynthia, *et al.*, 2008) which were treated through traditional healing techniques and also realized that traditionally communities elsewhere on the globe has been having diverse food that could cure the initial stages or development of cancer. Reducing food basket and development of modern medicine and technology contributes to increasing incidence of cancer among the human beings.

Though various treatment methods were available to treat cancer nowadays many researchers were focusing on the natural medicine for treating the cancer at its earlier stage itself. Nearly fifty to sixty plant species (Avni, *et al.*, 2008) were already in use and further investigations were going on at molecular level. The compounds derived from each plant species may be used to treat various types of cancers at different stages. *Moringa* is such a wonderful plant species which posses bundle of medicinal properties (Alessandro, *et al.*, 2015). *Moringa oleifera* is commonly called as murungai in Tamil and it is common in world wide. It belongs to the monogeneric subfamily and family called Moringaceae. The height of the tree varies from 10 – 12 m and this type of species is called as soft wood tree. Ancient medicinal system named ayurvedic system of medicine reported that it can able to cure and prevent 300 different types of diseases and its leaves were used to treat many ailments (Ganguly, *et al.*, 2013). Different parts of the plant in *Moringa* is well known for its medicinal properties like antitumor, antipyretic, antiepileptic, anti-inflammatory, antiulcer, antidiabetic, antioxidant, antifungal and antibacterial activities (Faroq Anwar, *et al.*, 2007). Among the various uses of this plant species anti-cancer property is highly valued in the recent past by researchers though it is known from the time immemorial.

Materials and Methods

Young leaves, Pods and Bark were collected from *Moringa oleifera* tree growing at Tiruchengode, Namakkal District and was identified and authenticated by Botanical Survey of India, Coimbatore. Collected samples were shade dried and powdered. Powdered samples were dissolved in different solvents like methanol, ethanol, acetone, petroleum ether, chloroform and water. The Phytochemical screening for the identification of the secondary metabolites like Alkaloids, Flavonoids, Lignin, Tannins, Phenols, Terpenoids, Steroids, Glycosides, Saponins, Proteins and Carbohydrates were performed using the standard procedure prescribed by Sofowora (1993), Trease and Evas (1972) and Odebiyi and Sofowara (1979). Quantitative analysis of Secondary Metabolites was done by using the standard procedure prescribed by Harborne (1973), Kumaran, *et al.*, (2007), Obadani (2001), Van Burden and Robinson, (1981) and Mc. Donald, *et al.*, (2001). The nutritional contents like proteins, carbohydrates, fats, fiber and ash contents were determined by the following procedure prescribed by Van Soest, *et al.*, (1991).

Results

The concentration of the different secondary metabolites in the crude extract of *Moringa oleifera* leaf with different solvents was calculated. The alkaloids was found to be high in aqueous extract where as it was lower in ethanol, which showed significance with different solvents with p value of about < 0.0001 and the f value of about 41.836. Flavonoids was found to be higher in methanol and lower in aqueous, which showed significance with different solvents with the p value of about < 0.0001 and the f value of about 260.71. Lignins was found to be higher in ethanol followed with methanol and aqueous, which showed significance with

EFFECTIVE XYLANASE PRODUCING YEASTS FROM IDLI BATTER- A REVIEW

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ABSTRACT

The use of fermented foods for improved livelihoods is continuously increasing with the alarming increase in the human population. Idli is one of the very old and ancient fermented food that is consumed by the people even before the word 'fermentation' is coined. The fermentation of idli batter is mainly due to the action of diverse range of microbial populations and yeasts takes up the major place in the process. During fermentation, the density of the idli batter will also increase due to the production of different useful enzymes by yeasts and bacteria. Several enzymes have been isolated and purified by downstream processing for various industrial applications. Xylanase is one of the glycoside hydrolases that degrade the linear poly saccharide xylan into xylose. Xylose is a low energy sugar used as sweetener for diabetic patients in food and beverages. This class of enzymes are also used in the biobleaching of wood pulp and in the bioprocessing of textiles, food processing etc. Enzymatic treatment has been shown to improve different physical properties of paper, such as tensile strength, viscosity, tear factor and breaking length.

Key Words : Ancient foods, Fermentation, Idli batter, Yeasts and Xylanase

INTRODUCTION

Development in science and technology brought wide variety of changes across the globe in both positive and negative aspects. In agriculture sector increased production and productivity improved the food security however nutritional and ecological security has become a big question. Narrowed food basket and excess consumption of certain cereals like rice, wheat and maize lead to excess intake of carbohydrate food with less fibre lead to increased diabetics. Though attempts are being made to improve upon fibre rich crops like millets (Gopinath, et al., 2017) the immediate need is also to identify effective pathway for low energy sugar substitutes like xylose which is naturally occur through our tradition food preparing methods like idli batter.

Decreased level of reducing sugars and a non protein nitrogen is produced during the fermentation of Idli (a popular breakfast dish in South India) batters; the batters are usually prepared by soaking rice (*Oryzasativum*) and decuticled black gram (*Phaseolusmungo*) dhal in water, grinding them separately, mixing, and allowing the mixture to ferment overnight. Both titratable acidity and the volume of the batter increase as a result of fermentation and have been used as criteria for judging the progress of fermentation. A temperature range of 25-30 °C has been found to be optimal for the fermentation. Temperatures around 40°C speeds up the rate, but at some cases, unwanted odour will be developed at elevated temperatures. Presoaking of black gram dhal before grinding with the help of conventional methods has been recognized to be a necessary step in the fermentation. The possibilities of a 'Flour Presoaking method' and a 'Composite Dry Mix Method' for Idli making to eliminate the need for wet grinding of black gram dhal and rice. Both yeasts and bacteria participate in the fermentation process using penicillin G and chlortetracyclin as selective inhibitors. Acid and gas production have been found to be mostly dependent on the growth of microbes belonging to this kind of microbial group (Desikacharet al, 1960).

Yeast flora accountable for gas production during the idli batter fermentation (wet ground mixture of rice and *Phaseolusmungo*) was found to possess *Hansenulaanamola*, *Candida glabrata*, *C. tropicalis*, *C. sake*, *Torulopsis candida*, *C. krusei*, *T. holmii* and *Trichosporonpullulans*. There are number of sources of yeast strains which will be found on the surfaces of stone grinders used for preparation of batter and also parboiled rice used in batter preparation. Among the several yeast strains identified, *Torulopsisisholmii* had a higher fermentation rate than other strains. Addition of glucose (1%) did not significantly improve fermentation efficiency. GLC analysis of constituent gases released during batter fermentation by yeasts indicated mainly distinct CO₂ peaks compared to H₂ produced in batter fermented by *Leuconostocmesenteroides*.

Role of yeasts in food fermentation

Food fermentation is practiced traditionally worldwide in the human society since many generations with the primary objectives to increase the shelf life, taste, aroma and nutritional properties of the fermented products. The art of fermentation, particularly with a particular starter is increasingly recognised recently, which has also led in application of specific culture and increased the importance of controlled fermentation

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MICROBIAL DIVERSITY AND XYLITOL PRODUCTION FROM IDLI BATTER

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ABSTRACT

The idli batter was prepared with soaked rice grains and black gram along with the salt content and kept at room temperature. The microbial load increases after a day after preparation which is indicated by the presence of effervescence. Different microbial colonies were plated in different medium source for the isolation of fungal and bacterial species. The colony forming unit per microbial load was calculated which indicates the blooming of higher population rate. The quantity of xylitol in yield g/litre produced from microorganisms showed highest production where as extremely significant with all other isolates.

INTRODUCTION

Idli is a cereal-legume based fermented and steamed food widely consumed in India and Srilanka (Durgadevi and Shetty, 2014). Lactic acid bacteria (LAB) such as *Leuconostoc spp.*, *Lactobacillus spp.*, *Streptococcus spp.* and yeasts naturally ferment idli batter (Mukherjee *et al.*, 1965). The physicochemical characteristics of idli batter depends on the microflora evolving (predominantly LAB) throughout the fermentation and is responsible for leavening and acid production (Varadaraj *et al.*, 1999). The most significant microbes are *Leuconostoc mesenteroides* and *Streptococcus faecalis* multiply at the drenching stage and proceed to enhance its proliferation while grinding which is followed throughout the fermentation of idli batter (Mukherjee *et al.*, 1965).

Xylitol is basically a polyol compound, with a sweet taste analogous to sucrose, which is predominantly found in fruits and vegetables. It also appears as an intermediate in mammalian carbohydrate metabolism: For example, human adults produce between 5 and 15 g xylitol/day (Pepper & Olinger., 1988). The comparatively high added-value and growing market for xylitol has fostered extensive research on its dietary and technological properties. Industrially, xylitol is produced by reducing pure xylose, obtained from hardwood hydrolysates, in the presence of a Raney nickel catalyst (Melaja *et al.*, 1981).

The chemical process that requires several purification steps, because only pure xylose can be used for chemical reduction (Härkönen and Nuojua., 1979). The overall xylitol yield is approximately 50- 60% from the total xylan content of the wood hemicellulose (Nigam and Singh., 1995). Currently, the annual production lies between 20,000 and 40,000 t per year with a market value of 40-80 M€.

Xylitol has been used as a stabilizing agent for proteins during their extraction from natural membranes and thus avoiding denaturation when used in combination with alcohols

ISOLATION AND IDENTIFICATION OF EFFECTIVE HYDROCARBON DEGRADING BACTERIA FROM HYDROCARBON POLLUTED SOIL

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ABSTRACT

Degradation by microbial population represents one of the significant mechanisms by which petroleum and other hydrocarbon pollutants can be removed from the environment and is cheaper than other remediation technologies. Various colonies of microbes were isolated through serial dilution and plating methods from hydrocarbon polluted soil environment. The morphology of the microbial population was identified through gram's staining and the strain name was evaluated through Biochemical tests procedure thorough Bergey's manual. A concentration of about 4% of crude oil was inoculated along with the microbes and incubated. It was observed every day for its growth and found that it has higher growth rate with high rate of emulsification. A comparative significance of the bacterial isolated was done by calculating the percentage of bacterial count every day.

INTRODUCTION

Polycyclic aromatic hydrocarbons (PAHs) are considered as one of the omnipresent pollutant, released mostly as a consequence of fossil fuel combustion and as by-products of industrial activities. Since many hydrocarbons are identifiable or suspected carcinogens and mutagens, exposure to PAHs may indicate a health hazard to the growing human populations (White *et al.*, 1986), and therefore the future is of great ecological concern. Microorganisms with the capability to degrade many PAHs and their mechanisms of action is specific to certain hydrocarbons.

Petroleum hydrocarbons such as crude oil are highly related to the environmental contaminants around the world. During production, transport, storage and refinery of crude oil, the contamination of ground and surface water bodies, soils and sediments results from accidents and improper handling. Due to their toxicity, oil-containing liquid and solid matrices pose great hazards to terrestrial and marine ecosystems. Petroleum hydrocarbons represent a complex mixture of several hundred compounds, including saturated and unsaturated compounds, which are, despite their toxicity and hydrophobicity, prone to transformation and mineralization by a variety of naturally occurring microorganisms. These processes can be supported by different engineered measures to support contaminant biodegradation, which are commonly referred to as bioremediation (Hua *et al.*, 2004).

Liberation of hydrocarbons into the environment inadvertently or owing to human activities is a chief cause of the water and soil pollution (Holliger *et al.*, 1997). Soil contamination with hydrocarbons causes widespread damage of confined system since building up of pollutants in animals and plant tissue may lead to death or mutations (Alvarez *et al.*, 1991). The technology generally used for the soil remediation includes mechanical burying, evaporation, distribution and washing. However, these technologies are high-priced and can lead to incomplete decomposition of contaminants. In addition, bioremediation technology is believed to be non-invasive and comparatively cost-effective (April *et al.*, 2000).

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ISOLATION AND IDENTIFICATION OF EFFECTIVE PESTICIDE DEGRADING BACTERIA FROM COW DUNG

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ABSTRACT

Presence of contaminants in the environment either stimulates or depresses the enzymatic function of microorganisms. This ability largely depends upon the selective microbial community as well as on the structural and functional groups of toxic compounds. Bioremediation is the utilization of living organisms, primarily microorganisms, to mortify the environmental contaminants into less toxic forms. With the immense potential of microbial population holds hand for degrading pesticides. In this regard, an investigational research was put forth in isolating the microbial colonies from cow dung for evaluating its potential degradative effects. A different colony of microbes was isolated through serial dilution and plating methods from cow dung. The morphology of the microbial population was identified and the strain name was evaluated through Biochemical tests and Gram's staining procedure. A concentration of about 25ppm of organophosphate pesticide - chlorpyrifos was inoculated along with the microbes and incubated. It was observed every day for its growth and found that it has higher efficacy in resisting the effect of chemical compounds present in Chlorpyrifos. A comparative significance of the bacterial isolated was done by calculating the percentage of bacterial count every day.

INTRODUCTION

In traditional system of medicine, Gomeya/cow dung is not considered as a fritter product, but it is reported as a cleanser of all the wastes in nature (Ank., 1995). When spread over urban and rural waste in solution form (1:10-1:25 solution), it tends to degrade the waste in time. It is often named as "gold mine" applications due to its wide range of applications in the field of agriculture, environmental protection, energy resource and several other therapeutic applications (Randhawa *et al.*, 2011). Cow dung is a very economical and easily accessible source which is rich in microflora. Though, cow dung has been used in several studies, the breed of cow has not been mentioned. As per Indian Vedic scriptures, cow dung is excreted from Indian indigenous cow/Bos indicus/Zebu breed which is much better than that of other newer breeds.



Qualitative, Quantitative Analysis, Antimicrobial And Anticancer Property Of *Andrographis paniculata*

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ABSTRACT

Bioactive compound from plant species found to the attention in the recent past for safer and sustainable cure of many diseases especially for antimicrobial and anticancer property. Attempting to this the present research was carried out with a aim to study the quality and quantity of secondary metabolites of *A. paniculata*, leaves its antimicrobial activity and its anti-cancer property. Secondary metabolites alkaloids, flavanoids, tannins, phenols, terpenoids, sterols, and saponins were quantified for different solvents water, methanol and ethanol. Among the different secondary metabolites phenols were high followed by saponins and all others were also quantifiable. The antibacterial activity revealed that comparatively high zone of inhibition with *F. oxysporum*, *E. coli* and *B. subtilis* higher than the antibiotics. It was observed that antibiotics zone of inhibition was specific to certain microorganisms whereas methanol crude extract of *A. paniculata* was effective with most of the microorganisms. The scavenging activity was increasing with increasing concentration of methanol crude extract of *A. paniculata* up to 400µg/ml and reached up to 94.14 for DPPH and 95.16 for ABTS. Anti cell proliferation test by MTT assay with HeLa cell line showed increasing cell death up to 400µg/ml and their IC₅₀ value was 188.88±2.03.

Keywords: *Andrographis paniculata*, secondary metabolites, antibacterial activity, DPPH, ABTS and HeLa cells.

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INTRODUCTION

Most communities around the world still live in close association with plant compounds for their general medicine. However, advent of modern medicine for quicker relief had resulted in long term side effects and resistant species challenging the modern medicine. In this context scientist and researchers focusing their attention in identify and evolving plant based medicine which could be economically feasible and effective for long time. Traditional medicinal practices though date back to vedic period that is 1000 to 5000 B.C. evident through the Rigvedha and Atharvedha sacred monumental works depicting different medicinal plants [1]. Bioactive secondary metabolites are classified as alkaloids, flavanoids, tannins, saponins, terpenoids, glycosides, phenols, carbohydrates, proteins, etc. Numbers of activities were identified in the recent past for these bioactive secondary metabolites which varies in quality and quantity from plant to plant [2].

In the present day context variety of diseases occur to human beings where most of them involve pathogenic microorganisms like fungi, virus and bacterial. Such infection is evolving into variety of forms and has become one of the important cause for morbidity and mortality which attacks the immune systems particularly amongst the developing countries [3]. Since modern medicines increases the side effects and evolve resistant genes there is an urgent need for developing safe antimicrobial compounds where the bioactive compounds of plants are known for.

Among the numerous herbal plants used in various ailments *Andrographis paniculata* (Burn. F.) is a annual herb belongs to the family Acanthaceae and commonly known as King of Bitters [4]. The plant is



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GC-MS ANALYSIS AND ANTICANCER ACTIVITY OF *Carica papaya*

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ABSTRACT

Generally bioactive compounds are derived from plants around and spread across the world. Papaya is one such medicinal plants which posses large number of metabolic compounds which can cure the many bacterial diseases and some of the compounds has the potential to kill the cancerous cells. The present study focused in the phytochemical screening, antibacterial activity, antioxidant activity and anticancer activity fruit extract of *Carica papaya*. Quantitative analysis of secondary metabolites of aqueous extract, methanol extract and ethanol extract of *Carica papaya* showed high percentage of phenols next to that is the presence of saponins. The antibacterial activity of *Carica papaya* revealed that increasing concentration increased the zone of inhibition with all the microbial species. Comparatively high zone of inhibition was observed with *S. typhi*, *S. aureus* and *K. pneumoniae* higher that the antibiotics. The scavenging activity was increasing with increasing concentration of methanol crude extract of papaya up to 400µg/ml and reached up to 98.22% for DPPH and 97.85% for ABTS. Anti cell proliferation test was studied through MTT assay with HeLa, cell line showed increasing cell death up to 400µg/ml and their IC50 value was 184.736±0.073.

Keywords: *Carica papaya*, MTT assay, HeLa cell line, antioxidant activity, DPPH and ABTS.

INTRODUCTION

Evolution of human population evolved variety of knowledge on plant species around them which are gaining importance due to the impact of modern world which depended on synthetic products. Among the different knowledge, knowledge on medicinal uses has become one of the important aspects in the present world due ineffective drugs in present scenario which leads to side effects, long term impairment and resistant pathogens etc. Bioactive phytochemicals and their derivatives were found to be effective therapeutic characteristics and could be developed in to potential drug (De *et al.*, 2012). Such biochemical compounds are found to be novel with complex structures which could be used in original form or it could form a lead molecules to evolve unique derivative which better effectiveness with less side effects (Koehn and Carter, 2005).

Plant species with help of sunlight produce their food and food reserve, which could be classified into primary and secondary metabolites. Primary metabolites are compounds which produced by plants for their direct use as energy and sustenance, Secondary metabolites are compounds produced to store energy and other by products of primary metabolites. These secondary metabolites are of our interest in the present context where these are biologically active compounds with variety of functional uses. Secondary metabolites are classified into alkaloids, flavanoids, tannins, saponins, phenols, terpenoids, carbohydrates, proteins, etc. These compounds vary in quality and quantity from plant to plant and


PRINCIPAL

Isolation And Screening Of Effective Antibiotic Producing Actinomycetes From Rhizosphere Soil Of Cipadessa Baccifera And Clausena Dentate

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Abstract: Soil contain a vast number of microorganisms and it is the dynamic site of biological activity in nature in which many biochemical reactions occur for destruction of organic matter. Actinomycetes are one of the most important organisms which were widely used for producing secondary metabolites, and the actinomycetes were abundantly present in the rhizosphere soil. Consequently the present work aimed to identify the medicinally important Actinomycetes from the rhizosphere soil of Cipadessa baccifera and clausena dentata. The rhizosphere soil of Cipadessa baccifera and Clausena dentata have pH of 6.9 and 7.1, and different nutrients such as Carbon, Nitrogen, Nitrate, Ammonia, Phosphorous, Calcium, Magnesium and potassium. Actinomycetes from rhizosphere soil of Cipadessa baccifera and Clausena dentata showed 22.41×10^5 Colony/g of soil and 17.33×10^5 Colony/g of soil. All strains from rhizosphere soil of Cipadessa baccifera and Clausena dentata showed high percentage of inhibition in Bacillus subtilis. The different strains from the two types of rhizosphere soil efficient strains were selected by the antagonistic activity. The selected strains CBRSA1, CBRSA2, CBRSA4 and CDRSA1, CDRSA3, and CDRSA4 were grown under different temperature, pH, carbon source and different media in which all the strains showed highest growth at temperature of 40°C in 10th day. The CBRSA1 strain showed better growth in D-mannitol as carbon source, CBRSA2 and CDRSA4 strain showed better growth in Cellulose. CDRSA1 strain showed better growth in sucrose. The CBRSA1 strain under showed better growth in yeast extract and CDRSA1 strain showed better growth in Oatmeal. The 16s rRNA sequencing of Actinomycetes strain CBRSA1 and CDRSA1 showed 970bp and 927bp and identified has Nocardiosis lucentensis and Mycobacterium sp.

Keywords: Actinomycetes, Cipadessa baccifera, Clausena dentata, antagonistic activity and Rhizosphere soil.

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I. Introduction

Soil is the rich source of microorganisms which produce variety of secondary metabolites which are later identified by researchers for pharmaceutical compounds. Microorganisms play an important role in maintain the soil fertility by oxidizing the organic matter and promoting the biogeochemical cycles of carbon (C), nitrogen (N), phosphorus (P), potassium (K), and sulphur (S) (Balloni & Favilli, 1987). The microbial activity in soil is controlled by several environmental factors such as availability of C, mineral nutrients, water availability, temperature growth factors, and pH, etc. However, composition of soil microorganisms and ecological interactions between them determine the nutrient supply and uptake by plants (Nannipieri *et al.*, 2003, Barbosa *et al.*, 2013).

Among the soil rhizosphere soil occupies a special position for diversity of microbes (Sorenson, 1997). Rhizosphere, a narrow zone, adjacent to the root of living plants and they are influenced by the plant exudates (Kennedy, 1999). These diverse microorganisms in turn influence growth and health of the plant through their involvement in biogeochemical cycle (Campbell and Greaves, 1990; Boehm *et al.*, 1993). Further this diversity and composition of bacterial species in the rhizosphere is affected by several environmental factors like plant species (Miller *et al.*, 1989), soil type (Hoitink and Boehm, 1999), soil management practices (Rovira *et al.*, 1990), microbial interactions, etc.

Clausena dentata is one such medicinal plant, a small tree plant, belonging to the citrus family of Rutaceae and found in Kolli Hills Tamilnadu, India and also in Sri Lanka and China (Agarwal, 1981). The plant was first described by the Dutch botanist Nicolaas Laurens Burman in 1768 (*Clausena*, 1768). Genus *Clausena*

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‘INVESTIGATION OF PHYTOCHEMICAL AND ANTIOXIDANT POTENTIAL IN DIFFERENT PARTS OF *Phyllanthus emblica* FOR THERAPEUTICS

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ABSTRACT

The present study focused on to analyse the quality and quantity of secondary metabolites, antioxidant property and antimicrobial property of Amla plant parts such as leaves, seed and fruit. The phytochemicals equally distributed in all the three extracts of Amla plant parts. Amla leave extract showed higher flavonoids content (14mg/ml) than other two plant parts. Highest phenolic content was observed in the water extract of Amla seed of about 58 $\mu\text{g/ml}$ followed by 54 $\mu\text{g/ml}$ in the water extract of Amla fruit. Carbohydrates were found to be higher in 3 samples such as water extract of seed and the acetone extracts of seed and fruit of about 35 $\mu\text{g/ml}$. The Antioxidant activity content of amla extracts showed higher activity only in the water extract of leaves of about 140 $\mu\text{g/ml}$. 14 $\mu\text{g/ml}$ of reducing sugars which was found to be equal in both water and acetone extracts of leaves, seed and fruits. The chlorophyll content was higher in leaves extract of Amla. Antimicrobial activity of Amla leaves ethanol extract showed better inhibition with bacteria in all the selected species except *Staphylococcus aureus*. Highest inhibition activity was observed in *Staphylococcus flexnerii* with 4 mm zone at 50 μl concentration.

Keywords: Antibacterial activity, Antifungal activity and secondary metabolites.

INTRODUCTION

Medicinal plants are nature's gift to mankind. The plant used for basketry, dyeing, fuel, food, stored-grain protectant, field pesticide, as growth promoter, manure, as medicine for poultry, for livestock and for human. Natural products, such as plants extract, either as pure compounds or as standardized extracts, provide unlimited opportunities for new drug discoveries because of the unmatched availability of chemical diversity (Cos *et al.*, 2006). Plant-derived substances have a great interest owing to their versatile applications recently. Medicinal plants are the richest bio-resource of drugs of traditional systems of medicine, modern medicines, nutraceuticals, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drugs (Neube *et al.*, 2008).

The medicinal value of plant depends on the nature of plant constituents present in it, which is known as active principle or active constituents. Active constituents like secondary metabolic compounds present in this plant are main reason for the biological activities. Primary metabolites are simple molecules or polymers of simple molecules synthesized by plants, generally do not possess therapeutic as such but essential for the life of plants and contains high-energy bonds. These are used for the biosynthesis of secondary metabolites like Carbohydrates, proteins, lipids and nucleic acids (Lahlou, 2013; Parasuraman *et al.*, 2014).

Secondary metabolites are complex organic molecules synthesized by primary metabolites in plant cells. Secondary metabolites are alkaloids, glycosides, tannins, phenolic compounds, volatile oils, terpenoids, saponins, steroids, resins, etc (Oliver, 2013). The secondary metabolites present in this plant are actively used as drug, food, flavors, colours, dyes, poisons and perfumes etc. At the present time these chemical constituents or natural products are highly used to treat many diseases in modern medicine (Mickymaray *et al.*, 2016).

Amla is one such plant which contains lot of medicinal values due to their active metabolic compound. The Amla is medium size deciduous plant. It grows 8 -18 meter (height). It has a twisted



IDENTIFICATION OF BIOLOGICALLY ACTIVE COMPOUNDS FROM *Withania somnifera* LEAF EXTRACT ITS ANTIMICROBIAL ACTIVITY AND ANTICANCER PROPERTY

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ABSTRACT

Medicinal plants were identified by traditional communities in ancient times through their constant interaction with them. Modern medicines which were based on non-organic in origin lead to numerous complications in terms of side effects and resistant genes. Hence more and more attention is paid to the medicines based on organic origin. Among numerous plants that have been used by traditional communities *Withania somnifera* one plant which was used for wide range of therapeutic properties. However, in the present study an attempt has been made to identify effective solvent and biologically active compounds for antimicrobial and anticancer property. Among the three-solvent water, methanol and ethanol. Methanol was found to be effective in identifying secondary metabolites and also quantity of secondary metabolites was higher when compared to other solvents. Phenols were found to be higher in the *W. somnifera* leaves followed by flavanoids and alkaloids indicating their therapeutic potential. GCMS results of methanol crude extract of *W. somnifera* showed 24 different compounds with alkanes, alkenes, alcohols, esters, etc. which are known for anticancer and antimicrobial activity. Antimicrobial activity among the tested organisms *K. pneumonia* showed the highest followed by *P. mirabilis* and *P. aeruginosa* comparable with the standard antibiotics. Antioxidant capacity of *W. somnifera* quantified through DPPH and ABTS assay. The DPPH scavenging activity increased up to 86.71 % with 400 µg/ml and ABTS reached up to 92.91 with 400 µg/ml. The methanol crude extract of *W. somnifera* showed least IC₅₀ with HeLa 194.11 µg/ml followed by MCF 210.78 µg/ml HepG2 217.98 µg/ml cell lines.

KEY WORDS

Withania somnifera, DPPH.

INTRODUCTION

Withania somnifera (L.) Dunal (Solanaceae) grows in many of the Indian subcontinent and in tropical and subtropical zones of the Mediterranean region and northern Africa to Southwest Asia. *Withania somnifera* (L.) Dunal, commonly called as Ashwagandha which is an evergreen woody perennial shrub in its native habitat of the hot and dry tropics. It grows about 3 feet tall and 2 feet wide in one season and produces small light green

flowers which then form attractive reddish-orange berries concealed inside with transparent paper coverings. It prefers full sun, and average soil with good drainage. In cooler zones, it is grown as an annual shrub. Ashwagandha is grown in farm land as a herbaceous perennial. Its leaves and woody stems are killed off by frost but, as long as the soil is not overly wet, its root remains vital and will sprout new shoots in the spring. If grown as an annual herb, Ashwagandha is best to grow



IDENTIFICATION OF BIOLOGICALLY ACTIVE COMPOUNDS FROM *Alternanthera sessilis* LEAF EXTRACT ITS ANTIMICROBIAL ACTIVITY AND ANTICANCER PROPERTY

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ABSTRACT

Human beings consume maximum of grains followed by fruits and leaves, among this leaf occupy a unique status generally known for its vitamins minerals and therapeutic compounds. Among these therapeutic compounds recently gaining importance *Alternanthera sessilis* is one such leafy vegetable used on regular basis for general health maintenance. However, identification of compounds and their therapeutic activity needs their isolation which occur through dissolving in solvents. In the present study three solvents water, methanol and ethanol were used to identify the secondary metabolites though all the compounds were identified from all the three solvents methanol lead to positive result in most of the tests for secondary metabolites. Quantification of major secondary metabolites showed high saponins followed by alkaloids and tannins. GCMS analysis of methanol crude extract of *A. sessilis* showed 16 compounds were most of them were alkane, alcohols and esters which were known for antimicrobial and anticancer property. Methanol crude extract of *A. sessilis* was with *K. pneumonia* and *B. subtilis* 13.33mm followed by *P. mirabilis* 12.83mm and *S. pneumonia* 12.67mm. The DPPH scavenging activity reached up to 73.31% with 800 µg/ml and ABTS reached up to 84.29 with 800 µg/ml when methanol crude extract of *A. sessilis* was used. The methanol crude extract of *A. sessilis* showed least IC₅₀ with HeLa 458.64 µg/ml followed by MCF 497.76 µg/ml HepG2 513.21 µg/ml cell lines.

KEY WORDS

Alternanthera sessilis, therapeutic compounds.

INTRODUCTION

Alternanthera sessilis (L.) R. Br. (Amaranthaceae) is popularly called as dwarf copperleaf or sessile joyweed and in Bangladesh as Chanchi shak. It is an aquatic plant and can be commonly observed in marshy areas and wetlands of Bangladesh (Singh *et al.*, 2009). *Alternanthera sessilis* Linn. (Amaranthaceae) is a perennial herb bearing short petiole, simple leaves and white flowers found throughout India but native to bangladesh. This herb has been reported to have

antioxidant, antimicrobial and wound healing activity and used as a galactagogue, cholagogue and febrifuge and in indigestion purposes (Sivakumar *et al.*, 2016). The decoction of leaves are used to treat eye diseases, wound, cuts and an antidote to snake bite and for curing skin diseases. Ancient medical practitioners of Bangladesh believe that the plant possess medicinal properties and hence used as a leafy vegetable in dietary supplements. In Noakhali district of Bangladesh, the plant is used to treat gonorrhoea, low sperm count,

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REVIEW ON IMPORTANCE OF COW URINE

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ABSTRACT

Due to the fast growing world, number of diseases are emerging and threatening the life of peoples across the globe. Therefore, it became a necessity to search for an organic source that provides treatment to diseases is running into the minds of the people. Among the research pursued, cow urine is one such cheap and much cost efficient organic source that offers a natural therapy to combat diseases. Cows are the dynamic medical dispensary and cow urine is a magic potion of all diseases. One of the major components of cow urine is 'Panchagawya' that is competent of treating many curable as well as incurable diseases and has been used widely in traditional ayurvedic preparations since time immemorial. Several research has been experimented in Cow urine treatment and research centre, Indore over the past few years and it has been stated that gomutra is capable of curing blockage in arteries, blood pressure, diabetes, arthritis, heart attack, thyroid, cancer, psoriasis, asthma, prostrate, eczema, AIDS, migraine, piles, acidity, constipation, ulcer, ear, nose problems and gynecological problems and several other diseases.

KEY WORDS

Cow urine, anti-microbial.

INTRODUCTION

Cow, *Bos Indicus* is a most valuable domestic animal in Vedic times and considered to be the Mother of all human population. Cow urine has been placed as an important source of India tradition. It has been described as the water of life or "Amrita", the Nectar of god. Indian cow urine is used by majority of the rural population as folklore remedy in almost all the states. 'Ashtanga Sangraha' is considered to be the most effective substance or secretion of animal origin with numerous therapeutic values (Gulhane harshad *et al.*, 2017).

Mainly, eight types of animal urines are used as medicine described in *Sushruta Samhita*, *Charaka Samhita* and *Vangbhat*. The urine of cow (typically called *Gomutra*) poses a major part in therapeutics. Specific liquid wastes of domestic animals (eight types of urine from different animals) are hot, pungent, sharp,

light, bitter and salty as a secondary taste and promotive for several evacuation processes.

The forest dwelling cow urine secretes medicinally important herbal compounds. Cow urine is not actually a noxious animal waste and contains 95% water, 2.5% belongs to urea content and the remaining 2.5% is a mixture of minerals, salts, hormones and enzymes. The potency of Gomutra called Rasayana tattwa is accountable for improving various bodily functions like immunity. Persons who drink gomutra regularly are said to live a healthy life and the remaining are unaffected by the vagaries of old age, even at the age of 90. Gomutra is represented as "Sanjivani" (Beverages of immortality) in Ayurveda. Besides that, it is used in organic forming as a biopesticide along with cow dung, cow's milk and other herbal ingredients.

According to the ancient literatures, distillate of cow urine was the one considered to exhibit anti-oxidant activity. Few lethal poisons can be refined and purified

PRINCIPAL

Determination of the prevalence, antibiotic resistance and virulence factors of *E. faecalis* isolated from different food samples

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Received: 02 July 2018; Revised: 23 July 2018; Accepted: 28 July 2018; Published online: 30 July 2018;

ABSTRACT: Milk, juices, meat, etc., are the most perishable foods and they are consumed by most of the people. And most of the food borne diseases are due to microbial contamination and infections. But nowadays, these food items are being contaminated by microbes which are having "Multi-drug -resistance" property as their survival mechanism. Especially while talking about chicken meat, the microbial contamination by Enterococcus sp., is a worrisome factor because their resistance mechanism gets developed due to the addition of anti-microbial substances in the feed given to the chicken (brought up in the poultry environment). Hence, the ultimate aim of the present study is to check the prevalence of Enterococcus sp., that too *E. faecalis* in particular, from different food samples collected from places surrounding Namakkal region. Also, these isolates are subjected to several assays to determine their virulence and resistance and analyse their biofilm forming property under this study.

Keywords: Microbial prevalence, Food samples, Anti microbial resistance;

1. INTRODUCTION

The term Food-borne diseases, acquired through consumption of unclean contaminated food with microbes and chemicals. In addition, poisonous chemicals, or other harmful substances can cause foodborne diseases if they are present in food. More than 250 different foodborne diseases have been described. Most of these diseases are infections, caused by a variety of bacteria, viruses, and parasites that can be foodborne (www.cdc.gov/foodsafety/foodborne-germs.html). In 2013, Poonam was observed the coliform bacteria from various fruit and fruit juices at Vidarbha. Source of contamination of food was varying, mostly occurred by improper washing of fruits add these bacteria to extracts leading to contamination. In addition, use of unhygienic water for dilution, dressing with ice, prolonged preservation without refrigeration, unhygienic surroundings often with swarming houseflies and fruit flies and airborne dust can also act as sources of contamination. Such juices have shown to be potential sources of bacterial

pathogens notably *E. coli*, *Salmonella*, *Shigella* and *Staphylococcus aureus*, *Klebsiella spp* and *Enterococcus spp* [1].

Meat is one of the most perishable foods, and its composition is ideal for the growth of a wide range of spoilage bacteria [2]. Food contamination with antibiotic-resistant bacteria can be a major threat to public health. The prevalence of antimicrobial resistance among food-borne pathogens has increased during recent decades. These antibiotic-resistant microbes causing infection was untreatable because its causative agent has been found to be resistant to cephalosporin as well as carbapenems due to extended spectrum β -lactamases (ESBL) mediated mechanism [3]. In addition, these bacteria are able to acquire resistance determinants through gene transfer mediated by plasmids and transposons. The use of antimicrobials in animal feed as growth promoters has created large reservoirs of transferable antibiotic resistance genes in several ecosystems, and consequently a possible route of transmission of resistant *Enterococcus spp.* via food chain is feasible [4]. One of the most important mechanisms responsible for antimicrobial resistance in organisms producing biofilms may be stuck penetration of the antimicrobial agents through the biofilm matrix, altered growth rate of biofilm organisms. Thus, the ability to form biofilm could be an effective strategy to enhance the survival and persistence under stressed conditions like host invasion or following antibiotic treatment. The present study aims to determine the prevalence, antibiotic resistance and virulence factors of *E. faecalis* isolated from different food samples.

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Competing interests

The authors have declared that no competing interests exist.

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Determination



IDENTIFICATION OF BIOLOGICALLY ACTIVE COMPOUNDS FROM *Adhatoda vasica* LEAF EXTRACT ITS ANTIMICROBIAL ACTIVITY AND ANTICANCER PROPERTY

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ABSTRACT

Adhatoda vasica is one such plant which is used widely for a variety of purposes which forms part of many other traditional herbal medicines. Biologically active compounds present in the plants are responsible for such curative activity. These compounds could be identified by dissolving them in appropriate solvents. In the present study water, methanol and ethanol were used as solvents. Most of the secondary compounds were found in all the solvents but methanol gave positive result more than the other. Quantification of important solvents showed that high tannin content 65.61 µg/ml followed by saponins 19.09 µg/ml and alkaloids 12.87 µg/ml with methanol crude extract of *A. vasica*. GCMS analysis of methanol crude extract of *A. vasica* showed 21 compounds of alcohols, steroids, ester, etc. mostly having antimicrobial and antioxidant property. Antimicrobial property with well diffusion method showed effective antimicrobial activity for *B. subtilis* 12.17mm followed by *V. cholera* 11.83mm and *K. pneumonia* 11.50mm. Antioxidant activity was performed with DPPH assay and ABTS assay with DPPH assay 81.81% antioxidant activity was recorded at 160µg/ml and 94.84% antioxidant activity with 160µg/ml using methanol crude extract of *A. vasica*. Anticancer property was estimated through cytotoxicity study with cell lines showed least IC₅₀ with HeLa 88.24 µg/ml followed by MCF 92.80 µg/ml HepG2 111.08 µg/ml cell lines using methanol crude extract of *A. vasica*.

KEY WORDS

Adhatoda vasica, Traditional herbal medicines.

INTRODUCTION

Adhatoda vasica is a member of family *Acanthaceae* (synonyms of *Justicia adhatoda*, *Adhatoda zeylanica*) (Malik and Ghafoor, 1988). The plant is about 1-6 m tall, evergreen, perennial shrub. It is spread in the open/meagre tree shade habitat conditions particularly in tropical and sub-tropical areas with 1450 m height. It has been used in Ayurvedic and Unani medicines and used locally for the last 2000 years in India (Atal, 1980). It is distributed in Indonesia, Malaya, Southeast Asia, India and Pakistan (Malik and Ghafoor, 1988). Several

ethno medicinal uses of different parts of *J. adhatoda* from Pakistan, India, Nepal, Sri Lanka and Thailand have been reviewed by Claeson *et al.*, (2000).

Its high medicinal value and local use for fuel have fragmented populations of *J. adhatoda*. *Vasica* has played significant criteria not only in the traditional Indian system of medicine popularly called "the Ayurveda", but also confers potential investment in modern pharmaceutical and cosmetic industries. It is a predominant herb of the ayurvedic system used in the

Isolation And Identification Of Bacterial Diversity In Rumen Fluid Of Cow, Goat And Chicken

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Abstract: Biogas is now an ecologically sound option to reduce environmental burden by decomposing organic material and producing not only energy but also good quality organic fertilizer. Studies on biogas production by co-digestion of animal wastes with grass have attracted special interest today. Poultry waste, cow dung and other waste have been used for biogas production, but the efficiency of the gas production is efficient. From the cow rumen fluids, goat and chicken gut nine different organisms was identified from each sample and they were 16S rRNA sequenced and submitted to NCBI and got the Accession Number.

Date of Submission: 21-08-2018

Date of acceptance: 04-09-2018

I. Introduction

The utilization of fossil fuels on a global scale is limited by the availability of these resources and by the environmental effects of their excessive exploitation. The production of renewable energy carriers is therefore currently increasing the attention worldwide. Biogas is regarded as the gifted entrant in which the technology poses its production that may unite the treatment of various organic wastes with the generation of an energy carrier for the most versatile applications. There is a great deal of environmental pressure in many parts of the world to ascertain how a livestock waste. Anaerobic digestion has been considered as waste-to-energy technology that is widely used in the treatment of different organic wastes, For example: organic fraction of municipal solid waste, sewage sludge, food waste, animal manure etc.

Many anaerobic biomethanization studies from digestion of cattle manure and co-digestion of fruit and vegetable wastes, organic household wastes, industrial organic wastes and sewage sludge wastes are reported. Lignocellulosic biomass is a renewable and carbon-neutral resource that can be found abundantly and low in cost. However, the characteristics of the lignocellulosic materials itself became the major barrier for the efficient conversion of cellulose and hemicelluloses into monosaccharide that can be subsequently fermented into biogas. Therefore, the biomass has to be maintained with proper environmental conditions at proper temperature particularly in the absence of oxygen for effective formation synergistic relationship between microbial communities.

Biogas is an environmental friendly and one of the most efficient and effective options for renewable energy among various other alternative sources. Biogas is a mixture of flammable gas produced through anaerobic digestion process of organic materials. It is mainly composed of CH₄ (45-70%), CO₂ (30-45%), traces of H₂, water vapour (H₂O), ammonia (NH₃) and hydrogen sulphide (H₂S). It is chiefly used to fuel applications, from cooking stove to generating electricity.

II. Materials And Methods

The cow rumen fluid, goat gut and chicken gut samples were collected from the Namakkal Veterinary College. The collected gut fluid samples from cow, chicken and goat was further processed and analyzed for microbiological analysis. The samples were serially diluted upto 10⁻⁹ dilution. The plates were incubated for 24 hours and observed the bacterial growth.

DNA Sequencing was carried out using an Universal sequencing primer. All sequences were compared with similar sequences of the reference organisms by BLAST search. The sequences were submitted to NCBI.

III. Results

Colony counts of bacterial species from rumen fluids of different animals showed highest bacterial colony counts in cow rumen fluid (434.33) followed by goat (262.67) and chicken (170.67). Nine bacterial species were isolated from cow rumen fluid, goat and chicken and they were 16s RNA sequenced and submitted to NCBI and got the Accession Number are listed in the table 1.

Invitro And Insilico Anticancer Activity Of *Murraya Koenigii* (L) Against Breast Cancer

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Abstract: Phytochemical screening study well showed the presence of alkaloids, steroids, protein, saponins and flavonoids. *Murraya koenigii* leaves have potent antioxidant. *Murraya koenigii* leaves possess anticancer activity against MCF- 7 cell lines, like wise *Murraya koenigii* leaves possess antibacterial agent against *Pseudomonas aeruginosa*, *Bacillus subtilis* and *Escherichia coli*. Docking studies were performed for the four proteins with four marker compounds. The interaction of protein and ligands for the docked ligands with least binding energy was calculated. Mahanimbicine has least binding energy with HER2 protein. Further research has to be conducted for components present in the methanolic extract of *Murraya koenigii* which may act as active principles. In future the components present on *Murraya koenigii* may act as a drug, for the above mentioned cell line.

Date of Submission: 06-10-2018

Date of acceptance: 21-10-2018

I. Introduction

Medicinal plants are considered to be source of healthy human life. Herbs is always principal form of medicine in India and presently they are becoming popular throughout the developed world as strive to stay healthy in the face of chronic stress and pollution and to treat illness with medicines that work in concert with bodies on defence.

In more than 80% of developed countries depends the medicinal plants as traditional medicine for various diseases. Different parts of the plants like roots, leaves, stem, bark and fruits have been used for many infections.

Many plants have been used for their antimicrobial traits, which are chiefly due to the synthesis of secondary metabolites and their inhibitory effect against the growth of human pathogens. Keeping this in view, efforts are under way to search for economic and safe photochemical for disease control. Despite the existence of potent antibiotic and antifungal agents, resistant microbial strains are continuously appearing, suggesting the need for permanent search and the development of new drugs.

Breast cancer is the most commonly diagnosed cancer and the primary cause of cancer death in females worldwide. In India, breast cancer is the second with a rate of 17.2 per 100,000. The latest statistics indicated that about 1.3 million women are diagnosed with breast cancer annually worldwide and about 465,000 die from the disease (Elangovan *et al.*, 2008). Despite the fact that many tumors initially respond to chemotherapy, breast cancer cells can subsequently survive and gain resistance to the treatment. The prevalence of breast cancer in Indian women is more at the age of forty. Some breast tumors stay resistant to conventional treatment and may have many side effects which affect the quality of the treatment.

II. Materials and Methods

Preparation of Plant Extract

Murraya koenigii (L) was collected in an around Trichy district, Tamilnadu. The leaves of the plant *Murraya koenigii* (L) leaves were carefully removed and washed thoroughly 2-3 times with running water and with distilled water to remove dust particles. The leaves were air-dried in a shade under room temperature for seven days and then crushed into coarse powdery substance by using mortar and pestle. 100 gram of the powdered leaves were subjected to maceration in methanol (100 g/250 mL). The extracts were stored at 5°C for further experimental study.

The phytochemical screening of the plant extract was carried by the methods of Trease and Evens (1978) and Harborne (1973).

Antimicrobial, Antioxidant Properties And Phytochemical Analysis Of *Opilia Amentaceae*

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Abstract: Plants produce thousands of specialized metabolites, many of which have medicinal uses. Over the next few years, the study of medicinal plants as antimicrobial agents should be focused on ascertaining specific information about the plant's antimicrobial activity. In the present investigation the phytochemical, antimicrobial and DPPH radical scavenging activities were screened by using two plants namely *Opilia amentaceae* and *Anogeissus latifolia*. Different solvent extracts were used in the phytochemical analysis to elucidate the tannins, Saponins, Flavonoids, Catechins and Sugars from these plants. Significantly Anthroquinones are present only in *Anogeissus latifolia*. Both of these plants inhibit the growth of *Escherichia coli* ATCC 25922, *Salmonella entericatypimurium*, *Shigella dysenteriae*, *Klebsella pneumoniae*. In DPPH assay maximum inhibition (70.800) was observed at 200 µg/ml concentration of *Anogeissus latifolia* and maximum percentage of inhibition (66.426) was observed at 500 µg/ml concentration of *Opilia amentaceae*.

Key words: *Anogeissus latifolia*, *Opilia amentaceae*, phytochemical, antimicrobial and DPPH.

Date of Submission: 06-10-2018

Date of acceptance: 21-10-2018

I. Introduction

A vast knowledge of medicinal plants usage against various diseases and illness may be expected and accumulated in the areas of traditional knowledge and ethno medicinal practice. Medicinal plants have been used for the treatment of a large number of human diseases in different parts of the world throughout the history of human kind. About 80% of rural population and communities of many developing countries were still dependent on traditional medicines both in health care and practice. (Palombo, 2006). Traditional healers pass the plant knowledge to their families or relatives orally or practically. Traditional knowledge is secured for future by showing the geographic habitation with vernacular/local names and with various methods drug preparations for a particular disease (Kokwaro, 2009). Around 20% of people in rural areas consult herbalists before seeking treatment in government clinics and hospitals. Traditional medicine is a major source of treatment for African patients (Dejong, 1991). The most important of these bioactive compounds of plants are alkaloids, flavanoids, tannins and phenolic compounds. Rural communities, in particular the tribal people depend on plant resources for herbal medicines, food, forage, construction of dwellings, making household implements, sleeping mats, and for fire and shade. The use of medicinal plants as traditional medicines is well known in rural areas of many developing countries.

Opilia amentaceae is a climbing shrub, also had tree like behavior. Leaves are ovate, tip pointed, leathery with leaf stalk to 8 mm. Flowers are born in racemes at leaf axils, 1-5 together, up to 3 cm long. *Fragratopilia* is found in Peninsular India through Srilanka to Tropical Australia and Africa.

Anogeissus latifolia is a small to medium sized tree, grows up to 20 m and closely related to the Button tree. The species name is *latifolia* with reference to its wider leaves. Leaves are oppositely arranged, simple, entire, with greyish-yellow or whitish hairs at nodes and internodes. Flowers are small and have part in fives with sepals are joined together to form a stalk like tube. There are no petals and the Fruit is a 2-winged Pseudoachene, packed into a dense head. In the Present study the antibacterial activity of *Opilia amentaceae* Roxb and *Anogeissus latifolia* were screened against human pathogens.

II. Materials And Methods

Collection of plant samples

The leaves of *Opilia amentaceae* Roxb and *Anogeissus latifolia* were collected in the month of January 2018 from Siriyakalvarayan hills of Eastern Ghats present in Villupuram district of Tamilnadu. Samples were shade dried and pulverised under the room temperature for 48 hrs.

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Invitro, and Invivo Studies on Biomedical Applications of Foliose Lichens *Stictaweigeli*, *Dermatocarponvellereum* and *Heterodermiabor* against Clinical Debilities

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Abstract

Preclinical (Anti pyretic & analgesic) studies, Anti Diabetic, Hepatoprotective and Anti cancer studies (Invivo and Invitro) of three lichen species viz., *H.boryi*, *S.weigeli* and *D.vellereum* were studied in the present work. Antipyretic and analgesic effects were high in *H.boryi* and *D. vellereum* respectively. Diabetic kidney treated with *D. vellereum* and *S.weigeli* have shown no vascular degenerative changes that possessed more antioxidants which prevented vascular degeneration. There was a remarkable regeneration of hepatocyte was found in *H. boryi* (200 and 400 mg). Diabetic kidney treated with *D.vellereum* and *S.weigeli* shown no vascular degenerative changes. There was a remarkable regeneration of hepatocyte was found in *H.boryi* (200 & 400mg). The IC_{50} The effect of lichen extracts (acetone, chloroform and diethyl ether) were tested against MCF-7, MG-63 and HeLa cells. The IC_{50} value was very less for the acetone extract of *H.boryi* (83.29 μ g against MCF-7, 70.37 μ g against MG-63 cells and 62.51 μ g against HeLa cells) against the selected cell lines invitro. It was observed that the chloroform extract of *H.boryi* have shown 222.7 μ g/ml of IC_{50} against MG-63 cells, 208 μ g/ml of IC_{50} against HeLa cells . The diethyl ether extract of *H.boryi* have IC_{50} of about 140.7 μ g/ml against MCF-7 cells, 109.2 μ g/ml against MG-63 cells and 93.64 μ g/ml against HeLa cells. The IC_{50} value was very less for the acetone extract of *S.weigeli* (151.1 μ g against MCF-7 and 83.82 μ g against HeLa cells) against the selected cell lines invitro. It was observed that the chloroform extract of *S.weigeli* have shown 179.7 μ g/ml of IC_{50} against MG-63 cells. The diethyl ether extract of *S.weigeli* have IC_{50} of about 204.2 μ g/ml against MCF-7 cells, 88.91 μ g/ml against MG-63 cells. The IC_{50} value was very less for the acetone extract of *D.vellereum* (101.5 μ g against MCF-7, 120.3 μ g against MG-63 cells and 120.9 μ g against HeLa cells) against the selected cell lines invitro. It was observed that the chloroform extract of *D.vellereum* have shown 164.2 μ g/ml of IC_{50} against MG-63 cells, The diethyl ether extract of *D.vellereum* have IC_{50} of about 178.8 μ g/ml against MG-63 cells. Cervical cancer induced disease model in animal was evaluated in terms of CEA which is found to be greatly reduced in group treated with (500mg of acetone extract of *Sticta weigeli*, 500mg of *Dermatocarpon vellereum*). Hence this work may probably serves as a base line study to explore the impact of depsides of foliose lichens on animal and microbial kingdom.

KEYWORDS – Acute toxicity, MCF-7, HeLa, Histopathology, Cervical cancer

I. Introduction

Lichens have a worldwide distribution, occurring in the highest, hottest, coldest, wettest and driest habitats and they are slow growing organisms, yet they are extremely sensitive to pollution [1]. Lichens are complex organisms involved in the symbiotic relationship between a phycobiont (Cyanobacteria or Green alga, or both) and a mycobiont (a fungus), have attracted considerable attention because of their perceived position on the ladder of evolution to land plants [2]. Lichens are known to



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Pharmacological Evaluation of Parmelioid Lichen *Flavoparmelia Caperata (L)* Hale With Special Reference To Analgesic and Anti Inflammatory Properties

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Abstract: Lichens depsides play a key role in the pharmacological importance that contributes in managing clinical disorders. This will provide further clues whether the exogenous depsides regulates cell growth, revealing new communication avenues between organisms of different kingdoms. At this juncture, it needs to be stated that such a cross-kingdom communication so far, has not been previously considered for the lichen species of this study. Hence this work may probably, be the first attempt to explore the impact of depsides of parmelioid lichens on animal and microbial kingdom.

Date of Submission: 17-10-2018

Date of acceptance: 31-10-2018

I. INTRODUCTION

Plant products as drugs and herbal remedies have been employed since prehistoric times to treat human and animal diseases and several countries still rely on plants and herbs as main sources of drugs. Plants are known to produce certain bioactive molecules which react with other organism and results in the inhibition of bacterial, fungal and viral growth. Phytochemicals are chemical substances that occur naturally in plants that have protective or disease preventive properties. Each type of plant part such as fruit or vegetable may contain hundreds of photochemical compounds.

Lichens are complex systems of organisms involved in the symbiotic relationship between a cyanobacteria or green alga (phycobiont), or both and with a fungus (mycobiont). Lichens have driven considerable attention because of their apparent place on the hierarchy of evolution to land plants. Lichens are known to produce various secondary metabolites that are distinctive with reverence to those of higher plants. Many of the lichen substances are used in pharmaceutical sectors. Lichen extracts have been used for various remedies in folk medicine. Screening of lichen extracts has made known the recurrent incidence of these metabolites with antimycobacterial, antibiotic, antitumor, antiviral, analgesic and antipyretic properties. Lichen and lichen products have been used in conventional medicines for centuries and still hold considerable interest as alternative treatments in various parts of the world. Their effectiveness is due to the synthesis of inimitable secondary metabolites that have important biological roles.

Lichens are deliberate emergent associations of fungi (known as mycobionts) and its photosynthetic partners (photobionts) could be of blue green algae of Cyanobacteria. The entire thallus part of lichens are susceptible to infiltration and accrual of airborne elements, they are essential for proper functioning of the lichen but others are toxic. These descriptions pooled with their capability to grow in a wide range of ecological area ranks them among the best bio-indicators of air pollution. Amalgamation and accumulation of airborne elements by lichens, including heavy metals, and their associated physiological responses have been studied widely and utilized to aid in construal of epidemiological studies on human respiratory disorders.

II. MATERIALS AND METHODS

Collection and identification of lichen

Lichens species were collected from high altitudes of Eastern (Kolli hills) Ghats of Tamilnadu state. The collected lichen sample was systematically identified at Botanical Survey of India, Allahabad. Lichen species were ground and added to 500 ml of different solvents, Ethyl acetate extract (EAE) and Diethyl ether extract (DEE).

The phytochemical analysis of the lichen extracts compounds was qualitatively analyzed as described by Harborne (2005).

Bacterial and fungal cultures were identified in these studies based on their pathogenicity, and were obtained from MTCC, IMTECH - Chandigarh. Bacterial strains tested were *Escherichia coli* (MTCC-1650), *Staphylococcus aureus* (MTCC-3160), *Klebsiella pneumoniae* (MTCC-7028), *Pseudomonas fluorescens* (MTCC-2268), and *Bacillus subtilis* (MTCC-3053). Fungal strains selected were *Pestalotia foedans* (MTCC-934), *Phomopsis leptostromiformis* var. *occidentalis* (MTCC-2382) (grown in Oatmeal agar), *Fusarium*

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IDENTIFICATION OF BIOLOGICALLY ACTIVE COMPOUNDS FROM *Withania somnifera* LEAF EXTRACT ITS ANTIMICROBIAL ACTIVITY AND ANTICANCER PROPERTY

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ABSTRACT

Medicinal plants were identified by traditional communities in ancient times through their constant interaction with them. Modern medicines which were based on non-organic in origin lead to numerous complications in terms of side effects and resistant genes. Hence more and more attention is paid to the medicines based on organic origin. Among numerous plants that have been used by traditional communities *Withania somnifera* one plant which was used for wide range of therapeutic properties. However, in the present study an attempt has been made to identify effective solvent and biologically active compounds for antimicrobial and anticancer property. Among the three-solvent water, methanol and ethanol. Methanol was found to be effective in identifying secondary metabolites and also quantity of secondary metabolites was higher when compared to other solvents. Phenols were found to be higher in the *W. somnifera* leaves followed by flavanoids and alkaloids indicating their therapeutic potential. GCMS results of methanol crude extract of *W. somnifera* showed 24 different compounds with alkanes, alkenes, alcohols, esters, etc. which are known for anticancer and antimicrobial activity. Antimicrobial activity among the tested organisms *K. pneumonia* showed the highest followed by *P. mirabilis* and *P. aeruginosa* comparable with the standard antibiotics. Antioxidant capacity of *W. somnifera* quantified through DPPH and ABTS assay. The DPPH scavenging activity increased up to 86.71 % with 400 µg/ml and ABTS reached up to 92.91 with 400 µg/ml. The methanol crude extract of *W. somnifera* showed least IC₅₀ with HeLa 194.11 µg/ml followed by MCF 210.78 µg/ml HepG2 217.98 µg/ml cell lines.

KEY WORDS

Withania somnifera, DPPH.

INTRODUCTION

Withania somnifera (L.) Dunal (Solanaceae) grows in many of the Indian subcontinent and in tropical and subtropical zones of the Mediterranean region and northern Africa to Southwest Asia. *Withania somnifera* (L.) Dunal, commonly called as Ashwagandha which is an evergreen woody perennial shrub in its native habitat of the hot and dry tropics. It grows about 3 feet tall and 2 feet wide in one season and produces small light green

flowers which then form attractive reddish-orange berries concealed inside with transparent paper coverings. It prefers full sun, and average soil with good drainage. In cooler zones, it is grown as an annual shrub. Ashwagandha is grown in farm land as a herbaceous perennial. Its leaves and woody stems are killed off by frost but, as long as the soil is not overly wet, its root remains vital and will sprout new shoots in the spring. If grown as an annual herb, Ashwagandha is best to grow



IDENTIFICATION OF BIOLOGICALLY ACTIVE COMPOUNDS FROM *Adhatoda vasica* LEAF EXTRACT ITS ANTIMICROBIAL ACTIVITY AND ANTICANCER PROPERTY

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ABSTRACT

Adhatoda vasica is one such plant which is used widely for a variety of purposes which forms part of many other traditional herbal medicines. Biologically active compounds present in the plants are responsible for the such curative activity. These compounds could be identified by dissolving them in appropriate solvents. In the present study water, methanol and ethanol were used as solvents. Most of the secondary compounds were found in all the solvents but methanol gave positive result more than the other. Quantification of important solvents showed that high tannin content 65.61 µg/ml followed by saponins 19.09 µg/ml and alkaloids 12.87 µg/ml with methanol crude extract of *A. vasica*. GCMS analysis of methanol crude extract of *A. vasica* showed 21 compounds of alcohols, steroids, ester, etc. mostly having antimicrobial and antioxidant property. Antimicrobial property with well diffusion method showed effective antimicrobial activity for *B. subtilis* 12.17mm followed by *V. cholera* 11.83mm and *K. pneumonia* 11.50mm. Antioxidant activity was performed with DPPH assay and ABTS assay with DPPH assay 81.81% antioxidant activity was recorded at 160µg/ml and 94.84% antioxidant activity with 160µg/ml using methanol crude extract of *A. vasica*. Anticancer property was estimated through cytotoxicity study with cell lines showed least IC₅₀ with HeLa 88.24 µg/ml followed by MCF 92.80 µg/ml HepG2 111.08 µg/ml cell lines using methanol crude extract of *A. vasica*.

KEY WORDS

Adhatoda vasica, cytotoxicity study

INTRODUCTION

Adhatoda vasica is a member of family *Acanthaceae* (synonyms of *Justicia adhatoda*, *Adhatoda zeylanica*) (Malik and Ghafoor, 1988). The plant is about 1-6 m tall, evergreen, perennial shrub. It is spread in the open/meagre tree shade habitat conditions particularly in tropical and sub-tropical areas with 1450 m height. It has been used in Ayurvedic and Unani medicines and used locally for the last 2000 years in India (Atal, 1980). It is distributed in Indonesia, Malaya, Southeast Asia, India and Pakistan (Malik and Ghafoor, 1988). Several ethno medicinal uses of different parts of *J. adhatoda*

from Pakistan, India, Nepal, Sri Lanka and Thailand have been reviewed by Claeson *et al.*, (2000).

Its high medicinal value and local use for fuel have fragmented populations of *J. adhatoda*. *Vasica* has played significant criteria not only in the traditional Indian system of medicine popularly called "the Ayurveda", but also confers potential investment in modern pharmaceutical and cosmetic industries. It is a predominant herb of the ayurvedic system used in the treatment of coughs, bronchitis, asthma and symptoms of common cold.

A vast variety of pharmacological uses of *Adhatoda* is believed to be the result of its rich concentration of

Nutrient Analysis and Microbial Diversity In Rhizosphere Soil Of Medicinal Plants In Kolli Hills

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Abstract

The bacteria present in the rhizosphere region of the plant are called rhizobacteria. Rhizobacteria produces antibiotic substances protecting toxic effects of plant parasites. The rhizosphere soil of 14 different medicinal plants was collected from the Kolli Hills. The soil samples were analyzed and the physicochemical characteristics such as pH, EC, nitrogen, organic carbon, phosphorous, potassium, sulphur, zinc and boron was estimated. The microbial colonies were counted according to the colony forming unit.

Key Words: rhizosphere, soil, microbes

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I. Introduction

Soil is the complex heterogeneous mixture of various elements due to its diverse interaction with physical, chemical and biological components under different environmental conditions (Buscot, 2005). Most important region of the soil is rhizosphere where the roots of the soil closely interact with microbes which actively participated in metabolic process for nutrient uptake, the plant growth and maintain the plant health. The microbial community present in rhizosphere soil includes bacteria, fungi, oomycetes, nematodes, algae, protozoa, viruses, archaea and arthropods (Lynch, 1990; Meeting, 1992; Bonkowski *et al.*, 2009; Buee *et al.*, 2009; Raaijmakers *et al.*, 2009). Rhizosphere microbiome facilitates the conversion of nutrients, minerals and trace elements in active manner in the soil and also reduces the risk of plant pathogens.

The highest population of microbes present near the rhizosphere region and these microbes are maintaining the commensalic, mutualistic and symbiotic relationship with plants through their root colonization hence the nutrient availability also varies the microbial diversity in rhizosphere (Chowdhury *et al.*, 2009; Paul and Clark, 1996; Shukla *et al.*, 2013). Some of the bacteria can produce positive effects to the plants by releasing their metabolic products in soil which are known as plant growth promoting rhizobacteria (PGPR). The role of PGPR may be indirect through antagonistic activity against pathogens or direct by producing phytohormones (Glick, 2012).

Most of the micro organisms present in rhizosphere soil of some medicinal plants can produce the secondary metabolites which were used to treat various diseases like cancer, tumors, eye disorders, nerve disorders and paralysis. In the light of the above the present study focused on nutrient analysis and bacterial diversity in rhizosphere soil of 14 different medicinal plants from Kolli hills.

II. Methodology

Rhizosphere Soil Collection

Rhizosphere soil were collected from 14 different medicinal plants such as *Schinus molle*, *Millettia pinnata*, *Azadirachta indica*, *Calotropis gigantea*, *Leucas aspera*, *Ocimum sanctum*, *Musa acuminata*, *Solanum nigrum*, *Phyllanthus amarus*, *Lawsonia inermis*, *Pergularia daemia*, *Centella asiatica*, *Cryptolepis dubia*, *Acorus calamus* from Kolli hills. 250 gram of each rhizosphere soil sample were collected aseptically and stored in sterile bags until their use.

Soil sample analysis

Soil sample were analysed for pH (Davis *et al.*, 1970), EC, Organic Carbon (Walkly Black Method) (Singh *et al.*, 1999), Nitrogen by Kjeldahl Method (Black, 1965), Phosphorous (Singh *et al.*, 1999), Potassium (Ghosh *et al.*, 1983), Sulphur (Barrow, 1968), Zinc (Relic *et al.*, 2013), and Boron (Wolf, 1971; Gupta, 1979).

Qualitative and Quantitative Analysis of *Cissus Quadrangularis* Using Different Extracts

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Abstract: *C. quadrangularis* Linn is very important medicinal plant which has potassium, calcium, zinc, sodium, iron, lead, cadmium, copper, calcium oxalate and magnesium. In this study qualitative and quantitative analysis of extracts of *C. quadrangularis* with different solvents was analysed and the presence of the phytochemicals were noticed. The quantity of Alkaloids, Flavonoids, Terpenoids, Glycosides and Saponins were found to be higher in methanol extract, tannins and steroids was high in aqueous extract.

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I. Introduction

Cissus quadrangularis belongs to the family Vitaceae. *C. quadrangularis* Linn is very important part of the plant and used in piles, for bone fracture, pain in joints, swelling, scurvy, gout, asthma, disease of ear and nose bleeding. *Cissus quadrangularis* stem resembles the shape of bones and joints in the body and indeed it is very effective in strengthening the bones and joints. Modern research has shed light on *Cissus*' ability to speed bone healing by showing it acts as a glucocorticoid antagonist. The stem is used with sesame oil and is very useful to treat Sandhivata caused by chromosome aberrations, sperm deformation.

Cissus quadrangularis has been found to include antioxidant, anti-flatulence, antibacterial, antifungal, anti-inflammatory, analgesic, antibacterial, and cancer suppressive microorganisms have antagonistic effects, thus demonstrating the role of genetic toxicity and it also play an important role in obesity and obesity-related complications. The stem juice of the plant is used to treat scurvy and irregular menstruation, otorrhoea and epistaxis.

The roots and stem are most useful for healing of fracture of the bones. Phytoestrogenic steroids have been isolated from *Cissus quadrangularis* plant, has been shown to influence early regeneration and quick mineralization of bone fracture healing process. Dry shoot powder is used for digestive troubles, stomach ache, colonopathy, scurvy, and asthma. Fresh shoot paste is used in burns and wounds. Stem and leaf is useful in labour pain. Decoction of shoot along with dry ginger and black pepper is used in body pain. Shoot is used for the treatment of piles, worm infection and stiffness in thigh muscles, chronic ulcer, colic, epilepsy, convulsion, anorexia, skin diseases, dyspsia, and indigestion, rejoin broken bones. It is used as aphrodisiac, carminative, laxative, digestive and decoction is used as blood purifier and immune modulator. The present study was analyzed for phytochemical analysis of *C. quadrangularis*.

II. Materials And Methods

The samples of *Cissus quadrangularis* stem were collected from Trichengode. Collected samples were shade dried and powdered for further analysis. The powdered plant materials were dissolved in different solvents like (Methanol, Ethanol, Acetone, Petroleum ether, Ethyl acetate and Water) for 42 hrs at 75 rpm in orbital shaker. After the incubation the extracts were filtered by using Whatmann No.1 filter paper. The filtrates were used for further analysis. The Phytochemical analysis of the secondary metabolites like alkaloids, flavonoids, saponins, proteins, carbohydrates, phenols, tannins, terpenoids and Phytosteroids with the extracts. The quantitative analyses of the extracts were analysed secondary metabolites present in the each sample. The amount of alkaloids, Flavonoids, saponins, tannins, terpenoids, steroids, glycosides and phenolics was estimated.

PRODUCTION OF SINGLE CELL PROTEIN FROM SUGAR CANE BAGGASE BY SOLID STATE FERMENTATION

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Abstract

Sugar cane residues are used as a potential source for products with higher protein content by use of *Aspergillus niger* and *Candida albicans* and be concluded that the sugar canes would replace and conventional waste materials, which showed maximum activity in *Aspergillus niger* in this study. These waste materials constitute renewable resources and can serve as rich and cheapest sources for the protein biomass production. The percentage of the medium can be optimized to give an optimum yield of protein content and lower nucleic acid content. Protein production and the biomass contain all of the analytical substances when compared with WHO reference protein which showed a good profile.

Keywords *Sugar canes residues, Aspergillus niger, Candida albicans*

INTRODUCTION

Malnutrition's is becoming a major problem throughout the world. Single cell protein are the dried cells of microorganisms, it can be used for food supplements to solve this kind of issue globally. As they are natural protein concentrate, they are being used are used as an alternative source for protein not only in human foods but also in animal feeds. There are varieties of raw materials that have been considered as energy sources for the production of SCP. These raw materials are subjected to many circumstances like, physical, chemical and enzymatic hydrolysatation methods before use. Using proteases derived from certain microorganisms, fibrous proteins such as sugarcane residues (which are considered to be the abundant waste products), could also be converted to biomass, protein concentrate or amino acids.

Hence, a wide range of substrates have been

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used to grow microbial protein for single cell protein. The substrates used must be easily available, considerable and economically safe. Hedenskog and Morgen [1] described some methods for the production of single cell protein. Huang (1974) [2] utilized acid brine for the production of food yeast. *C.Christias et al.*, [3] studied the protein content and amino acid composition of certain evaluated for microbial protein production. Bellamy (1975) [4] has studied the conversion of insoluble agricultural wastes to single cell protein of thermophilic microorganisms. Cooney and Levine [5] produced SCP form methanol by using yeast.

In this way, the USSR uses agricultural, forestry and industrial wastes which includes: saw dust, bisulfite, liquors of paper industry, wood chips, wood pulp, sunflower seed husks, bagasse, maize cobs and molasses and corn residues. The present study is economic utilization of Sugar Cane residues for microbial biomass and SCP production by Solid State Fermentation. This study is not just to utilize the by-products of fermentation but also to extract the complete efficiency of essential fibrous content within the sugarcane residues.



EFFECTIVE XYLANASE PRODUCING YEASTS FROM IDLI BATTER- A REVIEW

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ABSTRACT

The use of fermented foods for improved livelihoods is continuously increasing with the alarming increase in the human population. Idli is one of the very old and ancient fermented food that is consumed by the people even before the word 'fermentation' is coined. The fermentation of idli batter is mainly due to the action of diverse range of microbial populations and yeasts takes up the major place in the process. During fermentation, the density of the idli batter will also increase due to the production of different useful enzymes by yeasts and bacteria. Several enzymes have been isolated and purified by downstream processing for various industrial applications. Xylanase is one of the glycoside hydrolases that degrade the linear poly saccharide xylan into xylose. Xylose is a low energy sugar used as sweetener for diabetic patients in food and beverages. This class of enzymes are also used in the biobleaching of wood pulp and in the bioprocessing of textiles, food processing etc. Enzymatic treatment has been shown to improve different physical properties of paper, such as tensile strength, viscosity, tear factor and breaking length.

Key Words : Ancient foods, Fermentation, Idli batter, Yeasts and Xylanase

INTRODUCTION

Development in science and technology brought wide variety of changes across the globe in both positive and negative aspects. In agriculture sector increased production and productivity improved the food security however nutritional and ecological security has become a big question. Narrowed food basket and excess consumption of certain cereals like rice, wheat and maize lead to excess intake of carbohydrate food with less fibre lead to increased diabetics. Though attempts are being made to improve upon fibre rich crops like millets (Gopinath, et al., 2017) the immediate need is also to identify effective pathway for low energy sugar substitutes like xylose which is naturally occur through our tradition food preparing methods like idli batter.

Decreased level of reducing sugars and a non protein nitrogen is produced during the fermentation of Idli (a popular breakfast dish in South India) batters; the batters are usually prepared by soaking rice (*Oryzasativum*) and decuticled black gram (*Phaseolusmungo*) dhal in water, grinding them separately, mixing, and allowing the mixture to ferment overnight. Both titratable acidity and the volume of the batter increase as a result of fermentation and have been used as criteria for judging the progress of fermentation. A temperature range of 25-30 °C has been found to be optimal for the fermentation. Temperatures around 40°C speeds up the rate, but at some cases, unwanted odour will be developed at elevated temperatures. Presoaking of black gram dhal before grinding with the help of conventional methods has been recognized to be a necessary step in the fermentation. The possibilities of a 'Flour Presoaking method' and a 'Composite Dry Mix Method' for Idli making to eliminate the need for wet grinding of black gram dhal and rice. Both yeasts and bacteria participate in the fermentation process using penicillin G and chlortetracyclin as selective inhibitors. Acid and gas production have been found to be mostly dependent on the growth of microbes belonging to this kind of microbial group (Desikacharet al, 1960).

Yeast flora accountable for gas production during the idli batter fermentation (wet ground mixture of rice and *Phaseolusmungo*) was found to possess *Hansenulaanamola*, *Candida glabrata*, *C. tropicalis*, *C. sake*, *Torulopsis candida*, *C. krusei*, *T. holmii* and *Trichosporonpullulans*. There are number of sources of yeast strains which will be found on the surfaces of stone grinders used for preparation of batter and also parboiled rice used in batter preparation. Among the several yeast strains identified, *Torulopsisholmii* had a higher fermentation rate than other strains. Addition of glucose (1%) did not significantly improve fermentation efficiency. GLC analysis of constituent gases released during batter fermentation by yeasts indicated mainly distinct CO₂ peaks compared to H₂ produced in batter fermented by *Leuconostocmesenteroides*.

Role of yeasts in food fermentation

Food fermentation is practiced traditionally worldwide in the human society since many generations with the primary objectives to increase the shelf life, taste, aroma and nutritional properties of the fermented products. The art of fermentation, particularly with a particular starter is increasingly recognised recently, which has also led in application of specific culture and increased the importance of controlled fermentation

An Empirical Investigation of Job Analysis Level of Stress Causes among Employees Working in Selected Private Hospitals in Tamilnadu

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Abstract: Stress is a state of organism connecting specify on physical or mental power. work-related stress refers to a state of affairs where profession linked factors network with component of staff to change i.e. interrupt or expand his / her stirring and or physiological environment such that the human being is forced to glide from normal accomplishment. In this investigate paper the researchers scrutinize the primary factors cause burden to employees nurses in private hospitals. The education is a descriptive one. most important data was mutually by the researcher with the make possible of arranged survey administered to the staff nurses of three most imperative private hospitals in Tiruchirappalli District - Tamilnadu. 173 human possessions from that sanatorium include the sample size. Fifteen questionnaire were distributed for the summit of pre-testing the questionnaire extensive. A whole survey was inhabited based on the enlightenment together during the pre-testing period. Type of example method used was simple haphazard sampling. To investigation the reliability of the data collected, the investigator used cronbach's Alpha test and the value is 0.722 which shows that the data has reasonable reliability and validity. Using Statistical Package for Social Sciences (SPSS) the following tools were administered in this study 1) feature Analysis 2) Multiple Regression and 3) Reliability Test. Some of the conclusion were derived that will be significant to present Indian situation

Keywords: Stress, Hospital, Nurse etc

I. INTRODUCTION

Stress has been amorphous in dissimilar ways greater than the years. initially, it was conceive of as anxiety from the surroundings, then as sprain within the individual. The usually accepted classification today is one of interaction between the condition and the personality. It is the emotional and physical state that consequences when the stuff of the character are not satisfactory to cope with the anxiety and pressures of the situation. Thus, nervous tension is more likely in some location than others and in some persons than others.

Causes of professional Stress – Stressors

Sources of constant worry may also differ based on one's position in the organization. Executive stressors may ensue beginning the substance for short-term monetary results or the fear of a hostile take-over exertion. At the administrative level, stressors take account of the pressure designed for excellence and client scrutinize, abundant meeting and accountability for the work of others. employees are more to be expected to understanding the stressors of low status, supply deficiency, and the stipulate for a large volume of error free work. Thus the type of work or occupation also causes stress.

II. ASSESSMENT OF LITERATURE

Arbabisarjou, Azizollah et.al., (2013) The purpose of this investigate was to study affiliation between Job stress and presentation among the hospitals nurses in year of 2012-2013. The research method in this study is connection descriptive. The participant of this schoolwork were 491 nurse in hospitals which were arbitrarily selected from all nurses and finally, 100 questionnaire were analyzed. The data gathering tools included two questionnaire which were about the Job stress and arrangement, with 39 and six questions accordingly. The results of the study showed there was a negative association between Job stress and presentation.

Dr. Beulah Viji Christiana. M, and Dr. V.Mahalakshmi, (2013) This schoolwork organize the differences in work-related heaviness pertaining to human resources in the secretarial cadre for the duration of both public and private sector, based on earth-shattering role stressors. attempt are also made to find out whether there exist any remarkable affiliation among role stress and demographic variables like age, didactic condition, marital status, work experience on the stress levels of both public and private sector managers.

P. Vanishree, (2014) .This paper scrutinize the bang of work stressors on job anxiety of small and medium-sized enterprises (SMEs).In transportation out the schoolwork, unplanned pattern system was used to

Challenges and Solution for Marketing in Digital Era

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Abstract

Internet usage continues to explode across the world with digital becoming an increasingly important source of competitive advantage in both B2C and B2B marketing. A great deal of attention has been focused on the tremendous opportunities digital marketing presents, with little attention on the real challenges companies are facing going digital. In this study, we present these challenges based on results of a survey among a convenience sample of 777 marketing executives around the globe. The results reveal that filling "talent gaps", adjusting the "organizational design", and implementing "actionable metrics" are the biggest improvement opportunities for companies across sectors.

Key words: Digital challenges, tremendous opportunities.

Introduction

Wharton Professor George Day identified the widening gap between the accelerating complexity of markets and the capacity of most marketing organizations to comprehend and cope with this complexity. Although the forces of market fragmentation and rapid change are everywhere, we believe that Internet usage is the main driver behind the widening gap

The 1990s being the decade of e-commerce, the early part of the 21st century has become the era of social commerce. The role of "digital marketing" is confirmed in a study by IBM consisting of interviews with CMOs (IBM Institute for Business Value, 2011).

Four Biggest Challenges:

- (1) Explosion of data (sometimes also called big data),
 - (2) social media,
 - (3) proliferation of channels, and
 - (4) shifting consumer demographics.
- Three of these

Purchasing and Supply Chain Management

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Abstract The Indian Journal of Purchasing & Supply Management meets the need for a forum where leading-edge research in this fast-growing discipline can interact with the experience of practitioners. Through the publication of refereed papers and viewpoint articles it aims to encourage the development of both conceptual thinking and practical approaches, and to provide a means whereby managers can network with those involved in developing new ideas. The journal covers every aspect of the purchasing of goods and services in all sectors, including: industry and commerce, local, national and regional government, health and transportation. As well as the main refereed articles, and shorter viewpoint pieces on matters of topical interest, there is a back section featuring book reviews, conference reports, and a calendar of events. Key Topics include: strategic purchasing logistics supply chain management regional public procurement issues, eg EU directives, NAFTA etc. lean supply/lean production partnership sourcing relationship development international purchasing, eg. global sourcing.

Keywords: Supply Chain Management includes movements and storage of raw materials.

INTRODUCTION

Purchasing and supply chain management focuses on the fundamental aspects of the supply/value chain, including methods to improve how organizations find the materials and services needed to make a product or service and deliver it to customers. Supply chain management encompasses the management of all activities involved in sourcing, procurement, production, logistics and customer relations. It also includes the crucial components of coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.

PURCHASING: THE FOUNDATION OF THE SUPPLY CHAIN

Purchasing is one of the basic functions common to all organizations. It is the process of acquiring goods, services, and equipment from another organization in

a legal and ethical manner. Professional purchasing addresses five rights: purchase of the right item or service, in the right quality, in the right quantity, at the right price, at the right time. Purchasing provides the foundation of supply management, which tends to have a wider scope of activities. The focus shifts from price to the total cost of ownership. Supply management also puts more emphasis on helping a firm increase its profitable sales. The term "materials management" was a popular expanded definition which grouped purchasing, production and inventory control, and incoming transportation under one director. The current popular term "supply chain management" reflects the expanded purchasing management functions.

Supply management (also known as procurement at many firms and government agencies) is a five-stage process that begins with the identification of the item or service required to meet the needs of the organization. During this stage, the need is translated into a statement describing the item or service required to satisfy the need. It is estimated that some 85 percent of the cost of an item or service is determined during this stage. In advanced organizations, supply management professionals, and frequently, pre-qualified suppliers are involved in this stage. The second stage of supply management involves identifying the supplier who will best satisfy the need. The third phase involves the process of establishing a fair and reasonable price for the item or service to be purchased. The fourth phase results in an enforceable agreement for the purchase that meets the needs of both parties. The fifth phase requires managing the relationship to ensure timely delivery of the required item or service, in the quality specified at the agreed time.

SUPPLY MANAGEMENT AND THE BOTTOM LINE

Supply management has an overwhelming impact on the firm's bottom line. It directly affects the two forces that drive the bottom line: sales and costs.

Historically, supply management has been considered important based on its impact on costs. At an increasing number of firms today, the procurement process is recognized as having a significant impact on sales and revenues. Supply management has an



Review on Secure Communication System Using Neural Network Approach in Steganography

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ABSTRACT

Now a days, covert communication is one of the most important aspects of internet. When you want to hide the data from prowler, you can use dissimilar methods for covert communication. One of the most useful methods is steganography. Other thing in the era of internet is the copyright guard, which can be implemented effectively by digital watermarking. The concert of these methods can be further improved with the use neural network approach adoption. In this paper we will see some of the possible ways to fit in neural network approach in covert communication.

KEYWORDS: Steganalysis, ANN, CNN, FCNN, Digital Watermarking, Steganography

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A Comparative Analysis of Different Data mining algorithm for Credit risk modeling

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Abstract- Analysis of credit risk is a data mining problem deserving serious consideration in financial risk governance. The abundance of data generated daily in banks and other financial sectors poses a challenge in the realm of data mining. This paper compares the accuracy and efficiency of twelve data mining algorithms –Naïve Bayes, Bayes Net, Simple Logistic, SMO, Decision Table, OneR, ZeroR, J48, Random Forest, IBk, KStar and REPTree by applying them to three credit data sets. Experiment results show that Random Forest algorithms produced the best classification accuracy, On the contrary, the ZeroR algorithm produced low accuracy.

Index Terms - Data Mining, Classification, Machine learning, Weka.

1. INTRODUCTION

The concept of banking in recent times has undergone vast changes that have been accompanied by emergence of new risks and worsening of existing ones. In such a scenario, credit risk analysis becomes a challenging and emerging field in data mining. A highly desired usage of economic capital can be achieved by a thorough evaluation of credit risk. There are different types of credit risks. It can be credit default risk, country risk or a concentration risk [1]. Data mining techniques can extract hidden information from huge data set, this knowledge will help the bankers to analyze the credit risk.

Data mining is also known as KDD (Knowledge Discovery in Databases), is used to retrieve potentially useful information from huge amount of data. In many emerging fields like retail, bioinformatics education and financial enterprises are using data mining algorithms for knowledge recovery. The main stages of KDD are data selection, data preprocessing, data projection, data mining, and knowledge recovery. In this paper I have used the tool Weka for analyzing different data mining algorithms. Weka is an open source data mining software developed by University of Waikato, New Zealand and it contains different machine learning algorithms.

2. LITERATURE REVIEW

To predict credit risk already many research work are done. In the paper 'Comparative Analysis of Data Mining Classification Algorithms in Type-2 Diabetes Prediction Data Using WEKA Approach' [2] Kawsar Ahmed, Tasnuba Jesmin compared speed and accuracies of different data mining classifications and

then ranked the best 5 algorithms. They used type-2 diabetes disease dataset.

In [3] Aman Kumar Sharma, Suruchi Sahni in their paper they conducted experiment in the WEKA environment by using four algorithms namely ID3, J48, Simple CART and Alternating Decision Tree on the spam email dataset and later the four algorithms were compared in terms of classification accuracy. According to their simulation results, the J48 classifier outperforms the ID3, CART and ADTree in terms of classification accuracy.

In [4] Satish Kumar David, Amr T.M. Saeb, Khalid Al Rubeaan, 2013 they compared algorithms based on their accuracy, learning time and error rate and they observed that there is a direct relationship between execution time in building the tree model and the volume of data records, while there is also an indirect relationship between execution time in building the model and the attribute size of the data sets. They concluded that Bayesian algorithms have better classification accuracy over and above compared algorithms.

In [5] Shrey Bavisi, Jash Mehta, Lynette Lopes concluded that The Naïve Bayes model is simple, elegant and extremely robust, making it way more appealing. On the other hand it is an easily understood and easily implemented classification technique. C4.5 algorithm is also used in classification problems where it is used to build decision trees. C4.5 deals with both numeric attributes as well as missing values, making it suitable for dealing with real life problems.

In [6] Hong Yu, Xiaolei Huang, Xiaorong Hu, Hengwen Cai conducted a comparative study on four

A Survey about Pattern based Aggregation to Sequence the Data in Efficient Way

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Abstract- Many applications need the flexibility to control sequences of knowledge, this inspire the importance of sequence question process, and gift a frame work for the improvement of sequence queries supported many novel techniques. The requirement to go looking for complicated and continual patterns in info sequences is shared by several applications. In existing SQL-TS, associate degree extension of SQL to specific the patterns. Call support and information discovery systems typically work out combination values of fascinating attributes by process an enormous quantity of knowledge in terribly large databases and warehouses specifically, Iceberg question may be a special sort of aggregation question that computes combination values higher than a user-provided threshold. This incurs intensive disk accesses and computation and leading to long interval particularly once information size is giant. Icon index, that builds one icon vector for every attribute worth, is gaining quality in each column-oriented and row-oriented databases in recent years. It occupies less house than the information and offers opportunities for additional economical question process. we tend to exploited the property of icon index and developed a awfully effective icon pruning strategy for process iceberg queries.

I. INTRODUCTION

Many real world applications manipulate knowledge that's inherently consecutive. Such knowledge is logically viewed and queried in terms of a sequence abstraction and is usually physically hold on as a sequence.

Databases ought to:

(a) permit sequences to be queried in a very declarative manner, utilizing the ordered linguistics of the info.

(b) profit of the opportunities on the market for question optimisation. relative knowledge bases are inadequate during this regard, data collections are treated as sets, not sequences.

Sequence databases thus need techniques that are distinct from established on-line database techniques.

This paper deals with problems with question optimisation and analysis for sequence queries. Business insight and information discovery from operational knowledge are powerful weapons for gaining competitive blessings within the fashionable business world. To find business

insights, analysis's typically reckon mixture values over one or additional attributes in giant databases (warehouses). Iceberg question may be a special category of aggregation question that computers mixture values higher than a given threshold. Interest to the users, as high frequency events or high mixture values typically carry additional necessary info. For big knowledge set, multi pass aggregation algorithms are used once the total mixture result cannot slot in memory (even once the ultimate iceberg result's small). Most existing question optimisation techniques for process iceberg queries will be classified because the tuple-scan-based approach, which needs a minimum of one table scan to scan knowledge from disk. the main challenge in developing.

Such associate formula is to effectively sight whether or not a bitwise-AND can generate empty result before doing the AND operation. This looks like a quandary within the starting the main challenge in developing such associate formula is to effectively sight whether or not a bitwise-AND can generate empty result before doing the AND operation. This looks like a quandary within the starting.

A solution is so doable ancient OLAP systems cluster knowledge tuples supported their attribute values, associate S-OLAP system teams sequences supported the patterns they possess. Common mixture functions like COUNT/SUM/AVG will then be applied to every cluster. The ensuing mixture values type the cells of a therefore known as sequence knowledge cuboid, or s-cuboid. Since associate s-cuboid displays the mixture values of sequences that are sorted by the patterns they possess, one will read associate s-cuboid because the answer to a pattern-based aggregate(PBA) question for instance PBA queries and s-cuboids. The dataset models a group of traveller travelling records registered by the Washington DC's railroad line system. The records are captured electronically by Smart Trip, that is associate RFID card- based mostly stored-value e-payment system. It shows a sequence of traveller events, and an occasion consists of variety of attributes, like Time, Station, Action and quantity. knowledge sequences ar sorted supported the patterns. Finally, the perform F is applied to every sequence cluster to derive mixture values.

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A Survey on Attribute Based on Secure Storage Encrypted Through Deduplication In Cloud

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Abstract- Data deduplication is a specialized data compression technique for eliminating duplicate copies for repeating data. To maintain sensitive user data secret in opposition to untrusted servers, cryptographic methods are used to supply security and access control in clouds. The re-encryption is done lacking the server being able to decrypt the ciphertext. There are many types in encryption security and access the control. In this paper the proxy re-encryption (PRE) schemes, Conditional PRE, Identity based PRE and Broadcast PRE, Type based PRE, Key private PRE, Attribute based PRE, Threshold PRE and its role in securing the cloud data are explained. Fuzzy IBE having set of descriptive attributes that can be used for a type of application that we term "attribute-based encryption". Present an attribute-based storage system with secure deduplication in a hybrid cloud setting, using public cloud and private cloud. A private cloud is responsible for duplicate detection and a public cloud manages the storage for user's private key is associated with an attribute set a message is encrypted under an access policy over a set of attributes.

Key words: Type based PRE, Threshold PRE, Deduplication, Cloud computing.

I. INTRODUCTION

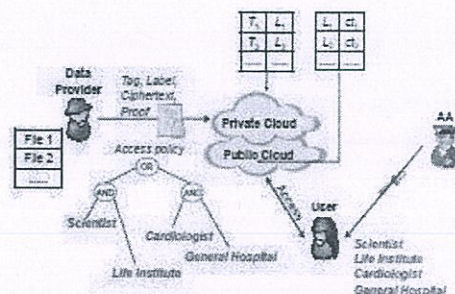
Cloud-computing providers offer their "services" according to different models, Cloud computing is a model for enabling ubiquitous network access to a shared pool of configurable computing resources. proxy re-encryption (PRE) schemes are proposed by Mambo and Okamoto. Application developers use application logs to identify and fix bugs inside a program code. The log file provides more functional services includes system and network's monitoring, to optimizes performance of system and network, recording user activity, and investigating malicious behavior. CLF is a new emerging field of data security used to analyze data inside cloud log files for the investigation of malicious behavior. cloud computing is a model, that enable to found every where to access for network to shared pool of configurable computing resources. The advantage of its speed, agility, flexibility, infinite elasticity and more importantly mobility because services can be accessed anytime and anywhere. Cloud computing and storage

solutions that provides to users, their enterprises with various capabilities to store and process the data.

II. LITERATURE SURVEY

Cloud service providers finds out the access control mechanisms for data on the cloud. Access control is a method that restricts, denies, or allows access to system. [2] They have different successful access control policies are used to protect data stored locally and data stored remotely.

One of such approach is Proxy Re-encryption (PRE) technique. Windows 7 computer and an Apple iPhone 3G when users use different methods to store, upload, and access data in the cloud. The present method for collecting and analyze proof to variety about the cloud storage services. They use a computer and an iPhone to access Microsoft Sky Drive. [7] Jason discusses the digital artifacts left behind after an Amazon Cloud Drive has been accessed from a computer. CLF (Compact fluorescent lamp) that guides researchers CSPs, investigators, legislators, and cloud vendors. To work out on these open issues to make CLF more realistic and implementable to enable the deduplication and distributed storage of the data across HDFS. And then using two way cloud in our storage system is built under a hybrid cloud architecture, where a private cloud manipulates the computation and a public cloud manages the storage.



The private cloud is provided with a trapdoor key associated with the corresponding ciphertext, with which it can transmit the ciphertext over one access policy into ciphertexts of the same plaintext under

Multiple Sparse Kernel Learning For Spectral Classification

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Abstract—

Spectral Clustering in spatial information mining performs a main crucial position due to its ability of dealing with massive length of statistics, effective application of linear algebra. The graphical illustration and troubles, and alertness of very low value of clustering algorithms like k-nearest or ϵ neighbourhood graph maximum targeted on green query processing for static or dynamic statistics. This paper extends the current spatial records mining algorithms to green mode of spectral clustering algorithms with the application of laplacians graph residences and present new method of spatial information mining methods. Those algorithms and strategies are used to scratch new know-how from massive data sets having assets of graphs acquired effects of spectral clustering indicates numerous elements of spatial facts mining and their applications.

Keywords Spectral Clustering, Graph Laplacian, Spatial Data Mining, Spatial Data Base systems.

1. INTRODUCTION

Each object has its spatial attributes, location and other non spatial attributes. these gadgets and their attribute are applicable in lots of areas with the help of different clustering methods. This paper is designed as a higher utility and exploration of spectral clustering for spatial records mining. spectral clustering, as its name implies, uses the spectrum (or eigen values) of the similarity matrix of the statistics. it examines the connectedness of the statistics, while different clustering algorithms which include K-way use the compactness to assign clusters. spectral clustering [1] is turning into more popular because of its good sized and useful packages like facts analysis, speech separation, video indexing, character reputation, photograph processing and photograph segmentation etc. spectral clustering makes spatial records mining a completely crucial application in following areas

i.Protection Deployment: It's miles based totally on satellite TV for personal computer imaging and it may traced and patterns of movement are detected..

ii.Region Consciousness and Emergency Respond: The spatial region of a user is accountable for place consciousness and their profile.

iii.Graph and map based packages. Spectral clustering is very useful for photograph segmentation.

Spatial facts mining is facts pushed but it is also human focused with complete manipulate of users[1]. So, it is very critical to select SPDM techniques and understand them with desired desires and effects.

A number of the common clustering methods are [2]

- I. Density based strategies of clustering
- II. Hierarchical primarily based strategies of clustering



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SECURING SENSITIVE DATA IN THE CLOUD BY USING ONE TIME PASSWORD FOR IMPLEMENTING N-CLOUD TECHNOLOGY

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ABSTRACT

The Elliptic Curve Digital Signature Algorithm (ECDSA) is the elliptic curve analogue of the Digital Signature Algorithm (DSA). One of most important revolution in data storage and it's retrievability in IT world is emerged in the form of Cloud Computing. Cloud computing have large impact over IT industry. In new existence, Elliptic Curve Cryptography (ECC) has involved the concentration of researchers and produce developers since of its tough mathematical structure and highest security in comparison to other existing algorithms like RSA (Rivest Adleman and Shameer Public key Algorithm).

Key word: Ecdsa, Ecc, Signature schemes, cloud authentication; multi-clouds; one time password

I. Introduction

Cloud storage system is becoming the world's one of simple, fine and popular technology because of data storage on one point from anywhere and we can interact with that data easily from everywhere [1][2]. It was accepted in 1999 as an ANSI standard and in 2000 as IEEE and NIST standards. It was also accepted in 1998 as an ISO standard and is under consideration for inclusion in some other ISO standards. Cloud computing is used upon huge amount of data and processing over that data by various application because cloud computing provides such environment to user [4]. The idea of information security leads to the evolution of Cryptography. Cryptography is the science of keeping information safe. In the mid-1980s, Miller and Koblitz introduced elliptic curves into cryptography, and Lenstra demonstrated how to employ elliptic curves to factor integers demonstrated how to employ elliptic curves to factor integers. The term „cloud computing“ is made up of two terms, cloud and computing. Cloud could be thought to be synonymous with the Internet where various resources are interlinked with the use of network. One can use the resource they want with the help of simple client-server architecture. The term computing refers to processing. Cloud computing is computing on various resources over the network. In cloud computing Infrastructure, Platform and Application/Software are delivered as service over the network. Use of cloud computing is increasing day by day in many industrial areas[3]. Cloud Storage Service (CSS) gives benefit over managing and maintaining data manually [4]. A Cloud Storage System ensures that user gets the file which user has demanded for i.e. user is able to retrieve the data they want [5].

Different Techniques Involved in Authentication:

Current authentication methods can be classified as follows:

- Token based authentication
- Biometric based authentication
- Knowledge based authentication

Token based techniques, such as key cards, bank cards and smart cards are widely used. Many token based authentication systems also use knowledge based techniques to enhance security. For example, ATM cards are generally used with a PIN number.

Analysis of an Identity Based Encryption through Cloud Revocation Ability

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Abstract— Identity-Based coding (IBE) that simplify the general public key and certificate management at Public Key Infrastructure (PKI). However, one among the most potency drawbacks of IBE is that the overhead computation at personal Key Generator (PKG) throughout user revocation. In this paper, motivate to challenge the important issue of identity revocation, and have tendency to initiate the outsourcing computation into IBE and propose a revocable IBE theme within the server-aided setting. It offloads most of the key generation connected operations throughout key-issuing and key-update processes to a Key Update Cloud Service supplier, different approach which have variety of straightforward operations for PKG and users to perform locally. This goal is achieved by utilizing a unique collusion-resistant technique: we have a tendency to use a hybrid personal key for every user, during which associate degree AND gate is concerned to attach and sure the identity part and also the time part. what is more, we have a tendency to propose another construction that is obvious secure below the recently formulized Refereed Delegation of Computation model. Finally, we offer intensive experimental results to demonstrate the potency of our projected construction.

Index Terms—Identity-based encryption, Revocation, Outsourcing, Cloud computing.

I. INTRODUCTION

Identity-Based Encryption is a different option for open key encryption, which is proposed to improve key administration for support to built up public key Infrastructure(PKI). Thus, sender using IBE have to appear to get open key and declaration, yet straight encodes message with collector's ID[1]. Revocation of digital certificates lay an main role in traditional public-key cryptosystem. We have proposed a new approach in constructing an efficient RIBE scheme, which have group elements, while the update keys are only in propotional to number the revoked user [1,2].

II. LITERATURE SURVEY

A. Identity-based Encryption

In IBE scheme, it consists of two entities, PKG and users (including sender and receiver) which consists of four algorithms. They are:

- Setup (λ): In, Setup algorithm it takes as input as security parameter λ and outputs the public key PK and also the master key MK . Note that the master key is kept secrete at PKG.[3][4]
- KeyGen(MK, ID) : The private key generation algorithm is run by Private Key Generator, which takes as input as the master key MK and user's identity ID $\in \{ 0,1 \}^*$. It returns a private key SK ID corresponding to the identity ID.
- Encrypt (M, ID): The encryption algorithm is run by the sender, which takes as input as the receiver's identity ID and the message M to be encrypted. It outputs the ciphertext CT.
- Decrypt(CT, SK ID): The decryption algorithm is run by receiver, which takes as input as the ciphertext CT and his/her private key SK ID . It returns a message M or an error \perp . An IBE scheme must satisfy the definition of consistency. In particular, when the private key SK ID generated by algorithm KeyGen when it is given ID as the input, then Decrypt (CT, SK ID)=M where CT= Encrypt (M, ID). The motivation of IBE is to simplify certificate management.

B. System Model

In IBE Scheme, the KeyGen ,Encrypt and Decrypt algorithms are redefined as follows to integrate the time component. RL and TL are included in this, where RL records the identities of revoked users and TL is used to report the linked list for past and current time period.

- KeyGen (MK, ID ,RL, TL): The key generation algorithm run by the Private Key Generator(PKG), which takes as input – a master key



CLOUD SOURCING IN HEALTHCARE AND COMMUNITY HEALTH MANUFACTURING USED FOR RSA PUBLIC KEY ENCRYPTION ALGORITHM

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ABSTRACT- The extended use of medical health care management systems is increasing the requirement for medical contents security. As a result of the health care management systems enable North American country to gather, extract, store and share the Electronic Health Records (EHR). Sharing of EHR helps in diagnosing similar to wise as assists in inventing new medication. So a regular is required to secure the EHR contents and to confirm the access of these contents. Data security and privacy within the health care sector is a difficulty of growing importance. The acceptance of digital acceptance of digital patient record, accrued directive, supplier consolidation, and therefore the rising want for data between patients, providers, and payers, all purpose towards the requirements for higher data security RSA formula. Main goal of combine and wise RSA encoding formula is secure transmission of lead over network. RSA encoding formula is Public key cryptography is additionally referred to as uneven key cryptography. Public key cryptosystem use key combine one use as public different use as personal or secret key cryptosystem use same private key for encoding and coding.

Keywords: Access Control, Electronic Health Records, Information Security, Authentication

I. INTRODUCTION

Access management is associate underlying governing principle of the patient and medical practitioner relation for economical delivery of tending. Patient's region element required to share information among their physician to ease accurate investigation and purpose of treatment, considerably to keep away from unpleasant drug exchange. But patients could refuse to tell necessary knowledge in case of health issues similar to medical specialty issues and HIV which could cause social dishonor and discrimination. A patient's casing the past accumulate very important needed important individual into similar to identification, the standard particulars of diagnosing, digital renderings of medicinal pictures, performance received, treatment history, food habits, sexual predilection, inherent info, emotional details, employ history, income, and physician slanted measurement location with others. Huge the large increase in medical records may be a big challenge in health care sector attributable to the complexness concerned managing, storing and process these records. The unstable increase within the quality of medical content is because of factors similar to increasing the patient population, new medical imaging technologies similar to 3D imaging, PET/MR scans. Subjective evidence from recent year's advice lack of satisfactory security actions has resulted in a variety of information breaches develop patients showing to financial threats, complexity, and possible social disgrace (Health Privacy Project 2007). A recent survey within the U.S suggests fifty of patients area unit involved concerning health websites sharing info while not their permission. Info security should respect 3 contradictory requests protection of confidentiality, integrity and handiness of data. The conception of building security of the data systems distinguishes several approaches. On the amount of identification, authentication and authorization of users, user's rights, authentication and authorization of users, knowledge, several systems, of protocols and application are developed, that increase the amount of security systems. Cryptography and writing area unit are the fundamental ways in which of information protection. Implementation of the protection is dispensed by crypto algorithms that correspond to hard level of information security and verification of user's credibility. All strategies of information protection area unit supported the crypto algorithms by the messages become senseless to those whose aren't users. Moreover, many strategies and protocols of key interchange area unit in use that have a vital role in scripting and users authentication. The method of distinctive a personal, typically supported a username and positive identification. In safety measures system, substantiation is different from authentication, to is that the scheme of giving land access to system object support their individuality. Authentication is that the credibility checks procedure, it checks the user's identity, by security the information received from the entity with those keep within the base. It ought to be mentioned that the entity integrity isn't necessary. For instance, once work on ISP it's doable to attach a lot of individuals from constant phone line and also the same laptop, underneath constant user name and positive identification.

AN EFFICIENT PUBLIC AUDITING MECHANISM WITH IMPROVED SECURITY FOR MULTI- CLOUD STORAGE SYSTEMS

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Abstract—

Cloud computing permits users to simply store their information and share information with others. Because of the safety threats in Associate in Nursing untrusted cloud, users are suggested to cipher verification of information, like signatures, on their information to guard the integrity. Several mechanisms are projected to permit a public friend to expeditiously audit cloud information integrity while not receiving the complete information from the cloud. However, to the simplest of our data, none of them has thought-about regarding the potency of public verification on multi-owner information, wherever every block in information is signed by multiple homeowners. During this paper, we have a tendency to propose a unique public verification mechanism to audit the integrity of multi-owner information in Associate in Nursing untrusted cloud by taking the advantage of multi-signatures. With our mechanism, the verification time and storage overhead of signatures on multi-owner information within the cloud are freelance with the quantity of householders. Additionally, we have a tendency to demonstrate the safety of our theme with rigorous proofs. Compared to the easy extension of previous mechanisms, our mechanism shows an improved performance in experiment.

Keywords: Cloud computing, data integrity, multiple owners, public verification.

I. INTRODUCTION

Cloud storage is currently getting quality as a result of it offers a versatile on-demand information outsourcing service with providing benefits: relief of the load expenses for storage management, universal information access with location independence, and shunning of cost on hardware, software, and private maintenances, etc. Cloud computing permits users to simply store their information within the cloud with a lot of lower costs than ancient approaches, and permits them to easily share their information with friends and families irrespective of wherever they're. a lot of specifically, once a user creates shared information within the cloud, each user within the cluster is in a position to not solely access and modify shared information, however conjointly share the most recent version of the shared information with the remainder of the cluster. Though cloud suppliers promise a safer and reliable setting to the users, the integrity of knowledge within the cloud should still be compromised, thanks to the existence of hardware/software failures and human errors [1], [2].

to shield the integrity of knowledge in associate degree untrusted cloud, variety of mechanisms are projected [2]. In these mechanisms, a signature is hooked up to every block in information, and therefore the integrity of knowledge depends on the correctness of those signatures. one in every of the foremost important and customary options of those mechanisms is their ability to permit not solely the information owner, however conjointly a public voucher, like a 3rd party auditor (TPA), to ascertain information integrity within the cloud while not downloading the complete information, mentioned as public auditing[3].

2. Related Work

In paper [1], planned the general public auditing theme for the dynamic knowledge and fairness arbitration of potential disputes. associate index whipper to get rid of the limitation of index usage in tag computation in exiting schemes and support economical handling of knowledge dynamics. It additional supports the signature exchange plan for honest arbitration

The Role Of Compression Techniques In Migration Framework For Over Committed Clouds

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Abstract - Cloud computing permits businesses to devour a compute aid, which includes a digital device (VM), garage or an application, as a software -- just like power -- in place of having to construct and preserve computing infrastructures in residence. A transferring object clustering hassle that jointly identifies a set of objects and discovers their motion patterns. An efficient distributed mining to limit the wide variety of organizations such that individuals in each of the observed businesses are distinctly related by way of their movement patterns. The novel compression set of rules to compress the region information of a group of transferring items without or with loss of facts. The project formulate the HIR (Hit item alternative) trouble to limit the entropy of location facts and explore the manner to clear up the HIR hassle. People tend to store a whole lot of documents inner their storage. when the storage nears it limit, they then try to lessen the ones documents length to minimal by the usage of facts compression software program. In this method we advocate a brand new set of rules for facts compression, called j-bit encoding (JBE). In sign processing, records compression, supply coding, or bit-fee discount entails encoding facts the use of fewer bits than the authentic representation. Information compression is concern to a space-time complexity trade-off.

Keywords: Compression ratio, Compression Algorithms, HIR algorithms.

I. Introduction

Cloud computing is a way for handing over data generation (IT) services in which sources are retrieved from the internet through web-based totally equipment and packages, rather than a direct connection to a server. in preference to preserving files on a proprietary hard power or neighbourhood storage tool, cloud-based totally garage makes it feasible to keep them to a far off database. as long as an electronic device has get admission to the internet, it has get right of entry to the facts and the software applications to run it. This form of machine permits personnel to work remotely. There are varieties of compression, lossy and lossless. Loss compression reduced record length by way of removing a few unneeded facts that gained not be apprehend through human after decoding, this regularly utilized by video and audio compression.

II. Literature Survey

Records compression algorithms that are to be had to compress documents of different codecs. This paper presents a survey of different basic lossless facts compression algorithms[1]. More the size of the facts be smaller, it provides better transmission pace and saves time. On this communicate we continually need to transmit statistics correctly and noise free [2]. New compression approach that makes use of referencing via -byte numbers (indices) for the purpose of encoding has been presented. The technique is green in supplying excessive compression ratios and quicker search via the text. It leaves an excellent scope for further research for virtually incorporating phase three of the given algorithm.

III. Cloud Computing

Cloud computing is the shipping of computing offerings—servers, garage, databases, networking, software, analytics and greater—over the net ("the cloud"). Agencies presenting these computing offerings are known as cloud companies and generally price for cloud computing services primarily based on usage, much like how you are billed for water or electricity at home. In its maximum simple description, cloud computing is taking offerings ("cloud services") and moving them out of doors an business enterprise's firewall. Applications, garage and other offerings are accessed thru the net.

IV. Cloud Computing Services

Software as a carrier (SaaS) – software runs on computer systems owned and controlled via the SaaS company, as opposed to hooked up and controlled on user computers. The software program is accessed over the general public internet and generally provided on a month-to-month or yearly subscription. Software program as a carrier (SaaS). SaaS carriers offer utility-level offerings tailored to a wide form of enterprise wishes, which includes purchaser dating management (CRM), advertising and marketing automation, or commercial enterprise analytics.

A Survey of Cloud Storage for Integrity Checking of Data Files

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Abstract- Cloud computing has been expected because the de-facto strategy to the growing garage costs of its businesses. A developing variety of statistics proprietors select to outsource statistics files to the cloud. However, cloud storage servers aren't absolutely straightforward records proprietors want faraway cloud servers. To cope with this records verification, we present evidence of data integrity set of rules. Many current schemes have vulnerabilities in performance or information dynamics with the high prices of facts storage gadgets.

Key phrases - Cloud Storage Cloud Computing Records Integrity Authentication.

I. INTRODUCTION

Cloud garage move's the user statistics to massive facts, facilities, which are remotely located, on which consumer does no longer have any manipulate. But, this particular feature of the cloud poses many new security demanding situations which need to be truly understood and resolved.

The importance of cloud garage is reflected by the benefit of having access to the statistics from anywhere at any time via the net. Cloud garage offers the customers with top high-quality and on-call for facts storage services and frees them from the burden of preservation. Cloud computing has been pictured due to the fact the on-demand self-provisioning, gift community gets admission to, vicinity impartial useful resource pooling, speedy aid elasticity, utilization-based assessment and transference of risk.

Authentication Cloud computing emerges as a singular computing paradigm subsequent to grid computing. Via managing a high-quality wide variety of allotted computing sources in the net, it possesses big virtualized computing capability and garage space [1].

Accordingly, cloud computing is widely universal and used in many real applications [2]. Cloud service issuer tries to provide a promising carrier for records garage, which saves the customer's charges of investment and useful resource. Even though some protection problems had been solved [3-10], the critical, demanding situations of statistics tampering and records misplaced are still present in cloud garage.

On the only hand, the coincidence disk errors or hardware failure of the cloud garage server (CSS) may additionally reason the unexpected corruption of outsourced files. Then again, the CSS is not absolutely straightforward from the angle of the records proprietor, it could actively delete or modify files for extraordinary financial advantages.

On the equal time, CSS may additionally cover the misbehaviors and facts loss injuries from information proprietor to hold a terrific reputation. Consequently, it's miles important for the data owner to utilize a green way to test the integrity for outsourced records. As a critical carrier for cloud computing, cloud provider issuer resources, dependable, scalable, and low-cost outsourced garage provider for the customers. It gives the customers with an extra flexible manner referred to as pay-as-you-pass version to get computation and storage sources on-call for. Under this model, the customers can rent necessary IT infrastructures.

II. LITERATURE SURVEY

The first RDPC was proposed by Descartes et al. [6] based totally on RSA hash feature. The disadvantage of this scheme is that it needs to access the complete report blocks for each task. In 2007, the provable facts possession (PDP) model was supplied by means of A tennis et al. [11], Which used the probabilistic proof approach for remote information integrity checking without gaining access to the entire file. Although these protocols had accurate overall performance, it is a pity they did not support dynamic operations. To overcome this shortcoming, in 2008, they provided a dynamic PDP scheme by using symmetric encryption [13].

Nevertheless, this scheme nevertheless did not help block insert operation. At the identical time, masses of research works [14-18] committed to assemble completely dynamic PDP protocols. For example, Seabee et al. [14] supplied a RDPC protocol for vital information infrastructures based totally on the hassle to component big integers, which is easily adapted to aid facts dynamics. Airway et al. [15] First supplied a fully dynamic PDP scheme (DPDP) by using the usage of authenticated bypass listing, which allowed facts

A Personalized Hierarchical Feature Of Cyper Text Based Proxy Encryption Using Mobile Computing

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ABSTRACT

The Proxy encryption strategies with respect to comfy cloud records and its utility. There are various encryption schemes that offer protection and get right of entry to manage over the community. Proxy encryption enables the semi-depended on proxy server to encrypt .The encryption is accomplished with-out the server being capable of decrypt. The function primarily based definitely proxy encryption (ABPRE) scheme is one of the proxy encryption, which. ABPRE extending the conventional proxy encrypted and attributes an critical characteristic.

In ABPRE Proxy encryption strategies with recognize to cozy cloud data and its utility. there are various encryption schemes that offer protection and get admission to manipulate over the network. Proxy encryption permits the semi-relied on proxy server to re-encrypt the legal consumer simply makes use of his very personal mystery key to decrypt the encrypted statistics, and he doesn't need to shop an extra decryption key for decoding; The touchy records cannot be observed to the proxy in encryption, and the proxy most effective complies to the facts owner's command. We achieve this motive by means of first combining the Hierarchical based totally Encryption (HIBE) system.

Keyword: Attribute-based proxy re-encryption, cloud computing, data sharing.

I. INTRODUCTION

Cloud computing is an rising financial and computing paradigm with the development of internet generation. Diverse application offerings can be furnished to fulfill users' requirements through the cloud computing . considered one of cloud computing software services generally used is data storage and users can outsource their storage and shop their touchy statistics inside the cloud. Migrating facts from the consumer side to the cloud gives tremendous comfort to customers, seeing that they can get admission to records within the cloud anytime and everywhere, using any device, without being concerned about the capital funding to set up the hardware infrastructures.

The data proprietor outsources a hard and fast of records to the cloud. every piece of statistics is encrypted before outsourcing. The records owner is chargeable for figuring out the get entry to shape for each statistics, and dispensing user characteristic mystery keys (UAKs) corresponding to person attributes to each person. Attribute based totally Encryption (ABE) presents regular encryption and extra access manage feature. ABE is more green, bendy and suitable than other cryptographic strategies and may be a light-weight security solution for net offerings . The cloud service provider directs a cloud to provide facts storage provider. facts owners encrypt their data documents and keep them within the cloud for sharing with facts customers. To touch the shared records files, facts customers down load encrypted information documents in their hobby from the cloud after which decrypt them. every information proprietor/client is managed by means of a domain influence. a site authority is directed by its figure area authority or the believed authority. facts owners, domain authorities, records purchasers, and the conditioned authority are prearranged in a hierarchical way.

ANALYSIS OF STUDENT PERFORMANCE FORECAST USING DATA MINING TECHNIQUES

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Abstract:- Data mining is a study of classification, association, prediction, clustering of data for the various field. Classification deals with static data in other terms it is supervised learning. Clustering is a non-supervised techniques used to take decision in a particular problem. Data mining is based on complex algorithms that allow for the segmentation of data to identify patterns and trends, detect anomalies, and predict the probability of various situational outcomes. Predictive analytics is an area of statistics. It deals with extracting information from data and using it to predict trends and behavior patterns.

Education plays vital role to develop our nation. In this, there is a lot of research carried out in the field of education but no one is predict students pass rates. Here our research deals with student pass rates prediction using optimized Support Vector Machine (SVM) algorithm and Decision Tree (DT) algorithm.

We propose a new concept: features dependency algorithm, CART algorithm and machine learning algorithm to analysis relationship between the set of student features. And we also collect online and offline data of students from other schools and by using this algorithm we predict the student pass rates in blended learning. The purpose is to providing assistance to students who have greater difficulties in their studies and students who are at risk of graduating through data mining techniques. The result shows that to identify the week performance of the student and improve their performance by using this algorithm.

1. INTRODUCTION

Data mining is the procedure of discovering patterns in massive information sets regarding strategies at the intersection of machine learning statistics and information systems. It's a necessary scheme wherever intelligent strategies square assess applied to extract information patterns. It's associate knowledge domain subfield of engineering .The overall goal of the mining method is to extract information from a knowledge set associated convert it into an cheap structure for any use. Data mining is that the analysis step of the "knowledge discovery in databases" process, or KDD. The term may be a name, as a result of the goal is that the extraction of patterns and data from giant amounts of information, not the extraction (mining) of information itself. The goal is the mining of patterns and knowledge from large amounts of data. It is regularly applied to any form of large-scale data or information processing. It is also applied to purpose of computer decision support system, including artificial intelligence, machine learning, and business intelligence.

The actual data mining assignment is the semi-automatic or automatic psychiatry of large quantities of data to mine formerly unknown patterns. The patterns include groups of data records (cluster analysis), extraordinary records (anomaly detection), and dependencies (association rule mining, sequential pattern mining). This usually involves using database techniques such as spatial indices. In machine learning and predictive analytics, these patterns can be summarized as input data and analysed. The data mining steps are data collection, data preparation, result interpretation and reporting. They are fit to KDD process.

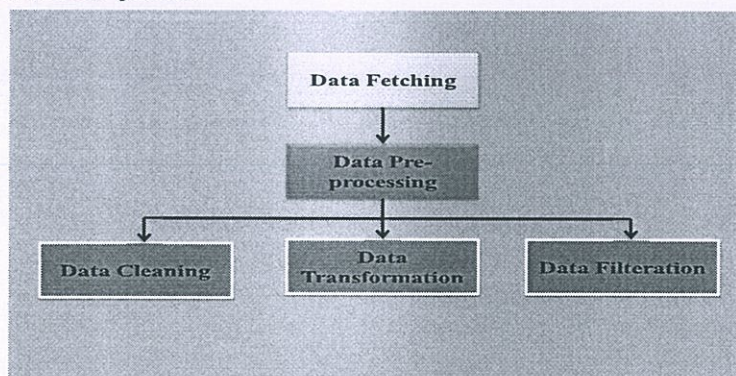


Fig 1.1 Data mining techniques

A DEXTEROUS INEQUALITY QUERY AUDITING WITHOUT REFUTATION THREAD USING CASTLE TECHNOLOGY

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Abstract

Cloud computing primarily based technology and their impact is growing currently each day. Cloud computing is employed altogether the realm of business, Education, Social Impact and data miner. The uses enhance the danger of knowledge saddlery and forgery. Because the services square measure sharing at intervals totally different cloud users. That the security problems in cloud computing surroundings square measure a significant concern. Because the users all have confidence the cloud vendors, thus there's a requirement protection and therefore the data management from the cloud users. To beat this downside, we tend to introduce a replacement model that's CASTLE info auditing, which associate degree difference query is auditing theme that evaluates the danger of respondent supported the query history. Moreover, we tend to proposes relax CASTLE to extend the utility by returning answer with slight perturbations.

Keywords: Castle, Relax castle, privacy, auditing, query denial, optimization.

I. Introduction

Information technologies are extensively accustomed collect and share personal knowledge among varied parties via the cloud. In areas comparable to aid analysis, crime analysis, client relationship management, credit analysis. It is essential to extend a protected knowledge sharing, accessing, and commerce mechanism. Taking the assurance associated answerable Act (HIPAA) as an example, to avoid re-identification, entities should take away or perturbs a minimum of [18] alphabetic character knowledge parts after they share sensitive knowledge. Many works are projected that explore the trade-off between utility and privacy. Their final goal is to guard individual's nonpublic info from unauthorized access.

One possible answer that was addressed by Adam and Worthmann is query auditing. We tend to get back the classic query auditing within the cloud platform that serves the confuse as associate auditor.

Query auditing refers to the method of auditing whether or not respondent a new predictable query can foundation privacy compromise once given a sensitive dataset similarly as a sequence of antecedently answered queries on one attribute and also the corresponding answers.

We initial study difference query auditing, where the query is of the form $f(\vec{X}) \leq a$. \vec{X} Could be a set of the sensitive dataset, and also the answer is either 'yes' or 'no'. The perform f will be any polynomial time calculable perform (e.g., logistic, linear regression), that is additional general than the combination query.

The dataset of n individuals defines a n -dimensional house, wherever every individual corresponds to at least one dimension. Observe that associate variance query over this dataset, as well as its answer ('yes' or 'no') defines a n -dimensional valid region. Given a collection of previous requests and their answers, associate offender will slim down the doable values for the dataset by computing the intersection of all valid regions similar to all answered queries (called the answer house to any or all such queries). Then a naïve auditing mechanism is to deny this query if there's a singular answer for all historical inequalities with this one (which reveals that the dataset is re-identified).

Comparative Analysis of Opportunistic Routing in Wireless Ad-Hoc Networks using EXOR, d-Adaptor and Firefly Algorithm

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Abstract- In topology structure, the mobility of nodes directs to dynamic alterations, which makes the traditional routing techniques of a wireless network complex to apply in the opportunistic network. In recent times, a new routing paradigm is called opportunistic routing protocols that have been proposed to conquer these limitations and to give efficient delivery of data in highly dynamic ad hoc networks. Opportunistic routing network carries in opportunistic data forwarding that permits multiple candidate nodes in the forwarding region to perform on the broadcasted data packet. This maximizes the reliability of data delivery in the network with reduction of delay performance. In this paper, compares and analyses the performance of the opportunistic routing protocols (ExOR, d-adaptOR, and Firefly) with highly mobile nodes in wireless ad hoc networks.

Keywords- Wireless ad hoc networks, Opportunistic Routing, ExOR Protocol, d-adaptOR, Firefly Algorithm, Meta heuristic technique.

I. INTRODUCTION

In multi-hop wireless network, routing process is a challenging problem to solve that. The main complexity lies in that wireless links are unreliable performance and unstable process. Traditional wireless routing protocols handle the wireless link as same as a wired one, and that has mainly focused on discovering a fixed path between a source pair and a destination pair. But, the chosen path may be broken or failure due to some of the environment situation or topology changes. In this scenario, OR (Opportunistic Routing) [1,2] was proposed to deal with the unpredictability performance of wireless links. In OR concept, instead of sending unicast packets to a particular node, the sender just transmits the packet. The neighbor's supports that effectively receive this broadcast transmission have to manage with each other to choose one node to forward the packet. Most of the efforts in OR focused on the relay priority assignment and candidate selection. On the other hand, the pre-existing OR protocols cannot fully consider about the unreliability and unstable of wireless transmission, and most of them assume the connection between nodes will remain constant after the connection has been set up [3]. Wireless links are extremely unreliable


process, as they often experience significant quality fluctuation or distortion. In addition, some OR protocols utilize geographic data to select a relay node. For instance, DFD (Dynamic Forwarding Delay) - based approaches consist of a dynamic delay for candidates before they forward the packet [4,5]. This delay utility is inversely proportional to the progress of every node such that the node closer to the destination has higher priority. Because of the unreliability performance of wireless communication, the distant node within the radio range of a transmitter may suffer from a poor connection, and that causes high packet loss. To address the above problems, choose the most popular and latest OR protocols from each category for performance and comparison analysis [7]. Therefore, the most popular performs d-Adapt, ExOr and Firefly protocols [4, 6].

A. EXOR PROTOCOL

ExOR is an OR protocol that has been increased for multi hop wireless networks [8]. This routing protocol merges the routing and MAC protocols; but, the entire packets are broadcasted at the network layer. The routing performance is developed by using the dynamic approach and OR for selection of the links, if the links routed on the default path be converted into unstable performance. After that, a set of packets is considered as an identifier 'BatchID' the sender node broadcasts each packet to the queue and then to the list. And then the forwarding nodes exist in a priority order depending on the cost ETX metric [9]. Different metrics can make use of different algorithms like the achievable signal to noise ratio between the nodes or it can be distance between the nodes. The forwarding lists of the source nodes have only all nodes that are much close to the target destination while compared the distance between the destination node and source node. Each and every packet should be performed with marking packets which have been received by the nodes with higher priorities or the sending node. A forwarder in a list and then it can transmits a packet only if no other forwarder have the higher priority in a list simultaneously acknowledged receipt of the same packet. A forwarder is received the batch of packets or the entire group of packets

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A Mining Health Examination Records Using Graph-based Approach

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ABSTRACT

In lots of real-international applications, classified instances are usually limited and expensively Amassed, whilst the most times are unlabeled and the amount is regularly sufficient. Consequently, semi supervised mastering (ssl) has attracted much attention, on account that it's far an powerful device to find out the unlabeled instances. Generally, fitness examination is an critical approach which can be utilized in more than one nations to perceive the health statistics. To identify the chance factors which can be warning and prevention in lots of illnesses is crucial. This is the predominant challenge to classify this risk elements utilized in unlabeled information which includes the dataset. Health kingdom situation can adjustments unexpectedly from healthful to very-unwell.

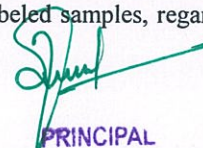
There's no specific base for differentiating the nation of fitness method. To advocate a graph-based, semi-supervised gaining knowledge of algorithm referred to as shg health (semi-supervised heterogeneous graph on health) is used for risk predictions. So many efficient healths gaining knowledge of approach is to be had to recognize any unlabeled dataset.

Key words: Health Examination Records, Heterogeneous Graph Extraction, Semi-Supervised Learning.

I. INTRODUCTION

Recently, the interest of Machine Learning (ML) has increased in artificial intelligence (AI), including the theoretical and practical aspects. The performance of most ML algorithms heavily depends on the scale of labeled instances, such as deep learning. huge amount of data collected to provide a rich base for electronic health records (EHRs) for risk analysis and prediction. An EHR stored healthcare information digitally about an individual. This digital information contains healthcare information such as analysis, various laboratory tests, records diagnostic reports, used medications, procedure used, patient recognize data, various allergies and diseases Health Examination Records (HERs). This is the major challenge to classify risk factors used in unlabeled data which contains the datasets. Health condition can change rapidly from healthy to very-ill. So, unlabeled data contains records of such health examination.

There is no special base facility for differentiating state of health process. Most semi-supervised learning approaches design specialized learning algorithms to effectively utilize both labeled and unlabeled data. However, it is often the case that a user already has a favorite (well-suited) supervised learning algorithm for his application, and would like to improve its performance by utilizing the available unlabeled data. In this light, a more practical approach is to design a technique to utilize the unlabeled samples, regardless of the underlying learning algorithm.



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ENERGY EFFICIENT VIRTUAL MACHINE RELOCATION FRAMEWORK PERFORMANCE VERIFICATION USING COMPRESSION TECHNIQUES

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Abstract – Cloud computing is an facts technology (IT) paradigm that permits ubiquitous get admission to shared swimming pools of configurable gadget sources and better-diploma services that can be unexpectedly provisioned with minimal control try, often over the internet. Cloud computing is based on sharing of assets to reap coherence and economies of scale, just like a public software. Advocates be conscious that cloud computing lets in organizations to keep away from or decrease up-the front IT infrastructure fees. A transferring object clustering problem that jointly identifies a hard and fast of items and discovers their movement styles. An green allotted mining to restrict the extensive type of organizations such that people in every of the determined organizations are exceedingly associated by using manner of their movement styles. the unconventional compression set of rules to compress the place facts of a set of shifting items without or with lack of information. The assignment formulate the HIR (Hit item alternative) trouble to limit the entropy of region facts and discover the way to remedy the HIR trouble. humans generally tend to shop an entire lot of files inner theirs garage. while the storage nears it restriction, they then attempt to reduce the ones documents period to minimum via using information compression software program program. in this method we suggest a today's set of policies for data compression, called j-bit encoding (JBE). In sign processing, information compression, supply coding, or bit-fee bargain includes encoding records using fewer bits than the proper illustration. statistics compression is challenge to a area-time complexity alternate-off.

Index phrases—power performance, VM migration, workload prediction, cloud compression.

I. Introduction

The cloud computing is that the usage of a community of faraway servers hosted on the web to buy, manipulate, and technique statistics, in need to a close-by server or a private laptop computer. this can be a web definition of Cloud computing. Cloud computing may be a computing term or figure that superior at intervals the due 2000s, based mostly completely on computer code and consumption of computing property. Cloud computing includes deploying firms of associate degree extended manner off servers and computer code application computer code program networks that allow centralized info storage and on line get correct of get right of entry to to laptop offerings or assets. Cloud computing a large fundamental measure for a few issue that consists of handing over hosted services over the web. those offerings area unit significantly divided into three instructions: Infrastructure-as-a-business enterprise (IaaS), Platform-as-a-company (PaaS) and computer code program application application application-as-a-organization (SaaS). There area unit kinds of compression, lossy and lossless. Loss compression reduced document length with the help of manner of putting off a number of superfluous info that received now not be apprehend through human when decryption, this typically used by video and audio compression. facts compression can also be used for in-network process approach with the intention to avoid wasting strength as a result of it reduces the amount of statistics in a shot to reduce info transmitted and/or decreases switch time as a result of the dimensions of data is diminished.

II. Existing System

cloud computing is associate degree rising technology that presents metering based mostly completely offerings to shoppers. cloud computing provides itc based mostly completely offerings and supply computing assets via virtualization over net. facts middle is heart of cloud computing that contains assortment of servers on that business records is hold on and packages run. statistics center (consists of servers, community, cables, cooling and lots of others.) consumes bigger electricity and releases Brobdingnagian amount of carbon-di-oxide (co2) to the surroundings. one among the most essential project in cloud computing is improvement of energy usage and later on have a inexperienced

Intelligent Transportation System Enhanced To Smart Transportation Safety Using Internet of Things

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ABSTRACT

The IOT is comprise of smart machines inter act and communicate with other machinery, items environment and infrastructures. Center taking place to an city IOT organization that is used to assemble intelligent transportation system (ITS). IOT based intelligent transportation systems are designed to support the Smart City vision. That are in product can connect with internet and it can be readily access any were in the world. It gives better results to find out crime. A smart device also launches in our transport system. Smart Transportation Safety (STS) envision improving public safety through significant are Paradigm shift for police authority responses on crimes towards a practical one.

1. INTRODUCTION:

STS can be defined as a set of systems that feature computing capabilities for collecting, processing, and analyzing data to identify potential security threat events. **Smart video surveillance** systems based on IP cameras store video sequences and metadata information related to safety events. The future video surveillance system base on Cloud Computing collect and analyze record stream generated by video surveillance cameras, optimizes the broadcast of the video information according to set of connections circumstance, and provisions the video and associated metadata in a cloud storage system, securely and efficiently. **Intelligent Transportation Systems (ITS)** that plan to make more efficient of the vehicles, deal with vehicle traffic. At present, in the majority of the cities, public and private road transportation is the type approach of commute and logistics. A number of large and extra-large cities have metro and local train network as the backbone transportation method. The **IOT** is enabling by the most recent development in sensors, message technology, and Internet protocol. The IOT is comprise of elegant equipment interact and communicate with supplementary apparatus, things, environment and infrastructures. It gives better results to find out crime. A smart device also launches in our transport system. Creating a smart city is currently getting to be plainly conceivable with the development of the internet of things. The proposed algorithmic framework is a general one in terms of its applicable area we apply this framework to the multi-camera topology inference in order to demonstrate its flexibility to adapt to real applications. We developed more technology in transportation system in intelligent transportation system and smart transportation safety by using internet of things. Smart surveillance occurs in this concept to achieve a peaceful human life safety. In Connected cities emerge when Internet of Things (IOT) technologies and socially-aware network systems. Last, but not least, it is foreseen that the deployment of the approach into a real STS system, for assessment in different perspectives.

2. LITERATURE SURVEY

D.Giusto ^[1] - The idea of internet of things (IOT) began with gadgets with identity. The gadgets could be followed, controlled or observed utilizing remote PCs associated through internet. IOT broadens the utilization of internet giving the correspondence, and in this way between system of the gadgets and physical articles, or 'things'.

ENHANCING THE EFFICACY OF INEQUALITY QUERY AUDITING AND IMPROVED IN DEVIATION AUDITING USING CASTLE ALGORITHM

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ABSTRACT:- We reconsider the various query auditing problem in set of sensitive data is outsourced to a cloud server. Castle query auditing scheme audits aggregate queries including sum, max, min, deviation, etc. These are submitted into an often manner, on the method to protect inference disclosure. It audits currently arrived queries on a single attribute, If any answering it may compromise any individual privacy that query will be rejected. This method analyzes risk of answering a query based on the query history. In additionally we propose relax CASTLE method for enhancing the utility by returning answers with slender perturbations. Our method can be applied into audit intermingled equality queries with extension. Experiments are conducted to evaluate the efficiency and effectiveness of our methods.

Keywords: Query Auditing, Deviation Auditing Privacy-Preserving Query, Denial Threats.

I. INTRODUCTION

In the era of huge statistics, growing amounts of personal data are being accumulated and shared among various parties through the cloud. Therefore, it's remote vital to increase a secured facts sharing, accessing, or exchange and selling mechanism. Taking the medical health insurance Portability and accountability Act (HIPAA) as an example, to keep away from re-identification, entities need to take away or perturb at the least 18 PHI statistics factors once they percentage sensitive data. But, sanitization or perturbation reduces the software of the dataset significantly. Numerous works had been proposed that discover the trade-off between utility and privateness. Their closing aim is to guard people' private facts from unauthorized get entry to. One feasible answer, which is query auditing; that is also the point of interest of our paintings.

We revisit the traditional query auditing hassle in the cloud platform, which serves the cloud as an auditor. Query auditing proposed query will cause privacy compromise when given a sensitive dataset as well as a sequence of formerly responded queries on a free characteristic, and the corresponding solutions. Inequality query auditing, in which the query is of the form $f(X)$, is a subset of the sensitive dataset, and the answer is either 'yes' or 'no'. The characteristic f can be any polynomial l - time computable function (e.g., logistic, linear regression), that is greater general than the aggregate query.

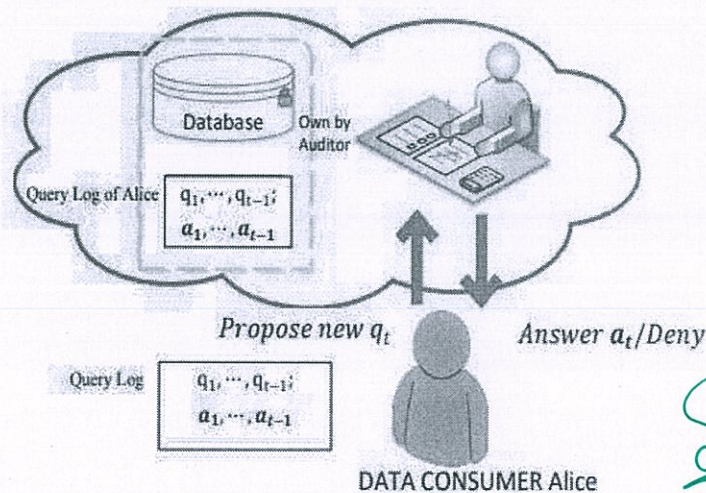


Fig 1: Query Auditing System Model



A NEW PERFORMANCE ON TRANSPORTATION SYSTEM CCTV SURVEILLANCE IN SMART INTERNET OF THINGS

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Abstract:- Vehicular networking has important potential to alter various applications related to traffic safety, traffic potency and film. During this survey and tutorial paper we have a tendency to introduce the essential characteristics of convey networks, give an outline of applications and associated necessities, at the side of challenges and their projected solutions. Additionally, we offer an outline of this and past major ITS programs and come within the USA, Japan and Europe. Moreover, conveyance networking architectures and protocol suites used in such programs and come in USA, Japan and Europe square measure mentioned. Sensible police investigation is that the use of automatic video analysis Technologies in video police investigation applications. Historically, police detector knowledge has been hold on soused off-line for post-incident analysis. Today, additional and additional stress has been placed on process this knowledge in real time and remodeling it into data which will be wont to stop or mitigate disasters.

1. INTRODUCTION

These systems record, process, and analyze Different detector media streams to spot events of interest that square measure necessary to the choice manufacturers. Despite important profit these systems give, they have an inclination to achieve their limit in terms of quantifiability, resource utilization, omnipresent access, searching, processing, and storage once large-scale police investigation support is needed. so as to beat this example, a replacement breed of cloud-based police investigation systems. a number of the challenges square measure, for example, the most effective strategy detector knowledge acquisition and storage to the cloud surroundings, a way today portion cloud resources for real-time operation of detector knowledge, what's the Optimal approach for event notification and sharing. Such challenges stem from the very fact that various style selections got to be created given the abundance of cloud resources and therefore the specific necessities of a closed-circuit television. Existing add this direction studies many aspects closed-circuit television style. As evident from the literature, existing analysis foresees important potential for cloud-based multimedia system police investigation systems. Existing digital video police investigation systems give the in structure solely to capture, store and distribute video, whereas going the task of threat detection completely to human operators. Human observance of police video could terribly labor-intensive task. it's usually in that video feeds needs an enormous her level of visual attention than most everyday tasks. Specifically vigilance. Flexibility to daring attention and to react to seldom occurring events, is extra ordinarily hard to please and prone thanks to lapses in attention. Clearly today's video police investigation systems whereas providing the essential practicality let down of providing the extent of data got to amendment the protection paradigm from "investigation to preemption". Automatic visual analysis technologies will move today's video police investigation systems from the investigatory to preventive paradigm. sensible police investigation systems. Networking is on amongst the foremost necessary sanctioning technologies needed implement amyriad of applications associated with vehicles, traffic, drivers, passengers and pedestrians. These applications square measure over novelities and far-fetched goals of a gaggle of researchers and corporations. Intelligent Transportation Systems (ITS) that aim contour the operation of vehicles; manage traffic, assist drivers with safety and different data, at the side of provisioning of convenience applications for passengers aren't any longer confined to laboratories and check facilities of corporations. The projected video closed-circuit television supported Cloud Computing collects and analyzes video streams generated by video police investigation cameras, optimizes the transmission of the video knowledge consistent with network condition, and stores the video and associated data in an exceedingly cloud storage system, firmly and with efficiency. The process server negotiates the video transmission rate with the shoppers, so as to ensure system stability, for example just in case of temporary cloud storage failure. Their work targeting the readying of software package as a service platform.

2. SMART-CITY KEY FEATURES REALIZATION

Challenge nowadays is generally to execute correct solutions proficiently, as hostile simply concentrating innovations. sensible town areas can't be developed through a patch work approach, nonetheless by regular adoption of progressive changes. the foremost correct means of smart-city realization is introducing a wise system social unit of

**AN IMPLEMENTATION OF SECURE GROUP SHARING FRAMEWORK
WITH OUTSOURCED REVOCATION IN CLOUD COMPUTING**

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Abstract—

Cloud computing allows users to simply store their information and easily share information with others. Because of the protection threats in associate degree untrusted cloud, users area unit suggested to cipher verification data, like signatures, on their information to shield the integrity. Several mechanisms are planned to permit a public friend to with efficiency audit cloud information integrity while not receiving the whole information from the cloud. However, to the simplest of our information, none of them has thought of regarding the potency of public verification on multi-owner information. User revocation is one in all the most important security issue in teams. Throughout user revocation shared information block signed by revoked user must transfer and re-sign by existing user . To create the method economical and secured the info integrity is verified in public, for this each user must cipher their signature on every block. For security reason if a user revoked from the cluster and also the remaining user within the cluster has got to resign the signature on all blocks. So as to over these drawbacks we have a tendency to planned a unique design of public auditing mechanism for maintaining the integrity of shared information by means that of economical user revocation in mind. By means that of keeping a public auditing, a proxy re-signature handles resigning rather than doing by each existing user within the cluster. Public verifier examines integrity while not retrieving the whole data from the cloud.

Keywords: Cloud computing, data integrity, multiple owner-data public verification.

1. INTRODUCTION

Now –a –day’s technology growth is extremely massive because of the technical demand so as to boost the performance. during this facet cloud computing plays an important role that provides an answer for technical imbalance. It provides cloud services as Paas, Iaas, Saas, that permits resources sharing and information sharing in a very distinguished manner. the foremost discussion in cloud computing is information dealings exhausted a secured manner or whether or not those information square measure outsourced. The factor is that the originality of knowledge is maintained similarly as user privacy is additionally to be maintained. The cloud services are often achieved over net during which the user will register their details. supported that identity the server will provided to the user at any time. The improved technology provides virtualization and distributed services by computing resources similarly because it services. The cloud offer information storage and services by suggests that of google drive and drop box, so multiple user will mix a gaggle and access their information in a very secured manner. During this associate degree owner user will manage the initial information and each user will read the info, edit and modify with the remainder of the cluster. So as to keep up the info confidentiality the cloud provided method some policy supported that the cluster has be to be performed . But it's numerous benefits however still it suffers from sure problems like reliable performance and maintaining the info group action. To keep up the info integrity the cloud surroundings has evolved the mechanism of public auditing. It's nothing however a 3rd half authority for poking the user within the cluster and providing the service so as to keep up the pliability and quantifiability.

**AN EFFECTIVE LOAD BALANCING APPROACH FOR IAAS DATA
CENTER PERFORMANCE EVALUATION FOR OVERLOADING CLOUDS**

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Abstract – Load reconciliation Algorithms. the guts of a load balancer is its ability to effectively distribute traffic across healthy servers. ... once associate communications protocol profile is applied to the VS and association multiplexing is enabled, the formula may additionally be used for distributing requests across servers additionally. Load reconciliation refers to with efficiency distributing incoming network traffic across a gaggle of backend servers, additionally called a server farm or server pool. In computing, load balancing improves the distribution of workloads across multiple computing resources, like computers, a pc cluster, network links, central process units, or disk drives. Load reconciliation aims to optimize resource use, maximize turnout, minimize time interval, and avoid overload of any single resource. victimization multiple elements with load reconciliation rather than one element might increase reliableness and convenience through redundancy. Load reconciliation sometimes involves dedicated software system or hardware, like a multilayer switch or a site Name System server method. Load reconciliation differs from channel bonding in this load reconciliation divides traffic between network interfaces on a network socket (OSI model layer 4) basis, whereas channel bonding implies a division of traffic between physical interfaces at a lower level, either per packet (OSI model Layer 3) or on an information link (OSI model Layer 2) basis with a protocol like shortest path bridging. A monolithic model for a PM below heterogeneous workload is developed. To our data, we tend to ar thefirst to permit the quantity of vCPUs requested by a customer job to follow a general distribution.

Index Terms = Heterogeneous, Load Balance, IaaS

I. Introduction

Network load equalization may be a cluster technology in Microsoft windows 2000 advanced server and datacenter server package, enhance the quantifiability and convenience of mission-critical TCP/IP-based services like internet terminal services ,virtual non-public networking and streaming media servers. Network load equalization distributes the informatics traffic to multiple copies of a TCP/IP services like internet server every running on the host at intervals the cluster. Network load equalization transparently partitions the consumer request among the hosts and lets the consumer access the cluster mistreatment one or a lot of virtual informatics address. Load Balancer is sometimes a computer code program that's listening on the port wherever external purchasers hook up with the access services. The load balancer forward the request to at least one of the backend servers, that typically replies to the load balancer which can have security edges by concealment the structure of the interior network and preventing attack on the kernel's network stack or unrelated services running on the opposite ports. If you're load equalization across many severs And one amongst the server fail, your service can still be obtainable to your users because the traffic are going to be delivered to the opposite server in your server farm There area unit 2 necessary options that utilized in load equalization in internet server system and supply the cluster communication among themselves. Thus, Load equalization may be a mechanism for distributing the dynamic native work equally across all the nodes within the whole cloud. it'll additionally avoid matters wherever some nodes area unit heavily loaded whereas others area unit idle or doing very little work.

II. Existing System

Everyone needs to use these services to cut back the price of infrastructure and maintenance, so the load on cloud is increasing day by day. equalization the load is one in every of the foremost necessary issue that cloud computing is facing nowadays. The load ought to be distributed fairly among all the nodes. correct load equalization will cut back the energy consumption and carbon emission. this can helps to realize inexperienced Computing. There square measure several algorithms for load equalization. of these algorithms add alternative ways and have some blessings and

**IMPORTANCE BASED SECURE STORAGE ENCRYPTED DATA
DEDUPLICATION IN CLOUD**

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ABSTRACT: Attribute-based encryption (ABE) has been wide utilised in cloud computing where data a information associate data provider outsources encrypted knowledge to a cloud service contribute, and that they are share the data with users possessing particular identification (or attributes). However, the standard ABE system doesn't support secure deduplication, that's crucial for do away with duplicate copies of identical information therefore on avoid wasting house for storing and network metric. throughout this paper, we have a tendency to be apt to gift associate attribute-based storage system with secure deduplication in a very hybrid cloud setting, where a personal cloud is guilty for duplicate detection and a public cloud manages the storage. knowledge deduplication techniques check that that just one distinctive instance of data is maintained on storage of the cloud computing media, like disk, flash or tape. It is accustomed confidentially share information with users by specify access policies rather than sharing decoding keys. it succeeds the standard notion of linguistics security for information confidentiality whereas existing systems only succeed it by shaping a weaker security opinion. to boot, we have a tendency to tend to position forth a method to alter a ciphertext over one access policy into cipher text of identical plaintext but below totally different access policies whereas not informative the underlying plaintext.

Key word: Attribute-based encoding , cipher text, Cloud, deduplication , AN, deduplication

INTRODUCTION

Cloud computing greatly facilitates knowledge suppliers WHO need to source their knowledge to the cloud while not revealing their sensitive knowledge to external parties and would love users with sure credentials to be ready to access the information. [5]. this needs knowledge to be keep in encrypted forms with access management policies such nobody except users with attributes (or credentials) of specific forms will decode the encrypted knowledge. AN cryptography technique that meets this demand is termed attribute-based cryptography (ABE) [6], wherever a user's personal secret is related to AN attribute set, a message is encrypted underneath AN access policy (or access structure) over a group of attributes, and a user will decode a ciphertext with his/her personal key set of attributes satisfies the access policy related to this ciphertext. However, the quality ABE system fails to attain secure deduplication [7], that could be a technique to save cupboard space and network information measure by eliminating redundant copies of the encrypted knowledge keep within the cloud.

LITERATURE SURVEY

proposed the primary construction for IBE that was demonstrably secure outside the random oracle model. To prove security they represented a rather weaker model of security referred to as the Selective-ID model, that (during which) within which the opponent declares which identity he can attack before the world public parameters area unit generated. Boneh and Boyen [2] offer 2 schemes with improved efficiency and prove security within the Selective-ID model while not random oracles. Data deduplication in cloud computing systems Cloud computing could be a paradigm shift within the net technology. information deduplication will save space for storing and scale back the quantity of information measure of knowledge transfer Secure and constant price public cloud storage auditing with deduplication Deduplication system within the cloud storage is employed to scale back the storage size of the tags for integrity check.

RISK EVALUATION OF HEALTHCARE SECTOR IN PUBLIC INDUSTRY

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ABSTRACT

The objectives of the study to alter a more robust understanding of the extent, nature and impact of corrupt observes within the tending sector across the EU and to assess the capability of the MSs to forestall and management corruption at intervals the tending system and also the effectiveness of those measures in practice. This study targeted on 3 areas of healthcare: medical service delivery; procurable and certification of medical devices and procurable and authorization of prescribed drugs. On the idea of table analysis, interviews (with European Union officers and representatives of health professional's organizations, medical device trade, pharmaceutical trade and health insurers), field analysis all told twenty eight EU MSs and analysis of a complete of eighty six corruption cases, six typologies of corruption are identified: felony in medical service delivery; procurable corruption; improper selling relations; misuse of (high) level positions; undue compensation claims; and fraud and larceny of medicines and medical devices.

Keywords: Access Control, Electronic Health Records, Public Healthcare.

1. INTRODUCTION

Health sector reform in the Region of the Americas has been defined as a process aimed at introducing substantive changes into different health sector entities and functions with a view to increasing the equity of their benefits, the efficiency of their management, and the effectiveness of their actions and, thereby, meeting the health needs of the population. It involves intensive transformation of the health systems, carried out during a given period of time and justified by circumstances that make it a viable undertaking⁷. Applying the above-mentioned definition strictly, not all changes introduced into the sector could be termed scrotal reform. In fact, the situation in this area is highly diverse in the Region, with significant variations observed in the dynamics and content of the changes being introduced by the majority of the countries. In some cases, sectoral reform projects defined as such are still in the discussion phase and have not yet been implemented. In others, changes in areas such as financing and patient management are being introduced without affecting the basic responsibilities of the principal public and private actors. There are cases in which the changes are substantive, but are called something other than reform, and others, in which the general nature of the functions of one of the major public institutions is changed, but not the rest. In one country it has been possible over the past decade to characterize two or three stages of health sector reform. Practically no country has explicit mechanisms for evaluating the process or its results. The conceptual framework and criteria for reform activities have been constructed in recent years, thanks in part to the following initiatives: (i) the Plan of Action of the Summit of the Americas; (ii) the contributions of the countries to the Special Meeting on Health Sector Reform and the resolution of the subsequent Directing Council, (Washington, D.C., Sept. 1995); (iii) the follow-up report on health sector reform activities presented to the Directing Council of the Organization (Sept. 1996)⁸; (iv) the "PAHO Cooperation in Health Sector Reform Processes" document; (v) the Report on "The Steering Role of the Ministries of Health in Sector Reform" presented to the Directing Council of the Organization (Sept. 1997)⁹; (vii) the talks on sector reform at the meetings of the Ministers of Health of Central America, the Andean Area, MERCOSUR, and the countries of the English-speaking Caribbean; and (viii) monitoring and support for the national commissions and support groups on reform in several countries in the Region. PAHO guiding criteria for sectoral reform derived from the foregoing and upheld by the experience of the majority of sector reforms under way, are as follows: equity, quality, efficiency, sustainability, and social participation. Equity implies: (a) in a health situation, to decrease avoidable and unjust differences to the minimum possible; and (b) in health services, to receive care in relation to need (equity of coverage, access, and use) and to contribute according to the ability to pay (financing equity). Efficiency implies a positive relationship between the results achieved and the cost of the resources used. It has two dimensions: resource allocation and the productivity of the services. Resources are allocated efficiently if they generate the maximum possible gain in terms of health per unit of cost and they are used efficiently when a unit of creation is obtain at least amount cost, or when more units of produce are obtained with a given cost. Sustainability

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PRIVACY PRESERVING SMART SEMANTIC RANKED KEYWORD
SEARCH RESULT VERIFICATION USING CLOUD COMPUTING
TECHNOLOGY

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Abstract:

In today's era a brand new generation of technology is remodeling the planet of computing. Advances in web primarily based information storage, process and services. Looking could be a key technology of the online, since it's the first thanks to access content on the online. Current customary looking is actually supported a mix of matter keyword search with an importance ranking of the documents counting on the link structure of the online. There square measure 3 sorts of options to be used. First, what's the linguistics of keyword search; second, what constitutes an honest answer, or, the way to rank the answers; third, the way to perform keyword search with efficiency. We've got projected a brand new theme to subsume protective the privacy in encrypted cloud information exploitation hierarchic keyword looking. currently a day's great amount of information is outsourced on cloud server in order that information privacy is major issue in cloud computing due to cloud information server isn't totally trustworthy there for data is encrypted so keep on cloud. During this paper, we've got an inclination to supply a transient outline of existing such approaches, furthermore as own ones, and sketch some potential future directions of research.

Keywords: Privacy search, Top-k search, Semantic Ranked keyword search.

I. Introduction

Net search could be a key technology of the online that is basically supported a mix of matter keyword search with an importance ranking of the documents counting on the link structure of the online. For this reason, it's several limitations, and there a lot of than way over analysis activities towards more intelligent net search, known as linguistics search on the online, or conjointly linguistics net search, that is presently one in every of the recent analysis topics in each the linguistics net and net search. Keyword search is that the data retrieval mechanism for knowledge on the globe Wide net. It conjointly proves to be an efficient mechanism for querying semi-structured and structured knowledge, due to its easy question interface. Recently, question process over graph-structured knowledge has attracted increasing attention, as myriads of applications are driven by and manufacturing graph structured knowledge. Keyword search permits users to question the databases quickly, with no ought to understand the schema of the various databases. Additionally, will facilitate keyword search discover surprising answers that are usually tough to get via rigid-format SQL queries.[1]

Privacy Requirements for Semantic Ranked Keyword Searching

To build the safety of encrypted data that is distributed by the consumer to cloud server, the elemental objective is to code and decode the data in a very much secured path with less time and fewer value in each the encoding and decoding method. The info might get disclosed or changed by any unauthorized access. A secure storage should be achieved in cloud computing. Thus we have a tendency to adopt cryptologic techniques for the secure storage. The info is encrypted by the info owner before the info is uploaded to the cloud. The foremost feature of a cryptologic storage is that the safety properties that area unit delineated below area unit accomplished.

IMPLEMENTATION OF ROBUST CONTROL OF PRSONALIZED BASED ON IMPROVING SECURITY LOCATION AWARE IN CLOUD STORAGE

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Abstract

In cloud computing data access control is a challenging in public cloud storage system This is a vendor neutral conceptual model that Ciphertext-Policy Attribute-Based Encryption (CP-ABE) concentrates on the role and interactions of the identified actors in the cloud computing sphere, that flexible for securable data and access control for cloud storage with honest-but-curious cloud servers. An CA (Central Authority) is introduced to generate secret keys for legitimacy verified users. Unlike other multiple authority access control schemes, each authority in their own scheme manages the whole attribute set individually. The framework employs multiple attribute authorities to share the load of user legitimacy verification. To address the issue of data that access control in cloud storage, there have been quite a few schemes proposed, among which Ciphertext-Policy Attribute-Based Encryption (CP-ABE) is regarded as one of the most promising techniques.

Index Term- Cloud Storage, Access Control, Auditing, CPABE.

1. Introduction

Cloud storage is a promising and important service paradigm in cloud computing. Benefits of using cloud storage includes great accessibility, higher and rapid deployment for stronger protection. Ciphertext Policy Attribute based Encryption (CP-ABE), similarly with role-based access control system, that can widely Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fees provided for that's copies are not made or distributed for profit. These standards will be driven by operational requirements of the agencies and through collaboration with Agency CIOs, private sector experts, and international bodies to identify, prioritize, and reach consensus on standardization priorities. By keeping this focused to a role based structure, we alleviate the need for developing a technically-based architecture at this time Professor” or (“Computer Science” and “Teaching Assistant”). The server is entrusted as a reference monitor that checks the users legal certification before allowing him to access records or files. Portability and Interoperability that supports the migration of services and data between clouds. Cloud carriers provide access to consumers through network, but these are unable to efficiently handle more expressive types of encrypted access controls that could be a set of attributes that are linked with logical operators, such as AND and OR. Every single data file is associated with a set of attributes.

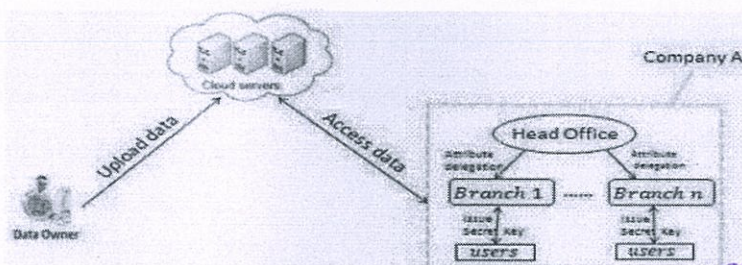


Figure 1. Our application scenario

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Literature Review on Probabilistic Broadcasting Techniques in Mobile Ad Hoc Network

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Literature Review on Probabilistic Broadcasting Techniques in Mobile Ad Hoc Network

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ABSTRACT

A wireless ad hoc network (WANET) is a decentralized kind of wireless network which is also known as Mobile Ad-Hoc Network (MANET). The mobile nodes are connected via wireless links to form an uninformed topology without using existing transportation, which is called as a self-identity-configuring network. A Mobile Ad hoc Network be able to modify the locations and arrange itself in an effective manner. Probabilistic broadcast has been broadly exploited as a flooding optimization mechanism to alleviate the effect of broadcast storm issue that handle during route discovery and other services in mobile ad hoc networks (MANETs). The broadcast scheme is broadly utilized within routing protocols by means of using a wide range of wireless ad hoc networks like vehicular ad hoc networks, smart phone ad hoc networks, and internet- based sensor networks. In this paper represents a complete summary about recent work related to the probabilistic broadcast mechanism in MANETs and how to reduce the routing overhead consider within the field of mobile nodes.

Keywords: Mobile Ad-Hoc Network, Broadcast Techniques, probabilistic based, counter-based method, Distance-based, Cluster-based Techniques

I. INTRODUCTION

with two major types of WLANs depending on the underlying configurations, infrastructure less (or ad

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LION OPTIMIZATION ALGORITHM USING DATA MINING CLASSIFICATION AND CLUSTERING MODELS

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ABSTRACT

Spectral clustering has been a popular data clustering algorithm. This category of approaches often resort to other clustering methods, such as K-Means, to get the final cluster. The potential flaw of such common practice is that the obtained relaxed continuous spectral solution could severely deviate from the true discrete solution. In this paper we propose to impose an additional orthonormal constraint to better approximate the optimal continuous solution to the graph cut objective functions. Such a method, called spectral rotation. In literature we optimize the spectral clustering objective functions better than K-Means, and improve the clustering accuracy. In many applications, data objects are described by both numeric and categorical features. The K-Mean++ algorithm is one of the most important algorithms for clustering. However, this method performs hard partition, which may lead to misclassification for the data objects in the boundaries of regions, and the dissimilarity measure only uses the user-given parameter for adjusting the significance of attribute. In this paper, first, we combine mean and K-Mean++ centroid to represent the prototype of a cluster, and employ a new analysis based on co-occurrence of values to survey the dissimilarity between data objects and prototypes of clusters. This survey also takes into account the significance of different attributes towards the clustering process. Then we present our LOA algorithm for clustering mixed data. Finally, the performance of the different method is analyzed by a series of real world datasets in comparison with that of traditional clustering algorithms.

Keywords – Classification Model, LOA, KNN, K-Prototype, Clustering Process

A Study on Prediction of Student's Learning Ability Using Data Mining Techniques

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Abstract—The most difficult tasks in the education sector in India to predict student's educational performance due to a large volume of student information. In the Indian circumstance, we don't have any existing system by which analyzing and monitoring can be done to check the progress and performance of the student mostly in Higher education system. Every association has their own criteria for analyzing the presentation of the students. The reason for this happening is due to the lack of study on existing prediction techniques and hence to find the best prediction methodology for predicting the student academics evolution and performance. Another important reason is the lack in investigating the suitable factors which affect the academic performance and achievement of the student in exacting classes. So extremely recognize the problem, a fact literature analysis on predicting student's performance using data mining techniques is planned. The main objective of this article is to provide a huge data and understanding of different data mining techniques which have been used to predict the student development and performance and hence how these prediction techniques help to find the most important student quality for prediction. By improve the performance of the student in learning by using best data mining techniques. These also provide some benefits for faculties, students, educators and management of the institution.

Keywords—Educational Data Mining, Prediction Techniques, Student attributes, Classification.

I. INTRODUCTION

In Indian learning system checking student's performance is a very important in advanced education. But we don't have any fixed criteria to assess the student presentation. Some institution student performance can be experimental by using internal evaluation and co-curriculum. There are lots of definitions of student educational performance calculation should be given in the text. Different authors are using different student factors/attributes for analyze student presentation. Most of the writer used CGPA, Internal evaluation, External evaluation, Examination ultimate score and additional co-circular actions of the student as forecast criteria.

Most of the Indian institution and universities using ultimate examination grade of the student as the student academic presentation criteria. The ultimate grades of any student depend on dissimilar attributes like internal evaluation, external evaluation, laboratory case work and viva-voce, sectional test. The presentation of the student depends upon how lots of grades a student achieve in the ultimate examination. Norlida Buniyamin, Pauziaah Mohamad Arsad et al. (2013) declared that what are the significance of educational analytics for an learning institution and how they work for the development of education. They also planned an intellectual suggestion involvement system to improve the student's performance and success in education.

This system uses two difficult student quality to measure the success and that is student mark and student data [2]. Zaidah Ibrahim and Daliela Rusli et al. (2007) stated that predicting student's performance is very serious for any educational institution because it is essential for the arrangement of new regulation and principles for the improvement of the education and standing. They used CGPA and demographic attributes of the first year student to expect their effect in the first year of learning in engineering [3].

Data mining techniques which are used in frequently education are known as Educational data mining. There are lots of data mining techniques are obtainable to predict the student presentation. Education data mining help to find the hidden information from a huge database of education setting, because at present lots of data are generate in educational institution associated to student [4]. Further, this secreted data can be used for presentation, failure and final effect calculation of the student. It also helps the instructor, organization and faculties to occupation according to the learning principles of the students. In fact data mining facilitate in the different field of education division [5]. So to suitably

AN EMPIRICAL STUDY OF DIFFERENT DATA MINING TECHNIQUES AND ALGORITHMS

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Abstract:- *Data mining is a process to find hidden information from a large data set. Data mining technologies are used nowadays in various sectors like banking, healthcare, education, marketing etc. One of the most important challenges in data mining is to choose the correct data mining technique and algorithm based on the type of problems tackled by businesses. A generalized approach can improve the accuracy and cost effectiveness of data mining process. The aim of this article is to give a comprehensive review of the most frequently considered techniques and algorithms for data mining.*

Keywords - *Data mining Techniques, Classification, prediction, Clustering, k-NN, Naïve Bayes classifier, Decision Tree, C4.5, classification.*

I.INTRODUCTION

Nowadays millions of terabytes of data are there in the database and organizations need to analyse these data for performing a business task. Data mining techniques and algorithms are used for this analytical task, but selecting the best one for a particular situation is a big challenge because each algorithm produces a different result. Data mining means extraction of knowledge or hidden information from huge amount of data. It is also known as knowledge discovery from Data (KDD). The knowledge recovery process consists of data cleaning, data integration, data selection, data transformation, data mining, pattern evaluation and knowledge representation [1]. Data mining can be applicable to different data repositories like data warehouse, transactional database, data stream, object-relational database, text database, time series database, multimedia database etc.

II.DATA MINING TECHNIQUES

There are many data mining techniques, but most commonly used techniques are classification, clustering, prediction, association, decision tree, sequential pattern and regression analysis [2].

1. Classification

Classification is the most widely used technique in Data mining. The main goal of the classification process is to create a model that describes and distinguishes data classes. Two steps are used in classification process. In the first step, the classifier algorithm builds a classifier from a training data set made up of database tuples and their associated class labels. After that the classifier is used to classify each item. Different forms are there to present this model. They are decision tree classification rule based classification, neural network, mathematical formulae etc. The decision tree is a tree structure format, its internal node represents the test on attributes and external node represents the result of the test. Classification rule consists of a set of IF-THEN rule for classification. IF part consists of the condition and THEN part consists of the conclusion. Neural networks are mainly used when the relationship between the inputs and outputs are complex.

2. Clustering

Clustering is used to identify similar objects and create a cluster for these similar objects. In clustering the class labels are not known in advance. The main objective of clustering is to maximize the similarities between the objects within the cluster and minimize the similarities between the objects in different cluster. Different methods are available for clustering. They are partitioning, hierarchical, density-based, grid based and model based methods. In partitioning method 'n' data tuples are classified into 'k' groups. Each group should have at least one data tuples and each tuples must belong to exactly one group. A hierarchical method, decomposes the data into hierarchical manner. This method uses either agglomerative (bottom-up) or divisive (top-down) approach for hierarchical decomposition. The density method uses the notion of density to classify the group. In grid method the object space is quantized into finite number of cells that form a grid structure. Constraint based method uses an application oriented or user defined constraints for performing cluster.

3. Prediction

Framework for Ranking Big Data Service Providers Using Classical Probability Ranking Principle

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Abstract

Users can select the optimum cloud provider according to the required levels of services is very difficult and time consuming when data are too big. To select the best cloud service provider with federated cloud architecture in Big Data arena this paper aims to propose a classical probability ranking principle to resolve various problems faced by the user and providers in cloud environment for the big data arena. This proposed principle shortlists the cloud service provider for the big data based on the Quality of Service (QoS) and Service Level Agreement parameters. This proposed principle selects the best possible service provider using Service Measure Index (SMI). These SMI parameters are designed and implemented by Cloud Service Measurement Index Consortium (CSMIC) to shortlist the service providers. This proposed federated architecture can also be used to the new ranking mechanism for ranking the providers using classical probability ranking on the basis of the SMI parameters. All the shortlisted providers are examined and then ranking is done on the basis of the present and past values of SMI. This proposed principle is simulated and tested, results shows that the proposed algorithm works better than the existing model.

Keywords: Federated architecture, Cloud ranking, SLA parameters, Broker manager and Service Provider.

INTRODUCTION

Cloud computing and Big Data are very fast growing field providing all computation resources to the end users. The number of cloud service providers and data sets are rising day by day. Dataset in big data are characterized by Variety, Velocity and Volume. Cloud computing is an emerging paradigm that deliver resources on demand and pay per use approach. The divergent characteristic of big data makes this pay per use difficult and hurdles in providing quality [1,3] services to the users. Cloud computing offers more business benefits due to that reason many organizations have started developing applications on the cloud infrastructure and making their business more profits and flexible. Some cloud service providers guarantee the quality of their services by

defining a set of Service Level Agreements (SLAs) with their customers for different dataset. These SLAs naturally lack any procedural means of enforcement which leaves the users data and software process under the total control of the cloud service provider. Any failure to meet the Service Level Agreements(SLA)[2] terms and obligations have terrible effects on the cloud customer and cloud provider, such as losing reputation and client trust and legal or financial penalties that may lead to putting an end to the entire business. This fact put the pressure and responsibility on the various cloud customers when selecting a particular cloud service provider for a particular dataset for running their service. It difficult to evaluate service levels of different cloud provider on their user, big data and QoS requirements on some attributes such as quality, reliability and security of an application. Hence, it is a demanding task to measure the performance of the cloud providers. Cloud Service Measurement Index Consortium (CSMIC) has identified metrics that are combined in the form of the Service Measurement Index (SMI), offering comparative evaluation of Cloud services.

These amount of indices can be used by various customers to compare different Cloud services. Several challenges are attempted in understanding a model for evaluating QoS and ranking Cloud providers. The following are the task of evaluating the providers is how to measure various SMI attributes of a provider and how to rank the providers based on the SMI attributes. In this paper, classical probability ranking principle technique is applied to rank among the shortlisted cloud providers, select and assign the optimum to the service.

PROPOSED DESIGN MODEL OF FEDERATED ARCHITECTURE

Efficient Framework for Ranking Big Data Service Providers in load balancing is used to find out the effective solution for a particular problem. The proposed the assignment approaches for the effective and efficient utilization of available virtual machine. [4,5]The assignment approach is mostly used for the cost minimization and effective utilization of cloud resources. The following algorithm explains the load balancing condition

Analysis of Quality Metrics and Techniques Applied in Iris Recognition

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Abstract

Biometrics recognition is the use of physiological and behavioral traits to identify an individual. Many biometric traits have been developed and are being used to authenticate the person's identity. Iris recognition system is widely used and has been proved to be efficient at individual recognition with high accuracy and nearly perfect matching. The Iris feature of two eyes of same person are not similar making it more secured way of authentication compared to other Biometric recognition systems. In this paper, we describe the techniques, metrics, image compression and applications that are developed to create an Iris Recognition System.

1. INTRODUCTION

Biometrics is the reliable, secure authentication tool for systems where controlled access to physical assets is provided by recognizing the individual either based on physiological or behavioral characteristics [1]. The physiological characteristics are Iris, fingerprint, face and hand geometry while behavioral characteristics include voice, signature, and ECG, gait and keystroke dynamics. Biometric recognition methods are based on properties which cannot be forgotten, stolen, disclosed or lost unlike traditional authentication such as passwords or PIN's.

Iris is a thin, circular structure in the eye which is protected internal organ thus it is not affected by environmental condition [2]. Amongst all the biometric recognition systems Iris is the promising solution because of its uniqueness, reliability and stability over the lifetime. Even the genetically identical twins have different Iris textures [3].

The Iris recognition system has wide applications in variety of fields such as premise access control (home, office, laboratory), secure financial transactions, internet security, credit card authentication, secure access to bank accounts, anti-terrorism (e.g. security screening at airports) and many more [4].

Iris recognition system acquires the image of eye; extracting the Iris region from the image to determine the unique texture for individual identification during the verification phase and matches it with the database created in enrolment process. Thus identifying the individual's identity in a convenient, faster, precise and more reliable manner.

Though a biometric trait cannot satisfy all of these, some of them must be satisfied to make a characteristic a biometric trait. Table 1 shows a comparison of various biometric traits against the factors.

Table 1. Biometric Trait vs. Factors

Universality	Uniqueness	Permanence	Measurability	Performance	Acceptability	Circumvention
H	L	M	H	L	H	H
M	H	H	M	H	M	M
H	H	H	M	H	L	L
H	H	M	L	H	L	L
H	H	H	L	H	L	L
M	L	L	M	L	H	H
M	M	H	M	M	H	M

Basic principles of operations of an iris recognition technique are as follows:

1. Image acquisition or data capture;
2. Preprocessing and Iris Segmentation;
3. Normalization;
4. Feature extraction;

Match generation or comparison of templates against enrolled data for recognition or authentication purpose.

This paper presents a collective study which is formatted as follows: Section 2 provides a survey on frequently cited iris recognition techniques and Section 3 includes applications and finally with conclusion and future scope of iris.

2. IRIS RECOGNITION TECHNIQUES

Iris recognition is a method of identifying people based on unique patterns within the ring-shaped region surrounding the pupil of the eye. The iris usually has a brown, blue, gray, or greenish color, with complex patterns that are visible upon close inspection. The main body of this survey is organized into the following sections:

- 2.1 Iris Image Acquisition
- 2.2 Non-Ideal Images and Quality Metrics
- 2.3 Image Compression
- 2.4 Iris Region Segmentation
- 2.5 Texture Coding and Matching

Prediction of Students Learning Performance Using Machine Learning Algorithms

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Abstract

Predict the student's performance is more difficult due to a large number of database. Nowadays students are facing many problems in their academic studies. The main objective of any educational institute is to provide quality education and grow the overall performance of an organization by looking at individual performances. To correct the existing database, more new large database for analyzing process. In existing papers, some data mining algorithm techniques such as Naïve Bayes, J48 and Neural Networks using WEKA Tool. In this article, we used to classification method for analyzing the performance of the student. Here we introduce the new data mining techniques such as C5.0, Naïve Bayes and Random Forest Algorithms. R Programming Language is an open source tool for predicting the student low learner's academic performance with good accuracy.

Keywords: C5.0, Data Mining Algorithm, Educational Data Mining, Naïve Bayes, R Programming.

1. Introduction

Educational Data Mining (EDM) is a research field for Educational learning principle for predicting the student educational performance. Their many EDM applications used in Data mining field are Machine Learning and Statistics to information generated for educational settings^[9]. EDM has contributed to the theories of learning investigation by the researchers in educational psychology and the learning environment. Educational data mining refers to the techniques and tools automatically extracting the large dataset repositories of data generated by the researcher^[7]. These EDM techniques are used for the research learners and the effect of various learning environment. There are four goals of Educational Data Mining techniques, they are:

- Predicting the students future learning behavior—This method is used for student modeling to create student models and find the learners characteristics
- Discovering or Improving Domain Models—To analyze the existing models and to create a new model and algorithm
- Studying the effect of student support—Using the algorithm tools for finding the students learning systems

2. LITERATURE REVIEW

The classification techniques, Neural Network and Decision Tree are the two methods highly used by the researchers for predicting student's performance^[3]. The meta-analysis on predicting student's performance has motivated us to carry out further research to be applied in our environment. It will help the educational system to monitor the student's performance in a systematic way.

A study of Yadav et al. predicts students' performance at the end of the semester by applying three decision tree algorithms ID3, CART and C4.5. In their study, they achieved 52.08%, 56.25% and 45.83% accuracy^[8].

To predict performance levels in the end of the degree in the V Semester. Random forests, decision trees, support vector machines, naive bayes, bagged trees and boosted trees^[2]. A dataset of 2459 students from a European Engineering School of a public research University is used to validate the proposed methodology. The empirical

Predicting Student Performance Using Data Mining Techniques: A Survey Of The Last 5 Years

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Abstract

Educational Data Mining (EDM) is the field by means of data mining techniques in learning environments. Applying data mining technique in inculcate setting is called as Educational Data Mining (EDM) and is a field that exploits statistical, machine learning, and data-mining (DM) algorithms over the variants of educational data. Existing methods have used features which are mostly associated to educational presentation, family income and family resources, while features belonging to family expenditures and students' individual information are usually ignored. In this article, an effort is made to examine aforementioned feature sets by collecting the scholarship holding students' data from different universities of India. Knowledge analytics, discriminative and generative classification models are applied to expect whether a student will be able to absolute his degree or not. We introduce the Weka tool and C4.5 algorithm to analyze replicating studies and discuss the importance of replicating and reproducing previous work. We describe the state of the art in collecting and sharing programming data. To better know the challenges concerned in replicating or reproducing presented studies.

Keywords: Educational data mining, Programming, Learning analytics, Replication and Literature review

1. Introduction :

Educational Data Mining (EDM) is the field of using data mining techniques in educational environments. Applying data mining technique in inculcate setting is called as Educational Data Mining (EDM) and is a field that exploits statistical, machine learning, and

data-mining (DM) algorithms over the variants of educational data . There survive various methods and applications in EDM which can follow both applied research objectives such as improving and enhancing learning quality, as well as pure research objectives, which tend to improve our understanding of the learning process [1].

EDM is an emerging discipline, concerned with developing methods for exploring the unique and increasingly large scale data. Data mining is widely used in educational field to find the problems arise in this field. Student performance is of great concern in then educational institutes where several factors may affect the performance. The factors that describe student performance can be used for predicting students performance by using some algorithms such as J48, Naïve Bayes, KNN etc.,

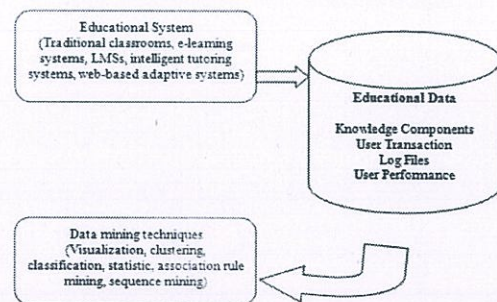


Fig.1.1 Shows the components of Educational Data Mining

Education is devoting increasing interest to digital technologies, as means to deliver contents, to advance learning, and to monitor advancements or students' behavior. The development nature of the careers filed demanding new procedures to prepare

Thyroid and cancer Nodule Classification Based on Characteristic of Margin using Geometric and Statistical Features

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Abstract:

The Category into one of the most considerable excellent learning data mining technique used to category prebuilt data sets. Haleness sectors for Diagnostic Decision-Making system and giving better treatment to the patients. In this work, the data set used is taken from one of knowledge lab of Kashmir. The entire research work is to be carried open platform source under Windows 10 domain. An experimental study is to be carried out using classification techniques such as k nearest neighbors, Support vector machine, Decision tree and Naïve bayes. The Decision Tree obtained highest accurate of 98.89% over other classification techniques. The method of light microscopy is widely used in cancer diagnosis. The result of visual analysis is subjective, depending in particular on the experience of the morphologist. Preparation of a qualified specialist takes up to 10-years. The use of artificial intelligence methods in medical diagnostics knowledge bases, expert systems, pattern recognition, in this case Decision Support System with the use of "CYTOLOGY ANALYSIS OF THYROID ABSCESS" Intelligence base), helps to improve the objectivity and accuracy of diagnosis. The paper discusses the creation and application of decision-making support systems for cancer diagnosis, based on the analysis of microscopic images. The relevance of the research is connected with the problems of improving the quality of on co diagnostics in clinical, scientific and educational activities of the morphologist.

Keywords: Thyroid and Cancer Disease, Support Vector Machine, Decision Tree, Naïve-Bayes, CNN Algorithm, Classification.

1. INTRODUCTION

The classification techniques play a dynamic as well as major role in particular population under study of diseases and providing facilities to make less cost to the patients. These days, disease diagnosis has become very crucial because of incident of so more diseases each year, people from all over the world have been suffering from various health issues like diabetes, heart disease, typhoid, tuberculosis, kidney disease etc. beside these health problems, thyroid disease have also been detected worldwide and thus become a serious endocrine health problem and an problem of concern. It is expected that in India about 42 million people affect from thyroid disorders. as per latest studies, women are 5 to 8 times more prone to thyroid disorders than men worldwide. We can observe several problems of histological oncology: images complexity of micro preparations, deficiency of highly qualified doctors, ambiguity of the interpretation of histological pictures, informality of diagnosis, necessity for improvement of diagnosis accuracy, and etc. effective solution of these problems involves using methods of artificial intelligence and creating systems qualified as decision support systems.

2. LITERATURE SURVEY

First paper prediction of Type2 Diabetes patients using Rule based k-Means Algorithm, July-2019, Data Mining handling and Accuracy Grouping undertaking help and K-Means calculation and diabetic patients into two classes for accomplishing better outcomes. Research on data mining in medical treatment that aims for knowledge and pattern extraction from a huge accumulated database is increasing. Second paper The Imaging of thyroid sarcoma with CT and MRI: proposal request to common scenarios January-2013 Christine M. Glastonbury CT and MRI for four found development: detection of the incidental thyroid tumor, amount of thyroid metastases, pre-surgery imaging for invasive disease, and evaluation for recurrence in the post-treatment neck. The existing system process is analysis to multiple algorithms and multiple using of algorithms is not efficient. The comparison graph is analysis to not calculate to disease. The data mining using of dataset prediction. Third paper Thyroid tumor recollect in computed magnetic resonance using first order statistics, February-2017 Nikiforov YE, Yip L, Nikiforova MN. They are proposed the existing system process is analysis to multiple algorithms. The multiple using of algorithms is not efficient. Fourth paper Diagnosis of Various Thyroid Ailments using Knowledge Mining Category Techniques February-2019 Syed Mutahar Aaqib, The comparison graph is analysis to not calculate to disease. The data mining using of dataset prediction.

PRINCIPAL

CLASSIFICATION OF COCONUT FIELDS USING DATA MINING ON A LARGE DATABASE OF HIGH-RESOLUTION IKONOS IMAGES

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ABSTRACT

Data Mining plays a vital role in research areas. Data mining is the process of extracting usable information from large amount of data. It is one of the most significant research areas in computer science. It is a calculation process of finding and determining valuable information from huge data set. Data Mining and Knowledge Discovery is a developing field of research that have been attracting many researchers to extract meaningful pieces of information from the dataset. In Remote Sensing Supervised classification of satellite images are commonly used. It is used to create the thematic maps based on a training set chosen by domain experts. These training set is called as ROI (Regions Of Interest) which is statistically characterize each class for e.g. coconut, sand of the satellite image. For each image, a set of ROI is manually created by domain expert. When we are using large number of images with high resolution will create difficulties of manual creation of ROI for each image. It is very time and money consuming process. In this paper, we proposed a method of semi-automatic approach based on clustering. It is to limit the number of ROI done by experts. After that, we use decision trees on a binary decomposition of RGB components for improving the classification. The Experiments have been done on 306 high resolution images of Tuamotu Archipelago.

INTRODUCTION

Data mining is the process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems [1].

Our goal is to identify and estimate coconut fields in Tuamotu. Tuamotu archipelago contains 78 coralian atolls located between 134 to 150 degree west and 14 to 24 degree south, covering 800,000 km² area. Based on the dimensions of the Tuamotu, coconut fields are of a great local economic importance for coprah and coconut oil production.

The segregation of those atolls and their dimensions make impossible a mission to obtain a complete inventory of all coconut fields. So, we plan to combine high resolution satellite images and supervised classification to deal with this problem. Our database consists in 306 high-resolution Ikonos Satellite Images

MACHINE LEARNING ALGORITHMS FOR CROP YIELD PREDICTION: A SURVEY

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Abstract: Agriculture is full of uncertainty due to climate change, ground water deficiency, rainfall and evolution of new pests. Crop yield prediction in agriculture is a very big dilemma and there is huge dataset where farmers find difficult to predict the yield and seed selection. In today's situation due to increase in the population the production of grains and agricultural products needs to be increased simultaneously to meet the demands of the people. Olden farming techniques need to be combined with the modern technology to enrich the results. Several Environment and economic factors like climate, rain and pesticide are unpredictable that affects the crop growth which in turn affects the productivity. Statistical and mathematical tools can be used to quantify the yield using past data. The result can assist farmers in crop choice and give an insight of the productivity that result in increased profit. Data set has been collected from Tamil Nadu and statistical websites for analysis and Machine learning algorithms and their role in agriculture were analyzed. This paper focus on the Machine learning algorithms like Naïve Bayesian, Support vector machine, Neural networks, Decision tree, K Nearest Neighbor in crop yield prediction.

Keywords: Machine learning, K-Nearest neighbor, Naïve Bayes, Support Vector Machine, Decision tree, Regression tree.

I. INTRODUCTION

India is an agricultural country. India's economy is determined by agricultural products export and import. Agriculture plays a vital role in Indian economy. Due to uncertainty in the crop yield there is a great fall in the economic status. The major crops of India are Rice, Wheat, Pulses and Grains. Day by day the population of India is growing and the crops productivity need to be increased to feed the population. Government policies and researchers were putting great effort to motivate formers and provide useful information to them. The productivity of crop is highly influenced by the factors like water management, soil nutrients and pesticides. The irrigation is a key factor for the crop growth. Irrigation is reliant on ground water, seasonal rainfall and canal water. Due to the scarcity of water the crop growth and productivity is mainly affected. The Climate change also plays a vital role. Today due to global warming the climate is unpredictable.

The nutrients of soil like zinc, copper, magnesium need to be maintained for crop growth. Proper pesticides usage prevents the loss of crop. Today there is a variety of information available to gain knowledge about agriculture. These information need to be processed for making appropriate decision in crop selection and yield prediction. The joint venture of statistics and Information technology will help the formers to take suitable decision in crop plantation. Machine learning (ML) techniques like K-Nearest Neighbor, Naïve Bayesian classification, Neural networks, Decision Tree (DT), DT rules, Support vector machine (SVM) and Random forest are suitable for dealing with these problems. These algorithms can be used to analyze the raw data and to predict a feature forecast of the data sets.

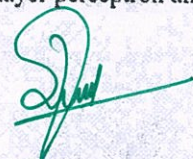
II. LITERATURE REVIEW

Machine learning is used in different fields like Medicine, Banking, Web based applications and Agriculture for prediction, classification and clustering. In this paper Machine learning applications in the field of agriculture has been reviewed and discussed. Machine learning algorithms is suitable for predicting large data set and certain unpredictable situations prevailing in Crop prediction can be solved using these algorithms.

A. Neural Networks

Artificial Neural network (ANN) works similar to human brain and its structure is based on the neuron cells of brain. A typical ANN contains three layers, input layer, one or more hidden layers and an output layer.

The input layers X_i are associated with weights W_{ij} and passed to the hidden layer. A transfer function f_i is applied to the weighted values to produce the output Y . The weights are adjusted to match the observed and output of ANN. Bias b_i is added with the hidden layer. Neural networks learn through examples and the knowledge is stored in hidden layer. Multilayer perceptron and back propagation models are used to predict the outcome of the model.



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FACE RECOGNITION BASED ON PRINCIPAL COMPONENT ANALYSIS (PCA) EXTRACTORS

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ABSTRACT

Face recognition is one of the significant applications in the technology of biometric. It is generally used in the advanced application in computer field. In this paper, we are focuses on present state of the art in face recognition technologies on some traditional issues and apply some techniques to treat these problems. The advantage of this algorithm is used to solve the popular issues in face recognition i.e., light conditions and environmental factors that lead to the low-performance. In proposed algorithm, the groups of edge detection filters Sobel, Prewitt, and Roberts are used to juice edges of the faces in images. The new method is PCA to use as feature extractor of face recognition. By using PCA is to find the optimal faces vectors as the inputs to the classifier (NNMLP neural network). Results have revealed acceptable correct classification. We have used as data test set BIO-ID data base in the proposed system.

Index Terms— MLPNN, PCA, PREWITT, ROBERTS,

I. INTRODUCTION:

Face recognition is an absorbing and successful application of Pattern recognition and Image analysis [1]&[2]. It is mainly accepted that face recognition may depend on both componential information (such as eyes, mouth and nose) and non-componential/holistic information (the spatial relations between these features). The fundamental way of the proposed method is to construct facial feature vector by down-sampling face components such as eyes, nose, mouth and whole face with different resolutions based on theme of face component and then Principal Component Analysis (PCA) or Linear Discriminant Analysis (LDA) method is employed for element reduction and to acquire a good representation of facial features.


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AN EFFICIENT NETWORK INTRUSION DETECTION BY ENSEMBLE LEARNING

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ABSTRACT

In the globe the corners of all communication trade are connected together by using advance network technology. At the same decade intruders are more effectively make attacks on the networks. Most of the intrusion detection system are developed by using single as well as hybrid algorithms but the key point is selecting the appropriate features on the dataset because the proper feature selection yields a high accuracy and reduce the false positive rate. In this paper an ensemble learning approach are introduced. The NSL-KDD dataset are habitually used in this field of intrusion detection system. The NSL-KDD dataset are preprocessed with attribute selection algorithms and the random forest algorithm by selecting the preferred features.

KEYWORDS

IDS, Feature Selection, classification, WEKA, Machine Learning

I.INTRODUCTION

In the digital era, all the information is transferred through network using newest technologies. In the meanwhile, the confidentiality of communication is very deprived because many vulnerable activities are increased. The existing security policy like firewall doesn't preventing such types of hacks because of software application contains hidden vulnerability. The software application called Intrusion Detection System (IDS) monitors all unauthorized activities on the network. The IDS comes in many 'flavors' but it aims is to detecting suspicious activities. In this paper we are boosting the data mining for better accuracy. The NSL-KDD dataset is taken for implantation in WEKA environment. In this paper the performance of various data mining techniques are compared based on different parameters like time required,

size of the tree, accuracy, kappa statistics, false positive obtained by various algorithms.

II DATASET AND PREPROCESSING

a) DATASET Description

For analyzing the efficiency of the algorithms, we have chosen NSL-KDD dataset. It is the inherit version of KDD CUP99 dataset. It is the good dataset for network because it reduces the irrelevant information from KDDCUP99 dataset. The NSL-KDD dataset consists of 42 attributes and 24 different types of attacks and these attacks are grouped into 4 categories. They are DoS, Probe, U2R and R2L. The original NSL-KDD dataset divided into training set and testing set. The training dataset consist of 25193 instances along with 13449 instances are normal data and 11744 are attack. The

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AN OVERVIEW OF DATA MINING USING CLUSTERING AND CLASSIFICATION

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ABSTRACT

Data mining is used extract the data from huge database. Now a day's many large set of database are used in day today life, mining becoming popular in sectors. Application used in areas such as showbiz, academic area, health sector, banking, commercial etc.,. Clustering is grouping the similar set of data.it help the user to understand the data easily. Clustering :unsupervised learning Finds "natural" grouping of instances given un-labeled data. Classification is a process related to categorization, the process in which ideas and objects are recognized, differentiated, and understood.

Keywords: Clustering, Classification, Application areas.

I. INTRODUCTION

The real information mining errand is the self-loader or programmed examination of huge amounts of information to remove already obscure, intriguing examples, for example, gatherings of information records (bunch investigation), bizarre records (abnormality location), and conditions (affiliation rule mining, consecutive example mining). This typically includes utilizing database methods, for example, spatial records. These examples would then be able to be viewed as a sort of synopsis of the information, and might be utilized in further examination or, for instance, in AI and prescient investigation. For instance, the information mining step may recognize different gatherings in the information, which would then be able to be utilized to acquire increasingly exact forecast results by a choice emotionally supportive network. Neither the information gathering, information arrangement, nor result understanding and revealing is a piece of the information mining step, however do have a place with the general KDD process as extra advances.

Characterization is an information mining (AI) system used to foresee assemble enrollment for information cases. In this paper, we present the fundamental order methods. A few noteworthy sorts of characterization strategy including choice tree enlistment, Bayesian systems, k-closest neighbor classifier, case-based thinking, hereditary calculation and fluffy rationale systems. The objective of this overview is to give a extensive audit of various arrangement procedures in information mining.

II. DECISION TREE INDUCTION

Choice trees will be trees that arrange examples by arranging them in light of highlight esteems. Every hub in a choice tree speaks to a component in an occurrence to be grouped, and each branch speaks to an esteem that the hub can expect. Occurrences are grouped beginning at the root hub and arranged dependent on their component esteems.

The issue of developing ideal double choice trees is an NP complete issue and hence theoreticians have sought for proficient heuristics for building close ideal choice trees. The component that best partitions the preparation information would be the root hub of the tree. There are various techniques for finding the component that best partitions the preparation information, for example, data gain (Hunt et al., 1966) and gini record (Breiman et al., 1984). While nearsighted estimates gauge each trait freely, ReliefF calculation (Kononenko, 1994) gauges them with regards to different characteristics. Notwithstanding, a lion's share of studies have reasoned that there is no single best strategy (Murthy,1998). Examination of individual techniques may in any case be vital when choosing which metric ought to be utilized in a specific dataset. A similar system is at that point rehashed on each segment of the subsets of the same class.

III. BASIC CONCEPT OF CLASSIFICATION

Information Mining: Data mining when all is said in done terms implies mining or diving profound into information which is in various structures to pick up examples, and to pick up learning on that design. During the time spent information mining, huge informational indexes are first arranged, at that point designs are recognized and connections are set up to perform information investigation and take care of issues.

Order: It is a Data examination undertaking, for example the way toward finding a model that portrays and recognizes information classes and ideas. Characterization is the issue of distinguishing to which of a lot of classifications (sub populaces), another perception has a place with, based on a preparation set of information containing perceptions and whose classifications participation is known.

The easiest sort of order issue is double arrangement. In double grouping, the objective is to find a classification with just two conceivable qualities: for instance, high FICO assessment or low FICO score. Multi-class target has multiple qualities: for instance, low, medium, high, or obscure FICO score.

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A STUDY ON CLOUD COMPUTING AS AN EMERGING TREND IN INFORMATION TECHNOLOGY BASED ON ITS APPLICATIONS

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Abstract

Cloud can be considered as one of the important emerging trends in the field of information technology. Now a days cloud computing is used in many online business services. Many small sized companies are now using cloud environment for the data storage and backup. Cloud technology is used in houses for doing the day to day activities. Cloud provides platform independency as the software required for the working of cloud need not to be installed in client's computer. This helps many firms to establish their business very easily. Cloud computing is used in almost all fields like healthcare, education, mobiles, big data etc. Cloud computing offers many advantages to large number of users. This paper deals with the cloud computing architecture along with the advantages and disadvantages. A study on various applications which uses cloud computing is also performed.

Keywords: Cloud computing, architecture, advantages, disadvantages, applications

Introduction

Cloud computing allows the clients to access the files and features without storing the bulk of data in our own computer. We can store large amount of data in cloud data centre and can access it from any part of the world at any time. Cloud computing is a widespread concept of providing internet services using the virtualization paradigm. It helps the users to pay for exactly what they use. The resources can be shared among large number of users. The scaling of resources is very easy as the demand increases or decreases. The users are not burdened with the technical knowledge for using cloud environment. They become more flexible when the load increases using very efficient load balancing algorithms.

Cloud Computing Architecture

The architecture of cloud computing is divided into following sections

1. The Front end application
2. The Back end application

The Front end application

The front end of cloud is the client side. It includes a computer and the application software which helps the client to access the client very smoothly.

The Back end application

It is the cloud service provider's side. It includes computer servers, data centres and programs to make them work together. It is the server that controls the traffic and fulfils the demands of the clients. It follows a set of rules called protocols and a special kind of software called middleware [1] which allows the computer to communicate with each other. The cloud service providers keep different copies of the same data in different locations so that the data can be retrieved very easily.



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A SURVEY ON SENTIMENT ANALYSIS LEVELS , METHODS AND APPLICATION

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ABSTRACT

Sentiment Analysis is the method, we can extract the people's opinion from that. Thus, we get familiar with the opinion of the other people. This paper describe diverse applications of sentiment analysis, techniques of sentiment analysis. Natural Language Processing is one of the field many researcher's working. The people's share their own opinion on the social sites with the help of internet, from that we can know the opinion of the other people.

Keywords-Sentiment analysis, Natural Language Processing

I. INTRODUCTION

Assumption investigation is as often as possible laid out is a procedure of mining other data sources through common language process (NLP)[1]. NLP is a field of software engineering also, man-made brainpower that for the most part manages human computer language collaboration.

The contents in sentiment analysis is positive, negative or neutral. It is or the consequences will be severe called as sentiment mining as well as the assessment of the narrator. The open systems go about as a middle of the road. Estimation investigation includes arrangement of information into different classes like positive for example great sense or negative for example awful sense or nonpartisan for example non-viable. In this manner this order assumes a vital job in NLP[2]. For the preparing of composed content accumulations, client sees we likewise at times partition the structure in ventures with exacting structure.

II. LEVELS OF SENTIMENT ANALYSIS

Supposition investigation can be helpful on four diverse levels[3]. First Level is the sentence level, which identifies positive, negative and unbiased opinion for each sentence.. Second Level is the record level, which identifies the entire archive opinion as one unit or one substance positive or negative or nonpartisan. Third dimension is the angle level and it is utilized if there should be an occurrence of the openness of traits inside element, post or information content. Each angle can get a handle on an estimation in its own. For instance, a buyer survey on a cell phone has the characteristics battery life, screen light and different properties. All characteristic can have a diverse assumption.. Fourth Level is the client level which handles people in general relationship between various clients utilizing chart hypothesis . The Levels of Sentiment Analysis is shown in figure 1 below:



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A NOVEL MORTALITY PREDICTION APPROACH IN CONGESTIVE HEART FAILURE PATIENTS USING RF-IWFFO

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Abstract:

In modern society, Heart disease is the noteworthy reason for short life. Large population of people depends on the healthcare system so that they can get accurate result in less time. Large amount of data is produced and collected by the healthcare organization on the daily basis. To get intriguing knowledge, data innovation permits to extract the data through automatization of processes. In this research, a Random Forest algorithm with Intensity Weighted Firefly Optimization (RF-IWFFO) is proposed for heart disease prediction. The performance evaluation of the proposed system is compared with the prior SVM with Recursive Feature Elimination.

Index Terms: Heart Disease, Random Forest, Congestive Heart Failure FireFly Optimization

I. INTRODUCTION

The Process of finding knowledge and information from a vast database is known as data mining. To turn large amount of data into useful information, data mining is used [1]. Association rules give the relationship between the items that are present in large database and are a vital way of knowledge representation. As Association rule is becoming one of the most researched area, the database community is now giving more attention to the association rule. Association rule mining was given by A.Swan, T.Imicliniski and R.Agrawal [2]. Due to large amount of data and using that data to extract useful information is the major reason that data mining has attracted huge attention in recent years in information industry.

Due to heart disease almost 23.6 million people will die in 2030 as estimated by World Health Organization. The analysis of coronary illness relies upon clinical information. When the clinical data of a patient is present, then the heart disease prediction system can help in predicting coronary disease accurately. The healthcare industry is collecting data of patients in large amount which can be mined to discover hidden information that can help medical professionals in effective decision making. There are many reasons for heart disease such as stress, high blood pressure, drug abuse, lack of exercise, food habit, cholesterol, etc. Our blood vessel becomes weak due to fatty food which can lead to heart disease.

The walls in heart become thicker when more pressure is applied to our arteries. As the walls become thick, it can slow down the flow of blood and can also make the block which lead to heart disease [3] [4]. So we are introducing a method for predicting the heart disease. The pattern that appear frequently in a dataset are called frequent pattern. To find interesting patterns from large database, frequent item set play an important part in information mining. The records of crores of people can be stored and also the information about their treatment. These along with the data mining strategies can help in answer the most important questions which are related to health of a patient [5]. This paper is roused by the perspective and the previously mentioned issues and proposes an arrangement of methodologies for heart disease prediction.

In this paper a firefly algorithm is utilized for feature selection and the random forest is applied for classification approach. The performance evaluation of this result is compared with the prior approach performed with recursive feature elimination and SVM.

II. Related works

This section describes the literature performed by researchers regarding Congestive Heart Failure prediction using Machine Learning (ML) techniques.

Shouman et al. [6] diagnose the cardiovascular disease with high accuracy but it is not easy to achieve it. Additionally, a combination of significant features will definitely improve the accuracy of prediction. This shows that an extensive experiment to identify significant features is necessary to achieve that goal.

Cheng-HsiungWenget al [7]analyzed the different classifiers, including an ensemble classifier and solo classifiers. Further, researcher uses various evaluation factors to evaluate the performance of these classifiers with real-life datasets. Eventually, a statistical testing is used to evaluate the importance of the changes in performance among the three classifiers.

Nahar et al. [8]presentsa proper evaluation and comparison to test the different combination of features together with the data mining techniques is yet to be focused. Thus, a proper experimentation is required to provide proper identification of data mining approaches and relevant features to ensure the prediction of heart disease is accurate.

Dey et al., [9] found the best combination of important features that works well with the best performing algorithm. This studyaims on discovering the data mining techniques with required features that will perform well in heart disease prediction. Even though, it is not easy to discover the proper technique and choose the necessary features.

Kavitha and Kannan [10]discover that data redundancy in a raw dataset affect the predicted result. Likewise, in order to use the machine learning algorithms to its full potential, aproper preparation is required for preprocessing the datasets.

SURVEY OF FRAUD GOOGLE APP DETECTION USING COMMUNICATION CLUSTERING MODEL

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ABSTRACT

In this paper overview of FairPlay and a one of a kind arranging finds and use follows gone last by fraudsters, to identify together malware and applications exposed to look rank extortion. FairPlay associates inexact traps and totally joins distinguished examination dealings with semantic and conduct signals gathered from Google Play application information in group to perceive suspicious applications. Enemies can have opportunities to dispatch assaults by get-together injured individual's data constantly. This study portray that a foe can effectively derive an injured individual's vertex personality and network character by the learning of degrees inside a timespan. The study likewise prescribe to another administered bunching calculation to discover gatherings of information group. It straightforwardly fuses the data of test classes into the extortion grouping process.

Keywords— Graph Mining, Co-Review Mining, Clustering, FairPlay, Security, Clique location.


I. INTRODUCTION

While vindictive engineers use application advertises as a start cushion for their malware. Fraud and Malware Detection Approach is to identify fraud and malware. co-review pseudo-cliques—formed by reviewers with significantly overlapping co-review tricks across short time windows. The main objectives of the FairPlay are

1. To automatically detect malicious and fraudulent apps.

The achieve the main goal, the specific objectives required are

- To propose review feedbacks approach which exploits feedback left by genuine reviewers?
- To prepare clique from the Co-Review graph so that most related fraudulent users are found out.


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A SURVEY ON HYBRID TECHNIQUES USING HEART DISEASE PREDICTION

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ABSTRACT

Heart disease is result of variation of functionality and structure of heart. This data can be used for the early detection of the heart disease, which can support to reduce the number of heart attacks. Heart disease is a most harmful one that will cause death. It has a serious long term disability. This disease attacks a person so instantly. Medical data is still information rich but awareness poor. Therefore diagnosing patients correctly on the basis of time is an difficult function for medical support. An invalid diagnosis done by the hospital leads for losing reputation. The precise diagnosis of heart disease is the dominant biomedical issue. To develop an effective treatment using data mining techniques that can help curative situations. Further data mining classification algorithms like decision trees, neural networks, Bayesian classifiers, Support vector machines, Association Rule, K- nearest neighbor classification are used to diagnosis the heart diseases. Among these algorithms Support Vector Machine (SVM) gives best result^[2].

Keywords—Heart disease, Decision tree, Naive bayes, K-nearest neighbor, Support vector machine.

I. INTRODUCTION

Heart disease is the type of disease that involve the heart or blood vessels. It is one of the most-flying diseases of the modern world. The diagnosis of the heart disease should be accurately and correctly. Normally it is diagnosed by using a medical specialist. If we use the techniques integrated with the medical information system then it would be more advantageous and it will reduce the cost also. This can be done after comparing different data mining techniques for finding their suitability.

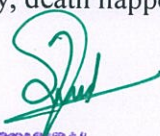
Data mining combines statistical analysis, machine learning algorithms and database technology for extracting the hidden patterns from large databases. The heart disease diagnosis depends on clinical and morbid data. The medical professionals are assisted by heart disease prediction system in predicting the status of heart disease and it is done based on the clinical data of patients. Researchers apply various data mining techniques to help medical professionals with improved accuracy.

II. HEART DISEASE

Heart is vital part or an organ of the body. Life is subject to proficient working of heart. The operation of heart is not proper, it will influence the other body parts of human, for example, mind, kidney, etc. Heart is simply a pump, which pumps the blood through the body. In the event that if blood in body is insufficient then many organs like cerebrum suffer and if heart quits working by, death happens inside minutes. Life is totally focus to effectual operational of the heart^[2].

2.1 DANGER OF HEART INFECTION

- Family history of coronary illness
- Smoking
- Poor eating methodology
- High pulse


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AN OVERVIEW OF TEXT MINING- APPLICATIONS AND TECHNIQUES

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ABSTRACT

In the modern world, Data mining is the major issue to deal with huge dataset. It always deals with the text. So that, mining become essential to develop the techniques and methods to extract the data from unstructured /semi structured data. Text mining involves a series of activities to be performed in order to efficiently mine the information. It process in linguistic processing or natural linguistic processing (NLP) and it involves in both supervised learning and unsupervised learning. Text mining broadly used by government sector, research institution, medical care, security, business sector, education areas, netting, magazines and daily needs etc. Thus, it has become essential to develop techniques and algorithms to get useful information.

Keywords-Text Mining, linguistic processing, Information Extraction.

INTRODUCTION

Data mining is used extract extraction of patterns and knowledge from large amounts of data not extracting data itself. It is the process method of discovering patterns in massive knowledge sets involving ways at the intersection of computing, machine learning, statistics and info systems [1]. Text Mining is a new area that searches to take out meaningful data from text language. It can be designed as the flow of analyzing text to separate information that is needful for a specific purpose. Examining with the type of data stored in databases, text is not designed, unclear, and hard to process. Yet, in today's society, text is the most commercial way for the formal exchange of information. Text mining is same as data mining, except the data mining tools [2] are designed to use structured data from databases, also text mining can work in fields with unstructured or semi-structured data sets like emails, text documents and HTML files, social media, etc. As a result, text mining has a extreme better solution. Text mining is a process to get interesting and important patterns to explore knowledge from textual databases [3].

Text mining is used in many areas like risk management, cyber security management, fraud detection, Contextual Advertising, Business intelligence, Content enrichment, Spam filtering, Social media data analysis, Knowledge management. Text mining is the common process of structuring the input text data (which usually includes the methods like parsing, along with the addition of some derived linguistic features and the removal of others, and subsequent insertion into a database), deriving patterns within the structured data, final correction and interpretation of the output. The techniques are classified as categorization, entity extraction, sentiment analysis and others, text mining extracts the useful information and knowledge hidden in text content



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A STUDY ON FEATURE SELECTION FOR CHRONIC DISEASE PREDICTION

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ABSTRACT

Chronic Disease Prediction shows a fundamental role in healthcare informatics. It is vital to identify the disease at an initial stage. This paper describes a survey on the utilization of feature selection and classification techniques for the diagnosis and prediction of chronic diseases. Adequate selection of features shows an important part for improving precision of classification systems. Dimensionality reduction supports in refining overall performance of machine learning algorithm. In this paper, we present a complete summary of various feature selection methods and their inherent pros and cons.

KEYWORDS: Feature Selection, Chronic Disease Prediction, Wrapper Method, Filter Method, Embedded Method.

1. INTRODUCTION

Diagnosis of chronic diseases is very critical in the medical field as these diseases persist for long time. The leading chronic diseases contain diabetes, stokes, cardiovascular disease, arthritis, cancer, hepatitis C. Initial finding of chronic disease reliefs in taking precautionary activities and actual handling at an early phase has always been found to be caring for patients. Currently, maintenance of clinical databases has developed a vital task in medical field. The patient data containing of numerous features and diagnostics related to disease should be entered with utmost attention to offer excellence facilities. As the data stored in medical databases may comprise missing values and redundant data, mining of the medical data becomes unwieldy. As it can disturb the outcomes of mining, it is critical to have noble data planning and data reduction earlier relating data mining algorithms. Prediction of disease becomes rapid and easier if data is exact and reliable and free from clutter.

Feature Selection is a well-organized data preprocessing method in data mining for dipping dimensionality of data. In health analysis, it is very vital to classify most significant hazard issues linked to disease. Applicable feature identification supports in the elimination of needless, jobless features from the disease dataset

which, in turn, gives rapid and improved consequences. Classification and prediction is a data mining method which major uses working out data to grow a perfect and then the caused perfect is practical on challenging data to get results of prediction.

Numerous classification algorithms have been functional on disease datasets for the diagnosis of chronic disease and the results have been establish to be very talented. There is a greatest essential to develop an original classification technique which can accelerate and shorten the procedure of diagnosis of chronic disease. In this stage of data explosion, voluminous amount of medical data is formed and modernized daily. Healthcare data comprises Electronic Health Records (EHR) which includes of clinical reports of patients, analytic test reports, doctor's prescription; information related to pharmacy, information related to patient's health insurance, uprights on social media such as blogs, tweets. There is a highest essential of a well-organized parallel data processing system which is talented to manage and examine the vast sizes of healthcare data. Chronic Disease Diagnosis (CDD) systems can be used as valuable tools for proper controller and supervision of the chronic disease. It screens the healthiness of patients and supports surgeons

INFORMATION RETRIEVAL ANALYSIS ALGORITHMS IN DATA MINING WITH SOFT COMPUTING TECHNIQUES

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ABSTRACT

This paper provides an in-depth research survey of intelligent information retrieval system from a huge database through a collection of web sites and web pages. Now a day there is an increase in challenge for complex domain in discovering information retrieval system. So there should be a high level of focus to be handled for possible ways in discovering the knowledge in web. The research area discusses on existing algorithms with advantages and disadvantages. Storing and fetching of the huge amount of data through the web server and a web client are the two main techniques involved in data mining process operation. The process operation with soft computing method gave a great solution in optimizing general search queries submitted by users.

Keywords: Data Mining, Soft Computing, Information retrieval System and Methodologies.

1. INTRODUCTION

Computers are basically used for storing and accessing huge amounts of data or information both with online (internet) source or offline source. Now a days there are more a number of challenges faced by several IR systems.

IR – Information retrieval is a process of retrieving an actual set of information from an unstructured set of data or information in a huge database stored in a computer. According to developer IR is a problem oriented with respect to power and efficiency in converting required set of information. Under the research area, IR has three important roles:

- Content Analysis: Document's capacity has been described by content analysis in a form that is related to the processing system.
- Information Structures: Exploiting contact between documents to enhance the efficiency and effectiveness of recovery strategies.
- Evaluation: the dimension of the effectiveness of retrieval.

Precision – Capability of retrieving top-graded documents that are widely relevant.

Recall – Capability in search for discovering all relative elements in the corpus.

The paper discusses the brief view of the information retrieval system concept and compare data mining and soft computing algorithm and related developed application. It also

A SURVEY PAPER IN AGRICULTURE USING DATA MINING

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ABSTRACT

Agriculture is that the most indispensable application space essentially inside the creating nations like India. Employments of learning innovation in a very horticulture will revision things of choosing and ranchers will yield resentfully. Information preparing assumes an indispensable job for choosing numerous issues related with farming field. This paper referenced concerning the job learning of data mining in context of horticulture field and conjointly presents concerning numerous information mining procedures and their associated work by numerous creators in setting to agribusiness area. It conjointly examines on various information handling applications in finding absolutely the different rural issues. It coordinates crafted by fluctuated creators in a single spot along these lines it is useful for scientists to actuate data of current circumstance of information mining strategy and applications in setting to farming field. This paper gives a study of differed information preparing systems used in agribusiness which join Artificial Neural Networks, K - closest neighbor, Call tree, Bayesian system, Fuzzy set, Support Vector Machine and K – implies.

KEYWORDS: Agriculture, Data Mining, Artificial Neural Networks, K nearest neighbor, k means, Decision tree, Bayesian network, Support Vector Machine.

INTRODUCTION

Data Mining is that the technique for extricating supportive and essential data from enormous arrangements of learning. Information mining in agribusiness field might be a nearly novel examination field. Yield forecast is a vital agrarian issue. Any rancher is curious about comprehending what amount yield he's close to anticipate. Before, yield expectation was performed by thinking about rancher's aptitude on explicit field and harvest. In any data of learning of information} Mining methodology the training data is to be gathered from recorded data and furthermore the accumulated information is utilized as far as instructing that should be misused to be advised the best approach to order future yield predictions[1].

Information mining is that the strategy that winds up in the creation of most recent examples in gigantic data sets. The objective of the data the data the data mining strategy is to extricate information from partner degree existing informational index and rebuild it into a person's understandable arrangement for development use. It is the technique for investigating data from very surprising perspectives and condensing it into supportive information.

The information is regularly investigated in a very on-line database, a data distribution center, a web server Log or a simple PC record. Investigation of information in compelling methods to preparing procedures in context of horticulture space along these lines specialists will get insights about material information handling strategies in setting to their work zone. Information mining errands are frequently characterized into two classifications: Descriptive

KNOWLEDGE-BASED IMAGE PROCESSING APPLICATIONS

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ABSTRACT

In today's world, the importance of knowledge based system is increasing as the competition is increased and the rate of new ideas and their implementation is rising day-by-day. There is a need of computerized assistance for effective filtering and display the pertinent information or data and it performs the decision making task. Sharing the knowledge is the most important aspect today. Image processing is the technology used to handle and manipulate images. Image processing is a process whose input and outputs are the images. Image processing is basically used to extract attributes from images and recognize the individual objects. This paper discusses the need of knowledge-based Image Processing applications.

Keywords : Knowledge, Knowledge-base, Image Processing, Image Processing Applications.

1.INTRODUCTION

Knowledge is a fact or condition of knowing something which is gained through experience or association by understanding any technique related to science or arts. As it requires understanding of information, knowledge is broader than data and information. Knowledge basically consists of the information, classification of information and metadata. It is used to compare the data and information. The main advantage of knowledge is a provision to find problem, go deep into it, create views and helps them to solve them efficiently. [1] Few main characteristics of knowledge are the involvement of human interaction, their expression and communication with reality. It is a dynamic concept as the contents and information changes according to time. It is expandable, compressible, transportable, sharable and diffusive. The knowledge has some economic value. Knowledge is the strategic resource for creativity and innovation. The link between creativity and innovation is shown in figure 1, which includes knowledge creation, idea generation and idea implementation. [1] Knowledge creation starts with identifying knowledge, creating it, validating it and then deploying it. It is called knowledge cycle. Idea generation includes inspiration, imagination, formulation and defining the knowledge. It is referred as creativity cycle. The innovation cycle is the name of idea implementation which includes thinking, visualizing, designing and practicing.

2. KNOWLEDGE-BASE

Knowledge-base consists of the knowledge of a particular domain. It is a heart of any decision making systems. Knowledge-base is represented in the form of if-then regulations. It is need today to provide the right knowledge to the right people at the right time and helping people to share and put information into action for the benefits of the people, student or researcher. [2]

A STUDY PAPER ON STEGANOGRAPHY

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ABSTRACT

Steganography is a workmanship for concealing the mystery data inside other data which are carefully spread. The meaning of steganography can likewise be given as investigation of inconspicuous correspondence that typically manages presence of conveyed message. The concealed message can be content, sound, picture or video in like manner to that it tends to be spread from either picture or video. In steganography, concealing data accomplished to embed a message into spread picture which creates a stego picture.

Keywords: Steganography, Digital mediums, Terminologies, Different kinds, Requirements, Measures, Techniques.

I. INTRODUCTION

The correspondence is the fundamental need of each developing territory. The transmission of encoded message may effectively excite assailant's doubt, and the scrambled message may in this way be caught, battered or decoded fiercely. Subsequently, In steganography the way toward concealing data content inside any media content like picture, sound, video is eluded as a —Embedding.

II. STEGANOGRAPHY

The word steganography from the Greek word steganos, form that steganography any more as record, message, picture or video. In that steganos suggesting protected, hidden or ensured and graph in suggesting compose. Clearly noticeable encoded messages regardless may in themselves be implicating in nations where encryption is unlawful. Consequently, though cryptography is the act of ensuring the substance of a message alone, steganography is worried about covering the way that a mystery message is being sent, just as disguising the substance of the message.

Steganography incorporates the hide of data inside PC documents. In advanced steganography, electronic interchanges may incorporate steganographic coding within a vehicle layer, for example, a report document, picture record, program or convention.

III. STEGANOGRAPHY IN DIGITAL MEDIUMS

Dependent upon the sort of the spread item there are numerous appropriate steganographic strategies which are followed so as to acquire security.

- a. *Picture Steganography:* Taking the spread article as picture in steganography is known as picture steganography. In this method pixel powers are utilized to cover the data.
- b. *System Steganography:* When seeking shelter object as system convention, for example, TCP, UDP, ICMP, IP and so on, where convention is utilized as transporter, is known as system convention steganography. In the OSI organize layer display there exist secret channels where steganography can be accomplished in unused header bits of TCP/IP fields.
- c. *Video Steganography:* Video Steganography is a procedure to cover any sort of documents or data into advanced video design. Video (blend of pictures) is utilized as transporter for covered data. For the most part discrete cosine change (DCT) modify values in the video, which isn't perceptible by the human eye. Video steganography uses.
- d. *Sound Steganography:* When accepting sound as a bearer for data concealing it is called sound steganography. It has turned out to be extremely noteworthy medium because of voice over IP (VOIP) dishonour. Sound steganography utilizes advanced sound configurations, for example, WAVE, MIDI, AVI MPEG or and so forth for steganography.
- e. *Content Steganography:* General system in content steganography, for example, number of tabs, void areas, capital letters, much the same as Morse code [21] and so on is utilized to accomplish data covering up.

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SURVEY ON WEB MINING-TECHNIQUES AND EMAIL SPAM

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ABSTRACT

Data mining is used to extract the information from the knowledge data.web mining is one of the most booming today. It is used to mine the web pages. This web mining is used in the areas in research, software industry and web based organization. E-mail has been amplified very much days. Today's age band considers email as a best ever midway of declaration limited by shorter scope and for longer put to one side. Spam is junk email which user do not crave in their inbox. For decree to another place spam mail reasonably a lot of methods exist. These methods are by and large off the verification as perception base, non arrangement based. Folk's methods force regular revise of list which are used for spam declaration. A more central and hard email put up tender is discussing here. The email put up system define a itinerary of action, prohibited nonrepresentational construction, to non figurative skin tone from email using html filling of email. The assemble is then stored in tree makeup so that proficient alike and less time obligatory is accomplish for identical. The recital of email dreaminess system is compare with the web page comfortable based spam exposure system method. For bond the different parameter used are precision, recall, specificity and exactness. By making an allowance for all these parameter we find that the message thought system perform fit.

INTRODUCTION

Data mining techniques are applied in the web. Web mining is used to mining the web data from World Wide Web. Data mining is the process of extract patterns from data. Data mining is seen as an increasingly inner tool by new industry to change data into an informational advantage. Web mining has three type of classification,

1. Web content mining
2. Web structure mining
3. Web usage mining.

Web content mining deals with primary data content in the web. The users can extract the information for their needs. It further deals with the text, audio, images, video and structure record. It is used extract the correct information. The problem arises in the web data i.e. distributed data, large volume, instructed data, redundant of the data, quality of the data etc. It pattern through web crawling, real data from the web.

Web structure mining deals with topology of the web has two types hyperlink and document structure. Hyperlink considered as intra-doc hyperlink and inter-doc hyper link. It pattern through nested WebPages through the hyperlink.

Web usage mining-it does not deals with content in the web resources and divided into two types web server log, application server logs and application level logs.it pattern through the web server logs.



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A Survey of Unlicensed spectrum use and future of communication is Li Fi Technology

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Abstract

Smart Phones are used as a mandatory product nowadays. It is used for its wireless nature, of mobility. All the activities with access to Internet is got through with the use of Smart Phones. The Internet access is completed not in particular place but in travelling like train, car, bus, aero plane, two wheelers, etc and at all places like railway station, hotels, public places like bus stops, malls, etc. It is also prepared while moving from one place to another through road. So access of Internet in wireless mode becomes increased. In this paper the access to Internet done through Li Fi Light Fidelity is discussed. As Li Fi is the future of Communication Technology which uses Light as the source of transmission. Even though the Wi Fi promises to increase the efficient use, it will be coupled with the Li Fi. So in future as the promising either Li Fi fully or inherited with Wi Fi it is going to rule the world of wireless Communication.

Keywords :

Li Fi, Wi Fi, Visible light Rays, X-rays

Introduction

The Internet was started by the US Government and used for the government Communication and Research activities. Later in 1995, National Science Foundation stopped controlling and the Internet was publicized.

The Mobile communication technology uses Wi Fi as the medium of communication. Wi Fi uses the radio waves for its transmission. Before knowing the Radio waves we need to know about the Spectrum Frequencies.

In Spectrum, even though there are many frequency bands like Radio Waves, Micro waves, Infra Red rays, Visible light rays, Ultra violet rays, X –rays and Gamma Rays. In the above said rays, Gama Rays is so dangerous and it is not used. X- Rays & Ultraviolet Rays are used only in medical fields and there are also dangerous and Infrared Rays are not good for eyes and is used in low power.



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CLASSIFICATION OF IMAGES USING DATAMINING TECHNIQUES

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Abstract—Data mining is one of the most significant research area in computer science. It is a calculation process of finding and determining valuable information from huge data set. Data Mining and Knowledge Discovery is an developing field of research that have been attracting many researchers to extract meaningful pieces of information from the dataset. Data mining is the process of discovering new patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems. Image Analysis and Knowledge Discovery from an Image is also taking the front position in both Data Mining and Image Analysis area. In this paper, we use three very popular data mining techniques such as: Naive Bayes, Decision tree (J48) and Random Forest algorithm on various images, freely available on the Internet for our analysis. The images are: medical image, satellite image, and scenery image. Experiments are conducted for a Normal image at first with the above three algorithms followed by a noisy one by applying Gaussian noise to it and then a Kuwahara filtering process at the second to check the effectiveness of the model. From the experimental results, it is observed that Random Forest algorithm outperforms the others in getting best classification accuracy.

Keywords: Image, Data Mining, Gaussian noise, Kuwahara Filter, Accuracy.

1. INTRODUCTION

Image classification is taken as rising ground of both computer vision and data mining. The Classification bridges the huge gap between pixels and unskilled computers. We all know computer vision is the field of acquiring, processing, analyzing and understanding images which are later used for knowledge discovery from high-dimensional image data. Knowledge discovery is also important because it gives a basic model for collection, preprocessing, transformation, data mining and reading of datasets. Here, experiments are performed on features extracted from different image data sets and then, efficient Data mining technique is applied for image classification. In our daily life, we are taking billions of images such as satellite images, medical images, scenery images and so on. We are also uploading those images on social websites such as YouTube, Face book, Twitter, Instagram, etc. It is now very compound and critical task for data science engineers and researchers to obtain the meaningful information from massive data sets. The Internet is now the biggest platform for collecting images. From those Internet-based image data sets, we can use data mining tools and efficient algorithms for getting meaningful information.

II. RELATED WORK

The author discusses about a framework to classify a satellite Image based on nearest clustering algorithm [5]. Here, the algorithm is applied on testing data set to get confusion matrix and also applied lying on satellite images to generate a thematic drawing as output. The accuracy assessment has been done using mystification matrix and kappa coefficient. In [8], authors have shown interest in image data mining using medical data. Here they have taken C4.5 classification algorithm and Random

Forest Tree classification algorithm. They reported 100 percent classification accuracy on SPECTF Heart, Orthopedic (Vertebral Column) ailments, Thyroid and Dermatology infection datasets while Binary Logistic Regression and CS-MC4 also give 100 percent classifier accuracy on the SPECTF Heart Dataset and Multinomial Logistic Regression too classifies the Dermatology dataset with 100 Percent accuracy.

In [5], Land slide image data is taken for data mining purpose. Vegetation Index and the thresholds are of each attribute on target categories. A conventional approach, C4.5 Decision Tree Analysis, is used as a comparison. And it helps to analyze the landslide troubles and thus facilitates the informed decision-making process. The author discusses on classification using machine learning algorithm on Hepatitis-C

Virus detected image. Here, 15 binary attributes together with a class feature and five continuous attributes. The dataset contains 155 records and it is three stage based. Overall the result has been collected with 89% accurate cataloging. The author discusses on effective use of frequent item set mining for image classification [4]. They have proposed a new and effective scheme for applying frequent item set mining to image classification everyday jobs. They refer to the new set of obtained patterns as frequent local histograms or FLHs, they pay special attention to keeping all local histograms in order during the mining process and to select the most relevant reduced set of FLH patterns for classification. In [1], comparison is based on traditional categorization tree results to stochastic gradient boosting for three remote sensing base data sets, an IKONOS image from the Sierra Nevada Mountains of California, a Probe-1 hyperspectral image from the Virginia City mining district of Montana, and a series of Landsat images from the Greater Yellowstone Ecosystem. Here, SGB has shown overall accuracy.

New Scoring Algorithm for predicting the cause of incident occurrences in chemical industries

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Abstract—Industrial incidents, which cannot be avoided in chemical and gas industries due to various factors involving operational errors, safety measures, defective workings etc. Occupational Health and Safety (OH & S) of India specifies the key regulations to make every place as an accident-free industrial environment. Recording and analyzing the historical industrial incidents data helps the industries to identify the potential trends and helps to reduce the loss. Cause of an industrial incident plays a major role to classify the incident to measure the severity and area of cautiousness. But in most of the industrial incidents, the cause of the incident occurred is unknown due to various factors. Modern Machine Learning techniques help in this case to predict the cause of incident occurrences. This paper describes the new Scoring algorithm, very first version, to predict the cause of incident occurrences based on the various occurrence factors and impact factor. The algorithm has been trained and made learning with the help of FACTS incidents database which has the records of worldwide industrial incidents occurred between 2004 and 2014. With the help of Apache Spark, fast unified analytics engine and Microsoft .Net framework, the verification and validation of the algorithm has been done and the results of prediction have been discussed in this paper.

Keywords—Workplace Incidents, Incident Occurrences; Scoring Algorithm, Predictive Model, Chemical industries incidents; Occupational Safety;

I. INTRODUCTION

Machine learning algorithms and its applications are ubiquitous in this modern world of Artificial Intelligence. The machine learning process starts with observations of data gathered from surveys, experience records, samples, to look for patterns in those to make the decisions for the future. The aim of the machine learning algorithm is to make computers learn dynamically with very less or no human intervention and perform the actions accordingly. Machine learning helps the industries in the analysis of the regular flow of large quantities of data. While it has been delivering quick and accurate results to identify positives and negatives, it may also require more time and area-specific materials to train them properly. Common machine learning algorithms do not work for all specific industries and organizations to produce the required results. Combining the ideologies of machine learning with cognitive technologies can make effective results by applying the customized algorithms in processing large volumes of industry data.

By including the various industry-specific factors into machine learning algorithms can provide advantageous impact for chemical and gas industries by reduced expenses, increased productivity, improved work methods. But industries have been slow to adopt the technologies available which might have to do with security concerns, cost, or even just a lack of understanding about the benefits to be gained. Evaluation of industrial incidental safety measures appears to be the weakest element of the industrial safety management system. Determination of the cause of the incident should help the industries by applying a precaution which in turn helps the supervision to provide the right solutions during the inspections. Formation of the new algorithm is an ideological try to help the chemical and gas industries by including specific factors for determining the cause of the incident. The paper explains the algorithm, shows the analysis and implementation and concludes by providing the results of the same on applying in the incidents database which collected from chemical and gas industries.

Analysis of Opportunistic Routing in Wireless Ad-Hoc Networks using Firefly with d-AdaptOR Algorithm

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Abstract: Opportunistic routing (OR) protocols become a new routing paradigm that has been proposed to give efficient delivery of data and to overcome routing limitations using dynamic ad hoc networks. In ad hoc networks, this most preferred routing technique tries to address two major problems of unpredictable node mobility and unreliable link quality using the broadcasting of the wireless medium. Different conventional IP forwarding, OR fetches in opportunistic data forwarding in which an intermediate node refers a forwarding table for a next hop that allows multiple candidate nodes in the forwarding region to perform on the broadcasted data packet. In MANET, it has utilized the reliability of data delivery with reduced delay. When the network congestion arises then the delay to be replaced by time-invariant quantities, the heuristics in would become a special case of d-AdaptOR in a network with deterministic channels and with no receiver diversity. In this paper, the hybrid algorithm (Firefly with d-adaptOR) is compared and analyzed, and then it selects shortest route for transferring the packets of data from transmitter node to the receiver node for increase the transmission reliability of sensor networks, life time of the throughput, network, and reduce the delay. Here, the experimental result illustrated and compared with the existing method, the hybrid algorithm provides better result.

Keywords: Mobile Ad hoc network, Opportunistic routing, Ex-OR, Firefly and d-adaptOR

I. INTRODUCTION

In MANETs, it keeps on varying with the movement of the mobile devices in the network and also it does not provide for static optimization most of the time. The most pre-existing routing protocols choose a fixed pathway, but in ad hoc networks, links between pairs of nodes tend to modify over time. This may affect the stability of the predetermined route. Opportunistic routing (OR) approach maximizes link stability by expressing the new idea, in such case if the each node has multiple neighbors waiting to transmit; it will be a stable route at any specified time. The robustness and effectiveness of the OR focuses several recent applications in wireless networks. OR is mainly proposed to address the unreliable communication in multi-hop wireless networks by utilizing the broadcast advantages of wireless communication [1, 2, 3]. The main perception of OR does not commit to a fixed route before data transmission [4, 5]. If a source node wants to transmit a data packet to a

specific receiver device, it broadcasts the data packet into the wireless network. Using MAC interception, this packet is obtained by each node during its transmission time. The device selects the closest node to discover the best route to the destination, using this way can easily choose the best forwarder device. Thus, data forwarding keeps dynamic in nature and no need to maintain predetermined routes. Finally, the OR provides an improved mechanism for the delivery of the data packet at the destination in ad hoc networks with highly mobile nodes.

Hybrid Routing Protocol is termed as mainly two protocols proactive routing protocol and reactive routing protocol [6]. Proactive routing protocol has performed in minimal latency management. Reactive routing protocol refers huge overhead at the time of execution. For this reason a hybrid protocol is proposed to overcome the drawbacks of both reactive and proactive protocols. In such that, the hybrid routing protocol used to solve the less overhead problems and avoidance of latency

Ensemble Learning Technique to Improve Classification Accuracy for Credit Data

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ABSTRACT

Now a day's, Ensemble methods are some of the most influential strategies in data mining and machine learning. It combines multiple learning algorithms into one, to obtain a more accurate predictive result. Credit risk analysis is one of the serious tasks in financial sector. By using ensemble methods the credit data can be classified more perfectly than by using a basic model. This paper represents a comparative study of different classifier on credit data set when the ensemble learning method 'Bagging' is used. This study observed that Bagging method can improve the accuracy of the basic classifier.

Keywords– Ensemble learning, Classification, Bagging, Machine Learning.

INTRODUCTION

Ensemble methods are powerful machine learning techniques that combine multiple basic classifiers and improve the accuracy of the predictive model. In recent years, various ensemble methods have been recommended such as boosting, bagging, voting etc, which have proved to be very valuable for machine learning and data mining [1], [2]. Bagging is used to reduce the variance of the decision tree. In bagging, a sample of a training data set which contains N observation and M features is taken randomly and the best split is used to split the node. This new training set is known as 'Bootstrap replicate'. Whereas boosting is used to create a set of predictors. Boosting creates a training set of learners, sequentially and combining them for prediction.

LITERATURE REVIEW

In [3] the study indicates that the bagging ensemble method can substantially improve individual base learners such as decision tree, multilayer perception, and k-nearest neighbors [3]. After applying ensemble method, the performance of SVM does not change. The results show that k-nearest neighbor is more appropriate for large unbalanced datasets in credit scoring.

In [4], NP Singh, concluded that the data small or big should be subjected to many algorithms and their combinations using hybrid or ensemble, produced more reliable output.

In [5], they compared base classifiers in ensemble methods for credit scoring and suggested that ensemble methods provides more suitable result for credit scoring.

In [6], The research compared the predictive accuracy of ensemble of base classifiers using techniques of bagging, boosting, and random forest in the prediction of default of credit card clients and suggested that Boosting ensemble technique is found to have the best accuracy of prediction.

In [7], their aim is to conduct empirical analysis on publically available bank loan dataset to study banking loan default using decision tree as the base learner and comparing it with ensemble tree learning techniques such as bagging, boosting, and random forests. The results indicate that ensemble model works better than the individual models.

ENSEMBLE METHOD - BAGGING

Bagging is also known as Bootstrap aggregation It is a machine learning algorithm used to improve the accuracy of the classification algorithms. It is mainly used in decision tree approaches. Bagging creates n

A SURVEY OF ASSOCIATION RULES TO CUSTOMER DIRECT MARKETING

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ABSTRACT

Direct promoting must be a trendy enterprise with Associate in aim to more than the profit generated from marketing to a specific group of marketing consumers. A key to marketing is to test a set of consumers therefore on more than the profit come whereas minimizing the value. Achieving this goal is troublesome because of the very unbalanced and balanced information and therefore responds and therefore the money quantity generated by a response. Gift an answer to the current information drawback supported an ingenious use of association rules.. Association rule mining searches for all rules higher or lowest than associate in more than power threshold, as critical some rules in an exceedingly heuristic-based search. Promising association rules square measure value then designated supported the determined value of the shoppers they summarize. Designated association rules square measure wont the difficult KDD-CUP-98 dataset, this come within reach of generate supplementary income than the KDD-CUP first price and additional profit than the most effective result printed thenceforth, with 57.7% recall on responders and seventy eight.0% recall on non-responders. the typical profit per mail is three.3 times more than that of the KDD-CUP winner.

I. INTRODUCTION

Direct marketing is a process of identify the potential trade industry call for to make out buyer of convinced harvest, and firm produce patron niceties and bank loan facts and indemnity company need to subsidize loan insurance products to consumers, fundraising organization need to identify latent donor,. Times past folder with reference to the earlier mailing operation, including whether a purchaser respond sales responder and the dough amount together and strict..

The real time price tag rate that cost susceptible treatment is obligatory in application similar to through selling purchaser. It projected the Meta Cost construction on behalf of in receipt of acceptable truthfulness base arrangement to fee-aware learning by incorporate a asking price environment for misclassifying class j into class i. examined the more general case where the benefit depends not only on the classes involved but also on the primary or individual customers x. A downside of this method is that they must to guesstimate the rules base class prospect which ignore the patron charge of x such as the bequest quantity. The client worth is simply thought of "after the fact" way the problem advantages into it opens up new way of avenues for profit estimation. Generate, the data can used in the KDD-CUP 98.

II. CHALLENGES IN CUSTOMER MARKETING

Two challenges in customer marketing.

Challenge 1:

This inverse parallel might exist within the help to a similar client or completely different people. For a similar client, a usual handling is avoid multiple contributions with a particular period of time. For different customers, it implies that there area unit several "small marketing customers" creating little purchases and few "big marketing customers" creating big purchases. As a results of

AN EMPIRICAL ANALYSIS OF EMAIL SPAM WITH DETECTION MODEL

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ABSTRACT

World Wide Web is the majority of essential criterion for information communication and facts dissemination. It assists to transact information rapidly, timely, and easily. Identity theft as well as identity fraud are referred as both sides of cyber crime where hackers and malicious users acquire personal data of present legitimate users to endeavor fraud or deception motivation for monetary gain. E-Mails are worn as phishing tools where genuine looking emails are sent making the users identity with genuine content with malicious URLs. It helps to pilfer consumers' personal data like usernames, account information, passwords and other financial credentials. Spam E-Mails emerges as Phishing mails. Spoofed Mails also plays an important role where hackers pretend to be a proper sender posing to be from a proper organization which divulges user to give his/her personal credentials. The content might escape from Content based filters or the email might be without any body of message nothing other than malicious URL in it. This paper finds malicious URLs in emails as well as forms clusters of phishing mail ids, suspicious words and IP address are also made.

Keywords— *Data Mining, Phishing Mails, Anti-SPAM Filtering, Phishing Classification*

I. INTRODUCTION

The Web serves as better medium for a large number of malicious activities such as Sp am attacks, Phishing attacks, DDos attacks and etc. motivated under financial aspects. These attacks attract the common users to click links attached in legitimate looking or spam emails and make them to visit the malicious sites. It initiates them to click, urges them to give their personal information.

Phishing attacks are referred as Lure, Hook and Catch [5] (Jacobsson and Myers 2007). Spoofed E-Mails poses to be from legitimate

company seeking sensitive information. These email addresses are called the 'Lure'. E-mails with malicious URLs may have legitimate content in the body of the mails which are unable to be detected by content based spam filters.

The URLs lead to the actual Phishing sites which are clones of legitimate websites and lure the users into entering sensitive information. The actual phishing websites are the 'Hook' which obtains the private information from the user. The malicious user poses various critical conditions such as account suspension, failed transaction and forcing user to upgrade the newly installed security feature. The links in the email leads to fake phishing site referred as 'Catch'. In some cases, the user also overrides the browsers decision.

Blacklists may be in the form of IP addresses or websites used by email filters and block the users through an available list of IP addresses or websites. [9] PhishNet (Pawan et al 2010) enhances existing blacklists by discovering related malicious URLs. One major problem with blacklists is that they fail to identify phishing URLs in the early hours of a phishing attack because their update process is insufficiently fast. Phishing campaigns have an average life of less than two hours [10] (Sheng et al 2009) and by the time a phishing website is positively identified and blacklisted, it would have almost hacked.

[1] Colin Whittaker et al (2010) discussed a scalable machine learning algorithm to automatically classify phishing pages by training the classifier on noisy dataset. [6] Justin Ma et al (2009) discuss a method to detect malicious websites by analyzing lexical and host based features based on passive aggressive algorithm. [12] Zhang et al (2007) proposed a substance based strategy utilizing a direct classifier and achieved 89% TP (True positive) and 1% FP (False positive). The test case was demonstrated for 100 phishing URLs and 100 legitimate URLs. CANTINA+ (2010) classifies phishing URLs and

A Study on Job Stress Faced by the Railway Employees in Erode District

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Abstract

Indian railway has the biggest human resources in work atmosphere. The success of the industry is based on their efficient staff. The employee's job satisfaction and morale is very essential one to achieve both organizational and individual goals. But sometimes most of the grievances are raised in workforce and it is lead the dissatisfaction atmosphere. At last it will affect both individual and organization goals. The one of the main cause affect each and every individual and work place is stress. The study helps to analyze the job stress faced by the Railway employee's special reference in Erode district with 100 employees. The objective of the study is to finding out the major causes of stress among the employees and analyzing the stress level of the respondents based on the demographic characteristics.

Key Words: Indian Railway, Efficient staff, Organizational and Individual goal, Job stress.

INTRODUCTION

Stress creates frequent physical and mental tension. It will come in based on the each individual situational factor through different ways. According to the National Institute for Occupational Safety and Health, job stress can be defined as "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker". Simply, the primary source of job stress outcome from working environment and interaction of the workers. such as job insecurity, poor communication with superiors, long working hours, heavy work load, insufficient pay and benefits, lack of workers participation in decision making, grievance with subordinates, urgent deadlines, environmental conditions, lack of family and friendly policies, rapid technological changes, risk to health and safety work conditions. These are all creating both psychologically and physically stress to everyone. It will lead the employees to distrust, depression and anger. At the same time the workers are affected by headaches, sleep disturbances, lack of concentration, short temper, stomach upset and blood pressure. These stress affect the every persons both internally and externally.

REVIEW OF LITERATURE

NIRMALA (2015) conducted "A study on stress management among the employees of banks". This study says that overview of stress, different level of stress to the employees, what are healths problems are raised through the stress, the result of the paper is useful strategies used to stress among the employees and effectiveness of stress management program organized by the bank.

NEETHU MOHAN (2017) conducted "A study on Occupational Stress among Railway Employees with Special Reference to Thrissur Railway Station. The paper analyze Railway is the income generating industry, what are the various causes are creating stress to the employees and how to reduce the stress in work environment through the strategies are all explained in this study.

OBJECTIVE OF THE STUDY

- To analyze the stress level of the respondents based on the demographic characteristics.
- To find out and analyze the major causes of stress and techniques for reduce the stress.

A STUDY ON QUALITY OF WORK LIFE FOR THE FACULTIES OF PRIVATE ENGINEERING COLLEGE IN SALEM DISTRICT

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ABSTRACT

Quality of work life is an important factor in motivating employees and increasing their job satisfaction which helps the organization to achieve its goals. More emphasis is given on quality of work life by the researchers in the present scenario. Thus, the present study is mainly used to find out the study on quality of work life for the faculties of private engineering college in Salem district. The objective of this study is to analyses the quality of work life of the faculties of engineering college. The sampling size of this research is 150. The convenient sampling method was used in the selection of respondents. Questionnaire method was utilized in the gathering of data. The finding of this study that the majority of 42% respondents are satisfied with Professional Satisfaction of their Job Security. The result of this study showed that a moderate level of Quality of Work Life is found among the faculty members in engineering colleges.

KEY WORDS: *QWL-Quality of Work life, Engineering College, faculties, Professional Satisfaction, Job Security.*

INTRODUCTION

In today's society we need more importance for human resources management in advancement of institution, improving quality of work life of employees working in that institution. Human are the most important asset of every working environment. Quality of work life which is once a part of human resource management has now become an independent subject to evaluate. Quality of Work Life (QWL) is a relatively new concept which is defined as the overall quality of an individual's working life. QWL is sometimes considered as a sub-concept of the broad concept of quality of life, which refers to the overall quality of an individual's life. Work and family are linked through social, economic and psychological terms. Quality of life includes factors such as income, health, social relationships, and other factors such as happiness and fulfillment.

A TECHNICAL ANALYSIS OF FIVE SELECTED LISTED COMPANIES AT NATIONAL STOCK EXCHANGE OF INDIA LTD

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Abstract : In finance, technical analysis is an analysis methodology for forecasting the direction of prices through the study of past market data, primarily price and volume. Behavioural economics and quantitative analysis use many of the same tools of technical analysis, which, being an aspect of active management, stands in contradiction to much of modern portfolio theory. The efficacy of both technical and fundamental analysis is disputed by the efficient-market hypothesis which states that stock market prices are essentially unpredictable. The aim of investors' is getting investment opportunities with minimum risk and maximum returns. Risk and returns are important variables that investors are looking for, at the time of investment decision making. To suggest the better ways and means for investor to enhance the knowledge about stock investment in the secondary market. To Test the Variability between Variables, Such as variance of returns co - Relations standard deviation. To study the variation in the stock returns for the study period of one years. To offer meaningful suggestions to the investors based on the findings of the study The Data Analysis and Interpretation Specialization take you from data novice to data expert in just four project-based courses. You will apply basic data science tools, including data management and visualization, modelling, and machine learning using your choice of either SAS or Python, including pandas and Scikit-learn. Throughout the Specialization, you will analyze a research question of your choice and summarize your insights. In the Capstone Project, you will use real data to address an important issue in society, and report your findings in a professional-quality report. You will have the opportunity to work with our industry partners, DRIVEN DATA and The Connection. This Specialization is designed to help you whether you are considering a career in data, work in a context where supervisors are looking to you for data insights, or you just have some burning questions you want to explore. No prior experience is required. By the end you will have mastered statistical methods to conduct original research to inform complex decisions.

IndexTerms - Technical Analysis, Stock, Research, Technical Decisions.

INTRODUCTION ABOUT THE STUDY

An investment instrument has issued by a corporation, government, or other organization which offers evidence of debt or equity. The official definition, from the securities exchange act of 1934, is: "Any note, stock, treasury, bond, debenture, certificate of interest or participation in any profit-sharing agreement or in any oil, gas, or other mineral royalty or lease, any collateral trust certificate, pre-organisation certificate or subscription, transferable share, investment contract, voting-trust certificate, certificate of deposit, for a security, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or in general, any instrument commonly known as a 'security'; or any certificate of interest or participation in, temporary or interim certificate for, receipt for, or warrant or right to subscribe to or purchase, any of the foregoing; but shall not include currency or any note, draft, bill of exchange, or bankers acceptance which has a maturity at the time of issuance of not exceeding nine months, exclusive of days of grace, or any renewal thereof the maturity of which is likewise limited."

STATEMENT OF THE PROBLEM

The aim of investors' is getting investment opportunities with minimum risk and maximum returns. Risk and returns are important variables that investors are looking for, at the time of investment decision making. Naturally rational investors would expect a high return for bearing high risk. If there is no trade off between risk and return, there is no need of considering about the risk. The rate of return on equities should commensurate with its riskiness. Estimating the required return on investment to be made in the stock market is a challenging job before an ordinary investor. Different market models and techniques are being used for taking suitable investment decisions. The past behaviour of the price of a security and the share price index play a very important role in security analysis.

NEED OF THE STUDY

Technical analysis uses historical stock statistics, usually price and volume data, to forecast future prices. In layman's terms, a technical analyst finds a pattern in a stock's data, makes the assumption that the pattern is going to repeat into the foreseeable future, and accordingly places his/her trade in the direction signalled by the pattern. Technical indicators are frequently used by technical analysts to help make their trading decisions. Popular technical indicators include moving averages, MACD, regressions, support/resistance levels, etc. Technical analysts essentially look for trends in the market. Their basic assumption is that price of a stock already has all information priced into it and that a stock is either always 'trending' up, down, or sideways. Prices move in patterns and price action repeats itself. Charts are frequently used by technical analysts to help make their trading decisions.

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எட்டுத்தொகை கற்பிக்கும் மருத்துவ அறிவியல்

முனைவர் ப. கற்பகராஜன்

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தமிழ்த்துறைத் தலைவர்

விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர் கல்லூரி (தன்னாட்சி)

எலையம்பாளையம்

உலகில் உள்ள உயிரினங்கள் அனைத்திற்கும் இன்பமும் துன்பமும் இயற்கையானவை. இன்பம் என்பது மகிழ்வைத் தருகின்றது. துன்பமோ வருத்தத்தைத் தருகின்றது. உயிரினங்களுக்கு வருத்தத்தைத் தருகின்ற துன்பத்தையே நோய் என்கின்றோம். இத்தகைய நோயைத் தீர்க்கும் பொருளையே மருந்து என்கின்றோம். மருந்து என்ற சொல்லானது ஓடாதம், அமிர்தம், மசாறு, நீ, இன்மை என்ற பலவேறு பொருள்களைக் கொண்டுள்ளது. பொதுவாக மருந்து என்பதற்கு மறு உந்து என்பது பொருள். உந்துதல் என்றால் நள்ளுதல் என்பது பொருள். ஏற்கனவே உள்ளே தள்ளிய பொருள் முறையாக ஜீரணம் ஆகவில்லை என்றால் அதற்கான மாற்றாக ஒன்றினை உள்ளே தள்ளுவதையே மருந்து என்று அழைப்பர். இத்தகைய மருந்து சார்ந்த மருத்துவ அறிவியல் எட்டுத்தொகையில் பல இடங்களில் காணக்கிடைக்கின்றது. இதனை இக்கட்டுரையில் காண்போம்.

மருந்து

மருந்து என்பதைப் பண்டைய மக்கள் வாயுறை என்று அழைத்தனர். உறை என்றால் மருந்து என்று பொருள். வாயுறை என்றால் வாய் வழியாகச் செலுத்தப்படும் மருந்து என்று பொருள். நோயைத் தீர்க்கும் பொருளை மருந்து என்றும் நோயினைப் போக்கும் அழிப்பை மருத்துவர் என்றும் பண்டைய மக்கள் அழைத்துள்ள பாங்கு.

“பொருந்தியான் வேட்ட பொருளவின் வயினினைந்த
றிருந்திய யாக்கையுண் மருத்துவ னூட்ட
மருந்துபோன் மருந்தாகி மனனுவப்ப
பெரும் பெயர் மீளி பெயர்ந்தனன் செலவே”

என்ற கவித்தொகை பாடல் வரிகளில் புலப்படுகின்றது.

மருத்துவர்

நோய் இது என்று உணர்ந்த பிறகு, அந்நோய் ஏற்பட்டமைக்கான காரணத்தையும் அறிந்த அதற்குத் தகுந்ததுபோல மருத்துவம் செய்பவரே மருத்துவர் என்று திருவள்ளூர் குறிப்பிடுகின்றார். இத்தகைய வள்ளுவரின் கூற்றினைப்போலவே நோயுற்றவருடைய விழைவினை நோக்கித் தோல்வியை மருந்தினைத் தரும் அறத்தொழிலைச் செய்பவரே மருத்துவர் என்று மருத்தலநகரின் இலக்கணத்தினை.

“திருந்துகோல் எவ்வளை வேண்டியான் அழுவும்
அரும்பினி உறுநாக்கு வேட்டது தொடா அது
மருந்தாய்ந்து கொடுத்த அறவோன்போல்
என்று வாரிய பல்வே”

உறை துள்ளினை பாடல் வரிகள் படம்பிடித்துக் காட்டுகின்றன.

PRINCIPAL

VIVEKANANDHA COLLEGE OF ARTS AND
SCIENCES FOR WOMEN (Autonomous),

ELAYAMPALAYAM - 637 205

TIRUCHENGODE TK. NAMAKKAL DT

திருக்குறள் ஆசாரக்கோவை காட்டும் உணவு உண்ணும் முறை

முனைவர். ரா. ரவிச்சந்திரன்
உதவிப்பேராசிரியர்
தமிழ் உயராய்வநடுவறை

விவேகானந்தா கலை மற்றும் அறிவியல் மகலிள் கல்லூரி (தன்னாட்சி)
எளையாம்பாளையம், திருச்சிசெங்கோடு, தாமக்கல்

உலக உயிர்கள் இயக்கத்திற்கான அடிப்படியாக விளங்குவது நிலம், நீர், காற்று ஆகியவை என்ற பஞ்ச பூதங்களேயாகும். அண்டத்தில் இருப்பது பீண்டத்தில் உள்ளது என்பதற்கேற்ப நமது உடலில் உள்ள உறுப்புகள் பஞ்ச பூதங்களின் அடிப்படையிலேயே இயங்குகிறது. உதாரணமாக பஞ்ச பூதங்களின் தொடர்புடைய உள் உறுப்புகளைக் கீழ்க்கண்டனாறு பட்டியலிடலாம்.

- நிலம் - இரைப்பை, மண்ணிரல்
- நீர் - சிறுநீர்ப்பை, சிறுநீரகம்
- காற்று - சிறுதுடல், இதயம், உதவிதாணம், இருதய மேலுறை.
- காற்று - பெருங்குடல், நுரையீரல்
- ஆகாயம் - பித்தப்பை, கல்லீரல்

ஒருவரின் உடல் வளர்ச்சிக்கும் ஆரோக்கியத்திற்கும் அடிப்படையாக விளங்குவது உணவையாகும். இதன் காரணமாக தமிழர்கள் உணவே மருத்து, மருந்தே உணவு என்ற வாழ்க்கை முறையை அமைத்துள்ளார்கள். இத்தகைய சிறப்பு வாய்ந்த உணவை உண்ணும் முறை குறித்து திருக்குறள் ஆசாரக்கோவை எடுத்துரைப்பதை இக்கட்டுரையில் காண்போம்.

உணவு உண்ணும் நேரம்

பொதுவாக உணவு உண்ணும் நேரத்தையும் முறையையும் ஒழுங்குபடுத்தினாலே பெரும்பாலான நோய்களிலிருந்து விடுபடலாம். தேவையான உணவுகள் ஒரு மனிதனுக்கு மீளாமலும் குறைபாடும் பாத்துக்கொள்ளவேண்டும். அவ்வாறு குறைந்தாலும் மிகுந்தாலும் நோய் வரலாம் என திருவள்ளுவர் குறிப்பிடுகிறார். ஒரு மனிதன் தான் முன்பு உண்ட உணவு சேரிந்த பின் உண்டு வந்தால் நோய் என்பதை மனிதனுக்கு வராது என்கிறார் திருவள்ளுவர் இரண்டாம்

“மருந்தென வேண்டாவாம் யாக்கைக் கருந்திய
தற்சது போற்றி உணின்” குறள் - 942

என்ற குறள் வழி அறியமுடிகிறது.

ஒரு மனிதன் தனக்கு என்று விளைவிக்கும் உணவுகளை தனித்தனியாக உண்பது உணவு உண்டு வந்தால் சந்த தீங்கும் இல்லை எனக் குறிப்பிடுகிறார் இரண்டாம்

“மாறுபா டிலலாத உணடி மறுத்துணின்
ஊறுபா டிலலை உயிர்க்கு” குறள் - 945

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அறிவியல் நோக்கில் இலக்கியங்கள் காட்டும் நடுகற்கள்

திருமதி.பெ.நீலாவதி

உதவிப்பேராசிரியர்

தமிழ் உயராய்வுத்துறை,

விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர் கல்லூரி(தன்னாட்சி)
எளையாம்பாளையம், திருச்செங்கோடு, நாமக்கல்.

நடுகற்களின் தோற்றம்

நடுகற்கள் அமைப்பது என்பது பெருங்கற்காலம் முதற்கொண்டே இருந்து வந்துள்ளது. பெருங்கற்கால மக்கள் ஓவியங்களை பாறைகளில் வரைந்தனர். இந்த ஓவியங்களில் ஓடும் மனிதர்கள் கத்தி, கேடயத்துடன் காணப்படும் வீரர்கள், விலங்குகளின் மீதுள்ள தலைவர்கள், குதிரை மீது சவாரி செய்யும் மனிதர்கள், விலங்குகளை இழுக்கும் மனிதர்கள் போன்ற ஓவியங்களை வரைந்துள்ளனர். இந்த ஓவியங்களில் அவர்கள் வீரத்திற்கு முக்கியத்துவம் அளித்ததைக் காட்டுகின்றன.

பெருங்காலத்தில் காட்டு விலங்குகளால் இறந்துபட்ட ஆடவனுக்கும் பகைவருடன் போரிட்டு இறந்தவனுக்கும் இயற்கையால் இறந்தவனுக்கும் கல்திட்டை அல்லது கல்பதுக்கை ஏற்படுத்தி அதில் வீரனின் வீரத்தை வெளிப்படுத்தும் விதமாக ஓவியங்கள் வரையப்பட்டன. இந்த ஓவியமே பின்னர் கோட்டுருவமாகவும் புடைப்புச் சிற்பமாகவும் வளர்ச்சி அடைந்துள்ளது. பெருங்கற்காலத்தில் ஓவியங்களாக நடுகற்கள் இருந்தன என்பதை இதன் மூலம் அறிந்துகொள்ள முடிகிறது. பண்டைய தமிழ் இலக்கியங்கள் 'எழுத்துடை நடுகல்' என்று கூறுவது எழுத்தை மட்டுமின்று ஓவியத்தையும் குறித்து வந்தது. சங்க காலத்தில் எழுத்து என்பதற்கு ஓவியம் என்ற பொருள் மிகுதியான இடங்களில் கூறப்படுகிறது.

ஒல்காப் பெரும்புகழ் தொல்காப்பியனாரே நடுகல் எடுக்கும் நிலைகளைத் தொகுத்து வகைப்படுத்திக் கூறியுள்ளார். "இருமுன்று மரபிற்கல்" என்று வகைப்படுத்தியதால் அதன் தொன்மையை அறிந்து கொள்ளமுடியும். தொல்காப்பியர் காலத்திலேயே நடுகற்கள் இருந்துள்ளன. பிற்காலச் சோழர் ஆட்சியின் போது முதலாம் ஆதித்த சோழன் இறந்த பிறகு அவனுக்கு தொண்டைமான்னாரில் ஆதித்தேஸ்வரம் என்ற பள்ளிப்படை எடுத்தான் பராந்தகச் சோழன்.

"வணங்கிய சாயல் வணங்கா ஆணமை
இளந்துணைப் புதல்வரின் முதியர் பேணித்
தொல்கடன் இறந்த வெல்போர் அண்ணல்"

என்று செல்வக் கடுங்கோ வாழியாணை பதிற்றுப்பத்து கூறுகிறது. குறிப்பாக, இப்பாடல் முன்னேரின் மரபு வழிபாட்டைப் பற்றிக் கூறுகிறது. நடுகற்கள் அமைப்பது என்பது மிகவும் தொன்மை வாய்ந்தது என்பதை இதன் வாயிலாக அறியலாம்.

நடுகற்கள் பெயர்க் காரணம்

போரில் வீர மரணம் எய்திய வீரர்களின் நினைவாகவோ அல்லது வேறு வகையிலோ வீரம் புரிந்து உயிர் குறந்தவர்களின் நினைவாகவோ கலநட்டு அதில் அவர் பெயரையும் பெருமைகளையும் பொறித்து வைப்பது பண்டைய வழக்கம். இதனைத்தான் நடுகல் என்று கூறுகிறோம். இறந்தவர்களுக்கு நடப்பட்ட கற்களை வணங்கும் மரபு தமிழர்களின் பழக்கம். பன்னாட்டுக்காலமாக இருந்துள்ளது. போரில் இறந்துபட்ட வீரர்களின் நினையினைப் போற்றும்

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TAMILNADU

திருமந்திரம் உணர்த்தும் பிறப்பியல் விஞ்ஞானம்

வி. விஸ்ணுபிரியா,
தமிழ்த்துறை,
உதவிப் பேராசிரியர்.

விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர் கல்லூரி (தன்னாட்சி)
எளையாம்பாளையம், திருச்செங்கோடு

ஆதியாகிய இறைவன் உயிரைத் தத்துவங்களோடு சேர்த்துக் கருப்பையில் இருந்து உதவுகிறான் கர்ப்பத்தில் செய்யப்படும் தொழில் கர்ப்பக்கிரியை எனப்படும். இறைவன் சீவர்களைக் கருப்பையில் இருந்து காக்கும் நெறியே இங்கு கருத்தமைவகளாக விளக்கப்படுகின்றன.

ஆவதறிந்தே ஆக்குதல் :- முன் பிரிந்த அதாவது இறப்பின் போது பிரிந்த இருப்பதைத் தத்துவங்களை இறைவன் தோற்றவிக்கின்றன. மாதாவின் கருப்பையில் உயிரைத் தத்துவங்களோடு பொருந்துமாறு உதவுகிறான்.

'ஆக்குகின்றான் முன்பிரிந்த இருப்பதைத் ...

ஆக்குகின்றான் கர்ப்பக் கோளகையுள்ளிருத் தாக்குகின்றான் அவன் ஆவதறிந்தே'
திரு - 451

என்னும் பாடல் உணர்த்துகின்றது.

❖ இருபத்துச்சாவன பூதம் - ஐந்து, தன்மாத்திரை ஐந்து, ஞானேந்திரியம் ஐந்து, கன்மேந்திரியம் ஐந்து, அந்தக்கரணம் நான்கு, புருடன் ஒன்று.

"பாரம் செய்தல்" - யோகியர் அறிகின்ற மூலாதாரத்தின் மேலிடமே அக்கினியும் நீரும் கருத்தரிக்கும் இடமாகும். அங்கனமே பொறுமையும் இனிமையும் உள்ள உயிர்க் கருவில் பூதம் வண்ணமே எனக் கூறப்படுகின்றது. ஒரு கரு உருவாவதற்குரிய நியதிகளை வரையறுத்து தருகின்ற கருமுட்டை உயிர் அறிவியலை திருமூலர் உணர்த்துகின்றார். இங்ஙனம் உலகம் இயங்குவதற்கு.... அகவெளியாய், புறவெளியாய் எவையெல்லாம் தேவைப்படுகின்றனவோ அவ்விதம் மனிதன் ஐனனம் செய்வதற்கும்... அவனுக்குள் ஓர் உலகம் இயங்க வேண்டும். இது விந்தையல்லவா.... இதுவே அறிவியல்!!!!

சீவன் பக்குவமடைதல் "பண்புறு காலமும் பார்மிசை வாழ்க்கையும் அன்புறு காலத் தமைத் தொழிந்தானே" எனும் பாடல்வரிகளால் இருவர் இன்புறு காலத்து, முன்பு மாறிய துன்புறு பாசத்துயர் மனைக்கேற்ப...சீவன்... சீவனை பக்குவமடையும் காலத்தையும் பூமியில் வாழ வேண்டிய கால எல்லையையும் அமைக்கிறான்.

கருவின் இயக்கம் என்பது கருவானது முதலில் ஆண்டலில் இரண்டு மாதங்கள் தங்கிப் பின் பெண்கருப்பையில் புகுந்து, ஆணும் பெணுமாகிய இரண்டு உருவமாய் ஒடிப் பாயும் என்பதை 'கருவை ஒழிந்தவர் கண்டநால் மூவேழ், புருடன் உடலில் பொருந்து மற்றோரார், திருவின் கருக்குழி தேடிப் புகுந்த, உருவம் இரண்டாக ஓடி விழுந்ததே' என்னும் பாடல்வரிகள் விளக்குகின்றன.

அந்தக்கரணம் 'பொழிந்த புனல்பூதம் போற்றுங்கரணம் ஒழிந்த நுதல் உச்சி உள்ளே ஒளித்ததே! அதாவது அந்தக்கரணத்தின் பகுதி - அறிவு. அதன் ஆற்றின் இடம் மூளைப்பகுதி... போது - சிறப்பு எனும் இருவகை உள்ளது. சிறப்பானஅறிவு - முன்மூளை, பொதுமையானஅறிவு - பின்மூளை உச்சியல் - இவ்விரு தன்மைகளின் ஆட்சி எனவே கருவில் புகுந்து தத்துவங்களுடன் கூடிய புருடனது அறிவின் ஆற்றல் நெற்றி உச்சியில் பொருந்தியிருக்கும். (புருடன் - ஆண்)

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TIRUCHENGODE TK. NAMAKKALI

AYYAR

தமிழ் இலக்கியங்களில் அறிவியல் சிந்தனைகள்

கவிதா
நிழல்துறை,
விவேகானந்தா கல்லூரி
என்பாம்பலையைம்

முன்னுரை

அறிவின் கலப்பு இல்லாத காரணத்தாலும், கேட்போர் யாரையும் பிணிக் கும் தன்மையாலும், இவ்விய சிந்தனை என்பது அறிவு. மனித வாழ்வின் சிறப்பியல்பாக உள்ள தமிழ் மொழியால் உலகமும் காரணத்தாலும், இலக்கியங்களில் வடிவியாக பெருமைக்குரிய தமிழ்மொழியால் வளந்து நிலைத்த பயன் அளித்தலாலும், இலக்கியமே சிந்தனை என்று கட்டிக்காட்டுகின்றனர் அறிஞர்கள். உலகில் உள்ள ஒவ்வொரு இனத்துக்கும் ஏராளமான உண்டு. அந்த இனம் பேசிய மொழி, வழித்த நாடு, பண்பாடு, பழக்கவழக்கங்கள் ஆகியன கால மாற்றத்திற்கு ஏற்ப, அறிவியல் அபிமானம் வளர்ந்தும், திரிந்தும் காணப்படும். இலக்கிய அறிவியல் சிந்தனைகளை விளக்கவதாக இக்கட்டுரை அமைப்பெறுவது என்பது குறிப்பிடத்தக்கது.

அறிவியல் விளக்கம்:

வாழ்க்கையின் அனைத்து நிலைகளிலும் அறிவியல் பயன்பாடு மிகுந்துள்ளது. அறிவுக்குப் போகும் வகையில் கருத்துக்களைக் காரண, காரியங்களினை அறிந்து கொள்ளும் அல்லது விளக்கும் முறைக்கு, அறிவியல் என்று பெயர். பேராசிரியர் ஜான் எம்ன் என்ற அறிஞர் அறிவியல் சிந்தனை சிந்திப்பது குறித்து மாணவர்களுக்குக் கூறும்போது, "அறிவியல் என்பது எல்லா பேக்குகளையும் கூர்ந்து கவனிப்பது" என்று விளக்குகின்றார்.

இலக்கியமும் அறிவியலும்:

இலக்கியமும், அறிவியலும் காலத்தால் இணையிவாதனை என்பதற்கு இணை. இந்த நூற்றாண்டை "அறிவியல் நூற்றாண்டு அணுயுகம்" என்றெல்லாம் கூறி வருகிறோம். ஆரம்ப நிலையில் அணுணைப் பிளக்க இயலாது என்றே விஞ்ஞானிகள் எண்ணினர். ஆனால் காலப்போக்கில் அணுணைப் பிளந்து அணுசக்தியை உருவாக்கலாம் என்று கண்டறிந்தனர். இவ்விய உண்மையினைப் பண்பாடும் ஆண்டுக்கொரு முன்பே நம் தமிழினம் அறிந்திருக்கின்றனர் என்பதை இலக்கியங்கள் எப்போதும் அறிய முடிகின்றது.

உயர்தொகையில் அறிவியல் சிந்தனைகள்:

கலாத்தமிழ் தொகை நூல்களில் எடுத்தொகையில் ஒன்று, உயர்தொகை நூல் என்று அழைக்கப்படுகிறது. நான் அறிவியல் பிரிவில் நான் சிறப்பெற்ற பிணைக அனைத்து உலகியல் கலை உள்தொழில் பற்றிய பல்வேறு செய்திகளைத் தொகுத்து எடுத்தல் விளக்கவதாக அமைக்கப்பட இதனை,

"உயர்வான கல்வியை கற்றுப் பெறவேண்டுக
காஞ்சி ஊரின் கொடுமை
கருத்தின் எங்கெல்லாம் நானிய எழும்"
குறள் - இரா. வெங்கடேசன் - பக்-589



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சான்லாக்ஸ் பன்னாட்டுத் தமிழியல் ஆய்விதழ்



தமிழியல் கலைக்கழகம், தஞ்சாவூர்
அயல்நாட்டுத் தமிழியல் துறை



சான்லாக்ஸ் பன்னாட்டுத்
தமிழியல் ஆய்விதழ்



விவேகானந்தா கலை மற்றும்
அறிவியல் கல்லூரி (மகளிரர்)
கிடைத்தல் தடத்தில்



பன்னாட்டுக் கருத்தரங்கம்

காலந்தோறும் தமிழ் இலக்கியங்களில் பெண்கள்

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பட்டினத்தார் பாடல்களில் பெண்கள்

முனைவர். ஆ. சந்திரசேகரன்

உதவிப்பொருளியர், தமிழ்த்துறை
விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர் கல்லூரி (தன்னாட்சி)
எளையாம்பாளையம், திருச்செங்கோடு

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பட்டினத்தார் தமிழ்நாட்டில் பத்தாம் நூற்றாண்டில் வாழ்ந்தவர். கடல்கடந்து பொருள் தேடும் வணிகக் குலத்தைச் சேர்ந்தவர். வாழ்வின் செல்வச்செருக்கையும் போகங்களையும் வெறுத்து காதற்ற ஊசியும் வாராது காண் கடைவழிக்கே என்ற உயர்ந்த சிந்தனையை மனதில் கொண்டு இல்வாழ்க்கையைத் துறந்து துறவு மேற்கொண்டனர். போலித்தனமும், பொய்மையும், சுயநலமும் வாழும் முறைக்கு ஏற்றதல்ல என்பதை தம் நூல்களில் உணர்த்தியுள்ளனர். அவர், பெண்கள் குறித்து கூறியுள்ள கருத்துக்களை இக்கட்டுரையில் காண்போம்.

தாய்

மனித உறவுகளிலேயே முதன்மையானது தாய் உறவாகும். திருமணமான பெண் குழந்தைப்பேற்றினை பெறும்போது தாய் என அழைக்கப்பெறுகிறாள். இத்தகைய தாய் குழந்தைமயின் மீது அதிக பாசமும் அன்பும் கெண்டவளாகவும் குழந்தையை நல்வழிப்படுத்தி வளர்ப்பவளாகவும் அமைகிறாள்.

“முந்தித் தவம் கிடந்து முன்னூறு நாட் சுமந்தே
அந்தி பகலாய்ச் சிவனை அதரித்துத்
தொந்தி

சரியச் சுமந்து பெற்ற தாயார் தமக்கோ
ளரியத் தழல் முட்டுவேன்” (1)

என்று தன் தாய் இறந்தபோது அழுத புலம்பி பாடுகிறார். இதில் அவரின் தாய் பாசம் புலனாகிறது.

நல்லவர்களைத் தூற்றிக் கொண்டேயிருப்பார். சுமந்து பெற்ற தாயாரைத் திட்டிக் கொண்டிருப்பார் இவர்கள் இருந்தால் என்ன போய்ச் சேர்ந்தால் என்ன என்பதை.

“ஓயாமல் பொய் சொல்வர் நல்லோரை
நிந்திப்பார் உற்றுப்பெற்ற
தாயாரை வைவார்” (2)

என்று பாடுகிறார். இதில் தாயாரை திட்டுபவர்கள் உயிருடன் இருப்பதை விட இறப்பதே மேல் என்று குறிப்பிடுகிறார்.

மெய்ஞானம் பெற்றவர்கள் பெண்களைக் கண்டால் தாய்போல் மதிப்பர் என்பதை

“மங்கையரைத்
தாய் போல் தம்போல்
அனைவர்க்கும் தாழ்மைச் சொல்லி
சேய்போல் இருப்பர் கண்டீர் உண்மைஷ
ஞானம் தெளிந்தவரே” (3)

உன்னைப் பெற்ற தாயாரும் சுற்றத்தாரும் தாலி கட்டி மணம் செய்து மனைவியரும் உன் இறுதிக் காலத்தில் உன் மீது விரக்தி நிலைக்கு வருவார்கள் என்பதை,

தாயரும் சுற்றத்தாரும் பெண்டிரும் கைவிட்டுத்
தாழ்த்திடும் நாள்
நீயாரு நானார் எனப் பகர்வார்” (4)

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சான்லாக்ஸ் பன்னாட்டுத் தமிழியல் ஆய்விதழ்



தமிழியல் கலைக்கழகம், தஞ்சாவூர்
அயல்நாட்டுத் தமிழியல் துறை



சான்லாக்ஸ் பன்னாட்டுத்
தமிழியல் ஆய்விதழ்



விவேகானந்தா கலை மற்றும்
அறிவியல் கல்லூரி (யக்ளரி)
கிளைத்துரத்தூர்



வள்ளார்டுக் கருத்தரங்கம்

காலந்தோறும் தமிழ் இலக்கியங்களில் பெண்கள்

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வானமழை நீ எனக்கு நாவலில் பெண்கள்

திருமதி. முனைவர் இலா. பூர்ணிமாதேவி

உதவிப்பேராசிரியர், தமிழ் உயராய்வுத்துறை
விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர் கல்லூரி (தன்னாட்சி)
எளையாம்பாளையம், திருச்செங்கோடு

இறைவள் படைப்பில் ஆணும் பெண்ணும் இருசமமான உயிரிகளாகும். இரண்டு உயிரிகளும் மானிடச் சமுதாயத்தை உருவாக்குகின்றன. மானிடத்தின் உயர்ந்த பண்பு மனிதனை மனிதனாக மதிக்கும் மனிதப் பண்பாகும். ஆனால் பெண்ணை உலகம் சம உயிரியாகக் கூட மதிப்பதில்லை என்று கூறப்படுகின்றது.

மலர்: 3

பெண்ணியம் விளக்கம்

சிறப்பிதழ்: 4

உலகம் தோன்றுவதற்கு அடிப்படைக் காரணமாக விளங்கியவன் பெண். அப்பெண்ணானவள் பிறரைச் சார்ந்தே வாழ்கின்றாள்.

மாதம்: பிப்ரவரி

ஆங்கிலத்தில் - குறளெனையென்று வழங்கும் கலைச்சொல்லையே தமிழில் பெண்ணியம் என்று கூறுகிறோம். இந்த ஆங்கிலச் சொல் பெண்ணைக் குறிக்கும் கருவியை என்ற இலத்தின் மொழிச் சொல்லிருந்து தோன்றியது. பெண் என்னும் சொல் பெண்களுக்குரிய இயல்புகளை உடையவள் என்று பொருள்படும். பெண்ணியம் என்ற இச்சொல் 1890 இல் இருந்து பாலினச் சமத்துவக் கோட்பாடுகளையும், பெண்ணுரிமைகளைப் பெறச்செயற்படும் இயக்கங்களையும் குறிக்கப் பயன்பட்டு வருகின்றது. எனினும் இருபதாம் நூற்றாண்டிலேயே இச்சொல் பெருவழக்கில் வந்தது. தமிழில் பெண்ணியம், பெண் நிலைவாதம், பெண்ணரிமை ஏற்பு என்ற சொற்கள் இதற்குரிய சொற்களாக வழங்கி வருகின்றன" என்று முத்துகிரம்பரம் கூறியுள்ளார். (டாக்டர் திருமதி ச. முத்துசிதம்பரம் பெண்ணியம் தோற்றமும் வளர்ச்சியும் ப 9)

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“பெண்தன்மை, நிறைபெண்ணுக்குரிய நலம், பெண் பிறப்பு, பெண் இன்பம், அமைதித்தன்மை” எனடற கழகத் தமிழ் அகராதி விளக்கம் தந்துள்ளது. (சுகதேவன் சேவை மகாதேவன், கழகத்தமிழ் அகராதி ப. 642)

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“அச்சமும் நானும் மடனும் முந்திறந்த

நிச்சமுழும் பெண்பாற்கு உரிய என்ப”

என்று தொல்காப்பியர் பெண்களுக்குரிய நலன்களை எடுத்துரைக்கிறார் (தொல்காப்பியர், தொல்காப்பியம், களவு அ.எ. 23)


“தற்காத்துத் தற்கொண்டான் பேணித் தகைசான்ற

சொற்காத்துக் சோர்விலான் பெண்”

என்ற பெண்ணைப் பற்றித் திருவள்ளுவர் கூறியுள்ளார்.

(திருவள்ளுவர், திருக்குள் கு.எ. 56)

“ஓர் ஆண்மகனைப் படிக்க வைத்தால் நீங்கள் ஒரு நபரைத்தான் படிக்க வைத்ததாகும். ஆனால் ஒரு பெண் பிள்ளையைப் படிக்க வைத்தாலோ ஒரு குடும்பத்தையே படிக்க வைத்ததற்குச் சமமாகம்” என்று டாக்டர் சாரலஸ் கூறியுள்ளார். (அ. ஜெய்குமார், பெண்குளம் சமூகமும் ப - 125)


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வள்ளுடும் கருத்தரங்கம்

காலந்தொழும் தமிழ் இலக்கியங்களில் பெண்கள்

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சங்ககாலத்தில் பெண்கள் பற்றியபதிவுகள்

திருமதி ஆ. கவிதா, எம்.ஏ.,எம்.ஃப்.ல்,

உதவிப் பேராசிரியர், தமிழ்த்துறை,

விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர் கல்லூரி (தன்னாட்சி),
திருச்செங்கோடு

முன்னுரை

சங்ககாலம் தமிழ் இலக்கியத்தின் பொற்காலமாகத் திகழ்கின்றன. தமிழகத்தின் தொன்மையான நாகரிக மக்களின் வாழ்வின்மீது மனித உணர்ச்சிகளையும், மனிதனை மனிதனாக மாற்றுவதற்கான பல்வேறு நெறிமுறைகளையும், ஆவணப்படுத்திய தொகுப்பாகவும், சமுதாயத்தின் வரலாற்றுப் பெட்டகமாகவும், சங்க இலக்கியங்கள் விளங்குகின்றன. அத்தகைய சங்கப்பாடல்களிலும், சங்க இலக்கியங்களிலும், தாய்மழ அமைப்பே சிறப்புற்றிருந்தது. தமிழர்தம் பழந்தெய்வமாகவும் பெண்கள் மதிக்கப்பட்டனர். பெண் தெய்வங்களை 'பழையோள்' என்றும் 'கொற்றவை' என்றும் அழைக்கப்பட்டனர். அவ்வாறு பெண்களை தெய்வமாக வழிபட்டதுடன் நில்லாமல், 'உமையொருபாகன்' என்பது போல் பெண்களைத் தமிழர்தம் இடதுபுறமாகக் கொண்டு சிறப்பான வாழ்வினை நடத்தினர். ஒவ்வொரு ஆண்களின் வெற்றிக்குப் பின் பெண் என்பவள் ஆணிவேராகவும்இ தூண்டு கோலாகவும்இ செயல்பட்டு தங்களின் கடமைகளை செவ்வனே ஆற்றியுள்ளனர். அப்படிப்பட்ட பெண்களைப் பற்றிய பதிவுகள் சங்ககாலத்தில் தோன்றியசங்க இலக்கியங்களில் எவ்வாறெல்லாம் இடம்பெற்றுள்ளன என்பதை ஆராய்வதாக இக்கட்டுரையானது அமையப்பெறவுள்ளது.

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சிறப்பிதழ்: 4

மாதம்: பிப்ரவரி

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பெண்மைஎன்பதன் இலக்கணம்

அடக்கம், பொறுமை, தியாகம், இரக்கம், அழகு, தொண்டு ஆகிய பண்புகளின் ஒட்டுமொத்தமான உருவமே பெண் என்று திரு. வி. கலியாண சுந்தரனார் பெண்மையின் இலக்கணத்தை வரையறுக்கின்றார். அத்தோடு அச்சம்இ மடமஇ நாணம்இ பயிர்ப்பு என்ற நால்வகைப் பண்புகளையும் ஒருங்கே அமையப் பெற்றவள் என்று பெண்களின் இயல்புகளையும்இ பெண்களாகப் பிறப்பெடுத்ததற்கு ஒவ்வொரு பெண்ணும் தவத்தினை மேற்கொண்டிருக்க வேண்டும் என்பதனை,

“மங்கையராகப் பிறப்பதற்கேநல்ல

மாதவம் செய்திடல் வேண்டும் அம்மா

பங்கயக் கைநல்லம் பாத்தல்லவோ - இந்தப்

பாரினில் அறங்கள் வளரும் அம்மா”

கவிமணிஎண்ணங்களின் வண்ணங்கள் பக்-153

என்று கவிமணி அவர்கள் மிக அழகாக விளக்கியுள்ளார்.

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மகளிர் மாண்பு

கற்றறிந்தோர் ஏத்தும் கலித்தொகை' என்று சான்றோர்களினால்
மதிக்கப்படும் சிறப்பினையும், அழகு மிகுந்த அணிகலன்கள் பலவற்றுள்
விவேகானந்தா கலை மற்றும் அறிவியல் கல்லூரி (மகளிர்), சேலம்



■ மலர் 3 ■ சிறப்பிதழ் 4 ■ பிப்ரவரி, 2019

சான்லாக்ஸ் பன்னாட்டுத் தமிழியல் ஆய்விதழ்



தமிழியல்கலைக்கழகம், தஞ்சாவூர்
அயல்நாட்டுத்தமிழியல் துறை



சான்லாக்ஸ் பன்னாட்டுத்
தமிழியல் ஆய்விதழ்



விவேகானந்தா கலை மற்றும்
அறிவியல் கல்லூரி (மகளிர்)
கொச்சி-24-தமிழ்



பதினாட்டுக் கருத்தாங்கம்

காலந்தோறும் தமிழ் இலக்கியங்களில் பெண்கள்

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“கம்பராமாயணப் பெண் படைப்பு”

முனைவர் இரா. பழனிவேல்

தமிழ் & தனிப்பேராசிரியர், விவேகானந்தா கலை மற்றும்

அறிவியல் மகளிர் கல்லூரி (தன்னாட்சி), என்னையப்பாளையம்

தமிழில் உள்ள இதிகாசங்கள் இரண்டு. அவை இராமாயணம், மகாபாரதம். இவ்விரண்டிலும் பெண்களைப் பெருமை கொள்ளும் கதாபாத்திரங்களாக வால்மீகியும் கம்பரும் படைக்கவில்லை. அதுவும் குறிப்பாக இராமாயணத்தில் ஓரீரு பாத்திரப்படைப்பு தவிர அனைத்துப் பெண் பாத்திரங்களும் பெருமை கொள்ளும் விதத்தில் இல்லை என்பதை ஆராய்வதே இக்கட்டுரையின் நோக்கம்.

சுனி

சுனி அல்லது மந்தரை என அழைக்கப்படும் இப்பெண் இராமன் சிறியவனாக இருந்தபோது தன் சுன் முதுகில் உண்டிவில்லால் அடித்தான் எனக் கோபம் கொள்கிறாள். ஆனால் அவன் இளவரசனாக இருந்த காரணத்தால் அப்போது அவளால் எதுவும் செய்ய இயலவில்லை. இராமன் வளர்ந்து அரச பதவியை அடையும் நேரம் வரை காத்திருந்து தன் நட்பைப் பயன்படுத்தி கைகேகியிடம் சென்று இராமன் பட்டமேற்கும் செய்தியைக் கூறுகிறாள். இராமன் மீது மிகுந்த அன்புடைய கைகேயி அதனைக் கேட்டு மகிழ்ந்து தன் கழுத்தில் உள்ள முத்து மாலையைக் சுனிக்குப் பரிசளிக்க, அதைப் பெற்றுக்கொள்ள மறுத்த சுனி அவன் மாற்றான் தாயின் மகன், அவன் அரசனானால் உன் மகன் பரதனுக்கு மட்டுமல்ல நாளை உனக்கும் பாதிப்பு வரும் என்று பல்வேறு நிகழ்வுகளை எடுத்துச் சொல்லி இராமனை முடிசூட விடாமல் செய்யும் பாத்திரமாகவே கம்பரால் அமைக்கப்பட்டுள்ளது.

மலர்: 3

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கைகேயி

தாய் கொசலையை விட இராமன் மீது அதிக அன்பு கொண்டவள் கைகேயி. ஆனால் சுனியின் பேச்சைக் கேட்டு தன் தாய்மை உள்ளத்தின் காரணமாக தன் மகன் பரதன் நாடாளவேண்டுமென விரும்புகிறாள். அதற்காக தசரதனை வற்புறுத்துகின்றாள். இதனால் தசரதனுக்கு விருப்பம் இல்லை என்று தெரிந்தும் கணவனின் நலனில்சூட அக்கரை இல்லாமல் இராமனுக்கு முடிசூட்ட விடாதது மட்டுமில்லாமல் 14 வருடங்கள் காட்டிற்குச் செல்லவும் வரம் கேட்டு அதனைப் பெற்று மகிழ்வதாக இப்பாத்திரத்தைப் படைத்துள்ளார்.

தாடகை

விசுவாமித்தரின் தவத்தைக் கலைக்க வந்த தாடகை என்னும் பெண்ணை அரக்கியாக சித்தரித்து அவளை வதம் செய்ய இராமனை விசுவாமித்திரர் அழைத்துச் செல்கிறார். இராமன் பெண் எனத் தயங்கி நிற்க அவள் பெண் அல்ல. பெண் வடிவில் வந்த அரக்கி என அவள் தேவர்களுக்கு செய்ததாகக் கூறும் இராமனின் அம்பால் இறப்பது போல இப்பாத்திரத்தைக் கம்பர்



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தமிழியல்கலைக்கழகம், தஞ்சாவூர்
அயல்நாட்டுத்தமிழியல்வகுதி துறை



சான்லாக்ஸ் பன்னாட்டுத்
தமிழியல் ஆய்விதழ்



விவேகானந்தா கலை மற்றும்
அறிவியல் கல்லூரி (புக்களூர்)
கிடைத்தல் நடத்து



பன்னாட்டுக் கருத்தரங்கம்

காலந்தோறும் தமிழ் இலக்கியங்களில் பெண்கள்

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சரோடு கதிர் படைப்புகளில் பெண்கள்

முனைவர் கு. கருமுருகானந்தராஜன்

உதவிப்பொசிரியர், விவேகானந்தாகலை மற்றும் அறிவியல் மகளிர் கல்லூரி (கன்னடர்) எளையாம்பாளையம், திருச்செங்கோடு

ஆய்வுமுன்னுரை

சரோடுகதிர், மாறுதல் வலைப்பூவில் கசியும் மௌனம் என்னும் வலைப்பக்கத்தின் வழி தமிழ்ப் படைப்புலகு அறிமுகமானவர். கிளையிலிருந்துவேர் வரை (2015) பெயரிடப்படாத புத்தகம் (2017), உறவெனும் திரைக்கதை(2017), வேட்கையோடு விளையாடு (2019) ஆகிய நான்கு படைப்புகளைத் தமிழுலகுக்குத் தந்துள்ளார். அவரதுபடைப்புகள் அன்றாடத்தின் கணங்களைக் கருப்பொருளாகக் கொண்டதாகும். அவர் சந்தித்த மனிதர்களின் உண்மைக் கதைகளின் வழி விரிகிறது அவரது படைப்புலகம். அப்படைப்புலகில் இடம் பெறும் பெண்கள் எத்தகையவர்களாக உள்ளனர் என்பதை வெளிக்கொணர்வதே கட்டுரையின் நோக்கமாகும்.

கருதுகோள்

சரோடுகதிரின் படைப்புலகில் வரும் பெண்கள் வாசகர்களுக்குப் குறிப்பாகப் பெண் வாசகர்களுக்கு ஊக்கமும் நம்பிக்கையும் தருபவர்களாக விளங்குவர் எனும் கருதுகோளின் வழி கட்டுரை அமைகிறது.

ஆய்வுச்சிக்கல்

கண்ணகி, சீதை போன்ற இதிகாசப் பெண்களைப் போலவே தமிழ்ப்படைப்புலகம் பதிவுசெய்துள்ள இலட்சியப் பெண்களைப் போலவே பெரியசாதனைகளின் மூலம் உலகப்புறம் பெற்ற பெண்களைப் போலவே இவரது படைப்புலகில் வரும் பெண்கள் வாசகர்களிடம் தாக்கத்தை ஏற்படுத்தக் கூடியவர்களா என்பதை ஆய்வுச் சிக்கலாகும்.

ஆய்வுஎல்லை

கிளையிலிருந்துவேர் வரையில் இடம்பெறும் 'புதிர்' எனும் கட்டுரையும் உறவெனும் திரைக்கதையில் இடம்பெறும் 'ஆகச் சிறந்த உதாரணங்கள்' எனும் கட்டுரையும் வேட்கையோடு விளையாடு - வில் இடம்பெறும் பெண்கள் குறித்த பதிவுகளும் ஆய்வு எல்லையாகின்றன.

சதைவியாபாரம்

'கிளையிலிருந்துவேர் வரை'யில் மும்பையின் மனிதர்கள் எனும் முகநூல் பதிவு எடுத்தாளப்பெறுகிறது. அது ஒரு இருபது வயதுப் பெண்ணின் வலிகளையும் வாழ்க்கையையும் கட்டுவதாகும். சதைவியாபாரம் நடந்துகொண்டிருந்த சிவப்பு விளக்குப் பகுதியில் பாலயம்முழுவதையும் கழித்து 12 வயது இருக்கும் போது விலைவிசாரிக்கப்பட்டு அழைப்புரிந்துகொள்ளவும் முடியாமல் அழுதபடியே உறங்குகிறாள் ஒரு சிறுமி. அவளது தாயின் அருகாமையும் அன்பும் அவளுக்கு இல்லாமல் போன போது விளக்குப் பெண்களை அவளை அன்பு னும் பிரியத்துடன் ஆனாலும் அவள் நிறத்தைப்பொட்டிய அழைப்பைப்பான்மையுடனே வளர்கிறாள்.

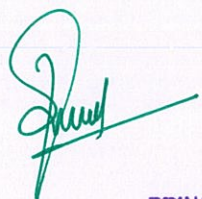
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சான்லாக்ஸ் பன்னாட்டுத் தமிழியல் ஆய்விதழ்



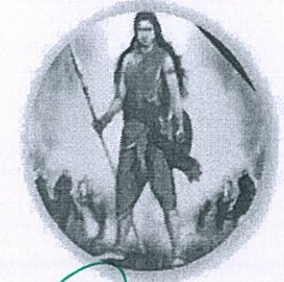
தமிழியல் கலைக்கழகம், தஞ்சாவூர்
அயல்நாட்டுத் தமிழியல் துறை



சான்லாக்ஸ் பன்னாட்டுத்
தமிழியல் ஆய்விதழ்



விவேகானந்தா கலை மற்றும்
அறிவியல் கல்லூரி (மகளிர்)
கிழவந்தலூர்



பன்னாட்டுக் கருத்தரங்கம்

காலந்தோறும் தமிழ் இலக்கியங்களில் பெண்கள்

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“கண்ணீர்த்துளிகளுக்கு முகவரியில்லை உணர்த்தும் பெண்களுக்கான வாழ்வியல்”

முனைவர் ப. சுற்பகராமன்

தமிழ்த்துறைத் தலைவர், விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர்
கல்லூரி (தன்னாட்சி), எளையாம்பாளையம்

மலர்: 3

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காலம் கவிஞனை உருவாக்குகின்றது. ஆனால் ஒரு மகாகவிஞன் காலத்தை உருவாக்குகிறான். என்று வாசகத்திற்கு ஏற்ப தனக்கான காலத்தைத் தானே உருவாக்கிக் கொண்டவர் அப்துல் ரகுமான். இவருடைய கவிதை முழுவதும் படிமங்களும் தொன்மங்களும் பூத்துக் குலுங்கும். படிப்பவர்கள் தங்களையும் மறந்து அவற்றில் முழுகும் வண்ணம் அவை அமைந்திருக்கும். முகமதியக் குடும்பத்தில் பிறந்து வளர்ந்தாலும் இந்தியப் பண்பாட்டை வடிவமைக்கும் பழமையான இதிகாசங்களும் புராணங்களும் நாட்டுப்புறக் கதைகளும் இவருடைய கவிதைகளில் கலந்திருக்கும். இதன் அடிப்படையில் இவர் இயற்றிய கண்ணீர்த்துளிகளுக்கு முகவரி இல்லை என்ற கவிதை தொகுப்பிலும் எண்ணற்ற பாரம்பரிய நினைவலைகள் இடம்பெற்றுள்ளன. அவற்றுள் பெண்கள் சார்ந்த வாழ்வியலை இக்கட்டுரை ஆராய்கின்றது.

வாழ்வியல்

வாழ்க்கை என்பது வேறு. வாழ்வது என்பது வேறு. வாழ்க்கை என்பது இறைவன் நமக்கு அளித்திருப்பது. வாழ்வது என்பது வழங்கப்பட்டதைக் கொண்டு பயணிப்பது. நாம் செய்யும் இப்பயணம் சிறப்பாக, முழுமையானதாக, புனிதமானதாக அமைதல் வேண்டும். ஆண் பெண் என்று இரண்டு பாலினம் நம்மிடையே இருப்பினும் ஓர் ஆணைப் பெற்றெடுப்பதே பெண் என்பதால் பெண்ணுக்குள்ளே ஆண் அடக்கம் என்பது யாராலும் மறுக்க இயலாத உண்மை. இத்தகைய பெண்கள் சார்ந்த வாழ்வியலை அப்துல் ரகுமான் மிக அளகாக விளக்கிக் கூறுகின்றார்.

பெண் குழந்தை பிறப்பு

ஒரு வீட்டில் பெண் குழந்தை பிறந்தால் மகாலட்சுமி என்று புகழும் வழக்கம் இன்றும் நம்மிடம் உள்ளது. பிறந்த பெண்குழந்தையைத் திருமணம் செய்து மற்றொரு வீட்டிற்கு அனுப்பும்போதுதான் அக்குழந்தையின் சிறப்பினை முழுமையாக உணரமுடியும். இத்தகைய பெண் குழந்தையைத் தாய்தான் பெற்றெடுக்கிறாள் என்றாலும் “தாய்” என்ற பட்டத்தினை அத்தாய்க்கு அக்குழந்தையே பெற்றுத்தருகின்றது என்ற உலக உண்மையை,

“பெண் குழந்தையைப்

பெற்றாள்

குழந்தை தாயைப்

பெற்றது”

(கண்ணீர்த்துளிகளுக்கு முகவரி இல்லை - ப- 60)

என்ற கவிதை வரிகளில் உணர்த்துகின்றார்.

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சான்லாக்ஸ் பன்னாட்டுத் தமிழியல் ஆய்விதழ்



தமிழியல் கலைக்கழகம், தஞ்சாவூர்
அயல்நாட்டுத் தமிழியல் துறை



சான்லாக்ஸ் பன்னாட்டுத் தமிழியல் ஆய்விதழ்



விவேகானந்தா கலை மற்றும் அறிவியல் கல்லூரி (மகளிர்)
கிடைத்த உத்தரவு



பள்ளாட்டுக் கருத்தரங்கம்
காலந்தோறும் தமிழ் இலக்கியங்களில் பெண்கள்

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தாகம் நாவலில் பெண்களின் நிலை

திருமதி. ச. வேறமலதா

உதவிப்பேராசிரியா, தமிழ் உயராய்வுத்துறை
விவேகானந்தா கலை மற்றும் அறிவியல் மகளிர் கல்லூரி (தன்னாட்சி) எனையாம்பாளையம்
திருச்செங்கோடு

மலர்: 3

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மாதம்: பிப்ரவரி

வருடம்: 2019

ISSN: 2454-3993

முன்னுரை

சங்க காலம் தொட்டு இன்று வரை மக்களின் வாழ்க்கையில் குறிப்பாகப் பெண்களின் நிலையினை

வீரமும், காதலும் - ஆண்களுக்கம் அச்சம், பயம் நாணம் - பெண்களுக்கும் என்ற முறையில் இலக்கணம் வகுத்திருப்பினும், பெண்களுக்கான கற்பு எனும் கட்டுபாட்டை நீக்கும் ஆண் சமூகத்தின் சுயத்தன்மையை இங்கு சுட்டிக்காட்டுதல் இன்றியமையாத ஒன்றாகும். மேலும் பெண்ணுக்குரிய கற்பெனும் ஒழுசாலறு எக்காலத்திற்கும் உரியதாதலால் அவற்றைப் புதிய நோக்கில் அணுகி "தாகம்" நாவலில் பெண்களின் நிலையினை சுட்டிக் காட்டுவதே இக்கட்டுரையின் நோக்கமாகும்.

பெண்களில் நிலை

"மாதர் தம்மை இழிவு செய்யும்

மடைமையைக் கொழுத்துவோம்"

என்ற பாரதியின் புரட்சி வரிகளில் பீறப்பட்டு எழுவது பெண் விடுதலையாகும். பெண்களின் விடுதலை மூலமே உண்மையான சுதந்திரத்தைக் காணமுடியும் என்று கூறினார் பாரதி, ஆனால் தாகம் நாவலிலோ பெண்கள் அடிமை நிலையில் படைக்கப்பட்டுள்ளனர்.

பழனியம்மாள் திருமணத்திற்கு பிறகு தன் கணவனையும் மாமியாரையும் சார்ந்தே வாழ்கிறாள். இறுதியில் அவர்களுக்காக தன் கர்பத்தை கலைக்க தன் உயிரையும் நீக்கி விடுகிறாள்.

மார்க்காள் என்பவளும் முழுக்க முழுக்க சமுதாயத்திற்கு தன் கணவனுக்கும் கட்டுப்பட்டவளாக இருக்கிறாள், இதனை நாவலில் தன் மகன் பறச்சியான பாப்பாயி என்பவளை திருமணம் செய்து கொண்டபோது, சமுதாயக் கூட்டத்தில் (பொதுக் கூட்டத்தில்) பண்ணையார் முன்னிலையில் "அவன் என் பிள்ளையே இல்லை, தாயிடம் என்ற முறையில் வந்தானென்றால் சோற்றில் விசம் வைக்கவும் தயங்க மாட்டேன்" என்று கூறினாள். பின் காலப்போக்கில் மகனையும் பேரனையும் என்னி தினம்தினம் நொந்து கொள்பவளாக காணப்பட்டாள். இது குறித்து மாரப்பனிடம் பேசும் பொழுது மகனையும் பேரனையும் காண வேண்டும் என்கிறாள். அதற்கு மறுத்த மாரப்பன், கோமானிக் கிழவரின் முன்னிலையில் அவை பறச்சியே கண்ணாலம் பண்ணிக்கிட்டதுக்காவத்தானே இப்படி ஒதுக்கி வைக்கிற நான் ஒன்னு கேக்கறே, அதுக்கு ஆம்பளத்தனமா பதில் சொல்லலும், சாதிக்கெல்லாம் நாயம் பேசற கெறசெத்தே 'உன்னோட தொழும்படி மத்தனத்திக்கு எசமானே

- அவை கண்ணாலங் கட்டிக்கிட்டு தம் பண்ணைக்கு வரற பறச்சிகளே எல்லாம் சாணி எடுக்க வாண்ணு சொல்லி பெண்டாளரானே அவனை ஒரு

விவேகானந்தா கலை மற்றும் அறிவியல் கல்லூரி (மகளிர்), சேலம்

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 அயல்நாட்டுத் தமிழாய்வுத் துறை



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 தமிழியல் ஆய்விதழ்

தொகுதி 1

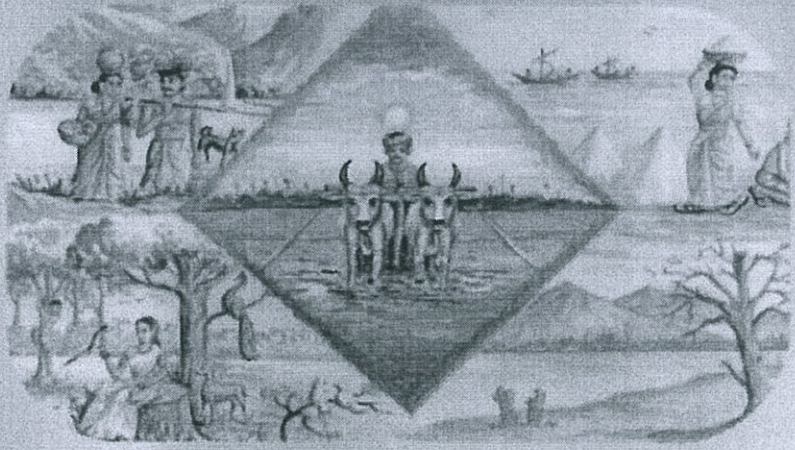


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 அறிவியல் கல்லூரி (மகளிரி), வீராச்சிபாளையம், சாங்கிரி

கி.வெந்தச்சி

பதிப்புரைக் கருத்தாங்கம்

காலநீதொழும் தமிழ் இலக்கியங்களில் பெண்கள்



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முனைவர் கு. கருமுருகானந்தராஜன்

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ஆ. அமுதா

முழுநேர முனைவர் பட்ட ஆய்வாளர், தமிழ் உயராய்வுத்துறை

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வருடம்: 2019

ISSN: 2454-3993

முன்னுரை

பெண்கள், காலங்காலமாக எவ்வாறு முதலாளித்துவத்தினால் அடக்கப்பட்டும் வஞ்சிக்கப்பட்டும்இ சாதிபேதத்தினால் அடிமைகளாக்கப்பட்டும் தோல் பதனிடும் தொழிலாளர்களாக வேலை செய்கிறார்கள் என்பதை எழுத்தாளர் திரு.டி.செல்வராஜ் அவர்கள் தோல் நாவலில் எடுத்துக்காட்டியுள்ளார். அதில் பெண்கள் அன்றாடம் எதிர்கொள்ளும் சிக்கல்கள் பற்றி இக்கட்டுரை ஆராயமுற்படுகிறது.

பெண்களுக்கு ஏற்படும் சிக்கல்கள்

1. வாழ்வியல் சிக்கல்
2. பொருளாதாரச் சிக்கல்
3. பணியின் போது ஏற்படும் சிக்கல்
4. பாலியல் சிக்கல்
5. உரிமைக்குப் போராடும்போது ஏற்படும் சிக்கல்

ஆகிய சிக்கல்களை பெண் தொழிலாளர்கள் எதிர்க்கொள்கின்றனர்.

வாழ்வியல் சிக்கல்

ஒசேப்பு என்பவன் தன் காதலியான அருக்காணி என்ற பெண்ணிடம் தன்னைத் திருமணம் செய்துக்கொள்ளும்படியும் திருமணத்திற்குப் பிறகு தன்னுடன் வந்துவிடும்படியும் கேட்கிறான். அதற்கு அருக்காணிஇ தன் தாய் தந்தை இருவரும் தோல் ஷாப்பில் நனைவுக்குழியில் நின்றுவேலை செய்ததால்இ கையும் காலும் அழுகி கிடக்கிறார்கள் அவர்களை விட்டுவிட்டு என்னால் எப்படி வரமுடியும் என்று கேட்கிறாள். தோல் தொழிற்சாலையில் வேலைசெய்யும் தொழிலாளர்கள் சில வருடத்திற்குப் பிறகு உடல் நலிவுற்று விடுகிறது.. அதன் பிறகு அவர்களுக்கு ஒருதுணை எப்பொழுதும் இருக்கவேண்டியது கட்டாயமாகிறது. தன் தாய் தந்தையைவிட்டுப் போகமுடியாததினால் ஒருபெண்ணின் திருமணமே நின்றுவிடுகிறது.

இந்தப் பாழாப் போனதோல் ஷாப்புலே நினைவுக்குழியிலே நிண்டுநிண்டு, கையும் காலும் அழுகி குட்டம் கண்ட தாட்டம் உடம்பு உப்பி ஊட்டுலே

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அயல்நாட்டுத் தமிழியல் துறை



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அறிவியல் கல்லூரி (மகளிரி)
கிடைத்த தடத்தில்



பன்னாட்டுக் கருத்தரங்கம்

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தொகுதி 3

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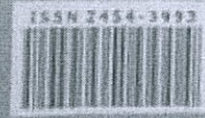
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 தமிழியல் ஆய்விதழ்

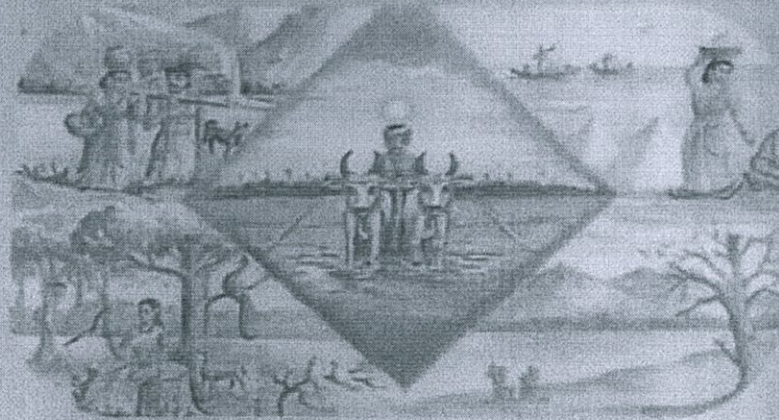
தொகுதி 2



விவேகானந்தா கலை மற்றும்
 அறிவியல் கல்லூரி (மகாரி), வீராசாமிநாயக்கம், சங்கரபுரம்
 கி.கொ.ப.ப.ப.ப.

பதிப்புரைக் கமிட்டியினர்

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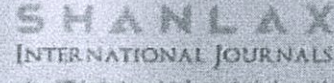
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திருமதி பேரா. கோமதி

முனைவர் முனைவர் பட்ட ஆய்வாளர்
விவேகானந்தா கலை மற்றும் அறிவியல் கல்வாதி (தன்னாட்சி)
எளையம்பாளையம், திருச்செங்கோடு

முனைவர் கு. கருமுருகானந்தராஜன்

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முன்னுரை

பெண்கள் இப்புவலையில் கிடைக்கப் பெற்ற ஒர் அதிசய பொருள் என்றால் மிகையாகாது. ஒரு சமுதாயம் திறன் பெற செயல்படுத்தும் பொறுப்பு பெண்களிடம் தான் உள்ளது. அதற்கு முதலில் பெண்கள் சிறப்பாகவும் வெளிப்புலக அனுபவமும் அறிந்து வளர்க்கப்பட வேண்டும் என்பதை வல்லமை மின்னிதழில் பெண் ஆய்வாளர்களின் பதிவுகள் பற்றி இக்கட்டுரையில் கவண்போம்.

முனைவர் பேசுமதி உதவிப்பேராசிரியர்

தமிழ்மொழி உலகம் போற்றும் தோல்மொழியாம். இவற்றில் எழுந்த இலக்கியங்களும் இலக்கணங்களும் செம்மொழி அநதள்துடன் இருந்து பல்வேறு மொழிகளுக்கு மொழிபெயர்ப்புகளாக திகழ்ந்து வருகின்றன. இவ்வுருப் பல்வேறு மதங்கள் உள்ள நிலையில் சமண மதமும் பல்வேறு மன்னர்களாலும் பின்தொடரப்பட்டு கைவிடப்பட்ட மதங்களில் ஒன்றாகும். தென்னிந்தியாவில் சமண மதம் வேருன்றி இருந்த காலத்தில் தமிழ் இலக்கியங்களில் அறு நூல்களும் இலக்கணங்களும் தோன்றி நம் மொழிக்குக் சிறப்பினைப் பெற்றுத் தந்தன.

சமயக் காழ்ப்புணர்வால் சமண மதம் ஒட்டுமொத்தமாக வீழ்ச்சிக்கு உட்பட்டது என்பது, நல்ல இலக்கண நூல்களுக்கும் இழப்பீயாயாகும் இதற்கு சமணமும் விதிவிலக்கு இல்லை என்ற கோணத்தில் ஆராய்வதை இக்கட்டுரையின் நோக்கமாக அமைகிறது.

சமணம் என்பதன் பொருள்

சங்கமருவிய காலம் அறு இலக்கியம் காலமாகக் கருதப்படுகின்றது. தமிழ் இலக்கியத்திற்குச் சமணர்கள் அருளிய பங்களிப்பே இதற்கு காரணம் ஆகிறது.

“சமணர் (ஸ்ரமணர்) என்றால் துறவிகள் என்பது பொருளாகும் துறவை அறிவறுத்திக் கூறிதுறவு புண்டோரே விடுபேறு பெறுவர் என்பது இந்து மதம் சமணர்களுக்கும் துறவு எனப் பொருள்படும் சமணம் என்னும் பெயர் இந்த சிறப்புப் பெயராக வழங்கப்படுகிறது. சிறு உயிர்களுக்கும் தீய



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TAMILNADU

விவேகானந்தா கலை மற்றும் அறிவியல் கல்வாதி (மகனாட்சி), சேலம்

அறிவு இலக்கியத்தில் அறிவியல் சிந்தனை

பள்ளாட்டுக் கருத்தாங்கு

எட்டுத்தொகையில் உளம் சார்ந்த அறிவியல்

அ. முருகன் எம்.ஏ.எம்.பில்.பி.எட்.,
புத்தூர் முனைவர் பட்ட அபிவிருத்தி
(தமிழ்நாடு)
விவேகானந்தா கலை மற்றும் அறிவியல்
மகளிர் கல்வித் துறை, சி.
என்மையாப்பாளையம்

முன்னுரை

மனித மனதின் உள்லகம் எண்ணங்களையும் சிந்தனை ஓட்டங்களையும் ஆராய்வு அறிவியல் உளவியல் ஆகும். இலக்கியமானது மனத்தினூடாக இன்னொரு மனதின் உள்லகம் வாழ்வின் அனுபவங்களையும் நடத்தை முறைகளையும் பகிர்ந்துகொள்கின்றது. இலக்கியத்தின் மூலமையான முறையில் ஆராய வேண்டுமானால் அதை உளம் சார்ந்த அறிவியல் முறையில் மட்டுமே ஆராயவேண்டும் என்பதை மேல்நாட்டு அய்வியல் அறிஞரான யூங் என்பவர் குறிப்பிடுகிறார்.

“மனித உள்ளத்தின் உணர்வே எல்லா அறிவியல்களுக்கும் கலைகளுக்கும் கருவறையாக விளங்குவது. எனவே அதற்கைய உள்ளத்தின் வழிமுறைகளை ஆராய்வது உளவியல். இலக்கியம் பற்றிய ஆராய்ச்சிக்கும் ஏற்படையதாக இருக்க முடியும் என்ற யூங் குறிப்பிடுகின்றார்.”

(தி.சு. நடராஜன் - திறனாய்வுக் கலை - ப - 88)

என்ற வடாளிகள் படம்பிடித்துக்காட்டுகின்றன. இதன் அடிப்படையில் பண்டைய இலக்கியங்களில் உள்ள அறிவியல் கருவிகள் ஆராய்வதாக இந்த ஆய்வுக்கட்டுரை அமைக்கிறது. அறிவும் உணர்வும்

அறிவு என்பது அதனைப் பிரிப்பது ஏற்ப அமைந்து உயிரினங்களாகவும் உணர்வு என்பது அந்தந்த அறிவு வளர்ச்சிக்கு ஏற்ப அமையும். இதன் அடிப்படையில் மனிதன் உணர்வுகளின் உற்றுமுகவும் அதன் தாக்கத்தால் வாழ்பவனாகவும் உள்ளான். தன் உணர்வுகள் ஏற்ப தன்னுடைய உடலில் பல்வேறு மாற்றங்களை ஏற்படுத்திக்கொள்வான். அந்த மாற்றங்களான புலன்களின் காட்சி, மனம், அறிவு, நினைவு, அன்பு, இரக்கம் என்று அனைவரையும் மூலம் அவற்றுக்கு வெளிப்படும். இத்தகைய உளம் சார்ந்த அறிவியல் வெளிப்பாடுகள் பண்டைய இலக்கியங்களில் பல இடங்களில் பரவியுள்ளது.

விருந்தோம்பல்

“மேட்ப்பக் குழையும் அணிச்சம் முகம்திரிந்து
நோக்கக் குழையும் வீடுந்து”

(திருக்கறள் - விருந்தோம்பல் - கு - 10)

என்று திருவள்ளூர் விருந்தோம்பலை குறிப்பிடுகின்றார். உலக மலர்களிலேயே மிகவும் பெரியபயானது அணிச்சம். அந்த அணிச்சம் மலரைவிட பெரியபயானது அறுகேணிப்படி வீடுநிதாய்ப்பு என்று வள்ளுவர் குறிப்பிடும் இந்த விருந்தோம்பல் பண்டானது. பண்டைய காலத்தில் கணவன் - மனைவி ஆகிய இருவரிடமுமே சாண்பட்டன என்பது கூத்துநோக்கத்தக்கு பெரிய இந்து வரும் வழிபாடுகளிலும் விருந்தினிகளும் வரி வழங்கி அவர்களுடைய வறுமையை

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Dilemmas of Uprooting and Rerooting with reference to the character Tilo in Chitra Banerjee Divakaruni's *The Mistress Of Spices*

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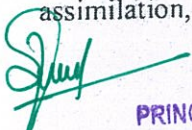
Tiruchengode, Namakkal (DT)

Chitra Banerjee Divakaruni a diasporic writer is an Indian-born American immigrant. She plays a vital role in posturizing the dilemmas of the diasporic community. She was born in Calcutta on 29 July, 1956 in a Bengali Hindu family. She migrated to the United States of America when she was nineteen years old. She received her Ph.D., in English on Christopher Marlowe from the University of California. She is also a teacher of Creative Writing at the University of Houston.

Divakaruni's real mission of writing is to dissolve the boundaries between countries and extend mutual respect and peace towards people of various countries. Her literature has a diversity of concepts such as Feminism, Transnationalism, and Multiculturalism with notions of exile, post-colonialism, and diasporic experiences. A deep analysis of Divakaruni's works substantiates her as a strong diasporic woman who proves that 'The hand that rocks the cradle rules the world'. She is the former president of Maitri, located at San Francisco a helpline for South Asian women, dealing with domestic abuses. She is the epitome of success to the whole diasporic community to live a balanced life at any critical situation. She has won covetable honours and awards.

Indians have been migrating to various parts of the world since time immemorial. It is the need of the hour to study diaspora analytically for valid reasons, to know the psychological and sociological changes in the lives of the immigrants.

Diasporic movement is dislocation and relocation of cultures. Diasporic writings' distinctive topographies are the quest for identity, uprooting and rerooting, insider and outsider syndrome, nostalgia, assimilation, acculturation, and adaptation.



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Lack of Moral Sensitivity Leading to Cultural Failure of a Society in Ian McEwan's *Amsterdam*

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Abstract: A close reading of the twentieth century and the twenty first century novels shows that they predominantly deal with double consciousness, inability, sarcasm, instability, immoral, and unethical issues, and inequality. Inevitably, finding morality, among the civilizations is a big question and most of the times, it sounds absurd. Ian McEwan, master of the free indirect style frequently attacked immoral thoughts in his later works. The present paper tries to explore the Ethical dilemma, moral hypocrisy and turpitude in the corrupted society. *Amsterdam*, the booker prize novel; it satirizes and caricatures, England politics, freedom of the individual, love, fidelity and indiscipline through the Characters, Situation, Settings like Amsterdam, Lake District, Crematorium, and London and Symbols like Piano and entitled newspaper *The Judge*. McEwan merely encourages the reader's dilemma by using the serious protagonist. The novel *Amsterdam* has the finest irony, plot construction and characterization; it explores euthanasia agreement between two friends who are curious mixture of amity and animosity Clive and Vernon. He uses the postmodernist ideas and ideology to evoke the ambiguity of characters. This paper tries to analyse characters psychological, immoral, pact of euthanasia and the ethical dilemma involved in it. The novel *Amsterdam* exposes the conflict between moral and immoral superiority and shows the dissemination of the moral turpitude and stands out for its highlight of temporality and the implied urgency to tackle one's moral identity. Ian McEwan shows *Amsterdam* is an excellent example of moral inquiries among the civilised people in the unequal society

Keywords: *Amsterdam*, *Ethical Dilemma*, *Hypocrisy*, *Euthanasia*, *Amity*.

I. INTRODUCTION

"It's almost certainly nothing, but there's nothing lost by what I'm going to ask you. Just supposing I did get ill in a major way, like Molly, and I started to go downhill and make terrible mistakes, you know, errors of judgment. . . I mean, help me to die." (Amsterdam 48)

The man of sense and sensibility and a rationalist, Ian McEwan is a British novelist, critic, short story writer, screen writer and libretti. Martin Amis, Julian Barnes and Craig Raine were considered his friends and as well as contemporaries. Ian McEwan has been widely known by the diversity of his subject substance "as varied as his choice of genre, alternating between sadomasochism and feminism, between historical fiction and contemporary psychological intrigue" (Quigley 436). He is most certainly one of the most prominent British writers since the beginning of his career in 1790s. He was influenced by a variety of social and political changes, such as the end of colonialism, breaking off the British class structure and changes in his education. Due to early works of dark themes, perverse material, paedophilia, extreme violence, murder and stubborn, macabre style, he gained the nickname Ian Macabre.

McEwan is a "damned good writer" and his prose is so compulsive that "you just don't want to stop reading it" (Lezard 2001).

His novels and characters concern social and cultural satire and also explore expansive social and political themes. His later novels survey the idea of character and its moral exploration. According to Dominic Head, the poststructuralist era "seemed profoundly antagonist towards the idea that a moral dilemma could be encoded in the situation confronting a fictional character" (Dominic Head. Ian McEwan, p.13). He has won the Man Booker Prize for his novel *Amsterdam* (1998). He has written several novels like *The Cement Garden* (1978), *The Comfort of Strangers* (1981), *The Child in Time* (1987), *The Innocent* (1990), *Black Dogs* (1992), *Enduring Love* (1997), *Amsterdam* (1998), *Atonement* (2001), *Saturday* (2005), *On Chesil Beach* (2007), *Solar* (2010), *Sweet Tooth* (2012), *The Children Act* (2014), *Nutshell* (2016) and his short stories *First Love*, *Last Rites* (1975), and *In Between Sheets* (1978).

Malcolm regards *Amsterdam* as a "dark and sour account of contemporary Britain" where self-interest, egoism and selflessness predominate over honesty and moral behavior (Malcolm 2002:189). Ian McEwan hints at the embarrassing situation between the political circles and media. The novel *Amsterdam* is divided into five chapters; it starts in the month of February chill. Molly Lane, a photographer and restaurant critic, has died after suffering from a terminal disease that routs rapid deterioration of her physical and psychological ability. At her funeral, her husband and former lovers have gathered at a crematorium in London to pay her their last respects. One of her former lovers is a composer named Clive Linley. Clive finds it intolerable to think of how horrible it must be to lose one's health so suddenly and he concludes that it is better to die than to suffer in the way in which Molly must have suffered just prior to her death. Clive asks his old friend, Vernon Halliday, who is also one of Molly's former lovers, to euthanise him if he should ever fall suddenly and irreparably ill. Vernon agrees to do so as long as Clive agrees to do the same for him.

After Molly's funeral, her husband finds out photographs of the British Foreign Secretary Julian Garmony. Molly had taken the photographs before her death. Molly and Julian were lovers at the time of her death and the photos represent Julian dressed in women's clothing. The photos were clearly taken in private. George, seeing this as a chance to profit financially and to exact vengeance over Julian, sells the photos to Vernon, whose London paper the *Judge* is desperately in need of a captivating story in order to improve its declining circulation. Vernon, who dislikes Julian for personal and political reasons, is more than willing to publish the potentially scandalous photos of Julian.

Before doing so, Vernon consults his old friend Clive on the matter. However, their discussion ends in a bitter argument marking the beginning of the collapse of their friendship. Vernon cites two reasons in favor of publication of the photos. First, it would expose Julian Garmony's hypocrisy since he has in the past denounced alternative sexual expressions. Second, it would greatly reduce Julian's chances of becoming the Prime Minister, thereby saving the country from almost certain political, social and economical disaster. Clive opposes