

Elliptic Curve Cryptography with a Special Focus on Reduction of the Cipher Size of ECC using Chebyshev Polynomial

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Abstract

As the internet provides access to millions of communications in every second around the world, security implications are tremendously increasing. Transfer of important files like banking transactions, tenders, and e commerce require special security and authenticated mechanism in its journey from the sender to the receiver. Recent attention of cryptography is mainly focused on use of elliptic curves in public key cryptosystems. In these days big data and its storage in the cloud is a progressing subject. Security and privacy of huge data is a challenging issue. The present paper explains an innovative block cipher for providing security to big data using elliptic curve over finite field. Though ECC is becoming popular day by day due to the reason that it provides same security level with shorter key length as RSA, it has a drawback that the cipher bandwidth is twice than that of the message. For an n space message, the cipher is $2n$ elliptic curve affine points. The present mechanism besides providing the robustness focuses on reduction of the cipher bandwidth equal to that of the message.

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I. INTRODUCTION

Use of elliptic curves in public key cryptography was first designed and launched by Koblitz and Miller. The principal reason for wide attraction of the researchers towards ECC is it provides the same security level as RSA with comparatively shorter key length, due to the hardness of Elliptic Curve Discrete logarithmic Problem (ECDLP). Public key cryptography is computationally very expensive for small devices unless it is accelerated by cryptographic hardware. For cryptographic purpose elliptic curve is defined by the equation $y^2 = x^3 + ax + b, 4a^3 + 27b^2 \neq 0$ over the finite field F_q of a prime number q .

Group laws of elliptic curve:- On an elliptic curve E defined over the finite field of integers, addition of two points uses chord-and-tangent rule to get the third point [1,2]. The set of all points on the elliptic curve over the finite field with addition as binary operation forms an abelian group with ∞ , the point at infinity as identity element.

Basic Elliptic curve operations:-

1. Addition Operation: For given two points $P(x_1, y_1)$ and $Q(x_2, y_2)$ on the elliptic curve, sum of P and Q is $R(x_3, y_3)$ which is the reflection of the point of intersection of the line through the points P, Q and the elliptic curve about x axis. The same rule applies to two points P and $-P$, with the



RESEARCH ARTICLE

APPLICATION OF BIOREMEDIATION IN MITIGATION OF HEAVY METAL STRESS ON PLANTS

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Abstract

Heavy metals are toxic metals which are persistent in nature due to their nondegradable nature. Due to increase in industrialization and urbanization heavy metals are being added to the environment and consequently causing heavy metal pollution of water and soil. These heavy metals cause significant stress on crop plants and effect various parameters such as growth and yield. Many methods like physical, chemical and biological methods are available to degrade these heavy metals. Recently, bioremediation is being widely used because of its cost-effective and environment friendly approach. Bioremediation is a biological process which makes use of microorganisms to remove hazardous substances or environmental pollutants from air, water, soil, industrial effluents etc. Bacteria and fungi are mostly employed for bioremediation. These organisms are genetically engineered for effective use in bioremediation. This not only discussed about the importance of bacteria for bioremediation of heavy metals but also discussed about the challenges and limitations of bacteria for bioremediation. In this chapter, a variety of mechanisms responsible for adaptation of microorganisms to high heavy metal concentrations, e.g. metal sorption, uptake and accumulation, extracellular precipitation and enzymatic oxidation or reduction, will be reported. Moreover, molecular mechanisms responsible for their metal tolerance will be described.

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Introduction:-

The rapid growth of industrialization is always coupled with the persistent problem of environmental pollution. Accumulation of toxic metals released by the industries entering the ecosystem may lead to biomagnification. Very few heavy metals function as trace elements but, many of them are of great concern in human biochemical processes because of their toxicity. In this respect, the important point that needs to be taken care of for the wellbeing of the ecosystem is the treatment of the processed wastes released into the environment from these industries. "Heavy metals" are a group of metals and metalloids with a specific gravity that is at least four to five times the specific gravity of water at the same temperature and pressure (1). High levels of heavy metals caused degradation of soil quality, leading to reduction of yield and quality of agricultural products, posing significant hazards to human, animal and ecosystem health. The crop plants growing in HM contaminated areas usually show low growth, substantial oxidative stress and genetic changes. These HMs also enter the crop produce and ultimately harm the human health. Heavy metal pollution of agricultural soils is a widespread environmental

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Anticancer Activity of Phytogenic Bimetallic Nanoparticles against MCF-7 Cells

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ABSTRACT

Now-a-days, green synthesis of metallic nanoparticles is a growing area of research because of their potential therapeutic applications for various diseases. In the present work, bimetallic silver nickel nanoparticles (BMNPs) are synthesized from silver nitrate (AgNO_3) and cobalt nitrate ($\text{Ni}(\text{NO}_3)_2$) precursor solutions using aqueous leaf extract of *Aerva lanata* as bioreducing, stabilizing and capping agent. The synthesized BMNPs were characterized using UV-Vis spectroscopy, FTIR, SEM, EDX, XRD and TEM analyses. The cytotoxic response was assessed by 3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide (MTT) assay. These biogenic Silver nickel BMNPs were found to be significantly toxic to MCF-7 cells (human breast cancer cells) via induction of apoptosis.

KEY WORDS

Bimetallic nanoparticles (BMNPs), *Aerva lanata*(AL), Phytomolecules and invitro cytotoxicity

1. INTRODUCTION

Breast cancer is the most common malignancy in mankind that causes major mortality worldwide every year. Over the past decades, treatments to this notable life-threatening cancer has become more exigent owing to the prevalence of multiple drug resistance, damaging side effects and the inadequacy of innovative measures [1]. Nanomedicine is a hopeful and exciting field that could potentially lead to improvements in cancer treatment procedures, offering a modern perspective on tumour identification, prevention and bioremediation [2]. The successful application of nanoparticles as an anticancer drug is due to their exclusive qualities like large surface area for volume, porosity, solubility, increased bioavailability and different structural properties. Ultimately this can improve the stability and permanence of the drugs; moreover it will offer many biomedical perceptions for clinical level applications [3]. Another interesting feature of nanoparticles, it can easily cross the cellular barriers and strongly interact with functional biomolecules [4]. Silver nanoparticles are among the most common and applicable nanostructures, according to their distinctive catalytic, therapeutic activities and stability as well as development of nanodevices and therapeutic preparation for diagnoses and treatment of cancer [5]. The treatment of a variety of cancers with silver NPs has been well documented [6]. Antitumor potentiality (cytotoxicity) of the silver NPs is expressed through oxidative stress as well as inflammation through production of reactive oxygen species that lead to DNA damage and mitochondrial membrane potential disorder, releasing cytochrome c and resulting in mitochondrial related apoptosis and necrosis to cell proliferation and carcinogenesis [7].

Aerva lanata is a medicinal plant that belongs to the family *Amaranthaceae*. It is a wealthy source of secondary metabolites that have antibacterial [8], antifungal [9], antioxidant [10], cytotoxic [11], anti-HIV [12], anti tumour[13], anti diabetic[14,15] and anticancer[16] activities. Moreover the green synthesized nanoparticles are found to be more potent antitumour agents than the uncoated nanoparticles as the former are capped with bioactive phytomolecules [17].

2. EXPERIMENTAL

2.1. Preparation of *Aerva lanata* leaf extract: 100 g of fresh *Aerva lanata* leaves were taken and cleaned with running tap water to remove dust on surface of leaves followed by deionised water to eliminate other contaminants from leaves and dried up under shade for ten days. The dried leaves were powdered by using home blender. Now 200 mL deionised water was taken in 500 mL beaker to this 10g leaf powder was added. The contents in the beaker heated for 30 minutes at 50°C with occasional stirring with glass rod and then cooled to acquire room temperature. The cooled leaf broth was filtered 2 times with Whatman No.1 filter paper and reserved in refrigerator at 4°C. This was taken as leaf extract (figure (1)) for the experimental studies.

2.2. Synthesis of Ag-Ni bimetallic nanoparticles:

Equimolar (25 mM) concentrations of silver nitrate and nickel nitrate aqueous solutions were prepared separately in 100 mL volumetric flasks by dissolving 0.4246 g, 0.7267 g weight of AgNO_3 and $\text{Ni}(\text{NO}_3)_2$ in deionized water respectively. Synthesis of Ag-Ni BMNPs was done by taking 100 mL of AgNO_3 solution in a 500 mL beaker, to this 90 mL of leaf extract, 100 mL of $\text{Ni}(\text{NO}_3)_2$ solution were added by drop wise in simultaneous addition process. After this addition the beaker was placed on a magnetic stirrer for continuous agitation. This mixture was stirred at 70°C for 70 minutes at pH 8 on magnetic stirrer. These synthesized BMNPs were separated out by doing centrifugation at 4000 rpm for 30 minutes. The obtained BMNPs were washed with deionized water two times to remove unwanted constituents and dried in oven at 85 °C for two hours. The resultant BMNPs particles were collected (Figure: (2)) and used for characterization.



A Facile plant mediated synthesis of silver nanoparticles using an aqueous leaf extract of *Ficus hispida* Linn. f. for catalytic, antioxidant and antibacterial applications

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ABSTRACT

An aqueous leaf extract of *Ficus hispida* Linn. f. mediated silver nanoparticles (Ag NPs) have been prepared for reduction of 4-Nitrophenol, antioxidant and antibacterial activity against gram positive bacteria, *Bacillus subtilis* and gram negative bacteria, *Escherichia coli*. The rate of formation of Ag NPs is found to be depends on concentration of AgNO₃, concentration of aqueous leaf extract of *Ficus hispida* Linn. f., pH, temperature and reaction time. As prepared Ag NPs have been characterized by range of spectroscopic and microscopic techniques such as UV–Vis spectroscopy, Fourier transform-infrared spectroscopy, powder X-ray diffraction, scanning electron microscopy, transmission electron microscopy. TEM images clearly showed that the formation of spherical shape Ag NPs with an average particle size of 20 nm. As prepared Ag NPs showed high catalytic activity towards the reduction of 4-Nitrophenol to 4-Aminophenol. Green synthesized Ag NPs showed enhanced antioxidant activity and also showed potent antibacterial activity against of both *E. coli* and *Bacillus subtilis*.

1. Introduction

During the past decade, the synthesis of nanomaterials have received a great attention for technological application due to their unique physical and chemical properties (Sharma et al., 2009). Among metal nanomaterials, silver nanoparticles (Ag NPs) have attracted attention of researchers owing to their versatile applications, such as antioxidant (Kalaiyarasan et al., 2017), anticancer (Nayak et al., 2015), antibacterial (Ghaedi et al., 2015), catalysis and pollution abatement (Sun et al., 2018). Ag NPs are biocompatible to human cells at lower concentrations and inhibits the growth of microorganisms (Sharma et al., 2009). Therefore Ag NPs have been used extensively as antimicrobial agents in cosmetics (Kokura et al., 2010), textile coatings (Vigneshwaran et al., 2007; Durán et al., 2007) and food industry (Chaudhry and Castle, 2011). Numerous methods have been reported for synthesis of Ag NPs including physical and chemical methods such as thermal decomposition (Navaladian et al., 2006), microwave assisted process (Sreeram et al., 2008), chemical reduction (Yu, 2007), and electrochemical reduction (Starowicz et al., 2006). In all these methods, reducing agents such as Tollen's reagent, sodium borohydride [NaBH₄] and N, N- dimethyl formamide (DMF) were used for reduction of silver ions (Ag⁺) into Ag NPs. Moreover in order to prepare aggregation free,

controlled size and shape of Ag NPs, the toxic surfactants or capping agents such as tri-sodium citrate, dodecyl sulfonic acid etc. were used (Sharma et al., 2009). Therefore it is highly desirable to synthesize Ag NPs via non-hazardous, biocompatible, eco-friendly and sustainable methods for biomedical applications. Even though many biological green methods have been reported for synthesis of Ag NPs, the plant mediated synthesis emerged as a potential method due to non toxic, cost-effective, rapid and their biomedical application. Furthermore, in microorganisms assisted green synthesis of Ag NPs, it is very difficult to maintain the microbial culture (Kumar et al., 2011, Saha et al., 2017, Otari et al., 2012, Jha et al., 2009.) (Table S2).

Many reports are available on the green synthesis of Ag NPs using numerous plant extracts such as fruit extract of *Gmelina arborea* (Saha et al., 2017), aqueous leaf extract of *Azadirachta indica* (Ahmed et al., 2016), extract of *Parkia speciosa* Hassk pods (Fatimah, 2016), banana peel extract (Ibrahim, 2015), leaf extract of *Chenopodium murale* (Abdel-Aziz et al., 2014), leaf extract of *Cinnamomum camphora* (Huang et al., 2007), leaf extract of *Azadirachta indica* (Shankar et al., 2004), *Capsicum annum* L. (Li et al., 2007) *Aloe vera* (Chandran et al., 2006), *Embillica officinalis* (Ankamwar et al., 2005), *Camellia sinensis* extract (Vilchis-Nestor et al., 2008), *Acalypha indica* leaf extracts (Krishnaraj et al., 2010), latex of *Jatropha curcas* (Bar et al., 2009) and natural rubber

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INVESTIGATION OF PHYTOCHEMICAL CONSTITUENTS OF *PSIDIUM GUAJAVA* LEAF EXTRACT COLLECTED FROM Dr. V. S. KRISHNA GOVERNMENT DEGREE COLLEGE CAMPUS

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ABSTRACT

Medicinal plants possess bioactive components called phytochemicals which are administered for treating various human ailments. Phytochemicals are of two categories i.e., primary and secondary constituents. Primary constituents include proteins, chlorophyll, sugar and amino acids. Secondary constituents contain alkaloids and terpenoids. Medicinal plants have antifungal, antibacterial and anti-inflammation activities because of these phytochemicals. The aqueous extract of leaf samples of the plant Psidium Guajava is collected from Dr. V.S.Krishna College campus, Visakhapatnam in India. This extract is used for the phytochemical screening with an objective to check the presence or absence of the phytochemical constituents in the selected plant. The results of the phytochemical analysis of the plant leaf extract shows that terpenoids, tannins, reducing sugars, flavonoids and alkaloids are found to be present in aforementioned medicinal plant. The key phytochemical properties identified by this study will be very helpful to pharmaceutical industries for the fabrication of the novel drugs for treating various diseases.

KEYWORDS

Phytochemicals, Psidium Guajava , alkaloids, flavonoids, terpenoids and FTIR.

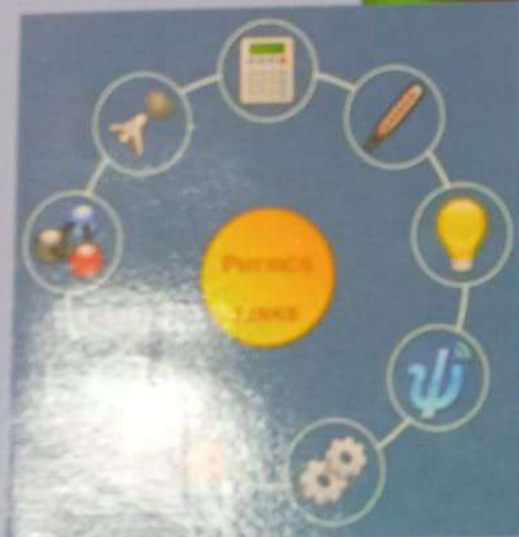
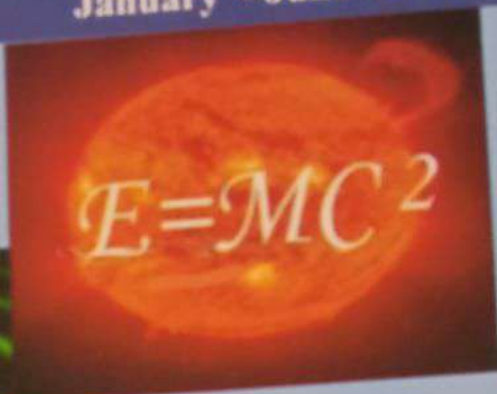
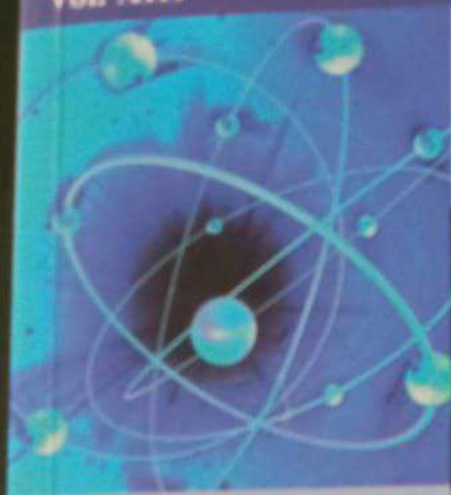


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The Technology Of Enriching The Teacher

Dr P.Sreenivasulu Reddy, Dr Ramanadham Ramesh Babu, Kandula Rekha

Abstract: As it is often said that the destiny of a nation is designed and shaped inside the sacred four walls of classrooms, it is the bounden duty and the humble responsibility of a teacher to rise to the heights of the expectations of the nation. Undoubtedly, the development of a state is dependent on its education policy. As an example of this, we have seen nations flourishing on all fronts based on the sound education system. The advancement of America in all aspects is only due to its academics- America has invited the best brains i.e., scholars, scientists, technocrats - from all parts of the world and could establish the paramount universities and attract millions of foreign students. It's only a very few countries that could become the centres of learning. The obvious reason is- the education policies of those nations. In this paper, we have discussed certain best teaching practices that need to be adopted and practised by a teacher. Index Terms— Minimum 7 keywords are mandatory, Keywords should closely reflect the topic and should optimally characterize the paper. Use about four key words or phrases in alphabetical order, separated by commas.

1. INTRODUCTION

Of all the skills required for any profession or any professional, the most significant are - teaching skills which can't be gained in a training school or a college or through a course. Teachers require individual skills to teach subjects and manage their classes. The essential skills are - language competence, comprehension of the content, understanding the needs of the students, helping nature and loving attitude, appropriate style, and intelligent approach- which will make the teachers most successful managers of their classrooms. The passion for teaching and the love for the taught ought to be very much inherent in one's being. One of the most essentials for a teacher is, 'self-control' which means calmness, courage and steadiness. Whatever the difficulties and the problems a teacher may have at home or in the college, he should face them boldly and cheerfully in order to scatter the vibrations of joy and enthusiasm continuously among the students as well as teachers. There should always be an environment of vibrancy, vitality, vivacity and vigour. Unless the teacher is truly cheerful and contented, he would not be able to impart effective learning as he would be taxing his priceless time in worry and anxiety. Another significant facet of self-control is - concentration i.e, on each and every work, may it be a tiniest work, but minutest attention has to be paid. to be paid. A teacher cannot dissipate his energies on many matters, unrelated to teaching. While lecturing in the class, writing on the board or valuing answer scripts or talking to the students, or even while taking attendance, a teacher is supposed to be absolutely focused. In the present scenario where students' energies have been sucked and diverted immensely by various means of social media and other such things, the commitment and concentration of the teacher stands as an example to the students for emulation. Even now, in many nations, especially in the eastern countries, a teacher is held in high esteem. But most unfortunately, teachers are losing interest in their own profession before others have lost interest in the teacher's profession.

Another significant trait that a teacher ought to possess is - 'desirelessness' which indeed, is the mother of all virtues of a teacher. Desirelessness, in the sense, that a teacher should not try to get the credit of the success of the students for himself. The problem with many teachers is that they want their students to carry the flag of their greatness; hence they will be forcing the students to pursue their desires and wishes. Students would be successful as well as pleasurable only when they are allowed to pursue their career in accordance to their soul's desire but not the teachers' or parents' desires. Unless the teachers cooperate, the student is caught by the desires of many teachers who usually are carried away by their own impressions ascribing imaginary values to their subjects. Most teachers intensely feel that their own subjects are superior to other subjects and go on justifying their arguments and force them upon their students. Most unfortunately, it is the innate tendency of many teachers to suggest to the parents and the students (who approach the teachers for a piece of advice) to opt for those courses/ subjects that are taught by them. They try to bat for their subjects and try to promote or uphold their ideologies and philosophies in the class room however nobler they might be. If teachers and judges were to take such sides, students will be left out without any choice and consequently fail to develop creative or original thinking. Teachers should only explain things but not impose or enforce. The teacher should only try to bring awareness related to different theories, principles or the philosophies of life, religion and society.

II. LITERARY REVIEW

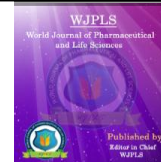
One more important aspect is that the teacher should not forget his childhood. It is often said, "He who has forgotten his childhood and lost sympathy with the children is not a man who can teach them or help them." (p.no. 10 - Education as Service) only when the teachers are being reminded of their psychological state and physical condition, they can well understand the predicaments of the present pupils who come to school or college. Students come from different backgrounds in regard to culture and tradition, financial condition, family background, educational and social conditions etc., hence, keeping all these things in mind, a teacher has to render his noblest service of teaching. Indeed, no two students would be similar. Everyone is unique. If only the teacher can understand each student's psychology or attitude, strengths and weaknesses, he/she cannot elevate student's life. In this world of ubiquitous inequalities, conflicts are natural and unavoidable. They are labeled differently, because their origins are different and the consequences are not uniform. The intensities of conflicts vary enormously and

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PHYTOCHEMICAL SCREENING OF *ANDROGRAPHIS PANICULATA* LEAF EXTRACT COLLECTED FROM Dr. V. S. KRISHNA GOVERNMENT DEGREE COLLEGE CAMPUS

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ABSTRACT

Medicinal plants possess bioactive components called phytochemicals which are administered for treating various human ailments. Phytochemicals are of two categories i.e., primary and secondary constituents. Primary constituents include proteins, chlorophyll, sugar and amino acids. Secondary constituents contain alkaloids and terpenoids. Medicinal plants have antifungal, antibacterial and anti-inflammation activities because of these phytochemicals. The aqueous extract of leaf samples of the medicinal plant *Andrographis Paniculata* is collected from agricultural lands of S.Kota. This extract is used for the phytochemical screening with an objective to check the presence or absence of the phytochemical constituents in the selected plant. The results of the phytochemical analysis of the plant leaf extract shows that the terpenoids, tannins, reducing sugars, flavonoids and alkaloids are found to be present in aforementioned medicinal plant. The key phytochemical properties identified by this study will be very helpful to pharmaceutical industries for the fabrication of the novel drugs for treating various diseases.

KEYWORDS: Phytochemicals, *Andrographis Paniculata*, alkaloids, flavonoids, terpenoids and FTIR.

1.1 INTRODUCTION

Phytochemistry is the part of chemistry that deals with the chemical processes involved in plant life. Phytochemicals are naturally occurring and biologically active chemical substances present in plants. Proteins, chlorophyll and regular sugars are the primary constituents and alkaloids, terpenoids, phyto sterols, flavonoids, glycosides, tannins and phenolic compounds are being the secondary constituents.^[1] Phytochemicals guard plant cells from pollution, drought, stress and pathogenic attack.^[2] Phytochemicals are synthesized in almost all parts of the plant like leaves, root, bark, stem, root, fruits, flower, seeds etc.^[3,4] Phytochemicals are responsible for the colour and organoleptic properties of plant. Recent research shows that phytochemicals play a vital role in protecting humans against diseases. To extricate these compounds from plants phytochemical screening is inevitable. Phytochemical screening deals with the extraction, screening, and identification of the bioactive substances found in plants.^[5,6]

Andrographis is a herbal plant belonging to the family Acanthaceae (**Figure 1.1**) which is usually found in agricultural lands of India. In native language it is called

as Nelavemu. Literature reveals that the parts of this plant are used to treat inflammation and pain in the human body and also used as a potent antiviral and antidiabetic agent.^[7-9] It is found to be a good source of phytochemicals such as terpenoids, flavonoids, alkaloids, phenolic compounds, glycosides, gums, tannins, terpenes, carbohydrates and aminoacids. This present paper deals with the phytochemical screening of the leaf extract.



Figure 1.1: *Andrographis Paniculata* plant.

Molecular Docking Based Screening of BRAF for Improved Inhibitors

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Abstract

B-Raf is a 766 Amino acid protein, regulated signal transduction serine/threonine protein kinase. The structure of B-Raf (PDB ID: 4MNF) with domains CR1 to CR3 is known. Therefore, it is of interest to identify binding sites of B-Raf for inhibiting cell proliferation of late stage melanoma. Therefore, suitable inhibitors for inhibiting B-Raf are identified. Previous reports suggest the use of vemurafenib like compounds for inhibiting B-Raf protein. Our interest is to identify improved compounds to destabilize B-Raf. We used a 14 compounds against B-Raf using molecular docking based screening. This resulted in designing 5 new compounds (MDD, MD1 to MD5) that were further analyzed for pharmacological properties. The hit MD-4 shows fitting binding properties with B-Raf with very less undesirable pharmacological properties such as toxicity but shows immunotoxicity.

KEYWORDS: B-Raf, Melanoma, Molecular docking, Drug discovery

B-Raf is a protein encoded by a proto oncogene B-raf located on human chromosome 7p11-7qt.^{1,2} B-raf which is also known as serine/threonine-protein kinase regulates the cytoplasmic MAP kinase/ERK signaling pathway, which affects cell division, differentiation, and secretion.³ It has three conserved domains – conserved region 1 (CR1), a Ras-GTP –binding self-regulatory domain, conserved region 2 (CR2), a serine -rich hinge region, and conserved region 3 (CR3), a catalytic protein kinase domain that phosphorylates consensus sequence on protein substrates.

B-raf gene when mutated leads to the change in the structure of its B-raf protein resulting in the proliferation of cells causing melanoma (eg, cutaneous, acral).

Vemurafenib (Zelboraf), dabrafenib (Tafinlar), and encorafenib (Braftovi) are the inhibitors of B-raf protein (BRAF). These drugs shrink or slow the growth of metastatic melanoma that has a BRAF gene mutation. Vemurafenib, dabrafenib, encorafenib are synthetic compounds and have side effects like skin reactions, photosensitivity, headache, arthralgia, hyperkeratosis, pyrexia. In this context this paper attempts to virtually screen few Withanolides which are natural compounds isolated from three members of the *Solanaceae*: *Physalis longifolia*, *Vassobia breviflora*, and *Withania somnifera* to be used as inhibitors. The “withanolides” are family of C28 ergostane-type steroidal δ -lactones (derived from a parent 22-hydroxy-26-oic acid). The withanolides studied for docking in this paper is the work of Huaping Zhang et al.¹⁰



A green and sustainable approach to the fabrication of ZnO nanoparticles via *Jatropha podagrica* leaf extract for effective dye degradation and antibacterial applications

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Abstract

A robust green synthesis method was employed using *Jatropha podagrica* (Buddha belly plant) leaf extract as a capping agent to prepare ZnO nanoparticles (ZnO NPs). Several analytical techniques such as XRD, SEM, SEM-EDX, HR-TEM, FT-IR, and UV-visible spectroscopy were employed to characterize the green synthesized JP-ZnO NPs. The XRD, SEM, and HR-TEM images proved the presence of spherical nanoparticles having a wurtzite crystalline structure with a size of 12 to 18 nm. The characteristic vibration mode of the Zn-O bond was observed at 430 cm^{-1} in the FT-IR spectrum. The photocatalytic performance of these NPs was evaluated through the degradation of Rhodamine B (RhB), Fluorescein Sodium (FS), and Crystal Violet (CV) dyes in sunlight. Degradation rates of 90–95% were achieved in a time span of 1–2 h. The synthesized ZnO nanoparticles were efficient antimicrobial agents against gram-positive (*Staphylococcus aureus*, *Bacillus coagulans*) and gram-negative (*Klebsiella pneumoniae*, *Escherichia coli*) bacterial strains. Using the well diffusion method, with 150 μL of JP-ZnO nanoparticles, inhibition zones measuring 17, 15, 11, and 10 mm were formed. The current study highlights the efficiency of synthesized JP-ZnO nanoparticles in removing the dyes from aqueous solutions and their efficient antimicrobial properties.

Keywords ZnO nanoparticle · *Jatropha podagrica* plant · Dye degradation · Antioxidant activity

Introduction

In the contemporary world, there has been a continuous increase in industrialization and population growth, leading to the release of various new pollutants into aquatic environments. Specifically, the discharge of noxious dye effluents from industries like textile, paper, leather, and printing poses grave ecological and health hazards [1, 2]. Dyes such as

Rhodamine B (RhB), Fluorescein Sodium (FS), and Crystal Violet (CV) pose ingestion risks to humans and animals and induce skin, ocular, and respiratory irritation [3]. In a different context, the recurrence of contagious illnesses and the ongoing evolution of antibiotic resistance in numerous disease-causing bacteria present a significant global public health concern. *Enterococcus*, *Staphylococcus*, and *Streptococcus*, which are closely related species, are harmful microorganisms that are attributed to a diverse range of infections and diseases [4].

In the realm of recent advancements in nanotechnology, nanomaterials play a crucial role due to their significant surface area and volume ratio [5]. This characteristic makes them valuable for applications such as water purification and the creation of novel biocidal substances. Among various types of nanoparticles, zinc oxide nanoparticles (ZnO NPs) possess exceptional optical and electrical characteristics, making them an outstanding choice for *n*-type semiconductor materials [6]. These NPs demonstrate remarkable efficacy in dye degradation [6, 7] and also exhibit antibacterial properties [8, 9], further highlighting their distinctiveness.

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A COMPLETE CLASSIFICATIONAL REVIEW ON ICH GUIDELINES

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ABSTRACT

Through industry and regulatory participation, ICH has successfully unified technical guidelines globally. After ICH reform, ICH has transparent governance and membership that is becoming more international. There are five clear steps in the ICH guideline formulation process. The goal of the International Council of Harmonization (ICH) is to secure global harmonization in the development and registration of safe, efficient, and high-quality pharmaceuticals.

Keywords: ICH guidelines; Q- series; harmonization; stability studies; GMP.

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LIPID OXIDATION CHANGES IN TERMS OF PV AND TBA IN WHOLE *PAMPUS ARGENTUS* FROM VISAKHAPATNAM STORED AT -20°C

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Abstract

Lipid oxidation, especially in marine products with high lipid concentrations, is a significant factor in the quality of the product deterioration. The large concentration of highly polyunsaturated fatty acids found in species makes fish particularly susceptible to this fundamental deteriorative process, even though it occurs in many different types of animal sources of food. The aim of the present study was to determine the changes in Peroxide Value and Thiobarbituric Acid Value (TBA) as chemical quality indices of lipid oxidation in whole *Pampus argenteus* from Visakhapatnam harbor during frozen storage at -20°C. Results obtained conclude that the temperature of storage should be lower than -20°C so as to maintain the limits of acceptability for a longer duration.

Keywords: *Pampus*, PV, TBA.

Introduction

Polyunsaturated fatty acids (PUFA), particularly eicosapentaenoic (EPA, 20: 5 ω -3) and docosahexaenoic acids (DHA, 22: 6-3), are abundant in marine lipids (Pazos *et al.*, 2005; Bayir *et al.*, 2006). Consuming fish high in polyunsaturated fatty acids (PUFA), such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), has been proven to have both therapeutic and preventive effects on cardiovascular disease, cancer, hypertension, inflammation, fat glycemic management, and baby neurodevelopment (Von Schacky, 2000; Kris-Etherton *et al.*, 2003; Sidhu, 2003). The demand for high-quality seafood is growing every year due to factors including population growth and a preference of higher protein diet intake brought on by an ageing population (Cai and Leung, 2017). The sustainability of our ecosystems, however, makes it difficult to increase both wild fisheries and aquaculture (Alexandratos and Bruinsma, 2012).

Fish quality changes do occur during chilling and frozen storage. Although traditional methods like freezing and chilling are still the most often used procedures onboard, it is still not obvious how frozen fish degrades. This needs to be understood for products that need to be kept frozen for a long time and maintain high quality. Fish can be stored refrigerated (between 0 and 4 degrees Celsius) or frozen (between -18 and -40 degrees Celsius) in order to lengthen their shelf life and maintain their freshness at low temperatures (Walayat *et al.*, 2020). One of the most crucial methods for the long-term preservation of fish muscle is



Stress as a Topic of Concern in Gut Health: A Review

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

When stress overwhelms the body or persists for a long time (chronic stress), the body is affected by it in a number of ways. Stressors can trigger a variety of stress reactions, including psychological, physiological, and behavioural ones. A multitude of health problems that impact most of the body's systems are brought on by prolonged exposure to such stress. Both physical and mental health is impacted by stress. Perhaps not everyone's bodies react to stress in the same way. Depending on the person's genotype, sex, age, physiological conditions, and prior experiences, it might be different. However, some of these effects apply to everyone. Additionally, stress may work in conjunction with other pathogenic factors to induce gastrointestinal illness. Higher amounts of corticoids and adrenaline are primarily responsible for the effects. Disrupted eating habits, acid reflux, diarrhoea, or constipation are common indications of stress. Stress should be managed by making tiny changes to attitude and way of life, even though it is impossible to escape stress in day-to-day existence.

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Screening of *in-vitro* Antidiabetic Potentials from the Protein Extracts of *Stomopneustes variolaris*

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Diabetes mellitus (DM) is one of the serious endocrine disorders caused by insufficient production or inefficacy of the insulin and it is the immense cause of death throughout the world. However, finding for novel antidiabetic drugs from natural resources is still fascinating, because of their safe effect on DM. The marine environment provides a pool of unique and novel bioactive compounds due to its extremely diverse environmental conditions and biota. *Stomopneustes variolaris* is a marine echinoderm, belongs to family Stomopneustidae and they have toxins in their bodies as a defence mechanism which often has medicinal value. The present investigation aimed to evaluate the antidiabetic potentials of protein extracts from the spines, shell, and tissue of *Stomopneustes variolaris*. The spine, shell, tissue shows significant variation in protein content and the highest concentration of protein was found in tissue extract. The studies of haemoglobin glycation reveal that the haemoglobin glycation was increased with increasing concentration of the glucose. The highest haemoglobin glycation was reported in 20mg/ml glucose concentration at 24hr incubation

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CHANGES IN SOME QUALITY INDICES IN *THUNNUS ALBACARES*, *SARDINELLA LONGICEPS* AND *RASTRELLIGER KANAGURTA* FROM VISAKHAPATNAM HARBOUR STORED AT -20°C

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ABSTRACT

The present study has been undertaken to understand the changes that took place in the TMAN, TVBN, and total plate count during the storage of three whole (ungutted) fish species namely *Thunnus albacares*, *Sardinella longiceps* and *Rastrelliger kanagurta* for a period of 180 days at -20°C. The study revealed the relatedness and distinctiveness of the quality indices chosen for all the three species chosen. In spite of initial decreasing trend, an increase in the values of quality indices chosen is observed at different durations for different species during further periods of storage.

Keywords: TMAN, TVBN, TPC

INTRODUCTION

A food that is especially sensitive to oxidation and microbial degradation is fish. In general, fish has been a significant source of food for humans since it is one of the least expensive sources of protein, is very easily digested, and is rich in unsaturated fatty acids. Additionally, a significant number of other nutrients, including minerals and necessary amino acids for the synthesis of functional and structural proteins, are present in it (Mahboob *et al.*, 2015). Therefore, effective storage techniques must be used to extend the fish's shelf life and ensure its safety and quality from catch to eating. Preservation of food is essential to increase its shelf life and conserve its nutritional value, flavor and texture. Therefore, optimized methods for food preservation must prevent damage to food by microorganisms while maintaining its quality and nutritional value, (Ghaly *et al.*, 2010). The duration at which the fish may be stored depends on a number of variables, including the amount of ice used, the species of fish, the type of fish stored, and the temperature. High pressure processing, irradiation, pulsed light technology, pulsed electric field, microwave processing, radio frequency, and ultrasound are recent developments in modern fish storage technologies. The most common means of fish preservation on board continue to be chilling and freezing, notwithstanding these new technologies that have applications in fish processing. These techniques for preserving fish quality at low temperatures include refrigerated storage between 0 and 4 degrees Celsius or frozen storage between -18 and -40 degrees Celsius.

Fish chilling may involve the use of superchilling technology, which makes it less susceptible to deteriorative processes by allowing the product's modest water content (5–30%) to freeze. This technique enables the product to be transported without the need for external ice, which reduces the weight and expense of the shipment and extends the shelf life of the product compared to chilled foods. However, this technique can speed up autolytic, enzymatic, or other chemical reactions. The biochemical changes in the fish meat are also related to stress, weariness, freshness, freezing speed, storage temperature, temperature fluctuations, drying and thawing conditions have an impact on the meat components of fish and shellfish. During processing frozen fish meat, these elements should be taken into account since they affect the quality changes (Nakazawa and Okazaki, 2020).

Green Synthesis of Ag-Ni Hybrid Nanomaterials from *Andrographis Paniculata* leaf extract and Study of their Photocatalytic Activity

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ABSTRACT

An environmentally benign cost effective method is reported for green synthesis of Ag-Ni hybrid nanomaterials by using *Andrographis Paniculata* leaf extract. The phytomolecules present in the extract are acting as reducing agents, stabilizing and capping agents for the biosynthesized nanomaterials. The characterization studies are done by UV-Visible, FTIR, SEM, XRD, EDX and HRTEM analyses. These nanoparticles are further applied as photocatalysts for degradation of Malachite Green dye by irradiation under sunlight. The optimum conditions found in the degradation of malachite green dye are pH 8, weight of catalyst **30 mg**, dye concentration of **10 ppm** and contact time of **120 minutes**. A maximum photodegradation of **82%** is obtained under these optimum conditions.

KEY WORDS

Hybrid nanomaterials (HNMs), *Andrographis Paniculata*, Malachite Green (MG), photodegradation.

INTRODUCTION

Nanotechnology involves the synthesis and application of materials having one of the dimensions in the range of 1 nm to 100 nm and acts as a channel between bulk materials and atomic or molecular structures. In recent times hybrid nanomaterials have gained considerable attention because of their importance for magnetic, optical and catalytic applications in multiple fields [1]. Various physical, chemical and biological methods have been employed for the synthesis of hybrid nanomaterials [2]. Several advantages of biological methods over physical and chemical methods are due to the fact that they are environmentally benign, less time consuming, cost effective with almost negligible industrial waste without use of toxic chemicals [3]. Biosynthesized hybrid nanomaterials are used in several contemporary fields viz. imaging, labeling, luminescence tagging, drug delivery and biomedical field because of their superior properties. Hybrid nanomaterials synthesized from plant extracts have been found to possess extraordinary catalytic activities [4].

Dyes are used widely in various fields such as cosmetics, leather, food and textile industries. The release of these industrial dye effluents into water shows adverse effect on quality of water [5]. One of such dye is malachite green (MG).



Cover Page



సామాజిక సంబంధాలు-సమైక్య జీవన సంస్కృతి: కథల విశ్లేషణ

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పరిచయం:

సామాజిక సంబంధాలు-సమైక్య జీవన వైవిధ్యం-‘నల్లమేక’ (ఆంధ్రపత్రిక, వారపత్రిక, అక్టోబర్ 1958)

‘కాదేదీ కవితకనర్హ’ మన్నాడు శ్రీశ్రీ. అది రావిశాస్త్రికి స్ఫూర్తి అయ్యింది. ఆ స్ఫూర్తితో ఈ కథానిక రాశాడు. అలగా జనం, సామాన్య ప్రజలు సాహిత్యంలో పాత్రలుగా ప్రవేశించడానికి ఆ స్ఫూర్తి ద్వారం తెరిచింది. సాహిత్యం ప్రజాస్వామీకరించబడడానికి ఆ స్ఫూర్తి తలుపులు తెరిచింది. ఒక అనుభవాత్మక ప్రగతిశీల అభివృద్ధికి ఎంత శక్తి ఉంటుందో, ఈ స్ఫూర్తి నిరూపిస్తుంది. రావిశాస్త్రి నిరూపించి చూపించాడు. సాహిత్యంలో ‘వైవిధ్యత’ అనే గుణాత్మక అంశానికి అత్యంత ప్రాధాన్యత రావిశాస్త్రి కథల్లో కనిపిస్తుంది. ఈ ‘నల్లమేక’ కథ ఒక ప్రయోగం. ఒక నల్లమేక, తోటమాలి, ఎందరో ప్రజలూ పాత్రలుగా ఉంటారు. ఇది పూర్తిగా కాల্পనిక సంఘటన. దాన్ని పూర్తిగా వాస్తవీకరించాడు. ఇది వాస్తవిక సంఘటనే అని అనిపించేలా, కనిపించేలా సృజించాడు. సృజనాత్మక శక్తికి ఈ కథానిక ఒక అద్దం. ఒక మార్గం. పరిసరాల్ని చుట్టూ ఉన్న జీవితాల్ని, ప్రజల స్పందననూ వాస్తవికంగా చిత్రించడం వల్ల, ఒక కాల্পనిక సంఘటన, వాస్తవిక సంఘటనగా దర్శనమిస్తుంది. ఒక నల్లమేక తోటచుట్టూ ఉన్న గోడ ఎక్కి తోటలోని మొక్కల ఆకులను విలాసంగా కులాసాగా కొరుక్కు తింటుంది. తోటమాలి అది గమనించి చడీచప్పుడు లేకుండా దుడ్డు కర్ర పట్టుకొస్తాడు. అది పసిగట్టి, నల్లమేక చెంగున రోడ్డుమీదికి ఉరికింది. నల్లమేక ఉరికినప్పుడే, తోటమాలి పాత చెప్పు కుట్టు తెగింది. దాన్ని చూడ్డానికి రోడ్డుమీద వంగి నిలబడ్డారు. ఓ మోటారు కారు రావడం, డ్రైవరు ముందు అకస్మాత్తుగా నల్లమేక మెరుపులా మెరియడం, వంగున్న తోటమాలి అతని కంట పడకపోవడం, డ్రైవర్ స్టీరింగ్ చట్టుక్కున తిప్పుడం, కారు కింద తోటమాలి పడి చచ్చిపోవడం, నల్లమేక బతికిపోవడం, అంతా నిమిషాల్లో మెరుపులా జరిగిపోయింది. జనం మూగిపోయారు. ఎవరికి తోచిన మాటలు వారు విషాదంగా ఆశ్చర్యంగా చెప్పుకుంటూ ఉంటారు. ఒక మేకను చావు నుంచి తప్పించబోవడం, ఒక మనిషి చావుకి కారణమైందని ఊరంతా తెలిసిపోయింది. మనిషి పోయినందుకు అందరూ విచారించారు. మేక బతికిపోయి నందుకు మాత్రం ఎవ్వరూ సంతోషించరు. సంఘటన



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వనసీమల్లో సంచార జాతులు - ఒక పరిశీలన

డా|| రామావత్ కుసుమ కుమారి

అసిస్టెంట్ ప్రొఫెసర్ తెలుగు

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చరవాణి-9963625639

పరిచయం:

విశ్వం నుండి భూమి ఉద్భవించి కొన్నికోట్ల సంవత్సరాలు అవుతుందని శాస్త్రజ్ఞుల ఊహ అయితే, భూమి ఉద్భవించినపుడే భూమిలో జీవకోటి పుట్టలేదు. కాలక్రమేణ చెట్లు, జంతువులు, మానవుడు ఉద్భవించారు. కొన్ని దశలలో యివి క్రమవికాసానికి చెందాయి. మానవుడు ఆవిర్భవించిన తరువాత ఒక జంతువు వలె అడవుల్లో, కొండల్లో, కోనల్లో తిరుగుతూ ఆకులు, కాయలు, దుంపలు, పచ్చిమాంసాన్ని తింటూ జీవించేవాడు. ఈ దశను ఆటవిక దశ అని చెప్పవచ్చు.

ప్రకృతిలో సంభవించే చిత్రవిచిత్ర పరిణామాలను ఆశ్చర్యంగా, ఆసక్తిగా పరిశీలించేవాడు. క్రమేపి ఒంటరి జీవితాన్ని విడిచిపెట్టి సామూహికంగా జీవించడం మొదలుపెట్టాడు. తనలో కలిగే ఆలోచనలు, భావాలను మూగసైగల ద్వారా, కొన్ని శబ్దాలు ద్వారా తెలియజేసేవాడు. పదునైన రాళ్లతో, మొన తేలియున్న కర్రల సహాయంతో జంతువులను వేటాడి, చంపి, కాల్చి తినడం మొదలుపెట్టాడు. ఈ రాళ్లతో, కర్రలతో చేసిన పనిముట్ల సహాయంతో కొత్తజీవితానికి నాంది పలికాడు.

నేటి నాగరిక ప్రపంచానికి దూరంగా అడవుల్లో నివసిస్తూ తమదైన సంస్కృతి, సంప్రదాయాలను పాటిస్తూ సహజమైన ప్రకృతిలో పుట్టి, ఆ సహజ ప్రకృతిలోనే పెరిగి, ఆ ప్రకృతిలోనే లీనమయిపోయే తెగలను ఆటవిక తెగలుగా చెప్పవచ్చునని ఆచార్య జర్రా అప్పారావు నిర్వచించారు.

గిరిజనులు శారీరక, భౌతిక లక్షణాలలో భాష, మత విధానాలలో సాంఘిక, ఆర్థిక, సాంస్కృతిక అంశాలలో నాగరికుల కంటే ఎంతో వ్యత్యాసాన్ని కలిగి ఉన్నారు. సాధారణంగా గిరిజన సమాజాలు చిన్నవిగా ఉంటాయి. వీరి ఆలోచనలు పరిమితంగా ఉంటాయి. గిరిజనుల సంప్రదాయాలు ఆచారవ్యవహారాలు ప్రత్యేకమైనవి.

ఆంధ్రరాష్ట్రంలో అన్ని రకాలుగా వెనుకబడిన వారు ప్రకృతిపురుషులు (ఆదివాసులు). రాజకీయంగా, ఆర్థికంగా, సామాజికంగా ఆహార-ఆరోగ్య విషయాలలోనూ పేదతరగతుల స్థాయికి కూడా వీరు నోచుకోలేదు. ఏ ఇబ్బంది వచ్చినా, కష్టం వచ్చినా తొలుత సప్తపోయేది వీరే.

పిల్లల సమస్యలు - వ్యక్తిత్వ వికాస పరిశీలన



డా॥ఆర్.కుసుమ కుమారి,
ఎం.ఎ; ఎం.ఫిల్; పిహెచ్.డి; డి.లిట్ (గోల్డ్ మెడలిస్ట్)
తెలుగు సహాయ ఆచార్యులు (HOD),
డా॥వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి. కళాశాల,
విశాఖపట్నం,
చరవాణి: 9963625639.

పరిచయం:

చాలా మంది మాకిప్పుడే సమస్యలు లేవు. అన్నీ తీరిపోయాయి. ఇక మా ఎదుగుదలకు, పురోభివృద్ధికి తగిన ప్రణాళికలు వేయాలి అనుకుంటారు. కానీ సమస్యలు అనేది మన జీవితంలో అంతర్భాగాలు. వాటికనలు ముగింపు లేదు. ఒక సమస్య పూర్తి కాగానే, మరో సమస్య మొదలవుతుంది. జీవితంలో ఇది చాలా సహజం. జీవితంలో వచ్చే అనేక సమస్యల నుండి అవసరమైన పాఠాలు నేర్చుకొని పైకి ఎదగాలి. ఇది ఏ ఒక్కరికో కాక ప్రతి ఒక్క మనిషికి ఇలాగే ఉంటుంది. సమస్యలు లేకుండా ఎవరూ ఉండరు.

మన అభివృద్ధికి సమస్యలు జోక్యం అవకుండా, వాటి ప్రభావం పడకుండా చూసుకోవలసిన బాధ్యత మనదే. మనిషికి ఎన్ని అడ్డంకులు ఉన్నా, ఎన్ని ఆటంకాలు ఎదురైనా మనం ముందుకు సాగుతూనే ఉండాలి. జీవితంలో ఎన్ని బాధలు, సమస్యలు ఉన్నా మానసిక స్థైర్యం ముందు అవన్నీ బలాదూరే. అయితే సమస్యలు వచ్చినప్పుడు దానితో పాటు వాటికి పరిష్కారాలు ఉంటాయి.

కొంత మంది తమకు జీవితంలో అన్ని సదుపాయాలు, సౌకర్యాలు, సుఖాలు ఉన్నాయని, ఇక ఎలాంటి సమస్యలు రావు రావు అని గట్టి నమ్మకంతో చెప్తుంటారు. అలా అనుకుంటుంటారు. ఇలాంటి వారు మానసికంగా ఇంకా ఎదగలేదని అర్థం చేసుకోవాలి. అలా అనుకోవడం కొంతవరకు మంచిదే. సమస్యలు, కష్టాలు రావాలని, ఉండాలని, కావాలని ఎవరూ కోరుకోరు కదా.

జీవితంలో ఎప్పుడు ఏం జరుగుతుందో చెప్పలేం. 'అప్ అండ్ డౌన్స్' వస్తుంటాయి. అన్నింటికీ సిద్ధపడి ఉండాలి. సమస్యలు వచ్చినప్పుడు కూడా సావధానంగా ఉండటం నేర్చుకోవాలి. సమస్యల్ని ఆహ్వానించడం నేర్చుకున్నట్లయితే, వాటిపట్టు జారిపోయి మీరు వాటికి బానిస అవకుండా, మాష్టరు అవుతుంటారు. అంటే ఎంతో మనో ధైర్యంతో ఉంటారు. కష్టాలకు రాటు తేలిపోతారు. అవి వచ్చినా పట్టించుకోకుండా మన పనేమిటో మనం చూసుకోవచ్చు.

1) మంచి అలవాట్లు ఏర్పర్చుకోవడం:

జీవితాన్ని ఆనందమయం చేసుకోవాలంటే ప్రతి వ్యక్తి మంచి అలవాట్లు నేర్చుకోవాలి. మంచి అలవాట్లతో మనిషి మహోన్నత వ్యక్తిగా తీర్చిదిద్దబడతాడు. మంచి అలవాట్లు అనేవి అప్పటికప్పుడు రావు. కొంత జన్మత చిన్ననాటి నుండే అలవడాలి. దానికి తోడు తల్లిదండ్రులు పిల్లలకు కొన్ని నేర్పాలి. 1) ఎప్పుడూ నిజమే చెప్పాలి. నిజాన్నే నిర్భయంగా ఒప్పుకోవాలి. 2) కోపతాపాలకు దూరంగా ఉండాలి. సహనాన్ని అలవరచుకోవాలి. 3) నీతి నియమాలను పాటించాలి. 4) ఆత్మస్థైర్యం పెంపొందించుకోవాలి.



Cover Page



శరణార్థి పుస్తక సమీక్ష

డా॥ఆర్.కుసుమ కుమారి,
తెలుగు అధ్యాపకురాలు (HOD),
డా॥వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి. కళాశాల
విశాఖపట్నం,

ఉపోద్ఘాతం:-

శరణార్థి: పంతొమ్మిది వందల ఎనభైలో రాయబడింది. అదే సంవత్సరం యువ మానవత్రికలో ప్రచురించబడింది. ఆ తరువాత 1982లో రాజమండ్రి వారి ప్రచురణ కథాగౌతమి, సాహితీ వేదికలో పునర్ముద్రణ పొందింది. 1990లో చినవీరభద్రుడి గారి కథలకు సంబంధించిన 'ప్రశ్నభూమి' కథా సంపుటంలో మళ్ళీ ప్రచురించబడింది. తరువాత 2023 మార్చిలో ఎమెస్కోవారు ప్రచురించిన 'వాడ్రేపు చినవీరభద్రుడి కథలు' సంపుటంలో ఓ కథానికగా చోటు సంపాదించుకుంది.

కథా సంగ్రహం:

కథానికలో ముఖ్య పాత్రలు రెండు. ఒకటి పురుష పాత్ర కాగా రెండోది స్త్రీ పాత్ర. స్త్రీ పాత్ర పేరు సముద్రం. పురుషపాత్రకు పేరు లేదు. పురుష పాత్ర స్వగ్రామం విశాఖపట్టణానికి సమీపంలోనున్న ఓ గ్రామం. తండ్రి వ్యవసాయం చేస్తుంటాడు. తనను తండ్రి బడిలో చేర్పించే సమయంలో ఓ మాష్టారు పురుష పాత్ర వయసే గల తన కూతురు సముద్రాన్ని అదే బడిలో చేర్పిస్తాడు. మాష్టారు స్వగ్రామం భీమిలి అదే భీమునిపట్నం. పురుషపాత్ర, సముద్రంలు కలిసే కొన్ని తరగతులు చదువుకొంటారు. ఇద్దరూ ఎనిమిదో తరగతిలో ప్రవేశించినప్పుడు సముద్రం చదువు మధ్యలో ఆపేస్తుంది. పురుష పాత్ర మాత్రం ఆ గ్రామంలోనే బి.ఎ వరకు చదువుకొంటాడు. అప్పుడప్పుడూ సముద్రాన్ని కలుస్తుంటాడు. ఇద్దరూ బాల్యం నుంచి అన్యోన్యంగా తిరుగుతుండడం, ఆటలాడుతుండడం వల్లనేమో సముద్రం పురుషపాత్రని ప్రేమిస్తుంటుంది. కానీ తన ప్రేమను ఎప్పుడూ అతని దగ్గర వ్యక్తం చేయలేదు. పురుషపాత్రకు మాత్రం సముద్రం అంటే ఇంటర్మీడియట్ పూర్తయ్యేవరకు ఆ యువతిమీద భక్తి గౌరవాలు తప్ప ప్రేమ వుండేది కాదు. అయితే డిగ్రీ చదివే సమయంలో మాత్రం సముద్రాన్ని వివాహం చేసుకుంటే బాగుంటుంది కదా! అని అనుకుంటాడు. ఈ విషయంలో తండ్రి అభిప్రాయమేంటో, మాష్టారు (అంటే సముద్రం తండ్రి) అభిప్రాయం

New Password Embedding Technique Using Elliptic Curve Over Finite Field



D. Sravana Kumar, C. H. Suneetha and P. Sirisha

Abstract In the present sophisticated digital era, safe communication of user password from one source to the other is quite difficult in client/server system. Also storing the password as it appears increases the potential risk of the security. Protection of the password is at most important in group communications to avoid the access of the illegal person to group resources. In addition, a roaming user who uses the network from different client terminals requires access to the private key. The present paper explains secure communication of password from one entity to the other. Here the password is encrypted using elliptic curve over finite field, embedded in a large random text at different selected positions, and communicated to the receiver via public channel.

Keywords Encryption · Decryption · Elliptic curve over finite field

1 Introduction

Since the digital network is growing explosively, the main difficulty in password communication mechanisms arises due to the fact that password is generally very small in length and simple. Exhaustive search attack will break the security of the password easily. Though the password is very small in size, it remains safe if it is communicated as cryptographic key. Diffie–Hellman key exchange protocol is an asymmetric cryptographic technique to negotiate session key over a secure channel which is revolutionary in the history of public key cryptography. But Diffie–Hellman

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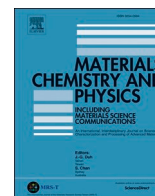
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Exploring the optical and biological aspects of sodium- doped CuO nanoparticles

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HIGHLIGHTS

- Undoped and Na-doped CuO nano-powders were synthesized by coprecipitation method.
- XRD, FESEM and HRTEM were used to analyse the structural properties and surface morphology of the nano-powders.
- The influence of Na doping on the optical parameters of the nano-powders was investigated.
- The antibacterial activity of the nano-powders was tested against Gram-negative and Gram-positive bacteria.
- The highest antifungal activity was achieved against *Candida albicans*.

ARTICLE INFO

Keywords:

Copper oxide
Sodium-doping
Co-precipitation
Antibacterial activity
Antifungal activity

ABSTRACT

In this article, we present a novel coprecipitation technique for synthesizing pure and sodium-doped CuO ($\text{Cu}_{1-x}\text{Na}_x\text{O}$) nano powders with different sodium concentrations ($x = 0, 0.01, 0.02, 0.04, 0.06, 0.08, \text{ and } 0.10$). The structural properties of the samples were analysed using powder X-ray diffraction (PXRD), which revealed an average crystallite size of 12.48–10.50 nm. The bonding nature of the $\text{Cu}_{1-x}\text{Na}_x\text{O}$ samples was described by Fourier transform infrared (FTIR) spectroscopy. The UV–Visible spectroscopic analysis showed a band gap energy of 1.240–1.456 eV and a refractive index that decreased with an increase in Na doping concentration. Field emission scanning electron microscopy images revealed the spherical, flower-shaped, and flake-like morphologies of the nanoparticles, which had sizes ranging from 42.45 ± 5.49 – 33.98 ± 4.32 nm. Energy-dispersive X-ray spectroscopy and elemental mapping were used to confirm the purity of the samples and the presence of Cu, O, and Na elements in the $\text{Cu}_{1-x}\text{Na}_x\text{O}$ samples. High-resolution transmission electron microscopy photomicrographs confirmed that the samples were polycrystalline and the nanoparticles exhibited nucleation with lattice spacing, as shown by selected-area electron diffraction patterns. Furthermore, the $\text{Cu}_{1-x}\text{Na}_x\text{O}$ nano powders exhibited efficient antibacterial and antifungal activities. The antibacterial activity was tested against major bacterial strains, and the highest inhibition zones were observed to be 13.67 ± 1.11 mm ($x = 0.06$), 10.67 ± 0.94 mm ($x = 0.10$), 15 ± 1.11 mm ($x = 0.10$), and 9.25 ± 0.25 mm ($x = 0.06$) for *P. aeruginosa*, *B. subtilis*, *S. aureus*, and *K. pneumonia*, respectively. In addition, the antifungal activity of the Na-doped CuO nano powders was found to be enhanced against polymorphic fungus *C. albicans* and filamentous fungus *A. niger* with dopant concentration. These results suggest that Na-doped CuO NPs have potential applications in formulating new antifungal drugs and treating various life-threatening bacterial infections.

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Optimization and evaluation of a multiplex PCR assay for detection of *Staphylococcus aureus* and its major virulence genes for assessing food safety

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Abstract

Staphylococcus aureus is a natural commensal microflora of humans which causes opportunistic infections due to its large arsenal of exotoxins, invasion, immune evasion, and antibiotic resistance mechanisms. The primary goal of this study is to develop a multiplex PCR (mPCR) assay for simultaneous detection of *Staphylococcus aureus* (*nuc*) and its virulence genes coding for prominent exotoxins namely alpha hemolysin (*hla*), enterotoxins A (*sea*), enterotoxin B (*seb*), toxic shock syndrome toxin (*tsst-I*), and the gene coding for methicillin resistance (*mecA*). A competitive internal amplification control (IAC) was included in the assay to exclude the false negative outcomes. Highly specific primer pairs were designed for the target genes using in silico resources. At the outset, monoplex PCRs were standardized using reference *S. aureus* strains. Primer specificity to the target genes was authenticated through restriction digestion analysis of amplified PCR products. Multiplex PCR was optimized in increments of one gene starting with *nuc* and IAC amplified simultaneously using one pair of primers (*nuc*) in a competitive manner. The mPCR assay was found to be highly sensitive with a detection limit of ~10 CFUs per reaction for pure cultures. Multiplex PCR assay was further evaluated on the retail and processed food samples to test the prevalence of *S. aureus* and study their exotoxin profiles. Of the 57 samples examined, 13 samples (22.80%) were found to be contaminated with *S. aureus* whose DNA was extracted after a 6-h enrichment period. Among these, a high percentage of hemolytic and enterotoxin A positive strains were encountered. The mPCR assay developed in this study would be a useful tool for rapid and reliable monitoring of *S. aureus* for food quality testing and from clinical infections.

Keywords Staphylococcal enterotoxin A · Staphylococcal enterotoxin B · Alpha hemolysin · Toxic shock syndrome toxin · Methicillin resistance · Food quality testing

Introduction

Staphylococcus aureus is an opportunistic pathogen associated with several clinical manifestations such as skin and soft tissue infections, and food poisoning to life-threatening

complications such as pneumoniae, endocarditis, osteomyelitis, and toxic shock syndrome [1]. *S. aureus* is responsible for nosocomial and community-acquired infections [2]. WHO has categorized *S. aureus* as one of the 6 priority nosocomial pathogens (ESKAPE) of international concern to public health based on their multidrug resistance phenotype and virulence mechanisms [3]. Contamination of food with *S. aureus* followed by secretion of enterotoxins is responsible for staphylococcal food poisoning responsible for several food poisoning outbreaks globally [4–7]. *S. aureus* has been reported from a wide variety of foods such as confectionery items, meat products, fruit juices, ready-to-eat salads, salad dressings, and dairy products [8]. *S. aureus* is capable of proliferating in a wide range of temperature, pH, and salt concentrations thereby enabling it to grow in wide variety of foods [9]. The presence of *S. aureus* in food is an indication of poor hygiene, and efficient detection

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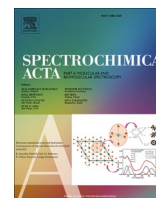
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Physiochemical characterization of sodium doped zinc oxide nano powder for antimicrobial applications

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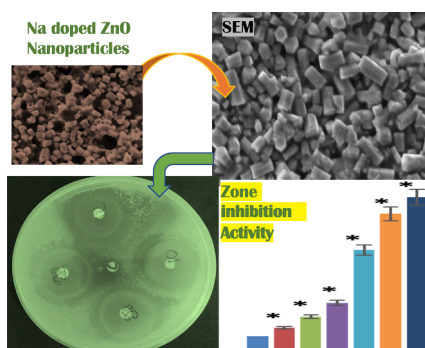
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HIGHLIGHTS

- This article reported the synthesis of pure and Na doped zinc oxide nano powders ($\text{Zn}_{1-x}\text{Na}_x\text{O}$) through co-precipitation process.
- Hexagonal wurtzite $\text{Zn}_{1-x}\text{Na}_x\text{O}$ nano powders with high crystallinity and stability were confirmed by XRD.
- The factors such as particle size and surface morphology were controlled with varying Na concentrations.
- The absorption peaks of as-synthesized $\text{Zn}_{0.99}\text{Na}_{0.01}\text{O}$ samples are recorded at 196, 284 and 365 nm, respectively.
- The as-prepared $\text{Zn}_{1-x}\text{Na}_x\text{O}$ nano powders were proved to be excellent antibacterial and antifungal agents.

GRAPHICAL ABSTRACT



ARTICLE INFO

Keywords:

ZnO NPs
Semiconductors
Optical properties
Antibacterial activity
Antifungal activity

ABSTRACT

Zinc oxide (ZnO) is one of the semiconductor materials with unique antimicrobial properties towards various microorganisms. In this article, pure and Na doped ZnO nanopowders were synthesized by easiest and cost-effective co-precipitation process. X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), ultraviolet – visible (UV – Vis) spectroscopy, scanning electron microscopy (SEM), and Energy dispersive X-ray analysis (EDAX) techniques were used to characterize the particle size, surface morphology and chemical composition of prepared materials. The XRD analysis revealed that the samples exhibiting hexagonal wurtzite crystal structure with high crystallinity and the average crystallite size values increased from 23.51 to 28.118 nm. The UV – Vis spectroscopy results exposed that the bandgap energy (E_g) of the samples with the values in the range of 3.068–3.301 eV. The SEM micrographs showed that the morphology of the synthesized particles are hexagonal and spherical in nanometric size. The EDX spectra confirmed the elemental composition of Na, Zn and O in the crystal lattice and FTIR spectroscopic data proved the formation of functional groups and the presence of

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Phenotypic and genetic screening of *Klebsiella pneumoniae* isolates from human UTI patients for beta-lactamases and their genetic diversity analysis by ERIC and REP PCRs

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Abstract

Klebsiella pneumoniae is one of the major nosocomial pathogens responsible for pneumoniae, septicaemia, liver abscesses, and urinary tract infections. Coordinated efforts by antibiotic stewardship and clinicians are underway to curtail the emergence of antibiotic-resistant strains. The objective of the present study is to characterize *K. pneumoniae* strains through antibiotic resistance screening for production of beta-lactamases (β -lactamases) such as extended spectrum beta lactamases (ESBLs), AmpC β -lactamases, and carbapenemases by phenotypic and genotypic methods and genetic fingerprinting by enterobacterial repetitive intergenic consensus-polymerase chain reaction (ERIC-PCR) and repetitive element palindromic PCR (REP-PCR). A total of 85 *K. pneumoniae* strains isolated from 504 human urinary tract infections (UTI) were used in this study. Only 76 isolates showed positive in phenotypic screening test (PST), while combination disc method (CDM) as phenotypic confirmatory test (PCT) confirmed 72 isolates as ESBL producers. One or more β -lactamase genes were detected by PCR in 66 isolates (91.66%, 66/72) with *bla*_{TEM} gene being the most predominant (75.75%, 50/66). AmpC genes could be detected in 21 isolates (31.8%, 21/66) with FOX gene being the predominant (24.24%, 16/66), whereas NDM-I was detected in a single strain (1.51%, 1/66). Genetic fingerprinting using ERIC-PCR and REP-PCR revealed wide heterogeneity among β -lactamase producing isolates with discriminatory power of 0.9995 and 1, respectively.

Keywords *Klebsiella pneumonia* · ESBL · AmpC β -lactamases · NDM-1 · ERIC-PCR · REP-PCR

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Introduction

Klebsiella pneumoniae is one of most ubiquitous and serious nosocomial pathogens of the Enterobacteriaceae family which is frequently responsible for infections involving the gastrointestinal, respiratory and urinary tracts of humans [1–3]. Patients with long-term catheterization and spinal cord injuries are at high risk of urinary tract infections caused by *K. pneumoniae* [4]. In spite of being a common inhabitant on mucosal surfaces of animals, soil, and environment, the organism sprung to limelight with the discovery of strains producing extended spectrum beta-lactamases (ESBLs) in early 1980s in Europe. Since then, the timeline of resistance showed an upward trend with identification of similar strains in the other continents. ESBLs are plasmid-borne enzymes which are primarily produced by members of Enterobacteriaceae family, in particular *Klebsiella pneumoniae*, *K. oxytoca*, and *Escherichia coli*. ESBL enzymes confer the microorganism with resistance



Optical response of Eu^{3+} -activated MgAl_2O_4 nanophosphors for Red emissive

LED Applications

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ABSTRACT

Eu^{3+} -activated magnesium aluminate phosphors were successfully synthesized by nitrate–citrate gel combustion method and thermally treated at 650, 750, 850, and 950°C. The powder X-ray diffraction pattern showed that all MgAl_2O_4 · $x\text{Eu}^{3+}$ ($0 \leq x \leq 0.10$) samples exhibit crystallized cubic phase of spinel structure with space group $\text{Fd-}3\text{m}$. The Debye–Scherrer equation is used to estimate average crystallite size values and are found to be 8.5–12.1 nm, that are also confirmed by high-resolution transmission electron microscopy (HRTEM) images. TGA–DTG results suggest that the maximum decomposition of the precursors were observed below 600°C. Accordingly, the decomposition temperature was taken 650°C and above. The functional groups of the powder samples were determined by FTIR. Energy levels were characterized, and the band gap energy (E_g) has been calculated using UV–Vis absorption spectroscopy and found to be in the range of 5.08–5.19 eV. The FESEM images shows that the nanoparticles are agglomerated and are in nonuniform spherical shape with reduced average particle size from 27 ± 4.1 to 24.1 ± 3.3 nm. Further, the elemental composition of the as-prepared samples was analyzed by using energy-dispersive X-ray spectra (EDAX). The photoluminescent property of MgAl_2O_4 · $x\text{Eu}^{3+}$ samples was investigated using room-temperature emission spectroscopy. These phosphors show different emissions of Eu^{3+} corresponding to $^5\text{D}_0 \rightarrow ^7\text{F}_{J=1,2,3,4}$ transitions which lie in the wavelength range from 590 to

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ప్రశ్నభూమి కథ - సామాజిక పరిశీలన

డా॥ ఆర్.కుసుమ కుమారి

అసిస్టెంట్ ప్రొఫెసర్

డా॥ వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి కళాశాల (స్వ)

విశాఖపట్నం.

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రచయిత పరిచయం :

వాడ్రేపు చినవీరభద్రుడు గారు 1962 మార్చి 28వ తేదీన తూర్పు గోదావరి జిల్లా (ప్రస్తుతం అల్లూరి సీతారామరాజు జిల్లా) రాజవొమ్మంగి మండలంలో ఒక చిన్న గిరిజన పల్లె 'శరభవరం'లో జన్మించారు. తల్లిదండ్రులు సత్సవతి, విశ్వేశ్వర వెంకట చలపతి.

చినవీరభద్రుడు గారు సాహిత్యలోకంలో మంచికవిగా, రచయితగా, అనువాదకుడిగా, వక్తగా, విమర్శకుడిగా, చిత్రకారుడిగా తనదైన ముద్ర వేశారు. సాహిత్య రచనలో కేవలం ఒక ప్రక్రియకు మాత్రమే పరిమితం అవ్వాలన్న ఆలోచన లేకుండా విస్తృతమైన జీవితానుభవాన్ని తన సృజనతో విస్తృతమైన సాహిత్య ప్రక్రియల ద్వారా తెలియజేశారు.

ఈయన 40కి పైగా పుస్తకాలు రాశారు. వాటిలో వివిధ పత్రికలలో కథలు, ఒక నవల, మూడు యాత్రా చరిత్రలు, ఒక కథా సంకలనం, ఏడు కవితా సంపుటాలు, ఒక కవితా సంకలనం, మూడు బాలల వ్యక్తిత్వ వికాస పుస్తకాలు, ఏడు వ్యాస సంపుటాలు, ఒక వ్యాస సంకలనం, పదహారు అనువాద పుస్తకాలు ఉన్నాయి. వీటితో పాటు వివిధ పత్రికలలో కాలమ్స్ కూడా రాశారు.

ప్రశ్నభూమి కథ : ప్రశ్నభూమి అనే కథను వాడ్రేపు చినవీరభద్రుడు గారు రచించారు. ఈ కథ 2002 ఏప్రిల్ లో ప్రజాతంత్ర వర్తమాన సాహిత్య సంచికలో ప్రచురించబడింది. ఒక నవలకు ఏ మాత్రం తీసిపోని విధంగా రచయిత ఈ కథను అత్యద్భుతంగా రాశారు. ఈ కథలో ప్రధానాంశం వర్తమాన కాలంలో సామాజిక స్థితిగతులు. ఈ కథలోని ప్రధాన పాత్రలు ఎమ్మార్వో మోహనచంద్ర, మండలాధ్యక్షుడు గరుగుబెల్లి రామినాయుడు, చయనులు, ఆడ పనిమనిషి. ఈ పాత్రలు సమాజంలోని ఒక్కో వర్గానికి ప్రతినిధులుగా నిలుస్తాయి.

ప్రశ్నభూమి కథ - సామాజిక పరిశీలన :

సమాజంలో రాజకీయ నాయకులకు, ప్రభుత్వ అధికారులకు మధ్య ఎప్పటి నుండో ప్రారంభమై నేటికీ కొనసాగుతున్న వర్గపోరు, ఆధిపత్యపోరును రచయిత ఈ కథ ద్వారా తెలియజేశారు. ప్రజలకు మంచి చేయాలనే తపనతో ప్రభుత్వ ఉద్యోగంలో చేరిన అధికారులను కొందరు స్వార్థ రాజకీయ నాయకులు వారి అవినీతిని కప్పిపుచ్చుకోవడం కోసం ఏ విధంగా ప్రలోభాలకు గురి చేస్తున్నారో, వారి ప్రలోభాలకు లొంగని వారిపై ఏ విధంగా తప్పుడు కేసులు పెడుతున్నారో మనం ఈ కథలో పరిశీలించవచ్చు.

ఒక సామాన్య మనిషి పేదరికంలో పుట్టి విలువలతో పెరిగినప్పటికీ, ప్రభుత్వ అధికారిగా ఉద్యోగంలో చేరిన తరువాత కుర్చీ కొత్తగా తీసుకువచ్చిన అహంకారం, అధికార దుర్వినియోగం, నిర్దయ వంటి అవలక్షణాలు ఏ విధంగా పొందుతున్నాడు. దాని పర్యావసానాలు ఏంటో ఈ కథలో గమనించవచ్చు.



Cover Page



జానపద విజ్ఞానంలో తెలుగు భాష

డా॥ రామావత్ కుసుమ కుమారి

అసిస్టెంట్ ప్రొఫెసర్ తెలుగు

డా॥వి.యస్.కృష్ణ గవర్నమెంట్ డిగ్రీ &పి.జి కాలేజి

కళాశాల(అటానమస్), విశాఖపట్టణం

చరవాణి-9963625639

“ఆనందో బ్రహ్మ యటంచు ప్రాచదువు సంతర్బుద్ధి నూహింర్బుద్ధి నూహింపుమా” అని మను చరిత్రలో అల్లసాని వాని అల్లిక జిగిబిగి సమయం, సందర్భం ఏదైననూ ఆనంద మయం బ్రహ్మ బ్రహ్మమే ఆనందమయం అనునది మాత్రం ముఖ్యార్థం. “మానసో వికారో భావః” అంటే మనస్సులో కల్గిన ఒకానొక పరివర్తనే వికారం. ఆ వికారమే భావం. అనాదిగా వస్తున్న ఆచారాలకు ఆయువు పట్టు జానపద సాహిత్యం. పుట్టుకతో పల్లె పట్టులే ఉనికి పట్టుగా గలవారు జానపదులు. తత్ సంబంధమైన సాహిత్యమే జానపద సాహిత్యం. ఆంగ్లములోని Folklore అను పదమునకు సమానార్థకముగా తెలుగు నందు “జానపద విజ్ఞానము” అను మాటవాడబడుతున్నది. జనపదమనగా పల్లె, ఆ జనపదమునందు ఉండేవారే జానపదులు. వారికి సంబంధించిన జ్ఞాన విజ్ఞానమే జానపద విజ్ఞానము. ఈ విజ్ఞానములో వారికి సంబంధించిన వాఙ్మయమే కాక జానపద కళలు, భాష, నృత్యము, సంగీతము, నాటకము, పాటలు, ఆటలు, జానపద వైద్య విధానము, జానపదుల ఆచార వ్యవహారాలు, వారి యొక్క అలంకరణ వస్త్రాధారణ మొదలగునవన్నీ చేరును.

జానపద వాఙ్మయమున జానపద గేయములు, గేయ కథలు, సామెతలు, పొడుపు కథలు, గద్యాఖ్యానాలు, మెదలగునవి కలసి చేరును. పురాణం, ప్రబంధం మెదలగునవి శిష్ట సాహిత్య మార్గమునకు చెందినవి. ఇది నాగరికులలో పండిత లోకంలో పుట్టి ప్రచారం పొందుతాయి. కానీ జానపద సాహిత్యము ప్రజా సామాన్యములో పుట్టి వారిలో ప్రచారము పొంది జీవించును. ఇది జానపదుల మానసిక భావనా స్వరూపమును, సుఖదుఃఖములను, యధాతథంగా చిత్రించును.

“సంగీత సాహిత్యమపి సరస్వతో కుచద్వయమ్.

ఏకమాపాత మధురం అన్యదాలోచనామృతమ్” - అనే శ్లోకం అర్వాచీన జానపద గేయాలలోని ఆపాత మధురమైన సంగీతం ఆబాలగోపాలాన్నీ ఆకట్టుకొంటుంది. పండుగ పబ్బాలలోనో, పని పాటలందునో, కష్ట సుఖాలందునో సాంఘిక సంఘటనలను కలగాపులగం చేసి ఎదుటివారి హృదయాన్ని ద్రవీభూతల చేయునట్లు జానపదుల నోట ధారావాహికంగా వెలువడ్డ జానపద గేయాలు యత్నార్థకాలో నిర్ధారించడం ఆవశ్యకం.

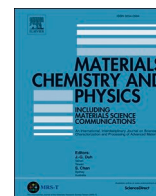
మొల్ల తన రామాయణంలో కవిత్వపు తీరుతెన్నులను గూర్చి

“తేనె సోక నోరు తీయన యగురీతి

తోడ నర్థ మెల్ల తోచకున్న

గూఢ శబ్దములను గూర్చిన కావ్యంబు

మూగ చెవిటి వారి ముచ్చటగును ” అని ‘తేటతెలుగులో’ తెలియజేసింది.



Exploring the optical and biological aspects of sodium- doped CuO nanoparticles

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HIGHLIGHTS

- Undoped and Na-doped CuO nano-powders were synthesized by coprecipitation method.
- XRD, FESEM and HRTEM were used to analyse the structural properties and surface morphology of the nano-powders.
- The influence of Na doping on the optical parameters of the nano-powders was investigated.
- The antibacterial activity of the nano-powders was tested against Gram-negative and Gram-positive bacteria.
- The highest antifungal activity was achieved against *Candida albicans*.

ARTICLE INFO

Keywords:

Copper oxide
Sodium-doping
Co-precipitation
Antibacterial activity
Antifungal activity

ABSTRACT

In this article, we present a novel coprecipitation technique for synthesizing pure and sodium-doped CuO ($\text{Cu}_{1-x}\text{Na}_x\text{O}$) nano powders with different sodium concentrations ($x = 0, 0.01, 0.02, 0.04, 0.06, 0.08, \text{ and } 0.10$). The structural properties of the samples were analysed using powder X-ray diffraction (PXRD), which revealed an average crystallite size of 12.48–10.50 nm. The bonding nature of the $\text{Cu}_{1-x}\text{Na}_x\text{O}$ samples was described by Fourier transform infrared (FTIR) spectroscopy. The UV–Visible spectroscopic analysis showed a band gap energy of 1.240–1.456 eV and a refractive index that decreased with an increase in Na doping concentration. Field emission scanning electron microscopy images revealed the spherical, flower-shaped, and flake-like morphologies of the nanoparticles, which had sizes ranging from 42.45 ± 5.49 – 33.98 ± 4.32 nm. Energy-dispersive X-ray spectroscopy and elemental mapping were used to confirm the purity of the samples and the presence of Cu, O, and Na elements in the $\text{Cu}_{1-x}\text{Na}_x\text{O}$ samples. High-resolution transmission electron microscopy photomicrographs confirmed that the samples were polycrystalline and the nanoparticles exhibited nucleation with lattice spacing, as shown by selected-area electron diffraction patterns. Furthermore, the $\text{Cu}_{1-x}\text{Na}_x\text{O}$ nano powders exhibited efficient antibacterial and antifungal activities. The antibacterial activity was tested against major bacterial strains, and the highest inhibition zones were observed to be 13.67 ± 1.11 mm ($x = 0.06$), 10.67 ± 0.94 mm ($x = 0.10$), 15 ± 1.11 mm ($x = 0.10$), and 9.25 ± 0.25 mm ($x = 0.06$) for *P. aeruginosa*, *B. subtilis*, *S. aureus*, and *K. pneumonia*, respectively. In addition, the antifungal activity of the Na-doped CuO nano powders was found to be enhanced against polymorphic fungus *C. albicans* and filamentous fungus *A. niger* with dopant concentration. These results suggest that Na-doped CuO NPs have potential applications in formulating new antifungal drugs and treating various life-threatening bacterial infections.

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RESEARCH

Open Access



Mapping of conserved immunodominant epitope peptides in the outer membrane porin (Omp) L of prominent *Enterobacteriaceae* pathogens associated with gastrointestinal infections

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Abstract

Background Members of *Enterobacteriaceae* such as *Escherichia coli* O 157:H7, *Salmonella* sp., *Shigella* sp., *Klebsiella* sp., and *Citrobacter freundii* are responsible for the outbreak of serious foodborne illness and other mucosal infections across the globe. The outer membrane proteins (OMPs) of *Enterobacteriaceae* are highly immunogenic in eliciting immune responses against pathogens. Moreover, the OMPs are highly conserved in the *Enterobacteriaceae* family. Sequence homology in the OMPs will ensure the presence of conserved immunodominant regions with predominant epitopes. The OmpL is such an immunogen that is highly conserved among the *Enterobacteriaceae* pathogens. In this study, we performed computational analysis on the outer membrane porin (Omp) L of prominent *Enterobacteriaceae* pathogens.

Results Multiple sequence and structural alignment analysis have revealed that the OmpL protein is highly conserved among the selected *Enterobacteriaceae* pathogens. This amount of sequence and structural homology uncovered the conserved antibody binding B-cell epitopes in the OmpL protein. The B-cell epitopes predicted in the OmpL of *Salmonella typhimurium* are highly conserved among the other *Enterobacteriaceae* pathogens.

Conclusion In conclusion, these conserved B-cell epitopes will vouch for the generation of heterologous humoral immune response in conferring cross protection against the *Enterobacteriaceae* pathogens and control their outbreaks across the globe.

Keywords Outer membrane porin (Omp) L, Sequence homology, B-cell epitopes, Epitope conservancy

Background

Members of the *Enterobacteriaceae* family cause serious foodborne illnesses across the globe. It has remained a serious threat to the public in both developed and developing countries. The *Enterobacteriaceae* members contaminate food and water and are responsible for the primary cause of foodborne outbreaks around the world. Some of the *Enterobacteriaceae* members such as *Escherichia coli*, *Salmonella* sp., and *Shigella* sp. are the major foodborne pathogens [1]. These enteric pathogens are

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Synthesis and Greenish-Yellow Luminescence Properties of $\text{Li}_6\text{AlGd}(\text{BO}_3)_4:\text{Tb}^{3+}$ Phosphors for Solid State Lighting

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The $\text{Li}_6\text{AlGd}_{(1-x)}(\text{BO}_3)_4:x\text{Tb}^{3+}$ ($0 \leq x \leq 4.0$ mol%) phosphors are fabricated via solid-state reaction process. The structural investigations are carried out through powder X-ray diffraction and Fourier transform infrared techniques. The morphology is examined using high-resolution scanning electron microscope and transmission electron microscope. The temperature-dependent luminescence properties are completed at 378 nm excitation. The photoluminescence excitation analysis is carried out by controlling the emission at 545 nm corresponding to $\text{Tb}^{3+}:\text{D}_4 \rightarrow \text{F}_5$ transition. The suitable excitation wavelength is selected as 378 nm for efficient emission by studying the emission spectra at several excitation wavelengths. The emission spectra show two groups of emission bands through $\text{Tb}^{3+}:\text{D}_3 \rightarrow \text{F}_j$ and $\text{Tb}^{3+}:\text{D}_4 \rightarrow \text{F}_j$ transitions. The concentration-dependent investigations reveal the optimum Tb^{3+} ions concentration as 2.0 mol % for intense luminescence. Upon 378 nm excitation, they produce greenish-yellow luminescence of color purity 60% with CIE color coordinates (0.286, 0.572) close to the standard European Broadcasting Union Green Illuminant and they found suitability in the design of solid-state lighting devices.

1. Introduction

Recently, research on rare earth (RE) ions activated inorganic phosphor materials has become a significant field to invent new, novel, and energy-saving optical materials possessing high quantum efficiency to meet the requirement of electronic, automobile, communication, and scientific fields.^[1–3] They have been used for a variety of applications such as solid-state visible lasers, high-performance

flat panel displays, optical storage devices, optoelectronic devices like solar cells, photo-diodes, and electro-optic devices like light-emitting diodes (LEDs).^[4–7] The luminescence properties such as emission intensity, emitted color purity, concentration quenching, optimal excitation wavelength, and efficiency of emitted luminescence have been influenced by the crystalline phase, the size of crystallites, and the surface morphology of the host matrix. Therefore, it is possible to tune precisely the emitted luminescence of RE^{3+} ions by governing the surface morphology, the phase of the lattice by adding the modifiers, and the method of synthesis which includes the sintering temperature and duration of the process of sintering.^[8,9] Among the available methods of synthesis of phosphors, the solid-state reaction method is the prominent and easy method to produce high-yield luminescence by consuming less thermal energy in an environmental friendly mode.

In the field of indoor lighting technology, the blue-green-red tricolor phosphor-based white LEDs occupy the highest position due to their efficient white light yielding compared to blue-LED excited $\text{Ce}^{3+}:\text{Y}_3\text{Al}_5\text{O}_{12}$ yellow phosphor. Recently, the National Renewable Energy Laboratory (NREL) has introduced a new methodology to yield high-efficiency white light by combining yellow-green LED with other colored LEDs. The green light of specific wavelength has been used in the treatment of human body cells and/or tissues and also to boost health. Therefore, there is a demand for new and novel yellow-green emitting materials which are capable of generating white light as well as a potential light source in medicine. Among the RE ions, trivalent terbium is one the activators of emitting greenish-yellow luminescence efficiently through $(^5\text{D}_3, ^5\text{D}_4) \rightarrow ^7\text{F}_j$ ($J=6, 5, 4, \dots, 0$) transitions under suitable excitation when positioned sustainable crystalline environment.^[10–12] The alumino-borate-based phosphors comprising Gd^{3+} ions are the suitable host materials to enhance the luminescence properties of RE^{3+} ions.^[13–15] The present research work reports the preparation, structural, morphological, and luminescence analysis of several concentrations of Tb^{3+} ions-doped $\text{Li}_6\text{AlGd}(\text{BO}_3)_4:x\text{Tb}^{3+}$ phosphors for solid-state lighting (SSL) technology. The concentration-dependent luminescence and the color tunability in emitted luminescence under different excitation wavelengths are explored with suitable illustrations.

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RESEARCH ARTICLE

Orange-red luminescence of samarium-doped bismuth–germanium–borate glass for light-emitting devices

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Abstract

Samarium (Sm^{3+})-doped glass has sparked a rising interest in demonstrating a noticeable emission in the range of 400–700, which is advantageous in solid-state lasers in the visible region, colour displays, undersea communication, and optical memory devices. This study reports the fabrication of Sm^{3+} -doped bismuth–germanium–borate glasses were established using a standard melt-quenching technique and inspection by absorption, steady-state luminescence, and transient studies. The typical peaks of Sm^{3+} ions were detected in the visible range under 403 nm excitation. A strong emission band was detected at 599 nm that resembles the $^4\text{G}_{5/2} \rightarrow ^6\text{H}_{7/2}$ transition of Sm^{3+} ions for BGBiNYSm_{0.5} glass. Furthermore, a reddish-orange (coral) luminescence at 646 nm that resembles the $^4\text{G}_{5/2} \rightarrow ^6\text{H}_{9/2}$ transition was also perceived. The stimulated emission cross-section of $^4\text{G}_{5/2}$ level for BGBiNYSm_{0.5} glass was $0.39 \times 10^{-22} \text{ cm}^2$. Lifetime of the $^4\text{G}_{5/2}$ level was enhanced for the BGBiNYSm_{0.5} glass and decreased with an increase in active ion concentrations. The lifetime quenching of ions at the metastable state was because of energy transfer among Sm^{3+} ions by cross-relaxation channels. Commission Internationale de l'Éclairage (CIE) coordinates were evaluated from the emission spectra. Moreover, all the findings recommend these glass as light-emitting materials in the coral region at 599 nm for solid-state lighting applications.

KEYWORDS

coral emission, decay curves, germanium–borate glass, photoluminescence, radiative parameters, Sm^{3+} ion

1 | INTRODUCTION

Lanthanide (Ln)-doped glass has been found as a potential material for the development of lasers [1], amplifiers [2], colour displays [3], memory devices [4], sensors [5], upconverters [6], downconverter [7], optical waveguides [8], and laser cooling of solids [9–11] due to their interesting physical, chemical, mechanical, and optical properties.

Bismuth oxide (Bi_2O_3) is one of the essential prominent glass-forming and fluxing materials. Glass melts with high content of Bi_2O_3

display somewhat high thickness and are prone to form glass. Interest in borate glass is mostly because of compatibility with Ln ions and transition metal ions, low melting temperatures, wide glass-forming ability and high optical nonlinearity [12]. Conversely, boric oxide (B_2O_3) has a long bond length, and a smaller heat of fusion and cation. It is a candidate for a glass former and a flux material. When Bi^{3+} is bonded with oxygen is simply able to form a glass structure. The Bi^{3+} has a high density and is transparent, but it does not form a glass structure itself. Therefore, the glass scintillator is fashioned with B_2O_3



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అలంకార గ్రంథాలు - ఒక పరిశీలన

డా॥ఆర్. కుసుమ కుమారి,

ఎం.ఎ; ఎం.ఫిల్; పిహెచ్.డి; డి.లిట్ (గోల్డ్ మేడలిస్ట్)

తెలుగు సహాయ ఆచార్యులు (HOD),

డా॥వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి. కళాశాల

విశాఖపట్నం, చరవాణి: 9963625639.

పరిచయం : కావ్యానుశీలనం చేసే శాస్త్ర గ్రంథాలను కావ్యశాస్త్రాలని, సాహిత్యశాస్త్రాలని అంటారు. వీటికి అలంకార శాస్త్రాలని చాలా ప్రచారంలో ఉన్న పేరు. వీటిలో కావ్య సంబంధమైన చర్చలు ఉంటాయి. కాబట్టి వీటిని దివ్య విమర్శనా గ్రంథాలను కూడా అనవచ్చును. ఇంకా వీటిల్లో లక్షణాలు మరియు లక్ష్య భూతంగా కావ్యాల సమీక్షలు ఉండటం చేత వీటిని లక్షణ గ్రంథాలను కూడా అంటారు.

అయితే కావ్యాల సాధుత్వ సాధుత్వాలను నిర్ణయించటానికి పెడమార్గాన్నిపెట్టే కవిత్వాన్ని సంరక్షించడానికి విమర్శన లక్షణ రూపాలైన కావ్య శాస్త్రాలు ఉదయించాయి. వీటిలో కవిత్వ దోషాలు, కవిత గుణాలంకార రసాదులు, కవి ప్రతిభాదులు చర్చించబడి ప్రాచీన కాలంలో కావ్య విమర్శలు జరగలేదని లోటును ఈ అలంకార శాస్త్ర గ్రంథాలు తీరుస్తున్నాయి.

లక్షణాలు : అతి ప్రాచీనమైన కాలంలోనే అలంకార శాస్త్ర గ్రంథాలు రచించబడ్డాయి. అయితే అలంకార శాస్త్రాల వల్లనే వేద సాహిత్యం అర్థమవుతుందని ప్రసిద్ధి అలంకారికుడు రాజశేఖరుని అభిప్రాయం. అలంకార శాస్త్రాల్లో ప్రధానంగా చర్చించబడే అంశాలు కవ్యనాటిక లక్షణాలు, కావ్య సిద్ధాంతాలు, కావ్య భేదాలు, నాయక నాయక లక్షణాలు, రసవి ప్రముఖు అలంకారికుల గ్రంథంలోని విషయాలను చూద్దాం. రుపణం, కావ్య గుణ దోషాలు, శబ్ద శక్తులు అలంకారాదులు మొదలైనవి.

భరతుని నాట్య శాస్త్రం: అలంకార శాస్త్ర గ్రంథాల్లో మొదటిది భరతుని నాట్య శాస్త్రమే. ఇదొక బృహద్గ్రంథం. ఇందులో సూత్ర,భాష,కారికలు - ఈ మూడు రూపాల్లో ఉంది. దీనిలో 600 శ్లోకాలు ఉన్నాయి. అన్ని శ్లోకాలే కాక అక్కడక్కడ గద్యం కూడా ఉంది. దీనిలో నాట్యకో ఉత్పత్తి, నాటక భేదాలు వాటి లక్షణాలు, నృత్యం, అభినయ, విధానాలు, నాటకాలలోని భాష, సంవాద స్వరూపం, ఇతివృత్త విధానం, గాయ నవాదనలు, నాయక నాయక లక్షణాలు, రసనిష్పత్తి, రసస్వరూపం, ప్రేక్షకులు, నాట్య శాలల నిర్మాణ పద్ధతులు, రంగస్థలం, రంగాలంకరణలు మొదలైనవి చర్చించబడ్డాయి. తర్వాత రచించబడ్డ అలంకార శాస్త్ర గ్రంథాలకు ఇది ఉపజీవ్య గ్రంథంగా ఏర్పడింది. నాట్య కళ విజ్ఞానమంత చెప్పబడిన ఈ గ్రంథం నాట్యవేదం అని కూడా పిలవబడుతుంది. ఈనాటి వేదాన్ని రచించిన భక్తుడు మునిస్థానాన్ని పొందటంలో ఏమీ ఆశ్చర్యం లేదు. భరతుని నాట్య శాస్త్రమే పండిత జనాదరణ పొంది అధిక ప్రచారంలో ఉండి మిగిలింది. ఆయా కాలంలో ప్రక్షిప్తాలను తనలో నేర్చుకుంటూ నశించకుండా నిలిచింది. అందుకే భరతుని నాట్య శాస్త్రం నాట్య కళా సంబంధమైన విజ్ఞాన సర్వస్వం వంటిది.

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తెలుగుజాతి పత్రిక

అమ్మ నుడి

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బతుకమ్మ బతుకమ్మ ఉయ్యాలో....



బెంగళూరు మహానగర నిర్మాత
కెంపేగౌడ



సుందర బెంగళూరు మహానగర నిర్మాత
కెంపేగౌడ మాతృభాష తెలుగు. అతను
తెలుగులో చాలా కవిత్వలు వ్రాశాడు. అలాగే
'గంగా గౌరి విలాసం' అనే యక్షగానమును
రచించి, బెంగళూరులోని అలసూరులో తను
నిర్మించిన సోమేశ్వరాలయంలోని
సోమేశ్వరస్వామికి అంకితం చేశాడు కూడా.
పెద్దకెంపేరాయుడు (గౌడ) దగ్గర నుండి
రెండవ కెంపేరాయుడు వరకు గల
వంశీయులు తెలుగువారు అనడానికి కొన్ని
శాసనాధారాలు బెంగళూరు నగరంలోని
బళ్ళాపురపేట రంగనాథస్వామి
దేవస్థానమందు చూడవచ్చు.

అధికారభాషా సంఘం రసాభాస అయింది సరే... జరగాల్సింది ఏమిటి?



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గిరీశం పాత్ర - హాస్య చిత్రణ

డా॥ ఆర్.కుసుమ కుమారి

అసిస్టెంట్ ప్రొఫెసర్

డా॥ వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి కళాశాల (స్వ)

విశాఖపట్నం.

చరవాణి : 99636 25639

హాస్యం - పరిచయం :

హాస్యం అనగా వినోదం కలిగించి నవ్వు పుట్టించే లక్షణం కలిగిన ఒక భావానుభవం. నవరసాల్లో హాస్యానికన్న ప్రాధాన్యం అనన్య సామాన్యం. హాస్యరసాన్ని ఆస్వాదించి ఆనందించే లక్షణం ప్రపంచంలో మనిషికి తప్ప మరే ఇతర జీవికీ లేదు. హాస్యరసానికి స్థాయి భేదం హాసం అనగా నవ్వు. ఏ మనిషీ సగటున రోజులో ఒక్కసారైనా నవ్వుకుండా ఉండడం దాదాపు అసాధ్యం.

ఉరుకులు పరుగులతో కూడిన ప్రస్తుత జీవన విధానంలో మానసిక ఒత్తిడి నుండి తక్షణ ఉపశమనం కలిగించేది హాస్యం మాత్రమే. హాస్యం ఆనందాన్ని, ఆరోగ్యాన్ని ఇచ్చి విషాద విచ్ఛేదకమవుతుంది. రోజూ ఓ గంటసేపు నవ్వితే అమృతపానం చేసినంత ఫలితం.

తెలుగు సాహిత్యంలో హాస్యం :

వాసనలేని పువ్వులా పరిహాస ప్రసంగంలేని వాక్యం వ్యర్థమన్నారు. తెలుగులో లిఖిత సాహిత్యానికి ముందున్న మౌఖిక సాహిత్యంలో హాస్యానికి సంబంధించిన గేయాలు, కథలు, హాస్యోక్తులు, చలోక్తులు విరివిగా ఉండేవి. తెలుగు సాహిత్యంలో తొలి రచనగా భావిస్తున్న నన్నయ ఆంధ్రమహాభారత రచన గంభీరంగా సాగినప్పటికీ అక్కడక్కడా హాస్య సన్నివేశాలు కూడా జోడించారు. గరుత్మంతుని చేత పీడింపబడిన దేవతల పరుగులు, బకాసురుని వృత్తాంతం, మయసభలో దుర్యోధనుని భంగపాటు పాఠకులకు నవ్వులు తెప్పిస్తాయి.

నన్నెచోడుని కుమారసంభవంలో మన్మథునికి, రతీదేవికీ మధ్య గల సన్నివేశాలు హాస్యంగా సాగాయి. తిక్కన రచనలో వ్యంగ్యం ఎక్కువ. నర్తనశాలలో స్త్రీ వేషంలో ఉన్న భీముడు, కీచకునికి మధ్యగల సంభాషణలు, ఉత్తర కుమారుని ప్రగల్భాలు కడుపుబ్బా నవ్విస్తాయి. గౌరన నవనాథచరిత్రలో పురోహితుడు ఎలుగుబంటితో సరసాలాడడం, హరిశ్చంద్రోపాఖ్యానంలో కలహకంఠి, కాలకౌశికులు పోట్లాటలు, రోకళ్ళతో కొట్టుకోవడాలు విపరీతంగా నవ్విస్తాయి.

శ్రీనాథునివిగా ప్రసిద్ధి చెందిన చాటు పద్యాలలో కావల్సినంత హాస్యం మనకు కనిపిస్తుంది.

పూజారి వారి కోడలు - తాజారగ బిందె జారి దబ్బున పడియెన్

మైజారు కొంగు తడిసిన - బాజారే తొంగి చూసి ఫక్కుంజనగియెన్

ఎంత దగ్గరివారైనా ఇలాంటి సన్నివేశాల్లో దబ్బున జారిపడితే చూసిన వాళ్ళెవరికైనా ముందు వచ్చేది నవ్వు. ఇలాంటి శ్రీనాథుని చాటువులు అనేకం.

ఇక రాయల కాలంలో నవరసాలకి స్వర్ణయుగం. తెనాలి రామకృష్ణుని చాటుపద్యాలు హాస్య



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ఆదివాసీలు - జీవన చిత్రణ

డా॥ ఆర్.కుసుమ కుమారి

అసిస్టెంట్ ప్రొఫెసర్

డా॥ వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి కళాశాల (స్వ)

విశాఖపట్నం.

చరవాణి : 99636 25639

పరిచయం :

ఆదివాసీలు సాధారణంగా అడవుల్లో, కొండ ప్రాంతాలలో నివసిస్తుంటారు. వీరిని ఆదివాసులు, అటవికులు, వనవాసులు, గిరిజనులు అని రకరకాల పేర్లతో పిలుస్తారు. భారతదేశంలో సుమారు 570 వరకు ఆదివాసీ తెగలు ఉన్నాయని అంచనా వేయబడింది. ప్రతి రాష్ట్రంలోనూ ఆదివాసీలు ఉన్నా ముఖ్యంగా మహారాష్ట్ర, మధ్యప్రదేశ్, ఒడిషా, బీహార్, బెంగాల్, తమిళనాడు, కర్ణాటక, ఆంధ్రప్రదేశ్ మొదలైన ప్రాంతాలలో వీరిలో ఎక్కువ తెగలు నివసిస్తున్నారు. కేవలం ఆంధ్రప్రదేశ్‌లో 33 తెగల వారు ఉన్నారని అంచనా వేయబడింది.

ఆదివాసీల సామాజిక వ్యవస్థ, ఆచార వ్యవహారాలు, పండగలు, పూజలు మొదలైన వాటిలో ప్రత్యేకత కలిగి ఉంటారు. కానీ ప్రస్తుతం మారుతున్న కాలమాన పరిస్థితులకు అనుగుణంగా ఆదివాసీల జీవన విధానంలో అనేక మార్పులు జరుగుతున్నాయి. ఆధునిక కాలంలో గ్రామీణ సమాజం, ఆదివాసీ సమాజం, నాగరిక సమాజాల మధ్య ఉండే భేదం చాలా వరకు సమసిపోతూ ఉంది.

ఆదివాసీల సామాజిక వ్యవస్థ - కుటుంబం :

పూర్వకాలంలోని మాతృస్వామిక వ్యవస్థ నుండి పితృస్వామిక వ్యవస్థలో అడుగుపెట్టిన తరువాత ఆదివాసీల సామాజిక వ్యవస్థలో కుటుంబాలు అనేవి పితృవంశాల ఆధారంగా ఏర్పడ్డాయి. ఆస్తి పురుషుల నుండి పురుషులకి మాత్రమే వారసత్వంగా వస్తుంది. ఆదివాసీలలో వివాహమైన వెంటనే నూతన దంపతులకు ఒక కొత్త గుడిసెను వేసి, అందులో కాపురం పెట్టిస్తారు. దీనిని “ఇల్లు చేయడం” అంటారు.

ఆదివాసీలు చిన్న చిన్న కుటుంబాలుగా విభజింపబడినా అవసరానికి ఒకరికొకరు ఆదుకోవడం వీరిలో కనిపిస్తుంది. వ్యవసాయం ప్రధానవృత్తిగా కలిగిన గోండు జాతిలో మాత్రం “ఊడిగం” పద్ధతి ఆచరణలో ఉండడం వలన వారు ఉమ్మడి కుటుంబాలుగా జీవనం కొనసాగిస్తున్నారు. మిగిలిన తెగలలో ముగ్గురు లేదా నలుగురు కుటుంబ సభ్యులు కలిగిన కుటుంబాలే అధికంగా ఉన్నాయి.

ఆదివాసీల వృత్తులు :

ఆదివాసీలు జీవనోపాధికి అనుసరించే వృత్తులు ప్రధానంగా 3 రకాలు.

1. అడవి నుండి ఆహారం సేకరణ
2. పోడు వ్యవసాయం
3. ఇతర వృత్తులు



Optical response of Eu^{3+} -activated MgAl_2O_4 nanophosphors for Red emissive

LED Applications

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ABSTRACT

Eu^{3+} -activated magnesium aluminate phosphors were successfully synthesized by nitrate–citrate gel combustion method and thermally treated at 650, 750, 850, and 950°C. The powder X-ray diffraction pattern showed that all MgAl_2O_4 · $x\text{Eu}^{3+}$ ($0 \leq x \leq 0.10$) samples exhibit crystallized cubic phase of spinel structure with space group $\text{Fd-}3\text{m}$. The Debye–Scherrer equation is used to estimate average crystallite size values and are found to be 8.5–12.1 nm, that are also confirmed by high-resolution transmission electron microscopy (HRTEM) images. TGA–DTG results suggest that the maximum decomposition of the precursors were observed below 600°C. Accordingly, the decomposition temperature was taken 650°C and above. The functional groups of the powder samples were determined by FTIR. Energy levels were characterized, and the band gap energy (E_g) has been calculated using UV–Vis absorption spectroscopy and found to be in the range of 5.08–5.19 eV. The FESEM images shows that the nanoparticles are agglomerated and are in nonuniform spherical shape with reduced average particle size from 27 ± 4.1 to 24.1 ± 3.3 nm. Further, the elemental composition of the as-prepared samples was analyzed by using energy-dispersive X-ray spectra (EDAX). The photoluminescent property of MgAl_2O_4 · $x\text{Eu}^{3+}$ samples was investigated using room-temperature emission spectroscopy. These phosphors show different emissions of Eu^{3+} corresponding to ${}^5\text{D}_0 \rightarrow {}^7\text{F}_{J=1,2,3,4}$ transitions which lie in the wavelength range from 590 to

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Evaluation of Photosensing Parameters of Au/polystyrene/n-Si Heterojunction Based Self-Powered Organic Broadband Photodetectors

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Abstract

The heterojunction based photodetectors (PDs) which comprises of organic polymeric materials still face substantial challenges and limiting their practical usage in the field of advanced optoelectronic applications. In this work, a self-powered and broadband (BB) PDs based on Au/polystyrene/n-Si: (MPS) heterojunction was constructed using spin-coating and electron beam evaporation techniques. The optical, chemical bonds, structural and morphological parameters of the prepared polystyrene (PS)/n-Si stack were evaluated using UV–VIS, FTIR, XRD and AFM characterizations. Optical energy gap of 4.5 eV was evaluated using Tauc's method for the polystyrene film deposited on quartz substrate. The photodetection characteristics of the prepared Au/PS/n-Si BB PD device were evaluated using I–V, responsivity and I–T methods. The fabricated and reported Au/PS/n-Si BB PD device exhibited a superior photosensing performance with a reasonable responsivity of 97 mA/W (@ 920 nm), external quantum efficiency of 16% (@ 920 nm) and detectivity of 1.65×10^{11} Jones (@ 920 nm). At 930 nm, the transient measurements performed in self powered mode (@0 V) yielded the best rise and decay times of ~ 70 ms and ~ 75 ms, respectively. The fabricated BB PD device exhibited a stable photoresponsive performance for a period of two months. Further, this work suggests a simple cost-effective emulsion polymerization mediated preparation of polystyrene approach for the development of insulating polystyrene (PS) film and fabrication of self-powered organic Au/PS/n-Si heterojunction BB PD device (350–1100 nm) to suit the future demands of the optoelectronic field.

Keywords External quantum efficiency · Responsivity · Heterojunction · Organic photodetector

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Cover Page



వాడ్రేవు గారి కథలలో బాల సాహిత్యం - పరిశీలన

డా॥ ఆర్.కుసుమ కుమారి

అసిస్టెంట్ ప్రొఫెసర్

డా॥ వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి కళాశాల (స్వ)

విశాఖపట్నం.

చరవాణి : 99636 25639

బాల సాహిత్యం - పరిచయం :

‘నేటి బాలలే రేపటి పౌరులు’. అందుకే బాలలుగా ఉన్నప్పుడే వారిలో విలువలు, నీతి, పర్యావరణం, సమాజం పట్ల అవగాహన కల్పించాలి. విలువలనేవి అరవై ఏళ్ళ వయసులో వచ్చేవి కావు. బాల్యం నుంచే నేర్పించాలి. ఈ ఆవశ్యకతను గుర్తించి ఎంతోమంది రచయితలు బాలల కోసం రచనలు చేశారు. ఇలా బాలల కోసం వ్రాయబడిన, ప్రచురితమైన సాహిత్యాన్ని బాల సాహిత్యం అంటారు.

మనం ఎలాంటి విత్తనాలు నాటితే అలాంటి చెట్లే వస్తాయి. అందువలన బాల్యం నుండే మంచి సాహిత్యం అందిస్తే అలాంటి మంచి వ్యక్తిత్వం గల బాలలు తయారవుతారు. గతంలో చెప్పినట్లు ఇప్పటి పిల్లలకు పెద్దలు కథలు చెప్పకపోవడం వలన వారికి జీవనంలో మాధుర్యం దక్కడం లేదు. ఫలితంగా వారు దయ, సానుభూతి, సహాయపడే తత్వం అన్నిటికీ దూరం అయిపోతున్నారు. అందువలన తల్లిదండ్రులు తీరిక చేసుకొని తమ పిల్లలకు బాలల సాహిత్యాన్ని కథల రూపంలో గాని, పాటల రూపంలో గాని అందించాలి.

రచయిత పరిచయం :

వాడ్రేవు చినవీరభద్రుడు 1962వ సంవత్సరం మార్చి 28వ తేదీన తూర్పు గోదావరి జిల్లా (ప్రస్తుతం అల్లూరి సీతారామరాజు జిల్లా) రాజవొమ్మంగి మండలంలో ఒక చిన్న గిరిజన పల్లె ‘శరభవరం’లో జన్మించారు. తల్లి సత్యవతి, తండ్రి విశ్వేశ్వర వెంకట చలపతి. ఈయన ఆంధ్ర విశ్వవిద్యాలయం నుండి తత్వశాస్త్రంలో ఎమ్మె చేశారు.

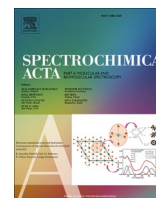
1987లో ఆంధ్రప్రదేశ్ రాష్ట్ర పబ్లిక్ సర్వీస్ కమీషన్ గ్రూప్-1 ఉద్యోగానికి ఎంపికై గిరిజన సంక్షేమశాఖలో చేరి 30 ఏళ్ళకు పైగా పని చేశారు. 2013లో వీరికి కన్ఫర్మ్ ఐ.ఎ.ఎస్. ఇవ్వడం జరిగింది. సమగ్ర శిక్షా అభియాన్ రాష్ట్ర ప్రాజెక్ట్ డైరెక్టర్ గా, పాఠశాల విద్యాశాఖ సంచాలకులుగా, గిరిజన సంక్షేమశాఖ సంచాలకులుగా ఇలా వివిధ శాఖలలో సేవలందించి పదవీ విరమణ పొందారు.

చినవీరభద్రుడు గారు కవిగా, రచయితగా, వక్తగా, అనువాదకుడిగా, చిత్రకారుడిగా అనేక రంగాలలో తనదైన ముద్ర వేశారు. ఈయన రచనా వ్యాసాంగాన్ని కేవలం ఒకే ప్రక్రియకు పరిమితం చేయాలనుకోలేదు. విస్తృతమైన జీవితానుభవాన్ని తెలియజెప్పాలంటే విస్తృతమైన సాహిత్య ప్రక్రియల వలనే సాధ్యమని నమ్మారు. అందువలన కవిత్వం, కథలు, నవల, యాత్రా చరిత్ర సాహిత్య విమర్శలతో పాటు గాంధీ, కలాం, కబీరు, కాంట్, బషో, ఒకాకురొ కకుజో వంటి రచయితల, కవుల గ్రంథాలను తెలుగులోకి అనువదించారు.



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Physiochemical characterization of sodium doped zinc oxide nano powder for antimicrobial applications

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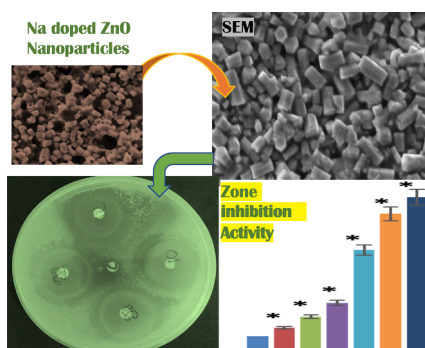
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HIGHLIGHTS

- This article reported the synthesis of pure and Na doped zinc oxide nano powders ($\text{Zn}_{1-x}\text{Na}_x\text{O}$) through co-precipitation process.
- Hexagonal wurtzite $\text{Zn}_{1-x}\text{Na}_x\text{O}$ nano powders with high crystallinity and stability were confirmed by XRD.
- The factors such as particle size and surface morphology were controlled with varying Na concentrations.
- The absorption peaks of as-synthesized $\text{Zn}_{0.99}\text{Na}_{0.01}\text{O}$ samples are recorded at 196, 284 and 365 nm, respectively.
- The as-prepared $\text{Zn}_{1-x}\text{Na}_x\text{O}$ nano powders were proved to be excellent antibacterial and antifungal agents.

GRAPHICAL ABSTRACT



ARTICLE INFO

Keywords:

ZnO NPs
Semiconductors
Optical properties
Antibacterial activity
Antifungal activity

ABSTRACT

Zinc oxide (ZnO) is one of the semiconductor materials with unique antimicrobial properties towards various microorganisms. In this article, pure and Na doped ZnO nanopowders were synthesized by easiest and cost-effective co-precipitation process. X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), ultraviolet – visible (UV – Vis) spectroscopy, scanning electron microscopy (SEM), and Energy dispersive X-ray analysis (EDAX) techniques were used to characterize the particle size, surface morphology and chemical composition of prepared materials. The XRD analysis revealed that the samples exhibiting hexagonal wurtzite crystal structure with high crystallinity and the average crystallite size values increased from 23.51 to 28.118 nm. The UV – Vis spectroscopy results exposed that the bandgap energy (E_g) of the samples with the values in the range of 3.068–3.301 eV. The SEM micrographs showed that the morphology of the synthesized particles are hexagonal and spherical in nanometric size. The EDX spectra confirmed the elemental composition of Na, Zn and O in the crystal lattice and FTIR spectroscopic data proved the formation of functional groups and the presence of

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Cover Page



వాడ్రేవు గారి కథలలో బాల సాహిత్యం - పరిశీలన

డా॥ ఆర్.కుసుమ కుమారి

అసిస్టెంట్ ప్రొఫెసర్

డా॥ వి.యస్.కృష్ణ ప్రభుత్వ డిగ్రీ & పి.జి కళాశాల (స్వ)

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బాల సాహిత్యం - పరిచయం :

‘నేటి బాలలే రేపటి పౌరులు’. అందుకే బాలలుగా ఉన్నప్పుడే వారిలో విలువలు, నీతి, పర్యావరణం, సమాజం పట్ల అవగాహన కల్పించాలి. విలువలనేవి అరవై ఏళ్ళ వయసులో వచ్చేవి కావు. బాల్యం నుంచే నేర్పించాలి. ఈ ఆవశ్యకతను గుర్తించి ఎంతోమంది రచయితలు బాలల కోసం రచనలు చేశారు. ఇలా బాలల కోసం వ్రాయబడిన, ప్రచురితమైన సాహిత్యాన్ని బాల సాహిత్యం అంటారు.

మనం ఎలాంటి విత్తనాలు నాటితే అలాంటి చెట్లే వస్తాయి. అందువలన బాల్యం నుండే మంచి సాహిత్యం అందిస్తే అలాంటి మంచి వ్యక్తిత్వం గల బాలలు తయారవుతారు. గతంలో చెప్పినట్లు ఇప్పటి పిల్లలకు పెద్దలు కథలు చెప్పకపోవడం వలన వారికి జీవనంలో మాధుర్యం దక్కడం లేదు. ఫలితంగా వారు దయ, సానుభూతి, సహాయపడే తత్వం అన్నిటికీ దూరం అయిపోతున్నారు. అందువలన తల్లిదండ్రులు తీరిక చేసుకొని తమ పిల్లలకు బాలల సాహిత్యాన్ని కథల రూపంలో గాని, పాటల రూపంలో గాని అందించాలి.

రచయిత పరిచయం :

వాడ్రేవు చినవీరభద్రుడు 1962వ సంవత్సరం మార్చి 28వ తేదీన తూర్పు గోదావరి జిల్లా (ప్రస్తుతం అల్లూరి సీతారామరాజు జిల్లా) రాజవొమ్మంగి మండలంలో ఒక చిన్న గిరిజన పల్లె ‘శరభవరం’లో జన్మించారు. తల్లి సత్యవతి, తండ్రి విశ్వేశ్వర వెంకట చలపతి. ఈయన ఆంధ్ర విశ్వవిద్యాలయం నుండి తత్వశాస్త్రంలో ఎమ్మె చేశారు.

1987లో ఆంధ్రప్రదేశ్ రాష్ట్ర పబ్లిక్ సర్వీస్ కమీషన్ గ్రూప్-1 ఉద్యోగానికి ఎంపికై గిరిజన సంక్షేమశాఖలో చేరి 30 ఏళ్ళకు పైగా పని చేశారు. 2013లో వీరికి కన్ఫర్మ్ ఐ.ఎ.ఎస్. ఇవ్వడం జరిగింది. సమగ్ర శిక్షా అభియాన్ రాష్ట్ర ప్రాజెక్ట్ డైరెక్టర్ గా, పాఠశాల విద్యాశాఖ సంచాలకులుగా, గిరిజన సంక్షేమశాఖ సంచాలకులుగా ఇలా వివిధ శాఖలలో సేవలందించి పదవీ విరమణ పొందారు.

చినవీరభద్రుడు గారు కవిగా, రచయితగా, వక్తగా, అనువాదకుడిగా, చిత్రకారుడిగా అనేక రంగాలలో తనదైన ముద్ర వేశారు. ఈయన రచనా వ్యాసాంగాన్ని కేవలం ఒకే ప్రక్రియకు పరిమితం చేయాలనుకోలేదు. విస్తృతమైన జీవితానుభవాన్ని తెలియజెప్పాలంటే విస్తృతమైన సాహిత్య ప్రక్రియల వలనే సాధ్యమని నమ్మారు. అందువలన కవిత్వం, కథలు, నవల, యాత్రా చరిత్ర సాహిత్య విమర్శలతో పాటు గాంధీ, కలాం, కబీరు, కాంట్, బషో, ఒకాకురొ కకుజో వంటి రచయితల, కవుల గ్రంథాలను తెలుగులోకి అనువదించారు.

CERTIFICATE OF PUBLICATION

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CULTURE AUDIT IMPACT ON THE TEACHERS WORK PERFORMANCE – A STUDY

Authored By

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An Analysis on Financial Planning Profession in Andhra Pradesh State

Gudipati Srinivasa Rao ¹, Dr. Geeta Verma

¹ Research Scholar , Department of Commerce , Sri Satya Sai University of Technology & Medical Sciences , Sehore , M.P.

ABSTRACT:

A financial planner is a qualified investment professional who helps individuals and corporations meet their long-term financial objectives. Financial planners do their work by consulting with clients to analyze their goals, risk tolerance, and life or corporate stages, then identify a suitable class of investments for them. From there they may set up a program to help the client meet those goals by distributing their available savings into a diversified collection of investments designed to grow or provide income, as desired. This paper reflects an analysis on financial planning profession in Andhra Pradesh state.

Keywords: planning, client, accountants, transactions, knowledge, occupation

1. INTRODUCTION:

Financial planning is goal seeking process involving determining one's own current financial position and formulating strategies to achieve desired objective. Coined in other words the process of financial planning involves following key steps:-

- a) Finding out present net worth of an individual.
- b) Formation of objectives
- c) Estimating future cash inflows and outflows (Budgeting)
- d) Keeping track of current expenses. (Recordkeeping).

2. OVERVIEW OF SELECTED FINANCIAL PLANNERS

A brief profile of each profession is essential for proper understanding of the topic under study. This section deals with an introduction of professionals, covering the aspects of their responsibilities, duties and the services provided by these planners.

Traditionally, Law, Medicine, Accountancy are regarded as professions. A profession means a vocation which involves service to people through application of professional knowledge. A professional is a person who has undergone certain rigorous training to acquire certain knowledge and skills. The knowledge must be transferrable through the medium of formal teaching, training and practice. There must be competent application of knowledge to problems. There is abiding commitment to update knowledge and skills on a continuous basis. An occupation must satisfy certain criteria in order to claim the status of a profession. The professional must be expert and specialized knowledge in field which one is practicing professionally. A professional is an expert who is master in a specific field.



STUDY OF ANTIBACTERIAL EFFICACY OF GREEN -SYNTHESIZED SILVER-NICKEL HYBRID NANOPARTICLES

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ABSTRACT

An eco-friendly green strategy is presented for the synthesis of Ag-Ni hybrid nanoparticles taking a medicinal plant, *Aerva lanata* for phyto-reduction of the precursor salt solutions. The synthesized nanoparticles are characterized by instrumental techniques such as UV-Visible, FTIR, EDX, FESEM and HRTEM. These particles are found to possess significant antibacterial efficacy against both Gram-positive and Gram-negative bacteria based on investigation by Well Diffusion method.

Keywords: Hybrid nanoparticles (HNPs), *Aerva lanata* (AL), Gram-positive bacteria, Gram-negative bacteria, minimum inhibitory concentration (MIC).

1. INTRODUCTION

Nanotechnology involves the manipulation of materials having one of the dimensions in the range of 0.1-100 nm [1]. It has its applicability in different fields like biology, chemistry, physics, engineering and medicine [2]. There are two types of methods generally adopted for fabricating nanomaterials; top-down methods and bottom-up methods. In top down method we transform material progressively from bulk substrate until the desired nanomaterial is obtained. Bottom-up strategies are employed starting from the atomic or molecular precursors and by gradually assembling it until the preferred structure is formed [3].

Remarkable expansion of nanotechnology has spread out its applications in biomedical sciences, nutrition, energy sciences, nanobiotechnology, cosmetics, mechanics, optics, chemical industries and drug-gene delivery [4]. Alloying of two different metals in nanosize may enhance the characteristics of their corresponding monometallic nanoparticles. These hybrid nanoparticles show greater stability and catalytic activity than monometallic nanoparticles [5]. Generally nanometals are synthesized by physical or chemical reduction methods which are hazardous and expensive.

In contrast, plant mediated green methods are eco-friendly, cheaper and benign for the synthesis of

nanometals. Secondary metabolites present in plant extract will act as bio-reducing and capping agents for the resulted nanoparticles [6].

Antibacterial agents are very important in the textile industry, water disinfection, medicine, and food packaging. Organic compounds used for disinfection have notable disadvantages including toxicity to the human body and therefore the interest in inorganic nanoparticles has increased as they are benign to greater extent [7]. Nanoparticles are increasingly used to target bacteria as an alternative to antibiotics [8]. Traditional methods like herbal extracts used to the synthesize nanometal particles have shown extensive consent in medicine. These synthesized nanometal particles have great bactericidal activity than bulk metals because of its adsorption at bacterial surface. Metals like silver, copper, gold, nickel etc., in the nanodimensions are hypothesized to be able to participate in sub-cellular reactions as their size is comparable to biological molecules. Bimetallic nanoparticles composed of two different metals have drawn a greater interest than the monometallic nanoparticles due to the properties differ from pure elemental particles include unique size dependent, optical, electronic, thermal, catalytic and biological effects [9]. Plant mediated green synthesized HNPs have increased attention towards their antimicrobial properties

**ASSESSING THE IMPORTANCE OF EDUCATION TO ONLY ONE GENDER IN
ADDITION TO EDUCATION INCLUDING BOTH GENDERS**

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M.s. Devarapalli Lavanya, MA, NET, (PhD), Assistant Professor in Economics, Y..V.N.R GDC Kaikaluru, Eluru District

Abstract

The researchers want to learn more about how educators feel about co-ed classrooms. A total of 240 educators from four elementary schools and four secondary schools in central Adana towns participated in the descriptive screening-based research. In order to assemble the data, we employed a scale called the Views on Co-Education Scale (VCS). Throughout the analysis, both descriptive statistics and nonparametric tests (including the Mann-Whitney U and the Kruskal-Wallis H) were used. The data suggest that the vast majority of educators are in favor of co-education and are opposed to single-sex classes. The least amount of support for co-education was seen among different types of religious teachers. Several parents have expressed concern about the availability of both single-gender and mixed-gender educational options for their children. Some schools wait until pupils have finished Kindergarten before beginning lessons on single sexuality, while other schools do not admit heterosexual students at all. These kinds of restrictions do not apply to institutions that are open to both sexes. Throughout the classroom, there is a mix of young men and women in each of the several groups. Since it concerns their child's future, it shouldn't come as a surprise that parents are having trouble deciding which option is superior. It would seem that there are two factions, and each of them is supporting its viewpoint with reasons. On this particular topic, scientists, educators, parents, and students all have a variety of viewpoints. Many investigations have been carried out, with some finding evidence for the SS (Single Sex) hypothesis, while others have found support for the CE hypothesis (Co-Ed).

Keywords— Marketing, Efficiency, Marketing margins, post-harvest losses, Risk

I. INTRODUCTION

Co-ed schools have only become popular after World War II and 1970. (Eurydice, 2010). Co-education was mandated in Chinese schools to provide an excellent education for everybody. Until the Imperial Edict of Reorganization on November 3, 1839, Turkish women could only attend Siyan Schools (Primary Schools). High-ranking CEO daughters got tutors, although they largely learned household skills. Secular and religious themes were taught. In 1869, boys and girls aged 6–10 and 7–11 were forced to attend primary school. This strategy was supposed to provide gender-separate education to communities worldwide. Before these schools were established, girls may attend school with boys provided they were in separate classes or tables. In 1859, Girls' Junior High schools started Ottoman women's secondary education. These organizations employed mostly women. Until the lack of female instructors improved, experienced men educators of all ages were invited to fill these posts. (Forges & Leeder, 2019) In 1870, Darülmüallimat, a school for female teachers, was formed in Rustiness due to demand. By 1910, 458 boys-only and 80 girls-only high schools existed. The first Ottoman girls' high school, the Sultana, was founded in 1880. Despite the rise of women-only vocational institutions, girls' education remained segregated. (Petrik, 2021)

II. OBJECTIVE

The research aimed to fulfill the following objectives:

- To study the Single-Sex School Vs Co-Ed School - The Better One?
- What are the benefits of single-gender schools?

RESEARCH

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Enhancement of effector functions of anti-CD20 monoclonal antibody by increased afucosylation in CHO cell line through cell culture medium optimization

Bala Reddy Bheemareddy¹, Prakash Narayana Reddy², Kranthi Vemparala¹ and Vijaya R. Dirisala^{3*} 

Abstract

Background: Recombinant therapeutic anti-CD20 monoclonal antibody (mAb) is used for the treatment of non-Hodgkin's lymphoma, a common B cell lymphoma constituting 80% of all lymphomas. Anti-CD20 mAb contains an Fc-linked biantennary glycan. Although, anti-CD20 monoclonal antibodies are being increasingly used for immunotherapy, their efficacy is limited in a section of patients with drug resistance to immunotherapy. There is a need to improve the efficacy by increasing the effector functions, such as the antibody-dependent cellular cytotoxicity (ADCC) activity of anti-CD20 monoclonal antibodies.

Results: We developed a simple and cost-effective approach to enhance ADCC effector activity in an in-house developed clone of anti-CD20 monoclonal antibody by increasing afucosylation in a new clone of Chinese Hamster Ovary (CHO) cells using 8X uridine, manganese, and galactose (UMG) to modulate the osmolality of the medium. The purified anti-CD20 monoclonal antibody from 8X UMG-containing medium showed a 2-fold increase in afucose content and 203% ADCC activity in comparison to control antibody.

Conclusions: Our study reports enhanced ADCC activity by modulating afucosylation using osmolality by altering simple feed additives in the culture medium.

Keywords: Non-Hodgkin's lymphoma, Anti-CD20 monoclonal antibody, Chinese hamster ovary cells, Afucosylation, Osmolality, Antibody-dependent cellular cytotoxicity

Background

Cancer is a complex disease which is a result of interplay of genetics, epigenetics, environment and lifestyle choices. Common cancer treatment options include chemotherapy, radiotherapy, surgery, and in some cases a joint therapy has shown encouraging results [1]. Non-Hodgkin's lymphoma (NHL), a B cell lymphoma, is the

most common type of lymphoma contributing to 80% of all lymphomas. Standard regimen options for B cell lymphoma treatment such as cyclophosphamide, doxorubicin hydrochloride (hydroxydaunorubicin), vincristine (Oncovin), and prednisone (CHOP) chemotherapy and radiation therapy are not effective in certain patient populations who have developed drug resistance [2, 3]. Recently, immunotherapy which is based on recombinant monoclonal antibodies (mAbs) has gained prominence as a viable treatment option in patients who do not respond to classical chemo and radiation therapies. Though immunotherapy with monoclonal antibodies (e.g., rituximab) has produced significant clinical benefits in B-cell

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VIRTUAL SCREENING, *IN SILICO* ADME PROFILING, MOLECULAR DOCKING, AND DYNAMICS SIMULATIONS OF ANTI-ALZHEIMER LEADS ON β -SECRETASE 1



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ABSTRACT

The amyloid-cleaving enzyme β -secretase 1 (BACE1), a membrane-associated, aspartic protease, has emerged as a key target for creating anti- Alzheimer's disease (AD) medications being developed to reduce the amyloid burden. Currently, there are limited marketed drugs available against BACE-1 based on limited ADME. In our present study, we used a virtual screening approach to scan the Pubchem database for BACE-1 inhibitors. Studies on pharmacodynamics and pharmacokinetics were conducted to further dock and simulate to select the top hit molecules to assess protein-ligand complex stability. The study reveals that potent, selective molecules that interact and form hydrogen bonds with amino acids Asp 93, Trp 137, and Tyr 132 are recognizable as established inhibitors for BACE-1. The ADME profiling was better with comparable interaction energy values and passed the Lipinski rule of 5 evaluations, Drug likeness, and Physico-chemical properties that include Molecular weight (MW) less than 400 Kilo Daltons; blood-brain barrier (BBB), and Gastrointestinal (GI) absorption. Molecular dynamics studies were performed to validate our findings; the results suggested that the stabilities of the dynamic equilibriums for the complexes were reliable, and the trajectories can be applied to collect snapshots for further analyses. In addition, the complex's stability also proved the credibility of the docking results.

Keywords: BACE-1, Virtual screening, ADME, Molecular dynamics, Alzheimer's disease

INTRODUCTION

Alzheimer's disease is a brain disease that worsens over time and has no apparent cause. It is the most common type of dementia over the age of 65. It is not a specific disease in and of itself; instead, it is a broad word that encompasses a wide range of signs and symptoms. It is a term used to describe a collection of symptoms that arise when brain cells stop functioning properly. This symptom occurs within certain parts of the brain, and it has the potential to alter



ప్రేక్ష్య దేవరాయ విశ్వవిద్యాలయం

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**ఆదర్శ సమాజ నిర్మాణంలో వ్యక్తులు,
వ్యవస్థలు మరియు సాహిత్యం ప్రాధాన్యం**

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Literature in the Construction of an Ideal Society***

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నిర్వహణ :

సెంటర్ ఫర్ సోషల్ ఆఫ్ సోషల్ ఎక్స్ క్లూజన్ అండ్ సామాజిక వివక్షన

CENTRE FOR STUDY OF SOCIAL EXCLUSION



ASSESSMENT OF MERCURY TOXICITY ON SEED GERMINATION, SHOOT AND ROOT GROWTH OF *Cajanus cajan* (L.) MILLSP.

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Abstract:

The present study was carried out to test the phytotoxic effect of mercury on germination of seed and seedling growth of pigeon pea. The seeds of pigeon pea were treated with different concentrations (10, 50, 100, 150, 200, 250 and 300 ppm) of mercuric nitrate ($\text{Hg}(\text{NO}_3)_2$) solution. The germination percentages were calculated after two days (48 hrs.) and growth parameters like root length, shoot length, fresh weight and dry weight were calculated after seven days. In the present study it was observed that mercury at low concentrations (< 100 ppm) was found to show no significant effect on seed germination. However increasing concentrations of mercury (> 100) decreases germination percentages significantly. It was observed that seed germination was completely inhibited at Hg concentrations above 250 ppm. Root length, shoot length and dry weight were found to be decreased with increasing concentrations of $\text{Hg}(\text{NO}_3)_2$. The inhibitory effect of mercury on shoot and root of seedling was more pronounced at 200 ppm.

Index terms:

Cajanus cajan, Mercuric nitrate $\text{Hg}(\text{NO}_3)_2$.

Introduction:

Heavy metal contamination caused by either natural processes or by human activities is one of the most serious eco-toxicological problems. Since, photosynthetic plants function as the primary and principal entry point of heavy metals into the food chain leading to animals and ultimately to man. These heavy metals enrich, bioaccumulate, and biomagnify in the food chain and ultimately a significant amount of these heavy metals are found in the animal body. Heavy metal toxicity in plants has been established by various authors exhibited from morphological to molecular levels of organization [1 and 2]. Most studied aspect of heavy metal toxicity is the damaging effect on seed germination and seedling growth of different plant species. Several authors reported in different plant species that plants showed reduction in growth and recorded decrease in rates of seed germination when they are exposed to the heavy metals [3, 4, 5, 6, 7 and 8].

Impact Of Organic Fertilizers On Soil Fungi

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Introduction

Ecological agricultural practices aim to improve biodiversity, biocirculation and soil bioactivity in order to achieve optimal social, environmental and economically sustainable natural systems (Samman et al. 2008). Abuse of fertilizers and pesticides has a negative impact on the environment and causes many problems related to food safety, quality and human and animal health. Agricultural research facilities (Agricultural Research Facilities) confirm the principles of natural ecosystems that support new concepts such as alternative agriculture, sustainable agriculture, soil quality, integrated pest management, integrated nutritional management, and even beneficial microorganisms. It has been studied by the National Academy of Sciences, 1989; Reganold et al., 1990; Parr et al. 1992. Microorganisms in agriculture, as inoculum for legumes for biological nitrogen fixation, are organic to control insect and plant diseases, improve crop quality and yield, and reduce the amount of organic matter present. It is an important component of additives and compost. They are nutritionally heterotrophic. Therefore, most fertile and productive soils have a high content of organic matter and therefore a large population of very different microorganisms. When organic wastes and residues such as animal manure, crop residues, green manure and municipal waste are applied to the soil, many of the endemic populations of microorganisms act as biological control agents and are transmitted to the soil through competitiveness. Antagonistic when controlling or suppressing sex phytopathogens. Many studies have shown that organic farming is more likely to take into account biological concerns than traditional farming (Stolze et al., 2000). Every year, the soil used in agriculture is supplied with a large amount of organic substances that are easily decomposed as crop residues and animal excrement, which greatly affects the vibration of soil microorganisms.

Microorganisms are widely used in natural and organic farming due to their ability to eliminate problems associated with the use of fertilizers and pesticides. Organic additives such as urea, FYM and vermin-compost stimulate the growth and activity of soil microorganisms and then mineralize soil nutrients. Soil nutrients can be recycled using fertilizers from livestock and compost made from agricultural waste. Fertilizer management within crop rotations has a significant impact on yield and crop quality. The use of synthetic pesticides poses serious environmental problems and new, more environmentally friendly

Evaluating Frequency of words and Word Cloud from Astrological sentiments using NLP

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ABSTRACT

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The identification of interest/disinterest over a notion is having a huge demand in the current competitive data analytical world. For example, the customer preferences in various seasons, approximate visitors to a tourist place based on scenarios like weather and special occasions in the place, and so on. While giving an opinion on any concept, natural language in form of sentences/words/symbols/ratings plays a vital role. Depends upon the context and usage of natural language, captured opinions can be interpreted as either in a positive or negative sense. The terminology used for providing the opinions is used for analysing the data in an easy way. The evaluation of the word frequencies and word cloud are identified accurately, only after a keen analysis of the collected opinions.

The Term-Document Matrix is one of the techniques that identify the frequency of words in each and every document/row in the given dataset, which can be used to generate the word cloud. In this paper to identify the frequency of words from the opinions given by multi-domain personalities on Astrology, distinct Natural Language Processing (NLP) techniques are used. A word cloud can also be generated from the set of words used for the astrological dataset.

Keywords : Natural Language Processing, Astrology, Word Cloud, COVID-19, Knowledge Management System, Parsing.



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श्रीमद्भागवतस्य माहात्म्यम् – डा.पोल उमामहेश्वर रावः

Uncategorized - August 7, 2020

श्रीमद्भागवतस्य माहात्म्यम्

डा.पोल उमामहेश्वर रावः

श्रीमद्भागवतं पुराणेषु उन्नतं स्थानमधिकरोति । अस्य ग्रन्थस्य कर्तृत्वविचारः कालनिर्णयो वा न मे निबन्धस्य विषयः । ऐतिहासिका एव तत्र प्रमाणम् । केवलमस्य ग्रन्थस्य महत्वेषु किञ्चिन्मात्रमधिकृत्य द्वित्राः शब्दाः कथयिष्यन्ते । भागवतस्य प्रथममहत्वं दशलक्षणरूपम् । तथा हि पुराणेषु “ सर्गश्च प्रतिसर्गश्च वंशो मन्वन्तराणि च , वंशानुचरितं चेति पुराणं पञ्च लक्षणम् ” इति पञ्चविषया वर्णयितव्या वर्तन्ते । परन्तु भागवतं न केवलं पञ्चलक्षणम् , अपि तु दशलक्षणं विद्यते । तथा चोक्तं भागवते द्वितीयस्कन्धे –

तस्मा इदं भागवतं पुराणं दशलक्षणम् । २-९-४३

अत्र सर्गो विसर्गश्च स्थानं पोषणमूतयः ।

मन्वन्तरेशानुकथा निरोधो मुक्तिराश्रयः ॥ २-१० १

अत्र परमाश्रयस्य परब्रह्मणः परमात्मनः सम्यग्ज्ञानाय सर्गप्रतिसर्गादीनां नवानां वर्णनं वर्तते , न तु तदेव मुख्यम् । उक्तं च प्रथमस्कन्धे

“ इदं भागवतं नाम पुराणं ब्रह्मसम्मितम् ” । १-३-४०

भागवतमधिकृत्य गुरुपरम्परातः श्रूयते यदयं ग्रन्थः श्रीमद्भगवद्गीतायाः भाष्याभूतश्चकास्ति । गीतायां विचारितस्य सिद्धान्तस्य च विषयज्ञातस्य उदाहरणप्रत्युदाहरणादिना विशदीकरणं सुस्थापनं च भागवते विहितम् । अथ भागवतस्य अन्यत् किञ्चिद् वैशिष्ट्यमधुना प्रदर्शयते । भागवते खलु ब्राह्मण – क्षत्रिय – वैश्य – शूद्राणां मन्वादिस्मृतिशास्त्रवत् वर्णनं कृतम् । परन्तु भागवते न केवलं जन्मना जातिस्वरूपनिरूपणमपि तु गीतोक्तदिशा गुणैः कर्मभिरपि । इत्थं ब्राह्मण लक्षणानि सूद्रेपिस्युः तर्हि तस्यापि ब्राह्मणत्वमेव , न तु शूद्रत्वमिति भागवतमतं वरीवर्ति । तथा चोक्तं सप्तमस्कन्धे –

“ यस्य यल्लक्षणं प्रोक्तं पुंसो वर्णाभिव्यञ्जकम् ।

यदन्यत्रापि दृश्येत तत् तेनैव विनिर्दिशेत् ॥ ७ – ११ – ३५

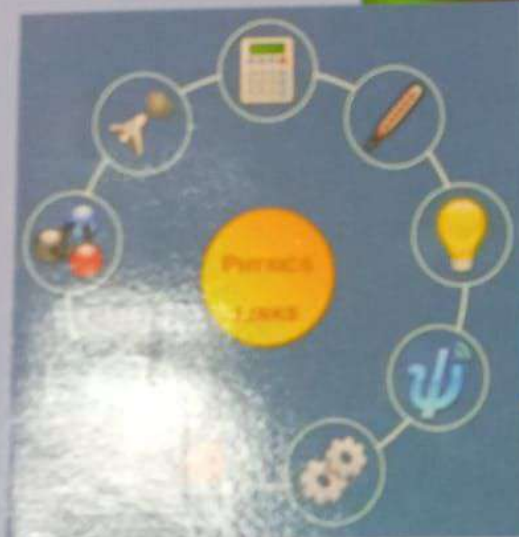
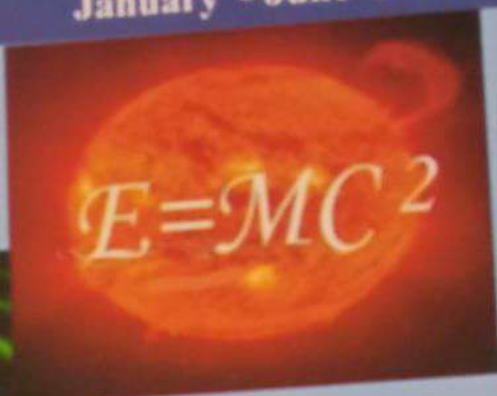
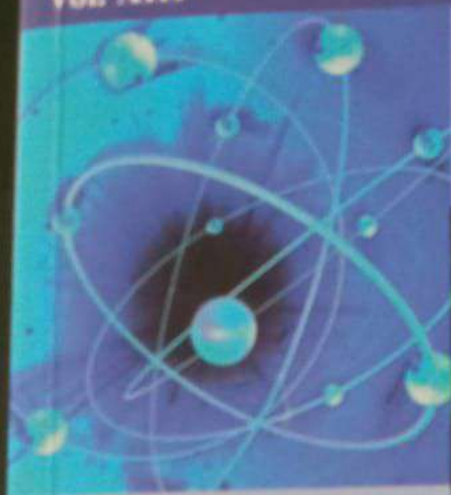


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Growth and Carbon metabolism assessment in finger millet (*Eleusine coracana* L. Gaertn) seedlings undergone PGPR treatment subjected to NaCl stress.

A. H. D. Pushpa Latha, Prof. B. Sujatha, S. Padmavathi

Abstract

Salinity stress adversely effects the plant growth and productivity. To study the effect of salinity and to investigate the influence of PGPR (Plant Growth Promoting Rhizobacteria) *Acinetobacter calcoaceticus* on finger millet cultivars, we have grown two finger millet cultivars, VR-988 and VR-1076 in three sets of pots. First set of pots are controls (0 NaCl and no PGPR treatment), second set contained NaCl stressed seedlings and the third set consisted of PGPR treated seedlings subjected to NaCl stress. All the three sets of pots included cultivar VR-988 and VR-1076 maintained separately. After 48 hours seed germination was recorded. Root, shoot growth and dry weights were observed after 5th day. Chlorophyll-a, Chlorophyll-b, total Chlorophyll, total carbohydrate, starch content, reducing and non-reducing sugars, total soluble sugars (TSS) and α -amylase activity were studied on 4th, 6th and 8th day for all treatments in VR-988 and VR-1076.

Keywords: α -amylase, Chlorophyll, Plant Growth Promoting Rhizobacteria, Salinity stress.

Introduction

Plants are exposed to various environmental conditions. Plants which develop mechanisms to tolerate the adverse climatic conditions will succeed in the nature. Most of the crop plants are sensitive to the fluctuations in the environment. Majority of the crops show reduced growth and yields under abiotic stresses (Mahajan and Tuteja, 2005). Global population is raising and the food requirements of the growing population are not satisfied because of the limited availability of fertile land for cultivation due to pollution, urbanization and industrialization. This is the challenge facing the globe. One such crop that ensures food security is finger millet (*Eleusine coracana* L. Gaertn), a millet crop widely grown in arid and semi-arid areas of Asia and Africa. Nutrient deficiencies, drought and salinity are the major abiotic stresses which are severely effecting the crop growth and production (Maharajan *et al.*, 2018). To attain better yields crop must first withstand and tolerate the adverse conditions like

salinity. Microorganisms growing in saline environments might serve as source to make the plants halotolerant. Scientists are focusing on this area as it is an eco-friendly approach. There were several works in various plants using PGPR, they provided evidence that these halotolerant PGPR promoted growth under saline conditions (Ramadoss *et al.*, 2013; Kang *et al.*, 2014). Early stages of the life cycle such as seed germination and seedling growth are very much sensitive to stresses like salinity. Hence the seedling stages were selected for most of the research works. If these stages acquire tolerance it might be advantageous for the plant to tolerate in the later developmental stages. The main objective of this work is to study the seedling growth and carbon metabolism of finger millet salt sensitive (VR-988) and salt tolerant (VR-1076) seedlings under controlled, salt stressed and bacterial (PGPR) treated under salt stress condition.

Materials and Methods

We have obtained the seed material from Agriculture Research Station, Vizianagaram, Andhra Pradesh, India. The experiment was conducted in the Physiology laboratory of

ESTIMATING WEED ABUNDANCE AND DIVERSITY IN TURMERIC FIELDS OF VISAKHAPATNAM TRIBAL AREA, ANDHRA PRADESH, INDIA

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ABSTRACT

The present study was conducted to investigate weed diversity in turmeric crops fields of Visakhapatnam tribal region, Andhra Pradesh during 2020-2021. Arbitrarily Quadrant strategy was applied for examining the characters of the weed community. Pattern characters of Community like Density, Abundance, Frequency and IVI is determined. The study area was divided into two site-1 Paderu and site-2 Araku. Turmeric is one of the main business crop developed all through India. The results of phytosociological studies revealed that A sum of 79 plant species having a place with 68 genera and 29 families were in Site 1 and 70 plant species have a place with 56 genera and 23 families were in site 2 distinguished as turmeric crop land weeds. In both sites, Asteraceae and Euphorbiaceae are driving plant family in turmeric field of Eastern Ghats Visakhapatnam.

KEYWORDS: Abundance, Diversity, Estimating, Turmericweed & Visakhapatnam

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INTRODUCTION

The total production of turmeric in the world is estimated to be about 1, 60,000 tonnes, of that Asian country only accounts for 78 per cent (Anon 1999). In India over an area of 1, 40,000 hector turmeric cultivation with an account of 6, 00,000 tons per hectare. Weed abundance and diversity got to be intensively studied as key elements of each multifariousness conservation within agro ecosystems (Rassam *et al* 2011, Marshall *et al* 2003; Gibson *et al* 2006) and included weed management of agro ecosystem (Smith *et al* 2010, Travlos 2013, Maxwell and O'Donovan 2007). In most agroecosystem annual species common in ancient tillage agricultural system (Streit *et al* 2003), while perennial weeds square measure favored with the help of the absence of disturbance (Buhler 1995). Different parameters, inclusive of phytosociology and reciprocal relations of weeds in crops have to be compelled to be studied as completely as possible. Turmeric is a prolonged length crop. Behind schedule emergence, slow initial increase of the crop and sufficient land area to be had due to wider spacing allow extra sunlight to attain the soil resulting in conducive surroundings for speedy weed growth and vast damage to crop yield (Sathiyavani & Prabhakaran 2015). The major weeds of the agricultural field were *Echinochloa colona*, *Digitaria sanguinalis*, *Panicum dichotomiflorum*, *Commelina benghalensis*, *Cyperus iria*, *Ageratum* species, *Physalis minima*, *Bidens pilosa* and *Aeschynomene indica* (Rana *et al* 2017). Crop management powerfully impacts the abundance and variety of weeds (Nichols *et al* 2015). The structure and composition of flora within the agricultural fields were compared in terms of density, frequency, abundance and their relative values used for estimating of weeds (Curtis 1959). The objective of the present study on the distribution of various weed species in turmeric crop fields of the two study sites in the districts of Visakhapatnam is an important investigation and has an applied significance in

THE IMPACT OF NEP-2020 ON HIGHER EDUCATION IN INDIA & CHALLENGES IN IMPLEMENTATION: A COMPREHENSIVE REVIEW

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Abstract:

The National Education Policy (NEP) 2020 in India marked a significant reform in the country's educational landscape, with particular implications for higher education. This review article critically assesses the transformative impact of NEP 2020 on higher education in India, evaluating its key provisions and their implications for institutions, students, and the overall quality of education. It also examines the challenges that have emerged as a result of the policy's implementation.

Key Words: National Education Policy, Curriculum, Academic bank of credits, Multidisciplinary, Gross enrolment ratio.

1. Introduction

The National Education Policy 2020 (NEP 2020) was introduced with the aim of overhauling India's education system, addressing its challenges, and making it globally competitive. It significantly affects higher education in India by ushering in major changes in curriculum, pedagogy, governance, and access. This review evaluates the implications of NEP 2020 on various aspects of higher education and challenges in its implementation in the country.

2. Impact on Higher Education system:

2.1. Curriculum and Pedagogical Reforms

NEP 2020 emphasizes a holistic and multidisciplinary approach to education. The introduction of a flexible undergraduate curriculum, credit-based system, and emphasis on vocational education are notable changes. These reforms encourage students to explore a wide range of subjects, fostering a more well-rounded education that better aligns with the demands of the 21st century.

2.2. Quality Enhancement

Quality enhancement in higher education is a pivotal aspect of NEP 2020. The policy proposes the establishment of the National Research Foundation (NRF) to promote research and innovation. However, the effective implementation of this proposal remains a challenge, as it requires substantial funding, infrastructure, and faculty development.

2.3. Multidisciplinary Universities

NEP 2020 calls for the establishment of multidisciplinary universities, a move to break down silos between academic disciplines. This concept fosters interdisciplinarity, enabling students to gain a broader perspective. The success of this provision will depend on the willingness of universities to adapt and collaborate.

2.4. Faculty Development

To support these reforms, faculty development is critical. NEP 2020 emphasizes continuous professional development for educators, focusing on pedagogical training, research skills, and the use of technology. Effective implementation requires resources, incentives, and motivation to attract and retain quality faculty.

2.5. Equity and Access

The policy prioritizes equity and access in higher education, aiming to increase the Gross Enrollment Ratio (GER) and promote inclusivity. Measures like the establishment of higher education institutions in underrepresented regions and the Academic Bank of Credit (ABC) are designed to



PHYLOGENETICS AND HOMOLOGY MODELING STUDIES OF BETA-SECRETASE 1- AN *IN SILICO* APPROACH TO THERAPEUTIC TARGET FOR ALZHEIMER'S DISEASE



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ABSTRACT

Alzheimer's disease (AD) is a genetically complicated, heterogeneous neurodegenerative disorder that affects the brain's neurons due to the accumulation of plaques formed by an amyloid- β peptide. Beta-Secretase 1 (BACE1) is a membrane-associated aspartic protease that cleaves the amyloid and is a prime target for developing anti-AD pharmaceuticals to reduce the amyloid burden. In this study, the MEGA software was used to know the phylogenetic relationship among secretase, and the Modeller tool was utilized to generate three-dimensional structures of BACE1. The 3D model was verified using PROCHECK, VERIFY 3D, and ERRAT programs, followed by binding site prediction by DoGSiteScorer. The model predicted by Modeller in this study showed 93.5% residues in the most favored regions and 0% of residues in the disallowed regions as identified in the Ramachandran plot, which indicates the obtained model's good quality. Furthermore, the mode of inhibitions and proving certain drugs' activity can be studied with this predicted model using *in silico* approach as it is the therapeutic target for AD.

Keywords: Homology Modeling, Beta Secretase 1, Alzheimer's disease, Amyloid beta-peptide

INTRODUCTION

Alzheimer's disease (AD) is the most common neurodegenerative disorder in the elderly. It affects the neurons in the brain due to the accumulation of plaques and tangles formed by the amyloid beta-peptide (A β) (Hong et al., 2004). AD is a genetically complicated and heterogeneous disorder that primarily involves the brain's parts that control thought, memory, and language (Braak H & Braak E. 1991; Bertram et al., 2007; Scodellaro and Pin, 2011). The symptoms typically start with memory loss and slowly affect other cognitive domains like visual

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తెలుగుజాతి పత్రిక

అమ్మ నుడి

నుడి నాడు నెనరు అక్టోబరు 2022

యు.జి.సి. గుర్తింపు పొందిన తెలుగు పత్రిక <https://ugccare.unipune.ac.in> <https://www.ugc.ac.in>

బతుకమ్మ బతుకమ్మ ఉయ్యాలో....



బెంగళూరు మహానగర నిర్మాత
కెంపేగౌడ



సుందర బెంగళూరు మహానగర నిర్మాత
కెంపేగౌడ మాతృభాష తెలుగు. అతను
తెలుగులో చాలా కవిత్వలు వ్రాశాడు. అలాగే
'గంగా గౌరి విలాసం' అనే యక్షగానమును
రచించి, బెంగళూరులోని అలసూరులో తను
నిర్మించిన సోమేశ్వరాలయంలోని
సోమేశ్వరస్వామికి అంకితం చేశాడు కూడా.
పెద్దకెంపేరాయుడు (గౌడ) దగ్గర నుండి
రెండవ కెంపేరాయుడు వరకు గల
వంశీయులు తెలుగువారు అనడానికి కొన్ని
శాసనాధారాలు బెంగళూరు నగరంలోని
బళ్ళాపురపేట రంగనాథస్వామి
దేవస్థానమందు చూడవచ్చు.

అధికారభాషా సంఘం రసాభాస అయింది సరే... జరగాల్సింది ఏమిటి?



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Research Article

INSILICO ANALYSIS OF CYP8₂E GENE INVOLVED IN DEMETHYLATION OF NICOTINE IN TOBACCO

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CYP genes, TSNA regulation,
bioinformatics tools, *in silico* analysis and
content manipulation.

ABSTRACT

To identify CYP gene variants involved in the regulation of TSNA, members of CYP family encoding nucleotide sequence of demethylase gene were used as query to search the online databases. Based on the number of hits, percentile of similarity and E value, candidate CYP genes were identified. Further, authentication was done from Solgenome network database harbouring sequenced genomes of Solanaceae members. The identified sequences were scrutinized using online open source tools viz., prosite, pfam and Expassy. The 29 CYP genes/ CYP variants related to TSNA formation from five sequenced genomes of *Nicotiana* species were identified in this study. These sequences can be utilized for *in silico/ in vivo* expression analysis to understand the underlying molecular mechanism of TSNA regulation and subsequent manipulation to reduce their content in tobacco.

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INTRODUCTION

TSNAs are pyridine alkaloids formed during secondary metabolite production. These nitrosamines are formed from nicotine and related compounds by nitrosation reaction that occurs during curing and processing of tobacco. The major alkaloid in tobacco plant is nicotine and it constitutes 90% of total plant alkaloid production. It is a precursor for tobacco specific nitrosamines by converting into secondary alkaloid – “nor nicotine” by the action of an enzyme N-demethylase (NND). Based on the rate of conversion of nicotine to nor nicotine, plants are discriminated as converters and non-converters. The varieties of tobacco convert a high portion of their nicotine content to nor nicotine are referred as “converters” and the process of conversion mainly occurs during senescence and curing. Those that remain nicotine as a predominant alkaloid are considered to be “non converters”.

Nitrosamines in tobacco are Nitrosonornicotine (NNN), nicotine derived nitrosamine ketone (NNK), N-nitrosoanatabine (NAT), N-nitrosoanabasine (NAB) and 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL). In addition to these compounds some more TSNAs are identified and assessed in tobacco and tobacco smoke. They are 4-

(methylnitrosamino)-4-(3pyridyl)-butyric acid (iso-NNAC), 4-(methylnitrosamino)-4-(3-pyridyl)-1-butanol (iso-NNAL) and 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL). Among all of these nitrosoamines N-nitrosonornicotine (NNN) is more carcinogenic in nature proven experimentally. It causes several types of cancer in animals (Hetch and Haffman 1988, 1989).

Nornicotine is synthesized from nicotine by the action of an enzyme. NND has been studied through the characterization of nornicotine. The gene which codes for NND enzyme belongs to cytochrome P450 family and super family monooxygenase which catalyzes demethylation of nicotine (Siminsky *et. al.*, (2006); Xu *al* (2007).

CYP82E4 (NND) comes under CYP82E2 family, plays a key role in production of nornicotine through demethylation process of nicotine. CYP82E2 family is very small and has minimum number of genes which shows 90% nucleotide identity among them. Tobacco has totally 5 types of demethylase genes, which are inherited from *N.tomentosiformis* and *N.sylvestris* to modern day tobacco. In which three of them CYP82E3 and CYP82E4 (senescence specific) and CYP82E5V2 (weakly expressed) gene originated from *N.tomentosiformis*. The other two genes, were CYP82E2

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On various sectors of Indian Economy

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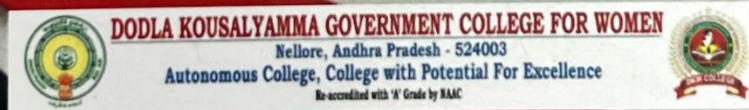
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Wet lands- distribution, policy environment & schemes, significance & threats in India.

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Abstract: Wetlands are among the most productive ecosystems on the planet, have enormous diversity and they are classified into different types based on their origin, vegetation, nutrient status, thermal characteristics etc. Only 26 wetlands in India have been designated as Ramsar Sites. They are important because they provide multiple use water services, marshes play an important role in carbon cycle and have relatively greater capacities to sequester additional carbon dioxide (CO₂), act as a sink for contaminants in many agricultural and urban landscapes, lessen the impacts of flooding by absorbing water and reducing the speed at which flood water flows. They also help to trap suspended solids and nutrient load during flooding, support species diversity through playing a significant role in the support of food chains. Threats to wetland ecosystems comprise the increasing biotic and abiotic pressures and perils. Let us dedicate ourselves to the cause of healthy and dynamic aquatic ecosystems, and sensitize other members of society to the need for their effective conservation and scientific management. The Ramsar Convention Award 2018 for Wetland Wise Use is presented to Fundación Global Nature, Spain. It acknowledges contributions to the long-term sustainable use of wetlands. The Ramsar Convention Award 2018 for Young Wetlands Champions is presented to the Youth Climate Action Network of Samoa (YCAN).

Key words: Wet lands, types, distribution, significance, threats, conservation and management

Introduction: Prasad *et. al.*, 2002 reviewed the status and distribution of wetlands and causes and consequences of wetland losses. It also provides an overview of the use of Remote Sensing and Geographic Information System (GIS) tools in flood zonation mapping, in monitoring irrigation and cropping patterns, water quality analysis and modeling, change analyses and in mapping of surface water bodies and wetlands. Wet lands are some of the most important and valuable ecosystems on Earth and are called “kidneys of the Earth”. There are two basic types of wetlands: natural and constructed

[Mitsch & Gosselink, 2007]. Wetlands can improve water quality, protect shorelines, recharge groundwater, ease flood and drought severity, and provide unique habitats for many plants and animals. Scientists and government staff have paid increasing attention to wetlands to maintain the biodiversity of the aquatic system [Mitsch & Gosselink, 2007; Fickas *et. al.*, 2010]. A wetland is a generalized concept including coastal wetlands, peat land, mangrove forests, estuarine wetlands, marshes, and other types of wetland. The coastal wetland functions as an important nutrient cycling capacity source to maintain water quality



Ethno medicinal plants of India –An over view.

Dr.T.M.A.Niveditha

Lecturer in Botany

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Abstract

People began life on this planet as forest dwellers. India is a country with large ethnic society and immense wealth with its rich biodiversity. The indigenous people live in adverse environmental conditions. The life of ethnic people and their activities are centered on the hills and resources with which they lived in a symbiotic relationship for centuries. Ethnobotany is the field of study that deals with the direct interaction of human and plants. Harshberger (1895) brought up the term ethnobotany for the first time. He defined ethno botany as "the use of plants by aboriginal people". The present paper reviewed the important medicinal plants utilized by the various tribes in India for curing various elements.

Key words: Key words: Medicinal plants, ailments, tribes, India, conservation,

Introduction:

Ethnobotanical investigation documents the knowledge on cultural interaction of people with plants. In many developing countries, people mostly rely on ethnomedicinal knowledge to treat diseases, because western-based health care system is inefficient due to poor staffing or because western drugs are expensive. Ethnomedicinal knowledge is gradually vanishing because of rapid socio-economic, environmental, and technological changes. Therefore, ethnomedicinal knowledge must be documented and conserved through systematic studies before it is lost forever (Mohammed et al., 2006). Harshberger (1895) brought up the term ethnobotany for the first time. He defined ethno botany as "the use of plants by aboriginal people

Material and methods: The materials used for reviewing this article is only published journal articles. Mainly some important selected plants were reviewed with their medicinal uses from different states of the country utilized by different

tribes (Table.1). Harshberger (1895) brought up the term ethno botany for the first time. He defined ethno botany as "the use of plants by aboriginal people". Ethno botanical studies are very important in identifying locally important plant species especially for the discovery of drugs. *Argemone mexicana* is used to treat ring worm by *Bhil* tribe of Bibdod, Ratlam district, Madhya Pradesh, (Jadhav 2006); pneumonia by *Koruku, Gond, Bhils, Bhilalas, Naik, Mankar* and *Nihal* of East Nimar region, Madhya Pradesh (Ray et al. 2011); as an antidote to snake bite and to increase sperm count in Nanded district, Maharashtra (Ghorband and Biradar, 2011); for tetanus, antidote for scorpion sting, for malarial fever, to cure chest pain by *Andha* and *Bhils* in Hingoli district, Maharashtra (Patil and Biradar, 2011); to cure cracks on feet, applied between toes while working in paddy fields, leucoderma in sub-Himalayan tract, Uttarakhand (Sharma et al. 2013); sore in back in Tumkur district, Karnataka (Achar et al. 2015); to kill

RESEARCH ARTICLE



GOODS AND SERVICES TAX-ONE NATION, ONE TAX

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T. MA. NIVEDITHA

ABSTRACT

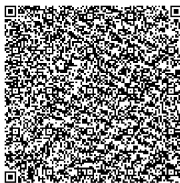
The Goods and Services Tax, commonly known as GST is a reality now and it has brought the Indian taxation system under its unique ideology 'one nation, one tax'. Reduces tax burden on producers and fosters growth through more production. The current taxation structure, pumped with myriad tax clauses, prevents manufacturers from producing to their optimum capacity and retards growth. GST will take care of this problem by providing tax credit to the manufacturers. Different tax barriers, such as check posts and toll plazas, lead to wastage of unpreserved items being transported. This penalty transforms into major costs due to higher needs of buffer stock and warehousing costs. A single taxation system will eliminate this roadblock. There will be more transparency in the system as the customers will know exactly how much taxes they are being charged and on what base. GST will add to the government revenues by extending the tax base. GST will provide credit for the taxes paid by producers in the goods or services chain. This is expected to encourage producers to buy raw material from different registered dealers and is hoped to bring in more vendors and suppliers under the purview of taxation. GST will remove the custom duties applicable on exports. The nation's competitiveness in foreign markets will increase on account of lower costs of transaction. The advent of GST has subsumed all the indirect taxes in India, including Value Added Tax (VAT), Service tax, Excise duty, and Octroi. These indirect taxes or VAT were levied on each step of value addition of the product, thus creating a cascading effect. Therefore, GST was introduced to bring down unwanted inflation in the economy. Both VAT and GST are levied on the value of sale or supply of goods. But still, there are lots of differences between VAT and GST.

Key words: GST, indirect tax, transparent, differences between VAT and GST.

Introduction:

The concept of GST in India was proposed by Atal Bihari Vajpayee in 1999 and a committee was set up under the chairmanship of Asim Das Gupta, the then finance minister of West Bengal. Introduction of GST would be a very significant step in the field of indirect tax reforms in India.

India has introduced GST very recently, that is, in July 2017. It is expected to increase the efficiency of tax collection, reduce corruption and make it easy for inter-state movement of goods. It seeks to make India a single market in terms of tax for any



Biodiversity Consequences of Biofuel Production

P Sreevani*

Abstract

The biodiversity impact of biofuels will depend on the biofuel crop and the previous land use. Biofuels can be beneficial to biodiversity when appropriate crops are grown in suitable areas. Conversion of protected areas is usually explicitly prohibited by sustainability standards, but many of these areas of high biodiversity importance fall outside of the protected area network. The paper examines research that investigates the impact on biodiversity; specifically, how the impact is measured as being dependent on the biofuel feedstocks, previous land use and agricultural practices employed and well-managed plantations. However, the paper also provides insights on the evidence that reveals that the cultivation of many of the biofuel feedstocks has a negative impact on biodiversity as a result of habitat conversion and the 'off-farm' impacts of pollution and soil erosion.

Keywords: Biodiversity and Biofuel Production, Ecosystem and Climate Change, Renewable Fossil Fuel

1. Introduction

Biofuels can provide answers to current global energy and economic crises - both as a sustainable energy source and through promoting economic development, especially in rural areas of

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ప్రకాశిక

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గౌరవ సంపాదకులు
రవీంద్రుడు గురజాడ
అరుణ గురజాడ
డా॥ కొవ్వలి గోపాలకృష్ణ

ప్రధాన సంపాదకులు
డా॥ టి. సత్యనారాయణ
పుల్లారామాంజనేయులు
డా॥ ఎం. ప్రసాద్
డా॥ ఎం. గిరిబాబు
డా॥ పి.బి. సంజీవరావు

సంపాదకులు
డా॥ ఎం. రవికుమార్
డా॥ ఓ. సరస్వతి
శ్రీ జి. వేణు
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Applications of nanomedicine- Overview

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ABSTRACT

Nanotechnology is the study of extremely small structures, having a size of 0.1 to 100 nm. The ideas and concepts behind nano science and nanotechnology were started by Physicist Richard Feynman. He described a process in which scientists would be able to manipulate and control individual atoms and molecules. Particles are engineered so that they are attracted to diseased cells, which allow direct treatment of those cells. This technique reduces damage to healthy cells in the body and allows for earlier detection of disease. An important application of nanotechnology in biomedical science deals with novel drug synthesis, drug delivery, imaging, gene therapy etc. Lipid and polymer-based nanoparticles are the most commonly used drug delivery systems. They offer several advantages such as improved drug solubility, preferential drug accumulation in tumor site, sustained drug release, improved bioavailability and biocompatibility over the conventional treatment methods. Nanoparticles also carry the potential for targeted and time-release drugs. Currently many substances are under investigation for drug delivery and more specifically for cancer therapy. An ideal drug-delivery system possesses two elements: the ability to target and to control the drug release. Targeting will ensure high efficiency of the drug and reduce the side effects, especially when dealing with drugs that are presumed to kill cancer cells but can also kill healthy cells when delivered to them. The reduction or prevention of side effects can also be achieved by controlled release. So Controlled drug delivery systems (DDS) have several advantages compared to the traditional forms of drugs. A drug is transported to the place of action, hence, its influence on vital tissues and undesirable side effects can be minimized.

Keywords— Nanomedicine, Nanoparticles, Drug delivery, Minimized side effects

1. INTRODUCTION

Nanotechnology is the study of extremely small structures, having a size of 0.1 to 100 nm. The prefix “nano” is a Greek word which means “dwarf”. The word “nano” means very small or miniature size. The ideas and concepts behind nano science and nanotechnology started by Physicist Richard Feynman. He described a process in which scientists would be able to manipulate and control individual atoms and molecules. The major application of nanotechnology in biomedical science involves novel drug synthesis, drug delivery, imaging, gene therapy etc. Imaging is an important area of application where nanoparticles can be employed to detect tumor cells. When injected into the body these nanoparticles or nano devices specially detect and bind to the cancer cells and behaves as contrast agents thus producing images of ultrasound and MRI with improved contrast.

Nano medicines used for drug delivery, are made up of nano scale particles or molecules which can improve drug bioavailability. For maximizing bioavailability both at specific places in the body and over a period of time, molecular targeting is done by nano engineered devices such as nano robots ^[1]

The pharmacological and therapeutic properties of drugs can be improved by proper designing of drug delivery systems, by use of lipid and polymer-based nano particles ^[2].

The strength of drug delivery systems is their ability to alter the pharmacokinetics and bio-distribution of the drug. Nano particles are designed to avoid the body's defense mechanisms ^[3] can be used to improve drug delivery. New, complex drug delivery mechanisms are being developed, which can get drugs through cell membranes and into cell cytoplasm, thereby increasing efficiency. The triggered response is one way for drug molecules to be used more efficiently. Drugs that are placed in the body can activate only on receiving a particular signal. A drug with poor solubility will be replaced by a drug delivery system, having improved solubility due to the presence of both hydrophilic and hydrophobic environments ^[4].

Abraxane, is albumin bound paclitaxel, a nano particle used for the treatment of breast cancer and non-small- cell lung cancer (NSCLC). Nano particles are used to deliver the drug with enhanced effectiveness for treatment for head and neck cancer, in mice model study, which was carried out at from Rice University and University of Texas MD Anderson Cancer Center. The reported

Detail Study of Personal Financial Planning Profession: Certified Financial Planner CM Perspective

¹G. Srinivasa Rao

Abstract

Financial discipline in everyone's life is most desirable phenomena for leading the life without many deviations from the regular life. Personal financial planning as a profession in India it is in an infant stage, there is greater need to familiarise the profession by way of providing financial education to all categories of investors. Investors having a lot of confusion about different kinds of Independent Financial Advisors. To protect the investors' from the hands of unqualified professionals, there is a strong need to provide guidance with righteous information regarding Securities and Exchange Board of India (SEBI) approved financial advisors. CERTIFIED FINANCIAL PLANNER CM or CFPCM Professionals are SEBI approved financial advisers; they will make comprehensive financial plans for individual investors to meet their life goals. CFPCM professionals have greater amount of specialised set of skills in personal financial planning domain. CFPCM Professionals are certified by Financial Planning Standards Board India (FPSBI). FPSBI is the authorised body that awards CFPCM Certification in India, through an agreement with FPSB Ltd US. CFPCM Certification is the global certification in the field of financial planning. The aim of the research paper is to provide complete information about CFPCM Professionals and how they will help the investors for their life goals. The researcher tries to examine the various internal and external factors influencing the perfect financial planning for individual investors. The research study was conducted by administering the structured questionnaire for interviewing 50 selected financial advisors. The responses gathered was analysed with the help of multiple linear regression model using SPSS. The results revealed that internal factors such as investment amount and expected return having high influence on preparing individual financial plans. The external factors safety and return on investment is having high influence on preparing individual financial plans.

Keywords: CERTIFIED FINANCIAL PLANNER CM Professionals, Financial Planning, Securities and Exchange Board of India, Financial Planning Standard Board India, Investment, and Investor.

Introduction

Financial Planning

There is not a single one of us who can take life for granted. Future is full of uncertainties, to meet the future uncertainties, certain financial planning is inevitable. Financial planning is an ongoing process throughout the life of an individual for attaining the fulfilment of aspirations. Financial planning is a process of managing finance of individuals to meet their life goals. Financial planning is road map to help the individual investors to reach their goal safely. Comprehensive financial planning is a complete financial planning of all needs of individuals it comprises the following components. FPSB India has categorized the Financial Planner Abilities into six Financial Planning Components 1.Financial Management 2.Asset Management 3.Risk Management 4.Tax Planning 5.Retirement Planning 6.Estate Planning (Financial Planner Competency Profile, n.d., p.7)

Process of standard financial planning requires the six steps approach 1. Establishing and defining the client planner relations 2. Gathering client data, including goals 3.Analyzing and evaluating your financial status 4. Developing and presenting Financial Planning recommendations and/or alternatives 5. Implementing the Financial Planning recommendations 6. Monitoring the Financial Planning recommendations (Financial Planning Process,n.d.,para.2)

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DNA BARCODING AND BIOLOGICAL ASSESSMENT ON A FEW MANGROVE PLANT SPECIES OF VISAKHAPATNAM COAST, ANDHRA PRADESH, INDIA

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Keywords:

DNA Barcoding, Phytochemicals, Mangrove plants, Hepatotoxicity

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ABSTRACT: DNA barcoding is currently gaining popularity due to its simplicity and high accuracy as compared to the complexity and subjective biases associated with morphology-based identification of taxa. The standard chloroplast DNA barcode for land plants is normally recommended by the Consortium for the Barcode of Life (CBOL) plant working group that needs to be evaluated for a wide range of plant species. In Visakhapatnam district of Andhra Pradesh state, there are many natural and manmade seasonal wetlands that serve as important gateways for the migratory waterfowl. Hence these wetlands contribute significantly towards balancing of ecosystem. Many researchers had identified plant species of these wetlands by traditional methods but the aspect of identification of plants through barcoding has largely been ignored. We therefore, tested the potential of the *rbcl* marker for the identification of Mangrove plants belonging to two families of some wetlands of Visakhapatnam. This had been carried out by *rbcl* gene as the standard plant barcode Maximum likelihood tree analysis was also performed to evaluate the discriminatory power of the *rbcl* gene. The classical taxonomic classification was then compared with the classification obtained through DNA Barcode tree. Our findings showed that using *rbcl* gene sequences, majority of the samples, i.e. (100%) were identified at genus and species level. This research work has revealed the potentiality of three mangrove species having hepatoprotective activity which could be useful in the area of life sciences. Further research work is needed to determine the biologically active molecules from *S. prostrata*, *S. microphylla* and *S. portulacastrum*; this would be the basic platform to be executed in various applications of life sciences. The advancements in DNA barcoding studies helps in better understanding of flora or fauna at species level and could pave a way for proving certain phytochemical, anticancer, antioxidant, hepatoprotective activities at molecular level which is more authenticated.

INTRODUCTION: DNA barcoding is a technique for characterizing species of organisms using a short DNA sequence from a standard and agreed-upon position in the genome. DNA barcode sequences are very short relative to the entire genome and they can be obtained reasonably quickly and cheaply known as “DNA barcodes”, that have been proposed and initiated to facilitate biodiversity studies, identify juveniles, associate sexes, and enhance forensic analyses.

In recent years there has been a drive to speed up the rate at which species on earth are identified and described in response to the diversity of life which is disappearing at an ever increasing rate. There are an estimated 300000 plant species in the world (IUCN, 2012) but relatively few of these can be identified based on traditional plant identification methods^{5, 11}.

Accurate classification and identification of this large number of species remains a significant challenge even for specialist taxonomists. The emergence of DNA barcoding has had a positive impact on biodiversity classification and identification. Since it was first put forward and widely applied in animals¹¹, DNA barcoding has attracted much attention from taxonomists. DNA barcoding can also be used for a wide range of

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Nanotechnology: current uses and future applications in the food industry

Muthu Thiruvengadam¹ · Govindasamy Rajakumar¹ · Ill-Min Chung¹

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Abstract

Recent advances in nanoscience and nanotechnology intend new and innovative applications in the food industry. Nanotechnology exposed to be an efficient method in many fields, particularly the food industry and the area of functional foods. Though as is the circumstance with the growth of any novel food processing technology, food packaging material, or food ingredient, additional studies are needed to demonstrate the potential benefits of nanotechnologies and engineered nanomaterials designed for use in foods without adverse health effects. Nanoemulsions display numerous advantages over conventional emulsions due to the small droplets size they contain: high optical clarity, excellent physical constancy against gravitational partition and droplet accumulation, and improved bioavailability of encapsulated materials, which make them suitable for food applications. Nano-encapsulation is the most significant favorable technologies having the possibility to ensnare bioactive chemicals. This review highlights the applications of current nanotechnology research in food technology and agriculture, including nanoemulsion, nanocomposites, nanosensors, nano-encapsulation, food packaging, and propose future developments in the developing field of agrifood nanotechnology. Also, an overview of nanostructured materials, and their current applications and future perspectives in food science are also presented.

Keywords Nanoemulsion · Nanocomposites · Nanosensor · Nano-encapsulation · Food packaging

Introduction

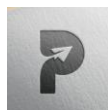
Nanoscience and nanotechnology are innovative scientific advancements that have been introduced only in this century. Their utilizations in food and agriculture productions are almost modern compared with that of medicine delivery and pharmaceuticals. Nanotechnology has developed as the scientific advancement to grow and transform the entire agrifood area, with the potential to elevate global food production, furthermore to the nutritional value, quality, and safety of food (Sekhon 2014; Chung et al. 2017). Nanotechnology uses in food science are going to influence the most important aspects of food manufacturing from food protection to the molecular synthesis of new food products

and ingredients (Pathakoti et al. 2017). Nanotechnology is expected to facilitate the following development stage of genetically altered crops, input to the production of animal and fisheries, chemical insecticides and precision farming methods. Precision farming is one of the most important techniques utilized for increasing crop productivity by monitoring environmental variables and applying the targeted action (Chen and Yada 2011). Food endures a variability of post-harvest- and processing-persuaded changes that affect its biological and biochemical maquillage. Thus, nanotechnology development in the areas of biochemistry and biology could also affect the food manufacturing (Sozer and Kokini 2009; Jain et al. 2016). There is a need to develop simpler, faster, more sensitive and low-cost approaches for the observation and quantification of impurities in foods. Within the past decade, with remarkable advances in nanoscience, nanotechnology-enabled sensors and systems have been increasingly used to develop rapid and noninvasive methods of detection of food contaminants.

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Agrobacterium mediated transformation of mature embryonal axes of three Pigeonpea genotypes (*Cajanus cajan* L.Millsp.)

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Abstract:

Pigeonpea is an important grain legume, however the genetic transformation of pigeonpea has been very challenging to date. In the present study, we describe a simple protocol for transformation of mature embryonal axis of three pigeon pea genotypes viz., LRG 30, ICPL 87, ICPL 85063. *Agrobacterium* mediated transformation was carried out using At 037 strain of LBA 4404 carrying Kanamycin antibiotic selection marker and GUS reporter gene. The percentage of transformants obtained were more in four days cocultivation than in two days cocultivation. Four days co-cultivation exposed more number of meristematic cells to bacterial infection. The percentage of transformation was also more at cotyledonary node region than radical and plumule. Among three genotypes ICPL 87 showed highest frequency of transformation in both two days and four days cocultivation.

Keywords: Pigeonpea, mature embryonal axis, cotyledonary node, *Agrobacterium*, transformation.

Introduction:

Pigeonpea is one of the important protein yielding grain legumes of semi-arid tropics in India. Due to its importance as a pulse crop, pigeonpea improvement in terms of protein quality, stress tolerance and pest tolerance is necessary. Insect pest resistance has largely been introgressed in many crops, including pulses, by using the *cry* genes from *Bacillus thuringiensis*. However, many plant genes like lectins, protein inhibitors, etc. are also available that impart tolerance to insect pests and can be used for developing insect-tolerant plants (Rathore *et al.* 2018). Developing resistant varieties is possible by conventional interspecific hybridization or introduction of resistant genes through genetic engineering. For production of transgenics, successful regeneration is important. In pigeonpea, there are several successful reports using different varieties and different explants. Regeneration was obtained via callus cultures (Kumar *et al.*, 1983), direct differentiation from leaf discs (Eapen and George, 1993; Geetha *et al.*, 1998), cotyledons (Geetha *et al.*, 1998, Mehta and Mohan Ram, 1980), cotyledonary nodes (Geetha *et al.*, 1998; Prakash *et al.*, 1994). somatic embryogenesis (Patel *et al.*, 1994; Kulkarni and Krishnamurthy, 1989) was also reported. Protoplast regeneration upto callus stage has also been reported (Sarangi *et al.*, 1992; Sagare *et al.*, 1997). Regeneration through multiple shoot induction (Geetha *et al.*, 1998; Franklin *et al.*, 1998, 2000; Niveditha *et al.*, 2012)

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***Chloroxylon swietenia* DC (East Indian satin wood tree) uses- A review**

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Chloroxylon swietenia DC is a medium-sized deciduous tree, growing to 15–20 m tall, with thick, fissured, slightly corky bark and pinnate leaves. The flowers are small, creamy-white, produced in panicles; the fruit is an oblong three-segmented capsule 2.5-4.5 cm long, containing 1-4 seeds in each segment. It is native to India (Andhra Pradesh, Kerala, Tamil Nadu); Madagascar; Sri Lanka. In India most plant parts are medicinally used. The present review discussed about the uses of different parts of the tree viz., bark, stem, timber and leaves. Plant parts are used medicinally bark is used to treat cold, cough; leaf and stem bark paste is to cure wounds by external application; Leaves are used in ripening of fruits, as galactagogue in goats, as mosquito repellents, as larvicidal and for fishing; stem is used as timber and construction purpose, mature stem is used for making reapers for tiled houses and planks; agricultural implements, furniture and Walking sticks. It is a slow-growing species which has become very scarce in most areas because of timber exploitation. It is one among IUCN (International Union for Conservation of Nature) red data list plants. It is very useful plant with its medicinal and non - medicinal uses. It is a slow-growing species which has become very scarce in most areas because of timber exploitation. So there is an urgent need of conservation of this plant by in situ and ex situ conservation methods.

Key words: Medicinal , non medicinal uses, IUCN red list, slow growing species, conservation

Introduction

Biodiversity is the biological diversity which includes the variety of the whole species present on earth. It includes different animals, plants, micro-organisms and their genes, water ecosystems, terrestrial, and marine ecosystems in which they all are present. Biodiversity is necessary for our existence as well as valuable in its own right. This is because it provides the fundamental building blocks for the many goods and services which provides a healthy environment to lead our life.

The present review on *Chloroxylon swietenia* DC conveys its uses and emergency alert to conserve this plant as it is in IUCN red list.

Chloroxylon swietenia DC. a member of Rutaceae family is a medium sized and deciduous tree with a height of about 9 -15 m and 1.0 -1.2 m girth with a spreading crown and clear bole up to 3 m. The tree is native to India and Sri Lanka and commonly known as "Ceylon Satinwood" or "East Indian Satinwood". In India, it is found wild in dry deciduous forests up to an altitude of 1100 m[1]. It grows on black cotton soils, metamorphic



Sustainable utilization of forests and Non-Timber Forest Products-An over view.

Dr.T.M.A.Niveditha

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Abstract: Sustainable forest management has to keep the balance between three main pillars: ecological, economic and socio-cultural. Successfully achieving sustainable forest management will provide integrated benefits to all, ranging from safeguarding local livelihoods to protecting the biodiversity and ecosystems provided by forests, reducing rural poverty and mitigating some of the effects of climate change. Forests are the Backbone of the life forms and the life on earth sustained through them, A complex ecosystem consisting mainly of trees that supports a many forms of life. They regulates the whole earth ecosystem by providing various benefits to all living organisms. Besides direct benefits which forests provide in the way of products, it has many indirect beneficial influences which are often overlooked and their value underestimated. The sustainability of NTFP harvest depends on the organs that are harvested but also on the life cycle of harvested species. It is incorrect to suggest that NTFPs can be harvested indefinitely without proper management practices to sustain their yield. Only products without killing the individual plants or animals which are abundant or which regenerate easily, offer good prospect for sustainable management. To generate these values with minimal disturbance of forest ecosystems, NTFPs are increasingly a focus of multiple-use forest management to balance conservation with sustainable economic development. Appropriate strategies should be developed for the preservation and regeneration of the natural resource base as well as to meet the demand on the forest produce.

Key Words: Sustainability, forests, Non-timber Forest Products, seed production system, proper management, domestication.

Introduction

A sustainable forest is a forest that is carefully managed so that as trees are felled they are replaced with seedlings that eventually grow into mature trees. This is a carefully and skillfully managed system.

Sustainable forest management has to keep the balance between three main pillars: ecological, economic and socio-cultural. Successfully achieving sustainable forest management will provide integrated benefits to all, ranging from safeguarding local livelihoods to

protecting the biodiversity and ecosystems provided by forests, reducing rural poverty and mitigating some of the effects of climate change. Forests are the Backbone of the life forms and the life on earth sustained through them, A complex ecosystem consisting mainly of trees that supports a many forms of life. They regulates the whole earth ecosystem by providing various benefits to all living organisms. Besides direct benefits which forests provide in the way of products, it has many indirect beneficial influences

RESEARCH ARTICLE



GOODS AND SERVICES TAX-ONE NATION, ONE TAX

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ABSTRACT

The Goods and Services Tax, commonly known as GST is a reality now and it has brought the Indian taxation system under its unique ideology 'one nation, one tax'. Reduces tax burden on producers and fosters growth through more production. The current taxation structure, pumped with myriad tax clauses, prevents manufacturers from producing to their optimum capacity and retards growth. GST will take care of this problem by providing tax credit to the manufacturers. Different tax barriers, such as check posts and toll plazas, lead to wastage of unpreserved items being transported. This penalty transforms into major costs due to higher needs of buffer stock and warehousing costs. A single taxation system will eliminate this roadblock. There will be more transparency in the system as the customers will know exactly how much taxes they are being charged and on what base. GST will add to the government revenues by extending the tax base. GST will provide credit for the taxes paid by producers in the goods or services chain. This is expected to encourage producers to buy raw material from different registered dealers and is hoped to bring in more vendors and suppliers under the purview of taxation. GST will remove the custom duties applicable on exports. The nation's competitiveness in foreign markets will increase on account of lower costs of transaction. The advent of GST has subsumed all the indirect taxes in India, including Value Added Tax (VAT), Service tax, Excise duty, and Octroi. These indirect taxes or VAT were levied on each step of value addition of the product, thus creating a cascading effect. Therefore, GST was introduced to bring down unwanted inflation in the economy. Both VAT and GST are levied on the value of sale or supply of goods. But still, there are lots of differences between VAT and GST.

Key words: GST, indirect tax, transparent, differences between VAT and GST.

Introduction:

The concept of GST in India was proposed by Atal Bihari Vajpayee in 1999 and a committee was set up under the chairmanship of Asim Das Gupta, the then finance minister of West Bengal. Introduction of GST would be a very significant step in the field of indirect tax reforms in India.

India has introduced GST very recently, that is, in July 2017. It is expected to increase the efficiency of tax collection, reduce corruption and make it easy for inter-state movement of goods. It seeks to make India a single market in terms of tax for any



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Constructed wet lands-An efficient green technology for environmental sustainability-An over view

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Abstract

This paper gives an over view on importance , maintenance and macrophytes vegetation and micro organisms in constructed wet lands. Wetlands are transitional areas between land and water. A constructed wetland is a shallow basin filled with some sort of substrate, usually soil or gravel, and planted with vegetation tolerant of saturated conditions. Water is introduced at one end and flows over the surface or through the substrate, and is discharged at the other end through a weir or other structure which controls the depth of the water in the wetland. Similarly to natural wetlands, constructed wetlands also act as a biofilter and/or can remove a range of pollutants (such as organic matter, nutrients, pathogens, heavy metals) from the water. There are several types of constructed wetlands. surface flow wetlands, subsurface flow wetlands, and hybrid systems that incorporate surface and subsurface flow wetlands. The microbial biomass is a major sink for organic carbon and many nutrients. Macrophytes play an important role in nutrient recycling, stabilizes the surface of beds, provides good conditions for physical filtration, provides huge surface area for attached microbial growth and habitat for wild life. They mediate transfer of oxygen to the rhizosphere by leakage from roots leads to aerobic degradation of organic mailer and nitrification. Constructed wetland systems should be designed and built to blend into the home's landscaping. The best way to achieve this goal is to determine where the onsite wastewater treatment system will be located before the house is built. Effective planning before building the house simplifies the system.

Key words: Constructed wet lands (CWs), types, microorganisms, macrophytes, onsite waste water treatment, sustainable green technology.

Introduction:

Wetlands are transitional areas between land and water. The boundaries between wetlands and uplands or deep water are therefore not always distinct. The term “wetlands” encompasses a broad range of wet environments, including marshes, bogs, swamps, wet meadows, tidal wetlands, floodplains, and ribbon (riparian) wetlands along stream channels.

A constructed wetland is a shallow basin filled with some sort of substrate, usually soil or gravel, and planted with vegetation tolerant of saturated conditions. Water is introduced at one end and flows over the surface or through the substrate, and is discharged at the other end through a weir or other structure which controls the depth of the water in the wetland.

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**STUDY OF INDOOR AIR MICRO FLORA IN VISAKHAPATNAM CITY****Dr. Ch. Lalitha***

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ABSTRACT

Our surrounding environment of outdoor as well as indoor is full of microorganisms. The strength of airflora depends on the area and type of people moving in that vicinity. Open garbage dumping, diseased people, moist inside environment, dust and cleanliness are other factors. The outer environment is uncontrollable since it is open to all. At least the microbial load of inside environment is to be determined to check the quality of indoor air that we breathe. In order to assess this practically the students of department of Microbiology has undertaken this project to assess the indoor bacterial load and fungal load at various areas of Visakhapatnam, to identify the areas among Visakhapatnam where the bacteria and fungi load is low and to

determine the factors responsible for the quality of air in the rooms. 25 areas in Visakhapatnam city were assessed with settle plate technique. The total numbers of bacteria were found to be 3422 and fungi 4195. Places such as Arilova and Simhachalem are in the green zone with very less number of bacterial and fungal load since these areas are rich in vegetation. Places such as KGH, Jagadamba, Dabagardens and Old Town are in the red zone with maximum number. Gram positive bacteria(73.8%) are found in more number than Gram negative bacteria(26.2%). Spore forming bacteria(20%) were also found in the samples. Out of total fungal colonies only 5 species were identified by in the Laboratory. They are Cryptococcus sp.(13%), Cladosporium sp.(11%), Penicillium sp(10%), Alternaria sp.(9%) and Rhodotorula sp(8%). This study has to be further extended for two more seasons in order to determine some more factors responsible for the strength of microbial load.

KEYWORDS: Indoor air, air flora, bacteria load, fungal load, vegetation and pollution.



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RESEARCH ARTICLE

A REVIEW ON BENEFICIAL EFFECTS OF COW DUNG

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ABSTRACT

Cow is worshiped as God in India and its products are having nutritional, medical and other important uses. The microbial consortium of Cow dung is used in bioremediation of metals, pesticides, pharmaceutical products, petrochemicals and biomedical waste. Cow dung is used in composting and used as fertilizer performs activities such as Sulphur oxidation and phosphate solubilisation. The metagenomics of cow dung is studied up to some extent. Cow dung slurry contains bacteria, fungi and actinomycetes namely *Faecal Streptococcus*, *Streptococcus*, *Pseudomonas Sp*, *Sarcina*, *Nocardia*, *Mucor Sp*, *Rhizopus Sp*, *Aspergillus*, *E.coli sp* and *Penicillium sp*. It is used as mosquito repellent.

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INTRODUCTION

Cow is worshipped as God in India. Because of its importance in nature in providing food like milk, curd, ghee like mother and excreta such as urine and cow dung which are having medical importance. Cow is termed as "Kamdhenu" as well as "Gaumata" (Sharma, 1981; Susruta Samhita, 1885). The therapeutic nature of 5 products of cow are used in several treatments and so called as "Panchgavya" (Dhama et al., 2005b; Mathivanan et al., 2008).

Medicine: According to Panchgavya the products of cow have been found to improve the resistance power of humans and curing various human infections. The anti-oxidants in panchgavya prevent the free radicals and repair the damaged DNA (Dhama et al., 2005a). Cowdung is known to have antiseptic and prophylactic properties (Dhama et al., 2005b). More than 70% of veterinary medicines contain cow dung (Thiele-Bruhn, 2003).

Bioremediation: The use of cowdung instead of chemicals not only helps the crop to grow healthy (Chauhan et al, 2006) but also due to the presence of various nutrients higher concentrations and microbial consortium, the bioremediation of the products is also rapid (Geetha et al., 2008; Singh et al., 2010). *Periconiella* Sp. of fungus isolated from fungus acts as degrader of biomedical waste (Pandey et al., 2008). Cow dung vermicompost containing earth worm *E.foetida* have been

found to reduce metals (Cr, Cu, Ni and Pb) in municipal sludge (Srivastava et al., 2005). Now-a-days the use of pharmaceutical products, pesticides, and petrochemicals by man has been increasing. Their accumulation in nature is causing pollution to the environment due to the release of toxic gases and other products. They are harmful to the mankind because of potential toxicity, mutagenicity, carcinogenicity, and genotoxicity. Cow dung is used as an excellent bioremediation method by sprinkling the slurry on these products. Thus, utilizing cow dung as slurry or after composting in rural areas, is a cheap and effective measure to bio-remediate the harmful pollutants (Ank, 1995). *Periconiella* species of fungus isolated from cow dung was found to be an excellent degrader of biomedical waste. Fifty grams of biomedical waste, kept in the form of used bandages and cotton in culture media, were effectively and completely reduced by 50th day. It was found to be cheap, safe, and environment friendly method of biomedical waste disposal (Pandey et al., 2008).

Slurry: When cow dung is mixed with cow urine it is termed as slurry. It contains crude fibre (cellulose with lignin), crude protein, cellulose, hemi cellulose, and minerals like nitrogen, potassium, traces of sulphur, iron, magnesium, calcium, cobalt, manganese and so on (Nene, 1999). The slurry is diluted and sprinkled in front of rural and urban areas. It is used to degrade hospital waste and oil spillage naturally. Cow dung slurry contains bacteria, fungi and actinomycetes namely *Faecal Streptococcus*, *Streptococcus*, *Pseudomonas Sp*, *Sarcina*,



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Contamination of refrigerator is a threat for infections

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ABSTRACT

Food that we eat may be perishable, semi-perishable and non-perishable. People generally use the refrigerator to store the perishable and semi-perishable food items. But during long time preservations without recalling may lead to the development of microbial contamination. Raw vegetables and fruits also play a major role in the spread of bacteria, fungi, and parasites. This may further lead to foodborne illness which is a threat to human infections. Cross contamination is also possible between the contaminated foods and fresh foods. Proper cleaning and maintenance reduce the bacteria as well as fungal load. Therefore, the monitoring of microbiota in the refrigerator is important for food safety.

Keywords— Refrigerator, Contamination, Food Infections, Cleaning and Food Safety

1. INTRODUCTION

Refrigeration is the most widely used method to prevent foods for some time. Mostly the perishable foods are kept for refrigeration to control the microbial contamination at 4-50C. (1, 2) Refrigeration not only minimizes the contamination of foods but also the chemical and enzymatic spoilage of food by retarding the growth of microbes (3). There are certain studies which proved that the perishable foods even preserved at refrigeration temperature also undergo spoilage (4). The food spoilage depends on the type of storage container or wrapping material. Several other factors related to the food stored also influence the rate of spoilage (5).

Most of the time inside the refrigerator (excluding the freezer) the temperature is about 7°C which is called as sub-freezing temperature (6). This enables the maintenance of moisture and favours the growth of bacteria, molds and yeasts (7). The bacteria from uncleansed vegetables, fruits, milk packets, curd boxes, from wrapped foods directly purchased from the market such as cheese, jam, butter, ginger-garlic paste and so on grow spread to the other food materials inside the refrigerator. Long term preservation of these products leads to long term contamination (8, 9). The growth of fungi and bacteria rapidly increases leading to food and waterborne illness (10). Even the parasitic infestations caused by *Cryptosporidium parvum* and *Giardia lamblia* also are possible due to the improper maintenance of the refrigerator (11, 12). Bacteria such as *Staphylococcus aureus*, *Listeria monocytogens*, *Escherichia coli*, *Salmonella* spp, *Campylobacter jejuni*, *Clostridium botulinum*, *Yersinia enterocolitica* (13). Microbial contaminations of refrigerators have been studied because refrigerators are used to store food (14). Moisture and nutrients (food particles) in refrigerators provide favorable growth conditions for contaminating bacteria from unwashed raw foods, leaking packages, and hands. In particular, higher bacterial counts and temperatures in vegetable compartments could cause critical problems [15]. Recently, a German outbreak caused by Shiga-toxin producing *Escherichia coli* O104: H4 illustrated that unwashed vegetables could be a risk element [16]. Therefore, the study of bacterial contamination in the vegetable compartments of refrigerators is important for public health.

Most of the previously reported culture-dependent studies of kitchen and refrigerator microbes focused on pathogen detection [17]. The recent advent of next-generation sequencing techniques provides unprecedented data on the microbial composition, and the ecology of various environments, including indoor spaces [18].

2. MATERIALS AND METHODS

Samples were obtained from the refrigerator in the existing condition and after proper cleaning.

2.1 Samples obtained in the existing condition

2.1.1 The sampling procedure: Total of 200 samples were collected from 50 refrigerators (only at houses). Samples were obtained from all parts of the refrigerator (not the food samples) using sterile swabs dipped in saline solution. The swabs were dissolved first in sterile peptone water and then inoculated on different culture media.

WOMEN EMPOWERMENT THROUGH SELF HELP GROUPS

Dr. T. M. A. Niveditha¹

Abstract

Empowering women to participate fully in economic life across all sectors is essential to build stronger economies, achieve internationally agreed goals for development and sustainability, and improve the quality of life for women. The SHGs comprise very poor people who do not have access to formal financial institutions. Microfinance is powerful weapon to remove the poverty in our country like India. Micro finance initiatives like the SHG-Bank linkage programme, MFI Bank Linkage model etc., in India has been increasingly promoted for their positive impact on women empowerment. SHGs have their genesis from the Grameen Bank of Bangladesh which was founded in 1975 by the economist Prof. Mohammad Yunus of Chittagong University. SHGs were established exclusively for the benefit of poor. In India, SHGs first emerged within the Mysore Resettlement and Development Agency (MYRADA) in 1985. SHGs consists not less than five persons and a maximum of twenty with similar economic outlook and social status. The women are not empowered due to lack of Knowledge, Finance, Power and Opportunity. Self-help groups fulfill the four criteria cited – there by making them financially stable and also granting them a sense of empowerment. The social development on the other hand is based upon the active participation of women in developmental activities. Women's empowerment cannot be ignored while devising various policies for rural and socio-economic development. Providing micro-credit to rural women through an organized step will make them enterprising women.

Key words: Women empowerment, self help groups, origin, microcredit, functioning

Introduction

Empowerment is a multi-dimensional process, which should enable the individuals to realize their identity and powers in all spheres of life. It consists of greater access to knowledge and resources, greater autonomy in making decisions or free from the shackles imposed on them by custom, belief and practices in the society. Empowering women to participate fully in economic life across all sectors is essential to build stronger economies, achieve internationally agreed goals for development and sustainability, and improve the quality of life for women. Microfinance is powerful weapon to remove the poverty in our country like India. Micro finance initiatives like the SHG-Bank linkage programme, MFI Bank Linkage model etc., in India has been increasingly promoted for their positive impact on women empowerment.

The SHGs comprise very poor people who do not have access to formal financial institutions. They act as the forum for the members to provide space and support to each other. It also enables the members to learn to cooperate and work in a group environment. The SHGs provide savings mechanism, which suits the needs of the members. It also provides a cost effective delivery mechanism for small credit to its members.

SHG is a voluntary association of the poor with a common goal of social and economic Chitagubbi et al

empowerment' (Ganesh Murthy et al 2002). SHGs are forum for the collective voice of the poor against common oppression and exploitation to understand individual and common problems and improving their skills and capacities to manage resources (Dwarakanath 2002). SHGs can play a role in creating awareness of health issues through necessary group meetings with women, by holding specific capacity-building trainings on health issues and facilitating exposure to important up-to-date medical information. The members need to be au fait with medical issues and health promotion, this, equally indicating the responsibility of the SHG to fulfill its role for both women and the community. This said, a substantial influence on women's health and empowerment can only be achieved when these activities are taken up with a view to improving the public provision of health care facilities and accessibility, particularly in light of the RSBY initiative. It can be said that SHGs have indeed emerged as a health care option for women and their families who join these groups but still further awareness, and much greater detailed research is required among the existing SHGs in these geographical areas to ensure the move away from the uni-dimensional market oriented view of employment generation and social actualization (Chakravarty, 2012). The membership of SHGs made the members aware of the gender equality and led to the economic, social and political independence of members. It also improved the

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Sustainable utilization of forests and Non-Timber Forest Products-An over view.

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Abstract: Sustainable forest management has to keep the balance between three main pillars: ecological, economic and socio-cultural. Successfully achieving sustainable forest management will provide integrated benefits to all, ranging from safeguarding local livelihoods to protecting the biodiversity and ecosystems provided by forests, reducing rural poverty and mitigating some of the effects of climate change. Forests are the Backbone of the life forms and the life on earth sustained through them, A complex ecosystem consisting mainly of trees that supports a many forms of life. They regulates the whole earth ecosystem by providing various benefits to all living organisms. Besides direct benefits which forests provide in the way of products, it has many indirect beneficial influences which are often overlooked and their value underestimated. The sustainability of NTFP harvest depends on the organs that are harvested but also on the life cycle of harvested species. It is incorrect to suggest that NTFPs can be harvested indefinitely without proper management practices to sustain their yield. Only products without killing the individual plants or animals which are abundant or which regenerate easily, offer good prospect for sustainable management. To generate these values with minimal disturbance of forest ecosystems, NTFPs are increasingly a focus of multiple-use forest management to balance conservation with sustainable economic development. Appropriate strategies should be developed for the preservation and regeneration of the natural resource base as well as to meet the demand on the forest produce.

Key Words: Sustainability, forests, Non-timber Forest Products, seed production system, proper management, domestication.

Introduction

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protecting the biodiversity and ecosystems provided by forests, reducing rural poverty and mitigating some of the effects of climate change. Forests are the Backbone of the life forms and the life on earth sustained through them, A complex ecosystem consisting mainly of trees that supports a many forms of life. They regulates the whole earth ecosystem by providing various benefits to all living organisms. Besides direct benefits which forests provide in the way of products, it has many indirect beneficial influences



STUDIES ON NUTRITIONAL EVALUATION AND SECONDARY METABOLITES OF SOME SELECTED *CURCUMA* SPECIES COLLECTED FROM EASTERN GHATS OF UDAYAGIRI HILLS, GAJAPATHI DISTRICT, ODISHA

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ABSTRACT

The current study was carried out to investigate the nutritional evaluation and secondary metabolites of fresh rhizome of some selected species of *Curcuma* viz., *C. amada*, *C. angustifolia*, *C. caesia*, *C. longa*, *C. roscoeana* and *C. zedoaria* which are collected from Eastern Ghats of Udayagiri Hills, Gajapathi District, Odisha, India. The dried and powdered rhizomes of each species were extracted with ethanol using Soxhlet extraction method. Phytochemical screening of ethanolic extracts of each species was performed qualitatively. Phytochemical screening of the ethanolic extract of six species showed the presence of Alkaloids, Flavonoids, Tannins, Terpenoids, Saponins, Phenolic compounds and Anthraquinones. Based on this study, it can be concluded that irrespective of the origin or variety, the species *Curcuma* is a good natural reservoir of energy and its nutritive components can be used as a food supplement.

KEYWORDS: Nutritional, Secondary metabolites, *Curcuma* species.

INTRODUCTION

The genus *Curcuma longa* L. (*Zingiberaceae*) represents a group of perennial rhizomatous herbs native to tropical and subtropical regions. *Curcuma* species are known for their antioxidant and blood purifier, clears skin color, removes wounds and shows antimicrobial properties against pathogens. *Curcuma* plants (rhizomes and leaves) have a camphoraceous aroma and contain many functional compounds such as phenolics, flavonoids and different antioxidant enzymes. *Curcuma* is extensively cultivated in tropical and subtropical regions of Asia, Australia, and South America (Ravindran et al. 2007). There are approximately 93–100 accepted *Curcuma* species, however the exact number of species is still controversial (Akarchariya et al., 2017). The genus is best known for being an essential source of coloring and flavoring agents in the Asian cuisines, traditional medicines, spices, dyes, perfumes, cosmetics, and ornamental plants (Leong-Skornikova and Newman, 2015). Several *Curcuma* species are used medicinally in Bangladesh, Malaysia, India, Nepal, and Thailand (Chuakul and Boonpleng, 2003) for treating pneumonia, bronchial complaints, leucorrhea, diarrhea, dysentery, infectious wounds or abscesses, and insect bites (Chuakul and Boonpleng, 2003; Basaka et al., 2010; Akarchariya et al., 2017). The rhizome is most

commonly used part of the plant. The main active components of the rhizome are the nonvolatile curcuminoids and the volatile oil (Jayaprakasha et al., 2005; Lobo et al., 2009). Curcuminoids (curcumin, demethoxycurcumin, and bisdemethoxycurcumin) are nontoxic polyphenolic derivatives of curcumin that exert a wide range of biological activities (Itokawa et al., 2008).

The rhizomes of *Curcuma* species are used as carminative and stomachic, contusion and sprains (Sinha, 2001). *C. amada*, *C. angustifolia*, *C. caesia*, *C. longa*, *C. roscoeana* and *C. zedoaria* can be considered as lesser known species of *Curcuma*. They are used variously in the traditional system of medicines. *C. amada* is useful in bronchitis, asthma, sprains, skin diseases, and inflammation caused due to injuries. *C. angustifolia* is an aphrodisiac and useful in the treatment of leprosy, asthma, anemia, and leucoderma. Rhizomes of *C. caesia* are used for sprains and bruises and also employed in the preparation of cosmetics. The therapeutic uses of *Curcuma longa* is anticancer, antimicrobial, anti-inflammatory and free radical scavenging activity of the plant suggests a logical basis for its traditional use in foodstuff. The rhizome of *C. roscoeana* is used as an anti-inflammatory pain reliever, especially for shoulder



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Water budgeting and its importance

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ABSTRACT

Water is the physical basis of life. Without sufficient water on the planet earth, the existence of biodiversity is highly impossible. "A water budget is a basic tool that can be used to evaluate the occurrence and movement of water through the natural environment". India entered the water deficit nation's league in 2011. We have an annual financial budget with the estimations of income and expenditure. In the same way, the state water budget is to enable and empower the states to ensure that annual water withdrawals are within the limits of utilizable availability. State Water Budgeting empowers the State Government in achieving Water Security, Safety and Sustainability. The primary stakeholder in the water budgeting exercise is the "Farmer". This exercise helps the farmer become aware of the water availability at the watershed/village level and make an appropriate agricultural plan. The Crop Water Budgeting (CWB) tool has been developed to assist communities in how to utilize surface and groundwater efficiently without causing further depletion of present resources. The most important advance in modern agriculture is the invention of the drip-irrigation system. Drip method of irrigation (DMI) was introduced in India during the mid-1980s primarily to save water. Now Israel is the world's leader in farming and irrigation practices. India should learn lessons from Israel by adopting its success story. India is facing a severe water crisis and drought with an increasing population at an alarming rate. So there is an urgent need to establish water recycling units, desalination plants to irrigate agricultural lands and to maintain moisture in barren lands by irrigating them with recycled water and followed by massive introduction of micro-irrigation techniques.

Keywords— Water budgeting, Importance, Supply-demand, Stakeholders, Watershed management, Israel, Drip irrigation

1. INTRODUCTION

Water is a physical basis for life. Without sufficient water on the planet earth, the existence of biodiversity is highly impossible. Sustainability in water supply can be achieved by understanding the hydrologic cycle. Recent studies on water budget simply state that "A water budget is a basic tool that can be used to evaluate the occurrence and movement of water through the natural environment"¹. Watershed Support Services and Activities Network (WASSAN) is implementing watershed management, groundwater management, and rainfed agriculture projects in 72 villages of Rangareddy, Mahaboobnagar districts (Telangana state) and Anantpur district in Andhrapradesh. Partners of WASSAN are NGOs that are associated with management of natural resource watershed and rain-fed agriculture; State Level Nodal Agencies of Andhra Pradesh; Telangana, Tripura, Manipur, Jammu & Kashmir and NABARD. Mitra et.al. (2015) measured the balance of water demand versus water resource availability in an interfluvium of West Bengal, India to support water resource planning, particularly of inter-basin transfers.

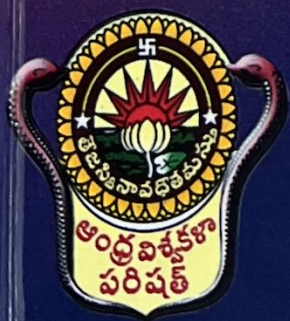
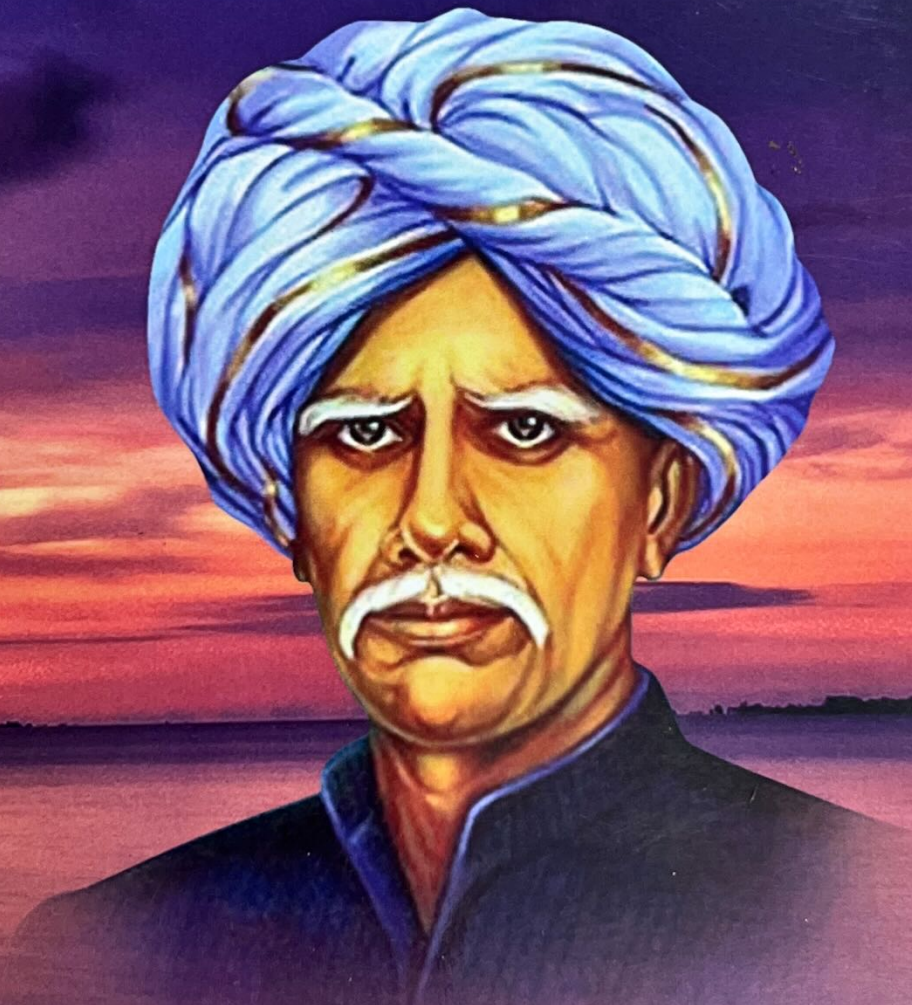
Importance of Water Budget:

It protects sources of drinking water, plans for a number of land and water use developments, monitors recharge rates in local watersheds, as a decision-making tool in restoration and rehabilitation projects, to design environmental monitoring programs; and to assist in setting targets for water conservation. If per capita availability of waterfalls below 1700 cubic meters per person, then the Nation is treated in water deficit nation. India entered water deficit nation's league in 2011. As per the Central Water Commission, we are utilizing 85.3% of the total water for agriculture in the year 2000. This may decrease to 83.3% by 2025. As India is an agriculture-based country, we should take immediate steps to ensure water availability to farmer rather than shifting to animal rearing sector. If agriculture is neglected due to water scarcity, we may not produce food for human beings and fodder to animals. If this sector is strengthened by water budget tools, recycling waste water and establishing desalination units we can grow to water surplus countries like Israel.

Indian government should put maximum effort by spending more money in achieving to achieve water sustainability. If water budget studies are perfect and accurate we could achieve something by understanding the hydrologic cycle we can achieve our goals.

కందుకూరి వీరేశలింగం

రచనలు - సమాలోచన



తెలుగు శాఖ

ఆంధ్ర విశ్వకళా పరిషత్
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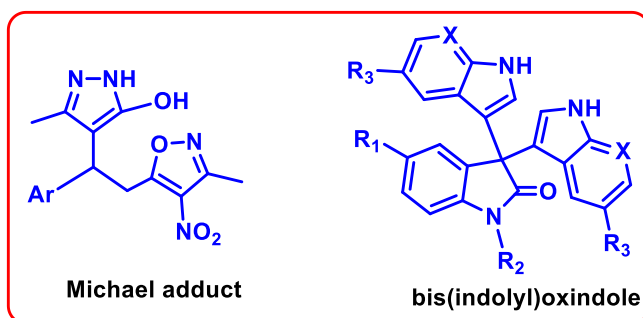


ENHANCING CATALYTIC EFFICIENCY: VTiO₂ NANOPARTICLES IN THE 1,6 MICHAEL ADDITION OF 3-METHYL-5-PYRAZOLONE TO 3-METHYL-4-NITRO-5-ALKENYL ISOXAZOLES FOR RAPID SYNTHESIS OF 3,3-BIS(INDOLYL)OXINDOLES IN PURE AQUEOUS MEDIUM

T. Appa Rao^{a*}, B. Prasada Rao^b, Dr. N. Sankara Rao^a, K. Nageswara Rao^a

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भारतीयवाङ्मये पुराणानां उत्कृष्टं स्थानमस्ति ।
पारंपरितदृष्ट्या चारित्रिकदृष्ट्या च पुराणेभ्यः दिव्यं वस्तु च भारतीयवाङ्मये अन्यत्रास्ति ।

“ इतिहासपुराणाभ्यां वेदं समुपबृंहयेत् ”
इति प्रमाणवाक्येन ज्ञायते यत् वेदज्ञानमवगन्तुं पुराणपठनं कर्तव्यमेव इति ।

पुराणशब्दविवरणम् :- व्याकरणदृष्ट्या पुराणशब्दस्य व्युत्पत्तिः "पुरा भवं" इति पुराणं
अत्यन्तप्राचीनं ग्रन्थः इत्यस्ति । प्राचीनकाले यत् अभवत् तत् पुराणमिति वदन्ति । यास्काचार्योऽपि
अस्य पदस्य अर्थं 'पुरा इत्यस्य अव्ययस्य' अन 'धातोः' पुराणमिति 'भवतीति' विवरणं कृतम् ।
“ पुरा अणति इदं सर्वं यत् ” तत् पुराणमिति शब्दार्थकादण्धातोः पुराणशब्दव्युत्पत्तिः
प्रदर्शिता, तथा

“ यस्मात् पुरा ह्यनन्तीदं पुराणं तेन उच्यते ” ब्र.पु.उं-भा-350 पा4154

पुरा अतिपूर्वकाले इदं जगत् अणन्ति भवतीत्यर्थः । यथा कथंचिदप्यस्तु अतिपुरातनं यद् वस्तु
तत् पुराणशब्दवाच्यमित्यत्र न कस्यापि विवादः । कोशकारो यः समरसिंहोऽप्याह ----

“ पुराणे प्रतनप्रत्नपुरातनं चिरन्तनाः ” इति
अति प्राचीनार्थक एवायं पुराणशब्दो विशेषणतया तत्र तत्र व्यवहियते,

पुराणः कूपः, पुराणं नगरं, पुराणं काव्यं, पुराणः पन्थाः, पुराणीराजधानीत्यादौ । इह तु विद्याप्रकरणे
प्रयुज्यमानोऽयं शब्दोऽतिपुरातनीं विद्यामभिधाति । सर्वत्र एवं व्यवहियते यत् प्राचीना विद्या
पुराणविद्या भवतीति याज्ञवल्क्येनैवमुक्तम् ।

“ पुराणानां सर्वविद्यासु प्राथान्यम् ” इति । या.स्मृ अं -श्लो-3

श्रीमद्भागवतस्य सिद्धान्तः :

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भगवता वासुदेवेन कृष्णेन गीतावर्णितानां सिद्धान्तानां रूपे यस्य भागवतधर्मस्य उपदेशः दत्तः, तस्य एव विस्तारः सोदाहरणम् व्याख्यानं वा श्रीमद् भगवते समुपलभ्यते । गीताप्रतिपादिते भागवतधर्मे ये सिद्धान्ताः मूलरूपे दृष्टिगोचराः भवन्ति, तेषामेवात्र विकासः कृतः दृश्यते । येन ते सुतरां स्पष्टतया भासते । एतदतिरिक्तं, अत्र उद्धवाय उपदेशं ददता भगवता वासुदेवेन श्रीकृष्णेन तस्मै उपदिश्यमानस्य एकस्य विषयस्य सम्बन्धे इदं स्पष्टं एवं उक्तं यत् अयं एव विषयः तेन पूर्वं अर्जुनाय उपदिष्टः इति ।

श्रीमद्भागवतेऽपि गीतावत् परतत्त्वम् आत्मस्वरूपेण व्यक्तित्वविहीनं अनन्तं परमात्मतत्त्वं मन्यमानं सत् सर्वोच्चस्य परात्परस्य वा देवाधिदेवस्य भगवतः वासुदेवस्य रूपे विशिष्टव्यक्तित्वसम्पन्नं अपि मतं अस्ति । यतः विशिष्टदिव्य व्यक्तित्व सम्पन्नरूपे इदं परतत्त्वं अत्र प्रायः " भगवान् " इति कथितम् अस्ति, अतः आत्मस्वरूपेण व्यक्तित्वविहीनेव्यक्तित्वयुक्ते च परतत्त्वे ऐक्यबोधनाय अत्र इदं कथितं अस्ति यत्---

" वदन्ति तत्तत्त्वविदस्तत्त्वं यद्ज्ञानमद्वयम् ।

ब्रह्मेति परमात्मेति भगवानिति शब्दयते " ॥ श्री.भा.1-2-11

एतदतिरिक्तं अत्र स्पष्टरूपेणापि " सञ्चिन्तयेद्भगवतश्चरणारविन्दम् " इत्यादि प्रकारेण अनेकशः

भगवतः दिव्यस्य रूपस्य निर्देशः कृतः वर्तते। वस्तुतः, अत्र परतत्त्वस्य भगवत्त्वं अर्थात्

ज्ञानाद्यनन्तगुणयुक्तत्वे सति दिव्यमङ्गलविग्रहयुक्तत्वं अधिकं प्रकाशितं अस्ति । भगवतः नित्यस्य धाम्नः अपि अत्र अनेकशः निर्दिशोऽस्ति । भागवत धर्मस्य एकस्य प्रमुखस्य सिद्धान्तस्य-अवतारवादस्य तु इदं पुराणं एकं विशिष्टं व्याख्यानं एवास्ति । अत्र "अवतारा ह्यसंख्येयाः हरेः सत्त्वनिधेर्द्विजाः" इत्यादि प्रकारेण भगवदवताराणां असंख्येयत्वं प्रतिपाद्य सर्वत्रापि प्रायः अवताराणां चरितानि एवं मुख्यतया वर्णितानि सन्ति ।

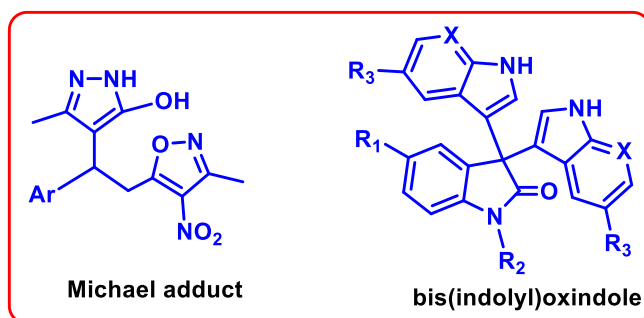


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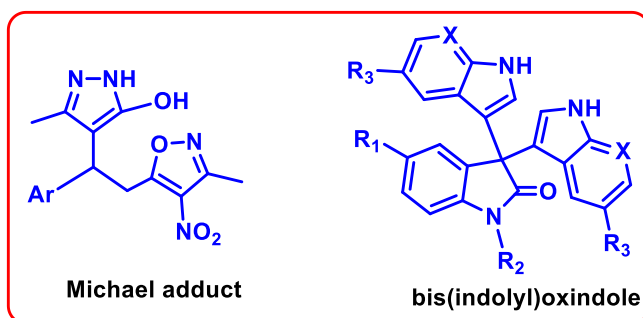


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A COMPLETE CLASSIFICATIONAL REVIEW ON ICH GUIDELINES

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ABSTRACT

Through industry and regulatory participation, ICH has successfully unified technical guidelines globally. After ICH reform, ICH has transparent governance and membership that is becoming more international. There are five clear steps in the ICH guideline formulation process. The goal of the International Council of Harmonization (ICH) is to secure global harmonization in the development and registration of safe, efficient, and high-quality pharmaceuticals.

Keywords: ICH guidelines; Q- series; harmonization; stability studies; GMP.

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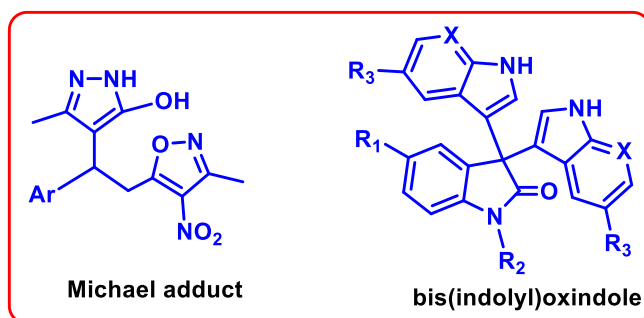


ENHANCING CATALYTIC EFFICIENCY: VTiO₂ NANOPARTICLES IN THE 1,6 MICHAEL ADDITION OF 3-METHYL-5-PYRAZOLONE TO 3-METHYL-4-NITRO-5-ALKENYL ISOXAZOLES FOR RAPID SYNTHESIS OF 3,3-BIS(INDOLYL)OXINDOLES IN PURE AQUEOUS MEDIUM

T. Appa Rao^{a*}, B. Prasada Rao^b, Dr. N. Sankara Rao^a, K. Nageswara Rao^a

Abstract

Herein, we present a report detailing the synthesis of column chromatography-free, heterogeneous vanadium doped titanium dioxide nanoparticles (VTiO₂ NPs) for catalysing the 1,6 Michael addition of 3-methyl-5-pyrazolone onto 3-methyl-4-nitro-5-alkenyl isoxazoles. Additionally, we report the swift synthesis of 3,3-di(indolyl)indolin-2-ones through the reaction of indole on isatin at room temperature in water, marking the first instance of such a process. The 1,6 Michael addition reaction yielded moderate to good yields, while the 3,3-bis(indolyl)oxindole products were obtained in quantitative yield.



Keywords: Vanadium doped Titanium dioxide nanoparticles (VTiO₂ NPs), 1, 6 – Michael addition, 3,3-di(indolyl)indolin-2-ones, green chemistry matrices, 3-methyl-4-nitro-5-alkenyl isoxazoles.

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सुभाषितप्राशस्त्यम्

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" सुभाषितं " इति पदस्यसुष्ठुभाषितं सुभाषितमिति सूक्तं इति च अर्थः भवति । भारतीयवाङ्मये सर्वेषु ग्रन्थेषु वेदादिषु प्राचीनप्रामाणिक ग्रन्थेषु अपि सुभाषितानि दृश्यन्ते । वेदादयः उपनिषदः, पुराणानि, आधुनिककाव्यानि अपि नराणां बहुविध प्रयोजनोद्देशेन ग्रथितानि । काव्यस्य प्रयोजन विवरणसन्दर्भे एवं उक्तं---

"काव्यं यशसे ऽर्थकते व्यवहारविदे शिवेतरक्षतये ।

सद्यः परनिर्वृतये कान्तासम्मिततयोपदेशयुजे" ॥ का.प्र.प्रथमोल्लासः -1

अस्मिन् श्लोके यानि यानि प्रयोजनानि अपेक्षन्ते तानि सर्वाणि सुभाषितरूपेण काव्येषु परिपूरितानि सन्ति । ' यच्छृण्वतारसज्ञानां स्वादु स्वादु पदे पदे ' इत्यादिभिः वाक्यैः स्वादुवचनानि रसज्ञानां आनंदाय प्रकल्पन्ते विविधेषु ग्रन्थेषु । श्रीमद्भागवतपुराणेऽपि बहूनि सुभाषितानि , [सुष्ठु भाषितानि] सन्ति।

संस्कृतभाषायां सुभाषित स्थानम् :-

" भाषासु मुख्या मधुरा दिव्या गीर्वाण भारती ।
तस्माद्धि काव्यं मधुरं तस्मादपि सुभाषितम् " ॥ सु.र. भा. प्रथमश्लोकः

आङ्ग्लभाषायां एवमुक्तम्Sanskrit Language is the most Important, the sweetest and the most divine among all the languages. In this Language, Kavya is sweetest and in the Kavya, Subhashitas (good words) are the sweetest.

संस्कृतवाङ्मये सुभाषितं नामविशेषपरिश्रमं विना सुकुमारमतीनामपि व्यवहार ज्ञानसम्पादनसाधनम् । एतस्मिन् सुभाषितसंग्रहे कानिचित् सन्मार्गबोधनपराणि , अपराणि सुजनस्तुतिपराणि , अन्यानि राजनीतिबोधकानि इत्येवं नानाविधविषयपराणि मनोहराणि संकलितानि सन्ति । एते श्लोकाः प्रत्येकं स्वतन्त्ररूपेण वर्तन्ते। एकस्य श्लोकस्य अन्येन श्लोकेन साकं सम्बन्धः नास्ति । अत एव एते श्लोकाः मुक्तका इति कथ्यन्ते ।

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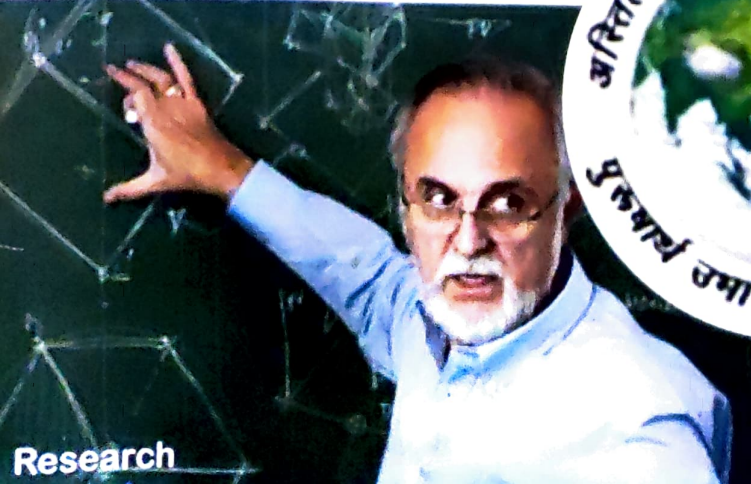
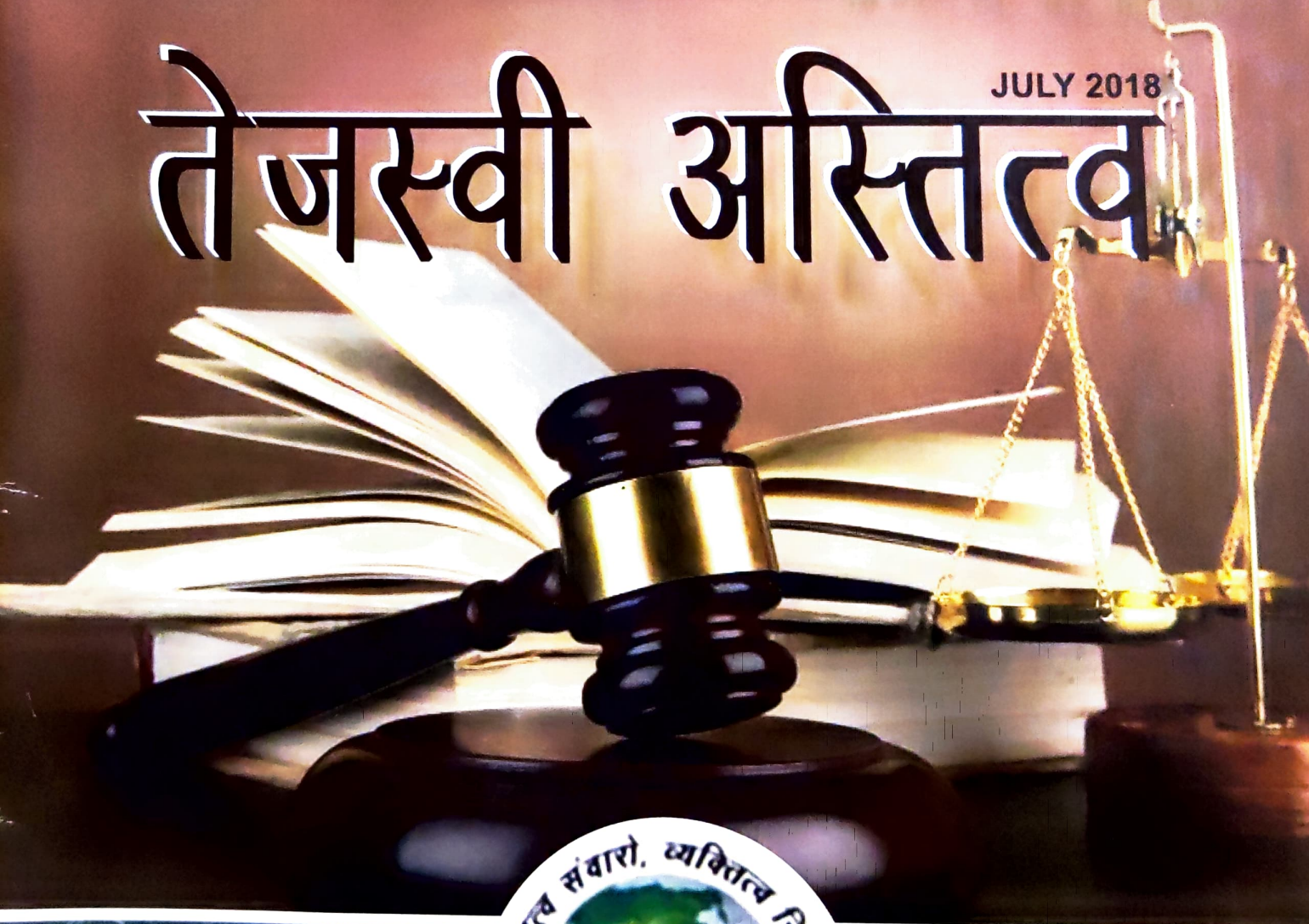
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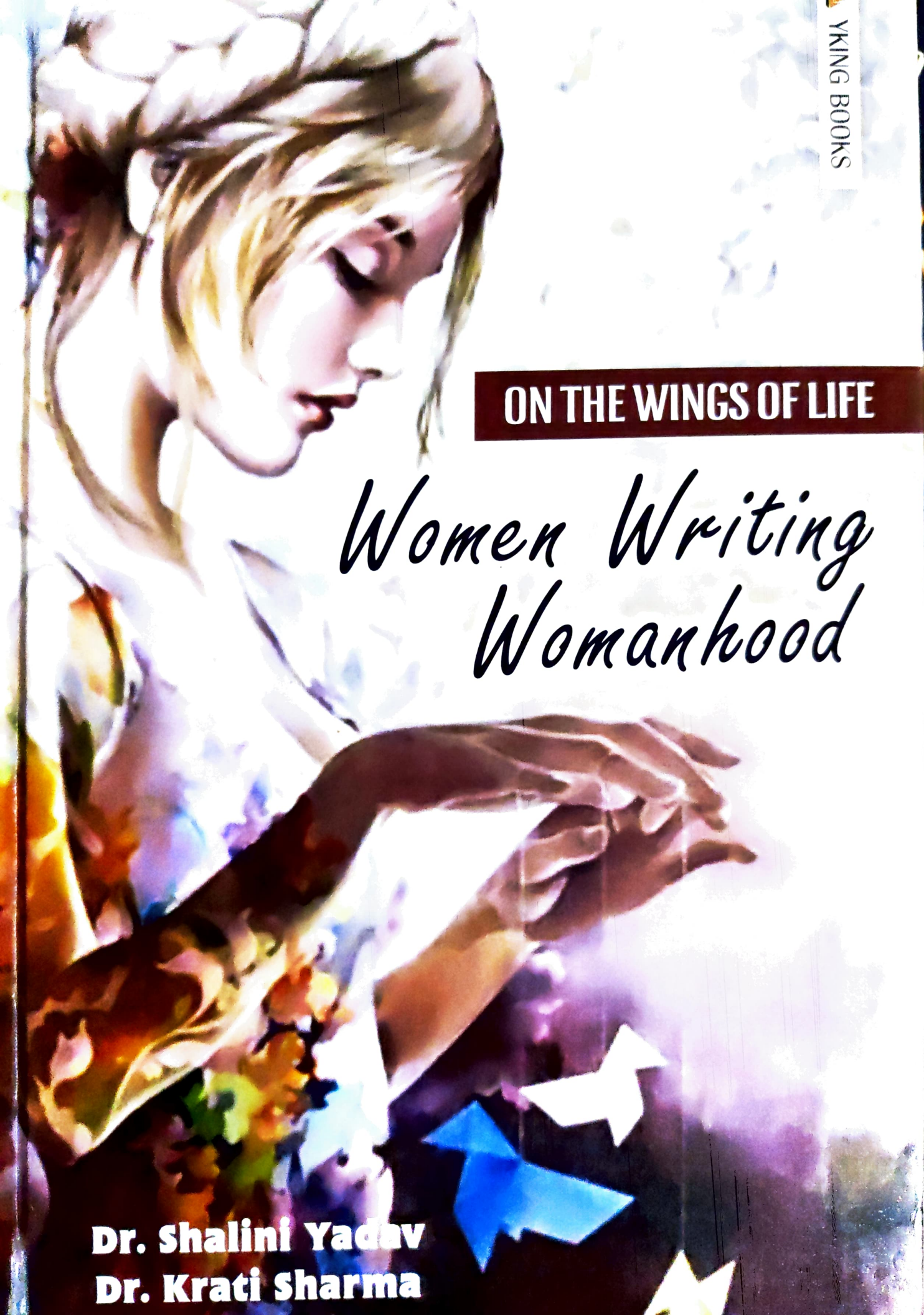


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A Depicts of Romance in Vikram Seth's Poems

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Abstract

Romanticism affected many forms of art, but it was most important in poetry. In poetry, romanticism is characterized as the rise of individuality and a lyrical appreciation of the natural environment. In their writings, many Romantic writers praised idealism, emotional intensity, and mysticism. In addition, a strong focus on the imagination was put in contrast to the neoclassical tradition, which prioritized science and reason. At its essence, Romanticism is an anti-establishment movement that supports individuality. Individuals should pursue their beliefs rather than existing traditions, according to intellectuals. During the Romantic era, embracing individual liberty became a key poetry topic. William Blake, Lord Byron, and William Wordsworth were all major Romantic writers who used Romantic concepts in their work. Similarly Sri Aurbindo, Ravindranath Tagore, Mummad Iqbal and Vikaram Seth are in

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Influence of Organsational Climate and Leadership Styles on Lecturers Performance- A Study on Govt Degree Colleges in Visakhapatnam City

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ABSTRACT: This study aims to determine and analyze the influence of organizational climate and leadership Styles on Lecturer's performance. Based on the results of the discussion and testing, it can be concluded several things related to this research as follows: Simultaneously the variables of the College committees, Organizational Climate , and Leadership Styles, simultaneously have a positive and significant effect on the performance of Lecturers of Govt Degree Colleges in Visakhapatnam City, marked by F count = 29.324 and F table = 2.87 in this case F count is greater than F table and the significant value is 0.00 less than the alpha value of 0.05. Partially, the College committee's variable has no significant effect on the performance of the Lecturers of Govt Degree Colleges in Visakhapatnam City which is indicated by the t count value for the College committee variable (1.180) is smaller than t table (3.18) or sig value (0.246) is greater than alpha (0.025). Partially, organizational climate variables have a positive and significant effect on the performance of Lecturers of the Govt Degree Colleges in Visakhapatnam City which is indicated by the t





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TEACHING TEENS THROUGH TECHNOLOGY

Dr.S.V.Rama Rao

Lecturer in English,

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Vizianagaram district, Andhra Pradesh

Abstract:

Technological advancement liberalization globalization have paved way for the high demand of communication skills . Communication skills play an important role in enhancing employability skills. English language teaching has undergone tremendous and changes drastically over the years especially during the last decade. The proliferation of Technical devices such as computers and mobile phones and in the first two decades has influenced upon the various aspects of our life and our styles of learning and teaching. Technology has transformed the field of Higher Education specifically English language teaching for communication. Nowadays Technology based education is just like fast food to the minds of students .Technology appeals and enthuses the students towards learning. It creates something new beyond human mind and human resources .Technology is intended to improve and enrich English language skills of this 21st century for tech-savvy teens. In the

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The Future of the Classrooms in Digital Evolution: A Bird's Eye View.

**AUTHOR 1. DR G. ARUN KUMAR M.com MBA PhD, Assistant Professor
in Commerce**

Dr VS Krishna Govt Degree and PG College Autonomous Visakhapatnam

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Abstract—Technology has evolved into the most essential component of our lives, and it is assisting in the resolution of the many complications that are associated with our busy lifestyles. In the 21st century, science and technology are playing an essential part in the process of making the economy of the whole world stronger. According to the findings of several experts, a company or economy that does not possess advanced technology is unable to experience future expansion. Its relevance can now be seen in every industry, and education is one of those sectors where it can be seen. In many different ways, the field of education has been significantly altered as a direct result of the impact that technology has had. Technology and other electronic devices are increasingly being used in the classrooms of both public and private schools, which has made the teachers' jobs much simpler. When education is combined with

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A True Interpretation of Fortunes, Misfortunes, Risings, and Downfalls of Nicholas Nickleby in "The Life and Adventures of Nicholas Nickleby"**Dr S V RAMA RAO**

Lecturer in English Government Degree College Srungavarapukota Vizianagaram Dist.

Andhra Pradesh

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Abstract

Nicholas Nickleby is partly a historical novel - a story about the coming of age of the main character - and partly a social commentary on injustice. The maltreatment of children in the educational system features highly throughout, with Dickens using all the trade tricks to persuade his readers; pathos, comedy, satire, and powerful storytelling. He also employs coincidences, which we all love in life, and melodrama, which heightened the entertainment value when it was written. As well as focusing on the private Yorkshire poor schools, savagely condemning those responsible for the system that oppressed children, also indicts those who use fraudulent financial tactics and other dishonest business practices. There is undoubtedly a memorable plot, and it could be thought of as "Three Weddings and a Funeral" - but there are two funerals here, and they are poles apart. They are both highly dramatic and tragic because they are ultimately both avoidable. This research focuses on Fortunes, Misfortunes, Uprisings, and Downfalls of Nicholas Nickleby.

Keywords: Interpretation, Misfortunes, savagely, pathos, melodrama

Introduction

The Life and Adventures of Nicholas Nickleby were published, as his previous novels had been, in monthly installments, between 1838 and 1839, and the last part was again a double issue. While Dickens was writing this, he was between 26 and 27 years of age and putting the final touches on his enormously successful "Oliver Twist." Some of the plot elements, and Dickens's social criticisms, are very much in the vein of "Oliver Twist." Yet, in many ways, the novel is more similar to his first installment novel, "The Pickwick Papers." It has a comic rather than a tragic feel and is certainly more lightweight and humorous than "Oliver Twist." It could be classed as ironic social satire, pointing up social injustices, while full of Dickens's taste for absurdity.



CAMEL Model Analysis of Bank Performance -With Reference to Central Bank of India - An Empirical Evidence

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ABSTRACT

In the contemporary globally competitive market companies must portray themselves as socially responsible companies. Through globalization companies pursue growth, and active involvement in socially beneficial programs provides competitive advantages to the company in pursuing such goals. Companies operating in multiple nations are often required to play a significant role in social issues of the respective nations, otherwise government regulations, environmental restrictions, labor exploitation issues and more can cost companies millions of dollars CAMEL Model analysis is an important tool to analyze the banks and financial institutions' performance and to suggest the necessary measures for its improvement where it is required. In the present study, Central Bank of India's- five public and five private sector banks based on its total assets have been considered. This study is taken up for the five-year period from 2017-2022. The present study analyses the financial performance of the select banks. Five parameters of CAMEL- Capital Adequacy, Asset Quality, Management Efficiency, Earnings Ability and Liquidity are considered to rank the banks on its performance. Among all, private sector banks have outperformed compared to public sector banks. This Paper is Identifying of Central Bank of India Performance using CAMEL Model.

Keywords: Financial Performance, CAMEL Model, Central Bank of India, Profitability.

JEL Codes: G1, F21, F43, O43, O47.

1. Introduction:

There are certain rates set by the central bank which every bank has to follow and maintain. BPLR- Benchmark Prime Lending Rate is the interest rate that commercial banks generally charge their most credit worthy customers. As per RBI rates earlier banks were free to fix

Molecular Docking Based Screening of BRAF for Improved Inhibitors

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^bDepartment of Biotechnology, Andhra University, Visakhapatnam, India

Abstract

B-Raf is a 766 Amino acid protein, regulated signal transduction serine/threonine protein kinase. The structure of B-Raf (PDB ID: 4MNF) with domains CR1 to CR3 is known. Therefore, it is of interest to identify binding sites of B-Raf for inhibiting cell proliferation of late stage melanoma. Therefore, suitable inhibitors for inhibiting B-Raf are identified. Previous reports suggest the use of vemurafenib like compounds for inhibiting B-Raf protein. Our interest is to identify improved compounds to destabilize B-Raf. We used a 14 compounds against B-Raf using molecular docking based screening. This resulted in designing 5 new compounds (MDD, MD1 to MD5) that were further analyzed for pharmacological properties. The hit MD-4 shows fitting binding properties with B-Raf with very less undesirable pharmacological properties such as toxicity but shows immunotoxicity.

KEYWORDS: B-Raf, Melanoma, Molecular docking, Drug discovery

B-Raf is a protein encoded by a proto oncogene B-raf located on human chromosome 7p11-7qt.^{1,2} B-raf which is also known as serine/threonine-protein kinase regulates the cytoplasmic MAP kinase/ERK signaling pathway, which affects cell division, differentiation, and secretion.³ It has three conserved domains – conserved region 1 (CR1), a Ras-GTP –binding self-regulatory domain, conserved region 2 (CR2), a serine -rich hinge region, and conserved region 3 (CR3), a catalytic protein kinase domain that phosphorylates consensus sequence on protein substrates.

B-raf gene when mutated leads to the change in the structure of its B-raf protein resulting in the proliferation of cells causing melanoma (eg, cutaneous, acral).

Vemurafenib (Zelboraf), dabrafenib (Tafinlar), and encorafenib (Braftovi) are the inhibitors of B-raf protein (BRAF). These drugs shrink or slow the growth of metastatic melanoma that has a BRAF gene mutation. Vemurafenib, dabrafenib, encorafenib are synthetic compounds and have side effects like skin reactions, photosensitivity, headache, arthralgia, hyperkeratosis, pyrexia. In this context this paper attempts to virtually screen few Withanolides which are natural compounds isolated from three members of the *Solanaceae*: *Physalis longifolia*, *Vassobia breviflora*, and *Withania somnifera* to be used as inhibitors. The “withanolides” are family of C28 ergostane-type steroidal δ -lactones (derived from a parent 22-hydroxy-26-oic acid). The withanolides studied for docking in this paper is the work of Huaping Zhang et al.¹⁰

EFFECTIVE STRATEGIES FOR INTEGRATION IN THE GLOBAL STOCK MARKET

Dr G Arun Kumar

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Dr VS Krishna Govt Degree and PG College Autonomous

Visakhapatnam Andhra Pradesh

ABSTRACT

Background/Objectives: The research article aims to attain the development of the financial makeup in the growth and development of several emerging marketing around the world

Material and methods: Secondary qualitative method is being implemented in the research article

Significance of the study: To signify the current scenario of global stock marketing and their integration with the other marketing sectors respectively

Findings: Thematic analysis is implemented in this portion of the study basing on data collection and research objectives

Conclusion: Financial stock marketing facilitates a higher growth of investments and capital formation that directly or indirectly results in the growth of the economy

Keywords: Global stock marketing, business, GDP, gross productivity, capital investment

INTRODUCTION

The Global stock market integration evaluates the development of the financial makeup in the growth and development of several emerging marketing around the world. This produces empirical insights as well as co-movements into market integration, process, and the linking of efficiencies as well. Global marketing provides benefits in the social marketing arena, which broadens the range of financial services as well as investment opportunities that enable consumers to the increasing competition in the provision of such services.

The research methodology aims in finding the effective strategies that are needed for integration in global stock marketing. The research highlights the economic structure of global stock marketing in the regions that are crashing abnormally (Bahloul *et al.* 2022). The rise in the fluctuation of global stock marketing is highlighted in this study. The buying and selling of commodities are regulated in this study referring to the current scenario of global stock marketing and their integration with the other marketing sectors respectively. The relative performance of the stock marketing is determined (Barth *et al.* 2022). Therefore, various effective strategies are focused on to help bring a change in the global stock marketing industries.

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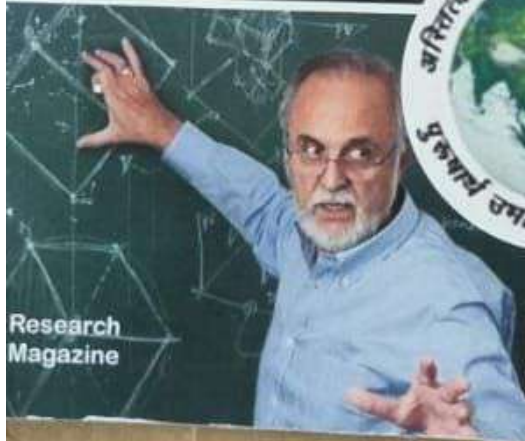
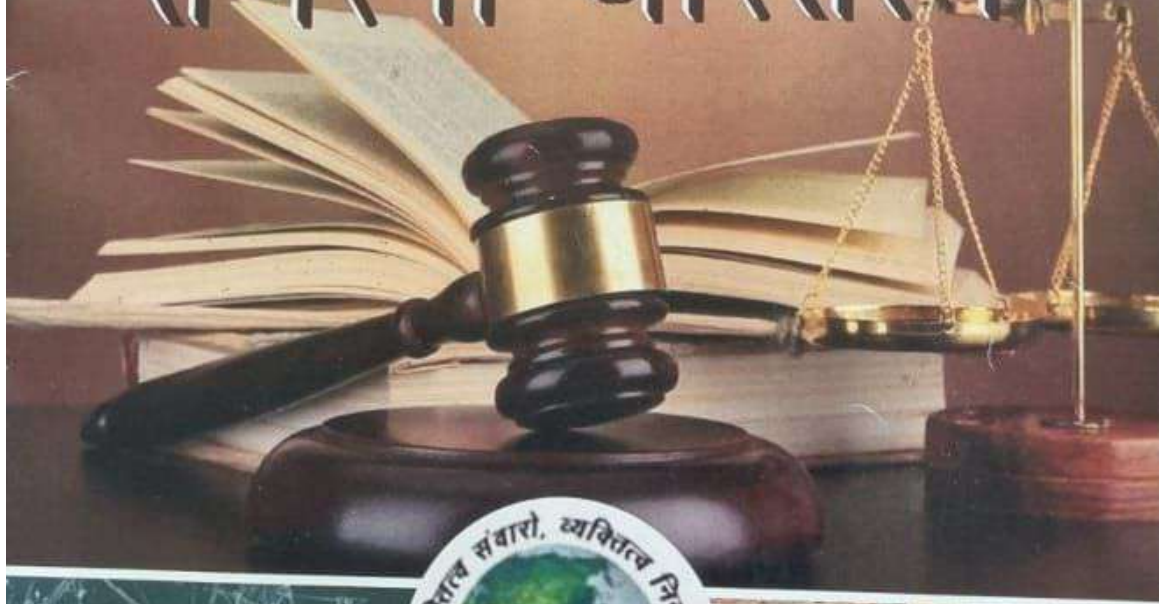
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Elliptic Curve Cryptography with Reduced Cipher Bandwidth-A New Approach to Conventional ECC

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Abstract:

Public key Cryptosystem (PKC) is ever expanding in the history of cryptography. Traditional Public Key Infrastructure (PKI) certificates assure the authenticity in the form of digital signature. Elliptic curve cryptography is an incredible and complex public key cryptosystem having wide range of practical applications in wireless environments like smartcards, tokens, and mobile phones. The attractive feature of ECC is it offers equivalent level of security as RSA/DSA with much smaller keys. This is the reason that ECC has several applications in wireless constrained environments especially in Secure Sockets Layer (SSL) handshakes to establish SSL connection. For implementing the text encryption in ECC one plaintext point on the elliptic curve is encrypted as two cipher text points. So, the main drawbacks of ECC is that it increases the size of the cipher significantly more than RSA encryption. This paper aims at presenting innovative elliptic curve cryptosystem that reduces the cipher size equivalent to that of the plaintext which reduces the communication risk, storage space and power consumption.

Keywords *Elliptic Curve Cryptography, Encryption, Decryption*

भागवतपुराणम्

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VISAKHAPATNAM

भागवतपुराणं यत्वेष्णवमहिमानं प्रकटीकरोति, तत् अष्टादशसु पुराणेषु अन्यतमं भवति । केचन शाक्ताः श्रीमद्भागवत स्थाने देवीभागवतं अष्टादशसु अन्यतमं इति एसीमद्भागवतं अष्टादशपरिमितपुराणेषु स्थानं नार्हमिति वदन्ति । तत् सत्यं न, किमिति चेत् पुराणस्य लक्षणं प्रत्येकतया भागवतस्य लक्षणं, अनेकपुराणेषु नैक सन्दर्भेषु स्पष्टीकृतमस्ति, तेषु लक्ष्णेषु एकं

“ यत्राधिकृत्य गायत्रीं वर्ण्यते धर्मविस्तरः ।
वृत्रासुरवधोपेतं तद् भागवतमिष्यते ॥ ” म. पु

प्रस्तावना

एतत् लक्षणं तावत् श्रीमद्भागवते प्रथमस्तोके निगूढरूपेण गायत्रीमन्त्रस्य अर्थविवरणं परिपूरितमभवत् । अन्यच्च वृत्रासुरवर्णनमपि श्रीमद्भागवते उपवर्णितमस्ति । एतादृशाः बहवः प्रामाणिकविचारः श्रीमद्भागवते प्रस्ताविताः इति कारणात् श्रीमद्भागवतमेव अष्टादशसु स्थानं लभते, न तु देवीभागवतम् ।

“ पुराणानां साररूपः साक्षात् भगवतोदितः ” श्री.म.भा
द्वादशस्कन्धसंयुक्तः शतविच्छेदसंयुतः ।
ग्रन्थोद्वादशसाहस्रः श्रीमद्भवताभिधः ।

भागवतपुराणं तावत् सैद्धान्तिकपक्षे अद्वैतं साधनापक्षे भक्तिं च प्रकटीकरोति । अष्टादशपुराणेषु श्रीमद्भागवतं लोके बहुविश्रुतमस्ति । भागवतं तावत् “वेदार्थपरिवृंहकग्रन्थरूपः इति गरुडपुराणे उक्तम् । शुक्रयोगी सर्ववेदेतिहाससारं, गृहीत्वा भागवतग्रन्थं रूपेण परीक्षते महाराजाय प्रोक्तवानिति श्रीमद्भागवते प्रथमस्कन्धे चतुर्थाध्याये द्विचत्वारिंशत् श्लोके अस्ति ।

श्रीमद्भागवते द्वादशस्कन्धाः, पञ्चत्रिंशदुत्तरशतत्रयं अध्यायाः अष्टादशसहस्रश्लोकाः च सन्ति ।

भागवतस्य उद्भवः- श्रीमद्भागवतस्य “ इदं भागवतं नाम यन्ने भगवतोदितम् ” इत्यादि वचनानुसारेण अस्य उद्भवः स्वयम् भगवतः जातः । मूलतः भगवता उक्तत्वात्, विविधरूपैश्च तेन सह संबद्धत्वात् अस्य भागवतम् इति नाम अस्ति । अस्य संप्रदानस्य परम्परा श्रीमद्भागवतस्य विभिन्नेषु स्थलेषु एवं वर्णिता अस्ति यत् सर्वप्रथमं अस्य मूलं भगवता ब्रह्मणे दत्तं, ब्रह्मणा पुनः नारदाय दत्तं, नारदेन च पुनः वेदव्यासाय श्रीकृष्णद्वैपायनाय दत्तं, वेदव्यासेन पुनः इदं स्वपुत्राय शुकाय दत्तं, शुकेन च इदं राज्ञे परीक्षिते श्रावितम् । पश्चात् च व्यासशिष्येण सूतेन इदं शौनकादिभ्यः ऋषिभ्यः श्रावितम् ।

परीक्षितपर्यन्तेयं परम्परा वर्णिता अस्ति यथा.....

“क्रमे येन विभासितोयमतुलः ज्ञानप्रदीपःपुरा
तद्रूपेण च नारदाय मुनये कृष्णाय तद्रूपिणा,
योगीन्द्रीय तदात्मनाथ भगवद्राताय कारुण्यतसु
तच्छुद्धं विमलं विशोकममृतं सत्यं परम् धीमहि ॥ सं.नि

श्रीमद्भागवतानुसारेण भगवता चतुःस्तोकात्मकं भागवतं ब्रह्मणे दत्तं, पुनः उक्तया परम्परया अस्य क्रमिके विकासे जाते सति तस्य वर्तमानं रूपं जातम् । अस्यां परम्परायां वेदव्यासेन अस्य सर्वाधिकः विकासः कृतः, अतः सास्य रचयिता भवति, यथाहि ...

स संहितां भागवतीं कृत्वानुक्रम्य चात्मजाम् ।

शुकमध्यापयामास निवृत्तिनिरतं मुनिः । श्री.भा १२.१३.१९

यतः द्वितीयस्कन्धात् शुकः स्वपितुः वेदव्यासात् अधीतं भागवतं परीक्षिते अभिधातुं उपक्रमते, द्वादशस्कन्धस्य चतुर्थाध्यायस्य श्लोक पर्यन्तं भागे च तत् समापयति । अतः स्पष्टमस्ति यदस्य वर्तमाने रूपे सम्पूर्णः प्रथमस्कन्धः द्वादशस्कन्धस्य च अन्तिमाः नव अध्यायाः व्यासप्रणीताः नसन्तीति । एवमेव अवशिष्टे वर्तमाने रूपेऽपि कथा श्रवनप्रसङ्गेन परीक्षिता कृताः प्रश्नाः तेषां शुकदत्तानि उत्तराणि चेत्यादिकं अन्यदपि प्रसङ्गात् च वस्तु व्यासप्रणीतं न भवितुं शक्नोति । फलतः भागवतं स्वकीये वर्तमाने पूर्णं रूपेण व्यासप्रणीतमिति मन्तुमेव न शक्यते, अथ च सहैव इदमपि कथयितुमतीव कठिनमस्ति यदस्य कः कियान् च अंशः व्यासप्रणीतः अस्ति । अस्य वर्तमाने रूपे सम्पादनं संस्करणं वा वेदव्यासात् पश्चात् जातं, इत्यत्र तु कोऽपि सन्देहैव नास्ति । भागवतस्य वर्तमाने रूपे द्वादशस्कन्धाः, पञ्चत्रिंशदुत्तरशतत्रयं च अध्यायाः सन्ति । अत्र श्लोकाः अष्टादशसहस्र संख्याकाः, किन्तु सामान्यगणनानुसारेण तावन्तः न उपलभ्यन्ते । रचनायाः उद्देश्यं- श्रीमद्भागवते अस्य रचनायाः उद्देश्यं इदं वर्णितमस्ति यत् वेदानां व्यसने महाभारतस्य च प्रणयने कृतेपि यदा वेदव्यासस्य हृदये शान्तिः न आसीत् एतदा तेन कृ

किं वा भागवत धर्माः न प्रायेण निरूपिताः ।

प्रियाः परमहंसानां त एव ह्यच्युतप्रियाः ॥ श्री.भा १.४.३१

इति प्रकारेण विचारितं यतः तेन तस्य भागवताः धर्माः प्रायः न निरूपिताः, अतः तस्य हृदये शान्तिः नास्ति, तदैव समागतेन नारदेनापि एतत् समर्थम् भगवच्चरितवर्णनाय च तस्मै प्रेरणा दत्ता । फलतः तेन भागवतधर्माणां निरूपनाय भगवच्चरितानां च वर्णनाय भागवतं प्रणीतम् ।

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