STUDY ON CUSTOMER SATISFACTION TOWARDS AFTER SALES SERVICE RENDERED BY TWO WHEELER DEALERS IN TIRUCHIRAPPALLI DISTRICT

Dr.K.Sujatha
HOD, Department of Bank Management
Srimati Indira Gandhi College, Trichy-620 002

Abstract

This study is to identify the customer satisfaction towards after sales service rendered by two wheeler dealers in Tiruchirappalli District. The survey is mainly focused after sales service provided to the customer.

Keywords : satisfaction, customer two wheeler, after sales service etc.,

Introduction

"Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance in relation to his or her expectation". As the definition makes it clear, satisfaction is a function of perceived performance and expectations.

If the performance falls short of the expectations of the customer, the customer is dissatisfied. If the performance exceeds the expectations, the customer is highly satisfied or delighted. Many companies are aiming for high satisfaction because customers who are just satisfied still find it easy to switch, when a better offer comes along. Those who are highly satisfied are much less ready to switch. High satisfaction or delight creates an emotional affinity with the brain, not just a rational preference.

The result is high customer loyalty. In this highly competitive world customers plays a very important role. Thus, if a company wants to survive then it should look forward to the determinants of customer satisfaction. Though it is a very subjective issue that differs from individual to individual yet, identifying some basic parameters of customer satisfaction is important. Satisfaction is a person's feeling of pleasure and disappointment resulting from comparing a product's perceived performance in relation to his or her expectations.

The two wheelers market has had a perceptible shift from a buyer's market to a seller market with a variety of choices. Players will have to complete on various fronts viz pricing, technology product design, productivity, after sale service, marketing and distribution. In the short term, market shares of individual manufacturers are going to be sensitive to capacity, product acceptance, pricing and competitive pressures from other manufacturers.

SERVICE QUALITY ANALYSES OF TWO WHEELER DEALERS IN TIRUCHIRAPALLI DISTRICT

Dr. K. SUJATHA *

Introduction

The consumer is a very important person in a market. He is principal factor in any business. He is always right and can do no wrong. He is the central point of all economic activities. His community is the largest economic group in any country and wields enormous powers in the market. Service quality has defined as the difference between Customer expectations of a service and his/her perception of the service performance. When expectations are not met, customers are dissatisfied with service quality. When expectations match perception, the customer is satisfied with the quality of the service. Finally, when expectations are exceeded, the quality of the service is perceived to be exceptional and moreover, a pleasant surprise. (Gronross, 1982; Lewis and Booms, 1983) Parasuraman et al., (1985) have stated that SERVQUAL is considered as a common approach for measuring service quality which compares customers' expectations before a service encounter and their perceptions of the actual service delivered.

Roth, Aleda V., van der Velde, Marjolijn, (1991) said that to make a service delivery system a potential marketing tool, critical success factor criteria must be based on the explicit service task or mission that coincides with a service operations strategy. Daniel L.Sherwell & Abhijt Biswas (1995) predicted that consumers believe in a price-quality relationship for search- based services but not necessarily for professional services that are high in credence properties. Magnus Soderlund & Mats Vilgon (1999) revealed a strong link between customer behavior and customer profitability, while modest links exist between repurchase intentions and subsequent behavior. Douglas M Stewart,(2003) introduce a framework based on the three T's of task, treatment, and tangibles as a means of organizing the application of the diverse and growing body of service quality literature to encounter design. Aaltonen, riscilla Gaudet, Ph.D.,(2004) suggest that technology satisfaction does drive overall customer satisfaction and that, in turn, overall customer satisfaction does drive loyalty. However, demographics do not have any significant effect in determining overall customer satisfaction or loyalty rates. Anita Wolfl. (2005) said that improving the performance of the services sector is important to enhance aggregate economic growth since the service sector has become the quantitatively most important sector in all OECD economies. Moreover, addressing some of the problems faced by services may also improve the perfor-

mance of other industries, since services provide key intermediate inputs to such sectors. Sichong Tih, Sean Ennis (2006), in his paper seeks to compare the perceived service performance across Internet retailer with respect to several areas. The Internet retailers are two budget airline retailers, a book retailer and a multi -channel bank. Internet retailers' service performance was generally at an acceptable level.The variation of their online service performance was dependent on industry factor and the effectiveness of online service management. Consumer's perceptions of the Internet retailers' performance were significantly different on several service attributes. However, consumer online service satisfaction levels across retailers were similar. Rhett H. Walker, Lester W. Johnson (2009) observed in his paper that the role that can be played by independent professional accreditation systems and processes in influencing and grounding the intrinsic quality of what is offered by a service provider who has secured this certification. The approach takes the form of personal interviews conducted with senior management personnel within a range of accommodation providers who were responsible for preparing their accreditation submission. More than 80 percent of respondents agreed that the process of applying for accreditation forced a critical review of all aspects of their operations, and heightened their awareness of things that could prove problematic and ways by which these problems could be effectively countered. Respondents also agreed that

*Head, Dept. of Bank Management, Shrimati Indira Gandhi College, Trichy.

PSYCHOSOCIAL PROBLEM FACED BY SHGS' WOMEN ENTREPRENEURS – A STUDY

DR.R.BALA SARASWATHI*

Assistant Professor, Dept. of Business Administration, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu

ABSTRACT

dian women give more emphasis to family ties and relationships. Married women have make a fine lance between business and family. The business success also depends on the support of the family embers extended to women in the business process and management. Entrepreneurship is considered as he of the most important factors contributing to the economic development of the society. Entrepreneurs ave been considered instrumental in initiating and sustaining socio-economic development. This study imple size consists of 50. Chi-Square analysis found that there is statistically significant association etween type of entrepreneur, nativity and age and their overall DASS. Women have become aware about eir rights and situations and entered in different fields of business. They have established their own iccessful business empires. They are contributing towards the growth of economy and improvement of ieir socio-economic conditions. But the SHG women entrepreneurs affect from psychosocial problem.

eywords: Self Help Group (SHG), Entrepreneur, SHG women entrepreneur, Psychological problem.

TRODUCTION

Always women feel that she is 'women' and less efficient than men and hesitates to take risks. She has to ay a dual role if she is employed or engaged in work. She has to strive hard to balance her family life with care nce feels better to be housewife. Indian women also fight, with the perception of the society. They are not so sily accepted as a business organizer by the people in the society. Women lack courage and self confidence in arting a new venture. They even do not have access to entrepreneurial training and lack confidence from within. oreover they lack role model and experience, thus being a problem for lower confidence of finances and ppliers.

GREEN SYNTHESIS OF SILVER NANOPARTICLES FROM FLOWER EXTRACT OF NERIUM OLEANDER AND ITS CHARACTERIZATION

V. Bharathi*¹ and S.Shanthi²

¹,²Shrimathi Indira Ganthi College, Trichy.

ABSTRACT

There is an increasing commercial demand for nanoparticles due to their wide applicability in various areas such as electronics, catalysis, chemistry, energy, and medicine. This work deals with the synthesis and characterization of silver nanoparticles using *Nerium oleander* flower. The synthesized nanoparticles were characterized by using UV–Vis absorption spectroscopy, FT-IR and SEM analysis. The reaction mixture turned to brownish gray colour after 5 hrs of incubation and exhibits an absorbance peak around 450 nm characteristic of Ag nanoparticles. Scanning Electron Microscopy (SEM) analysis showed silver nanoparticles was pure and polydispersed and the size were ranging from 10-40 nm. The approach of green synthesis seems to be cost efficient, eco-friendly and easy alternative to conventional methods of silver nanoparticles synthesis.

KEYWORDS: electronics, catalysis, chemistry, energy, and medicine.

INTRODUCTION

Nanotechnology is mainly concerned with the synthesis of nanoparticles of variable sizes, shapes, chemical compositions and controlled dispersity. Their potential uses, in human welfare has been reported in several disciplines (Kasthuri et al., 2009). Although chemical and physical methods may successfully produce pure, well-defined nanoparticles, these methods are quite expensive and potentially dangerous to the environment. Use of biological organisms such as microorganisms, plant extract or plant biomass could be an alternative to chemical and physical methods for the production of nanoparticles in an eco-friendly manner.

SYNTHESIS OF SILVER NANOPARTICLES FROM FLOWER EXTRACT OF ABUTILON INDICUM AND ITS CHARACTERIZATION

S. Shanthi[1] and V. Bharathi*[2]

[1]Department of Microbiology, Shrimathi Indira Ganthi College, Trichy

[2]Department of Biochemistry, Shrimathi Indira Ganthi College, Trichy.

responding Author
arathi
tment of
hemistry, Shrimathi
a Ganthi College,
ly.

ABSTRACT

There is an increasing commercial demand for nanoparticles due to their wide applicability in various areas such as electronics, catalysis, chemistry, energy, and medicine. This work deals with the synthesis and characterization of silver nanoparticles using *Abutilon indicum* flower. The synthesized nanoparticles were characterized by using UV–Vis absorption spectroscopy and FT-IR analysis. The reaction mixture turned to brownish gray colour after 5hrs of incubation and exhibits an absorbance peak around 450 nm characteristic of Ag nanoparticles. Scanning Electron Microscopy (SEM) analysis showed silver nanoparticles was pure and polydispersed and the size were ranging from 10-40 nm. The approach of green synthesis seems to be cost efficient, eco-friendly and easy alternative to conventional methods of silver nanoparticles synthesis.

KEYWORD: There is an increasing methods of silver nanoparticles synthesis.

INTRODUCTION

The results of nanoscience are realized in nanotechnology as new materials and functional facilities. At present time nanochemistry becomes one of the main growing directions of nanoscience. Frequently, nanometer-size metallic particles show unique and considerably changed physical, chemical and biological properties compared to their macro scaled counterparts, due to their high surface-to-volume ratio (Sergeev et al., 2008) Thus, these nanoparticles have been the subject of substantial research in recent years. Silver nanoparticles (AgNPs) have been proven to possess immense importance and thus, have been

EARCH ARTICLE

en synthesis of *Mangifera indica* silver nanoparticles and its analysis ng Fourier transform infrared and scanning electron microscopy

athi V[1] Jannathul Firdous[2], Noorzaid Muhamad[2], Resni Mona[2]

tment of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu, India, [2]Department of Preclinical, Faculty of ine, Universiti Kuala Lumpur Royal College of Medicine Perak, Ipoh, Perak, Malaysia

spondence to: Jannathul Firdous, E-mail: jannathul.firdous@unikl.edu.my

STRACT

kground: Cost effective and environmentally favorable green synthesis of metallic nanoparticles is a fast growing arch in nanotechnology. **Aims and Objectives:** The present study reports the synthesis of silver nanoparticle (AgNP) ng *Mangifera indica* leaves extract, and its constituents and particle size was analyzed by Fourier transform infrared IR) spectroscopy and scanning electron microscopy (SEM). **Materials and Methods:** Preliminary phytochemical lysis of *M. indica* leaves extract was performed, and AgNPs were prepared by *M. indica* leaves extract when treated h silver nitrate. Finally, various functional groups in the plant extracts and size of the AgNPs were identified by FTIR SEM analysis. **Results:** Qualitative phytochemical analysis revealed the presence of alkaloids, tannins, flavonoid, nines, steroids, coumarins, and phenolic compounds in *M. indica* leaves extract. Presence of AgNPs in the green ract was confirmed by color changes from pale yellow to dark brown color and by an intense peak in the ultraviolet-ctrophotometer at 420 nm. FTIR analysis showed the presence of various functional groups between the frequency ge of 400 and 4000/cm and SEM analysis showed the nanometer size of silver particles that formed. **Conclusion:** This el green approach may be used for large scale production of metallic nanoparticle and can be used in pharmacological ects based on the medicinal uses of *M. indica*.

Y WORDS: Fourier Transform Infrared; *Mangifera indica*; Scanning Electron Microscopy; Silver Nanoparticles; traviolet-visible Spectroscopy

RODUCTION

technology is the process of synthesizing nanoparticles ariable sizes (1-100 nm), shapes, and chemical ositions with controlled dispersity for human benefits. technology offers nanocomposites or nanostructures in products by technological processes. In addition, it is

significant on account of its preeminence in the medical fiel for its extensive applications.[1] Even in other fields such as pharmacy and food production or packaging, researchers on nanoparticles are increased as they are effectively a bride between bulk materials and atomic or molecular structures.[2] Chemical and physical methods of nanoparticle synthesis are expensive and highly dangerous to the sustaining environment. An alternative to those above-mentioned methods are of using biological organisms such as microorganism, plant extract or plant biomass that are eco-friendly and cost effective.[3]

Plant extracts for metallic nanoparticles preparation are the most common method utilized to enhance its application in medicine. Green nanoparticle production contains phytochemicals such as phenolic acid, flavonoids, alkaloids,

RESEARCH ARTICLE

Genotyping of Angiotensin Converting Enzyme (ACE 1) Gene in study subject with hypertension and Chronic Kidney Disease

Suganya V[1], Jannathul Firdous[2*], Karpagam T[3*], Varalakshmi B[3], Shanmugapriya A[3], Gomathi S[3], Sugunabai J[4]

[1]Department of Biochemistry, Mohamed Sathak College of Arts and Science, Chennai, India.
[2]Pre-Clinical Department, Faculty of Medicine, University Kuala Lumpur Royal College of Medicine Perak,
No.3, Jalan Greentown, 30450 Ipoh, Perak, Malaysia.
[3]Department of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, India.
[4]Department of Biochemistry, Seethalakshmi Ramaswamy College, Tiruchirappalli, India.
*Corresponding Author E-mail: Jannathul.firdous@unikl.edu.my

ABSTRACT:
Hypertension and Chronic kidney disease are two most prominent public health problems and show similar clinical complications like high blood pressure and poor renal system. These diseases are due to over activation of sympathetic nervous system. Genetically, the angiotensin-converting enzyme (ACE) gene is involved in hypertension and chronic kidney diseases where the D polymorphism is related to chronic kidney disease and hypertension. The objective of study is to correlate the absolute relationship between hypertension and renal complications in the polymorphism of ACE 1 gene. Results of statistical analysis conclude that none of the genotype distributions followed the Hardy-Weinberg equilibrium and the differences in genotypes or alleles were not statistically significant. The overall frequency of II genotype was 0.226, DD was 0.499 and ID was 0.276 respectively. Similarly, the frequency of I allele in the study population was 0.475 and D allele was 0.525 respectively. Although the results showed that ID genotype for ACE1 gene are found in hypertension and chronic kidney disease, large studies should be performed to verify the analysis.

INTRODUCTION:

Hypertension is one of the risk factor of chronic kidney disease and responsible for the stages of renal failure. Genetically, hypertension is a complex disorder with interaction of several genes and environmental factors [1]. Most of the patients approximately, 25-40% of these subjects may develop Chronic Kidney Disease (CKD) and the end stage renal disease (ESRD) accompanied by hypertension[2]. Patients with hypertension and CKD is related to sympathetic nervous system uncontrolled activation.

The association between chronic kidney diseases and hypertension was well documented through various researches, but the relationship between these two has not been studied yet. Moreover, Renin Angiotensin System (RAS) is responsible for blood pressure regulation and kidney functions and their related activities. Angiotensin converting enzyme (ACE) is a zinc metallopeptidase found on the surface of endothelial and epithelial cells. When assessing the effect of RAS encoded genes, angiotensin converting enzyme (ACE) gene is found to be clinically prevailing and connecting to CKD[3]. Even though the factor relating ACE and CKD are not clear, certain types of RAS blockers are given to treat CKD patients to reduce severe kidney diseases. It is also unknown to find the response depending on individual pathophysiology.

EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

http://www.ejbps.com

GREEN SYNTHESIS OF *ACHYRANTHES ASPERA* SILVER NANO PARTICLES AND CONFIRMATION OF THEM THROUGH MICROSCOPY AND SPECTROPHOTOMETRIC TECHNIQUES

¹V. Bharathi, ²S. Shanthi and ³A. Vijaya Anand

¹Department of Biochemistry, Shrimathi Indira Ganthi College, Trichy.
²Department of Microbiology, Shrimathi Indira Ganthi College, Trichy.
³Department of The Human Genetics and Molecular Biology, Bharathiyar University, Coimbatore, Tamilnadu.

*Corresponding Author: Bharathi Rathi

Department of Biochemistry, Shrimathi Indira Ganthi College, Trichy.

Nanotechnology is the creation of functional materials, devices and systems through control of matter on the nanometer length scale (1-100 nanometers), and exploitation of novel phenomena and properties (physical, chemical, biological, mechanical, electrical...) at that length scale." *Achyranthes aspera* commonly called as Prickly Chaff Flower, Chaff flower, Croeus stuff, Crokers staff, and Devil's horsewhip. This plant is popularly supposed to act as a safeguard against scorpions and snakes by paralyzing them. It is described as purgative, pungent, and digestive, a remedy for phlegm, and inflammation of the internal organs, piles, itch, abdominal enlargements, and rheumatism and for enlarged cervical glands.

MATERIALS AND METHOD

Achyranthes aspera seed were collected from Lalgudi Taluk,Tiruchirappalli district, Tamilnadu., authenticated and deposited in RAPINET HERBARIUM, St.Joseph College, Trichirappalli, Tamilnadu. Homogenate was prepared by weighing 20grams of fresh flower of Nerium oleander Washed thoroughly (thrice) In distilled water and homogenized using a mortar and pestle. The homogenate was then filtered using a sterile gauze cloth. This homogenate extract prepared was then transferred to a sterile container and used for the study.

Qualitative Phytochemical Analysis

Qualitative Phytochemical Analysis for sugar, alkaloid, saponins, tannins, terpenoids, flavonoids, steroids, quinone, coumarin and phenol were carried out for the extract as per the standard protocols (Harborne, 1984).

Preparation of Silver Nanoparticles

To 750ml of each millimolar concentration of silver nitrate, 7.5ml of the plant homogenate was added, respectively into a clean conical flask. The conical flasks were then exposed to the sunlight (while being continuously shaken) for the synthesis of the nanoparticles to begin. The colours of the mixture turns from green to brown when exposed to sunlight and once it turns to colourless the particles were settled at the bottom of the flasks (Amanullah *et al* 2005).

Characterization of Nanoparticles

UV -VIS Spectral Analysis

The bioreduction of Ag+Ions in solutions was monitored by measuring the UV-VIS spectrum of the reaction medium. The UV-VIS spectral analysis of the sample was done by using U-3200 Hitachi spectrophotometer at room temperature operated at a resolution of 4 nm between 200 and 800 nm ranges.

FT-IR Analysis

For FT-IR measurements, the Ag nanoparticles solution was centrifuged at 10,000 rpm for 30min.The pellet was washed three times with 20ml of de-ionized water to get rid of the free proteins/ enzymes that are not capping the silver nanoparticles. The samples were dried and grinded with KBr pellets and analyzed on a Shimadzu IR-IR Affinity1 model in the diffuse reflectance mode operating at a resolution of 4 cm−1.

Table 2: Preliminary Phytochemical investigation in the seed extract of *Achyranthes aspera*.

TEST	WATER	ALCOHOL
TERPINOIDS	-	-
Flavanoid	+	+
Steroid	++	++
Glycoside	-	-
Alkaloid	-	+
Quinone	++	+
Phenol	-	-
Saponine	-	-
Cumarin	++	+

INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACY AND CHEMISTRY

Research Article

PHYTOCHEMICAL SCREENING, ANTIMICROBIAL AND ANTIOXIDANT ACTIVITY OF LEAF EXTRACTS OF *TRIDAX PROCUMBENS*

A. Shanmugapriya* and S. Maneemegalai

Department of Biochemistry, Bharathidasan University Constituent College for Women, Orathanadu – 614 625, Thanjavur District, Tamil Nadu, India.

ABSTRACT

Medicinal herbs have been used comprehensively against various diseases over a long phase of time. Nature has provided abundant plant wealth source, which possess various medicinal values. The essential values of some medicinal plants have been known longer, but a large number of them remain unexplored. It is quite important to investigate the uses and to conduct experimental studies to describe their curative properties. *Tridax procumbens*, a medicinal herb, commonly known as "coat buttons" has been used in medicine since olden times (Jindemdia). The present study deals with Phytochemical Screening, Mineral, Antioxidant and Antimicrobial Activity of Leaf Extracts of *Tridax procumbens*. The results of the phytochemical analysis showed the presence of vital secondary metabolites in ethanol extract than aqueous extract which play a role in anti disease resistant mechanism. Ethanol extract of *Tridax procumbens* leaves showed a massive antimicrobial and antioxidant activity. High content of sodium and potassium in mineral analysis showed the role in metabolism. It is hoped that the important phytoconstituents, Minerals, antioxidants and antimicrobial properties analyzed in *Tridax procumbens* leaves will open new avenues in medical field in the treatment of various diseases.

Keywords: *Tridax procumbens*, Ethanol, Minerals, antioxidants, Antimicrobial activities.

INTRODUCTION

Medicinal plants have been used as a commendable source for centuries as an alternative remedy for treating human diseases because they contain numerous active constituents of therapeutic value. The improvement of microbial resistance to antibiotics has led the researches to scrutinize the alternative sources for the treatment of resistant strains. Presently the world population relies on plant based medicines and serves as first line of defense in maintaining health and fighting many diseases. (Trease and Evans., 1989)

Use of plants as a source of medicine has been inherited and is an important component of the health care system in India. The use of herbal medicine is progressively growing with roughly 40 per. cent of population reporting use of herb to treat medical illnesses. In western world also, the use of herbal medicines is steadily growing with approximately 40 per cent of population reporting use of herb to treat medical illnesses within the past year. Public, academic and government interest in traditional medicines is growing exponentially due to the increased incidence of the adverse drug reactions and economic burden of the modern system of medicine. (Rabi et al., 2008)

Medicinal plants synthesize substances that are useful for the maintenance of health in humans and other animals. These include chemical substances called secondary metabolites that play a vital role in defense mechanism against various microorganisms and insects. (Nirmaladevi et al., 2008)

Phytochemical screening of silver nanoparticles extract of *Eugenia jambolana* using Fourier infrared spectroscopy

Gomathi S[1], Jannathul firdous*[2], Bharathi V[1], Shanmugapriya A[1], Sugunabai J[3], Karpagam T[1], Geetha S[4], Sathia Nachiyar S[5], Anusuya[1]

[1]Department of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, India
[2]Preclinical Department, Universiti Kuala Lumpur Royal College of Medicine Perak, No.3, Jalan Greentown, 30450, Ipoh, Perak, Malaysia
[3]Department of Biochemistry, Seethalakshmi Ramaswamy College, Tiruchirappalli, India
[4]Department of Biochemistry, Hajee Karthu Rowther Howdia College, Uthamapalayam, Theni, India
[5]Rajendra Herbal Research Centre, Perlakulam, Theni, India

ABSTRACT

Silver nanoparticles were synthesized using leaves extract of *Eugenia jambolana*. Therefore, the present study is evaluate the phytochemical constituents of silver nanoparticles plant extract of *Eugenia jambolana* using FTIR. For synthesis of silver nanoparticles using leaf extracts of *Eugenia Jambolano*, plant extract or filtrate was prepared by grinding the leaves and allowed to boil using water and finally filter the content with Whatman no.1 filter paper. This filtrate was then added to silver nitrate solution for silver nanoparticles formation which was characterized by UV-Vis spectroscopy. The silver nanoparticle extract that formed was then analysed for various phytochemical test and the functional groups present in the extract were identified by fourier transform Infrared Spectroscopy. As a result, the reduction of silver ions to form silver nanoparticles occurred within an hour of reaction at the absorption spectrum of 300–540 nm. The silver nanoparticles extract were found to contain secondary metabolites like alkaloids, flavonoids, phenolic compounds, saponins and sugars. The spectrum recorded between 350 cm^{-1} to 4000 cm^{-1} which showed the presence of various functional groups of phytochemicals. Plant extract used for the synthesis of silver nanoparticles was proved to be less toxic and also need less purification as compared to chemical methods. The use of silver nanoparticles in drug delivery systems becomes the milestones in the field of medicine.

Keywords: Drug delivery; Herbal plant *Eugenia jambolano*; Nanotechnology; Phytochemicals; Phenols.

INTRODUCTION

Nanotechnology, one of the specific research area in scientific world today concerned with production of materials in nanometre (1 to 100nm). This nanoparticles changes in their biochemical and physical properties and are useful in various fields. Among all metal nanoparticles, silver nanoparticles are noble with good conductivity, catalytic activity and chemical stability. In the field of medicine, they are used in antiseptic creams as they have a broad spectrum effect against microorganisms by affecting their enzymatic activities and makes them completely inactive (Ahmed et al., 2016).

This silver nanoparticles are synthesized by processes

such as chemical reduction, thermal decomposition and photo reduction. These methods are highly expensive with environmental and biological health hazards as they involves toxic chemicals (de Villiers et al., 2008). In order to avoid toxicity of this chemicals, biological synthesis of nanoparticles are preferred nowadays and they can be produced by microorganisms, enzymes, fungus and plant extracts. Even green synthesis using plant extracts was advantageous over other biological methods which is cost effective and eco-friendly method and avoiding the complicated and elaborate processes of culturing the microbes (Shankar et al., 2004).

In case of nanomedicine, silver nanoparticles have more potential use in cancer therapy and in drug delivery. Previous studies have reported using various silver nanoparticles plant extracts such as neem leaves, geranium leaves, Alfalfa, *Aloe vera* and *Emblica officinalis* (Kumar and Yadav, 2009).

The present study deals with *Eugenia jambolana* plant. *Eugenia Jambolana* which is commonly known as black plum. It is widely distributed throughout Asian coun-

Phytochemical Analysis of Cinnamomum zeylanicum Bark and Molecular Docking of Procyanidin B₂ against the Transcription Factor NF- κB

Suthanrayanan Varalakshmi¹, Vijaya Anand⁴, Thirunethiran Karpagam³, Angappan Shanmugapriya³, Sundararaj Gomathi¹, Jaganathan Jaganraj⁴, Vasudevan Suganya⁵, Sethuraj Geetha⁵, Sethuraman Sathianachiyar⁶

¹Department of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu, INDIA.
⁴Department of Human Genetics and Molecular Biology, Bharathiar University, Coimbatore, Tamil Nadu, INDIA.
³Department of Biochemistry, Seethalakshmi Ramaswamy College, Tiruchirappalli, Tamil Nadu, INDIA.
⁵Department of Biochemistry, Mohamed Sathak College of Arts and Science, Chennai, Tamil Nadu, INDIA.
⁶Department of Biochemistry, Vivekanandha College, Ulltiramepalayam, Tiruchengode, Tamil Nadu, INDIA.
R&D Research Centre, Periakulam, Theni, Tamil Nadu, INDIA.

ABSTRACT

Identification of novel natural antioxidant compounds is a fundamental aspect in the therapy for oxidative stress induced diseases. Cinnamomum zeylanicum commonly known as Ceylon cinnamon is traditionally used in Ayurvedic medicine. Methods: In this study, the methanolic extract of bark was subjected to GC-MS, UV absorption and various other techniques to analyze the presence and to elucidate the structure of the phytochemicals present in the bark. In the later part of the study, the identified procyanidin B₂ was subjected to in silico analysis of the identified procyanidin B₂ using GOLD to find out its inhibiting activity against NF-κB (IKK). Results: The phytochemical analysis supported the presence of a proanthocyanidin compound, procyanidin B₂. The constitutive or aberrant activation of the transcription factor, NF-κB pathway is observed in many cancers, autoimmune disorders, pulmonary, cardiovascular, neurodegenerative and skin diseases. The docking of procyanidin B₂ with NF-κB revealed its inhibiting efficacy by binding to active site of NF-κB, and thus could inhibited the nuclear translocation and DNA binding of p50/p65 heterodimer to κB DNA sequences. Conclusions: Thus, procyanidin B₂ can act as an inhibitor for NF-κB. So, procyanidin B₂ present in C. zeylanicum bark can be used as a potential lead compound for drug development against cancer and other oxidative stress disorders.

Key words: Cinnamomum zeylanicum, Gold, Molecular docking, NF-κB, Procyanidin B₂.

Correspondence

Suthanrayanan Varalakshmi,
Assistant professor in Biochemistry, Shrimati Indira Gandhi college, Tiruchirappalli, Tamil Nadu, INDIA.

E-mail: varalakshmisuganraj@gmail.com

DOI: 10.5530/fra.2017.2.30

INTRODUCTION

Recently antioxidants have attained very important role because of their potential as therapeutic and prophylactic agents in various diseases. Traditional knowledge about medicinal plants has continuously direct the search for new cures. Supplementation of herbal antioxidants is necessary to suppress the oxidative stress in a healthier way. Use of crude antioxidants like butylated hydroxy toluene (BHT) and butylated hydroxyl anisole (BHA) are restricted due to their side effects.[1] Proanthocyanidins are flavonoids widely distributed in plants. Proanthocyanidins better known as condensed tannins are oligomeric and polymeric flavan-3-ols.[2] Many plants produce proanthocyanidins in their fruits, bark, leaves and seeds. Proanthocyanidins are of great interest in nutrition and medicine because of its antioxidant, anti-allergic, antitumor, blood pressure and cholesterol lowering effects.[3] Over the past years proanthocyanidins supplements have become popular in the form of oligomeric proanthocyanidin complexes (OPCs) for example Grape seed extracts and maritime pine bark extracts.[4]

Cinnamomum zeylanicum bark (family: Lauraceae) is commonly called as cinnamon. C. zeylanicum is a small and evergreen tree, most well-known for its bark. Cinnamon is extensively used in commercially available products for its culinary value and it is almost entirely obtained from cultivated plants.[5] It has been used as a spice and flavouring agent. A variety of pharmacological effects have also been observed with its use. The literature survey shows that bark of C. zeylanicum contains copious amounts of phenolic compounds which inhibit peroxidation reaction and therefore can be expected to prevent various chronic illnesses.[6] So, in this study, methanolic extract of C.zeylanicum bark was analyzed for the presence of proanthocyanidins (polyphenolic compound).

The NF-κB family consists of a group of eukaryotic inducible transcription factors.[7] NF-κB regulates the expression of genes that regulate inflammatory response, transformation, tumor promotion, tumor invasion, angiogenesis and metastasis. Activation of NF-κB is a tightly regulated event. In normal cells, NF-κB becomes activated only after the appropriate stimulation and then up regulates the transcription of its target genes. Thus, NF-κB activation is an inducible but transient event in normal cells.[8] NF-κB family comprises of many homo- and hetero-dimers. A commonly known NF-κB consists of p50/p65 heterodimer. It is primarily composed of proteins with molecular masses of 50 KD (p50) and 65KD (p65) and is retained in the cytoplasm by its inhibitory subunit, IκBα.[9] In response to a variety of stimuli including physical and chemical stresses, cytokines, reactive oxygen intermediates and ultraviolet light, the latent cytoplasmic NF-κB/IκBα complex is activated by the I-κB Kinase (IKK) complex.[10] IKK is formed by three distinct subunits; IKKα, IKKβ and IKKγ. The activation of IKK complex leads to the phosphorylation by IKKβ of which targets IκB for ubiquitination and degradation by the 26S proteasome. The unmasked NF-κB can then enter the nucleus and binds to the DNA target elements present in the promoters of NF-κB regulated genes, as well as to co-activators of gene transcription to activate target gene expression.[11] Deregulation and constitutive or aberrant activation of the NF-κB pathway has been observed in and attributed to the development of a variety of human ailments including cancer.[12]

MEDFOOD'18 [1st February 2018]

National Conference on Phytochemicals in Medicinal Plants and Food

Department of Biochemistry, Bharathidasan University Constituent College for Women, Orathanadu - 614 625, Tamil Nadu, India

---

Research Article

A Combinative Evaluation Of Antioxidant Potential In *Tridax procumbens* and *Boerhavia diffusa*

A.Shanmugapriya[1,*], S.Manoemegalai[1], B.Varalakshmi[1*], T.Karpagam[1], J.Sugunabai[1], B.Ramya[2], A.Abinaya[1], S.Kamali[3], G.Proveena[2], C.Jeyachitra[2], M.Jeyapriya[2]

1. Department of Biochemistry, Bharathidasan University Constituent College for Women, Orathanadu – 614 625, Thanjavur Dt, Tamil Nadu, India
2. Deparment of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu, India
3. Deparment of Biochemistry, Seethalakshmi Ramaswamy College, Tiruchirappalli, Tamil Nadu, India

Abstract

Free radicals are substances that are capable of inducing oxidative damage to human body. This free radical reaction can be terminated effectively by the antioxidants thus reducing the risk of diseases. The present study was designed to develop safer and protective herbal combination to prove the free radical scavenging effect as a new alternative. The ethanolic extracts of *Tridax procumbens* leaves and *Boerhavia diffusa* roots individually and in combination were tested for their radical scavenging ability like DPPH, Hydrogen peroxide, nitric oxide and ferrous ion. The activities of the medicinal plants were compared with standard antioxidant ascorbic acid. All the free radicals were effectively scavenged by all the three plant extracts. The Combinative ethanolic extract showed maximum scavenging activity, followed by the *Boerhavia diffusa* extract and *Tridax procumbens* extract. The results of the present study showed that the combinative plant extract exhibited synergistic radical scavenging activity thus proving its efficacy to be used in pharmacological industries.

Keywords: *Tridax procumbens*, *Boerhavia diffusa*, DPPH, free radical scavenging activity, antioxidant activity, hydrogen peroxide, Nitric oxide.

INTRODUCTION

Oxidative stress caused by Reactive oxygen Species (ROS) such as superoxide anion, hydroxyl radical and hydrogen peroxide play a central role in the development of various chronic and degenerative disorders such as atherosclerosis, ischemic heart disease, ageing and neurodegenerative diseases [1]. The free radicals in the human body are generated as a byproduct of biological reactions and from exogenous sources [2].

Medicinal plants possess an abundant source of phytochemicals that exhibit significant antioxidant properties. The presence of naturally occurring antioxidant compounds has developed a complex anti oxidative defense mechanism against free radicals[3]. Since antioxidants provide significant free radical scavenging activity from oxidative damage,

Research Article

Evaluation of antihepatotoxic effect of *Avicennia marina* against alcohol-induced liver injury

B.Varalakshmi[1], T.Karpagam[1],
A.Shanmugapriya[1], J.Sugunabai[2], B.Ramya[1],
P.Anitha[1], N.Abirami[1], K.Parkavi[1],
W. Esther Rani[1], S.Kaviyalakshmi[1],

1. Department of Biochemistry, Shrimati Indira Gandhi College,Tiruchirappalli, Tamil Nadu, India

2. Department of Biochemistry, Seethalakshmi Ramaswamy College, Tiruchirappalli, Tamil Nadu, India

Abstract

This study aims to evaluate the antihepatotoxic effect of *Avicennia marina* against ethanol induced hepatotoxic rats. Qualitative phytochemical analysis was carried out in alcoholic extract of leaves of *A.marina*. The hepatoprotective effect *A.marina* was investigated against ethanol - induced hepatotoxic (group-III) rats and the activity of *A.marina* was compared with standard drug (Silymarin) treated (Group-IV) rats. Ethanol was used as hepatotoxic inducer for all experimental rats except for normal control (Group-I) rats and ethanol alone was given for disease control (Group-II) rats. Liver marker enzymes in serum (ALT, ALP, AST, GGT), Bilirubin, Protein and histopathological analysis were carried out. Ethanol treatment elevated levels of liver enzymes, decreased protein and histological damage in hepatocytes. However, treatment with *A.marina* significantly reversed the above changes compared with ethanol-challenged rats and was comparable with silymarin treated rats. The results clearly demonstrate that *A.marina* possesses promising antihepatotoxic effect and hence suggests its use as a potential therapeutic agent for protection from ethanol overdose.

Keywords: Ethanol, antihepatotoxic effect, *A.marina*.

INTRODUCTION

Liver plays major role in the metabolism of carbohydrate, protein, fat, detoxification, secretion of bile and storage of vitamin. It is continuously exposed to environmental toxins, abused by poor drug habits, alcohol consumption which can eventually lead to various liver ailments like hepatitis, cirrhosis and alcoholic liver disease. Liver disease rates are steadily increasing over the years[1]. Liver diseases are recognized as the second leading cause of mortality amongst all digestive diseases in the world[2]. Chronic liver disease occurs throughout the world irrespective of age, sex, region or race. According to WHO, about 46% of global diseases and 59% of the mortality is because of chronic diseases and almost 35 million people in the world die of chronic liver diseases[3].

Excess consumption of alcohol is one of the main cause of liver diseases leads to nutritional distur-

U. G+c
web of science

CrossMark

Impact of farm-made liquid organic nutrients jevamirtham and fish amino acid on growth and nutritional status in different season of *Abelmoschus esculentus*—a self-sustainable field trial

Rajapandiyan Krishnamoorthy ⃝ · Ali A Alshatwi · Shanthi Subbarayan · Bharathi Vadivel · Vaiyapuri Subbarayan Periyasamy · Mohammed A. Al-Shuniaber · Jegan Athinarayanan

Abstract In organic agriculture, jeevamirtham (J) and fish amino acids (FAA) (Liquid organic nutrient bioformulations—LONBFs) were used to improve the plant growth and soil fertility. The effect of J and FAA in combination on the growth, nutritional status, and yield of plant has not been scientifically evaluated. In this study, liquid organic preparations of J and FAA were prepared and applied to okra plants individually and in combination (J + FAA). The experimental fields were designed as T1—untreated control field, T2—chemical fertilizer treated field, T3—jeevamirtham-treated field, T4—fish amino acid-treated field, and T5—mixture of jeevamirtham and fish amino acid-treated field. Microbial population and growth parameters were significantly increased in the T3, T4, and T5 fields. Higher chlorophyll, carbohydrate, and protein contents and more fruits were observed in plants from the T3, T4, and T5 fields than in plants from T2 and T1. The most favorable results were recorded in the J+FAA-treated field (T5). Results showed that LONBFs enhanced the beneficial microbial flora and fauna, higher yields, and nutritional products compared with chemical fertilizer and untreated fields. Hence, this eco-friendly LONBF could be added as an integral component to reduce the impact of chemical fertilizer in modern agriculture practice.

Keywords Jeevamirtham · Fish amino acid · Liquid organic nutrient bioformulations (LONBF) · Biochemical analysis

R. Krishnamoorthy (✉) · A. A. Alshatwi · V. S. Periyasamy · J. Athinarayanan
Nanobiotechnology and Molecular Biology Research Lab, Department of Food Science and Nutrition, College of Food and Agriculture Sciences, King Saud University, Riyadh 11541, Kingdom of Saudi Arabia
e-mail: rjpandiyank@gmail.com

S. Subbarayan
Department of Microbiology, Shrimati Indira Gandhi College, Trichirappalli, Tamilnadu, India

B. Vadivel
Department of Biochemistry, Shrimati Indira Gandhi College, Trichirappalli, Tamilnadu, India

M. A. Al-Shuniaber
Department of Food Science and Nutrition, College of Food and Agriculture Sciences, King Saud University, Riyadh 11541, Kingdom of Saudi Arabia

Introduction

In modern agriculture system, usage of chemical agro-inputs has dramatically increased in most of the tropical and subtropical countries. According to an annual survey for agricultural crops conducted by the US Department of Agriculture (USDA) National Agricultural Statistics Service (NASS) and from the Economic Research Service (ERS), consumption of the three major fertilizer nutrients increased from 46.2 nutrient pounds per acre per year (lbs/acre/year) in 1960 to a peak of 146 lbs/acre/

EVALUATION OF ANTHELMINTIC ACTIVITY OF *MOMORDICA CHARANTIA, CUCURBITA PEPO L.,* AND *SOLANUM TORVUM* BASED FORMULATION AND ITS PHYTOCHEMICAL ANALYSIS USING FOURIER TRANSFORM INFRARED

JANNATHUL FIRDOUS¹, BHARATHI V²*, NOORZAID MUHAMAD¹³

¹Department of Preclinical, Faculty of Medicine, Universiti Kuala Lumpur Royal College of Medicine Perak, No.3, Jalan Greentown, 30450, Ipoh, Perak, Malaysia. ²Department of Biochemistry, Shrimati Indhra Gandhi College, Tiruchirappalli, Tamil Nadu, India. ³Student Development Division, Universiti Kuala Lumpur Royal College of Medicine Perak, Jalan Greentown, 30450 Ipoh, Perak, Malaysia.
Email: bharathi2679@gmail.com

ABSTRACT

Objectives: In the present study, the phytochemical and anthelmintic effect of a formulation (MCS) prepared from the plants, namely *Momordica charantia, Cucurbita pepo L.,* and *Solanum torvum* were investigated.

Methods: Phytochemical constituents were analyzed using Fourier transform infrared (FTIR), and anthelmintic activity of methanolic and aqueous extract MCS formulation against earthworm *Pheretima posthuma* was evaluated.

Result: As a result of FTIR analysis, MCS formulation showed the presence of coumarin, flavonoids, tannin, phenolic compound, saponin, quinone, and alkaloids. In investigating the anthelmintic action of formulation against adult Indian earthworms, the values of paralytic time and death time of formulation were less when compared to the positive control albendazole.

Conclusion: The present work concludes that the MCS formulation acts as a more suitable herbal treatment against helminths infection.

Keywords: Anthelmintic action, Fourier transform infrared, Gastrointestinal parasites, Livestock, Phytochemicals.

INTRODUCTION

Gastrointestinal (GI) parasites are major constraints to livestock production and also affecting human population worldwide. As estimated, 3.5 billion people were infected by intestinal nematodes in both developing and developed countries [1]. Helminthiasis is the most common infectious in humans, affecting more people around the world. The worms infecting the GI tract can also protrude into other organs including the liver and can cause severe blood loss by their toxins secretion [2]. Helminths are also considered to be a major health issue in livestock production where helminth infections of domesticated animals cause sub-clinical diseases and economic losses. Helminth infections are even chronic that causes morbidity among human and animals than other group of parasites [3]. Controlling helminths over anthelmintic drugs are expensive, and the large-scale usage of such drugs lead to the emergence of multiple anthelmintic resistances [4]. These factors demand for alternative and environmentally innocuous control methods like natural herbal remedies. Worldwide, medicinal plants are evaluated for their anthelmintic property and used for treatment as anti-parasitic agent [5]. Therefore, studies on herbs were focused thereby extracting phytochemicals rich in anthelmintic property.

The use of plant compounds such as phytochemicals is of interest in therapeutic facilities and plant compounds are used in traditional medicinal system in the treatment of infectious disease [6]. Previous studies on various plant compounds were conducted all around the world and hence proved their potential activity against parasites [7]. Phytochemicals are reported for antiplasmodial, anti-inflammatory, hepatoprotective, anticancer, and antioxidant activity. Further, the phytochemical tannin is known for anthelmintic activity which impairs different biological key processes of the parasitic nematode life

cycle [8]. Analysis of such phytochemicals is based on the extraction from plants by any of the methods which include maceration, infusion, percolation, digestion, decoction, Soxhlet extraction, aqueous-alcoholic extraction by fermentation, counter-current extraction, microwave-assisted extraction, ultrasound extraction, supercritical fluid extraction, and phytonic extraction [9].

Momordica charantia is a common Indian plant, belongs to the family Cucurbitaceae, and is known as bitter melon. It thought to stimulate digestive function and improves appetite. Various parts of *M. charantia* are used to treat diabetes. The extracts of *M. charantia* are found to be pharmacologically active against helminths [10]. *Cucurbita pepo L.* reported to possess anthelmintic properties where its seed extract used to expel tapeworms. Its secondary metabolites such as cucurbitacin B, cucurbitin, cucurmosin, saponins, and sterols are involved in affecting GI nematodes [11]. *Solanum torvum* is another herbal plant with anthelmintic activity [12]. It is also used to treat cold and flu, stomach aches, and gonorrhea. In the present study, the anthelmintic potential of *M. charantia, C. pepo L.,* and *S. torvum* was assessed, and the phytochemicals present in them were analyzed using Fourier transform infrared (FTIR).

METHODS

Preparation of plant extract

Seeds of *M. charantia, C. pepo L.,* and *S. torvum* were collected from the local market, Trichy, Tamil Nadu, India. Dried seeds were ground into a coarse powder. The three seed powders were equally weighed and mixed thoroughly to make the formula MCS. For aqueous extract, 100 g of powder was taken in a beaker and suspended in 600 ml of water and mixed. For the methanolic extract, 100 g of powder was added to 500 ml of methanol solvent and mix thoroughly. The filtrates of both extracts were collected through Whatman filter paper No. 4. This
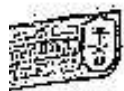
Original article

Effects of a medicinal plant *Macrotyloma uniflorum* (Lam.) Verdc.formulation (MUF) on obesity-associated oxidative stress-induced liver injury

Kodivelu Bharathi [a], R.L. Rengarajan [b], Ramalingam Radhakrishnan [c], Abeer Hashem [d], Elsayed Fathi Abd_Allah [e], Abdulaziz A. Alqarawi [e], Arumugam Vijaya Anand [b,*]

[a] Department of Biochemistry, Bharathiar University, Coimbatore 641 046, Tamil Nadu, India
[b] Department of Human Genetics and Molecular Biology, Bharathiar University, Coimbatore 641 046, Tamil Nadu, India
[c] Department of Biotechnology, Yeungnam University, Gyeongsan, Republic of Korea
[d] Botany and Microbiology Department, College of Science, King Saud University, P.O. Box 2460 Riyadh 11451, Saudi Arabia
[e] Plant Production Department, College of Food and Agricultural Sciences, King Saud University, P.O. Box 2460 Riyadh 11451, Saudi Arabia

ABSTRACT

Obesity is a global health burden due to lifestyle modifications that have a strong association with a high incidence of diseases, such as dyslipidemia, glucose intolerance, nonalcoholic fatty liver diseases, diabetes, hypertension, coronary heart disease and cancer. The aim of the present study is to investigate the protective effects of a Macrotyloma uniflorum formulation (MUF) against high-fat diet (HFD)-induced oxidative stress and inflammation in obese rats. Male albino Wistar rats were fed a high-fat diet for 6 weeks to facilitate fat-induced oxidative stress and were simultaneously treated with MUF (400 mg/kg b.w.) through oral gavage from the third week onwards during the treatment phase. At the end of the experimental period, hepatic and oxidative stress markers were examined. The mRNA expression levels of inflammatory marker genes (Tumor Necrosis Factor-α (TNF-α) and Interleukin-6 (IL-6)) were also determined by reverse transcriptase-polymerase chain reaction in liver tissue. Hepatic marker enzymes (aspartate aminotransferase, alanine aminotransferase, alkaline phosphatase and gamma glutamyl transferase) and lipid peroxidation markers (Thiobarbituric acid reactive substances and LOOH) were significantly increased in HFD-fed rats, and administration of MUF resulted in remarkable suppression of these markers. Administration of MUF to HFD rats enhanced the activity of enzymatic (superoxide dismutase, catalase and glutathione peroxidase and non-enzymatic (vitamin E, vitamin C and glutathione) antioxidants compared to HFD-fed rats. An anti-inflammatory effect of MUF was demonstrated by attenuating gene expression of TNF-α and IL-6. Therefore, the results of this study indicate that MUF could be a strong herbal therapeutic alternative for the protection of the liver as well as prevention and treatment of high-fat-induced oxidative stress and inflammation.

© 2018 Production and hosting by Elsevier B.V. on behalf of King Saud University. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

1. Introduction

Currently, approximately 1.9 billion adults worldwide are overweight and approximately 600 million of them are clinically obese

* Corresponding author.
E-mail address: avahgmb56@buc.edu.in (A.V. Anand).
Peer review under responsibility of King Saud University.

Production and hosting by Elsevier

due to the lifestyle changes (Centre, 2015). Obesity occurs through an imbalance between food consumption and energy expenditure, which culminates in excessive accumulation of fat in adipose tissue, which cause enlargement of adipose tissue cells, increase in adipose fat pad weight, and increase in adipose cell number (Ronkainen et al., 2015).

Obesity induced by a high fat diet has been considered to be one of the most popular models among researchers due to its ability to mimic the usual pattern of obesity in humans (Buettner et al., 2007), and it is believed to be a reliable tool for studying obesity because test subjects will readily gain weight when they are fed high-fat diets (HFD) (Gajda, 2009). It is well established that excessive consumption of a HFD leads to overweight and ultimately

Original article

Effect of *Macrotyloma uniflorum* on antiobesity in rats fed with a high fat diet

Bharathi Vadivelu [a], Vijaya Anand Arumugam [b], Shanthi Subbarayan [c], Ali A. Alshatwi [d], Rajapandiyan Krishnamoorthy [d,*]

[a] Department of Biochemistry, Bharathiyar University, Coimbatore, Tamil Nadu, India
[b] Department of Human Genetics and Molecular Biology, Bharathiyar University, Coimbatore, Tamil Nadu, India
[c] Department of Microbiology, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu, India
[d] Nanobiotechnology and Molecular Biology Research Lab, Department of Food Science and Nutrition, College of Food and Agriculture Sciences, King Saud University, Riyadh 11451, Saudi Arabia

1. Introduction

Obesity is a universal health burden develops from an inequity between food consumption and energy disbursement which causes excessive deposition of fat in adipose tissue, liver tissue, endocrine pancreatic islets and other organs involved in metabolism results in dyslipidaemia, glucose intolerance, coronary heart disease, diabetes, hypertension, non-alcoholic fatty liver disease and others (Isabelle et al., 2017). Globally, 600 million people are obese and 1.9 billion adults are overweight (Jian Bing et al., 2016). Fat adsorption process is mediated by pancreatic lipase (PL) and mobilization of fat stored in adipose tissues is mediated by triglyceride lipase (TGL) (Rudolf et al., 2012). Lifestyle modification and high energy diet have increase the incidence of obesity (Hasani et al., 2013) There are several antiobesity drugs are available, however they have perilous side effects and hence medicinal plant including crude extracts and isolated compound from plant can be used to induce weight loss and prevent diet induced obesity (Nasri and Fallah, 2012). The potential of natural products against obesity is still largely unexplored and can be an excellent alternative for the safe and effective antiobesity drugs from natural origin.

Macrotyloma uniflorum traditionally used as an antiobesity natural food supplement's in India. It belongs to the family Fabaceae and has been used in ethnomedicine for treating haemorrhoids, tumors, bronchitis, cardiopathy, nephrolithiasis, urolithiasis, rheumatism, strangury, hiccough, ophthalmopathy, verminosis, kidney stone, inflammation, and liver-related abnormalities (Bhartiya et al., 2014). As an effort to evaluate scientifically on

the ethanolic extract of *M. uniflorum* leaves (EEMUL), ethanolic extract of *M. uniflorum* seeds (EEMUS), and ethanolic extract of *M. uniflorum* seeds and leaves combination (EESLC) against obesity. The preliminary investigation was carried out on *in vitro* inhibitory activity of fractions against PL. The potent PL inhibitor fractions was further characterised by *In vivo* anti-obesity including food intake, body weight, blood serum lipid profile and hepatoprotective potential on high fat diet (HFD) induced male albino Wistar rats.

2. Materials and methods

2.1. Plant collection and extraction

M. uniflorum leaves and seeds were collected from organic cultivation field and authenticated by Rapinat Herbarium, Trichy, Tamil Nadu, India (voucher number VB001) for future reference. The extraction was performed by standard procedure (Sasidharan et al., 2011) using coarse powder of *M. uniflorum* seed, leaves and mixture. 100 g of each coarse powder suspended separately in 300 ml of ethanol. The extract was filter through 420-μm stainless steel filter and excess solvent was removed by rotary evaporator and recovered yields were $22.4\% \pm 1.25$ (leaves), $19.5\% \pm 2.07$ (seed) and $56.8\% \pm 1.65$ (leaf and seed) and all the filtrate was stored at 4 °C until further use.

2.2. In-vitro pancreatic lipase inhibition assay

An assay of PL activity was performed by standard method, described by Moreno et al. (2003), with some modification. Briefly, different concentrations (250, 500, 1000, and 2000 mg/mL) of EEMUS, EEMUL and EESLC added separately to test tubes contain Tris-HCl buffer and incubated for 3 min. at 37 °C and then 0.5 ml, aliquot of porcine PL (250 mg/mL, type II, Sigma Chemical Co.) was added to each test tube to initiate the reactions. After 30 min of incubation, all the test tube was immersed in boiling water for 2 min to stop the reaction and then cooled. The free fatty

CHEMICAL CHARATERISATION OF GCMS ANALYSIS OF *TABERNAEMONTANA DIVARICATA*

V. Bharathi*[1], A. Vijaya Anand[2], P. Anitha[3] and S. Shanthi[4]

Google scholar

1,3,4Department of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu.
2Department of The Human Genetics and Molecular Biology, Bharathiyar University, Coimbatore, Tamilnadu.

*Corresponding Author: V. Bharathi
Department of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu.

ABSTRACT

Medicinal plants have been used as an exemplary source for centuries as an alternative remedy for treating human diseases because they contain numerous active constituents of therapeutic value. The present study was carried out to identify the phytochemical components of the *Tabernaemontana divaricata* using ethanol, chloroform and water extract. The phytochemical screening showed the presence of alkaloids, tannins, steroids, flavonoids, saponins, tannins and phenolics. In GC MS, the mass spectrum of the unknown component was compared and interpreted with the spectrum of the known components stored in the National Institute Standard and Technology (NIST) library. The presence of various bioactive compounds justifies the use of the plant for various ailments by traditional practitioners.

KEYWORDS: *Tabernaemontana divaricata*, phytochemical, GC-MS, NIST library.

INTRODUCTION

Medicinal plants have been identified and used throughout human history. Plants have the ability to synthesize a wide variety of chemical compounds that are used to perform important biological functions, and to defend against attack from predators such as insects, fungi and herbivorous mammals. At least 12,000 such compounds have been isolated so far; a number estimated to be less than 10% of the total. Chemical compounds in plants mediate their effects on the human body through processes identical to those already well understood for the chemical compounds in conventional drugs; thus herbal medicines do not differ greatly from conventional drugs in terms of how they work. This enables herbal medicines to be as effective as conventional medicines, but also gives them the same potential to cause harmful side effects.

Collection of Plant Material

The healthy plant samples of *Tabernaemontana divaricata* was collected from Trichy. The collected plant materials were transported to the laboratory. The plant materials were identified and authenticated at Department of Botany, St. Joseph's college, Trichy.

Preparation of Leaf Powder

The leaves of *Tabernaemontana divaricata* was collected, washed and cut into small pieces and dried at room temperature for two weeks and made in to powder for further analysis.

Extraction of Plant Material

Anand, et al., (2012) Aqueous, chloroform and alcoholic extracts were prepared according to the methodology of Indian Pharmacopoeia. The shady dried plants materials were subjected to pulverization to get coarse powder. The coarse powder material was subjected to soxhlet extraction separately and successively with alcohol and distilled water. These extracts were concentrated to dryness in flash evaporator under reduced pressure and controlled temperature (40-50°C). The aqueous and alcohol extracts put in air tight containers stored in a refrigerator.

Phytochemical screening

Evan et al., (2002), The *Tabernaemontana divaricata* was tested for steroids, alkaloids, sugar, phenolic compounds, flavonoids, saponins, tannins, anthraquinone and amino acids. Phytochemical screening of the extract was carried out according to the standard method.

GCMS analysis

Merlin et al., (2009), The GCMS analysis of ethanolic crude extract of *Tabernaemontana divaricata* was performed using a GCMS equipment Thermo GC-TRACE ultra ver: 5.0, Thermo MS DSQ II. Experimental conditions of GCMS system were as

Research Article

Outlining of Phytochemicals and GC-MS Profile of Centella asiatica

J. Sugunabai[1], M. Jeyaraj[2], T. Karpagam[1], B.Varalakshmi[3], S. Senthil Rani[1], A. Shanmugapriya[1], G. Kalaiyarasi[1], R. Renuga[1], S. Gomathi[1].

[1]Department of Biochemistry, Seethalakshmi Ramaswamy College, Tiruchirappalli, Tamil Nadu, India

[2]Government Arts College, (Autonomous) Kumbakonam, Tamil Nadu, India

[3]Department of Biochemistry, Shrimati Indira Gandhi College,Tiruchirappalli, Tamil Nadu, India

Abstract

The aim of this study is to assess the phytochemicals and bioactive compounds present in Centella asiatica.In the present study, qualitative phytochemical analysis of different extracts and GC – MS was carried out using aqueous extract of Centella asiatica for the identification of bioactive compounds. Phytochemicals like alkaloids, steroids, cardiac glycosides, terpenoids, tannins, anthraquinone, proteins, total carbohydrates, reducing sugar, flavonoids, saponins, lignins, coumarin were analysed. Ethanolic extract had nine phytochemical metabolites out of thirteen analyzed, methanolic extract had seven metabolites, acetone extract had eight while aqueous extract had twelve, and henceforth aqueous extract was chosen for GC-MS analysis. The results showed the presence of phytochemicals and bioactive phytocompounds which may possess a wide range of therapeutic effects.

Keywords: Centella asiatica, GC-MS, bioactive compounds, phyto constituents.

INTRODUCTION

Medicinal plants have been used in healthcare since long time. Studies have been carried out worldwide to corroborate the efficacy of medicinal plants and led to the fabrication of plant-based medicines. They play a vital role in maintenance of health and healing properties. Treating of diseases through natural medicine is the most ancient method of treatment known to mankind[1]. However, efforts need to be made to identify, recognize and standardize the products of medicinal plants.

World Health Organization (WHO) expert group defined traditional medicine as the sum of total knowledge and practices that are explicable or not, used in diagnosis, prevention and elimination of physical, mental, or social imbalance. The traditional practices rely exclusively on practical experience and observation handed down from generation to generation, whether orally or through written records[2].

The chemical constituents present in plants have great value in new discovery of therapeutic agents, also validates the folklore remedies scientifically[3]. Thorough validation of the herbal drugs has emerged as a new branch of science for the standardization of the natural drugs.

INHIBITION OF CARBON STEEL CORROSION IN GROUND WATER BY POLYACRYLAMIDE

Manimaran N.*[1] and Rajendran S.[2]

[1]Assistant Professor of Chemistry, Shrimati Indira Gandhi College, Tiruchirappalli-620002, Tamilnadu, India.
[2]Research Director, Professor of Chemistry, St Antony's College of Arts and Science, Dindigul-624005, Tamilnadu, India.

*Corresponding Author: Dr. Manimaran N.
Assistant Professor of Chemistry, Shrimati Indira Gandhi College, Tiruchirappalli-620002, Tamilnadu, India.

ABSTRACT

The inhibition efficiency of Polyacrylamide (PAA) in controlling corrosion of carbon steel immersed in ground water has been evaluated in the absence and presence of Zn^{2+}. PAA has some inhibition efficiency. The inhibition efficiency increases in presence of Zn^{2+}. The synergistic effect exists between PAA and Zn^{2+} the maximum efficiency of 98% is obtained. The synergism parameters have been calculated. It is found that the synergistic effect exists between PAA and Zn^{2+}. The synergistic effect is statistically significant. This is proved by F-test. The mechanism of corrosion inhibition proposed based on AC impedance spectra. The protective film has been analyzed by SEM and AFM studies.

KEYWORDS: Corrosion inhibition, Carbon steel, Poly acrylamide, F-test, SEM Study, AFM Study.

1. INTRODUCTION

Corrosion can be defined as the destruction of metals and alloys by electrochemical reaction with its environment. The corrosion occurs because of the natural tendency of the metals to return back to their thermodynamically stable native state. It cannot be avoided, but it can be controlled and prevented by using appropriate preventive measures like cathodic protection, anodic protection, coating, alloying and using inhibitors, etc. Out of these methods, the inhibitors reduce the aggressiveness of the corrosive and harmful aqueous environment and preventing the metal and alloy by the formation of a protective layer on the metal surface. The applications of inhibitors are mostly find applications in cooling water system and boiler water system.[1-4] The organic compounds containing hetero atoms like oxygen, nitrogen, phosphorus, halogen and sulphur, etc have been used as corrosion inhibitors to control the metals from corrosion.[3-5] The compounds such as Gum Arabic and polyethylene glycol[6], polyvinyl alcohol – sulphanilic acid[7] and halide ion – carboxymethyl cellulose[8] have been used as corrosion inhibitors for mild steel in various aqueous environments. V. Srivastava etal. have been investigated that the corrosion behavior of carbon steel in presence of polyacrylamide.[9] The corrosion inhibitive properties of polyacrylamide have been identified by S.A.Umoren etal.[10]

The present work is undertaken:

(i) To evaluate the inhibition efficiency(IE) of PAA in controlling corrosion of carbon steel in ground water which is collected from Yadava college which is located at Madurai, Tamil Nadu, India (Table 1)
(ii) To examine the influence of immersion period (IP) on the IE of the PAA – Zn^{2+} system.
(iii) To study the synergism using synergism parameters and analysis of variance.
(iv) To understand the mechanistic aspects of corrosion inhibition and formation of protective film on the metal surface by AC impedance spectra.
(v) To analyze the protective film formed on the metals surface by scanning electron microscopy(SEM) and atomic force microscopy(AFM)
(vi) To propose a suitable mechanism for corrosion inhibition process.

2. EXPERIMENTAL

2.1. Preparation of the specimens

Carbon steel specimens (0.026 % S, 0.06 % P, 0.40 % Mn, 0.10 % C, and the rest iron) of dimensions $1.0 \times 4.0 \times 0.2$ cm were polished to mirror finish and degreased with trichloroethylene and used for both weight-loss method and surface examination studies. The environment chosen is ground water and the physico-chemical parameter of ground water is given table in Table 1.

REMOVAL OF Mn(II) & Zn(II) IONS USING SOIL COLLECTED FROM A POND IN TIRUCHIRAPPALLI, INDIA

Lakshmi Prabha P.

Department of Chemistry, Shrimati Indira Gandhi College, Tiruchirappalli-620 002, India.

*Corresponding Author: Lakshmi Prabha P.

Department of Chemistry, Shrimati Indira Gandhi College, Tiruchirappalli-620 002, India.

ABSTRACT

Water pollution due to the presence of toxic metal ions is a major task, since they cause toxic effects on all living organisms. In the present work, the adsorptive removal of Mn(II) & Zn(II) ions using soil (collected from a pond in Tiruchirappalli) was carried out after regeneration with NaCl solution. The process parameters like pH of the medium, size of the adsorbent, contact time etc., were varied and their effects on the removal of Mn(II) & Zn(II) ions were determined. The instrumental data (FT-IR and SEM-EDX) of the adsorbent before and after the adsorption process confirm the removal of Mn(II) & Zn(II) ions. Desorption of the metal ions, was maximum when 0.5N HCl solution was used.

KEYWORD: Mn(II) & Zn(II) ions.

1. INTRODUCTION

The existing technologies for waste water treatment have major problems. Costs involved in the construction of waste water treatment plants are un-economical, it consumes lot of space, and commercially they are unattractive and have disposal problems. The technologies are divided into three types namely biological, chemical and physical.[1]

Manganese is a very common compound that can be found everywhere on earth. Groundwater is a main source of drinking water and the soluble Mn(II) and Zn(II) often exceeds WHO standard. In the present work, the adsorption of Mn(II) and Zn(II) on the natural clay was studied.[2]

2. EXPERIMENTAL

Natural clay(~500g) from a pond in Uttamareeli, Tiruchirappalli (~ one foot from the surface – during June 2013) was collected, washed well with water and filtered. Then, the material was stirred well with ~1N HNO_3, filtered and washed repeatedly with distilled water (filtrate checked with litmus paper). Then, the clay material was filtered, washed well with double distilled water, dried, sieved to different sizes and kept in airtight glass containers. The clay thus obtained is abbreviated as LPC (Lotus Pond Clay).

2.1. BATCH EQUILIBRATION METHOD

All experiments were carried out in batch mode. Batch mode was selected because of simplicity and reliability. In many applications, the preliminary evaluation

program may take the form of simple feasibility study where capacities of adsorbents for the removal of chosen adsorbates are determined by simple batch experiments in laboratory. This study together with the knowledge of similar operating may provide sufficient capacity and design information to proceed with full scale design. In other cases considerable effort may be required for full scale implementation. Keeping this in view batch experiments were done in different ground joint glass bottles of 100 ml capacity Prior to each experiment a predetermined amount of absorbent was added to each flask. The stirring was kept constant (100rpm) for each run through to ensure equal mixing. Each bottle was filled with 50ml of sample was withdrawn from the shaker at the predetermined time interval, filtered and the residual concentration of the sample was measured concentrations of metal ions before and after adsorption was measured using a photocolorimeter.

All experiments were conducted by following the batch mode adsorption technique in a 100 ml reagent bottles by varying the parameters viz., particle size (<75 µm to425µm -500 µm), initial concentration of synthetic Mn^{2+} solution (25 mg/l -200 mg/l), contact time (5 min - 50 min), pH (3 - 7) and temperature (27°C-47°C). The optimized size for LPC was first examined followed by varying contact time, initial concentration, pH and temperature.[3]

The metal ion retained in the adsorbent phase, q_e (mg/g) was calculated using.

M-Polynomials of Penta-chains

P. GAYATHRI[1], U. PRIYANKA[2], S. SANDHIYA[3], S. SUNANDHA[4], K.R. SUBRAMANIAN[5]

[1,2]Department of Mathematics, A.V.C. College (Autonomous), Mannampandal (India)
[3]Department of Mathematics, VELS University, Chennai (India)
[4]Department of Mathematics, Vivekananda Arts and Science College for Women, Sirkali (India)
[5]Department of Computer Applications,Shrimati Indira Gandhi College, Trichy (India)
Email address of Corresponding Author: pgayathrisundari@gmail.com

http://dx.doi.org/10.22147/jusps-A/290405

Abstract

Using the vertex degrees of the graphs, M- polynomials of several types of graphs consisting of concatenated pentagonal rings are obtained and studied in this paper. The vertex degree based indices like Randic, Geometric – Arithmetic, Sum Connectivity, Harmonic, First Zagreb, Second Zagreb, Second Modified Zagreb, Inverse Sum, Alberston, Atom – bond Connectivity, Symmetric – Division index and Augmented Zagreb indices etc., of penta-chains can be calculated easily by using the proposed M-Polynomials of the penta-chains for single, alternating and double-row penta-chains of two types.

Key words: M-Polynomial, Topological indices, Molecular graph, Penta-chain.

Introduction

In the fields of chemical graph theory, molecular topology, and mathematical chemistry, a topological index also known as a connectivity index is a type of a molecular descriptor that is calculated based on the molecular graph of a chemical compound[1]. Topological indices are numerical parameters of a graph which characterize its topology and are usually graph invariant. Topological indices are used for example in the development of quantitative structure-activity relationships (QSARs) in which the biological activity or other properties of molecules are correlated with their chemical structure.[2] Topological descriptors are derived from hydrogen-suppressed molecular graphs, in which the atoms are represented by vertices and the bonds by edges. The connections between the atoms can be described by various types of topological matrices (e.g., distance or adjacency matrices), which can be mathematically manipulated so as to derive a single number, usually known as graph invariant, graph-theoretical index or topological index.[3,4] As a result, the topological index can be defined as two-dimensional descriptors that can be easily calculated from the molecular graphs, and do not depend on the way the graph is depicted or labeled and no need of energy minimization of the chemical structure.

M-Polynomial of graph G :

If $G = (V, E)$ is a graph and $v \in V$, then $d_v(G)$ (or d_v for short if G is clear from the context) denotes the degree of v. Let G be a graph and let $m_{ij}(G)$; $i, j \geq 1$, be the number of edges e = uv of G such that $\{d_u(G), d_v(G)\} = \{i, j\}$.

SciencePG
Science Publishing Group

The PI(Padmakar-Ivan) Index of Polyominoes

P. Gayathri[1], K. R. Subramanian[2]

[1]Department of Mathematics, A. V. College (Autonomous), Mayiladuthurai, Tamilnadu, India
[2]Department of Computer Applications, Shrimati Indira Gandhi College, Trichy, Tamilnadu, India

Email address:
gay_sunbar@yahoo.co.in (P. Gayathri)

Abstract: The Padmakar – Ivan (PI) index of polyominoes is examined. Efficient calculations of formulas for PI index for the polyominoes are put forward. In chemical graph theory, the PI index is a topological index of a graph G is defined as $PI(G) = \sum [n_1(e) + n_2(e)]$, where for edge e = xy, $n_1(e)$ is the number of edges of G lying closer to x than y, $n_2(e)$ is the number of edges of G lying closer to y than x and summation goes over all edges of G. The edges equidistant from x and y are not considered for the calculation of PI index. In this paper, we calculated the PI index of polyominoes like square Polyomino, L-Polyomino, T-Polyomino, Straight-Polyomino and Skew-Polyomino.

Keywords: Molecular Graph, Polyominoes, Topological Indices, PI (Padmakar-Ivan)Index

1. Introduction

Chemical Graph Theory is an interdisciplinary science that applies Graph Theory to the study of molecular structures. The molecules or chemical compounds are modeled by an undirected graph - the molecular graph have vertices represent atoms or group of atoms and the edges represent the chemical bonds between atoms or group of atoms. A topological index is a numerical parameter mathematically derived from the graph structure. It is a graph invariant thus it does not depend on the labeling or pictorial representation of the graph. The topological indices of molecular graphs are widely used for establishing correlations between the structure of a molecular compound and its physico-chemical properties or biological activity for example Pharmacology. A Polyomino system is a finite 2-connected plane graph such that each interior face (or say a cell) is surrounded by a regular square of length one. In other words, it is an edge-connected union of cells in the planar square lattice. For the origin of polyominoes we quote Klarner [1]: "Polyominoes have a long history, going back to the start of the 20th century, but they were popularized in the present era initially by Golomb, i.e. [2, 3] then by Gardner in his Scientific American columns." At the present time they are widely known by mathematicians, physicists, chemists and have been considered in many different applications [4].

One of the oldest and most thoroughly examined molecular graph-based structural descriptor of organic molecule is the Wiener index or Wiener number [5, 6]. The Wiener index (W) is applicable to acyclic (tree) graphs only. For cyclic compounds a novel molecular-graph-based descriptor, referred to as the Szeged index (Sz) is put forward by Gutman [7] and co-workers [8]. This is considered as the modification of W to cyclic graph. It is based on distance in the molecular graph but is not of the same type as W. For acyclic systems (trees) Sz and W coincide. Consequently, one of the authors introduced yet another index called Padmakar-Ivan (PI) index [9, 10]. The PI index of a graph G is defined as, $PI(G) = \sum [n_1(e) + n_2(e)]$ where for edge e = xy, $n_1(e)$ is the number of edges of G lying closer to x than y, $n_2(e)$ is the number of edges of G lying closer to y than x and summation goes over all edges of G. The edges equidistant from x and y are not considered for the calculation of PI index. Since the PI index is different for acyclic graphs, several applications of the PI index are reported in the literature [10-13]. Many methods for the calculation of PI indices of some systems are reported in [14-17]. Many methods and several applications are reported in the previous literature [18-28] about the graph invariants of Polyominoes. In this paper, we calculated the PI index of polyominoes like Square Polyomino, L-Polyomino, T-Polyomino, Straight Polyomino and Skew Polyomino.

Hide and Seek: A New Way to Hide Encrypted Data in QR Code Using the Concepts Steganography and Cryptography

M. Manimekalai[1], R. Bakkiyalakshmi[2]

Professor Director and Head, PG Department of Computer Applications, Shrimati Indra Gandhi College, Trichy, India [1]

Research Scholar, Department of Computer Science, Shrimati Indra Gandhi College, Trichy, India [2]

Abstract: The art of information hiding has become an important issue in the recent years as security of information has become a big concern in this internet era. Cryptography and Steganography play major role for secured data transfer. Steganography stands for concealed writing; it hides the message inside a cover medium. Cryptography conceals the content of a message by encryption. QR (Quick Response) Codes are 2-dimensional bar codes that encode text strings. They are able to encode information in both vertical and horizontal direction, thus able to encode more information. Genetic Algorithm basic function is to be used to generate the key values that can be used to encrypt the message so the detection of the message is complicated. In this paper a novel approach is proposed for secret communication by combining the concepts of Steganography and QR codes. The suggested method includes two phases: (i) encrypt the message by using the key values that is generated using genetic algorithm (ii) Hiding the encrypted message inside the QR code. Experimental result shows that the enhanced design of secure algorithm can be created which ensure improved security and reliability.

Keywords: QR, Cryptography, Steganography, Genetic Algorithm, Encode.

I. INTRODUCTION

Cryptography and Steganography are well known and widely used techniques that manipulate information in order to cipher or hide their existence respectively. Steganography is the art and science of communicating in a way which hides the existence of the communication. Cryptography scrambles a message so it cannot be understood; the Steganography hides the message so it cannot be seen. Even though both methods provide security, a study is made to combine both cryptography and Steganography methods into one system for better confidentiality and security.

Cryptography systems can be broadly classified into symmetric-key systems that use a single key that both the sender and the receiver have, and public-key systems that use two keys, a public key known to everyone and a private key that only the recipient of messages uses. In Cryptography, a cipher message for instance, might arouse suspicion on the part of the recipient while an invisible message created with steganographic methods will not. In fact, steganography can be useful when the use of cryptography is forbidden: where cryptography and strong encryption are outlawed, steganography can circumvent such policies to pass message covertly. However, steganography and cryptography differ in the way they are evaluated: steganography fails when the "enemy" is able to access the content of the cipher message, while cryptography fails when the "enemy" detects that there is a secret message present in the steganographic medium. The disciplines that study techniques for deciphering cipher messages and detecting hide messages are called cryptanalysis and steganalysis. The former denotes the set of methods for obtaining the meaning of encrypted information, while the latter is the art of discovering covert messages. The aim of this paper is to describe a method for integrating together cryptography and steganography through some media such as image, audio, video, etc. Data hiding in a generated QR code image which is hided in a cover image using LSB technique. So, the process is the identification of the secret message hided in the input cover image. The secret message will be transferred from sender to receiver where they access it. The secret message could be in the form of text data. Here, the work is to embed QR code in color image by using data transmission and reception process. Hiding of information techniques would be continually introduced. Also the degrees of complexity are increased. Thus the future malware related traffic could be harder to detect.

II. RELATED WORK

[1] Mrs. C. Prema, S. Natarajan, "Steganography using genetic Algorithm along with visual Cryptography for Wireless Network Application", The proposed system provides the best approach for Least Significant Bit (LSB) based steganography using Genetic Algorithm (GA) along with Visual Cryptography (VC). Original message is converted

Hop-to-Hop Secure Data Transmission using Cryptography and Audio Steganography Algorithm

V. Vetri Selvi[1], S. Gayathri[2]

Assistant Professor, Department of MCA, Shrimati Indra Gandhi College, Trichy, India[1]

Research Scholar, Department of Computer Science, Shrimati Indra Gandhi College, Trichy, India[2]

Abstract: Today's large demand of internet applications requires data to be transmitted in a secure manner. Data transmission in public communication system is not secure because of interception and improper manipulation by eavesdropper. In this thesis we implement two security algorithms they are cryptography and steganography. For secure communication we are providing security by using the RSA which is based on Cryptography. Steganography is an art of sending hidden data or secret messages over a public channel so that a third party cannot detect the presence of the secret messages. Audio signals have a characteristic redundancy and unpredictable nature that make them ideal to be used as a cover to hide secret information. A Steganographic technique for embedding text information in audio using LSB based algorithm is presented in this paper. In the proposed method each audio sample is converted into bits and then the text data is embedded. In embedding process, first the message character is converted into its equivalent binary. By using proposed LSB based algorithm, the capacity of stego system to hide the text increases. The performance of the proposed algorithm is computed using SNR values for various audio input. By using these methods third parties cannot percept the existence of message embedded in the audio file. The properties of the audio file remain the same after hiding the secret message.

Keywords: Cryptography, steganography, LSB, RSA.

I. INTRODUCTION

Nowadays it is possible to extract hidden data by applying certain techniques like Multicarrier Spread-Spectrum Embedding. Also encrypted data can be compromised by applying certain techniques like Brute Force Attack. Hence it is necessary to bring up a significant solution for data transfer. We suggest the combining approach of data encryption and data hiding can be a better solution for such cases. The data hiding and data encryption comes under the concept of steganography and cryptography respectively. It is a technique of hiding information. It is possible to hide necessary information by applying the steganography approach without causing any affect to the information. Once the information is hidden, it cannot be identified easily. It is a technique of converting plain text into cipher text. It is possible to encrypt highly secure data by applying cryptography approach. This approach helps to convert data in such a way that it can't be understood. Only the authorised user can decrypt the encrypted data. There might be possibility that the highly confidential information that we are transferring may be compromised by the hackers or by unauthorized users. Hence it is necessary to find an appropriate solution for such situation. Till so far, such kind of situations has been negotiated by applying the concept of data hiding and data encryption separately.
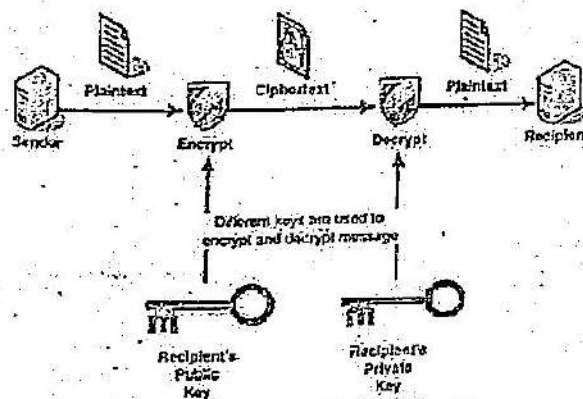
Fig. 1 Cryptography Working Process

International Journal of Computer Science and Mobile Computing

A Monthly Journal of Computer Science and Information Technology

AN ANALYSIS OF RISK FACTORS FOR DIABETES USING DATA MINING APPROACH

Miss. N. Vijayalakshmi[1]; Miss. T. Jenifer[2]

[1]Asst. Professor, Dept. of M.C.A., Shrimati Indira Gandhi College, Trichy- 2

[2]Research Scholar in Computer Science, Shrimati Indira Gandhi College, Trichy-2

[1]Email: nvijimca@gmail.com, [2]Email: jenifermca2007@gmail.com

Abstract- One of the most significant health issue faced by men and women these days is diabetes. Although several factors are considered to lead to diabetes, it would be worth enough to find the most predominant factors causing this problem to gain a better understanding of the issue. Data mining and statistical analysis go hand in hand in identifying these factors from a clinical database containing primary data pertaining to significant factors relating to diabetics/non-diabetics in men and women. The sample population encompasses both diabetics and non-diabetics men and women relating to a good age speed. Data mining techniques like association rule mining, classification using decision tree induction, clustering, prediction using a decision tree approach and building an application based on the knowledge gained for predicting the probability of diabetics in a men and women have been used to thoroughly attain our objectives.

Keywords- Data mining, classification, prediction, association rules, statistical analysis, clustering

I. INTRODUCTION

Diabetes is a group of metabolic disorders in which there are high blood sugar levels over a prolonged period. Diabetes mellitus is a complex group of diseases caused by a number of reasons. Individuals suffering from diabetes have hyperglycemia (high blood sugar) either because there is low production of insulin or body cells do not use the produced insulin. There are three main type of diabetes. These are typ1, type2, gestational diabetes. Common causes of diabetics includes increased frequency of urination, especially at night, frequently feeling thirsty, weakness and fatigue, unexplained loss of weight, genital itching or thrush, blurred vision, increase in healing time of cuts and wounds.

Scalable Dynamic Networks with Influential Node Tracking Under An Interchange Greedy Algorithm

R.Leelavathi[1], R.Indra[2], P.Kiruthika[3]

[1,2,3] Department of Computer Science

[1,2,3] Shrimati Indira Gandhi College, Trichy, Tamilnadu, India.

Abstract- Real world marketing campaign utilizing the world-demand effect usually lasts a long time, where multiple sets of influential users need to be mined and targeted at different ties to fully utilize the power of viral marketing. As both social network structure and strength of influence between individuals evolve constantly, it requires tracking the influential nodes under a dynamic setting. To address the above problem, we explore the Influential Node Tracking (INT) problem as an extension to the traditional Influence Maximization [6], problem under dynamic social networks. While Influence Maximization problem aims at identifying a set of k nodes to maximize the joint influence under one static network, INT problem focuses on tracking a set of influential nodes that keeps maximizing the influence as the network evolves. Utilizing the smoothness of the evolution of the network structure, we propose an efficient algorithm, Upper Board Interchange Greedy(UBI) to solve the INT problem. Instead of constructing the seed set from the ground, we start from the influential seed set we find previously and implement node replacement to improve the influence coverage. Furthermore, by using a fast update method to maintain an upper bound on the node replacing gain; our algorithm can scale to dynamic social networks with millions of nodes.

Keywords- Influence maximization, influential nodes tracking, social network, Scalable algorithm.

I. INTRODUCTION

The processes and dynamics by which information and behaviors spread through social networks have long interested scientists within many areas. Understanding such processes have the potential to shed light on the human social structure, and to impact the strategies used to promote behaviors or products. While the interest in the subject is long-standing, recent increased availability of social networks and information diffusion data (through sites such as Face book, Twitter, and LinkedIn) has raised the prospect of applying social network analysis at a large scale to positive effect. Influence maximization, is the problem of selecting a small set of seed nodes in a social networks, such that their overall influence on other nodes in the network, defined according to particular models of diffusion, is maximized. For example,

links appear and disappear when users follow/unfollow others in Twitter or friend/unfriend others in face book. Moreover, The strength of influence also keeps changing, as you are more influenced by your friends who you contact frequently, while the influence from a friend a friend usually dies down as time may lead to poor influence coverage after the evolution of social network, which suggests that using one static set as seeds across time could lead to unsatisfactory performance. It turns out that targeting at different nodes at different time becomes essential for the success of viral marketing. We proceed to illustrate the idea of considering the dynamic perspect in influence maximization [7].
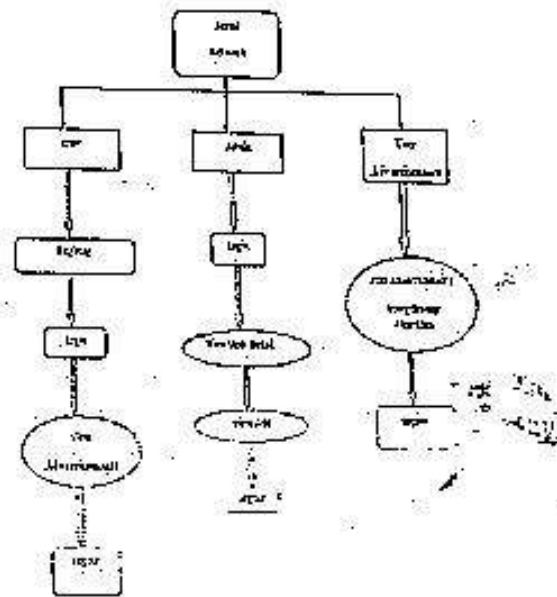
Figure 2.

II. BACKGROUND AND RELATED WORK

A. Temporal analysis of telecom call graphs:

Real world graphs like call graphs, email communication graphs [1], are temporal in nature in which edges between nodes exist only for a limited span of time. Temporal analysis can lead to new insights such as densification laws and shrinking diameters. In this paper we have analyzed temporal properties like diameter, clustering coefficient, number of calls and other properties of Call Detail

Strategy of Automated Clinical Pratices for Reading Electronic Health Records Dynamically According To The Real-Time Fluctuation of The Patient's Condition

P.Kiruthika[1], R.Indra[2], R.Leelavathi[3]
[1,2,3] Department of Computer Science
[1,2,3] Shrimati Indira Gandhi College, Trichy, Tamilnadu,India

Abstract- Reasoning is a crucial task performed by the inference engine of the clinical decision support systems, which combines medical knowledge with patient specific data and generates relevant decisions. There are different reasoning methods, suitable for different knowledge representations and application area. This paper reviews the most common methods and describes how they are used in real systems. Furthermore, it outlines the remaining weaknesses of the reasoning mechanisms and provides directions for future research and improvements. Scientists have developed many different reasoning mechanisms, which are available to be used by the inference engine within the clinical diagnosis and treatment system (CDTS). However, two decades since the CDTSs were initially introduced, there are still unresolved problems and no single method has been found to answer all questions. The main purpose of this paper is to review the different reasoning methodologies and to provide directions for further research and improvements.

Keywords- Big data, case-based reasoning, clinical diagnosis, medical record, disease detection.

I.   INTRODUCTION

Data mining is process of extracting hidden knowledge from large volumes of raw data. Data mining is used to discover knowledge out of data and presenting it in a form that is easily understand to humans .Disease Prediction plays an important role in data mining. Data mining is used in positively in the field of medicine to predict disease such as heart disease, lung cancer, breast cancer etc. This paper analyses the heart disease predictions using different classification algorithms. Medicinal data mining has high potential for exploring the unknown patterns in the data sets of medical data. Heart disease was the major cause of casualities in the world. Half of the deaths occur in the countries like India, United States are due to cardiovascular diseases. Data mining is the heart (core) step, which results in the discovery of implicit but potentially valuable knowledge from huge amount of data. Data mining technology provides the user

with the methods to find new and implicit patterns from massive data. A major challenge facing healthcare organizations (hospitals, medical centers) is the provision of quality services at affordable costs. Quality service implies diagnosing patients correctly and administering treatments that are effective. Most hospitals today employ some sort of hospital information systems typically generate huge amounts of data which take the form of numbers, text, charts and images. Unfortunately, these data are rarely used to support clinical decision making [4]. There is a wealth of hidden information in the4ses data is largely untapped. This raises an important question: "How can we turn data into useful information that can enable healthcare practitioners to make intelligent clinical decisions?" This is the main motivation for this paper.
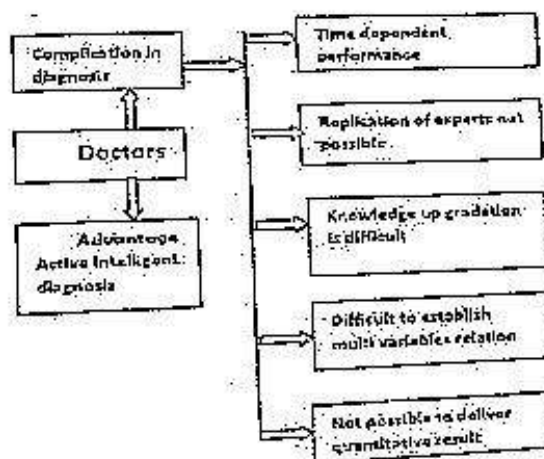
Figure 1.

II.   BACKGROUND AND RELATED WORK

A.   Semantic transformation model for clinical documents in big data to support healthcare analytics:

The standardized health care documents are being adopted at an exponential rate all around the world which poses several challenges about its Large scale analysis and comprehension. The health care standards are complex and difficult to understand for a health analytics expert due to its

IMAGE RETRIEVAL PROCESS BASED ON INPUT QUERY USING CLUSTERING TECHNIQUES

*1 S.Geetha M.Sc, M.Phil, M.C.A., S.Inlya Devi*2

*1 Assistant Professor & Shrimati Indira Gandhi College , *2 Research scholar& Sarlmati Indira Gandhi College.
Mphil Department of Information Technology, Shrimati Indira Gandhi College Trichy, Tar..Inindu, India
*1 geethaselvan@gmail.com; *2 umak876@gmail.com .

ABSTRACT :

... able approach for content-based image retrieval in peer-to-peer networks by employing the Bag-of-visual-
... model. A peer-to-peer network regularly evolves dynamically, which makes a static codebook less effective
... retrieval tasks. A dynamic codebook updating process by optimizing the communal information between the
... codebook and relevance information, and the workload balance among nodes that manage different code
...s. The planned approach is scalable in developing and disseminated peer-to-peer networks, while achieving
... and recovery accuracy.

KEYWORDS: Bag-of-visual-words, content-based image retrieval, peer-to-peer, information maximization,
... load balance

INTRODUCTION

... peer (p2p) networks, which are shaped by ... privileged nodes involving to each other in a ... organizing way, have been one of the most ... popular architectures for data sharing. Popular P2P ... sharing networks such as eDonkey1 count millions ... of users and tens of millions of files. Unlike WebPages ... mostly consist of textual documents such as ... blog article or meeting posts, multimedia files ... play a leading role in most P2P networks. The ever-... growing amount of multimedia data and computational ... in P2P networks expose both the need and ... for large scale multimedia retrieval ... applications such as content-based image sharing, and ... copyright infringement detection. While P2P networks ... well known for their efficiency, scalability and ... robustness on files sharing, as long as extended search ... functionality such as content-based image retrieval ... faces the following challenges: 1) in contrast to ... classical environments, data in P2P networks is ... distributed amongst diverse nodes, thus a CBIR ... needs to index and search for images in a ... distributed manner; 2) unlike distributed servers/clouds, ... nodes in P2P networks have incomplete network ... bandwidth and computational power, thus the algorithm ... should keep the network cost low and the workload ... across nodes balanced; and 3) as P2P networks are ... and varying churn, where nodes join/leave and files

publish to/remove from the network the index needs to be updated dynamically to adapt to such changes. To support content indexing and avoid message flooding, structured overlay networks such as Distributed Hash Tables (DHTs) are often implemented on top of a physical network. By organizing the nodes in a structured way, messages can be efficiently routed between any pair of nodes, and the index integrity can be maintained during network churn. For the CBIR functionality, most of the existing systems adopt a global feature approach: an image is represented as a high-dimensional feature vector (e.g., color histogram), and the similarity between files is measured using the distance between two feature vectors. Usually, the feature vectors are indexed by a distributed high-dimensional index or Locality Sensitive Hashing (LSH) over the DHT overlay.

RELATED WORKS

In [1] Robert Morris, David Karger, M. FransKaashoek ,HariBalakrishnan et al presents Peer-to-peer systems and applications are distributed systems lacking any centralized control or hierarchical organization, where the software management at each node is equivalent in functionality. A review of the features of topical peer-to-peer applications yields a long list: redundant storage, permanence, variety of close by servers, anonymity, search, authentication, and hierarchical

AUTOMATIC DECISION OF FINDINGS TEXT IN DEVELOPMENT MODELS

S. Geetha M.Sc., M.Phil, M.C.A., N.Nabily.[?]

*Assistance Professor& Shriwati Indira Gandhi College , ** Research scholar & Shriwati Indira Gandhi College,
Department of Information Technology, Shriwati Indira Gandhi College, Trichy, Tamilnadu, India
[1] geethaselvan@gmail.com, [2] nabai.mela@yahoo.com

ABSTRACT

Conceptual engineering tasks are often conducted using process models. In this context, it is essential that these do not contain structural or terminological inconsistencies. To this end, several automatic analysis techniques have been proposed to support quality assurance. While formal properties of control flow can be checked in automated fashion, there is a lack of techniques addressing textual quality. More specifically, there is currently no technique available for handling the issue of lexical ambiguity caused by homonyms and synonyms. In this paper we tackle this research gap and intend a modus operandi that detect and resolve lexical ambiguities in practice

INTRODUCTION

It is rising availability of text documents in such area, it is of great importance to label these texts with a predefined set of thematic categories in automatic technique, what is also known as textual Text Categorization. In last decades, a high number of advanced machine learning plans have been developed to address this arising task by formulating it as a classification area. Commonly, an automatic text classifier is built with a learning process from a set of prelabeled issues. Documents need to be represented in a way especially for a general learning process. The most used depiction is "the bag of words": a article is represented by a vector of features, each of which corresponds to a term or a phrase in a language and from a particular data set. The worth of each this element represents the significance of the term in this statement, according to a precise feature extent. The challenge in text categorization is the learning from high dimensional data. On one hand, tens and tens of thousands terms in an essay may lead to a computational burden for the erudition process. On the other hand, some irrelevant and redundant features can reduce predictive performance of classifiers for text categorize. To avoid the issue of the "curse of

dimensionality" and to pace up the learning process, it is essential to execute feature reduction to decrease feature size.

A ordinary feature reduction approach for text classification is feature selection that this paper concentrates on, where only a separation of unique features are chosen as input to the knowledge algorithms. In last decades, numerals of feature selection methods have been planned, which can be usually categorized into the following two types of approach: the filter approach and the wrapper approach. The filter approach selects feature subsets based on the universal individuality of the data without involving the learning algorithms that will use the selected features. A score indicating the "importance" of the term is assigned to each individual feature based on an independent evaluation criterion, such as distance measure, entropy measure, dependency measure and consistency measure. Hence, the filter approach only selects a figure of top rank features and ignores the rest. Alternatively, the wrapper approach avariciously searches for improved features with an evaluation criterion based on the same learning algorithm. Although it has been shown that the wrapper approach usually performs better than the filter approach, it has much more computational cost than the filter approach,

ENHANCING INFORMATION ENCRYPTION WITH BIOMOLECULAR SEQUENCES USING NDES ALGORITHM

Menaka. K
Department of Computer Science
Shrimati Indira Gandhi College
Tiruchirappalli, India

Sundaravalli. V
Department of Computer Science
Shrimati Indira Gandhi College
Tiruchirappalli, India

Abstract: During Communication, Information Encryption plays a very important role. While transmitting data, unusual kinds of attacks may occur. To enhance the security during data transmission, cryptographic techniques are used. Cryptography is thus a study in which the message to be transmitted is converted into unreadable form and then sent so that unauthorized users may not be able to read the information. The information is transformed during a phase called Encryption, before being stored or transmitted, based on a Secret key. To guarantee the privacy and validity of the furtive data, a variety of cryptographic techniques have been developed and researchers are continuously working on it to find better technique towards information security. Though many algorithms have been developed for hiding the data, biomolecular DNA (deoxyribonucleic acid) sequences based data encryption seems to be a promising approach for satisfying the current Information security needs. In this work, the enormous number of features available in DNA sequences are taken and combined with the well known cryptographic algorithm, the Data Encryption Standard (DES). The proposed technique which combines the features of DNA sequences and the Data Encryption Standard is thus named as NDES (Novel Data Encryption Standard) algorithm. This technique thus enhances the security by conversion, manipulation, substitution, confusion and hence provides complexity.

Keywords: DNA Sequence, Information Security, Encryption, Biomolecular Sequences, DNA Cryptography, Data Encryption Standards, Diffusion Technique.

1. INTRODUCTION

Nowadays, information has become a very important resource and so the task of information security has become increasingly important. Cryptography is the most important factor of communication security and computer security. Information security is based on three essential factors (confidentiality, integrity, authenticity). Cryptographic techniques are helpful to hide some information in such a way which cannot be read by public groups. There are many cryptographic techniques available for securing data during transmission. Some of them used mathematical concepts and some have used the concepts of Physics [1]. As a standard with high information density, DNA was proposed for computational purposes by Adleman, 1994 [2]. Encryption using biomolecular DNA sequences is a useful tool in protecting confidentiality and integrity of information. The original meaning of the information is thus codified to prevent access from eavesdroppers. DNA supported biomolecular cryptography method is a practice that uses the substantial parallel processing way of biomolecular computation that converts short messages from hexadecimal and ASCII forms and performs encryption and decryption process from the information. The exclusive property of DNA encoding is used for computations, which improves the security and encryption and lessens the flaws of the current security mechanism. Forming protein from DNA sequences seems to be a challenging process which enhances the sequences and also maintains the integrity and validity of the process. This process is complex and difficult, and hence this gives the DNA based cryptography an advantage over other public key based cryptography methods. We consider this into account to go through modern security schemes and

encryption algorithms to propose a novel algorithm to enhance the security and complexity of an encryption system.

2. BIOLOGICAL FRAMEWORK

In human body each cell contains a nucleus which characterizes all the physical and behavioral features of human body. They are packed into chromosomes. DNA is a molecule, within each organism. James Watson and Francis Crick formed primary 3D structure of DNA based upon an X-Ray print. They found out that DNA structure is double helix/ stranded [3] like a spiral ladder. It is made up of two strands where each strand can have either a purine or a pyramidine base. Adenine (A) and Guanine (G) are Purine bases while Thymine (T) and Cytosine (C) are Pyridimine bases. A sequence of DNA base pairs can be represented as a string made of these four characters i.e. <AAGTCGATCGATCATCGA>.
In a DNA sequence, every three adjacent nucleotide bases forms a codon which maps to a unique amino acid that is used in protein synthesis. When Adleman [2] started to inspect in molecular biology and found that these four characters (A, T, C and G) keeps the entire information needed by an organism and can be employed for computation, computing in DNA established to commence. DNA computing, in the factual sense, is the use of DNA molecules which encode genetic information for all living things, in computers. This is accomplished in a suspended solution of DNA, where certain combinations of DNA molecules are interpreted as a particular result to a computational problem encoded in the original molecules present. DNA computing is presently one of the fastest emerging fields in both Computer Science and Biology and

482

ENABLING PRIVACY PRESERVING LOCATION PROOFS FOR MOBILE USERS USING DYNAMIC GRID

[1]MATHIMALAR.V M.Sc.,M.Phil.,M.B.A, Professor

[2]JAYASREE KALYANI.S M.Phil., Asst. Professor

ABSTRACT

Location-based services are quickly becoming immensely popular. Mostly such location based services rely on users' current location, and other related services rely heavily on users' location history data. Malicious users may lie about their spatial-temporal provenance without a carefully designed security system for users to prove their past locations. A novel privacy preserving location hiding model called Hybrid STAMP is proposed. The hybrid STAMP is designed for ad-hoc mobile users generating location proofs for each other in a distributed setting, which can accommodate trusted mobile users and wireless access points. STAMP ensures the integrity and non-transferability of the location proofs and protects users' privacy. A semi-trusted Certification Authority is used to distribute cryptographic keys as well as guard users against collusion by a light-weight entropy-based trust evaluation approach. The proposed hybrid STAMP model has low-cost overheads in terms of computational and storage resources.

Keywords : Privacy Preserving, Hybrid STAMP

INTRODUCTION

The accuracy of indoor wireless localization systems can be substantially enhanced by map-awareness The knowledge of the map of the environment in which localization signals are acquired A unified statistical model for the measurements is acquired The hybrid location aware localization systems is based on time-of arrival and received request queries which disseminates data and embrace a wide variety of telematics applications where data packets are generated at a remote server in the Internet and destined to a group of nomadic users such as travelers. Such data services are highly dependent on the availability of network infrastructures in terms of the (APs) access points. The model utilization of roadside wireless local area networks hybrid location is investigated as a network infrastructure for data dissemination. A two-level cooperative data dissemination approach is presented. With the network-level cooperation, the resources in the hybrid data request mobile nodes are used to facilitate the data dissemination services for the nomadic users. The packet-level cooperation is exploited to improve the packet transmission rate to a nomadic user. Various techniques for the two levels of cooperation are discussed.

Any wireless localization system first acquires a set of point-to-point measurements related to user position Then processes such measurements for bi-dimensional (2-D) or three-dimensional position estimation Environmental obstructions (e.g., walls) which interfere with signal propagation Development of localization techniques explicitly based on these models show non-line-of-sight error. The state-of-the-art localization methods rely on map-unaware models. The data dissemination services can be supported by the traditional cellular networks such as general services. However, as mobile networks aim at offering ubiquitous network coverage, providing the data dissemination services by cellular networks

SECURITY ENHANCEMENT IN MANET BY PROPOSED FUZZY TRUST ROUTING SCHEME

Dr. G. Srinaganya M.C.A., M.Phil., Ph.D
Assistant Professor, Department of Computer Science,
Shrimati Indira Gandhi College, Trichy, Tamilnadu, India.

S. Sowmiya
Research Scholar, Department of Computer Science
Shrimati Indira Gandhi College, Trichy, Tamilnadu, India

Abstract

MANETs are much more susceptible to various attacks because of openness in network topology and being away of a centralized administration in management. As an outcome of that, more malicious nodes are often comes in and goes out without being detected from the network topology. Hence, MANET needs very specialized security methods to isolate the false entrance. As well as there is no single solution that fitting in different types of the network where the nodes can be behave like any apparatuses. The networks works well if the nodes are trusty and act rightly cooperatively. In order to improve the security of the network, this paper gets started the new interesting approach to evaluate the trustworthiness of the nodes. Fuzzy Trust-based Secured Routing (FTSR) approach provides a flexible and feasible approach to choose trusted route to meet the requirement of the security of the data transmission. In this, fuzzy logic rule prediction mechanism is adopted to notice the future behavior of node by updating the node's trust. We have also analyzed the performance metrics such as packet delivery ratio, end-to-end delay and average throughput which can also increase accordingly through newest approach.

Keywords: Mobile Ad Hoc Network, Fuzzy Logic, Fuzzy Trust based Secured Routing, Ad Hoc On Demand.

1033

AN ECONOMIC STUDY ON FLOWER CULTIVATION IN ANDANALLUR BLOCK IN TIRUCHIRAPALLI DISTRICT

R.LATHA
Assistant Professor of Economics
Shrimati Indira Gandhi College , Trichy.

Dr.R.PICHUMANI
Assistant Professor of Economics
Arignar Anna Govt Arts College, Musiri.

Abstract

Agriculture plays a vital role in the economic development of a country. More than 70 percentage of the population in India either directly dependent on agriculture for their livelihood. Floriculture is one of the branches of agriculture. Flowers are the most beautiful of creation of nature and it is universally acclaimed as a gift of nature to mankind. Andanallur block is a fertile area in Trichy. The main occupation of people is flower cultivation. This study is an attempt to find out the total income and expenditure of flower cultivation in the study area.

Key words: Agriculture, floriculture, flowers

Introduction:

Agriculture plays a vital role in the economic development of a country. Since India lives in agriculture forms the backbone of her economic life. More than two percent of the population in India either directly or indirectly dependent on agriculture for their livelihood. It has become the most important occupation of our country. The agriculture sector in India is still one of the major contributors to the National Income. It offers numerous employment opportunities for more people.

Floriculture:

Floriculture is one of the branches of agriculture. It has now become an important commercial trade in the agriculture sector. Flowers are one of the nature's beautiful creations and are universally acclaimed as gift of nature to mankind. India has a long tradition of floriculture. Flowers have been associated with the Indian culture from the ancient Vedic times. The offering and exchanging of flowers on all occasions and ceremonies like New year, Deepavali, Christmas, Dasara, Valentines-day and family functions of joy and sorrow, and their use in place of worship for adornment of hair by women and in home decoration have become an integral part of human living in Indian society.

PROBLEMS FACED BY THE FARMERS CULTIVATING FLOWERS IN TIRUCHIRAPALLI DISTRICT

R. Latha
Assistant Professor of Economics
Shrimati Indira Gandhi College, Trichy

Dr. R. Pichumani
Assistant Professor of Economics
Arignar Anna Govt Arts College, Musiri

Abstract

Agriculture has become the most important occupation of our country. The development of agriculture turned to be boon for the human civilization as it also gave way to their development. Flower cultivation is a branch of agriculture and a segment of horticulture. It deals with the culture of flowers and ornamental plants; it has great importance in our daily life as well as national economy. Flower cultivators faced many problems. So this study is an attempt to identify the problems faced by the farmers cultivating flowers.

Keywords: Agriculture, Development, Horticulture, Flower.

Introduction

Agriculture plays a crucial role in the entire life of an economy. It has been associated with the production of essential food crops. It is the basic source of food supply of all the countries of the world. It is the backbone of the economic system of a country. In providing food and raw material, it also provides employment opportunities to very large percentage of the population. Agriculture supplies source of raw material to major industries such as cotton and jute fabric, sugar, tobacco, edible as well as non-edible oils ect. Flower cultivation is a branch of agriculture and a segment of horticulture. Flower cultivators still face a lot of problems in every walk of life which affects the pace of socio-economic development and their sustainability and livelihood. They invest all financial resources, but they are unable to generate enough production of flowers.

Definition of Floriculture

Floriculture may be defined as "the art and knowledge of growing flowers to perfection. It is a discipline of horticulture concerned with the cultivation of flowering and ornamental plants for gardens and for floristry, comprising the floral industry. The development, via plant breeding of new varieties is a major occupation of floriculturists.

Flowers and their Uses

Flowers are one of the nature's most beautiful gifts to man. Their beauty and fragrance bring joy and happiness to our lives. In any garden, flowers in great variety are always the main attraction.

The Bequest of Buchi Emecheta in 'The Joys of Motherhood'

Anitha.V*, Dr. R Bharathi**

*Ph.D Research Scholar, Deptt. of English, Annamalai University, Annamalai Nagar,
**Asstt. Prof., Deptt. of English, Annamalai University, Annamalai Nagar,

Abstract

Buchi Emecheta is one of Nigeria's major unique female writer. Her legacy has made a way of motivation for modern Nigerian female journalists. This paper expects to examine her compositions, concentrating on the two womanist portrayals of Nigerian female characters. All things considered, a standard examination of Emecheta's works, especially 'The Joys of Motherhood' (1979) uncover Nigerian women characters who demand recommended understandings of their functions as a 'female', 'spouse' and 'mother'. Emecheta's women portrayals build up a sect of women, who are solid, stubborn and engaged in spite of their shifted conditions; a depiction deserving of aspiration.

Key Words: womanist, feminine depiction, a class of women, self-identity

Emergence of new African woman in Buchi Emecheta's *Kehinde*

[1] V Anitha, [2] Dr. R Bharti

[1] Research Scholar, Department of English, Annamalai University, Tamil Nadu, India
[2] Assistant Professor, Department of English, Annamalai University, Tamil Nadu, India

... of the vagrant world is found in *Kehinde* chosen from the third period of Buchi Emecheta's composition. Postcolonial ... caused by distance and disengagement is seen alleviated by the amalgamation of these groups. Kehinde represents the ... of the African female diaspora and frame a microcosm of the diasporic groups. *Kehinde* is simply the record of the ... of a First world outsider. The novel manages the slow change of an African female and with her change into a ... newly created lady, acquiring an extraordinary personality.

Keywords: patriarchy, postcolonial world, female diaspora, migration

Introduction

Emecheta's work, *Kehinde*, set in the postcolonial and ... period, is an investigation of the transformative ... of time in the mentality of the African lady. The novel ... account of a foreigner family in London; it depicts the ... an exile's inner voice. The dedication to one's ... and the relative self-governance certify to females in ... and arrive bring on a clashing circumstance in the ... of the general population having a place with the ... group. Kehinde is about a diasporic woman, a First ... competitor who looks towards the monetary ... of the First World to free her from the ... convention of her local land. The quandary of ... present day African lady, torn between two universes, is ... portrayed by Emecheta in her novel *Kehinde*.

Emecheta's *Kehinde* (1994) echoes the total ... of the Igbo female character from the assigned ... "spouse" and "mother" to the perception of herself as ... . This transformation towards distinct subjectivity ... through the rejection of patriarchal expectations from ... . The enhancement of the "self" is achieved through the ... in the novel, first through the 'unborn youth' ... Kehinde to envision the prospect of her lifestyle ... outside the implications of parenthood, which is ... through the rejection of polygamy as a way of life where ... are more than trivial persons to their confidants. ... , working in a bank in England and contributes an ... measure of money to the running of her family ... Albert, her loved one. Regardless, Albert does not ... Kehinde's chance and is infuriated towards her ... fine-tuning. He longs to return to Nigeria and ... the oil impact so he may in a short time feel ... as an African man in African culture unlike in ... where "women rule in this country" [1]. ... Kehinde in England for two years while she ... him to send for her and comes back to Nigeria. It is

Kehinde's expected "man-child" that starts her procedure of perceiving her value as a female when she understands Albert's narrow minded organizing of his aspirations over their lives. Her absolute part as a "spouse" and "mother" is damaged when she understands that Albert makes her to dance for his tune without a single thought about her prosperity in spite of her commitments to the accomplishment of their marriage. Female subjectivity on issues related to sex and lust is projected as Kehinde is not able to settle on the choice of keeping her own child, the choice being made for her. The possibility of polygamy is played out when Kehinde comes back to Nigeria and discovers Albert has "got another spouse" [1]. Kehinde's life changes and she is compelled to proceed against her function as "the senior spouse of a fruitful Nigerian man" [1]. She is stripped of her own individuality and is not able to call Albert by name yet needs to figure out how to refer to him as "our husband or Joshua's father" [1]. Kehinde is neither ready to neither talk about matters with Albert nor accommodate herself to the part to which she is relied upon to perform in Nigerian culture. At the point when Albert gives her the "primary housekeeping cash in more than eighteen years", she is required to be servile to accept it. When she refuses to accept, Albert's sisters "exacted a fine of one rooster" which "took a large portion of the housekeeping" cash from her [1]. Whatever the case may be, agreeing with the womanist team spirit that exists between Nigerian females, Moriammo cultivates certain support by sending Kehinde the dread of what charge she requires and reminds her to not give "dread of what a chance to individuals' state will prevent you from doing what your chi needs" [1]. Kehinde chooses to leave Nigeria and comes back to England. She settles on a choice for herself and discloses to Ifeuyiwa that she had "never lived in a polygamous family, with the exception of when [she] came to visit [her]", and she was not willing "to go through all this again now" [1]. Kehinde's dismissal of polygamy and her choice to come back to England makes her response clear that she should have been esteemed. Whenever Albert and his

GREEN SYNTHESIS OF SILVER NANOPARTICLES FROM FLOWER EXTRACT OF NERIUM OLEANDER AND ITS CHARACTERIZATION

V. Bharathi[1]* and S.Shanthi[2]

[1,2]Shrimathi Indira Ganthi College, Trichy.

UGC INDEXED
IF: 8.074

ABSTRACT

There is an increasing commercial demand for nanoparticles due to their wide applicability in various areas such as electronics, catalysis, chemistry, energy, and medicine. This work deals with the synthesis and characterization of silver nanoparticles using *Nerium oleander* flower. The synthesized nanoparticles were characterized by using UV–Vis absorption spectroscopy, FT-IR and SEM analysis. The reaction mixture turned to brownish gray colour after 5 hrs of incubation and exhibits an absorbance peak around 450 nm characteristic of Ag nanoparticles. Scanning Electron Microscopy (SEM) analysis showed silver nanoparticles was pure and polydispersed and the size were ranging from 10-40 nm. The approach of green synthesis seems to be cost efficient, eco-friendly and easy alternative to conventional methods of silver nanoparticles synthesis.

KEYWORDS: electronics, catalysis, chemistry, energy, and medicine.

INTRODUCTION

Nanotechnology is mainly concerned with the synthesis of nanoparticles of variable sizes, shapes, chemical compositions and controlled dispersity. Their potential uses, in human welfare has been reported in several disciplines (Kasthuri et al., 2009). Although chemical and physical methods may successfully produce pure, well-defined nanoparticles, these methods are quite expensive and potentially dangerous to the environment. Use of biological organisms such as microorganisms, plant extract or plant biomass could be an alternative to chemical and physical methods for the production of nanoparticles in an eco-friendly manner.

SYNTHESIS OF SILVER NANOPARTICLES FROM FLOWER EXTRACT OF ABUTILON INDICUM AND ITS CHARACTERIZATION

S. Shanthi[1] and V. Bharathi*[2]

[1]Department of Microbiology, Shrimathi Indira Ganthi College, Trichy

[2]Department of Biochemistry, Shrimathi Indira Ganthi College, Trichy.

ABSTRACT

There is an increasing commercial demand for nanoparticles due to their wide applicability in various areas such as electronics, catalysis, chemistry, energy, and medicine. This work deals with the synthesis and characterization of silver nanoparticles using *Abutilon indicum* flower. The synthesized nanoparticles were characterized by using UV–Vis absorption spectroscopy and FT-IR analysis. The reaction mixture turned to brownish gray colour after 5hrs of incubation and exhibits an absorbance peak around 450 nm characteristic of Ag nanoparticles. Scanning Electron Microscopy (SEM) analysis showed silver nanoparticles was pure and polydispersed and the size were ranging from 10-40 nm. The approach of green synthesis seems to be cost efficient, eco-friendly and easy alternative to conventional methods of silver nanoparticles synthesis.

KEYWORD: There is an increasing methods of silver nanoparticles synthesis.

INTRODUCTION

The results of nanoscience are realized in nanotechnology as new materials and functional facilities. At present time nanochemistry becomes one of the main growing directions of nanoscience. Frequently, nanometer-size metallic particles show unique and considerably changed physical, chemical and biological properties compared to their macro scaled counterparts, due to their high surface-to-volume ratio (Sergeev et al., 2008) Thus, these nanoparticles have been the subject of substantial research in recent years. Silver nanoparticles (AgNPs) have been proven to possess immense importance and thus, have been

GREEN SYNTHESIS OF ZINC OXIDE NANOPARTICLES USING POTATO PEEL AND DEGRADATION OF TEXTILE MILL EFFLUENT BY PHOTOCATALYTIC ACTIVITY

Bhuvaneswari S.[1]*, Subashini G.[2] and Smitha Subramaniyam[3]

[1,2]Assistant Professor, PG and Research Department of Microbiology, Shrimati Indira Gandhi College, Trichy 620002, Tamilnadu, India.

[3]PG and Research Department of Microbiology, Shrimati Indira Gandhi College, Trichy-620002, Tamilnadu, India.

Corresponding Author
Bhuvaneswari S.
Assistant Professor, PG and
Research Department of
Microbiology, Shrimati
Indira Gandhi College,
Trichy 620002, Tamilnadu,
India.

ABSTRACT

Textile industry is one of the oldest industries in India with over 1000 industry. A facile green recipe was developed to synthesize highly pure, safe and durable zinc oxide nanoparticles (ZnONps) using domestic waste-starch rich potato peel. The ZnONps were synthesized using zinc oxide powders and potato peel. The particle size and morphology of the synthesized nanoparticles is characterized by using UV VIS spectrophotometer, FTIR and SEM analysis. The effluents were treated with ZnONps and the photocatalytic degradation capability of the dyes significantly enhanced the great potential for wastewater treatment system.

KEYWORDS: zinc oxide nanoparticles, Effluent, Photocatalytic activity, Potato peel.

INTRODUCTION

Water is an essential compound for the survival and sustenance of life on the planet earth. The waste water or sewage water thrown out from industries is either used for irrigation purposes or it runs off to natural sources of water. If these effluents are not treated before their disposal they can be harmful for human consumption as well as for other uses too (Ahlawat and Kumar., 2009). One of the fast growing industries in India is textile industry, consuming large quantities of water and produces large volumes of wastewater during processing unit of textile manufacture. Continuous flow of textile industrial waste into river

774

BIOLOGICAL EXTRACTION OF CHITIN AND CHITOSAN FROM MARINE FUNGI, IT'S CHARACTERIZATION, ANTIMICROBIAL ACTIVITY, ANTITEXTILE ACTIVITY AGAINST MDR PATHOGENS AND ANTICANCER ACTIVITY

Dr. K. Anandhi*

Head, PG and Research Department of Microbiology, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu, India – 620002.

ABSTRACT

Chitin, the insoluble linear β 1, 4-linked homopolymer of N-acetyl D-glucosamine (GlcNAc) is the second most abundant natural polysaccharide (after cellulose). Chitosan is a cationic amino polysaccharide, essentially composed of β-1,4 D-glucosamine (GlcNAc) linked to N-acetyl D-glucosamine residues, derived from de-N-acetylation of chitin. These polysaccharides are found in a wide range of natural sources such as crustaceans, insects, annelids, molluscans, coelenterates and it's a common constituent of fungal cell wall. In the present study chitin/chitosan was extracted from *Aspergillus spp.* and *Trichoderma spp.* isolated from Pitchavaram a mangrove forest soil. The chitin and chitosan was extracted using 2% w/v sodium hydroxide solution for 2 hours, followed by acetic acid treatment. Crude chitin/chitosan was collected (yield was 500mg of mycelium) 0.1g of chitin/chitosan was obtained. Silver and Gold nanoparticles were synthesized by using 1min Ag No₃ & 1min Au Cl. respectively. The Bionanocomposites were characterized using UV-visible, FT-IR and SEM (Scanning Electron Microscopy) study. Antibacterial study was also conducted against Multi Drug Resistant pathogens. Further antitextile and anticancerous activities were carried out.

KEYWORDS: Chitin, Chitosan, Fourier Transform Infrared Spectroscopy(FT-IR), SEM (Scanning Electron Microscopy), MDR (Multi Drug Resistant), KBr- Potassium bromide.

ISOLATION AND CHARACTERIZATION OF SOME ANTIBIOTIC RESISTANT BACTERIA FROM HOSPITAL DRAINAGE SAMPLE

Dr. Anandhi K.*

Head, PG & Research Department of Microbiology, Shrimati Indira Gandhi College,
Tiruchirappalli, Tamil Nadu, India – 620002.

*Corresponding Author
Anandhi K.
PG & Research
Department
Microbiology, Shrimati
Indira Gandhi College,
Tiruchirappalli, Tamil Nadu,
620002.

ABSTRACT

Hospital waste possesses a significant impact on health and environment. In this present study hospital waste dumped soil sample was collected from private hospital at Tiruchirappalli Dt. and analysis the bacterial population in the soil. Again the soil samples were enriched onto nutrient broth medium incorporated with an antibiotic Streptomycin (200mg/100ml) for the screening of antibiotic resistant bacteria present in the soil. Colonies developed on the plates were identified using standard manual. Based on the morphological and biochemical characters, six bacterial species were isolated and identified namely *Escherichia coli, Enterobacter aerogenes, Pseudomonas aeruginosa* and *Staphylococcus aureus*. All the four isolates were again screened for their susceptibility against ten different antibiotics. Among the isolates tested, *Escherichia coli* and *Staphylococcus aureus* showed maximum resistance against most of the antibiotics followed by *Enterobacter aerogenes*. *Andrographis paniculata, Leucas aspera* and *Ruellia tuberose* plant leaves were collected and phytochemical compounds were analysed in the plant extract. Among the study maximum compounds were present in acetone and methanol extracts. In this study *Andrographis paniculata* plant leaves maximum antibacterial activity was recorded against isolated all antibiotic resistant bacteria. From this study, it can be said that there is an urgent need to raise awareness and education on medical waste issues. Proper waste management strategy is needed to ensure health and environmental safety.

KEYWORDS: Antibiotic resistance, phytochemical compounds, *Andrographis paniculata, Leucas aspera* and *Ruellia tuberose*.

ANTIBACTERIAL (WOUND INFECTING BACTERIA) AND ANTICANCER ACTIVITY OF DIFFERENT TYPES OF HONEY AND IT'S COMPOUND CHARACTERIZATION

Dr. K. Anandhi*

[1]Head, PG & Research Department of Microbiology, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu, India – 620002.

Corresponding Author:
Dr. K. Anandhi
Head, PG & Research
Department of
Microbiology, Shrimati
Indira Gandhi College,
Tiruchirappalli, Tamil Nadu,
India – 620002.

ABSTRACT

Honey is the natural sweet substance from nectar or blossom or from the secretion of the living parts or excretion of plants which the honeybees collect and store. It was widely used in traditional medicine but it use in modern medicine is limited because of the lack of scientific support. Among its several uses, honey is used for the treatment of many infections and also used effectively as wound dressing including surgical wounds, burns and skin ulcer. In this study four different honey samples were collected and investigated for its antimicrobial activity using disc diffusion and well diffusion methods and anticancer activity against HeLa Cell Line.

KEYWORDS: MDR (Multi Drug Resistant), MIC (Minimum Inhibitory Concentration), Fetal Bovine Serum (FBS), (PBS)-Phosphate Buffered Saline.

INTRODUCTION

The use of traditional and herbal medicine to treat infection was practiced since the origin of mankind and in the past it was probably the only available method to be used for that. Various plants and their extracts have already been in use for the treatment requiring antimicrobial activity and one of the popular natural antimicrobial substances described in the ancient medicine in honey (Abstons *et al.*, 2000). Natural products such as honey have potential anticancer and antibacterial activity (Moore *et al.*, 2001). Most microorganisms do not grow in honey because of no water activity (Kowsalya., 2012).

GREEN SYNTHESIS OF *ACHYRANTHES ASPERA* SILVER NANO PARTICLES AND CONFIRMATION OF THEM THROUGH MICROSCOPY AND SPECTROPHOTOMETRIC TECHNIQUES

[1]V. Bharathi, [2]S. Shanthi and [3]A. Vijaya Anand

[1]Department of Biochemistry, Shrimathi Indira Ganthi College, Trichy.
[2]Department of Microbiology, Shrimathi Indira Ganthi College, Trichy.
[3]Department of The Human Genetics and Molecular Biology, Bharathiyar University, Coimbatore, Tamilnadu.

*Corresponding Author: Bharathi Rathi
Department of Biochemistry, Shrimathi Indira Ganthi College, Trichy.

Nanotechnology is the creation of functional materials, devices and systems through control of matter on the nanometer length scale (1-100 nanometers), and exploitation of novel phenomena and properties (physical, chemical, biological, mechanical, electrical...) at that length scale." *Achyranthes aspera* commonly called as Prickly Chaff Flower, Chaff-flower, Crocus staff, Crokars staff, and Devil's horsewhip. This plant is popularly supposed to act as a safeguard against scorpions and snakes by paralyzing them. It is described as purgative, pungent, and digestive, a remedy for phlegm, and inflammation of the internal organs, piles, itch, abdominal enlargements, and rheumatism and for enlarged cervical glands.

MATERIALS AND METHOD

Achyranthes aspera seed were collected from Lalgudi Taluk,Tiruchiruppalli district, Tamilnadu., authenticated and deposited in RAPINET HERBARIUM, St.Joseph College, Trichirappalli, Tamilnadu. Homogenate was prepared by weighing 20grams of fresh flower of Nerium oleander Washed thoroughly (thrice) in distilled water and homogenized using a mortar and pestle. The homogenate was then filtered using a sterile gauze cloth. This homogenate extract prepared was then transferred to a sterile container and used for the study.

Qualitative Phytochemical Analysis

Qualitative Phytochemical Analysis for sugar, alkaloid, saponins, tannins, terpenoids, flavonoids, steroids, quinone, coumarin and phenol were carried out for the extract as per the standard protocols (Harborne, 1984).

Preparation of Silver Nanoparticles

To 750ml of each millimolar concentration of silver nitrate, 7.5ml of the plant homogenate was added, respectively into a clean conical flask. The conical flasks were then exposed to the sunlight (while being continuously shaken) for the synthesis of the nanoparticles to begin. The colours of the mixture turns from green to brown when exposed to sunlight and once it turns to colourless the particles were settled at the bottom of the flasks (Amenullah *et al* 2005).

Characterization of Nanoparticles
UV -VIS Spectral Analysis

The bioreduction of Ag+ ions in solutions was monitored by measuring the UV-VIS spectrum of the reaction medium. The UV-VIS spectral analysis of the sample was done by using U-3200 Hitachi spectrophotometer at room temperature operated at a resolution of 1 nm between 200 and 800 nm ranges.

FT-IR Analysis

For FT-IR measurements, the Ag nanoparticles solution was centrifuged at 10,000 rpm for 30min.The pellet was washed three times with 20ml of de-ionized water to get rid of the free proteins/ enzymes that are not capping the silver nanoparticles. The samples were dried and grinded with KBr pellets and analyzed on a Shimadzu IR-IR Affinity1 model in the diffuse reflectance mode operating at a resolution of 4 cm−1.

Table 2: Preliminary Phytochemical investigation In the seed extract of *Achyranthes aspera*.

TEST	WATER	ALCOHOL
TERPINOIDS	-	-
Flavanoid	+	+
Sterold	++	++
Glycoside	-	-
Alkaloid	-	+
Quinone	++	+
Phenol	-	-
Saponine	-	-
Cumarin	++	+

RESEARCH ARTICLE

ISOLATION AND IDENTIFICATION OF SECONDARY METABOLITES PRODUCING BACTERIA ISOLATED FROM SOIL TERMITES

[1]Vijayalakshmi Selvakumar, [2]Sivaranjani, S., [3]Sujatha, S., [4]Revathy M. and [5]Panneerselvam, A.

[1]Assistant Professor, PG & Research, Department of Microbiology, Shrimati Indhira Gandhi College, Tiruchirappalli
[2]Research Scholar, PG & Research, Department of Microbiology, Shrimati Indhira Gandhi College, Tiruchirappalli
[3]Assistant Professor, Department of Botany and Biotechnology, Bon Secours College for Women, Thanjavur
[4]Field Botanist, Karnataka Biodiversity Board, Malleshwaram, Karnataka.
[5]Associate Professor& Head, PG & Research, Department of Botany& Microbiology, A.V.V.M Sri Pushpam College, Poondi, Thanjavur

ARTICLE INFO

ABSTRACT

In the present investigation Bacillus sp. were isolated from subterranean termites gut. Bacillus sp. was identified based on the morphological and molecular characterization. 16SrRNA of Bacillus sp. sequenced and submitted to Gen Bank. Antibacterial activity of Bacillus sp. was screened. It inhibits the growth of S.typhi, E.coli and S.aureus. The bioactive compounds were analyzed by UV-Visible spectroscopy and thin layer chromatography. The highest peak was observed between 240 to 280 nm. In the cytotoxic assay 27.307% cell death was observed in 20µl concentration of the sample and 9.790% cell death was observed in 5µl concentration of the sample. In the GC-MS analysis totally 8 compounds were recorded. These compounds may be responsible for the anticancer activity.

INTRODUCTION

Termites are insects that are classified at the taxonomic rank of infra order Isoptera or as epifamily Termitoidae within the cockroach order Blattodea. Termites were once classified in a separate order from cockroaches, but recent phylogenetic studies indicate that they evolved from close ancestors of cockroaches during the Jurassic or Triassic. However, the first termites possibly emerged during the Permian or even the Carboniferous. About 3,106 species are currently described, with a few hundred more left to be described. Although these insects are often called white ants, they are not ants. The termites gut consist of four gut (which includes the crop and muscular gizzard), the tubular mid gut (which as in other insects is key site for secretion of digestive enzyme and relatively, a voluminous hind gut (which is also a major site for digestion and for absorption of nutrients). The phenotic diversity of the termite gut microbiota is remarkable and has been documented for the lower and higher termites. Antimicrobial activity of the termite species most commonly used by the South Indian tribes for treating diseases likely to

be associated with microorganisms. The antibacterial activities of 90% alcohol extracts of three species of subterranean termites (Solavan, 2007). Bacillus sp. are effective against Gram-positive and Gram-negative bacteria (Mirac Yilmaz et al., 2006).

MATERIALS AND METHODS

Sample collection

The termites sample were collected from Echanari, Coimbatore, Tamil Nadu, India.

Extract preparation

1 gram of termites was taken and crushed the termites. Added 5 to 10ml of sterile water incubates for 1 hour.

Isolation of bacteria

20 ml of nutrient Agar was prepared. 1ml of sample were using spread plate technique. Incubated for 24 hrs. After 24 hrs the isolated bacteria was used for the production of secondary metabolites.

*Corresponding author: Vijayalakshmi Selvakumar,
PG & Research, Department of Microbiology, Shrimati Indhira Gandhi College, Tiruchirappalli

Prevalence and antimicrobial resistance pattern of diarrheagenic *escherichia coli* isolated from actue diarrhoea children

[1] Vijayalakshmi Selvakumar, [2] Panneerselvam A, [3] Subashini G, [4] Bhuvaneswari S, [5] Arockia Suganya S
[1] Assistant Professor, PG & Research Department of Microbiology, Shrimati Indira Gandhi College, Trichy, Tamil Nadu, India
[3] PG & Research Department of Microbiology, Shrimati Indira Gandhi College, Trichy, Tamil Nadu, India
[2] Associate Professor, PG & Research Department of Botany & Microbiology, AVVM Sri Pushpam College, Poondi,
Thanjavur, Tami Nadu, India

Abstract

Diarrhea is one of the causes of the uppermost mortality and morbidity in children, predominantly in children younger than 5 years. In world, 6 million children die each year from diarrhoea, where the common deaths come about in developing countries. In present study Prevalance and Antimicrobial resistance Pattern of Diarrheagenic *Escherichia coli* Isolated From Acute Diarrhea children were studied. A total of 27 under-five years old children who included in this study the minimum age of cases was less than 12 months and the maximum age was 60 months. Among 27 isolates, all were resistant to amphicillin/claxacillin, cefdinir, Entine, ceftazidime, cefuroxime, cephalexin and co-trimoxazole. The MDR isolate AS-13 was selected for further investigations and characterization. Most of the *E. coli* isolates showed multiple drug resistance and measures such as observation of appropriate normal hygiene by children. mother's behavior and environmental condition, use of effective disinfectants in reducing the normal pathogenic organisms in house and so forth. Prescribers should be well-known with local antibiotic sensitivity profiles and should conform to the local antibiotic guide-lines. A hospital antibiotic policy should be formulated based on local antimicrobial resistance data. Prescribers should be educated about the use of antibiotics, when not to use them and also the infection control strategies.

Keywords: *E.coli*, Antimicrobial resistance, actue diarrhea

Introduction

Mortality due to diarrhoea in developing countries is estimated have declined from 4.6 million deaths in 1982 to 2 million deaths in 2003 (WHO, 2003), which translates to 18% of deaths of children under the age of 5 between 2000-2003 (Boschi, 2010), mostly among young children in developing countries (Kermani, 2010). In mainly diarrhoeal deaths in the world were 0.212 million in 2010 (Liu *et al.*, 2012). Although mortality due to acute diarrhoea in children has decreased both in developed and developing countries in recent years after the introduction of oral dehydration solution. Those associated with persistent diarrhoea occur in malnourished children and usually disproportionately high, accounting for up to 45% of diarrhoeal deaths in Brazil, Bangladesh and in several other countries (Prescott *et al.*, 2002).

Acute diarrhea remains as one of the most prevalent diseases among young children in developing countries in spite of the growing knowledge achieved in recent years. Even though programs sponsored by World Health Organization (WHO) and other improvements on the quality of life of several countries have succeeded in decreasing mortality rates, the incidence of diarrhea in children younger than five years in many countries remains high, at 3.2 cases per child per and rates can be as high as 11 episodes of diarrhea per year in extremely poor areas (Guerrant *et al.*, 1983).

At the end of 20th century, 2.5 million deaths are estimated to have occurred worldwide each year, making diarrhea responsible for 21% of deaths of children younger than five years old (Kosek *et al.*, 2003).

Materials and methods

This study entitled "Prevalence and antimicrobial resistance pattern of diarrhegenic *E.coli* isolated from acute diarrhea children" was carried out in Poultech Agro Research Centre, Namakkal during December 2016- March 2017.

Study Design

This was a comparative cross-sectional study that examined socioeconomic and environmental factors of children as exposure variables and *Escherichia coli* in diarrhoeal stool samples as an outcome variable. The study attempted to compare these variables in the children below the age group of 5 years in Mettutheru, Namakkal district, Tamil Nadu, India and was conducted from Dec-2016 to Jan-2017.

Sampling Technique and Sample Size

The data obtained by conducting interviews and diarrhoeal sample of respondents who have been determined (Questionnaire in Table - 1). The sample size of diarrhoeal sample was 27 for the isolation of *Escherichia coli*.

CrossMark

Impact of farm-made liquid organic nutrients jevamirtham and fish amino acid on growth and nutritional status in different season of *Abelmoschus esculentus*—a self-sustainable field trial

Rajapandiyan Krishnamoorthy · Ali A Alshatwi · Shanthi Subbarayan · Bharathi Vadivel · Vaiyapuri Subbarayan Periyasamy · Mohammed A. Al-Shuniaber · Jegan Athinarayanan

Abstract In organic agriculture, jeevamirtham (J) and fish amino acids (FAA) (Liquid organic nutrient bioformulations—LONBFs) were used to improve the plant growth and soil fertility. The effect of J and FAA in combination on the growth, nutritional status, and yield of plant has not been scientifically evaluated. In this study, liquid organic preparations of J and FAA were prepared and applied to okra plants individually and in combination (J + FAA). The experimental fields were designed as T1—untreated control field, T2—chemical fertilizer treated field, T3—jeevamirtham-treated field, T4—fish amino acid-treated field, and T5—mixture of jeevamirtham and fish amino acid-treated field. Microbial population and growth parameters were significantly increased in the T3, T4, and T5 fields. Higher chlorophyll, carbohydrate, and protein contents and more fruits were observed in plants from the T3, T4, and T5 fields than in plants from T2 and T1. The most favorable results were recorded in the J+FAA-treated field (T5). Results showed that LONBFs enhanced the beneficial microbial flora and fauna, higher yields, and nutritional products compared with chemical fertilizer and untreated fields. Hence, this eco-friendly LONBF could be added as an integral component to reduce the impact of chemical fertilizer in modern agriculture practice.

Keywords Jeevamirtham · Fish amino acid · Liquid organic nutrient bioformulations (LONBF) · Biochemical analysis

R. Krishnamoorthy (✉) · A. A. Alshatwi ·
V. S. Periyasamy · J. Athinarayanan
Nanobiotechnology and Molecular Biology Research Lab,
Department of Food Science and Nutrition, College of Food and
Agriculture Sciences, King Saud University, Riyadh 11541,
Kingdom of Saudi Arabia
e-mail: rjpandiyank@gmail.com

S. Subbarayan
Department of Microbiology, Shrimati Indira Gandhi College,
Trichirappalli, Tamilnadu, India

B. Vadivel
Department of Biochemistry, Shrimati Indira Gandhi College,
Trichirappalli, Tamilnadu, India

M. A. Al-Shuniaber
Department of Food Science and Nutrition, College of Food and
Agriculture Sciences, King Saud University, Riyadh 11541,
Kingdom of Saudi Arabia

Introduction

In modern agriculture system, usage of chemical agro-inputs has dramatically increased in most of the tropical and subtropical countries. According to an annual survey for agricultural crops conducted by the US Department of Agriculture (USDA) National Agricultural Statistics Service (NASS) and from the Economic Research Service (ERS), consumption of the three major fertilizer nutrients increased from 46.2 nutrient pounds per acre per year (lbs/acre/year) in 1960 to a peak of 146 lbs/acre/

Springer

CrossMark

Impact of farm-made liquid organic nutrients jevamirtham and fish amino acid on growth and nutritional status in different season of *Abelmoschus esculentus*—a self-sustainable field trial

Rajapandiyan Krishnamoorthy · Ali A. Alshatwi · Shanthi Subbarayan · Bharathi Vadivel · Vaiyapuri Subbarayan Periyasamy · Mohammed A. Al-Shuniaber · Jegan Athinarayanan

Abstract In organic agriculture, jevamirtham (J) and fish amino acids (FAA) (Liquid organic nutrient bioformulations—LONBFs) were used to improve the plant growth and soil fertility. The effect of J and FAA in combination on the growth, nutritional status, and yield of plant has not been scientifically evaluated. In this study, liquid organic preparations of J and FAA were prepared and applied to okra plants individually and in combination (J + FAA). The experimental fields were designed as T1—untreated control field, T2—chemical fertilizer treated field, T3—jeevamirtham-treated field, T4—fish amino acid-treated field, and T5—mixture of jeevamirtham and fish amino acid-treated field. Microbial population and growth parameters were significantly increased in the T3, T4, and T5 fields. Higher chlorophyll, carbohydrate, and protein contents and more fruits were observed in plants from the T3, T4, and T5 fields than in plants from T2 and T1. The most favorable results were recorded in the J+FAA-treated field (T5). Results showed that LONBFs enhanced the beneficial microbial flora and fauna, higher yields, and nutritional products compared with chemical fertilizer and untreated fields. Hence, this eco-friendly LONBF could be added as an integral component to reduce the impact of chemical fertilizer in modern agriculture practice.

Keywords Jeevamirtham · Fish amino acid · Liquid organic nutrient bioformulations (LONBF) · Biochemical analysis

R. Krishnamoorthy (✉) · A. A. Alshatwi · V. S. Periyasamy · J. Athinarayanan
Nanobiotechnology and Molecular Biology Research Lab, Department of Food Science and Nutrition, College of Food and Agriculture Sciences, King Saud University, Riyadh 11541, Kingdom of Saudi Arabia
e-mail: rjpandiyank@gmail.com

S. Subbarayan
Department of Microbiology, Shrimati Indira Gandhi College, Trichirappalli, Tamilnadu, India

B. Vadivel
Department of Biochemistry, Shrimati Indira Gandhi College, Trichirappalli, Tamilnadu, India

M. A. Al-Shuniaber
Department of Food Science and Nutrition, College of Food and Agriculture Sciences, King Saud University, Riyadh 11541, Kingdom of Saudi Arabia

Introduction

In modern agriculture system, usage of chemical agro-inputs has dramatically increased in most of the tropical and subtropical countries. According to an annual survey for agricultural crops conducted by the US Department of Agriculture (USDA) National Agricultural Statistics Service (NASS) and from the Economic Research Service (ERS), consumption of the three major fertilizer nutrients increased from 46.2 nutrient pounds per acre per year (lbs/acre/year) in 1960 to a peak of 146 lbs/acre/

CHEMICAL CHARATERISATION OF GCMS ANALYSIS OF TABERNAEMONTANA DIVARICATA

V. Bharathi[1], A. Vijaya Anand[2], P. Anitha[3] and S. Shanthi[4]

[1,3,4]Department of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu.
[2]Department of The Human Genetics and Molecular Biology, Bharathiyar University, Coimbatore, Tamilnadu.

*Corresponding Author: V. Bharathi

Department of Biochemistry, Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu.

ABSTRACT
Medicinal plants have been used as an exemplary source for centuries as an alternative remedy for treating human diseases because they contain numerous active constituents of therapeutic value. The present study was carried out to identify the phytochemical components of the *Tabernaemontana divaricata* using ethanol, chloroform and water extract. The phytochemical screening showed the presence of alkaloids, tannins, steroids, flavonoids, saponins, tannins and phenolics. In GC MS, the mass spectrum of the unknown component was compared and interpreted with the spectrum of the known components stored in the National Institute Standard and Technology (NIST) library. The presence of various bioactive compounds justifies the use of the plant for various ailments by traditional practitioners.

KEYWORDS: *Tabernaemontana divaricata*, phytochemical, GC MS, NIST library.

INTRODUCTION
Medicinal plants have been identified and used throughout human history. Plants have the ability to synthesize a wide variety of chemical compounds that are used to perform important biological functions, and to defend against attack from predators such as insects, fungi and herbivorous mammals. At least 12,000 such compounds have been isolated so far, a number estimated to be less than 10% of the total. Chemical compounds in plants mediate their effects on the human body through processes identical to those already well understood for the chemical compounds in conventional drugs; thus herbal medicines do not differ greatly from conventional drugs in terms of how they work. This enables herbal medicines to be as effective as conventional medicines, but also gives them the same potential to cause harmful side effects.

Collection of Plant Material
The healthy plant samples of *Tabernaemontana divaricata* was collected from Trichy. The collected plant materials were transported to the laboratory. The plant materials were identified and authenticated at Department of Botony, St. Joseph's college, Trichy.

Preparation of Leaf Powder
The leaves of *Tabernaemontana divaricata* was collected, washed and cut into small pieces and dried at room temperature for two weeks and made in to powder for further analysis.

Extraction of Plant Material
Anand, *et al.,* (2012) Aqueous, chloroform and alcoholic extracts were prepared according to the methodology of Indian Pharmacopoeia. The shady dried plants materials were subjected to pulverization to get coarse powder. The coarse powder material was subjected to soxhlet extraction separately and successively with alcohol and distilled water. These extracts were concentrated to dryness in flash evaporator under reduced pressure and controlled temperature (40-50°C). The aqueous and alcohol extracts put in air tight containers stored in a refrigerator.

Phytochemical screening
Evan *et al.,* (2002), The *Tabernaemontana divaricata* was tested for steroids, alkaloids, sugar, phenolic compounds, flavonoids, saponins, tannins, anthraquinone and amino acids. Phytochemical screening of the extract was carried out according to the standard method.

GCMS analysis
Merlin *et al.,* (2009), The GCMS analysis of ethanolic crude extract of *Tabernaemontana divaricata* was performed using a GCMS equipment Thermo GC-TRACE ultra ver: 5.0, Thermo MS DSQ II. Experimental conditions of GCMS system were as

RESTRICTION FRAGMENT LENGTH POLYMORPHISM ANALYSIS OF *RHIZOBIUM* SP. ISOLATED FROM *DOLICHOUS LABLAB*

Dr. K. Anandhi*

Head, PG and Research Department of Microbiology, Shrimati Indira Gandhi College, Tiruchirappalli, Tamilnadu, India-620 002.

*Corresponding Author
Dr. K. Anandhi
Head, PG and Research
Department of
Microbiology, Shrimati
Indira Gandhi College,
Tiruchirappalli,
Tamilnadu, India-620 002.

ABSTRACT

RFLP analysis is a technique used to identify patterns that occur in DNA. No two organisms have identical DNA, so this procedure can be used to identify if a sample of DNA came from a particular individual. *Dolichous lablab* is known for its dietary protein source, medicinal properties and symbiotic nitrogen fixation by *Rhizobium* present in its root nodules. *Rhizobium* sp. was identified by biochemical methods from root nodules of *Dolichous lablab*. High molecular weight range of R1, R2 and R3 lies between 4.07 to 3.05 kbp. RFLP assay with restriction endonuclease *EcoRI* used to distinguish among the three species. This RFLP assay provides an inexpensive and simple means of identifying the *Rhizobium* sp. RFLP analysis of R1, R2 and R3 confirm the genetic variation of the species. Genetic diversity can be identified within breeding populations in plants and animals.

KEYWORDS: RFLP-Restriction Fragment Length Polymorphism, Genetic diversity, Restriction Endonuclease, *Rhizobium*, *Dolichous lablab*, SDS- Sodium Dodecyl Sulfate.

INTRODUCTION

Dolichous lablab is a twining vine (climbing or trailing plant) belongs to the family *Fabaceae*. *Rhizobia* are soil bacteria that fix nitrogen after becoming established inside root nodule (Wilson., 1970). These are the site of Nitrogen fixation and can be used as a biofertilizer, help in reducing the dosage of nitrogenous fertilizers like urea and increases the protein content of the seeds. It also provides nitrogen to plant and increases yield.

Original article

Effect of Macrotyloma uniflorum on antiobesity in rats fed with a high fat diet

Bharathi Vadivelu [a], Vijaya Anand Arumugam [b], Shanthi Subbarayan [c], Ali A. Alshatwi [d], Rajapandiyan Krishnamoorthy [d,*]

[a] Department of Biochemistry, Bharathiyar University, Coimbatore, Tamil Nadu, India
[b] Department of Human Genetics and Molecular Biology, Bharathiyar University, Coimbatore, Tamil Nadu, India
[c] Department of Microbiology, Shrimati Indira Gandhi College, Tiruchirapalli, Tamil Nadu, India
[d] Nanobiotechnology and Molecular Biology Research Lab, Department of Food Science and Nutrition, College of Food and Agriculture Sciences, King Saud University, Riyadh 11541, Saudi Arabia

1. Introduction

Obesity is a universal health burden develops from an inequity between food consumption and energy disbursement which causes excessive deposition of fat in adipose tissue, liver tissue, muscle, pancreatic islets and other organs involved in metabolism results in dyslipidaemia, glucose intolerance, coronary heart disease, diabetes, hypertension, non-alcoholic fatty liver disease and cancer (Isabelle et al., 2017). Globally, 600 million people are obese and 1.9 billion adults are overweight (Jian Bing et al., 2016). Fat absorption process is mediated by pancreatic lipase (PL) and militarization of fat stored in adipose tissues is mediated by triglyceride lipase (TGL) (Rudolf et al., 2012). Lifestyle modification and high energy diet have increase the incidence of obesity (Hasani et al., 2013) There are several antiobesity drugs are available, however, they have perilous side effects and hence medicinal plant including crude extracts and isolated compound from plant can be used to induce weight loss and prevent diet induced obesity (Matson and Fallon, 2012). The potential of natural products against obesity is still largely unexplored and can be an excellent alternative for the safe and effective antiobesity drugs from natural origin.

Macrotyloma uniflorum traditionally used as an antiobesity natural food supplement's in India. It belongs to the family Fabaceae and has been used in ethnomedicine for treating haemorrhoids, tumours, bronchitis, cardiopathy, nephrolithiasis, urolithiasis, splenomegaly, strangury, hiccough, ophthalmopathy, verminosis, kidney stones, inflammation, and liver-related abnormalities (Bigoniya et al., 2014). As an effort to evaluate scientifically on.

the ethanolic extract of M. uniflorum leaves (EEMUL), ethanolic extract of M. uniflorum seeds (EEMUS), and ethanolic extract of M. uniflorum seeds and leaves combination (EESLC) against obesity. The preliminary investigation was carried out on in vitro inhibitory activity of fractions against PL. The potent PL inhibitor fractions was further characterised by in vivo anti-obesity including food intake, body weight, blood serum lipid profile and hepatoprotective potential on high fat diet (HFD) induced male albino Wistar rats.

2. Materials and methods

2.1. Plant collection and extraction

M. uniflorum leaves and seeds were collected from organic cultivation field and authenticated by Rapinat Herbarium, Trichy, Tamil Nadu, India (voucher number VB001) for future reference. The extraction was performed by standard procedure (Sasidharan et al., 2011) using coarse powder of M. uniflorum seed, leaves and mixture. 100 g of each coarse powder suspended separately in 300 mL of ethanol. The extract was filter through 420-μm stainless steel filter and excess solvent was removed by rotary evaporator and recovered yields were 22.4% ± 1.25 (leaves), 19.5% ± 2.07 (seed) and 56.8% ± 1.65 (leaf and seed) and all the filtrate was stored at 4 °C until further use.

2.2. In-vitro pancreatic lipase inhibition assay

An assay of PL activity was performed by standard method, described by Moreno et al. (2003), with some modification. Briefly, different concentrations (250, 500, 1000, and 2000 mg/mL) of EEMUS, EEMUL and EESLC added separately to test tubes contain Tris-HCl buffer and incubated for 3 min at 37 °C and then 0.5 mL aliquot of porcine PL (250 mg/mL; type II, Sigma Chemical Co.) was added to each test tube to initiate the reactions. After 30 min of incubation, all the test tube was immersed in boiling water for 2 min to stop the reaction and then cooled. The free fatty

* Corresponding author.
E-mail address: krishnamoorthy@ksu.edu.sa (R. Krishnamoorthy).
Peer review under responsibility of King Saud University.

INTERNATIONAL JOURNAL OF RESEARCH –
GRANTHAALAYAH
A knowledge Repository
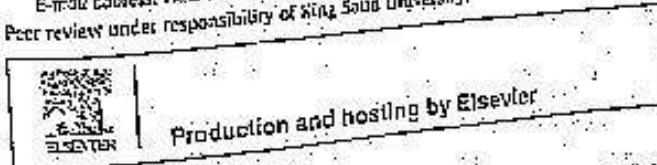
Science

ON THE POSITIVE PELL EQUATION $Y^2 = 72X^2 + 36$

M.A.Gopalan [1], A.Kavitha [2], A.Jesintha Mary [3]
[1] Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620 002, India
[2] Assistant Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620 002, India
[3] M.Phil Scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620 002, India

Abstract

The binary quadratic equation represented by the positive pellian $y^2 = 72x^2 + 36$ is analysed for its distinct integer solutions. A few interesting relations among the solutions are given. Further, employing the solutions of the above hyperbola, we have obtained solutions of other choices of hyperbolas, parabolas and special Pythagorean triangle.

Keywords: Binary Quadratic; Hyperbola; Parabola; Integral Solutions; Pell Equation.

1. Introduction

The binary quadratic equation of the form $y^2 = Dx^2 + 1$ where D is non-square positive integer has been studied by various mathematicians for its non-trivial integral solutions when D takes different values [1-4]. For an extensive review of various problems, one may refer [5-20]. In this communication, yet another interesting hyperbola given by $y^2 = 72x^2 + 36$ is considered and infinitely many integer solutions are obtained. A few interesting properties among the solutions are presented.

2. Method of Analysis

Consider the binary quadratic equation

$$y^2 = 72x^2 + 36 \tag{1}$$

whose smallest positive integer solution is $x_0 = 2, y_0 = 18$

Observations on the hyberbola $y^2 = 150x^2 + 16$

Dr. G.Sumathi
Assistant Professor, Department of Mathematics, Shrimathi Indira Gandhi College, Trichy-600002.

Abstract : The binary quadratic equation $y^2 = 150x^2 + 16$ is considered and a few interesting properties among the solutions are presented.

Mathematics Subject Classification: 11D09

Keywords: Binary quadratic, Integral solutions, Generalized Fibonacci Sequences, Generalized Lucas Sequences

I. NOTATIONS

$t_{m,n}$	:	Polygonal number of rank n with size m
P_n^m	:	Pyramidal number of rank n with size m
Pr_n	:	Pronic number of rank n
S_n	:	Star number of rank n
$Ct_{m,n}$	:	Centered Pyramidal number of rank n with size m
$GF_n(k,s)$	:	Generalized Fibonacci Sequences
$GL_n(k,s)$	:	Generalized Lucas Sequences

II. INTRODUCTION

The binary quadratic equation of the form $y^2 = Dx^2 + 1$ where D is non-square positive integer has been studied by various mathematicians for its non-trivial integral solutions when D takes different integral values [1,2,3,4]. In [5] infinitely many Pythogorean triangles in each of which ypotenuse is four times the product of the generators added with unity are obtained by employing the non-integral solutions of binary quadratic equation $y^2 = 3x^2 + 1$. In [6], a special Pythogorean triangle is obtained by employing the integral solutions of $y^2 = 10x^2 + 1$. In [7], different patterns of infinitely many Pythogorean triangles are obtained by employing the non-integral solutions of $y^2 = 12x^2 + 1$. In this context one may also refer [8-14]. These results have motivated us to search for the integral solutions of yet another binary quadratic equation $y^2 = 150x^2 + 16$ representing a hyberbola. A few interesting properties among the solutions are presented.

III. METHOD OF ANALYSIS

The binary non-homogeneous quadratic diophantine equation represents a hyberbola to be solved for its non-zero integral solutions is

$$y^2 = 150x^2 + 16 \qquad (1)$$

whose initial solution is $x_0 = 16, 196$ $\qquad (2)$

Observations on the equation
$y^2 = 312x^2 + 1$

Dr. G.Sumathi, *M.Sc., M.Phil.,B.Ed.,Ph.D.,SET.,*
Assistant Professor, Department of Mathematics,
Shrimati Indira Gandhi College,Trichy-620002.

ABSTRACT

The binary quadratic equation $y2=312x2+1$ is considered and a few interesting properties among the solutions are presented. Employing the integral solutions of the equation under consideration, a few patterns of Pythagorean triangles and rectangles are observed.

Mathematics Subject Classification: 11D09

Keywords: *Binary, Quadratic, Pyramidal number, Integral Solutions.*

NOTATIONS

$t_{m,n}$: Polygonal number of rank n with size m

P_n^m : Pyramidal number of rank n with size m

$GF_n(k,s)$: Generalized Fibonacci Sequences of

rank n.

$GL_n(k,s)$: Generalized Lucas Sequences of

rank n

INTRODUCTION:

The binary quadratic equation of the form $y^2 = Dx^2 + 1$ where D is non-square positive integer has been studied by various mathematicians for its non-trivial integral solutions when D takes different integral values [1,2,3,4].In [5] infinitely many Pythagorean triangles in each of which hypotenuse is four times the product of the generators added with unity are obtained by employing the non-integral solutions of binary quadratic equation $y^2 = 3x^2 + 1$.In [6],a special Pythagorean triangle is obtained by employing the integral solutions of $y^2 = 10x^2 + 1$. In [7], different patterns of infinitely many Pythagorean triangles are obtained by employing the non-integral solutions of $y^2 = 12x^2 + 1$.In this context one may also refer [8-14]. These results have motivated us to search for the integral solutions of yet another binary quadratic equation $y^2 = 312x^2 + 1$ representing a hyperbola. A few interesting properties among the solutions are presented. Employing the integral solutions of the equation under consideration a few patterns of Pythagorean triangles are obtained.

METHODS OF ANALYSIS:

The binary quadratic equation representing a hyperbola is

$$y^2 = 312x^2 + 1 \qquad (1)$$

The smallest positive integer solution to (1) is

$$x_0 = 3, y_0 = 53$$

By applying Brahmagupta method,the general solution of (1) is given by

$$y_n = \frac{1}{2}\left((53+3\sqrt{312})^{n+1} + (53-3\sqrt{312})^{n+1}\right)$$

$$x_n = \frac{1}{2\sqrt{312}}\left((53+3\sqrt{312})^{n+1} - (53-3\sqrt{312})^{n+1}\right)$$

where $n = 0,1,2,3,4..........$

A few numerical examples are presented in the table below:

n	x_n	y_n
0	3	53
1	318	5617
2	33705	595349
3	3272412	63101377
4	378641967	6688150613
5	40132476090	708880863601
6	4253663823573	75134683391093

The recurrence relations satisfied by the values of x_n and y_n are respectively,

Journal of
Mathematics and Informatics

On Negative Pellian Equation $y^2=40x^2$-15

P. Abinaya[1] and S. Mallika[2]

Department of Mathematics, SIGC, Trichy-620002, Tamilnadu, India.
Tamilnadu, India.
[1]e-mail: abinavapalani01@gmail.com; [2]e-mail: smallika65@gmail.com

Abstract. The binary quadratic equation represents by negative Pellian $y^2 = 40x^2 - 15$ is analyzed for its distinct integer solutions. A few interesting relations among the solution are given. Further, employing the solutions of the above hyperbola, we have obtained solutions of other choices of hyperbolas, parabolas and Pythagorean triangle.

Keywords: Binary quadratic, Hyperbola, Parabola, Integral solutions, Pell equation.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
The binary quadratic Diophantine equations (both homogeneous and non-homogeneous) are rich in variety. In [1-16] the binary quadratic non-homogeneous equations representing hyperbolas respectively are studied for their non-zero integral solutions. This communication concerns with yet another binary quadratic equation given by $y^2 = 40x^2 - 15$. The recurrence relations satisfied by the solutions x and y are given. Also a few interesting properties among the solutions are exhibited.

2. Method of analysis
The negative Pell equation representing hyperbola under consideration is

$$y^2 = 40x^2 - 15 \tag{1}$$

whose smallest positive integer solution is

$$x_0 = 1 \text{ and } y_0 = 5$$

To obtain the other solution of (1), consider the Pell equation $y^2 = 40x^2 + 1$ whose solution is given by

$$\tilde{x}_n = \frac{1}{2\sqrt{40}} g_n$$

$$\tilde{y}_n = \frac{1}{2} f_n$$

where

$$f_n = (19 + 3\sqrt{40})^{n+1} + (19 - 3\sqrt{40})^{n+1}$$

Observation on the Non-Homogeneous Binary Quadratic Diophantine Equation $5x^2-6y^2=5$

K.Ambika[1] and *T.R.Usha Rani[2]*

Department of Mathematics, SIGC, Trichy-620002, Tamilnadu, INDIA.
[1]e-mail:ambikasri2194@gmail.com
[2]e-mail:usharanisigc@gmail.com

Abstract. Non-homogeneous binary quadratic equation represents hyperbola given by $5x^2 - 6y^2 = 5$ is analyzed for its non-zero distinct integer solutions. A few interesting relation between the solution of the given hyperbola, integer solutions for other choices of hyperbola and parabola are obtained.

Keywords: Non-homogeneous quadratic, binary quadratic, integer solutions.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction

The binary quadratic Diophantine equations of the form $ax^2 - by^2 = N, (a, b, N \neq 0)$ are rich in variety and have been analyzed by many mathematicians for their respective integer solutions for particular values of a, b and N. In this context, one may refer [1-13].

This communication concerns with the problem of obtaining non-zero distinct integer solutions to the binary quadratic equation given by $5x^2 - 6y^2 = 5$ representing hyperbola. A few interesting relations among its solutions are presented. Knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

2. Method of analysis

The Diophantine equation under consideration is
$$5x^2 - 6y^2 = 5 \tag{1}$$

It is to be noted that (1) represent a hyperbola
Taking $x = X + 6T$, $y = X + 5T$ $\tag{2}$

In (1), it reduced to the equation
$$X^2 = 30T^2 - 5 \tag{3}$$

The smallest positive integer solution (T_0, X_0) of (3) is

Journal of
Mathematics and Informatics

Observation on the Non-Homogeneous Ternary Quadratic Equation $x^2-xy+y^2+2(x+y)+4=12z^2$

N. Bharathi[1] and S. Vidhyalakshmi[2]

Department of Mathematics, Shrimathi Indira Gandhi College
Trichy-2, Tamil Nadu, India.
[1]E-mail: bharathiakilla95@gmail.com; [2]E-mail: vidhyasigc@gmail.com

Abstract. A search is made for obtaining infinitely many non-zero distinct integer solutions to the non-homogeneous quadratic equation given by $x^2-xy+y^2+2(x+y)+4=12z^2$. Different choices of integer solution to the above equation are obtained. A few interesting relations between the solutions and special polygonal numbers are obtained.

Keywords: Non-homogeneous quadratic, ternary quadratic integer solution

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
The Diophantine equations offer on unlimited field for research due to their variety [1-3]. In particular, one may refer [4-8] for quadratic equations with three unknowns. This communication concerns with yet another interesting equation $x^2-xy+y^2+2(x+y)+4=12z^2$ representing non-homogeneous quadratic equation with three unknowns for determining its infinitely many non-zero integral points. Also, few interesting relations among the solutions are presented.

2. Notation
I. Polygonal number of rank n with sides m

$$t_{m,n} = n\left[1+\frac{(n-1)(m-2)}{2}\right]$$

2. Pronic number of rank n
$$pRn = n(n+1)$$

3. Centered hexagonal pyramidal number of rank n
$$cP_{n,6} = n^3$$

4. Square number of rank n
$$t_{4,n} = n^2$$

Journal of
Mathematics and Informatics

Integral Points on the Cone $7x^2-3y^2=16z^2$

B. Deebika[1] and G. Sumathi[2]

Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2,
Tamilnadu, India. Tamilnadu, India.
[1]e-mail: deebikabalraj143@gmail.com; [2]e-mail: b.deepacharan@gmail.com

Abstract. The cone represented by the ternary quadratic Diophantine equation $7x^2-3y^2=16z^2$ is analyzed for its patterns of non-zero distinct integral solutions. A few interesting properties between the solutions and special polygonal numbers are exhibited.

Keywords: Ternary quadratic, cone, integral solutions.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction

The ternary homogeneous quadratic Diophantine equation offers an unlimited field for research because of their variety [1-2]. For an extensive review of various problems, one may refer [3-5]. In this context one may also see [6-9] for integer solutions satisfying special three dimensional graphical representation. This communication concerns with yet another interesting ternary quadratic equation $7x^2-3y^2=16z^2$ representing a cone for determining its infinitely many non zero integer solutions. A few interesting properties among the solution and special numbers are presented. Also, given an integer solution, three different triples of integer generating infinitely many integer solutions are exhibited.

2. Notations used

- Polygonal number of rank n with size m

$$T_{m,n} = n[1 + \frac{(n-1)(m-2)}{2}]$$

- Pyramidal number of rank n with size m

$$P_n^m = \frac{1}{6}[n(n+1)][(m-2)n+(5-m)]$$

- Pronic number of rank n

$$\mathrm{Pr}_n = n(n+1)$$

- Centered polygonal number of rank n with m

Journal of
Mathematics and Informatics

On the Binary Quadratic Diophantine Equation $y^2 = 80x^2 - 16$

M.Devi[1] and T.R.Usha Rani[2]

[1]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, Tamilnadu, India. e-mail: swethadev12345@gmail.com
[2]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, Tamilnadu,India.e-mail: usharanisigc@gmail.com

Abstract. The Binary quadratic negative pell equation $y^2 = 80x^2 - 16$ representing a hyperbola is analyzed for its non-zero integer solutions. A few interesting relations among its solutions are presented. Further, employing the solutions of the above equation, we have obtained solutions of other choices of hyperbolas, parabolas and special pythogorean triangles.

Keywords: Binary quadratic, hyperbola, parabola, negative pell equation, integral solutions.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
The binary quadratic diophantine equations (both homogeneous and non-homogeneous) are rich in variety. In [1-8] the binary quadratic non-homogeneous equations representing hyperbolas respectively are studied for their non-zero integral solutions. This communication concerns with yet another binary quadratic equation given by $y^2 = 80x^2 - 16$. The recurrence relations satisfied by the solutions x and y are given. Also a few interesting properties among the solutions are exhibited. Further, employing the solutions of the above hyperbola, we have obtained solutions of other choices of hyperbolas, parabolas and special pythogorean triangles.

2. Method of analysis:
The negative pell equation representing hyperbola under consideration is

$$y^2 = 80x^2 - 16 \tag{1}$$

whose smallest positive integer solution is $x_0 = 1, y_0 = 8$.

To obtain the other solutions of (1), consider the pell equation $y^2 = 80x^2 + 1$ whose solution is given by

$$\tilde{x}_n = \frac{1}{2\sqrt{80}} g_n$$

$$\tilde{y}_n = \frac{1}{2} f_n$$

On the Non-Homogeneous Cubic Equation with Four Unknowns $x^2 - y^2 = z^3 + w^3$

S.Dharuna[1] and D.Maheswari[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India.
[1]e-mail: s_dharuna@yahoo.com; [2]e-mail:matmahes@gmail.com

Abstract. An attempt has been made to determine four non-zero distinct integers x, y, z and w such that the difference of squares of any two integers equals the sum of the cubes of other two integers. A few relations among x, y, z and w are presented. A general formula for generating sequence of integer solutions based on the given solution is also presented.

Keywords: non-homogeneous cubic, cubic with four unknowns, integer solutions

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction
Integral solutions for the non-homogeneous Diophantine cubic equation is an interesting concept as it can be seen from [1,2,3]. In [4-8], a few special cases of cubic Diophantine equations with three and four unknowns are studied. In this communication, we present the integral solutions of an interesting cubic equation with four unknowns $x^2 - y^2 = z^3 + w^3$. A few remarkable relations between the solutions are presented.

2. Notations
$t_{3,n} = \dfrac{n(n+1)}{2}$ = Triangular number of rank n

$t_{4,n} = n^2$ = Square number of rank n

$t_{6,n} = n(2n-1)$ = Hexagonal number of rank n

$PR_n = n(n+1)$ = Pronic number of rank n

$G_n = 2n-1$ = Gnomonic number of rank n

$Ct_{m,n} = \dfrac{mn(n-1)+2}{2}$ = Centered polygonal number of rank n with m sides.

$CP_{n,6} = n^3$ = Centered hexagonal pyramidal number of rank n.

$CP_{n,5} = \dfrac{n^3+n}{2}$ = Centered pentagonal pyramidal number of rank n

Journal of
Mathematics and Informatics

Observations on the Hyperbola $y^2=182x^2+14$

R.Divyabharathi[1] and G.Sumathi[2]

Department of mathematics, Shrimati Indira Gandhi College
Trichy-2,Tamil Nadu, India.
[1]e-mail: rdivyabharathi013@gmail.com; [2]e-mail: b.deepacharan@gmail.com

Abstract. The binary quadratic equation $y^2 = 182x^2 + 14$ representing hyperbola is considered for finding its integer solutions. A few interesting properties among the solutions are presented. Also, we present infinitely many positive integer solutions in terms of Generalized Fibonacci sequences of numbers, Generalized Lucas sequences of numbers.

Keywords: Binary quadratic integral solutions, generalized Fibonacci Sequences of numbers, generalized Lucas Sequences of numbers.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction

The binary quadratic equation of the form $y^2 = Dx^2 + 1$ where D non-square positive integer has been studied by various mathematicians for its non-trivial integral solutions. when D takes different integral values [1, 2]. In [3] infinitely many Pythagorean triangles in each of which hypotenuse is four times the product of the generators added with unity are obtained by employing the non-integral solutions of binary quadratic equation $y^2 = 3x^2 + 14$. In [4] a, special Pythagorean triangle is obtained by employing the integral solutions of $y^2 = 10x^2 + 1$. In [5] different patterns of infinitely many Pythagorean triangles are obtained by employing the non-integral solutions of $y^2 = 12x^2 + 1$. In this context one may also refer [6-11]. These results have motivated us to search for the integral solutions of yet another binary quadratic equation $y^2 = 182x^2 + 14$ representing a hyperbola. A few interesting properties among the solutions are presented. Employing the integral solutions of the equation under consideration a few patterns of Pythagorean triangles are obtained.

2. Notations

$GF_n(k,s)$: Generalized Fibonacci Sequences of rank n.

$GL_n(k,s)$: Generalized Lucas Sequences of rank n.

Journal of
Mathematics and
Informatics

On the Ternary Quadratic Diophantine Equation
$$5y^2 = 3x^2 + 2z^2$$

D. Hema[1] and S. Mallika[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India. [1]e-mail: hemadhayanithi@gmail.com
[2]e.mail:msmallika65@gmail.com

Abstract. The ternary homogeneous quadratic equation given by $5y^2 = 3x^2 + 2z^2$ is analysed for its non-zero distinct integer solutions. A few interesting relations between the solutions and special polygonal and pyramidal numbers are presented. Also, given a solution, a generation of sequence of solution based on the given solutions are presented.

Keywords: ternary quadratic, integer solutions, homogeneous quadratic, polygonal numbers, pyramidal numbers.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
The Diophantine equations offer an unlimited field for research due to their variety [1-3]. In particular, one may refer [4-9] for quadratic equations with three unknowns. This communication concerns with yet another interesting equation $5y^2 = 3x^2 + 2z^2$ representing homogeneous quadratic equation with three unknowns for determining its infinitely many non-zero integral points. Also, a few interesting relations among the solutions are presented.

2. Notations

$T_{m,n} = n\left(1 + \dfrac{(n-1)(m-2)}{2}\right)$ - Polygonal number of rank n with sides m

$Cl_{m,n} = \dfrac{mn(n-1)+2}{2}$ - Centered Polygonal number of rank n with sides m

$S_n = 6n(n-1)+1$ - Star number of rank n

$PR_n = n(n+1)$ - Pronic number of rank n

$G_n = 2n-1$ - Gnomonic number of rank n

$So_n = n(2n^2-1)$ - Stella octangular number of rank n

$CP_{n,6} = n^3$ - Centered hexagonal pyramidal number of rank n

Journal of
Mathematics and
Informatics

On Homogeneous Cubic Diophantine equation with Four Unknowns $3(x^3+y^3) = 8zp^2$

B. Kiruthika[1] and A. Kavitha[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy, Tamil Nadu, India. [1]e-mail: kirthiraji95@gmail.com
[2]e-mail: kuvithabalasubramanian63@yahoo.com

Abstract. The homogeneous cubic Diophantine equation with four unknowns represented by $3(x^3 + y^3) = 8zp^2$ is analyzed for finding its non-zero distinct integral solutions. Different patterns of solutions of the equation under consideration are obtained the relations between the integer solutions and special numbers namely polygonal number and pyramidal number are exhibited.

Keywords: Homogeneous equation with four unknowns, integral solutions

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction

Integral solutions for the homogeneous Diophantine cubic equation is an interesting concept as it can be seen from [1-3]. In [4-8], a few special cases of cubic Diophantine equations with three and four unknowns are studied. In this communication, we present the integral solutions of an interesting cubic equation with four unknowns $3(x^3 + y^3) = 8zp^2$. A few remarkable relations between the solutions are presented.

2. Notations

1. $t_{3,n} = \dfrac{n(n+1)}{2} = $ Triangular number of rank n

2. $t_{4,n} = n^2 = $ Square number of rank n

3. $CP_{k,6} = n^3 = $ Centered hexagonal pyramidal number of rank n.

3. Method of analysis

The homogeneous cubic equation with four unknowns to be solved is

$$3(x^3 + y^3) = 8zp^2 \qquad (1)$$

Introducing the linear transformations

$$x = u+v, y = u-v, z = 3u, (u \neq v \neq 0) \qquad (2)$$

In (1) leads to

Journal of
Mathematics and Informatics

Observations on the Homogeneous Ternary Cubic Equation with Four Unknowns $3(x^3+y^3)=2zw^2$

J.Kiruthika[1] and T.R.Usha Rani[2]

[1]Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India
[1]e-mail:kiruthi.jj@gmail.com; [2]e.mail:usharanisigc@gmail.com

Abstract. The homogeneous ternary cubic equation given by $3(x^3 + y^3) = 2zw^2$ is analysed for its non-zero distinct integer solutions. A few interesting relations between the solutions and special polygonal and pyramidal numbers are presented.

Keywords: homogeneous cubic, ternary cubic, integer solutions, polygonal numbers, pyramidal numbers.

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction
The Diophantine equation offer an unlimited field for research due to their variety [1-3]. In particular, one may refer [4,5] for cubic equations with three unknowns. In [6-8] cubic equations with four unknowns are studied for its non-trivial solutions. This communication concerns with the problem of obtaining non-zero integral solutions of cubic equation with four variables given by $3(x^3 + y^3) = 2zw^2$. A few properties among the solutions and special numbers are presented.

2. Notations

$t_{m,n} = n\left[1 + \frac{(n-1)(m-2)}{2}\right]$ - Polygonal number of rank n with sides m

$Cl_{m,n} = \frac{mn(n-1)+2}{2}$ - Centered polygonal number of rank n with sides m

$S_n = 6n(n-1)+1$ - Star number of rank n

$PR_n = n(n+1)$ - Pronic number of rank n

$G_n = 2n-1$ - Gnomonic number of rank n

$j_n = 2^n + (-1)^n$ - Jacbosthal-Lucas number of rank n

On The Homogeneous Cubic Equation With Four Unknowns $(x^3+y^3)=7zw^2$

C. Pathmapriya[1] *and G. Sumathi*[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India. [1]e-mail: cspathmapriya025@gmail.com
[2]e-mail: b.deepacharan@gmaill.com

Abstract. The homogeneous cubic equation with four unknowns represented by the Diophantine equation $(x^3 + y^3) = 7zw^2$ is analyzed for its patterns of non-zero distinct integer solutions. A few interesting properties between the solutions and special numbers are exhibited.

Keywords: Homogeneous cubic, cubic with four unknowns, integral solutions.

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction

The Diophantine equation offer an unlimited field for research due to their variety $[1-2]$. In particular, one may refer $[3-7]$ for the cubic equation with three and four unknowns. This communication concerns with yet another interesting equation $(x^3 + y^3) = 7zw^2$ representing homogeneous cubic with four unknowns for determining its infinitely many non-zero integral points, also a few interesting relations among the solutions are presented.

2. Notations

1) Polygonal number of rank 'n' with m sides

$$t_{m,n} = n\left(1 + \left(\frac{(n-1)(m-2)}{2}\right)\right)$$

2) Jacobsthal-Lucas number of rank n

$$j_n = 2^n + (-1)^n$$

3) Pronic number of rank 'n'

$$PR_n = n(n-1)$$

4) Centered Polygonal number of rank 'n' with m sides

Journal of
Mathematics and
Informatics

On the Non-Homogeneous Ternary Quadratic Equation $2(x^2+y^2)-3xy+(x+y)+1=z^2$

A. Priya[1] and S. Vidhyalakshmi[2]

[1]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2, Tamilnadu
INDIA, e.mail: priyaalagesan96@gmail.com
[2]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2, Tamilnadu
INDIA, e.mail: vidhyasigc@gmail.com

Abstract. The non-homogeneous quadratic Diophantine equation represented by $2(x^2+y^2)-3xy+(x+y)+1=z^2$ is studied for its non-zero distinct integer solutions. Four different sets of distinct integer solutions to the above equation are obtained. A few interesting relations between the solutions and special polygonal numbers are presented.

Keywords: Non-homogeneous quadratic, ternary quadratic, integer solutions.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction

The Diophantine equation offer an unlimited field for due to their variety [1 – 3]. In particular, one may refer [4 – 14] for quadratic equations with three unknowns. This communication concerns with yet another interesting homogeneous quadratic equation with three unknowns given by $2(x^2+y^2)-3xy+(x+y)+1=z^2$ for determining its infinitely many non-zero integral points. Also, a few interesting relations among the solutions are presented.

2. Notations

o $\quad t_{m,n} = n^{th}$ term of a regular polygon with m sides

$$= n\left(1 + \frac{(n-1)(m-2)}{2}\right)$$

3. Method of analysis

The ternary quadratic Diophantine equation to be solved for its non-zero distinct integral solution is

$$2(x^2+y^2)-3xy+(x+y)+1=z^2 \qquad (1)$$

Journal of
Mathematics and
Informatics

Observation on the Cubic Diophantine Equation with Four Unknowns $(x^3+y^3)+(x+y)(x+y+1)=zw^2$

T. Priyadharshini[1] and S. Mallika[2]

[1]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2 Tamilnadu
INDIA, e.mail: jpdharshini16@gmail.com
[2]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2 Tamilnadu
INDIA, e.mail: msmallika65@gmail.com

Abstract. The non-homogeneous cubic Diophantine equation represented by $(x^3 + y^3)+(x+y)(x+y+1)= zw^2$ is analyzed for its non-zero distinct integer solutions. A few interesting relations between the solutions and Polygonal numbers, Pyramidal numbers are also presented.

Keywords: Integer solutions, non-homogeneous cubic, Polygonal numbers, Pyramidal numbers.

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction

Integral solution for the Homogeneous or Non- homogeneous Diophantine cubic equation is an interesting concept as it can be seen from [1,2,3]. In [4-11] a few special cases of cubic Diophantine equation with four unknowns are studied. In this communication we present the integral solutions of an interesting cubic equations with four unknowns $(x^3 + y^3)+(x+ y)(x+ y+1) = zw^2$. A few remarkable relations between the solutions are also presented.

2. Notations

$$t_{m,n} = n^{th} \text{ term of a regular polygon with m sides}$$

$$= n\left(1+\frac{(n-1)(m-2)}{2}\right)$$

$$\text{Pr}_n = \text{Pronic number of rank n.}$$

$$=n(n+1)$$

$$S_n = \text{Star number of rank n.}$$

$$= 6n(n-1)+1$$

Journal of
Mathematics and Informatics

On The Positive Pell Equation $y^2 = 90x^2 + 31$

S.Ramya and A.Kavitha

Department of Mathematics, Shrimati Indira Gandhi College,
Trichy-620002, Tamilnadu, India
[1]email: ramyas3692@gmail.com
[2]email: kavithabalasubramanian63@yahoo.com

Abstract. The binary quadratic Diophantine equation represented by the positive pellian $y^2 = 90x^2 + 31$ is analysed for its non-zero distinct solutions. A few interesting relations among the solutions are given. Further, employing the solutions of the above hyperbola, we have obtained solutions of other choices of hyperbolas, parabolas and Pythagorean triangle.

Keywords: Binary quadratic, hyperbola, parabola, integral solutions, pell equation.

AMS Mathematics Subject Classification (2010): 11D09.

1. Introduction

The binary quadratic equation of the form $y^2 = Dx^2 + 1$ where D is non-square positive integer has been selected by various mathematicians for its non-trival integer solutions when D takes different integral values[1-4]. For an extensive review of various problems, one may refer [5-14]. In this communication, yet another an interesting equation given by $y^2 = 90x^2 + 31$ is considered and infinitely many integer solutions are obtained. A few interesting properties among the solutions are presented.

2. Method of analysis

The positive pell equation representing hyperbola under consideration is,

$$y^2 = 90x^2 + 31 \tag{1}$$

The smallest positive integer solutions of (1) are,

$$x_0 = 1, y_0 = 11 \tag{2}$$

The general solution (x_n, y_n) of (1) is given by

$$\tilde{y}_n = \frac{1}{2}f_n, \tilde{x}_n = \frac{1}{2\sqrt{90}}g_n$$

where,

Journal of
Mathematics and Informatics

A Ternary Quadratic Diophantine Equation $x^2+y^2=65z^2$

P.Sasipriya and A. Kavitha

Department of Mathematics, Shrimati Indira Gandhi College
Tiruchirapalli, Tamilnadu, India. 620002
e-mail: spmani1987@gmail.com

Abstract. The Quadratic Diophantine equation with three unknowns represented by $x^2 + y^2 = 65z^2$ is analyzed for finding its non-zero distinct integral solutions. Different patterns of solutions of the equation under consideration are obtained. A few interesting properties among the solutions are presented.

Keywords: Ternary quadratic equation with three unknowns, integral solutions, polygonal numbers, and pyramidal numbers.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
The quadratic Diophantine equation with three unknowns offers an unlimited field for research because of their variety [1-3]. In particular, one may refer [4-16] for quadratic equations with three unknowns. This communication concerns with yet another interesting equation $x^2 + y^2 = 65z^2$ representing homogeneous quadratic Diophantine equation with three unknowns for determining its infinitely many non-zero integral solutions. A few interesting properties among its solutions are given. Also, formulas for generating sequences of integer solutions based on its given solution are presented.

2. Notation

1. $T_{m,n} = n\left[1 + \dfrac{(n-1)(m-2)}{2}\right]$ - Polygonal Number of Rank n with side m.

2. $T_{3,n} = \dfrac{n(n+1)}{2}$ - Triangular Number of Rank n.

3. $PR_n = n(n+1)$ - Pronic Number of Rank n.

4. $Cp_{n,6} = n^3$ - Centered Hexagonal Pyramidal Number of Rank n.

5. $T_{4,n} = n^2$ - Square Number of Rank n.

6. $T_{8,n} = 3n^2 - 2n$ - Octagonal number of Rank n.

Journal of
Mathematics and Informatics

On the Ternary Quadratic Diophantine Equation
$3(x^2+y^2)-5xy+2(x+y)+4=15z^2$

K. Selva Keerthana[1] and S. Mallika[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India. [1]e-mail: kselvakeerthana273@gmail.com
[2]e-mail: msmallika65@gmail.com

Abstract. The ternary non-homogeneous quadratic equation is analysed for its non-zero distinct integer solutions. A few interesting relations between the solutions and special polygonal and pyramidal numbers are presented.

Keywords: Ternary quadratic, integer solutions, non-homogeneous quadratic, polygonal numbers, pyramidal numbers.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
The Diophantine equation offer an unlimited field for research due to their variety [1 – 3]. In particular, one may refer [4 – 12] for quadratic equation with three unknowns. The communication concerns with yet another interesting equation $3(x^2 + y^2) - 5xy + 2(x + y) + 4 = 15z^2$ representing non-homogeneous quadratic equation with three unknowns for determining its infinitely many non-zero integral points. Also, a few interesting relations among the solutions are presented.

2. Notations
1. Polygonal number of rank n with side m

$$t_{m,n} = n\left[1 + \frac{(n-1)(m-2)}{2}\right]$$

2. Gnomonic number of rank n
$$G_n = (2n-1)$$

3. Pronic number of rank n
$$PR_n = n(n+1)$$

4. Centered Hexagonal pyramidal number of rank n
$$CP_{n,6} = n^3$$

Journal of
Mathematics and Informatics

On the Hyperbola $2x^2-3y^2=23$

Sharadha Kumar[1] and M.A. Gopalan[2]

[1]Deptarment of Mathematics, SIGC, Trichy-620002, Tamilnadu, India.
e-mail: sharadhak12@gmail.com
[2]Department of Mathematics, SIGC, Trichy-620002, Tamilnadu, India.
e-mail: mayilgopalan@gmail.com

Abstract. The hyperbola represented by the binary quadratic equation $2x^2-3y^2=23$ is analyzed for finding its non-zero distinct integer solutions. A few interesting relations among its solutions are presented. Also, knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

Keywords: Binary quadratic, Hyperbola, Parabola, Integral solutions, Pell equation.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction

The binary quadratic Diophantine equations of the form $ax^2 - by^2 = N, (a, b, N \neq 0)$ are rich in variety and have been analyzed by many mathematicians for their respective integer solutions for particular values of a, b and N. In this context, one may refer [1-13].

This communication concerns with the problem of obtaining non-zero distinct integer solutions to the binary quadratic equation given by $2x^2 - 3y^2 = 23$ representing hyperbola. A few interesting relations among its solutions are presented. Knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

2. Method of analysis

The binary quadratic equation representing hyperbola is given by

$$2x^2 - 3y^2 = 23 \tag{1}$$

Taking $x = X + 3T, y = X + 2T$ $\tag{2}$

in (1), it simplifies to the equation

$$X^2 = 6T^2 - 23 \tag{3}$$

The smallest positive integer solution (T_0, X_0) of (3) is

Journal of
Mathematics and Informatics

On the Negative Pellian Equation $y^2=110\,x^2-29$

R.Suganya[1] and D.Maheswari[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-620002, Tamilnadu, India.
[1]e-mail: suganyaccc@yahoo.in; [2]e-mail: matmahcs@gmail.com

Abstract. The hyperbola represented by the binary quadratic equation $y^2=110\,x^2-29$ is analyzed for finding its non-zero distinct integer solutions. A few interesting relations among its solutions are presented. Also knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also, employing the solutions of the given equation, special pythagorean triangle is constructed.

Keywords: binary quadratic, hyperbola, negative pell equation, integral solution.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
Diophantine equation of the form $y^2 = Dx^2 + 1$, where D is a given positive square-free integer is known as pell equation and is one of the oldest Diophantine equation that has interested mathematicians all over all the world. since antiquity, J.L Lagrange proved that all positive pell equation $y^2 = Dx^2 + 1$ has infinitely many distinct integer solutions where as the negative pell equation $y^2 = Dx^2 - 1$ does not always have a solution. In [1], an elementary proof of a criterium for the solvability of the pell equation $x^2 - Dy^2 = -1$ where D is any positive non-square integer has been presented. For examples the equations $y^2 = 3x^2 - 1, y^2 = 7x^2 - 4$ have no integer solutions, whereas $y^2 = 65x^2 - 1$, $y^2 = 202x^2 - 1$ have integer solutions. In this context, one may refer [2-12]. More specifically, one may refer "The online encyclopedia of Integer sequences" (A031396, A130226, A031398) for values of D for which the negative pell equation $y^2 = Dx^2 - 1$ is solvable or not. In this communication, the negative pell equation given by $y^2=110x^2-29$ is considered and infinitely many integer solutions are obtained. A few interesting relations among the solution are presented. Also knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also employing the solutions of the given equation, special pythagorean triangle is constructed.

2. Method of analysis

Journal of
Mathematics and Informatics

Integral Solutions of Homogeneous Biquardratic Equations with Five Unknowns
$$2(x^4-y^4)=(z^2-w^2)p^2$$

V.Sunandha[1] and G.Sumathi[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India. [1]Email: sunandhavelu22@gmail.com
[2]email: b.deepacharan@gmail.com

Abstract. An attempt has been made to obtain pattern of non-zero distinct integral solutions to the homogeneous biquadratic equation with five unknowns represented by $2(x^4 - y^4) = (z^2 - w^2)p^2$ is analyzed and various interesting relations between the solutions and special numbers namely polygonal numbers, pyramidal numbers are exhibited.

Keywords: Homogeneous biquadratic, biquadratic with five unknowns, integral solutions.

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction
The Theory of Diophantine Equations offer a rich variety of fascinating problems. In particular biquadratic Diophantine homogeneous and non-homogeneous have aroused the interest of numerous mathematicians. Since antiquity [1−3]. In this context, one may refer [4−7] for various problems on the biquadratic Diophantine equations. However often we come across homogenous biquadratic equations and as such are may require its integral solutions in its required general form this paper concern with the homogenous biquadratic equations with five unknowns equations for determining its infinitely many non-zero integral solutions. Also a few interesting properties among the solutions are presented.

2. Notations
1. Polygonal number of rank n with sides m

$$t_{m,n} = n\left[1 + \frac{(n-1)(m-2)}{2}\right]$$

2. Pronic number of rank n

$$PR_n = n(n+1)$$

Journal of
Mathematics and Informatics

On the Ternary Quadratic Diophantine Equation
$$3(X^2+Y^2)-5XY=75\ Z^2$$

S. Thenmozhi[1] and S. Vidhyalakshmi[2]

Department of mathematics, SIGC, Trichy-2, TamilNadu, INDIA.
[1]e-mail: sthenmozhi720@gmail.com; [2]e-mail: vidhyasigc@gmail.com

Abstract. The ternary quadratic equation given by $3(X^2 + Y^2)-5XY = 75Z^2$ is considered and searched for its many different integer solutions. Four different choices of integer solutions to the above equation are presented. A few interesting relations between the solutions and special polygonal numbers are presented.

Keywords: Ternary quadratic, integer solutions.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction
The Diophantine equations offer an unlimited field for research due to their variety (1-3). In particular, one may refer (4-15) for quadratic equations with three unknowns.

This communication concerns with yet another interesting equation $3(X^2 + Y^2)-5XY = 75Z^2$ representing non-homogeneous quadratic equation with three unknowns for determining its infinitely many non-zero integral points. Also, few interesting relations among the solutions are presented.

2. Notations
- $t_{m,n} = n^{th}$ term of a regular polygon with m sides

$$= n\left(1+\frac{(n-1)(m-2)}{2}\right)$$

- Triangular number of rank n, $T_{3,n} = \frac{n(n+1)}{2}$

3. Method of analysis
The ternary quadratic Diophantine equation to be solved for its non-zero distinct integral solution is

$$3(X^2 + Y^2)-5XY = 75Z^2 \tag{1}$$

The solution of linear transformations $(u \neq v \neq 0)$

11

Journal of
Mathematics and Informatics

Integer Solution of the Homogeneous Bi-Quadratic Diophantine Equation with Five Unknowns
$$(x-y)(x^3+y^3)=(z^2-w^2)p^2$$

R. Umamaheswari[1] and A.Kavitha[2]

[1]Department of Mathematics ,Shrimati Indira Gandhi College
Trichy-2,Tamilnadu, India.
[1]e-mail: umadevmsc@gamil.com
[2]e-mail: kavithabalasubramanian63@yahoo.com

Abstract. The homogeneous equation with five unknown $(x-y)(x^3+y^3)=(z^2-w^2)p^2$ is analyzed for its nonzero distinct integer solutions. Employing the transformation and applying the method of factorization, different patterns of nonzero distinct integer solutions to the above bi-quadratic equation are obtained. A few interesting relations between the solutions and special number patterns namely polygonal and pyramidal numbers are presented.

Keywords: Homogeneous bi-quadratic, Bi-quadratic equation with five unknown, integer solutions.

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction
Bi-quadratic Diophantine equations, homogeneous and non -homogeneous, have aroused the interest of numerous mathematicians since ambiguity as can be seen from [1-2] particularly In [3-5] bi-quadratic diophantine equations with three unknowns are considered In [6-9] bi-quadratic equation with four unknowns are considered In [10-12] bi-quadratic equation with five unknowns are considered. In this paper, another interesting bi-quadratic equation with five unknown given by

$$(x-y)(x^3+y^3)=(z^2-w^2)p^2$$

is considered and five different patterns of integral solutions are illustrated. A few interesting properties between the solutions and special number patterns are exhibited.

2. Notation

> $T_{m,n} = n\left(1+\dfrac{(n-1)(m-2)}{2}\right)$ - Polygonal number of rank n with side m.

> $S_n = 6n(n-1)+1$ - Star number of rank n

Journal of
Mathematics and Informatics

On the Non-Homogeneous Cubic Equation with Four Unknowns $(x-y)^2 = 2z^3 + w^2$

A.Victoria Maharani[1] and *D.Maheswari[2]*

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India.
[1]e-mail: victoriarani.mercy@gmail.com; [2]e-mail: matmahes@gmail.com

Abstract. The non-homogeneous cubic equation with four unknowns given by $(x-y)^2 = 2z^3 + w^2$ is analyzed for its distinct integer solutions. Three different patterns of integer solutions to the above equation are obtained. A few interesting relations between the solutions and special polygonal numbers are also obtained.

Keywords: Non-homogeneous cubic equation, cubic with four unknowns, integer solutions.

AMS Mathematics Subject Classification (2010): 11D25

1. Introduction
Integral solutions for the non-homogeneous Diophantine cubic equation is an interesting concept as it can be seen from [1, 2, 3]. In [4-8] a few special cases of cubic Diophantine equation with three and four unknowns are studied. In this communication, we present the integral solutions of an interesting cubic equation with four unknowns $(x-y)^2 = 2z^3 + w^2$. A few remarkable relations between the solutions are presented.

2. Notations
1) Polygonal number of rank 'n' with m sides

$$t_{m,n} = n\left[1 + \frac{(n-1)(m-2)}{2}\right]$$

2) Gnomonic number of rank 'n'

$$G_n = 2n - 1$$

3) Pronic number of rank 'n'

$$PR_n = n(n+1)$$

4) Centered Polygonal number of rank 'n' with m sides

$$Ct_{m,n} = \frac{mn(n-1) + 2}{2}$$

Journal of
Mathematics and Informatics

On the Homogeneous Ternary Quadratic Equation $11x^2 - 2y^2 = 9z^2$

S. Yogeshwari[1] and S. Vidhyalakshmi[2]

Department of Mathematics, Shrimati Indira Gandhi College
Trichy-2, Tamilnadu, India.
[1]e-mail: yogeshwarishanmugavel0@gmail.com; [2]e-mail: vidhyasigc@gmail.com

Abstract. An attempt has been made to obtain all integer solutions of the homogeneous ternary quadratic Diophantine equation given by $11x^2 - 2y^2 = 9z^2$. Different choices of integer solution to the above equation are obtained. A few interesting relations between the solutions and special polygonal numbers are presented.

Keywords: Homogeneous quadratic, ternary quadratic, integer solution.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction

The Diophantine equations offer an unlimited field for research due to their variety [1-3]. In particular, one may refer [4-8] for quadratic equations with three unknowns. This communication concerns with yet another interesting equation $11x^2 - 2y^2 = 9z^2$ representing homogeneous quadratic equation with three unknowns for determining its infinitely many non-zero integral points. Also, few interesting relations among the solutions are presented.

2. Notations

i) Polygonal number of rank 'n' with size m:

$$t_{m,n} = n\left[1 + \frac{(n-1)(m-2)}{2}\right]$$

ii) Pronic number of rank 'n':

$$PR_n = n(n+1)$$

iii) Centered hexagonal pyramidal number of rank 'n':

$$CP_{n,6} = n^3$$

iv) Centered triangular pyramidal number of rank 'n':

$$CP_{n,3} = \frac{n^3 + n}{2}$$

On the Non-Homogeneous Quadratic Equation with Five Unknowns $x^2+xy-y^2-(z+w)=10\,p^2$

K. Dhivya[1] and T.R. Usha Rani[2]

[1]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002
Tamilnadu, India; e-mail: kdhivya10495@gmail.com
[2]Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002
Tamilnadu, India; e-mail: usharanisigc@gmail.com

Abstract. The non-homogeneous quadratic equation with five unknowns represented by the Diophantine equation $x^2+xy-y^2-(z+w)=10p^2$ is analysed for its non-zero distinct integral solutions. Various interesting relations between the solutions and special numbers are exhibited.

Keywords: non-homogeneous quadratic, quadratic with five unknowns, integral solutions.

AMS Mathematics Subject Classification (2010): 11D09

1. Introduction

The non-homogenous quadratic Diophantine equation offers an unlimited field for research because of their variety [1-3]. For an extensive review of various problems one may refer [4-17]. This communication concerns with yet another interesting equation $x^2+xy-y^2-(z+w)=10p^2$ representing non-homogeneous quadratic equation with five unknowns determining its infinitely many non-zero integral solutions. Also a few interesting properties among the solutions are presented.

2. Notation

$t_{m,n} = n\left(1+\dfrac{(n-1)(m-2)}{2}\right)$ — Polygonal number of rank n with sides m

$Ct_{m,n} = \dfrac{mn(n-1)\div 2}{2}$ — Centered Polygonal number of rank n with sides m

$S_n = 6n(n-1)+1$ — Star number of rank n

$PR_n = n(n+1)$ — Pronic number of rank n

RESEARCH ARTICLE

On Homogeneous Cubic Equation with Four Unknowns
$$x^3 + y^3 + (x+y)(x-y)^2 = 16zw^2$$

S.Vidhyalakshmi[1], M.A.Gopalan[2], Sharadha Kumar[3*]

[2]Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620 002, Tamil Nadu, India.

[3]M.Phil scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620 002, Tamil Nadu, India

ABSTRACT

The cubic diophantine equation with four unknowns given by $x^3 + y^3 + (x+y)(x-y)^2 = 16zw^2$ is analyzed for its non-zero distinct integer points on it. Different patterns of integer points for the equation under consideration are obtained. A few interesting relations between the solutions and special number patterns namely Polygonal number, Gnomonic number, Star number and Pronic number are presented.

Keywords: cubic equation with four unknowns, integral solutions

INTRODUCTION

The cubic diophantine equations offer an unlimited field for research due to their variety [1, 22]. For an extensive review of various problems, one may refer [2-21]. This communication concerns with yet another interesting cubic diophantine equation with four unknowns $x^3 + y^3 + (x+y)(x-y)^2 = 16zw^2$ for determining its infinitely many non-zero integral points. Also, a few interesting relations between the solutions and special numbers are presented.

Notations:

> Polygonal number of rank n with size m
$$t_{m,n} = n\left[1 + \frac{(n-1)(m-2)}{2}\right]$$

> Gnomonic number of rank n
$$GNO_n = 2n - 1$$

> Star number of rank n
$$S_n = 6n^2 - 6n + 1$$

> Pronic number of rank n
$$PR_n = n(n+1)$$

Method of analysis:

The homogeneous cubic equation with four unknowns to be solved is

$$x^3 + y^3 + (x+y)(x-y)^2 = 16zw^2 \qquad (1)$$

Introducing the linear transformations

$$x = u + v, \ y = u - v, \ z = u \qquad (2)$$

in (1), it gives

$$u^2 + 7v^2 = 8w^2 \qquad (3)$$

Assume

*Corresponding Author: Sharadha Kumar, Email: sharadhak12@gmail.com

JF. 4.225   google scholar

On the Negative Pell Equation $y^2 = 7x^2 - 14$

A. Kavitha

Assistant Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, Tamilnadu, India.

K. Janani

M.Sc Scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, Tamilnadu, India.

Abstract — The binary quadratic Diophantine equation represented by the negative pellian $y^2 = 7x^2 - 14$ is analyzed for its non-zero distinct solutions. A few interesting relations among the solutions are given. Further, employing the solutions of the above hyperbola, we have obtained solutions of other choices of hyperbolas, parabolas and Pythagorean triangle.

Index Terms — Binary quadratic, Hyperbola, Parabola, Integral solution, Pell equation, Mathematics subject classification(2010):11D09.

1. INTRODUCTION

The binary quadratic equations of the form $y^2 = Dx^2 + 1$ where D is non-square positive integer has been selected by various mathematicians for its non-trivial integer solutions as D takes different integral values[1-4]. For an extensive review of various problems, one may refer[5-14]. In this communication, yet another interesting equation given by $y^2 = 7x^2 - 14$ is considered and infinitely many integer solutions are obtained. A few interesting properties among the solutions are presented.

2. METHOD OF ANALYSIS

The negative Pell equation representing hyperbola under consideration is,

$$y^2 = 7x^2 - 14 \qquad (1)$$

The smallest positive integer solutions of (1) are,

$$x_0 = 3, y_0 = 7$$

The general solution (x_n, y_n) of (1) is given by,

$$\tilde{x}_n = \frac{1}{2\sqrt{7}} g_n \ , \ \tilde{y}_n = \frac{1}{2} f_n$$

$$f_n = (8+3\sqrt{7})^{n+1} + (8-3\sqrt{7})^{n+1}$$

$$g_n = (8+3\sqrt{7})^{n+1} - (8-3\sqrt{7})^{n+1}$$

Applying Brahmagupta lemma between (x_0, y_0) and $(\tilde{x}_n, \tilde{y}_n)$ the other integer solution of (1) are given by,

$$x_{n+1} = \frac{3}{2} f_n + \frac{7}{2\sqrt{7}} g_n$$

$$y_{n+1} = \frac{7}{2} f_n + \frac{21}{2\sqrt{7}} g_n$$

The recurrence relation satisfied by the solution x and y are given by,

$$x_{n+3} - 16 x_{n+2} + x_{n+1} = 0$$

$$y_{n+3} - 16 y_{n+2} + y_{n+1} = 0$$

Some numerical examples of x and y satisfying (1) are given in the Table 1 below,

Table 1: Examples

n	x_n	y_n
0	3	7
1	45	119
2	717	1897
3	11427	30233
4	182115	481831

From the above table, we observe some interesting relations among the solutions which are presented below.

> Both x_n and y_n values are odd.
> Each of the following expression is a nasty number:
> $[12 + 18 x_{2n+2} - 6 y_{2n+2}]$

ON NEGATIVE PELLIAN EQUATION

$$y^2 = 27x^2 - 8$$

S. Mallika[*1], M. Anitha[*2],

[1] Assistant Professor, Department of Mathematics, SIGC, Trichy-620002, Tamilnadu, India.

[2] M.Sc Scholar, Department of Mathematics, SIGC, Trichy-620002, Tamilnadu, India.

Abstract— The binary quadratic equation represented by negative pellian $y^2 = 27x^2 - 8$ analyzed for its distinct integer solutions. A few interesting relations among the solution are given. Further, employing the solutions of the above hyperbola, we have obtained solutions of other choices of hyperbolas, parabolas and Pythagorean triangle.

Keywords— Binary quadratic, Pell equation, Hyperbola, Parabola, Integral solutions.

I. INTRODUCTION

The binary quadratic Diophantine equations (both homogeneous and non-homogeneous) are rich in variety. In [1-19] the binary quadratic non-homogeneous equations representing hyperbolas respectively are studied for their non-zero integral solutions. This communication concerns with yet another binary quadratic equation given by $y^2 = 27x^2 - 8$. The recurrence relations satisfied by the solutions x and y are given. Also a few interesting properties among the solutions are exhibited.

II. METHOD OF ANALYSIS

The negative Pell equation representing hyperbola under consideration is
$$y^2 = 27x^2 - 8 \qquad (1)$$

whose smallest positive integer solution is
$$x_0 = 2 , y_0 = 10$$

To obtain the other solutions (1), consider the pell equation
$$y^2 = 27x^2 + 1$$

whose general solution is given by

$$\tilde{x}_n = \frac{1}{2\sqrt{27}} g_n$$

$$\tilde{y}_n = \frac{1}{2} f_n$$

where
$$f_n = (26 + 5\sqrt{27})^{n+1} + (26 - 5\sqrt{27})^{n+1}$$
$$g_n = (26 + 5\sqrt{27})^{n+1} - (26 - 5\sqrt{27})^{n+1}$$

Applying Brahmagupta lemma, the general solution of (1) is found to be

$$x_{n+1} = f_n + \frac{5}{\sqrt{27}} g_n$$

$$y_{n+1} = 5f_n + \sqrt{27} g_n$$

The recurrence relations satisfied by the solutions x and y are given by

583

Observations on the Hyperbola $8x^2 - 3y^2 = 20$

S.Mallika*, D.Hema*

*Assistant Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2, Tamilnadu, India.

*M.Phil scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2, Tamilnadu, India.

Abstract— Non-homogeneous binary quadratic equation representing hyperbola given by $8x^2 - 3y^2 = 20$ is analyzed for its non-zero distinct integer solutions. A few interesting relations among its solutions are presented. Also, knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbola and parabola are presented. Also, employing the solutions of the given hyperbola, special Pythagorean triangle is constructed.

Keywords— Binary quadratic, Hyperbola, Parabola, Integral solutions, Pell equation.

1. INTRODUCTION

The binary quadratic Diophantine equations of the form $ax^2 - by^2 = N$, $(a, b, N \neq 0)$ are rich in variety and have been analyzed by many mathematicians for their respective integer solutions for particular values of a, b and N. In this context, one may refer [1-17].

This communication concerns with the problem of obtaining non-zero distinct integer solutions to the binary quadratic equation given by $8x^2 - 3y^2 = 20$ representing hyperbola. A few interesting relations among its solutions are presented. Knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.-----

II. METHOD OF ANALYSIS

The Diophantine equation under consideration is

$$8x^2 - 3y^2 = 20 \qquad (1)$$

It is to be noted that (1) represents a hyperbola

Taking $x = X + 3T, y = X + 8T$ $\qquad (2)$

in (1), it reduced to the equation

$$X^2 = 24T^2 + 4 \qquad (3)$$

The smallest positive integer solution (T_0, X_0) of (3) is

$$T_0 = 2, \ X_0 = 10$$

To obtain the other solutions of (3), consider the pellian equation

$$X^2 = 24T^2 + 1 \qquad (4)$$

whose smallest positive integer solutions is

$$\tilde{T}_0 = 1, \ \tilde{X}_0 = 5$$

The general solution $(\tilde{T}_n, \tilde{X}_n)$ of (4) is given by

On the ternary quadratic Diophantine equation $6(X^2 + Y^2)-11XY + 2(X + Y) + 4 = 27Z^2$

S Vidhyalakshmi[1], MA Gopalan[2], S.Thenmozhi[3]

[1,2] Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2, Tamil Nadu, India
[3] M.Phil. Scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-2, Tamil Nadu, India

Abstract

The ternary quadratic equation given by $6(X^2 + Y^2) - 11 XY + 2(X + Y) + 4 = 27 Z^2$ is considered and searched for its many non-zero distinct integer solutions. Four different choices of integer solutions to the above equation are presented. A few interesting relations between the solutions and special polygonal numbers are presented.

Keywords: ternary quadratic, integer solutions

Introduction

Diophantine equations offer an unlimited field for research due to their variety [1-3]. In particular, one may refer [4-16] for Diophantine equations with three unknowns. This communication concerns with yet another interesting equation $6(X^2 + Y^2) - 11 XY + 2(X + Y) + 4 = 27 Z^2$ representing non-homogeneous quadratic equation with three unknowns for determining its infinitely many non-zero integral points. Also, few interesting relations among the solutions are presented.

Method of Analysis

The ternary quadratic diophantine equation to be solved for its non-zero distinct integral solution is

$$6(X^2 + Y^2) - 11 XY + 2(X + Y) + 4 = 27 Z^2 \qquad (1)$$

Introducing the linear transformations $(u \neq v \neq 0)$

$$X = u + v, Y = u - v \qquad (2)$$

in (1), it leads to

$$(u + 2)^2 + 23 v^2 = 27 Z^2 \qquad (3)$$

Different patterns of solutions of (1) are presented below:

2.1 Pattern-1

Write 27 as

$$27 = \left(2 + i\sqrt{23}\right)\left(2 - i\sqrt{23}\right) \qquad (4)$$

Assume

$$Z = a^2 + 23 b^2 \qquad (5)$$

Where a, b are non-zero distinct integers.
Using (4) and (5) in (3), we get

Observations on the Pell Equation

$$y^2 = 11x^2 + 5$$

D. Maheswari

Assistant Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, India.

R. Suganya

M.Phil Scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, India.

Abstract – The binary quadratic equation $y^2 = 11x^2 + 5$ is considered and a few interesting properties among the solutions are presented. Employing the integral solutions of the equation under consideration, a special pythagorean triangle is obtained.

Index Terms – Binary quadratic, Hyperbola, Parabola, Pell equation, Integral solutions.

1. INTRODUCTION

The binary quadratic equation of the form $y^2 = Dx^2 + 1$, where D is a non-square positive integer, has been studied by various mathematicians for its non-trivial integral solutions when D takes different integral values [1,2,3,4]. In [5], infinitely many pythogorean triangles in each of which hypotenuse is four times the product of the generators added with unity are obtained by employing the non-integral solutions of binary quadratic equation $y^2 = 3x^2 + 1$. In [6], a special pythagorean triangle is obtained by employing the integral solutions of $y^2 = 10x^2 + 1$. In [7], different patterns of infinitely many pythagorean triangles are obtained by employing the non-trivial solutions of $y^2 = 12x^2 + 1$. In this regard, one may also refer [8-18]. These results have motivated us to search for the integral solutions of yet another binary quadratic equation $y^2 = 11x^2 + 5$ representing a hyperbola. A few interesting properties among the solutions are presented. Employing the integral solutions of the equation under consideration, a special pythagorean triangle is obtained.

2. METHOD OF ANALYSIS

The positive Pell equation representing hyperbola under consideration is

$$y^2 = 11x^2 + 5 \tag{1}$$

Whose smallest positive integer solution is

$$x_0 = 1, y_0 = 4$$

To obtain the other solutions of (1), consider the pell equation

$$\tilde{y}^2 = 11x^2 + 1 \tag{2}$$

whose initial solution is

$$\tilde{x}_0 = 3, \tilde{y}_0 = 10$$

The general solution of (2) is given by

$$\tilde{x}_n = \frac{g_n}{2\sqrt{11}}, \tilde{y}_n = \frac{f_n}{2}$$

where

$$f_n = \left(10 + 3\sqrt{11}\right)^{n+1} + \left(10 - 3\sqrt{11}\right)^{n+1},$$

$$g_n = \left(10 + 3\sqrt{11}\right)^{n+1} - \left(10 - 3\sqrt{11}\right)^{n+1},$$
$$n = -1, 0, 1, 2 \ldots$$

Applying Brahmagupta lemma between the solutions of (x_0, y_0) and $(\tilde{x}_n, \tilde{y}_n)$, the other integer solutions of (1) are given by

$$x_{n+1} = \frac{1}{2} f_n + \frac{4}{2\sqrt{11}} g_n \tag{3}$$

$$y_{n+1} = 2f_n + \frac{11}{2\sqrt{11}} g_n \tag{4}$$

Thus (3) and (4) represent the non-zero distinct integer solutions of (1).

The recurrence relations satisfied by the values of x_{n+1} and y_{n+1} respectively.

are

$$x_{n+3} - 20x_{n+2} + x_{n+1} = 0, n = -1, 0, 1 \ldots$$
$$y_{n+3} - 20y_{n+2} + y_{n+1} = 0, n = -1, 0, 1 \ldots$$

A few numerical examples are given in the following Table 2.1 below:

Observations on the Hyperbola

$$2x^2 - 5y^2 = 27$$

D. Maheswari

Assistant Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, India.

S. Dharuna

M.phil scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, India.

Abstract – The hyperbola represented by the binary quadratic $2x^2 - 5y^2 = 27$ is analyzed for finding its non-zero distinct integer solutions. A few interesting relations among its solutions are presented. Also, knowing an integral solution of the hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

Index Terms – Binary quadratic, Hyperbola, Parabola, Pell equation, Integral solutions.

1. INTRODUCTION

A hyperbola represented by the Diophantine equations of the form $ax^2 - by^2 = N$, $(a, b, c \neq 0)$ are rich in variety and have been analyzed by many mathematicians for their positive integer solutions for particular values of a, b and c. For an extensive review, one may refer [1-16].

This communication concerns with the problem of obtaining non-zero distinct integer solutions to the binary quadratic equation given by $2x^2 - 5y^2 = 27$ representing hyperbola. A few interesting relations among its solutions are presented. Knowing an integral solution of the given hyperbola, integer values for other choices of hyperbolas and parabolas are revealed. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

2. METHOD OF ANALYSIS

The binary quadratic equation representing hyperbola is given by

$$2x^2 - 5y^2 = 27 \tag{1}$$

Taking

$$\left. \begin{array}{l} x = X + 5T \\ y = X + 2T \end{array} \right\} \tag{2}$$

in (1), it is reduced to the equation

$$X^2 = 10T^2 - 9 \tag{3}$$

The smallest positive integer solution (T_0, X_0) of (3) is

$$T_0 = 1, \qquad X_0 = 1$$

To obtain the other solution of (3), consider the Pellian equation

$$X^2 = 10T^2 + 1 \tag{4}$$

whose smallest positive integer solution is

$$\tilde{T}_0 = 6, \qquad \tilde{X}_0 = 19$$

The general solution $(\tilde{T}_n, \tilde{X}_n)$ of (4) is given by

$$\tilde{X}_n + \sqrt{10}\tilde{T}_n = \left(19 + 6\sqrt{10}\right)^{n+1}, n = 0,1,2, \text{K} \tag{5}$$

Since irrational roots occur in pair, we have

$$\tilde{X}_n - \sqrt{10}\tilde{T}_n = \left(19 + 6\sqrt{10}\right)^{n+1}, n = 0,1,2, \text{K} \tag{6}$$

From (5) and (6), solving for $\tilde{X}_n, \tilde{T}_n$, we have

$$\tilde{X}_n = \frac{1}{2}\left[\left(19 + 6\sqrt{10}\right)^{n+1} + \left(19 - 6\sqrt{10}\right)^{n+1}\right] = \frac{1}{2}f_n$$

$$\tilde{T}_n = \frac{1}{2\sqrt{10}}\left[\left(19 + 6\sqrt{10}\right)^{n+1} - \left(19 - 6\sqrt{10}\right)^{n+1}\right] = \frac{1}{2\sqrt{10}}g_n$$

Applying Brahmagupta lemma between the solutions (T_0, X_0) and $(\tilde{T}_n, \tilde{X}_n)$. The general solution (T_{n+1}, X_{n+1}) of (3) is found to be

$$T_{n+1} = X_0\tilde{T}_n + T_0\tilde{X}_n$$

$$X_{n+1} = X_0\tilde{X}_n + 10T_0\tilde{T}_n \tag{7}$$

$$\Rightarrow \quad T_{n+1} = \frac{1}{2\sqrt{10}}g_n + \frac{1}{2}f_n$$

On the positive Pell equation $y^2 = 14x^2 + 18$

TR Usha Rani[1], K Dhivya[2]

[1] Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy, Tamil Nadu, India
[2] M. Phil Scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy, Tamil Nadu, India

Abstract

The homogeneous binary quadratic equation representing hyperbola given by $y^2 = 14x^2 + 18$ is analyzed for its non-zero distinct integer solutions. A few interesting relations among its solutions are presented. Also, knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbola and parabola are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

Keywords: binary quadratic, hyperbola, parabola, positive Pell equation, integral solution

Introduction

The positive equation of the form $y^2 = Dx^2 + 1$, where D is a given positive square-free integer is known as Pell equation and is one of the oldest Diophantine equation that has interested mathematicians all over all the world, since antiquity, J.L. Lagrange proved that all positive Pell equation $y^2 = Dx^2 + 1$ has infinitely many distinct integer solutions. In [3] infinitely many Pythagorean triangles in each of which hypotenuse is four times the product of the generators added with unity are obtained by employing the non-integral solutions of binary quadratic equation $y^2 = 3x^2 + 14$. In [4] a special Pythagorean triangle is obtained by employing integral solutions of $y^2 = 10x^2 + 1$. In [5] different patterns of infinitely many Pythagorean triangles are obtained by employing the non-integral solutions of $y^2 = 12x^2 + 1$, in this context one may refer [6-20]. In this communication, the positive Pell equation given by $y^2 = 14x^2 + 18$ is considered and infinitely many integer solutions are obtained. A few interesting relations among the solution are presented. Also knowing an integral solution of the given hyperbola, integer solutions for other choices of parabola and parabolas are presented. Also employing the solutions of the given equation, special Pythagorean triangle is presented.

Method of analysis

The positive Pell equation representing hyperbola under consideration is

$$y^2 = 14x^2 + 18 \tag{1}$$

The smallest positive integer solution (x_0, y_0) of (1) is $x_0 = 3, y_0 = 12$ To obtain the other solutions of (1), consider the Pell equation

$$y^2 = 14x^2 + 1 \tag{2}$$

whose smallest positive integer solutions is.

$\tilde{x}_0 = 4$, $\tilde{y}_0 = 15$ The general solution $(\tilde{x}_n, \tilde{y}_n)$ is given by\

$$\tilde{x}_n = \frac{1}{2\sqrt{14}} g_n, \quad \tilde{y}_n = \frac{1}{2} f_n \tag{3}$$

$$f_n = \left(15 + 4\sqrt{14}\right)^{n+1} + \left(15 - 4\sqrt{14}\right)^{n+1}, n = -1, 0, 1 \cdots$$

International Journal of Emerging Technologies in Engineering Research (IJETER)
Volume 6, Issue 5, May (2018)
www.ijeter.everscience.org

Observations on the Hyperbola

$$7x^2 - 5y^2 = 28$$

T.R. Usha Rani

Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, India.

K. Dhivya

M.phil scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy-620002, India.

Abstract – The hyperbola represented by the binary quadratic $7x^2 - 5y^2 = 28$ is analyzed for finding its non-zero distinct integer solutions. A few interesting relations among its integer solutions are presented. Also, knowing an integral solution of the hyperbola, integer solutions for other choices of hyperbola and parabolas are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

Index Terms – Binary quadratic, Hyperbola, Parabola, Pell equation, Integral solutions.

1. INTRODUCTION

A binary quadratic Diophantine equations of the form $ax^2 - by^2 = N, (a,b,c \neq 0)$ are rich in variety and have been studied by many mathematicians for their respective integer solutions for particular values of a, b and N. In this context, one may refer [1-16].

This communication concerns with the problem of obtaining non-zero distinct integer solutions to the binary quadratic equation given by $7x^2 - 5y^2 = 28$ representing hyperbola. A few interesting relations among its solutions are presented. Knowing an integral solution of the given hyperbola, integer solutions for other choices of hyperbolas and parabolas are presented. Also, employing the solutions of the given equation, special Pythagorean triangle is constructed.

2. METHOD OF ANALYSIS

The binary quadratic equation representing hyperbola is given by

$$7x^2 - 5y^2 = 28 \tag{1}$$

Taking

$$\left. \begin{array}{l} x = X + 5T \\ y = X + 7T \end{array} \right\} \tag{2}$$

in (1), it is reduced to the equation

$$X^2 = 35T^2 + 14 \tag{3}$$

The smallest positive integer solution (T_0, X_0) of (3) is

$$T_0 = 1 , \ X_0 = 7$$

To obtain the other solutions of (3), consider the pellian equation

$$X^2 = 35T^2 + 1 \tag{4}$$

whose smallest positive integer solution is

$$\tilde{T}_0 = 1 , \tilde{X}_0 = 6$$

The general solution $\left(\tilde{T}_n, \tilde{X}_n \right)$ of (4) is given by

$$\tilde{X}_n + \sqrt{35}\tilde{T}_n = \left(6 + \sqrt{35} \right)^{n+1}, n = 0,1,2,\ldots \tag{5}$$

Since irrational roots occur in pairs, we have

$$\tilde{X}_n - \sqrt{35}\tilde{T}_n = \left(6 - \sqrt{35} \right)^{n+1}, n = 0,1,2,\ldots \tag{6}$$

From (5) and (6) solving for $\left(\tilde{T}_n, \tilde{X}_n \right)$ we have

$$\tilde{X}_n = \frac{1}{2}\left[\left(6 + \sqrt{35} \right)^{n+1} + \left(6 - \sqrt{35} \right)^{n+1} \right] = \frac{1}{2}f_n$$

$$\tilde{T}_n = \frac{1}{2\sqrt{35}}\left[\left(6 + \sqrt{35} \right)^{n+1} - \left(6 - \sqrt{35} \right)^{n+1} \right] = \frac{1}{2\sqrt{35}}g_n$$

Applying Brahmagupta Lemma between the solutions (T_0, X_0) and $\left(\tilde{T}_n, \tilde{X}_n \right)$ the general solution (T_{n+1}, X_{n+1}) of (3) is found to be

$$T_{n+1} = X_0\tilde{T}_n + T_0\tilde{X}_n$$

$$X_{n+1} = X_0\tilde{X}_n + 35T_0\tilde{T}_n$$

$$\Rightarrow T_{n+1} = \frac{7}{2\sqrt{35}}g_n + \frac{1}{2}f_n \tag{7}$$

On negative Pell equation $y^2 = 20x^2 - 11$

S Mallika[1]; D Hema[2]

[1] Assistant Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy, Tamil Nadu, India
[2] MPhil Scholar, Department of Mathematics, Shrimati Indira Gandhi College, Trichy, Tamil Nadu, India

Abstract

The binary quadratic equation represented by negative Pellian $y^2 = 20x^2 - 11$ is analyzed for its distinct integer solutions. A few interesting relations among the solutions are given. Further, employing the solutions of the above hyperbola, we have obtained solutions of other choices of hyperbolas, parabolas and Pythagorean triangle.

Keywords: binary quadratic, hyperbola, parabola, Pell equation, integral solutions

Introduction

The binary quadratic diophantine equations (both homogeneous and non-homogeneous) are rich in variety. In [1-16] the binary quadratic non-homogeneous equations representing hyperbolas respectively are studied for their non-zero integral solutions. This communication concerns with yet another binary quadratic equation given by $y^2 = 20x^2 - 11$. The recurrence relations satisfied by the solutions x and y are given. Also a few interesting properties among the solutions are exhibited.

Method of analysis

The negative Pell equation representing hyperbola under consideration is

$$y^2 = 20x^2 - 11 \qquad (1)$$

The smallest positive integer solution is

$$x_0 = 1, \; y_0 = 3$$

To obtain the other solutions of (1), consider the pell equation

$$y^2 = 20x^2 + 1$$

Whose general solution is given by

$$\tilde{x}_n = \frac{g_n}{2\sqrt{20}}, \; \tilde{y}_n = \frac{f_n}{2}$$

where

$$f_n = \left(9 + 2\sqrt{20}\right)^{n+1} + \left(9 - 2\sqrt{20}\right)^{n+1}$$

$$g_n = \left(9 + 2\sqrt{20}\right)^{n+1} - \left(9 - 2\sqrt{20}\right)^{n+1}, \; n = -1, 0, 1, \ldots$$

Applying Brahmagupta lemma between the solutions (x_0, y_0) and $(\tilde{x}_n, \tilde{y}_n)$, the other integer solutions of (1) are given by

$$x_{n+1} = \frac{1}{2} f_n + \frac{3}{2\sqrt{20}} g_n \qquad (2)$$

Vidhyalakshmi
Assistant Professor, Department of
Mathematics, Shrimati Indira
Gandhi College, Trichy, Tamil
Nadu, India

Gopalan
Professor, Department of
Mathematics, Shrimati Indira
Gandhi College, Trichy, Tamil
Nadu, India

Aarthy Thangam
Research Scholar, Department
Mathematics, Shrimati
Indira Gandhi College, Trichy,
Tamil Nadu, India

Generation formula for solutions to special ternary quadratic diophantine equations representing cones

S Vidhyalakshmi, MA Gopalan and S Aarthy Thangam

Abstract
Knowing a solution of the considered ternary quadratic diophantine equation, a general formula for generating sequence of solutions based on the given solution is illustrated.

Keywords: ternary quadratic, generation of solutions

Introduction

The subject of diophantine equations in number theory has attracted many mathematicians since antiquity. It is well-known that a diophantine equation is a polynomial equation in two or more unknowns with integer coefficients for which integer solutions are required. An integer solution is a solution such that all the unknowns in the equation take integer values. An extension of ordinary integers into complex numbers is the gaussian integers. A gaussian integer is a complex number whose real and imaginary parts are both integers. It is quite obvious that diophantine equations are rich in variety and there are methods available to obtain solutions either in real integers or in gaussian integers.

A natural question that arises now is, whether a general formula for generating sequence of solutions based on the given solution can be obtained? In this context, one may refer [1-7]. The main thrust of this communication is to show that the answer to the above question is in the affirmative in the case of the following ternary quadratic diophantine equations, each representing a cone.

Cone 1
The ternary quadratic diophantine equation under consideration is

$$x^2 + y^2 = 5z^2 \qquad (1)$$

Let (x_0, y_0, z_0) be any solution of (1).
The solution may be in real integers or in gausssian integers or in irrational numbers.
Let (x_1, y_1, z_1) be the second solution of (1), where

$$x_1 = 2h - 3x_0, \quad y_1 = 2h - 3y_0, \quad z_1 = 3z_0 + h \qquad (2)$$

in which h is an unknown to be determined.
Substitution of (2) in (1) gives

$$h = 4x_0 + 4y_0 + 10z_0 \qquad (3)$$

Using (3) in (2), the second solution (x_1, y_1, z_1) of (1) is expressed in the matrix form as

$$(x_1, y_1, z_1)^t = M (x_0, y_0, z_0)^t$$

Where t is the transpose and

$$M = \begin{pmatrix} 5 & 8 & 20 \\ 8 & 5 & 20 \\ 4 & 4 & 13 \end{pmatrix}$$

Correspondence
S Aarthy Thangam
Research Scholar, Department
of Mathematics, Shrimati
Indira Gandhi College, Trichy,
Tamil Nadu, India

On Ternary Quadratic Diophantine Equation

$$x^2 + y^2 = 17z^2$$

A. Kavitha
Assistant Professor, Department of Mathematics, Shrimati Indira Gandhi College, Trichy, India-620 002.

R. Umamaheswari
M.Phil Scholar., Department of Mathematics, Shrimati Indira Gandhi College, Trichy, India-620 002.

The quadratic diophantine equation with three unknowns represented by $x^2 + y^2 = 17z^2$ is analyzed for its non-zero distinct integral solutions. Different patterns of solutions of the equation under consideration are obtained. A few interesting properties among the solutions are presented.

Keywords – Ternary quadratic equation with three unknowns, integral solutions, polygonal numbers and pyramidal numbers.

1. INTRODUCTION

The quadratic diophantine equation with three unknowns offers a united field for research because of their variety [1-3]. In particular, one may refer [4-19] for quadratic equations with three unknowns. This communication concerns with yet another interesting equation $x^2 + y^2 = 17z^2$ representing homogeneous quadratic diophantine equation with three unknowns for determining its infinitely many non-zero integral solutions. A few interesting properties among its solutions are presented. Also, formulas for generating sequences of integer based on its given solution are presented.

2. NOTATION

Polygonal number of rank n with size m

$$\left[1 + \frac{(n-1)(m-2)}{2} \right]$$

Hexagonal pyramidal number of rank n

$$\frac{n^3}{...}$$

... number of rank n

$$\text{...} \leq 1]$$

...ne number of rank n

$$= 2n - 1$$

... of rank n

... 2454-6410

$$S_n = 6n^2 - 6n + 1$$

3. METHOD OF ANALYSIS

The ternary quadratic diophantine equation to be solved for its non-zero distinct integral solution is

$$x^2 + y^2 = 17z^2 \qquad (1)$$

Different patterns of solution of (1) are presented below.

3.1. PATTERN-1

Write 17 as

$$17 = (4+i)(4-i) \qquad (2)$$

Assume

$$z = a^2 + b^2 \qquad (3)$$

where a, b are non-zero distinct integers.

Using (2) and (3) in (1), we get

$$x^2 + y^2 = (4+i)(4-i)(a^2 + b^2)^2$$

Employing the method of factorization, we have

$$(x+iy)(x-iy) = (4+i)(4-i)(a+ib)^2(a-ib)^2$$

Equating the positive and negative factors, we get

$$x + iy = (4+i)(a+ib)^2 \qquad (4)$$

$$x - iy = (4-i)(a-ib)^2 \qquad (5)$$

Equating the real and imaginary part either in (4) or (5), we get

$$x(a,b) = 4a^2 - 4b^2 - 2ab$$

$$y(a,b) = a^2 - b^2 + 8ab \qquad (6)$$

On Triples where the Sum of any Two Members of a Triple is a Perfect Square

S. Vidhyalakshmi[1], M.A. Gopalan[2] and S. Aarthy Thangam[3]

[1,2]Department of Mathematics, Shrimati Indira Gandhi College
Trichy-620 002, Tamil Nadu, India.
[3]Department of Mathematics, Shrimati Indira Gandhi College
Trichy-620 002, Tamil Nadu, India.

Abstract. This paper deals with the construction of families of integer triples where, in each triple, the sum of any two members is a perfect square. A few numerical examples are also given.

1. Introduction

Every advanced under-graduate and graduate student of mathematics as well as any researcher in number theory is familiar with Pythagorean triple which provides the relation between three sides of a right-angled triangle in addition to the concept of three integers representing an arithmetic progression, geometric progression and harmonic progression respectively. In this context, one may refer [1] wherein the authors have given a collection of problems with solutions on integer triples in arithmetic progression.

Similar to a Pythagorean triple, we have a triple known as Heronian triple defined as follows: If a, b, c represent the sides of a triangle with integer area, then the triple (a, b, c) is known as Heronian triple. It is worth to note that not every Heronian triple is a Pythagorean triple. For example: (4, 13, 15) is a Heronian triple but not Pythagorean triple whereas (5, 12, 13) is both Heronian triple as well as Pythagorean triple. Also, we have a triple known as Eisenstein triple which is a set of integers which are the lengths of the sides of a triangle where one of the angle is 60^0. In other words. An Eisenstein triple (a, b, c) consists of three positive integers $a < c < b$ such that

$$a^2 - ab + b^2 = c^2$$

No doubt that the triples in integers may be formulated in varieties of ways. For a review of various problems on triples, one may refer [2-6]. It is therefore towards this end, we are motivated to search for families of triples where, in each triple, the sum of any two of its members is a perfect square.

2. Construction of triples

Consider the Pythagorean equation given by

ON THE NON-HOMOGENEOUS QUINTIC EQUATION WITH THREE UNKNOWNS

IF : 5.87

$$5(x^2 + y^2) - 9xy + 2(x + y) + 4 = (k^2 + 19s^2)^n z^5$$

Dr.G.Sumathi M.Sc.,M.Phil.,B.Ed.,Ph.D.,SET
Assistant Professor, Dept.of Mathematics, Shrimati Indira Gandhi College,
Trichy-620002,Tamilnadu,india;

The non-homogeneous quintic equation with five unknowns represented by the diophantine equation $-9xy + 2(x + y) + 4 = (k^2 + 19s^2)^n z^5$ is analyzed for its non-zero distinct integral solutions. Introducing the transformations $x = u + v, y = u - v$ and employing the method factorization, three different patterns of non-trivial distinct integer solutions to the quintic equation under consideration are obtained. A few interesting properties between the solutions and special Polygonal numbers, Centered Pyramidal numbers , Thabith-ibn-kurrah number, Gnomic number, Jacobsthal Lucas number and five dimensional numbers are exhibited.

Integral solutions, lattice points, non- homogeneous quintic equation with five unknowns.

Mathematics Subject Classification: 11D41

$t_{m,n}$: Polygonal number of rank n with size m

P_n^m : Pyramidal number of rank n with size m

j_n : Jacobsthal Lucas number of rank n

J_n : Jacobsthal number of rank n

GNO_n : Gnomic number of rank n

TK_n : Thabith-ibn-kurrah number of rank n

$Ct_{m,n}$: Centered Polygonal number of rank n with size m

$C_{3,n,10}$: Centered Tricontagonal Pyramidal number of rank n

$F_{5,n,7}$: Fifth Dimensional Figurine Heptagonal number of rank n

$GF_n(k,s)$: Generalized Fibonacci Sequences of rank n

$GL_n(k,s)$: Generalized Lucas Sequences of rank n

INTRODUCTION

The theory of diophantine equations offers a rich variety of fascinating problems. In particular,quintic equations, homogeneous and non-homogeneous have aroused the interest of numerous mathematicians since antiquity[1,2,9].For illustration, one may refer [3-5] for quintic equation with three unknowns ,[6] for quintic equation with four unknowns and [7,8] for quintic equation with five unknowns. This paper concerns with yet another interesting a non-homogeneous sextic equation with 5 unknowns given by $-9xy + 2(x + y) + 4 = (k^2 + 19s^2)^n z^5$ for determining its infinitely many non-zero integer quintuples. Three different methods are illustrated. In method1,the solutions are obtained through the method of factorization. In method2,the binomial expansion is introduced to obtain the integral solutions. In method3,the integral solutions are expressed in terms of Fibonacci and Lucas sequences along with a few properties in terms of the above integer sequences.Also a few interesting among the values of x, y and z are presented.

METHOD OF ANALYSIS

The quintic equation representing a non-homogeneous quintic equation with five unknowns is

$$5(x^2 + y^2) - 9xy + 2(x + y) + 4 = (k^2 + 19s^2)^n z^5 \qquad (1)$$

OBSERVATION ON PELL EQUATION $y^2 = 14x^2 + 4$

Dr. G.Sumathi[1],
Assistant Professor, Department of Mathematics,
Shrimati Indira Gandhi College, Trichy – 620 002, Tamilnadu, India.

T.Dhivya lakshmi[2]
[2], Student of Master of Science,

ABSTRACT: The binary quadratic equation $y^2 = 14x^2 + 4$ is considered and a few interesting properties among the solutions are found. Employing the integral solutions of the equation under consideration a few patterns of Pythagorean triangles and rectangles

KEYWORDS: Binary Quadratic, Integral Solutions, Polygonal numbers, Pyramidal numbers.

NOTATIONS:

- Polygonal number of rank n with size m
- Pyramidal number of rank n with size m
- Pronic number of rank n
- Star number of rank n
- Centered pyramidal number of rank n with size m

INTRODUCTION

Binary Quadratic equation of the form $y^2 = Dx^2 + 1$ where D is non-square positive integer has been studied by various authors for its non-trivial integral solutions when D takes different integral values [1,2,3,4]. In [5] infinitely many Pythagorean triangles in each of which hypotenuse is four times the product of the generators added with unity are obtained by employing the non-integral solutions of binary quadratic equation $Y^2 = 3X^2 + 1$. In [6] a special Pythagorean triangle is obtained employing the integral solutions of $Y^2 = 10X^2 + 1$. In [7] different patterns of infinitely many Pythagorean triangles are obtained by employing the non-integral solutions of $Y^2 = 5X^2 + 1$. In this context one may also refer [8, 11]. These results have leads to search for the integral solutions of yet another binary quadratic equation $y^2 = 14x^2 + 4$ representing a hyperbola. A few interesting properties among the solutions are presented.

METHOD OF ANALYSIS

The pell equation representing hyperbola under consideration is

$$y^2 = 14x^2 + 4 \qquad (1.1)$$

whose least positive integer solution is

$$x_0 = 8, y_0 = 30$$

To find the other solutions of (1.1), consider the pell equation

$$y^2 = 14x^2 + 1$$

whose initial solution is

$$\tilde{x}_0 = 4, \tilde{y}_0 = 15$$

whose general solutions is given by

$$\tilde{x}_n = -\frac{1}{2\sqrt{14}} g_n, \tilde{y}_n = \frac{1}{2} f_n$$

Consumer Perception and Attitude towards the Usage of M-Health Applications

Dr. S. Selvabaskar[1], Dr. K. G. Prasanna Sivagami[2], Ms. S. Aishwarya[3]

Associate Professor, School of Management, SASTRA University, Thanjavur- 613401, Tamilnadu, India

Assistant Professor, Department of Management Studies, Shrimati Indira Gandhi College, Tiruchirapalli, Tamilnadu, India

MBA Class of 2015-17, School of Management, SASTRA University, Thanjavur- 613401, Tamilnadu, India

*Corresponding Author E-mail: selvabaskar@mba.sastra.edu

ABSTRACT:

This study focuses on determining the perception and attitudes of the consumers towards the usage of m-health apps with the various attributes like simplicity, trustworthy, accuracy, factors considered while downloading such applications and which factors resist the user from downloading such apps are also examined. In addition, the study tries to identify their familiarity with m-Health and their willingness to use their mobile apps in health related functions. The duration of this study was between the months of February-march of this study, the data was collected from various respondents using a well-structured questionnaire. Those who were using m-Health application in various cities across-Tamilnadu were included for this study. sampling method is adopted and 40 respondents were included for this study. The collected data was analyzed by using frequency analysis, factor analysis, chi square analysis and Regression analysis with the help of SPSS package. The result revealed that the consumer perception has a positive impact on the attitudes that their confidence in using m-Health applications. It has been found that the factors like relevance, rating and quality plays a very important role in influencing the consumer to download the mHealth applications. The study found that there is an association between the skincare app category and gender i.e. more skincare apps are downloaded by the female respondents and also it found that other remaining categories of m-Health applications didn't have any association with the gender. Risk of privacy and inaccurate information, app battery, are some of the factors which cause fear in the respondents' mind and it resist them from downloading such apps.

KEYWORDS: mhealth Apps, Consumer Perception, Attitudes, app dependency, familiarity, willingness.

INTRODUCTION:

Today's Mobile phones are highly used for the Internet access due to low cost and easy availability. The technology is now being incorporated in healthcare sector which is known as m-health.

Use of the mhealth applications is gaining momentum as it provides handy solution for the several categories like fitness, diet, health reference, sleep, health monitor, weight tracker, psychological health and brain exercise. In upcoming work culture and pressure individual don't have the time to take of themselves.

As approaching the doctor for consultation and counseling becomes very hard with tight schedule flowing. Due to this, the mHealth apps have been introduced and it has very positive response. Attitudes influence health evaluations of a stimulus by judging it in either a positive or negative way and the attitude also describe the intentions, which in turn, it could predict the behaviors. The importance of attitudes extends to the area of healthcare as well. The perceptions of consumers towards these types of applications are very important while downloading and ease of usage. This made this research to study on the consumer perception and attitude towards the usage of mhealth applications.

A STUDY ON EMPLOYEE PERCEPTION TOWARDS CAREER STABILITY IN GIG ECONOMY WITH REFERENCE TO RUSTOMJEE ACADEMY FOR GLOBAL CAREERS, AHEMADABAD

Dr.J. FRANCIS MARY,

Director, Department of Management Studies, Shrimati Indira Gandhi College, Trichy

C. ABARNA ,

Research Scholar, Department of Management Studies, Shrimati Indira Gandhi College, Trichy.

ABSTRACT

Gig economy is a labour market where freelancers are highly privileged, instead of permanent workers. Knowledge is global now. With the help of digital platforms companies had hunt the freelancers with niche talent in advanced technologies for short-term works. India is guesstimated to have around 1.5 freelancers and they impart 40% of existing business requirements in world wide. Engaging gig workers tapers the lavish money spent on training, office space, paid vacations, sick leaves, PF, health insurance, retirement schemes, bonuses, stock options, recreational activities, travel allowances and other welfare amenities. Gig workers can be pleased by flexibility, work-life balance; but they experience hardship towards career instability due to income fluctuations, job insecurity, no benefits. It impacts their career decisions. This study focuses on career stability in gig economy in the light of Indian employees.

Key words: Gig economy, Freelancers, Short-term works, Career stability.

INTRODUCTION

Gig economy:

A gig economy is an environment in which organizations hire freelancers and independent workers for short-term projects. Gig economy acts as a bridge between the organizations which seek temporary workers for their requirement and individuals who are in need of temporary work. There are plenty of platforms available for freelancers and organizations to communicate(like fiverrs.com, upwork.com, toptal.com, etc.,).

Rohit kuttappan (2017, April 28) Number of gig workers keeps on increasing in many countries. Around 34% of the workforce in the Asia-Pacific, 31% in the US, and 27% in Europe are giggers. It is forecast that by 2020, 50% of U.S workforce will be giggers.

Gig economy in India

According to the website thehindubusinessline, not only workers but recruiters too are seeking remote works. 7.7 percentage of companies which are posting their vacancies in the online platform gives privilege to the freelancers ("Indian Labour Market Seeing A Shift Towards Gig Economy Report", 2017, Nov 10 , para 2).

Mercer (2017, Nov 22) says, "All over the world, Indians fulfil the requisites of 350 million jobs that are not met out by the local workforce in the buyer's country. Employee attrition rate which is reported as 16.4 percentage in India. 20 percentage of Indian workers dissatisfied with their success at work. 60% of Indian employees are planning to change their jobs within a year".

A STUDY ON FOOTPRINTS OF SELF-EFFICACY IN ORGANIZATIONAL EFFECTIVENESS WITH REFERENCE TO HIGHER EDUCATIONAL INSTITUTIONS IN THURAIYUR TALUK

[1]C. Abarna, [2]Dr. J. Francis Mary,
[1]M.Phil - Research Scholar, [2]Director,
Department of Management Studies,
Shrimati Indira Gandhi College, Trichy, India

Self-efficacy is having faith in one's own potential to organize and implement the modus operandi to manage prospective situations. It is a flourishing temptation in psychology as well as management research and invested its potential to appetite prominent place in many institutions. There is limited assimilation in individual and contextual factors that promote self-efficacy behaviors of teachers. This quantitative research examines the degree of self-efficacy and sources and indicators of them among the teaching faculties. It ascertains the effects of self-efficacy on organizational effectiveness as well. The samples are selected by simple random method. The respondents are 150 teaching faculty members of higher educational institutions in Thuraiyur.

Terms: Self-efficacy, Personal efficacy, Teachers efficacy, Quantitative research, Organizational effectiveness.

INTRODUCTION

The prominence of higher education in India can be well understood by the number of institutions that offer higher education. According to the statistics of 2017, there are 37,204 colleges, 789 universities; 11,443 stand-alone institutes in India ("Educational India", 2017).

As a census of 2011, There are 42: 19, 59,000 youths are the residents of India. Due to the cut throat competition in getting jobs, the students of the higher educational institutions have to be highly skilled. Making the students suitable for getting the job is the welcome may be the goal of these institutions (Anil swarup, 2016). In educational settings, self-efficacy has been awarded as an imperative factor that contributes not only students' achievement, but also teachers' performance (Zhu Chen and Alexander S. Yeung). The increase in researches in the self-efficacy on teachers suggests that, the teachers with high self- efficacy will contribute more in the goals of the educational institutions.

Sources of self-efficacy

As per Albert Bandura, the father of Self-efficacy, the predominant sources of self-efficacy are past performance, vicarious experience, verbal persuasion, and emotional cues.

Past experience: Experience of the success of co-worker at a particular task accomplishment will induce the self-efficacy of an individual.

Persuasion: Persuading people that they have potential to accomplish the goal will magnify the self-efficacy of a person.
Experience: Success of a person in a particular task will improve his self-efficacy to get succeed in the similar tasks in future.
Emotional Factors: Overcoming the stressors will increase the self-efficacy of a particular person in the workplace [Fred C. ... 2011].

Characteristics of self-efficacy

Teachers with high self-efficacy will have the characteristics like enthusiasm, commitment, openness to new ideas, innovating approaches, experiencing less stress and burn-out, more autonomous in their job, paying attention towards students with lack of ability to stay current in their subject and being loud in the subject knowledge, etc. (Peter Gavora, 2010).

Effects of self-efficacy

Task responsibilities: People with high self-efficacy will undertake the responsibility of challenging tasks. But, the people with ... than the actual ability will find obstacles in reaching their goals. Person with high self-efficacy will put more ... Self-efficacy does motivate the pupil in both positive and negative manner. Person with high self-efficacy can be over confident in their potential and put fewer ... taking time to get the job done. But, the person with high self-efficacy can be over confident in their potential and put fewer ... in reaching their goal.

Patterns & responses: Lack of self-efficacy will magnify the degree of difficulty in completing the tasks. People with low ... will feel uncertain in their achieving goals. High self-efficacy will broaden the perception of a person to determine the best ... with high self-efficacy will be more enthusiastic.

Behavior: Based on self-efficacy the health behaviors will vary. People with lack of self-efficacy will be victim of smoking, ... instability, stress, burnout and obesity. These habits will be results in their actual behavior of a human being.

... People with high self-efficacy will perform better than those who are having less self-efficacy. People with high self-efficacy will decide the perception of the perceiver, towards the control of their live.

A STUDY ON EMPLOYEE PERCEPTION TOWARDS PROSPECTS AND CHALLENGES IN GIG ECONOMY WITH REFERENCE TO IGLOWSOFT IT INNOVATION, CHENNAI

(Dr. J. Francis Mary* & Ms.C. Abarna**)

ABSTRACT

GIG economy has merited growing interest in management research, given its potential to extend the employment opportunities in the digital world. Gig economy is an open talent labour market where companies head hunt the freelancers instead of perpetual labours, for short-term projects. Through digital platforms, freelancers who have niche talent in advanced technologies can gain perishable job opportunities from companies across the globe. One-fourth of the freelancers in the world are Indians and they contribute 40% of the global freelancing requirements. In software domain, India contributes 50% of global freelancing obligations(Goutam Das, 2018). Gig workers can be gratified by flexibility, work-life balance. Due to sham contract, they are ineligible to acquire insurance, bonus, Provident Fund (PF), superannuation schemes, training, travel allowances, recreational activities, paid vacations and other welfare amenities. Income fluctuations, job insecurity and gender discriminations are the prominent barriers for entering the world of freelancers. This study focuses on the prospects and challenges in gig economy in the light of Indian employees.

Key words: Gig economy, Digital platforms, Freelancers, Sham contracts

INTRODUCTION

Gig economy is a labour market where people pursue temporary jobs rather than traditional full time job. In gig economy freelancers do short-term projects for multiple employers simultaneously. Human resource realm is a victim of frequent transformations and technological proliferations. In that way Gig economy is a business environment where companies are interested in head hunting their short-term human resource requirements from online platforms.

*Dr. J. Francis Mary, Director, Department of Management Studies, Shrimati Indira Gandhi College, Trichy.

**Ms.C. Abarna , Research Scholar, Department of Management Studies, Shrimati Indira Gandhi College, Trichy.

Customer Satisfaction of E-Banking Services in Tiruchirappalli Town

V P T Dhevika [1]*, J.Saradha [2]

[1]* Department of Management Studies, Shrimati Indira Gandhi College, Tiruchirappalli-2
[2] Shrimati Indira Gandhi College, Tiruchirappalli-2

Available online at: www.ijcseonline.org

Abstract— Service quality is one of the critical success factors that influence the competitiveness of an organization. A bank differentiate itself from competitors by providing high quality service. Service quality is one of the most attractive areas for banks over the last decades in the retail banking sector . There is no guarantee that what is excellent service today is also value for tomorrow. To survive in the competitive banking industry, customer satisfaction is considered as the essence of success. Hence an attempt is made to study the Customer Satisfaction of E-Banking Services in Tiruchirappalli Town. The important factor influencing customer satisfaction of E-Banking Services are Costs and the least important factor influencing customer satisfaction of E-banking services are Adoption. Customer satisfaction.of E-Banking services are high for Vijaya Bank.

Keywords— Customer satisfaction ,E-Banking, Costs Adoption.

I. INTRODUCTION

Nowadays, customer satisfaction is no longer enough and companies, organizations and banks should not seek customer satisfaction alone. They should become sure clients are not only satisfied but also loyal, Therefore, improving services and product quality for customers is key for banks to be successfully and to survive in the competitive banking condition, so providing quality services and products will result in reputation of business and enables them to keep customers and also attracts customers by oral advertising among people and promotes financial performance profitability, In the last few decades, there has been a change in banks approach to relationship. Therefore, these days, banks have shifted their focus towards customer. In must be noted that banks can realize profitability as a result of attracting more customers. In contrast, now, research shows that the cost of absorbing a new customer is nearly twice the cost of keeping an old customer. In this research, first off, we try to study the various factors resulting in customer loyalty by literature and they are tested and also the relationship between the customer loyalty and these factors will be determined. Finally whether these factors result in customer loyalty in the banks will be answered. In this research, after testing the relationship between any of the variables and ... question which arises here is that "how much does it ... influence any of the variables?" It seems like it can perform a research measuring. The relationship between online banking and any of these variables. By above mentioned statement. The results achieved by research can be very important. Such results can be

used by managers (bank industry) to design and create a structure based on customer loyalty to online networks in banks.

SCOPE OF THE STUDY

This study deals with variables like Security, Privacy, Trust, Costs and Charges, Adoption towards customer satisfaction.

OBJECTIVES OF THE STUDY

o To find out the factors influencing customer satisfaction of E-Banking services

o To know the level of satisfaction of E-Banking services

o To identify whether there exist a relationship between personal profile and customer satisfaction

HYPOTHESIS

o There is a difference between Type of bank and Customer Satisfaction of

o E-Banking Services.

o There is a difference between E-banking Services offered E-Banking Services.

METHODOLOGY

Pilot study:Pilot study is conducted with 20 respondents. After making certain changes, additions and alterations are made in the questionnaire.

Table- 1
RELIABILITY VALUE

Problems of E-Banking Service Users In Tiruchirappalli Town

V.P.T.Dhevika[1*], M.Aishwarya[2]

[1*] Dept. of Management Studies, Shrimati Indira Gandhi College, Trichy-2
[2] Dept. of Professor of Commerce, Srimad Andavan Arts & Science College(Autonomous), Trichy-5

Abstract— Online Banking offers a higher level of convenience for managing one's finances even from one's bedroom. However, it continues to present challenges to the financial security and personal privacy. Many people have had their account details compromised, as a result of online banking. Thus, if one is going to use it for financial transactions, he should be aware of the risks involved. Awareness of the risks and problems enables to take precautions for a more secured online banking experience. Hence an attempt is made to study the problems of e- banking from account holders point of view.. Sample size consists of 100 respondents. Study result shows that there is a significant difference between Age, Monthly Income, Type of Bank, E-Banking services availed and problems of E-banking.

Keywords— E-Banking, problems, financial security and personal privacy

INTRODUCATION

Although the benefits of internet banking are undeniable, there are some Inconveniences and concerns of which customers should be aware of. Many people have difficulty relying on the security of online transactions, fearing the very real possibility of identity theft is a significant concern, but some online banks take this risk more seriously than others. Before opening an online account, its better for the customer to investigate the bank's security policies and protections to ensure they meet his expectations.

Clearly, choice of whether or not to bank over the internet depends on many variables. Even if a customer can see benefits, he may be unwilling if he does not trust or have much experience with the internet. At the other end of the spectrum, people May sign up for limited services like account viewing. This will save them from safety concerns but will give them daily access to account activity. If the customer decides that internet banking is right for him, he must be sure to review other offers from several banks. Each bank has different fees and advantages that can make a big difference in how much internet banking costs. By comparing deals and being educated, a customer can find an internet banking services that suits his needs. Hence an attempt is made to study the problems of E-Banking service users.

OBJECTIVES OF THE STUDY:

1. To know the problems faced by E-banking services users.

HYPOTHESIS:

> There is no difference Age and problems of E-banking.
> There is no difference E-banking services availed and problems of E- Banking

METHODOLOGY:

Pilot- study: Pilot studies are conducted with 15 respondents. Certain changes, additions and alterations are made in the questionnaire.

Reliability: The cronbach alpha value is 0.072 which shows that questionnaire is reliable.

Questionnaire Construction: Questionnaire are collected through likert-5 point scale from strongly agree to strongly disagree

Data Collection: Both Primary and secondary data are collected. Primary data are collected through questionnaire and secondary data are collected through books, magazines, journal, and websites.

Sampling Method: Convenient sampling methods are used based on the convenience of the respondents.

Sampling Size: Sampling size consist of 100 respondents

Tools Used: Data collected are analysed through SPSS. Percentage analysis, Chi- Square and F-test are used in the study.

Use of vibrational spectroscopy to study 1,3-dimethyl-5-nitrobenzene: A combined theoretical and experimental approach

S Seshadri[a]* & M Padmavathy[b]

[a]PG & Research Department of Physics, Kattur, Trichy 620 019, India
[b]Department of Physics, Shrimati Indira Gandhi College, Trichy 620 002, India

The FTIR and FT-Raman spectra of 1,3-dimethyl-5-nitrobenzene (DMNB) have been recorded in the range 4000–400 cm^{-1} and 3500–100 cm^{-1}, respectively. The molecular structures, fundamental vibrational frequencies and intensity of the vibrational bands have been investigated and interpreted theoretically with the use of structural optimizations and normal coordinate force field calculations based on density functional theory (DFT) with 6-31G(d,p) basis set. The vibrational assignments have been made from potential energy distribution (PED). The theoretically simulated vibrational spectra of the molecule show excellent agreement with the experimental spectra. The hyper conjugative interaction energy ($E^{(2)}$) and electron densities of donor (i) and acceptor (j) bonds have been calculated using NBO analysis. The electronic transition has been studied using UV-Visible analysis of the title molecule with B3LYP/6-31G(d,p) level of theory. The microscopic non-linear optical (NLO) behaviour of the title compound has also been calculated. In addition, the ^{1}H and ^{13}C NMR chemical shifts values of DMNB in the ground state for B3LYP/6-31G(d,p) method have also been calculated using gauge independent atomic orbital (GIAO) method.

Keywords: FTIR, FT-Raman, DFT, UV-Visible, NMR

Introduction

Benzene is a colorless and highly flammable liquid with a sweet smell. It is an important industrial solvent and precursor to basic industrial chemicals including dyes, plastics, synthetic rubber and dyes. It evaporates into the air very quickly and dissolves slightly in water[1]. Benzene was historically used as a significant component in many consumer products such as liquid wrench, several paint strippers, rubber cements, spot removers and other hydrocarbon containing products. Benzene is also a natural part of crude oil, gasoline and cigarette smoke[2,3]. Today, benzene is used mainly as an intermediate to make other chemicals. Its most widely produced derivatives include styrene, which is used to make polymers and plastics, phenol for resins and adhesives and cyclohexane which is used in the manufacture of nylon.

Nitrobenzene is used to produce lubricating oils used in motors and machinery. Nitrobenzene and its derivatives are used in the manufacture of dyes, drugs, pesticides, polisher, paint and synthetic rubber. Nitrobenzene is also used to mask unpleasant odors in shoe and floor polishes, leather dressings, paint solvents and other materials. A significant use of nitrobenzene is its use in the production of the analgesic paracetamol and it has been used as an inexpensive perfume for soaps. Dimethylbenzene is used as an additive to motor oils, as a crystallizing solvent, and in the production of the synthetic intermediate phenyl magnesium bromide. Dimethylbenzene is used in the fumigant and insecticide, solvent and chemical intermediate to manufacture dyes, agrochemicals, pharmaceuticals and other organic synthesis.

Various spectroscopic studies of halogen and nitrogen substituted benzene compounds have been reported in the literature[4-8]. DMNB belongs to the group of organic halogen compounds replacing two hydrogen atoms in benzene by methyl (CH$_3$) and a nitro group (NO$_2$). Literature survey reveals that no detailed B3LYP with 6-31G(d,p) basis set calculations, NBO and NLO analysis, UV-Visible studies and NMR chemical shifts calculation of DMNB have been reported so far. It is, therefore thought worth to make this theoretical and experimental vibrational spectroscopic research based on molecular structure to give the correct assignment of fundamental bands in the experimentally observed FT-IR and FT-Raman spectra. In this study, molecular geometry, optimized parameters and vibrational frequencies are computed

*Corresponding author
Email: kavickarthick2017@gmail.com) rihick2017@gmail.com)

Structure, characterization and DFT studies of 1,2- Dichloro-4-fluoro-5-Nitrobenzene

S.Seshadri*[1], M.Padmavathy[2]

[1]Associate professor in PG & Research Department of Physics, UrumuDhanalakshmi College, Trichy, India

[2]Department of Physics, Shrimati Indira Gandhi College, Trichy, India

1,2-Dichloro-4-fluoro-5-Nitrobenzene (DFNB) subjected to density functional theory (DFT) studies using B3LYP/6-31+G(d,p) method. Characterization was done by FT-IR, FT-Raman and NMR (13C and 1H) techniques. Molecular electrostatic potential (MEP) study was also determined.

Keywords: DFT, FT-IR, FT-Raman, NMR, MEP.

I. INTRODUCTION

It is a very poisonous, flammable, pale yellow aromatic compound with an odor like that of almonds. It is sometimes called oil of mirbane. Nitrobenzene melts at 5.85°C, and it is only slightly soluble in water but is soluble in ethanol, ether and benzene. It is prepared by treating benzene with a mixture of nitric and sulfuric acid in the resulting reaction one hydrogen in the benzene is replaced with a nitro group.

The use of nitrobenzene is in the production of commercially the most important amine. When it is heated with iron and dilute hydrochloric acid and the resulting anilinium salt is treated with sodium carbonate to release In the pharmaceutical industry nitrobenzene. In the production of the analgesic acetaminophen or paracetamol. Nitrobenzene is also used in shoe and floor polishes, leather dressings and paints to mask unpleasant odors, As oil of mirbane nitrobenzene was used as an inexpensive perfume in soaps and cosmetics but is now considered toxic for such applications.

The compound 1,2-Dichloro-4-fluoro-5-Nitrobenzene (DFNB) is used as a reagent for the detection and determination of nicotinic acid, nicotinamide and other pyridine compounds. It is also used in the manufacture of azo dyes, fungicides, rubber chemicals and explosives and as an algicide in coolant water of air conditioning systems. Contact sensitizations with DFNB have been used as a measure of cellular immunity.

Various spectroscopic studies of halogen and nitrogen substituted benzene compounds have been reported in the literature [1–5]. DFNB belongs to the group of organic halogen compounds replacing two hydrogen atoms in benzene by methyl (CH_3) and a nitro group (NO_2). Literature survey reveals that no detailed B3LYP with 6-31+G(d,p) basis set of FT-IR, FT-Raman and NMR (13C and 1H) chemical shifts calculation of DFNB have been reported so far. It is, therefore thought worth to make this theoretical and experimental vibrational spectroscopic research based on molecular structure to give the correct assignment of fundamental bands in the experimentally observed FT-IR and FT-Raman spectra. In this study, molecular geometry and vibrational frequencies are calculated using hybrid density functional method. This method

SRIMAD ANDAVAN ARTS & SCIENCE COLLEGE
(Autonomous)
(Estd. 1996)
Managed By Sri Parasandha Padura Vidyalaya Trust (Regd.)
(Affiliated to Bharathidasan University)
Nationally Re-Accredited with 'A' Grade by NAAC
ISO 9001 : 2008 Certified Institution

PEZZOTTAITE JOURNALS
TRANSFORMING EDUCATION FOR
SOCIAL CHANGE & BUSINESS EXCELLENCE

Dear *J. Saradha,* and *Dr. V. P. T. Dhevika*
[Dr. / Mrs. / Mr. / Ms.]

CERTIFICATE OF PUBLICATION

'Pezzottaite Journals' has successfully brought out issues for April - June' 2017, in both formats i.e. 'Online' & 'Print' simultaneously.

Your submission titled "*A STUDY ON CUSTOMER RELATIONSHIP MANAGEMENT OF INDIAN OVERSEAS BANK-WORIYUR BRANCH AT TIRUCHIRAPALLI*" got published in "*International Journal of Applied Services Marketing Perspectives*" - An Indexed and Refereed Quarterly Journal, ISSN (Print): 2279-0977; ISSN (Online): 2279-0985, Volume: 6, Number: 2 (April to June, 2017), pp. 34-39.

The submission is published on behalf of '*Srimad Andavan Arts & Science College (Autonomous), Tamil Nadu, India*', hereby referred as '*The Organizer*' of 1 Day *International Conference* themed "*Futurology Management*", conducted on 7th January, 2017.

The submission is also available as 'Online' at www.pezzottaitejournals.net. User Name & Password to access your paper is: ijasmpv6n2. Please do not share online login details with anyone else.

sJImpact Factor of 'International Journal of Applied Services Marketing Perspectives' - sJIF for (2012): 3.23, sJIF for (2013): 5.057, sJIF for (2014): 5.871, sJIF for (2015): 6.492; sJIF for (2016): 7.056

Index: H5-Index: 2, H5-Median: 2, H-Citations: 4

We will appreciate any opportunity to get associated with you for publishing papers / articles submitted by participants in upcoming conference / seminar at your institution or nearby. Kindly keep contributing your work for publication in our regular issues by sending articles / papers on emails: callandinvitations@gmail.com / callandinvitations@pezzottaitejournals.net.

We are grateful to you for your valuable contribution.

(Er. B. B. Jain)
(Editor-In-Chief)
(Pezzottaite Journals)

(Dr. J. Radhika)
(Principal)
(Srimad Andavan Arts & Science College)

ijpam.eu

A STUDY OF THERMODYNAMICAL AND ELECTROCHEMICAL PROPERTIES OF PEPTIDES IN NON AQUEOUS MEDIUM

Padmavathy.R[1], Sujatha.S[2], Dhanalakshmi.K[3]

[1]Principal, Head & Associate Professor, PG & Research Department of Physics, Seethalakshmi Ramaswami College, Tiruchirappalli- 620 002 Tamilnadu, India
[2]Assistant Professor, Department of Physics, Shrimati Indira Gandhi College, Tiruchirappalli – 620 002, Tamilnadu, India
[3]Research Scholar, PG & Research Department of Physics, Seethalakshmi Ramaswami College, Tiruchirappalli- 620 002 Tamilnadu, India
E-mail: sujasigc@gmail.com

ABSTRACT

Ultrasonic study of solutions provides valuable information regarding the solute-solvent interactions, nature and strength of interactions. Probing biomolecules by ultrasonic technique is a powerful tool for characterizing their physico-chemical properties. Peptides have been used in the study of protein structure and function. Internal pressure is closely related to solubility parameters which determine the way in which the interaction occurs in the system and also it can be measured experimentally. Free volume dependent properties have close connection with the molecular structure which may account for interesting features about interactions in the solutions. Suryanarayana and Kuppusamy have formulated quantitative relationship between the internal pressure, free volume and equivalent conductance. The solutions of different molalities were prepared in formamide and experimental studies were made from a very low concentration to a high concentration and at different temperatures. In the present work, the results are analyzed on the basis of ultrasonic methods to interpret the structural changes taking place in the solution.

Keywords: Peptides, Ultrasonic velocity, internal pressure, free volume and equivalent conductance

1.INTRODUCTION

Amino acids belong to an important family of biomolecules which serve primarily as the basic building blocks of all proteins [1]. Proteins play different biological roles in the living systems. They are the molecular instruments through which all genetic information are passed [2]. Ultrasonic studies of solutions yield valuable information about the molecular interaction since the ultrasonic velocity is highly sensitive to molecular structure [3-5]. The velocity of ultrasonic waves in a medium and several other acoustical parameters which are dependent on it, help to determine the overall response of the medium and tell us about the nature of interactions between the molecules of the medium [6-9].

Salathmary Metilda
M.Phil., Scholar, P.G &
Research Department of Social
Work, Shrimati Indira Gandhi
College, Tiruchirappalli,
Tamil Nadu., India

Dr. K Kavitha Maheswari
Assistant Professor, P.G &
Research Department of Social
Work, Shrimati Indira Gandhi
College, Tiruchirappalli,
Tamil Nadu, India

Spiritual well-being among adolescents

J Salathmary Metilda and Dr. K Kavitha Maheswari

Abstract
Spirituality and faith provide an opportunity to detach from circumstances and observe life with clarity and integrity. This study is conducted to assess the level of spiritual well-being among adolescents. Descriptive research has been adopted for this project. The study was conducted among 11th std students of both urban and rural backgrounds. The researcher selected two schools from both urban and rural areas respectively in Tiruchirappalli. There were 224 students in both the schools formed the universe. Among the students of the above schools, 100 respondents were selected by using stratified disproportionate random sampling technique. 50 students from each school were selected to form the sample. The researcher used standard questionnaire on Spiritual well-being by Hall, T.W & Edwards, K.J. (1996) along with a self-prepared questionnaire covering socio demographic profile of the sample. The findings of the study revealed that majority of the respondents perceived low level of self-efficacy and a little more than half of the respondents have low life scheme and (63.0%) of the respondents perceived low level spiritual well-being.

Keywords: Adolescents, spiritual well-being, mental health and school students

Introduction

Spiritual well-being plays an important role in mental, emotional and physical health. Spiritual well-being is associated with a specific religion but does not have to be. This practice is merely one's own journey to discover things of important in life. It can be practiced in numerous ways, with its main purpose being to find purpose and meaning in life with peace.

Spirituality and faith provide an opportunity to detach from circumstances and observe life with clarity and integrity. Spirituality can either be positive or negative. Spiritual well-being is a state in which the positive aspects of spirituality differs from one person to the other. Through proper spiritual well-being, people are empowered and realize their issues, stressors, and challenges, and they are not defined by these circumstances. This realization paves a pathway to greater peace, freedom of self-expression, increased manageability over the healing process and higher self-esteem. Such a realization can make an impact in the life of a person.

Each person's spirituality is greatly impacted by the community where they are from and their relationship they practice in it. Spiritual well-being is not a practice of isolation but rather of affecting and involving the people in their own community of life. Spiritual well-being groups and sessions provide an open and safe environment to explore, learn, practice, support and heal.

Spiritual well-being programs include group exploration and experiential practices on the topics of meditation, prayer, forgiveness, personal values, purpose in life, the role of self-esteem in spiritual connection, healthy relationships, and developing an authentic relationship with a Higher Power, God, or Spiritual Dimension.

Benefits of Spiritual Well-Being

- Feeling content with the life's situation
- Making time to spend alone and explore inner peace
- Taking time to reflect and resolve problems
- Finding satisfaction in life and work
- Taking part in an active lifestyle Maintaining balance and control of life
- Building rapport

S Prabha
Scholar, P.G &
Department of Social
Srimati Indira Gandhi
Tiruchirappalli,
Tamil Nadu, India

Kavitha Maheswari
Professor, P.G &
Department of Social
Srimati Indira Gandhi
Tiruchirappalli,
Tamil Nadu, India

Causes of truancy with special reference to school factors

S Prabha and Dr. K Kavitha Maheswari

Abstract
Truancy is any intentional, unjustified, unauthorized, or illegal absence from compulsory education. It is absence caused by own free will of the students, and usually does not refer to proper excused absences. This study attempts to describe the socio-demographic variables and the influence of school variables on truancy. This study was conducted in a government higher secondary school, Karur District. The truant children from sixth standard to twelfth standard constituted the universe of this study. They were identified with the help of the head master and the school teachers. Census method was adopted and complete enumeration of all the 70 students were the sample of this study. The researcher used structured interview schedule as tool to collect the required data from the respondents. The detailed findings of this study is discussed in the full paper.

Keywords: Truancy, school variables, attitude, truant behavior

Introduction
Truancy is any intentional, unjustified, unauthorized, or illegal absence from compulsory education. It is absence caused by own free will of the students, and usually does not refer to proper excused absences. Another term for truancy is playing hooky; attending school but not going to class is known as skipping class.

There are several factors in a child's home or personal life can lead to truancy. Problems such as alcoholism, divorce, physical or verbal abuse and frequent shifting from place to place also cause prolonged absenteeism. Children from poor economic background are more vulnerable to truancy when compared to children from rich families and parents who are not showing involvement in their child's school life.

A hostile school environment may also cause truancy. Students who do not have friends or are being bullied by classmates are likely to become truants. In addition, some children may face peer pressure also cause absenteeism. The students who lack confidence in their mental abilities or have learning disabilities may also become truants. Truancy is high in schools that have antagonistic relationships between teacher and students and a poor attendance policy.

Absenteeism leads to poor academic performance. Chronic absenteeism results in loss of interest in school and creates negative attitude towards the overall learning environment. Without continuous supervision, truant teens are more likely to get involved in criminal activities, such as vandalism or shoplifting. Truancy is also sometimes resulted in delinquency if students begin associating with gangs. Truancy is also a risk factor for substance abuse.

Review of literature
Reid (2006) [15] identifies attendance as the single important factor in measuring students' achievement levels; so it is important that corrective action be taken against chronic absenteeism immediately. The possible causes for the behavior must be identified. The short-term and long-term effects of chronic absenteeism must be informed to the truants. Due significance must be given to solutions towards decreasing, preventing, and/or eliminating the behavior.

According to Zhang, Katsiyannis, Barrett, and Wilson (2007) [8], discussed about the causes which can be positioned within four major categories. These categories include family

Prabha, P.G &
Department of Social
Swati Indira Gandhi
Trichirappalli,
du, India

Kavitha Maheswari
Professor, P.G &
Department of Social
Swati Indira Gandhi
Trichirappalli,
du, India

Study on truant children

S. Prabha and Dr. K. Kavitha Maheswari

Abstract
Truancy is commonly considered as any unexcused or unverified absence from school. Causes of truancy may include lack of guidance or parental monitoring and supervision, drug or alcohol and other substance abuse, lack of awareness of attendance policies and regulations and having poor attitude towards education. The study on truant children focuses on their attitude towards school and their behavioral problems. The design of the study is descriptive in nature. It attempts to describe the socio-demographic variables, their attitude towards school infrastructure, teacher student relationship, parent child relationship, peer group influence and their behavioral problems. The study was conducted in a government higher secondary school, Karur District. The truant children from sixth standard to twelfth standard constituted the universe of this study. They were identified with the help of the head master and the school teachers. They were 70 students who are found as having truant behavior are the universe of this study and census method was adopted for sampling. The researcher used self prepared structured interview schedule as tool to collect the required data from the respondents. The major findings of the study are discussed in the full paper.

Keywords: Truancy, attitude, behavioral problems, peer influence, relationship

Introduction
Truancy is commonly considered as any unexcused or unverified absence from school. Causes of truancy may include lack of guidance or parental monitoring and supervision, drug or alcohol and other substance abuse, lack of awareness of attendance policies and regulations and having poor attitude towards education. The school environment like school infrastructure, size, teacher's attitude, attitudes of students and administrators, the diverse cultural and learning styles of minority students and lack of meaningful activities in the school are responsible as factors of school influencing chronic absenteeism. The reasons like broken families, employed students, single-parent families, lack of transportation facilities and long distance between school and home and childcare, high mobility rates and parents with multiple jobs are of economic reasons. Found the positive correlation between truant youth and the incidence of day time crime. Wrote a book on "Behavioral problems of school children" and they stated in the book that, socio economic background, television, cinema, and defective child rearing practices are the influencing factors for the behavioral problems. The global school based survey (2008) by Ster Siziya, Adamon. S. Mulla & Emmoanuel Rudatsirikira found that Truancy was associated with lower school grade, having been victim of bullying, having gone hungry sometimes because poverty and of lack of food at home and less parental observation and supervision. Study on truancy among primary school pupils in Tanzania conducted in 2002 reveals that parents are responsible for their children attitudes, habits and values that help to shape their character and personality and enable them to remain with them throughout their life. Parents are the first teacher but unfortunately few parents have neither time nor interest ability to guide their children everything they need to know to lead a meaningful life. Restuta Shirima (2002) [3] insisted that truancy is the major influencing factor affecting academic performance among secondary school students in Tanzania, Kigamboni ward in Dar es Salaam inclusive. Absenteeism is dangerous factor to student's achievement, promotion, higher education, self-esteem and employment potential. Clearly, students who miss school fall behind their peers in the classroom and poor in studies. This, in turn leads to low self-esteem and increase the likelihood that at-risk students will drop out of school. (Azizi Yahya et al. 2010) [1].

IMPACT AND PROBLEMS ASSOCIATED WITH WHATS-APP USE AMONG COLLEGE GIRLS STUDENTS
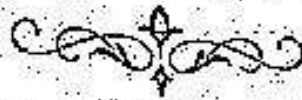
II MSW, PG & Research Department of Social Work, Shrimati Indira Gandhi College, Trichy

A.Sajitha

Dr.K.Kavitha Maheswari

Assistant Professor, PG & Research Department of Social Work, Shrimati Indira Gandhi College, Trichy

Abstract

The study on impact and problems associated with whats-app use among college students is a descriptive study focused on the problems arises in time management or time usage, problems in work completion of daily and self-tasks, sensitive issue related problems, affecting academic involvement and performance, problems in family, possibility of moral corruption, problems in friends circle, merits and disadvantages. It was conducted at government hostel, Trichy where in 154 girl students are residing constitute the universe, among them 50 respondents were selected by simple random sampling. The data were collected by using a self-prepared questionnaire. The study has revealed that despite being an essential medium of communication, it has an adverse impact on the lifestyle of youth. They may receive misleading information and concentration is more on gossips which will negatively impact their life. Emphasis must be given to the useful side of this application. Youths are spending more time on whats-app rather than spending quality time with their family members. Hence quality time must be shared with family and friend has to be insisted by the family and friends circle. They should also try use whats app for constructive purposes.

Keywords: Whatsapp, impact, problems and adolescents.

Introduction

The world is dynamically changing due to the advancement in the mobile technology. These days it is almost impossible to avoid the presence of mobile applications or called Mobile Apps. Most of the People can praise the various mobile applications that they use in their everyday lives. Several people are heavily dependent of the usage of such applications for their day to day activities. WhatsApp is one among the major changes in mobile apps communication in the recent past, it's uses are growing very fast on mobile phones and also on the computers.

WhatsApp has been around for a short while however its regular updates have been improving its functionality since its release date. Some of its features are also updated recently after initiating this online survey, hence these feature could not be addressed appropriately. Mainly WhatsApp was started to interchange SMS with a cross-platform feature. If you have got unlimited text, it's still helpful. WhatsApp uses mobile network data or local area network to send and receive messages. In addition to text communication, users can also send pictures, video and audio media messages easily. Since the Smartphones became common,

Massimi, Harper, Rubens & Morris (2014) is of the opinion that Multi-method study involving 140 individuals (between 20 and 60 year olds) in Spain, found that WhatsApp was commonly adopted for convenience in communication and cost benefits. They also concluded that the effects of WhatsApp use on social relationships included a sense of belongingness, as well as a secured and committed bond. However, some of the major limitations of these studies included sampled age groups were quite diverse and thus the results could not be generalized.

INFLUENCE OF PARENTHOOD ON SELF CONCEPT OF ADOLESCENTS

Dr.K.Kavitha Maheswari
Assistant Professor, PG & Research Department of Social Work
Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu

S.Prabha
M. Phil Scholar, PG & Research Department of Social Work
Shrimati Indira Gandhi College, Tiruchirappalli, Tamil Nadu

Abstract

The self-concept is more or less a collection of beliefs about nature, qualities, and behavior. It's all about thinking and evaluating of oneself at any given moment in time. It is a perception of image, abilities, and in some ways a perception of individual uniqueness. This study is basically descriptive which portrays the socio-demographic characteristics of the respondents along with their self concept and the influence of parenthood on self concept of the respondents. This study was conducted with 40 respondents who are having both the parents alive and 40 of them who are having only one parent either father or mother were selected as sample by using purposive convenient sampling method. The researcher collected the data by using a self prepared questionnaire along with a standardized tool on self concept. The findings of the study supports that there is no significant influence of parenthood on the self concept of the respondents.

Keywords: Parenthood, Adolescents and Self concept.

Introduction

A self-concept is defined as an all-encompassing awareness one had of himself in the past; the awareness one has on himself in the present, and the expectations one has of himself at a future time. The self-concept is built upon perception — how one perceives himself based on the knowledge he has gained over a lifetime of experience. This perception is based on the information one has gathered about his values, life roles, goals, skills, abilities and much more.

The self-concept is more or less a collection of beliefs about nature, qualities, and behavior. It's all about thinking and evaluating of oneself at any given moment in time. It is a perception of image, abilities, and in some ways a perception of individual uniqueness.Self-concept impacting one's own life. There are three components of a self-concept based on the work of Humanist Psychologist *Carl Rogers:*

Self-Image: This is in essence what one sees in himself in the present moment. This includes the labels of personality, and it also includes the beliefs of how the external world perceives you. It's however important that one's self-image is not necessarily based on reality. For instance, a person with anorexia may have a self-image that makes them believe they are obese, however in reality that is far away from the truth. Therefore self-image is only your one's own perception of oneself and has no real basis in reality.

Self-Ideal: This is how one wishes one could be at a future time. This is the ideal-self, or the ideal person one envisions of being and becoming. Many times, how people see themselves and how they would like to see themselves quite mismatching. And this is what leads to self-sabotage behavior and emotional struggles.

Self-Esteem: This encompasses one's current emotional experiences. It also refers to the extent to which one likes or approves of himself, or the extent to which one values oneself.

WORK LIFE BALANCE AMONG WOMEN

V.Dhanalakshmi
II MSW Student, PG & Research Department of Social Work
Shrimati Indira Gandhi College, Tiruchirappalli

Dr.K.Kavitha Maheswari
Assistant Professor, PG & Research Department of Social Work
Shrimati Indira Gandhi College, Tiruchirappalli

Abstract

Women constitute half of the world population. They shoulder lot of responsibility both in family and work environment. They effectively deal it but unfortunately they find it difficult to shoulder multiples roles and responsibilities. The aim of the study is to study of work life balance among women working in Atlas export enterprises Karur. The researcher used descriptive research design for this study and she portrayed the socio demographic variables of the selected population with special reference to their work life balance and how the socio demographic variable influence on work life balance of the respondents. The researcher used stratified disproportionate random sampling for selecting 60 respondents from the universe of 700 women workers of a Karur based private export enterprises. The researcher found 3 units namely checking, packing, sewing units in the industry hence the researcher decided to select 20 respondents from each unit which is disproportionate to the universe together 60 respondents formed the sample of this study. The research used to a self – prepared questionnaire to find out the demographic details of the respondents along with a standardised tool on Work life balance scale development by Fisher. The detailed findings of the study are discussed in the full paper.

Keywords: working women, personal life, work life and work life balance.

Introduction

Women constitute half of the world population. They shoulder lot of responsibility both in family and work environment. They effectively deal it but unfortunately they find it difficult to shoulder multiples roles and responsibilities.

The term work life balance (Work Life Balance) was first used in 1986 in response to the growing considerations by individuals and work environment that can impinge upon the quality of family life and vice-versa, thus giving emphasize to the concepts of "family- work conflict" (FWC) and "work-family conflict" (WFC). The former is also referred to as work interferes with family" (WIF) while the latter is also known as "family interferes with work" (FIW. The policies and procedures developed by the organizations with the goal to help employees to efficiently do their jobs and at the same time able to handle personal concerns at their family. In most developing countries, both women and men work for their livelihood and they have to shoulder both the responsibility parallel. Work-life balance is the maintenance of a balance between responsibilities at work and at home.

These conflicts are intensified by the "cultural contradictions of motherhood", as women are increasingly encouraged to seek self-fulfillment in demanding careers, they also face intensified pressures to sacrifice themselves for their children by providing "intensive parenting", highly involved childrearing and development. Additional problems faced by employed women are those associated with finding adequate, affordable access to child and elderly care. WFC and FWC are generally considered distinct but related constructs. Research to date has primarily studied how
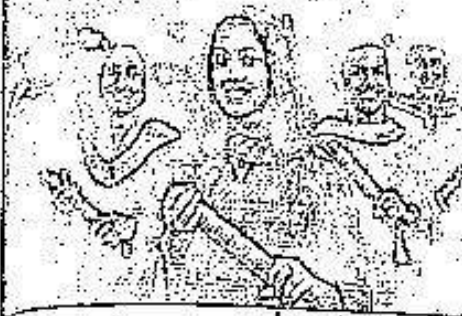
E Rajeswari
Scholar, P.G &
ch Department of Social
Shrimati Indira Gandhi
, Tiruchirappalli, Tamil
India

Kavitha Maheswari
ant Professor, P.G &
ch Department of Social
Shrimati Indira Gandhi
, Tiruchirappalli, Tamil
India

International Journal of Applied Research

Mental health among early married women

E Rajeswari and Dr. K Kavitha Maheswari

Abstract
The aim of this study is to assess the mental heal status among married adolescent girls. Through this study the research made an attempt to know the descriptive information on mental health status among adolescent girls, hence descriptive research design was adopted for this study. The universe of the present study are the adolescent girls those who were married before the age of 18 years in the Kurumbalur village, Perambalur district. The researcher used convenient sampling method to select 40 respondents from the universe. It is revealed from the study that majority of the respondents have medium level of overall mental health, more than one third of the respondents have low level of overall mental health and remaining 2.5% of the respondents have high level of mental health. So it is concluded that very low percent of the respondents have high level of mental health and the remaining have comparatively low mental health status.

Keywords: early marriage, girls, mental health

Introduction
Early marriage takes place before the attainment of legal age to undergo marriage. Throughout the world number of girls are suffering as a result of early marriage, approximately 20-50% of girls are married by the age of 18 in developing countries (Somerset, 2000; UNICEF, 2012 & Singh, 1996) [6, 9] and the ratio is higher in Sub Saharan Africa and South Asia (Singh, 1996 & UNICEF, 2012) [5, 8] usually such girls are forced to marry with the man that are quit elder then them. After being married they have to look after their husbands the house and the children they give birth although they do not have the complete knowledge of being a wife and even don't have sufficient information about sex and childbirth (Somerset, 2000). Early marriage is the marriage done before or during adolescence (Somerset, 2000 & UNICEF 2012) [8].

Studies in India and Africa have shown that child marriage is known to be associated with high risks of HIV transmission, unwanted pregnancies and infant mortality, the impact of child marriage on mental health had given less and even no importance." The authors concluded that more mental health support is needed for women who married early (Bridget M. Kuehn, 2011) [2].

(Le Strat Y et al., 2011) [1] conducted a study on child marriage in the United States and its associate with mental health in women. The study revealed the prevalence of child marriage among women was 8.9%. Demographic factors associated with child marriage were black and American Indian/Alaska Native ethnicities, age at interview of >45 years, low educational level, low income, and living in the South and rural areas of the United States. The overall lifetime and 12-month rates of psychiatric disorders were higher for women who married as children, compared with women who married as adults. In addition, women who married as children were more likely to seek and access health services, compared with women who married in adulthood. More than half (53%) of the women who married before the age of 18 years reported having had a mental disorder such as depression compared with 49% of the women who married later. Former child brides also were substantially more likely to have a current mental health disorder (about 36% vs nearly 28%) such as specific phobias. Nicotine dependence was also associated with child marriage. Mental health effects persisted even when the scientists adjusted for sociodemographic variables and the number of children a woman had. Additionally, former young brides were more likely to seek mental health care.

Correspondence
K Kavitha Maheswari
stant Professor, P.G &
earch Department of Social
... Shrimati Indira Gandhi
ge, Tiruchirappalli, Tamil
du, India