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Gandhi Nagar, Vellore – 6.

Publication in Scopus, Web of Science & UGC CARE Journals

2020-2021

Papers Published in 2020-2021 : 37

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3	Dr. Amutha Arockia Mary P R	Reincarnating the Woman 'Hero': AN Alternative Feminist Approach in Octavia E. Butler's *Wild Seed*	English	NIU International Journal of Human Rights	2021	2394-0298
4	Dr.Vernum Cecilia P.A.A	Deep-Rootedness and Empathy in Mo Yan's Depiction of Chinese Culture	English	The International Journal of Analytical and Experimental Modal Analysis	2020	0886-9367
5	Dr.Vernum Cecilia P.A.A	Trauma to Transformation: A Deconstructed Psychological Study on Mo Yan's *Red Sorgum and Frog*	English	Gedrag &Organisatie Review	2020	0921-5077
6	Dr. Kavitha S	Empirical View of Convolutional Neural Network in Health care Using Deep Learning Techniques	Computer Science	Journal of Information and Computational Science	2020	1548 - 7741

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PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Empirical View of Convolutional Neural Network in Health Care Using Deep Learning Techniques

Ms. Kavitha S[1], Ms. Sindhuja C[2] and Dr. Vidyaa Thulasiraman[3]

[1]*Assistant Professor, Department of Computer science*

[2]*M. Phil Research Scholar, Department of Computer science*

[3]*Assistant Professor and Head department of Computer science*

[1]*kavithasenthil@auxiliumcollege.edu.in,* [2] *sindhuja1766@gmail.com*
[3]*vidyaathulasi@gmail.com*

Abstract

Deep learning is an artificial intelligence function that imitates the workings of the human brain in processing data and creating patterns for use in decision making. Deep learning is a subset of machine learning in artificial intelligence (AI) that has networks capable of learning unsupervised from data that is unstructured or unlabelled. Also known as deep neural learning or deep neural network. Health is a priority, medical experts are continually trying to find ways to implement new technologies and provide impactful results. Deep learning in healthcare offers pathbreaking applications. Deep learning gathers a massive volume of data, including patients' records, medical reports, and insurance records, and applies its neural networks to provide the best outcomes. This paper reviews about the parameters and techniques used in convolutional neural network. Various algorithms and techniques like drop- out, Back propagation, texture classification, data augmentation etc. has been explored in this paper.

Keywords: CNN, Deep learning techniques.

1. Introduction

Deep Learning otherwise called progressive learning or profound organized learning, is a sort of AI that utilizes a layered algorithmic design to break down information. In deep learning models, information is separated through a course of various layers, with each progressive layer utilizing the yield from the past one to advise its outcomes. Profound learning models can turn out to be increasingly more precise as they process more information, basically gaining from past outcomes to refine their capacity to make relationships and associations. It is inexactly founded in transit organic neurons interface with each other to process data in the cerebrums

Materials Today: Proceedings

Optimized Detection of Ovarian Cancer Using ROI Based Segmentation and Classification with FR-CNN

S. Kavitha , Vidyaa Thulasiraman

Department of Computer Science, Auxilium College (Autonomous), Vellore 632 006, India.

Department of Computer Science, Government Arts and Science College for Women, Bargur 635 104, India.

Abstract

For old woman, ovarian cancer is a severe illness. Based on research, it is seventh major cause for woman death and fifth common disease worldwide. Using Artificial Neural Network (ANN), many researchers performed ovarian cancer classification. For making decision, doctors consider classification accuracy as an efficient factor. For giving proper treatment, doctors consider higher classification accuracy. Early and accurate diagnosis reduces mortality percentage and save lives. This paper proposes the novel annotated ovarian image classification using FR-CNN (fast region-based CNN) on the basis of ROI (region of interest) segmented. Here the input images have been classified into three types namely, epithelial, germ and stroma cells. This image has been pre-processed and segmented. After this annotation process takes places by using FR-CNN. The framework compares the manually annotated feature and trained feature in FRCNN for region based classification. This will help in analyzing the higher accuracy in detection of disease since manual annotation has lower accuracy in existing works so this work will experimentally prove that the machine learning based classification will yield higher accuracy. After the region-based training in FR-CNN, the classification is done by combining SVC- Support vector classifier and Gaussian Naives Bayes classifiers. Due to higher data indexing, the ensemble technique has been used in classification for the features. The simulation gives accurate part of input image to detect ovarian cancer.

Keywords: Ovarian cancer; annotated image classification;, FR-CNN (Fast Region-based CNN; ROI (Region of Interest;, SVM; Gaussian NB; Accuracy

E-mail address: kavithasenthil@auxiliumcollege.edu.in

Introduction

In world, ovarian cancer is 2nd leading cancer which affects about 2% of female over their lifetime. If it is diagnosed in the earlier stage, it has 90% survival rate. Many research reports after investigation presents that early symptoms and indications of ovarian cancer are not clear [1]. For ovarian cancer, medical experts face several problems in producing cancer-screening guide-lines, there exists no single known cause or mark which leads to make it as silent killer. Research reports show that 90% of patients have symptoms long back before diagnosed [2]. Further, many patients experience numerous tumor metastasis, treatment cycles and disease recurrences. In female genital tract, while considering endometrial and cervical cancer, ovarian cancer is 3rd common cancer in Taiwan [3].

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OVARY TUMOR PREDICTION USING R – CNN

Sindhuja C
M. Phil Research Scholar, Department of Computer Science,
Auxilium College (Autonomous), Vellore, Tamilnadu, India

Kavitha S
Assistant Professor, Department of Computer Science,
Auxilium College (Autonomous), Vellore, Tamilnadu, India

ABSTRACT

The ovary, a complex organ that displays major structural and functional changes in the female reproductive system over recurrent periods. Medical images obtained from different medical imaging methods are used in the early identification and diagnosis of multiple diseases. The most serious and dangerous ovary tumor leads to a very short life expectancy. Magnetic Resonance Imaging (MRI) is a widely used imaging method for the examination of these tumors, although the large amount of evidence produced by MRI prohibits manual segmentation within a realistic timeline and limits the use of precise quantitative measures in clinical practice.

In this paper, an automated segmentation approach based on the Recursive Convolution Neural Network (R-CNN) is a kind of deep neural network generated by applying a region-based method for recognition, by integrating recursive connections into each convolutionary layer.. This approach includes primarily Filter-driven segmentation applied to whole slide histological images, driven on a convolutionary neural network (CNN). The use of small kernels allows the creation of a deeper architecture, in addition to having a beneficial effect on overfitting due to the lower weights in the network. The use of strength normalisation as a pre-processing stage was also explored, which, while not common in R-CNN-based segmentation methods, proved to be very effective for ovary tumor segmentation in MRI images in line with data increase.

Key words: Ovary tumor, R-CNN, Adaboost SVM Classifier.

Cite this Article: Sindhuja C and Kavitha S, Ovary Tumor Classification Using R – CNN, *International Journal of Advanced Research in Engineering and Technology*, 11(10), 2020, pp. 1670-1679.
http://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=10

1. INTRODUCTION

Ovary tumor is the fifth most prevalent tumor in women currently. In fact, ovary disease is responsible for more passing than any other form of female regenerative malignancy.

Anticorrosion activities of polymethacrylic acid and grafted/modified polymethacrylic acid on pure aluminium in acid medium

J. Devakumar [a,b], R. Jaya Santhi [a,b], P. Amaladass [c], V. Ramesh [d]

[a] Department of Chemistry, Auxilium College, Vellore 632 006, Tamil Nadu, India
[b] Department of Chemistry, Thiruvalluvar University, Serkadu, Vellore 632 115, Tamil Nadu, India
[c] Department of Chemical Technology, Loyola Academy Degree and PG College, Jeedimetla, Secunderabad, 500010, Telangana, India
[d] Department of Physics and Nanotechnology, SRM Institute of Science and Technology, Kattankulathur 603 203, Tamil Nadu, India

ARTICLE INFO

ABSTRACT

Polymethacrylic acid (PMAA) and modified Polymethacrylic acid functionalized with catechol (PMAA/CAT), hydroquinone (PMAA/HQ) and catechol-hydroquinone (PMAA/CAT-HQ) were synthesized by oxidative decarboxylation method using ammonium persulphate as an oxidant and characterized using UV–Visible spectroscopy, FT-IR, XRD, TGA and SEM studies. The percentage of substitution was found to be 81%, 84% and 87% respectively for PMAA/CAT, PMAA/HQ and PMAA/CAT-HQ. The anticorrosion behavior of the synthesized polymers on pure aluminium in 0.7 M HCl was studied by potentiodynamic polarization (PDP), electrochemical impedance spectroscopy (EIS) and weight loss (WL) methods. As the concentration of the inhibitor increases, the anticorrosion activities increases and reaches the optimum, on further increase in the inhibitor concentration, the anticorrosion activity decreased and remained constant that determines the optimum inhibition efficiency. The increase in the anticorrosion activities at the optimum inhibitor concentration of 300 ppm is found to be in the order: PMAA < PMAA/CAT < PMAA/HQ < PMAACAT-HQ and this may be due to an increase in the substitution. The PDP study indicates that the synthesized polymers act as good cathodic inhibitors on aluminium in 0.7 M HCl. EIS and WL methods have the same trend of inhibitive effect as that of PDP studies which also indicates the formation of a protective layer of polymers on the surface of the pure aluminium. The thermodynamic adsorption parameters like K_{ads} and ΔG_{ads} were calculated using Langmuir adsorption isotherm.

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Selection and peer-review under responsibility of the scientific committee of the Second International Conference on Recent Advances in Materials and Manufacturing 2020.

1. Introduction

Corrosion is the disintegration on the surface of metals or alloys due to its interaction with the environment [1]. Corrosion can be controlled mainly by either modifying the metal or the environment. It has been reported that there are many techniques followed in the process of modifying the environment, like deaeration, deactivation, dehumidification and utilization of corrosion inhibitors, etc. The unique properties like recyclability, corrosion resistance, durability, ductility, formability, and conductivity make aluminium as a valuable material and extent its applications in many fields like engineering, household industries and scientific technologies such as in aerospace, advanced nuclear reactor, surface coating, metal-air batteries, etc. It is well known that aluminium oxide scale generally can provide better resistance against oxidation which results in a lower oxidation rate than few other protective oxide layers like chrome oxide scale. However, the oxide scale can be dissolved in acidic or alkaline solution and increase the rate of dissolution of aluminium [2–4]. To inhibit aluminium dissolution in such aggressive solutions, small amounts of corrosion inhibitors can be added to reduce the corrosion rates [5–7]. The structurally influenced corrosion inhibition is well known and it is carried out at the cathodic or anodic zones of the metal by the interaction of heteroatoms like O, S, and N of the inhibitor and its subsequent intrusions during adsorption [8–14]. It is known that polymers are adsorbed more strongly than their monomer analogs, hence it is expected that polymers will be better corrosion inhibitors than the corresponding monomers. The improved performances of the polymeric materials are ascribed to their multiple adsorption sites for bonding with the metal surface. The

Enhancing the security of Biometric Authentication Based on Visual Cryptography and Watermarking Technique

*1 Mrs. Manju M., *2 Ms. Anita Madona M.,

*1 M.Phil Research Scholar, Department of Computer Science Auxilium College (Autonomous), Vellore, TamilNadu, India

*2. Assistant Professor, Department of Computer Science Auxilium College (Autonomous), Vellore, TamilNadu, India.

Abstract: -A new plan for user authentication is proposed using visual cryptography and invisible digital watermarking. Visual cryptography allows visual information to be encoded in such how that decoded becomes the work of the person to decrypt via a sight reading. Security for identity-based identification using visual cryptography and watermarking provides secure authentication for user access. To ensure a protective authentication in visual cryptography and watermarking algorithm embedding of finger print, iris image and face recognition are often used. A user verification and authentication methods are not suitable for frequent verification. The traditional behavioral biometrics on PCs, such as keystroke and mouse dynamics, cannot be practical on for user verification. Existing reauthentication schemes for fingerprint, iris image and face recognition are not practical for real applications due to low accuracy. To overcome such issue, we can utilize the support vector machine which provides the high accuracy, which involves two design methodologies, first is False Acceptance Rate (FAR) and second is False Rejection Rate (FRR). To enhancing the security of existing technique like finger print, iris image and face recognition over Noisy Images, an efficient image segmentation technique such as Discrete Cosine Transform (DCT), Discrete Wavelet Transform (DWT) and Discrete Fourier Transform (DFT) is used. To possess accurate FAR Extraction Ratio of Co-efficient (ROC) Curves, the result of MASEK and Ma are obtained. Binomial Distribution vector space is executed for FAR and FRR. To know Distribution Reliability in Ma and MASEK in 128 bit blocks are applied. The 128 bit block used for image segmentation uses DCT, DWT and DFT technique. The uniqueness of the input image totally results in distortion problems, so a robust watermarking algorithm and visual cryptography is used to develop the security, which can prevent the image from being hacked as well as distorted. The Mat Lab framework for Experimental results indicates that the proposed watermarking algorithm has high security, watermarking life time, user authentication delay and perceptual invisibility. Moreover, it can detect and locate the tampered region effectively for various performances of finger print, iris and Face. The Experimental result shows that Min & Max of FAR and FRR rate for security management control for visual cryptography.

Key Words: *Data Encryption Standard (DES), Advanced Encryption Standard (AES), Visual Cryptography, Watermarking*

I. INTRODUCTION

Visual cryptography is presented to preserve the security of biometric information (viz., raw images) by deteriorating the new image into two images in such a manner when both images are at the same time accessible in the original image can be exposed; more the discrete component images do not expose any information almost the original image. During the verification process, the reliable individual sends a demand to each Biometric and the equivalent sheets are transmitted to it. Sheets are overlapped (i.e. superimposed) in order to recreate the security image thereby avoiding any complex decryption and decoding computations that are used in watermarking or cryptosystem approaches. When the matching score is executed, the reconstructed image is discarded.

Watermarking focuses on the works the watermarking methods that do not directly embed watermarks into the original digital images. Instead, verification information is generated which is used to verify DCT, DFT and DWT. It generates the technical feature of co-efficient pixel on the watermarking technical. It reduces the mean square errors of FAR and FRR.

COVID-19 ANALYSIS BY SEIR MODEL WITH MULTIPLE CONTROLS

Naga soundarya lakshmi V.S.V.[1] and A. Sabarmathi

ABSTRACT. A SEIR mathematical model with multiple controls self - prevention, treatment and vaccination is formulated. The properties of Pontryagin's maximum principle were verified and found the optimal levels of controls. Numerical simulations were shown to exhibit the flow of variables with or without control strategies.

1. INTRODUCTION

The control measures were followed to reduce the spread of the infectious diseases. As we all know 'Prevention is better than cure', it is better to be self preventive which is the primary control measure. The self prevention such as social distancing, washing hands often, using clean cloth while coughing/sneezing and self quarantine helps us to prevent the spread of the disease. The medical care helps to cure the disease and makes to feel better. So treatment plays an important role as a control measure. Vaccination is another key control measure which develops an immune in our body and control the infection of the diseases.

Mathematical modeling analysis explains the transmission process and control of the infectious diseases. Optimal control theory for infectious diseases to used

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Polymethacrylic acid functionalised with dihydroxy benzene as an adsorbent for the removal of Malachite Green dye

J Devakumar[1], V Ramesh[2], P Amaladass[3], and R Jaya Santhi[4]

[1&4]PG & Research Department of Chemistry, Auxilium College, Vellore, 632 006, Tamil Nadu, India.
[1&4]Department of Chemistry, Thiurvalluvar University, Serkadu, Vellore,632 115, Tamil Nadu, Inida.
[2]Department of Physics and Nanotechnology, SRM Institute of Science and Technology, Kattankulathur, 603 203, Tamil Nadu, India.
[3]Department of Chemical Technology, Loyola Academy Degree and PG College, Jeedimetla, Secunderabad, 500010, Telangana, India.

Mail: devakemis@gmail.com, rameshmano1980@gmail.com

Abstract: The present work reports the investigation performed by comparing the adsorption abilities of modified/grafted polymethacrylic acid (PMAA) functionalized with dihydroxy benzene like catechol (CAT) and catechol-hydroquinone (CAT-HQ) by an oxidative decarboxylation method using potassium dichromate as an oxidant to absorb Malachite green (MG) dye from aqueous solution through batch experiments. The percentage of substitution of monomers with PMAA was found to be 94.5% and 95.7% for PMAA/CAT and PMAA/CAT-HQ respectively. The FTIR and SEM studies were determined to reveal the modification of PMAA. In order to efficiently extract malachite green from the aqueous solution, the effects of different parameters like contact time, pH, dye concentration and adsorbent dosage were systematically studied. The change on the surface morphology of the polymers after the adsorption of dye was analysed using FT-IR spectra and SEM images and found to have considerable changes after the adsorption of the chosen dye. The test of adsorption studies has shown that the Langmuir isotherm model is better than the Freundlich model. The monolayer adsorption capacity of PMAA/CAT and PMAA/CAT-HQ were found to be 97mg/g and 102 mg/g at 31°C.

Keywords: Polymethacrylic acid, Catechol, Hydroquinone, Malachite Green, Adsorption Isotherm.

1. Introduction

The introduction of waste products into the environment is a significant problem. Dyes have been commonly used in many industries, such as textiles, paper, leather dying, cosmetics, pharmaceutical, food etc. The key contributor to water contamination is the effluent from these factories and there are more than 100000 commercially available dyes with more than 7×10^5 tonnes of dyes produced each year. It was found that 2% of dyes were discharged from the production unit, while 10 percent were discharged from textiles and other industries[1-3]. Discharging of highly coloured effluent in surface water bodies can hinder the penetration of light, photosynthesis, and food chain in the aquatic

ENHANCED SECRET SHARING PROTOCOL TO INCREASE FORWARD AND BACKWARD SECURITY FOR CLOUD IN BIGDATA

[1]Jayashee L., [2]Ms. Anita Madona M.,

[1]Research Scholar, [2]Assistant Professor

[1]Computer Science,

[1]Auxilium College (Autonomous), Gandhinagar, Vellore -6, Tamilnadu, India.

Abstract: A cloud-based big data sharing system utilizes a storage facility from a cloud service provider to share data with legitimate users. In traditional solutions, cloud provider stores the shared data in the huge data point outside the trusted authority of the data owner, which may produce insecurity for information confidentiality. In order to overcome this Enhanced Secret Sharing Cluster Key management (ESSCK) protocol is proposed. For this purpose first, an Enhanced Secret Sharing scheme is used to construct faster encryption and decryption process. Second, a Logical Key Hierarchy (LKH) is used to process a simple and effective key numbering method. By using this technique the new user and the previous user cannot predict the new key from the cloud. To meet the protocol forward security and backward security the Logical Key Hierarchy (LKH) method is proposed.

Simulation results using CloudSim tool is used to shows that, LKH has improved security and the protocol ESSCK could significantly reduce the computation cost of cluster user in the rekeying process.

Index Terms - Big data, cloud provider, secret sharing, Logical Key Hierarchy, Forward security, Backward security.

I. INTRODUCTION

Big data means storing large amount of data, in which the data can be "structured, semi-structured and unstructured data" collected from the different sources at rapid speed. The big data scanning helps the institution to stay active, work faster, it is a profitable, and also deliver percipient to find and increase in efficiency. But the usual storage devices are not comfortable in support of the big data because of its less memory space. To have an improved different storing and processing of big data, the Cloud Computing was developed.

Cloud Computing is a new enumerating model, in whole all the resources are stored in a form of cloud through Internet. The cloud resources can be exploited to many operations and services dynamically. Cloud computing also entrust remote services with a user's data, software and calculation. Cloud computing consists of hardware and software resources and made obtainable on the Internet, which is managed by the third-party services. Cloud computing also supports for scalability, so it is possible to store huge amount of data in the cloud.

An Analysis of Reinfection Pneumonia Model with Carrier State

Naga soundarya lakshmi V.S.V[a], and A.Sabarmathi[b]

[a] Research Scholar, Department of Mathematics, Auxilium College, Vellore
[b] Assistant professor, Department of Mathematics, Auxilium College, Vellore

Abstract: A reinfection model with Carrier state for pneumonia was formulated. The boundedness and positiveness of the state variables were verified. The local and global stability of the model was established. By the equilibrium analysis the optimal values of Susceptible, Infectious, Carrier and Recovery were found. Through the numerical simulations, the flow of S,I,C,R and the flow of variables for different set of parameters were studied.

Keywords: Pneumonia, reinfection model, Carrier state, Stability.

1. Introduction

Mathematicians use different models to analyse the spread of infectious disease. The SICR model was developed from the basic SIR model with a carrier state. In the carrier state, the infectious person can spread the disease to others without any symptoms. The reinfection model defines as the recovery individuals can be affected by the infection again. So the transition of disease passes from the recovery state to the susceptible state.

Pneumonia is one of the respiratory disease which leads to the limitation of the oxygen and cause the breathing difficulty. Pneumonia was being the biggest killer disease among the acute respiratory infection in 2018, on the report of National Health Profile (NHP) India. According to UNICEF, in 2018 India is in the second rank in the deaths of children under the age of five due to pneumonia.

Talawar [8] has analysed the stability of SIS epidemic model with vaccination. Li-Ming Cai [5] has studied the malaria model with partial immunity to reinfection. Wang [3] has developed an SIS epidemic model with saturated and incidence rate. Cyrus G.Ngari [1] has formulated the SI model with the class treatment among children for Pneumonia. Fulgensia Kamugisha Mbabazi [2] has investigated the SVECI model with carrier and vaccination states for pneumonia. Victor Okhuese [9] has established an reinfection endemic model SEIRUS for covid-19. In this paper we formulated the reinfection model with carrier state for pneumonia and analysed the model with the different values of parameters as in [4, 6, 7].

2. Formulation of the Model

The SICR reinfection model of Pneumonia is represented by the following system of four ordinary differential equations

$$\frac{dS}{dt} = \omega N(t) + \alpha R(t) - (\beta + \mu)S(t)$$

$$\frac{dI}{dt} = (1 - \sigma) \beta S(t) - (\gamma + \mu + d)I(t) \qquad (1)$$

$$\frac{dC}{dt} = \sigma \beta S(t) - (\delta + \mu) C(t)$$

$$\frac{dR}{dt} = \gamma I(t) + \delta C(t) - (\alpha + \mu) R(t)$$

With the initial conditions $S(t), I(t), C(t), R(t) \geq 0$. Also $\sigma, \beta, \gamma, \mu, d, \omega, \alpha, \delta > 0$,

$$N(t)=S(t)+I(t)+C(t)+R(t) \qquad (2)$$

The following figure shows the SICR reinfection model for pneumonia.

Isomers of poly(aminothiophenol): Chemical synthesis and corrosion inhibition of mild steel in acidic medium

U. Anto Maria Jeraldin[1] and R. Jaya Santhi[1*]
[1]PG & Research Department of Chemistry, Auxilium College, Vellore, Tamil Nadu, India
amjeraldin@gmail.com, shanthijaya02@gmail.com

Abstract
The appositeness of conducting polymers to enrich the corrosion protection on metals in an acidic environment is building up greater significance as corrosion inhibitors. The isomers of poly(aminothiophenol) were synthesized by chemical oxidative polymerization method in aqueous HCl using ammonium persulfate as an oxidant. Electrochemical techniques such as potentiodynamic polarization, electrochemical impedance spectroscopy, and weight loss method were used to investigate the anticorrosion activities of the isomers of poly(aminothiophenol) on mild steel in 1M HCl solution. The results revealed that the inhibition effectiveness increased with increasing inhibitor concentration, with the greatest inhibition efficiency recorded for all three polymers at the optimum concentration of 500 ppm. Polarization investigations revealed that these poly(aminothiophenol) isomers function as mixed type corrosion inhibitors.

Keywords: Aminothiophenol, Conducting polymers, Corrosion, Mild steel, Electrochemical studies.

Introduction

Corrosion has a massive environmental impact, and its prevention has been extensively researched. The study of corrosion inhibition on mild steel is usually a topic of great theoretical and practical interest [1-3]. Mild steel (MS) is widely used in a variety of sectors for a wide range of applications, including chemical processing, petroleum production and refining, and marine applications. Mild steel in acidic medium is widely utilized in a variety of industrial processes, and mild steel corrosion is known to occur in acid solution. Corrosion in mild steel is a critical and costly issue in the industry, accounting for a significant amount of loss due to missed output, high maintenance, and inefficient operation. As a result, several corrosion inhibitors must be used to slow the degradation of mild steel. The anticorrosive compounds with heteroatoms in their structure can function as effective inhibitors for particular metals because they can build protective coatings on the surface [4-9].

The use of conducting polymers as anticorrosive compounds is gaining popularity due to their high inhibitory efficacy and inexpensive cost [10]. Poly(pyrrole), poly(aniline), poly(o-anisidine), and the derivatives of them have been broadly investigated due to ease of preparation, low energy for polymer formation, and their stability. It is expounded that the ring-substituted conducting polymers [11] can enhance the corrosion inhibition in aggressive environment. Previous research has disclosed that the corrosion prevention capabilities of poly(aniline) and its derivatives on metal corrosion in acidic media are due to their high molecular size, quaternary nitrogen atoms, and the availability of π electrons [12-14].

Aminothiophenols (ATP) are interesting electrochemical materials since both thiol and amine have different reactivities and thus provide more reactive sites. The successful use of this molecular assembly results in particular morphologies, which contribute to multi-purpose chemical strategies [15]. In theory, they could exhibit electrochemical activity

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Analysis of SEIR model with a single control for COVID-19

Naga soundarya lakshmi VSV[1] and Sabarmathi A[*2]

Abstract

A SEIR mathematical model for COVID - 19 with a single control vaccination was formulated to analysis the flow of state variables. Properties of Pontryagin's maximum principle is verified and found the optimal levels of control variable. Optimal values of S, E, I, R were derived by equilibrium analysis. Numerical simulations were carried out to exhibit the Susceptible, Exposed, Infectious and Recovery class with and without vaccination which directs that when the susceptible is vaccinated the flow of disease will drop eventually.

Key words: SEIR model, Control theory, Pontryagin's maximum principle, Equilibrium Analysis, COVID-19

AMS classification: 34L99, 34L30.

1 Introduction

Normally organisms such as bacteria and virus are not harmful but some of them cause disease. It is important to follow some control measures to control the infectious diseases. Here we consider vaccination as our control measure. Vaccination develops an immune in our body against the disease which leads us to control the infection of the disease. In India, we have vaccine for measles and for COVID - 19 developed recently.

Nowadays, mathematical model plays a key role in an analysis of spread and control of the infectious diseases. It describes the transmission process of the diseases. Mathematicians use the optimal control theory for infectious diseases to minimize the cost, infectious individuals and maximize the recovery individuals.

Many Mathematicians used the Optimal control theory for infectious diseases.

[1,2]Department of Mathematics, Auxilium College, Vellore, TamilNadu, India

Emails: [1]sari9sax14@gmail.com, [*2]sabarmathi.a@gmail.com

ORIGINAL PAPER

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Chemically copolymerized poly(2-chloroaniline-co-2-ethylaniline)-composite-Zn as an anodic material in Li-ion batteries

S. Padmaja[1] · Jhancy Mary Samuel[1]

Abstract

Poly(2-chloroaniline-co-2-ethylaniline)-composite-Zn was synthesized by in situ chemical oxidative method using ammonium per sulphate as oxidant, HCl as dopant and linear alkyl benzene sulphonic acid (LABSA) as surfactant. The resulting copolymer composite was characterized by FTIR, and UV–Visible spectroscopic methods. The thermal stability was established using thermogravimetric analysis. The conduction mechanism was examined in terms of the dielectric constant and the electrical conductivity of 1.46×10^{-7} Scm^{-1} measured showed semiconducting nature. The oxidation/reduction potentials and electrochemical reaction of Li/copolymer cells were tested by cyclic voltammetric technique. Poly(2-chloroaniline-co-2-ethylaniline)-composite-Zn has been tested as anode in Li-ion batteries. The discharge and charge capacity of ~47 and ~14mAh/g at 1 to 5 cycles show good reversibility. This is a feasible value for using it as the positive electrode material in lithium ion secondary batteries.

Keywords Copolymer · Chemical oxidative · Conduction · Cyclic voltammetry

Introduction

In recent years, development of inorganic–organic hybrid materials on nanometer scale has been receiving significant attention due to wide range of potential applications. Polyaniline is the most smart conducting polymer because of the presence of the reactive-NH groups in the polymer chain [1–3], and finds applications in batteries [4], sensors [5] and electronic devices [6]. In early 1990s,

⌑ Jhancy Mary Samuel
  jhancy2011@gmail.com

  S. Padmaja
  rajuchinni6472@gmail.com

[1] Department of Chemistry, Auxilium College, Vellore, Tamil Nadu 632006, India

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PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Chemically copolymerized poly(2-chloroaniline-co-2-ethylaniline) as an anodic material in Li-ion batteries

S. Padmaja & Jhancy Mary Samuel

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ORIGINAL PAPER

Chemically copolymerized poly(2-chloroaniline-co-2-ethylaniline) as an anodic material in Li-ion batteries

S. Padmaja[1] · Jhancy Mary Samuel[1]

Abstract

Poly(2-chloroaniline-co-2-ethylaniline)(poly(OCA-co-OEA)) was synthesized by in situ chemical oxidative method using ammonium per sulfate as an initiator and HCl as dopant. The copolymer was characterized by FTIR, UV-Visible, NMR spectroscopic techniques and XRD. FESEM and EDAX were taken to study the surface morphology and elemental composition. Thermal stability of the copolymer was confirmed by thermogravimetric analysis. The conduction was examined in terms of the dielectric constant and the electrical conductivity of 8.083×10^{-6} S cm^{-1} measured shows semi conducting nature of the emeraldine salt form of the copolymer. FESEM images show spongy and porous surface. The oxidation/reduction potentials and electrochemical reaction of Li/copolymer cells were tested by cyclic voltammetric technique. The discharge capacity of 63.4 mAh/g and charge capacity 62.8 mAh/g at 7–8 cycles show good reversibility. The practical specific charge capacity was 58.2% of the theoretical specific charge capacity which is 107.76 mAh/g. Hence it can efficiently be used as an anodic electrode material in lithium ion secondary batteries.

Keywords Copolymer · Chemical oxidative · Conduction · Cyclic voltammetry

Introduction

Conducting polymers, their blends and composites have attracted researchers due to their industrial applications in energy-conversion devices, rechargeable batteries, electro chromic displays, electrochemical sensors, capacitors, and active corrosion protectors [1]. Among the conducting polymers, polyaniline (PANI) has been one of the most widely studied polymers because of its chemical stability,

✉ S. Padmaja
  rajuchinni6472@gmail.com

[1] Department of Chemistry, Auxilium College, Vellore-6, Tamil Nadu, India

Synthesis, Characterization and Electrical Conductivity Studies on Poly (2-Chloroaniline-Co-2-Methoxyaniline)- Fe₂O₃ Nanocomposites with Varying Weight Percentages of Fe₂O₃

P. Lakshmi[a], G. Vani[a], Julia Sebastian[a] and S. Jhancy Mary[b*]
[a] Research Scholars, Auxilium College, Vellore-632006, Tamilnadu, India
[b] Asso. Prof. of Chemistry, Auxilium College, Vellore-632006, Tamilnadu, India

Abstract

Poly (2-chloroaniline–co-2-methoxy aniline)/Fe₂O₃ nano composites with various weight percentages of Fe₂O₃ (5%, 10%, 15%, 20%, and 25%) were prepared by mechanical blending of the copolymer which was synthesized by *in situ* chemical oxidative method with γ- ferric oxide nano particles, characterized and the electrical conductivities measured. The formation of the composites was confirmed by FTIR, UV-Visible spectroscopy, TGA, DSC and XRD. The electrical conductivities of the nano composites were of the semiconducting range (10^{-4} S/cm). The copolymer and the nanocomposite (5% by wt) were subjected to antibacterial and antifungal studies. The composite exhibits significant antibacterial activity and antifungal activity.

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INTRODUCTION

Conducting polymers have become very popular in the field of material science due to their promising and novel electrical properties such as energy storage devices [1-3], gas sensors [4-6], EMI shielding [7-10], electrostatic charge dissipation [11-13], OLED and flexible display devices [14-18], anticorrosive materials [19-22], electrochromic materials [23-25] and electronic conducting fabrics [26]. The composite materials based on electrically conductive polymers have attracted the attention of many investigators for the development of new functional materials [27-30]. Among the ring substituted PANI derivatives, poly(2-chloroaniline) and poly(2-methoxyaniline) have been materials of interest in the recent past. With regard to polyaniline-based copolymers which show enhanced solubility, many papers have been published [31-38]. Copolymerization offers a way of improving the processability of PANI. The properties of the poly

(substituted anilines) such as toluidine, anisidine, etc. depend on the type of substituents, whether electron withdrawing or electron donating groups and the presence of less affecting groups like alkyl groups. Electron withdrawing groups decrease the electron density in aniline, electron donating groups increase the electron density in the phenyl ring, whereas alkyl group may not affect the electron density much in aniline, only some mild positive inductive effect may increase the electron density [39]. There are few reports on the synthesis of copolymers of 2- chloroaniline and 2-methoxy aniline and their applications. Among the magnetic nanomaterials, iron oxides (Fe₂O₃ and Fe₃O₄) have been extensively investigated because of their excellent magnetic properties and biocompatibility. Due to the biocompatible nature of the iron oxide nano particles, it was chosen as the host material for the synthesis of the copolymer composites.

Asian Journal of Chemistry; Vol. 33, No. 11 (2021), 2700-2706

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2021.23371

Prospect of Poly(2-chloroaniline)-Nanocomposite-Silica as Anode in Li-Ion Coin Cell

G. VANI* and S. JHANCY MARY

Department of Chemistry, Auxilium College (Autonomous), Vellore-632006, India

*Corresponding author: E-mail: vanichem2005@gmail.com

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[redacted]

In the past few decades, the progress of conducting polymer with inorganic materials for optics and electronics related applications have gained much attention among researchers [1]. Particularly, the most probable conducting polymer was polyaniline due to its ease of preparation, environmental stability, good electrical conductivity and potential usage in rechargeable batteries, photovoltaic cells, sensors, electromagnetic shielding, gas-separation membranes, light-emitting diodes *etc.* [2-4]. Though its potential applications are very wide, serious problems exist which obstruct its practical use. The major drawback of this polymer is solubility and processability. It can then be replaced by synthesizing derivatives in order to obtain materials with improved solubility and processability, enhanced electrochemical and electronic properties [5-7]. Modified polyaniline can be synthesized by (i) introduction of substituents like -CH_3, -C_2H_5, -halogen and amino groups onto the aromatic rings of the polyaniline chains [8-10] and (ii) copolymerization of aniline and derivatives [11,12].

The halogenated derivatives of polyaniline such as polychloroanilines, polybromoanilines and polyiodoanilines are relatively less investigated. One among the important derivatives of polyaniline is poly(2-chloroaniline) (P2ClAni) and has been studied by few researchers in the recent past. The P2ClAni properties can be fine tuned by a number of ways such as copolymerization, synthesis of blends and composites for applications in the field of hybrid electric devices [13].

Nano-scaled P2ClAni and its effect on oxidant concentration, surfactant type and surfactant concentration were investigated and the results substantiate that the electrical conductivity of doped P2ClAni/SDS50 increased with the monomer: doping ratio of 1:25 possessing the highest electrical conductivity of 10.47 S cm^{-1}, relative to the synthesized P2ClAni without doping [14]. The effect of dodecyl benzene sulphonic acid (DBSA) on the electrical conductivity of P2ClAni and P2ClAni/silk blends has been reported by Linganathan & Samuel [15]. Since P2ClAni-DBSA/Silk has higher dielectric constant than P2ClAni-DBSA and P2ClAni/Silk, it can be used in energy storage devices. Palaniappan [16] studied the effect of temperature on the conductivity and spectral properties of P2ClAni. The methanesulfonic acid doped P2ClAni has been successfully synthesized and shows potential sensing for NH_3 gas [17]. The P2ClAni/SiO_2 nanocomposite was synthesized

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AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Materials Today: Proceedings

Optimized Detection of Ovarian Cancer Using ROI Based Segmentation and Classification with FR-CNN

S. Kavitha , Vidyaa Thulasiraman

Department of Computer Science, Auxilium College (Autonomous), Vellore 632 006, India.

Department of Computer Science, Government Arts and Science College for Women, Bargur 635 104, India.

Abstract

For old woman, ovarian cancer is a severe illness. Based on research, it is seventh major cause for woman death and fifth common disease worldwide. Using Artificial Neural Network (ANN), many researchers performed ovarian cancer classification. For making decision, doctors consider classification accuracy as an efficient factor. For giving proper treatment, doctors consider higher classification accuracy. Early and accurate diagnosis reduces mortality percentage and save lives. This paper proposes the novel annotated ovarian image classification using FR-CNN (fast region-based CNN) on the basis of ROI (region of interest) segmented. Here the input images have been classified into three types namely, epithelial, germ and stroma cells. This image has been pre-processed and segmented. After this annotation process takes places by using FR-CNN. The framework compares the manually annotated feature and trained feature in FRCNN for region based classification. This will help in analyzing the higher accuracy in detection of disease since manual annotation has lower accuracy in existing works so this work will experimentally prove that the machine learning based classification will yield higher accuracy. After the region-based training in FR-CNN, the classification is done by combining SVC-Support vector classifier and Gaussian Naives Bayes classifiers. Due to higher data indexing, the ensemble technique has been used in classification for the features. The simulation gives accurate part of input image to detect ovarian cancer.

Keywords: Ovarian cancer; annotated image classification;, FR-CNN (Fast Region-based CNN; ROI (Region of Interest;, SVM; Gaussian NB; Accuracy

E-mail address: kavithasenthil@auxiliumcollege.edu.in

Introduction

In world, ovarian cancer is 2nd leading cancer which affects about 2% of female over their lifetime. If it is diagnosed in the earlier stage, it has 90% survival rate. Many research reports after investigation presents that early symptoms and indications of ovarian cancer are not clear [1]. For ovarian cancer, medical experts face several problems in producing cancer-screening guide-lines, there exists no single known cause or mark which leads to make it as silent killer. Research reports show that 90% of patients have symptoms long back before diagnosed [2]. Further, many patients experience numerous tumor metastasis, treatment cycles and disease recurrences. In female genital tract, while considering endometrial and cervical cancer, ovarian cancer is 3rd common cancer in Taiwan [3].

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OVARY TUMOR PREDICTION USING R – CNN

Sindhuja C
M. Phil Research Scholar, Department of Computer Science,
Auxilium College (Autonomous), Vellore, Tamilnadu, India

Kavitha S
Assistant Professor, Department of Computer Science,
Auxilium College (Autonomous), Vellore, Tamilnadu, India

ABSTRACT

The ovary, a complex organ that displays major structural and functional changes in the female reproductive system over recurrent periods. Medical images obtained from different medical imaging methods are used in the early identification and diagnosis of multiple diseases. The most serious and dangerous ovary tumor leads to a very short life expectancy. Magnetic Resonance Imaging (MRI) is a widely used imaging method for the examination of these tumors, although the large amount of evidence produced by MRI prohibits manual segmentation within a realistic timeline and limits the use of precise quantitative measures in clinical practice.

In this paper, an automated segmentation approach based on the Recursive Convolution Neural Network (R-CNN) is a kind of deep neural network generated by applying a region-based method for recognition, by integrating recursive connections into each convolutionary layer.. This approach includes primarily Filter-driven segmentation applied to whole slide histological images, driven on a convolutionary neural network (CNN). The use of small kernels allows the creation of a deeper architecture, in addition to having a beneficial effect on overfitting due to the lower weights in the network. The use of strength normalisation as a pre-processing stage was also explored, which, while not common in R-CNN-based segmentation methods, proved to be very effective for ovary tumor segmentation in MRI images in line with data increase.

Key words: Ovary tumor, R-CNN, Adaboost SVM Classifier.

Cite this Article: Sindhuja C and Kavitha S, Ovary Tumor Classification Using R – CNN, *International Journal of Advanced Research in Engineering and Technology*, 11(10), 2020, pp. 1670-1679.
http://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=10

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1. INTRODUCTION

Ovary tumor is the fifth most prevalent tumor in women currently. In fact, ovary disease is responsible for more passing than any other form of female regenerative malignancy.

editor@iaeme.com
PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Synthesis, Characterization and Electrical Conductivity Studies on Poly (2-Chloroaniline-Co-2-Methoxyaniline)- Fe₂O₃ Nanocomposites with Varying Weight Percentages of Fe₂O₃

P. Lakshmi[a], G.Vani[a], Julia Sebastian[a] and S. Jhancy Mary[b*]

[a] Research Scholars, Auxilium College, Vellore-632006, Tamilnadu, India
[b] Asso. Prof. of Chemistry, Auxilium College, Vellore-632006, Tamilnadu, India

Abstract

Poly (2-chloroaniline–co-2-methoxy aniline)/Fe₂O₃ nano composites with various weight percentages of Fe₂O₃ (5%, 10%, 15%, 20%, and 25%) were prepared by mechanical blending of the copolymer which was synthesized by *in situ* chemical oxidative method with γ- ferric oxide nano particles, characterized and the electrical conductivities measured. The formation of the composites was confirmed by FTIR, UV-Visible spectroscopy, TGA, DSC and XRD. The electrical conductivities of the nano composites were of the semiconducting range (10^{-4} S/cm). The copolymer and the nanocomposite (5% by wt) were subjected to antibacterial and antifungal studies. The composite exhibits significant antibacterial activity and antifungal activity.

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INTRODUCTION

Conducting polymers have become very popular in the field of material science due to their promising and novel electrical properties such as energy storage devices [1-3], gas sensors [4-6], EMI shielding [7-10], electrostatic charge dissipation [11-13], OLED and flexible display devices [14-18], anticorrosive materials [19-22], electrochromic materials [23-25] and electronic conducting fabrics [26]. The composite materials based on electrically conductive polymers have attracted the attention of many investigators for the development of new functional materials [27-30]. Among the ring substituted PANI derivatives, poly(2-chloroaniline) and poly(2-methoxyaniline) have been materials of interest in the recent past. With regard to polyaniline-based copolymers which show enhanced solubility, many papers have been published [31-38]. Copolymerization offers a way of improving the processability of PANI. The properties of the poly (substituted anilines) such as toluidine, anisidine, etc. depend on the type of substituents, whether electron withdrawing or electron donating groups and the presence of less affecting groups like alkyl groups. Electron withdrawing groups decrease the electron density in aniline, electron donating groups increase the electron density in the phenyl ring, whereas alkyl group may not affect the electron density much in aniline, only some mild positive inductive effect may increase the electron density [39]. There are few reports on the synthesis of copolymers of 2- chloroaniline and 2-methoxy aniline and their applications. Among the magnetic nanomaterials, iron oxides (Fe₂O₃ and Fe₃O₄) have been extensively investigated because of their excellent magnetic properties and biocompatibility. Due to the biocompatible nature of the iron oxide nano particles, it was chosen as the host material for the synthesis of the copolymer composites.

A STABILITY ANALYSIS OF TYPHOID DISEASE MODEL WITH TREATMENT AND BACTERIA COMPARTMENTS

NAGA SOUNDARYA LAKSHMI V.S.V[1] AND A SABARMATHI[2*]

1: Research Scholar, Department of Mathematics, Auxilium College, Vellore - 632006, Tamilnadu, India

2: Assistant Professor, Department of Mathematics, Auxilium College, Vellore - 632006, Tamilnadu, India

*Corresponding Author: Naga soundarya lakshmi V.S.V: E Mail: san9sak14@gmail.com

ABSTRACT

A SIR model with treatment class and bacteria class for Typhoid was formulated. Existence and uniqueness of the solution of the model is verified. The basic reproduction number is calculated. The local stability of disease free equilibrium and endemic equilibrium were verified. Numerical analysis was carried out for the data of Odisha. The graphs were plotted to visualize the stability behaviour of the state variables for different values of parameters.

Keywords: SIR model, Typhoid, stability analysis, basic reproduction number.

INTRODUCTION

Typhoid fever is a very common disease in India which is at its peak in monsoon season. It is caused by the ingestion of contaminated food and water containing Bacteria *Salmonella typhi*. The main symptoms of Typhoid are high fever, head ache, weakness and diarrhea.

Usually, the symptoms develop after one or two weeks of exposure, it becomes severe in the second week. The duration of the illness is from 4 to 6 weeks. In India, vaccination for Typhoid is available in three forms namely, injection, oral vaccine and conjugate vaccine.

A classical SIR model with a bacteria compartment is given by SIRB model. SIRB model is used to represent the disease spreads

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Synthesis and Characterization of Palladium Nanoparticles Using Leaf Extracts

S. Vinodhini[1], Scholastica Mary Vithiya ,B[2*], Augustine Arul Prasad, T[3]

[1,2]Department of Chemistry, Auxilium College (Autonomous), Vellore 632 006

[3]Department of Chemistry, D.G. Vaishnav college (Autonomous), Chennai 600 106

Corresponding e-mail: scholasticamaryvithiya@gmail.com

ABSTRACT

Green synthesized metallic nanoparticles are an evolving environment-friendly technique in recent years. An environmental friendly, biological processing of palladium nanoparticles by employing *Basella alba, Allium fistulosum* and *Tabernaemontana divaricate* leaf extracts were described in our current study. The prepared PdNPs were further underwent characterization via Ultra Violet-visible, Fourier transform infrared, Photo-luminescence and X-ray diffraction spectroscopy and Scanning and Transmission electron microscopy. Furthermore, a validation of PdNPs creation was established through UV-visible spectrophotometer and also a spherical shaped PdNPs within a size between 2-5 nm was perceived in TEM and 500 to 2000nm was achieved in SEM study. XRD study deep-rooted the crystallic nature of Pd NPs and then it was related with the standard. FTIR spectral studies were carried out to recognize the functional groups exist in the Pd NPs. The photoluminescence study confirms that these extracts were action as a stabilizing and capping agent. The analysis exposed that all the three extracts *Basella alba, Allium fistulosum* and *Tabernaemontana divaricate* may have efficient less-toxic reducing substance for the process of Pd NPs and the formulated Pd NPs may be used in the arena of biomedical applications. These Pd NPs mainly intricate in the biological reduction reaction rate for the processing of Pd NPs.

Keywords: *Basella alba, Allium fistulosum, Tabernaemontana divaricate*, Green synthesis, Palladium nanoparticles.

INTRODUCTION

In recent years, Nanomaterial development mostly with necessary quality is one of the most fascinating things in nanoscience and technology. Due to its interesting physical, chemical and thermodynamic properties, metal techniques have gained dramatically increased attention, making them viable candidates for uses in different areas like catalysis [1, 2], optical electronics [3, 4] alongside its biomedical uses [5]. Owing to their fruitful applications in the realm of bioscience, biomedicine, and pharmacy, palladium nanoparticles also known as PdNPs catalysts has attracted considerable interest. Progress in the production of Pd nanoparticles has achieved tremendous importance due to its usage in both homogenous and heterogeneous catalysis, owing to its higher surface-to-volume ratio and huge exterior strength. Normal formulated PdNPs delivery methods comprises electrical and chemical [7, 8] and laser pulse ablation [9] as well as sono-chemical decline techniques [10]. Because the synthetic chemical techniques of producing Pd NPs create a punitive action and decrease the catalyst performance of palladium,

Green synthesis,Characterization,Anti-bacterial,Anti-diabetic, Anti-Cancerous Activity of Momordica Charantia leaf extract mediated Cu-Ag Nanoalloys

Jasmine jacob[1]*, Augustine Arul Prasad .T[2],Scholastica Mary Vithiya .B[3]

[1,2]Department of Chemistry,Dwarakadoss Goverdhan doss Vaishnav College (Autonomous),Chennai-600 106.

[3]Department of Chemistry,Auxilium College (Autonomous),Vellore-632 006.

*Corresponding e mail: jasminejacob215@gmail.com.

ABSTRACT

The present study reports the green synthesis of Cu-Ag bimetallic nano alloy(NA) from *Momordica Charantia* leaf extract in aqueous media.The reduction and stabilization is carried out by the antioxidants present in the *Momordica Charantia* leaf extract. Toxic substances are not used as reducing and stabilizing agents in this synthesis. UV-Visible spectroscopy confirms the formation of Cu-Ag NAs.Transmission electron microscope(TEM) revealed that the particles size is less than 20nm. Scanning electron microscope (SEM-EDAX) gives evidence for the presence of silver-copper nanoparticles.The electrochemical response of the bimetallic nanoparticles is evaluated using Cyclic Voltammogram. The results concluded that Cu-Ag NAs synthesized from *Momordica Charantia* can be effectively used in medicinal field because of its Anti-bacterial, Anti-diabetic and Anti-cancerous activity.

Keywords

Green synthesis,Cu-Ag bimetallic nanoparticles,Anti-bacterial ,Anti-diabetic,Anti-cancerous.

INTRODUCTION

Nanotechnology is the growing field of research interest across the world.It has multiple properties and applied in several areas.Nowadays bio- based processes are alternative to conventional methods for preparing nanoparticles[1] .The main focus on this field is because of their certain characteristics such as size, morphology and distribution. There are lot of new applications emerging day by day[2]. In recent years, due to so many pollutants in environment for the synthesis,the uniqueness of bio synthesis of metal nanoparticles are really necessary to maintain the ecosystem.As nano-sized particles has unique nature it is utilized in biomedical, pharmaceutical, agriculture and so on[3]. Eco-friendly materials like pant extract[4] , microbes[5], enzymes[6] which are utilized for any synthesis reduces toxic chemicals which can be employed in any field without any side effects.As this bio- method reduces harmful effects,it is highly utilized in medicinal field which is inexpensive and can be processed for large scale

Solid lipid nanoparticles for oral drug delivery

S. Khaleel Basha [a,*], R. Dhandayuthabani [a], M. Syed Muzammil [a], V. Sugantha Kumari [b]

[a] Department of Chemistry & Biochemistry, C. Abdul Hakeem College, Melvisharam - 632 509, India
[b] Department of Chemistry, Auxilium College, Vellore 632 006, India

ARTICLE INFO

ABSTRACT

Solid lipid nanoparticles (SLNs) are an incredibly resourceful drug delivery platform because of its diverse determination and modifiable lipid materials are making the topic exceptionally captivated in the latest year. The network of the SLNs improves drug stability, maintaining a strategic distance from proteolytic debasement after organization, and releasing the drug in a controlled way, which additionally offer a few advantages over ordinary details, including great physical stability, spherical morphology, uniform size, positive zeta potentials, typical high cell penetration efficiency, core–shell pattern and excipients of GRAS status make the SLNs delivery system all the more promising. Subsequently this fresh methodology of solid lipid nanoparticles hold tremendous promise for reaching at the objective of controlled and site exact for both oral and parenteral drug delivery system. The aim of the article is to review the diverse instrumental techniques have been decorated and oral administration of SLNs is logistically reviewed.
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Selection and peer-review under responsibility of the scientific committee of the NANOSMATAFRICA-2018.

1. Introduction

Solid lipid nanoparticles (SLNs) are at the harbinger of the quickly developing field of nanotechnology with several potential applications in drug delivery and research [1]. It is the principal approach for the production of SLNs by a high-speed stirring method utilizing lipid microparticles, a hot surfactant solution obtaining an emulsion by high-pressure homogenization or micro emulsification [2], as an alternative transporter system to tradition colloidal carriers, such as emulsions, liposomes, and polymeric micro and nanoparticles [1]. Contrasted with other innovative carrier systems, SLNs are physically steady to Protecting the incorporated labile drugs from degradation, controlled release, limits coupled problems low tremendous acceptability at the same occasion, cost-effective [3-6]. SLNs formulations for various application routes have been developed such as parenteral, oral, dermal, ocular, pulmonary, and rectal and systematically also characterized in in-vitro and in-vivo studies [7-9]. SLNs made up of solid lipid (lipids solid at room temperature at human body temperature), Stabilized by a surfactant (emulsifier), co-surfactant (water/solvent) and active in gradients (typically drugs) [10,11]. The lipids utilized might be triglycerides (tri-stearin), partial glycerides (Imwitor), fatty acids (stearic acid, palmitic acid), steroids (cholesterol) and waxes (cetyl palmitate) [12,13]. The size of the SLNs is (around 10 to 200 nm) and narrow size range (100 to 200 nm) permits them to cross tight endothelial cells of the blood- brain barrier also in the digestion It escapes from the reticuloendothelial system and bypass the liver .They have relatively higher drug entrapment proficiency, render the drug progressively stable in their lipid matrix, and provide a controlled release enduring to several weeks [11,14]. The greater part of these lipids for example lecithin, Tween 80, Poloxamer 188, Span 85, and sodium glycocholate are commonly recognized as a safe (GRAS) and physiologically well-endured except for cetyl palmitate [15]. SLNs are prepared up to concentrations of 2.5% lipid do not exhibit any cytotoxicity impacts in-vitro. Indeed, even concentrations higher than 10% of lipids have been demonstrated the reasonability of 80% in the way of life of human granulocytes. Conversely, some polymeric nanoparticles indicated total cell death at concentrations of 0.5% [13]. The solubilized phases in all probability emerge from integral animal processing after lipid absorption. The co- administration of lipids with drugs can also affect their absorption pathway although most orally administered compounds gain access to the systemic circulation via the portal vein. some highly lipophilic drugs are transported directly to the systemic circulation via intestinal lymphatic's, which improves oral bioavailability of Active Pharmaceutical Ingredient (API) [15]. The gastrointestinal (GI) tract acts as a
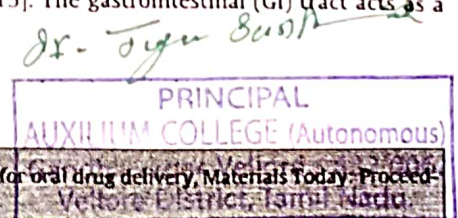
* Corresponding author.
E-mail address: khaleel.che@cahc.edu.in (S.K. Basha).

Solid lipid nanoparticles for oral drug delivery

S. Khaleel Basha [a,*], R. Dhandayuthabani [a], M. Syed Muzammil [a], V. Sugantha Kumari [b]

[a] Department of Chemistry & Biochemistry, C. Abdul Hakeem College, Melvisharam - 632 509, India
[b] Department of Chemistry, Auxilium College, Vellore 632 006, India

ABSTRACT

Solid lipid nanoparticles (SLNs) are an incredibly resourceful drug delivery platform because of its diverse determination and modifiable lipid materials are making the topic exceptionally captivated in the latest year.The network of the SLNs improves drug stability, maintaining a strategic distance from proteolytic debasement after organization, and releasing the drug in a controlled way, which additionally offer a few advantages over ordinary details, including great physical stability, spherical morphology, uniform size, positive zeta potentials, typical high cell penetration efficiency, core–shell pattern and excipients of GRAS status make the SLNs delivery system all the more promising.Subsequently this fresh methodology of solid lipid nanoparticles hold tremendous promise for reaching at the objective of controlled and site exact for both oral and parenteral drug delivery system. The aim of the article is to review the diverse instrumental techniques have been decorated and oral administration of SLNs is logistically reviewed.
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1. Introduction

Solid lipid nanoparticles (SLNs) are at the harbinger of the quickly developing field of nanotechnology with several potential applications in drug delivery and research [1]. It is the principal approach for the production of SLNs by a high-speed stirring method utilizing lipid microparticles, a hot surfactant solution obtaining an emulsion by high-pressure homogenization or micro emulsification [2], as an alternative transporter system to tradition colloidal carriers, such as emulsions, liposomes, and polymeric micro and nanoparticles [1]. Contrasted with other innovative carrier systems, SLNs are physically steady to Protecting the incorporated labile drugs from degradation, controlled release, limits coupled problems low tremendous acceptability at the same occasion, cost-effective [3-6]. SLNs formulations for various application routes have been developed such as parenteral, oral, dermal, ocular, pulmonary, and rectal and systematically also characterized in in-vitro and in-vivo studies [7-9]. SLNs made up of solid lipid (lipids solid at room temperature at human body temperature), Stabilized by a surfactant (emulsifier), co-surfactant (water/solvent) and active in gradients (typically drugs) [10,11]. The lipids utilized might be triglycerides (tri-stearin), partial glycerides

(Imwitor), fatty acids (stearic acid, palmitic acid), steroids (cholesterol) and waxes (cetyl palmitate) [12,13]. The size of the SLNs is (around 10 to 200 nm) and narrow size range (100 to 200 nm) permits them to cross tight endothelial cells of the blood- brain barrier also in the digestion It escapes from the reticuloendothelial system and bypass the liver .They have relatively higher drug entrapment proficiency, render the drug progressively stable in their lipid matrix, and provide a controlled release enduring to several weeks [11,14]. The greater part of these lipids for example lecithin, Tween 80, Poloxamer 188, Span 85, and sodium glycocholate are commonly recognized as a safe (GRAS) and physiologically well-endured except for cetyl palmitate [15]. SLNs are prepared up to concentrations of 2.5% lipid do not exhibit any cytotoxicity impacts in-vitro. Indeed, even concentrations higher than 10% of lipids have been demonstrated the reasonability of 80% in the way of life of human granulocytes. Conversely, some polymeric nanoparticles indicated total cell death at concentrations of 0.5% [13]. The solubilized phases in all probability emerge from integral animal processing after lipid absorption. The co– administration of lipids with drugs can also affect their absorption pathway although most orally administered compounds gain access to the systemic circulation via the portal vein, some highly lipophilic drugs are transported directly to the systemic circulation via intestinal lymphatic's, which improves oral bioavailability of Active Pharmaceutical Ingredient (API) [15]. The gastrointestinal (GI) tract acts as a
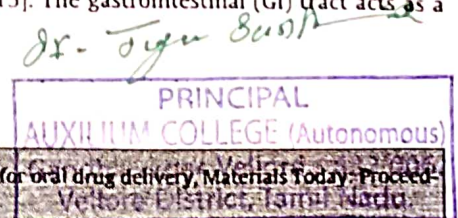
. * Corresponding author.
E-mail address: khaleel.che@cahc.edu.in (S.K. Basha).

Development of nanoemulsion of Alginate/*Aloe vera* for oral delivery of insulin

S. Khaleel Basha [a,*], M. Syed Muzammil [a], R. Dhandayuthabani [a], V. Sugantha Kumari [b]

[a] Department of Chemistry & Biochemistry, C. Abdul Hakeem College, Melvisharam 632 509, India
[b] Department of Chemistry, Auxilium College, Vellore 632 006, India

ABSTRACT

Our study aimed to prepare nanoemulsions coated with alginate/*Aloe vera* gel (A/AV) for oral insulin delivery. Uncoated nanoemulsions were prepared by homogenization of water in oil in water (w/o/w) multiple emulsions that were composed of castor oil (emulsifier). Coating of the nanoemulsions was achieved based on ionic gelation method, with sequential addition of calcium chloride and *Aloe vera* gel (AV) to the bulk nanoemulsion dispersion that contained alginate. The particle size of the coated nanoemulsions was about 400 nm and the insulin entrapment ratio was 47.3%. *In vitro* leakage study indicated well-preserved integrity of the nanoemulsions in simulated gastric juices. In conclusion, the nanoemulsion coated with alginate/*Aloe vera* gel (A/AV) was a potential delivery system for oral delivery of polypeptides and proteins. Feasibility of this nanoemulsion for oral delivery of insulin (model peptide) is investigated in Caco-2 cell line using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazoliumbromide viability assay. The cell culture results for translocation of insulin across the cell monolayer are very promising (20%–25% increase), and animal studies are actively under progress and will be published separately in near future.

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1. Introduction

The oral course of drug administration is associated with generally high patient resilience and is progressively moderate when contrasted with infusion treatments [1]. The goals behind a patient's high persistence with the oral route of administration include self-treatment, ease of use and its non-invasive nature [2]. Then again, the organization of oral medications is tested by the low availability of specific drugs, for example, macromolecular drugs [1]. The general low-membrane permeability and oral bioavailability of large compounds (subatomic weight >500 Da) can be attributed to their troublesome physico-chemical properties [3], as well as the brutal gastrointestinal condition, where enzymatic and chemical activity cause extensive degradation, specifically, of protein and peptide drugs [4]. For an oral medication to have its ideal pharmacological effect, the drug must reach the systemic circulation by absorption/ingestion, through the epithelial layer of the intestine [5], which can occur through paracellular or transcellular pathways [6,7]. The paracellular pathway is the transport of drug particles between epithelial cells and occurs through methods for latent propagation limited by size, through tight junctions and intercellular spaces. Hydrophilic macromolecules, for example, peptide and protein drugs are sent mainly through the paracellular flow, as they cannot enter the cell layers/membranes [7,8], in any case, their paracellular movement is severely limited by the tight junctions between the neighbouring epithelium cells [9]. One promising way to improve the oral absorption/retention of these hydrophilic macromolecules is to co-organize assimilation enhancers [7]. Tight junctions (zonula occludens) are one of three intercellular complexes, with adherence junctions (adherens zonula) and desmosome (macula adherens), which interconnect epithelial cells together. Tight junctions can be portrayed as powerful complex structures with many proteins which consist of different transmembrane proteins, with the main proteins being occluzin, tricelulina and the claudin family. These proteins are associated with the cytoskeleton of cellular actin, by means of the protein platform zonula oklulens-1 (ZO-1). Along these lines, an adjustment in the actin transfer can be associated with an adjustment of at least one narrow junction protein [10,11]. The dynamic idea of narrow junction guarantees that it tends to be

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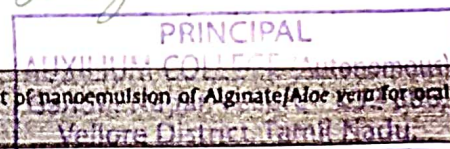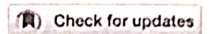
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Master Blaster: an approach to sensitive identification of remotely related proteins

Chintalapati Janaki[1,2], Venkatraman S. Gowri[1,3] & Narayanaswamy Srinivasan[1]✉

Genome sequencing projects unearth sequences of all the protein sequences encoded in a genome. As the first step, homology detection is employed to obtain clues to structure and function of these proteins. However, high evolutionary divergence between homologous proteins challenges our ability to detect distant relationships. In the past, an approach involving multiple Position Specific Scoring Matrices (PSSMs) was found to be more effective than traditional single PSSMs. Cascaded search is another successful approach where hits of a search are queried to detect more homologues. We propose a protocol, 'Master Blaster', which combines the principles adopted in these two approaches to enhance our ability to detect remote homologues even further. Assessment of the approach was performed using known relationships available in the SCOP70 database, and the results were compared against that of PSI-BLAST and HHblits, a hidden Markov model-based method. Compared to PSI-BLAST, Master Blaster resulted in 10% improvement with respect to detection of cross superfamily connections, nearly 35% improvement in cross family and more than 80% improvement in intra family connections. From the results it was observed that HHblits is more sensitive in detecting remote homologues compared to Master Blaster. However, there are true hits from 46-folds for which Master Blaster reported homologs that are not reported by HHblits even using the optimal parameters indicating that for detecting remote homologues, use of multiple methods employing a combination of different approaches can be more effective in detecting remote homologs. Master Blaster stand-alone code is available for download in the supplementary archive.

With the advent of genome sequencing projects number of sequences in the public databases is increasing exponentially[1]. Analysis of sequence databases of proteins suggests that there are a large number of uncharacterized proteins with no information on function, structure, post-translational modifications, protein–protein interactions, protein-nucleic acid interactions and protein-small molecule interactions[2]. In the current release of PFAM, a database of protein families, there are 4244 domains of unknown function (DUFs) that correspond to 23% of the domains[3]. Unfortunately, as the sizes of such sequence databases are increasing in a rapid pace, the gap in our understanding of above mentioned attributes of proteins are also widening. While multiple experimental studies are required for a detailed and complete understanding of the molecular and mechanistic basis of protein action and regulation, computational approaches can help to arrive at reasonable initial ideas on the functions, structures and other features of proteins[4].

Homologous proteins are often known to adopt same or similar structure and function. However the problem with recognition of homologous or related proteins is high sequence divergence[5,6]. There are several known cases of homologous proteins sharing a sequence identity as low as between two unrelated proteins of entirely different structure and function.

Although many computational methods have been developed for remote homology detection over a few decades now[7], often they are not always able to identify all the related proteins of a query especially when the relationship is distant characterized by very low sequence similarity. It is essential to develop new computational methods which address fundamental questions and arrive at reliable and more complete answers. Indeed, search results for a query sequence with two or more equally sensitive and successful search algorithms often do not match and one needs to consider union set of hits from multiple search programs.

Algorithms such as Needleman-Wunsch[8], BLAST[9], FASTA[10,11] and Smith-Waterman[12] have pioneered sequence alignment methods and formed foundation for profile-based methods which include PSI-BLAST[13],

[1]Molecular Biophysics Unit, Indian Institute of Science, Bangalore 560012, India. [2]Centre for Development of Advanced Computing, Knowledge Park, Byappanahalli, Bangalore 560038, India. [3]Chemistry, Auxilium College, Gandhinagar, Vellore 632006, India. ✉email: ns@iisc.ac.in
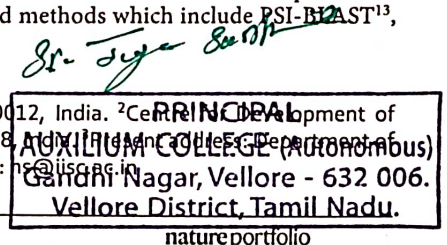
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தொல்காப்பிய மெய்ப்பாட்டியலில் உரையாசிரியர்களின் கருத்துக்கள்

Opinions of Commentators on Tholkappiyam Realism

அ. அக்ஸிலியா மேரி, உதவிப்பேராசிரியர், தமிழ்த்துறை, அக்சிலியம் கல்லூரி, வேலூர்.
A.Auxilia Mary, Assistant Professor of Tamil, Auxilium College, Vellore.
ORCiD: https://orcid.org/0000-0002-8204-8926
DOI: 10.38067/ijtlls.2020.spl.v03i02v1.001

Abstract

Sign language is the language spoken by man since from the dawn of time. They expressed their feelings through mundane actions and gestures. Over time the gesture changed in to language. We interact with the emotion when one study literature. Tholkappiyar takes this concept to mean 'meipadu'. Meipadukal is the sixth principle in "Tholkappiyam". This article presents the insightful meaning of meipadukal as evinced in the classic work. Moreover it covers up the nature, positions, and the explanatory texts given by the successive text writers about the reality of the concerned domain.

Keywords: "Tholkappiyam", Realism, Commentator, Text

முன்னுரை

உலகம் தோன்றிய காலத்தே மனிதன் பேசிய மொழி சைகைமொழி. சைகைகள் மூலமாக தங்களுடைய உணர்ச்சிகளை வெளிப்படுத்திக் கொண்டார்கள். பண்டைய கால மக்களின் உணர்ச்சிகளின் தரத்தைப் பொறுத்தே அவர்களுடைய வாழ்க்கைத் தன்மையும் அமைந்தது. பின்னர் காலப்போக்கில் சைகையானது மொழியாக மாற்றம் பெற்றது. இலக்கியத்தைப் பயிலும்போது அது வெளிப்படுத்தும் உணர்ச்சியோடு நாம் தொடர்பு கொள்கிறோம். இதனை தொல்காப்பியர் 'மெய்ப்பாடு' என்று பொருள்கொள்கிறார். தொல்காப்பியப் பொருளதிகாரத்தில் ஆறாவது இயலாக மெய்ப்பாட்டியல் அமைந்துள்ளது. செய்யுளியல் முதல் நூற்பாவில் தொல்காப்பியர் செய்யுள் உறுப்புக்களைக் குறிப்பிடுகின்றார். அவ்வுறுப்புக்களின் வரிசையில் மெய்ப்பாடு என்பதும் ஒன்றாகும். செய்யுளுக்குரிய ஒருறுப்பாயினும் இதன் சிறப்பினைக் கருதி இதனைத் தனியாக ஒரியலில் விளக்கிச் சொல்லியுள்ளார் தொல்காப்பியர். இக்கட்டுரையானது தொல்காப்பிய மெய்ப்பாட்டியலில் தொல்காப்பியர் சுட்டும் மெய்ப்பாடுகளையும், உரையாசிரியர்களின் கருத்துக்களையும் ஆராய முற்படுகிறது.

தொல்காப்பியரின் மெய்ப்பாட்டுக் கொள்கை

தொல்காப்பியர் மெய்ப்பாட்டியலில் அகப்பொருளுக்கும் புறப்பொருளுக்கும் பொதுவாக உரிய உணர்ச்சிகளை விளக்கியுள்ளார். இவ்விரண்டிற்கும் உரியமெய்ப்பாடு எட்டு என்றும் இவ்வெட்டு மெய்ப்பாடுகளும் முப்பத்திரண்டு உணர்ச்சிகளால் தோன்றும் என்றும்

A CONCEPTUAL STUDY ON DIGITAL LEARNING AND MENTAL HEALTH

Dr S Uma Mageswari Assistant Professor Department of Business Administration
Auxilium College (Autonomous)

Abstract

Digital learning uses a broad range of technology – enhanced educational strategies that involve blended learning, flipped learning, personalized learning, and other strategies that purely depend on digital tools to a small or larger extent as the case may be. Digital learning is prevalent in our system for many years but its usage is felt during the Pandemic era. Many foreign Universities fully engage their students through Digital Learning. Life has turned upside down from March 22nd, 2020. We have expected the unexpected. The roller coaster is stuck in between. Given this scenario which the entire Country is facing, Digital learning though is a blessing especially in education, has created lot of disturbances in the physique. The aim of the paper is to bring out the mental issues faced by academicians from a general perspective.

Key words: Digital learning, Stress, Well- being, QWL

INTRODUCTION

Digital learning or the so called virtual learning has virtually put us into a big challenge of getting updated to the technology. Though many academicians are familiar with the concept most of them are still learners. They seek the help of their peers or friends to take a class. To categorize more Gen X – needs more updation, Gen Y – very much familiar and little training can run the show and Gen Z – highly adaptive and can do wonders with technology and steal the show. This is a general opinion and exceptions are always there where Gen X surpasses everyone. Irrespective of the group one belongs to an academician is not expected to ask for an excuse that he or she does not know technology as sharing of knowledge in all the modes needs to be the basic motto of an academician. Given such a situation learning to update gives a lot of mental pressure both to the students as well as the academicians. The academician around the country would have obtained certificates on various FDP's, Conferences Webinar's and Quiz Programmes. The question here is was there any learning process in the above or people just registered for documentation for NAAC , compulsion by the institution, competition between the peers or departments on the count of certificates…… the list goes on . Irrespective of the above questions we are in a Virtual era and there is no other go other than to accommodate to it. Thus in the process of learning the digital platform, (though user friendly but not so) academicians and students are subject to psychological issues. Ultimately be a Romani when you are in Rome – adapt to the technology.

DIGITAL LEARNING

Digital learning is any type of learning that is accompanied by technology or by instructional practice that makes effective use of technology. It encompasses the application of a wide spectrum of practices including: blended and virtual learning.

A digital learning strategy may include any of or a combination of any of the following:

- adaptive learning
- badging and gamification
- blended learning
- classroom technologies
- e-textbooks

Students' Perception of Socioeconomic Status and their Academic Performance

Ms. Preethi Prabhakaran
Research Scholar, Department of Business Administration
Auxilium College (Autonomous), Vellore- 632006

&

Dr. Beulah Suresh,
Head and Assistant Professor, Department of Business Administration
Auxilium College (Autonomous), Vellore- 632006

Abstract

Socioeconomic status is a social standing an individual usually the working parent takes as an effect of education, occupation, and income which determines the accessibility to materialistic and academic resources available for their children. The current study is carried out to identify the students' perceptions of parental socioeconomic status and how the same affects their academic performance. 270 students falling under the age group of 17 - 19 years were selected from Vellore City in the Tamil Nadu State of India for the study. A structured questionnaire was used to record their responses based on which data reduction was done applying Factor Analysis. Using the Regression Model, four factors such as economic support, academic decisions, academic needs, and financial independence were identified as factors that the students' perceive as factors that impact their academic performance.

Keywords: 1.Socioeconomic status, 2.Parental education, 3.Parental occupation, 4.Parental income, and 5.Academic Performance.

1.1 Introduction

Geoffrey Perkins (2016) in his book on "Socioeconomic status: Influences, Disparities, and Current Issues" says 'socioeconomic status denotes the relative position of individuals, families, or groups in the social stratification which are unevenly distributed in the form of occupation, education and economic resources. The academic performance of students is greatly determined by the socioeconomic status of the parents. Education is perhaps the most important pointer in socioeconomic status as it can be related to acquiring knowledge and advancing further in the socioeconomic index scale.' For every human being family is the initial social encounter where they can identify themselves and can imitate their parents. This intricate aspect of the family helps one to reflect on their attitudes and behaviors in a social setup. The current study helps in understanding the combination of socioeconomic status of parents which includes their educational attainment, financial income, and occupational status and how the students perceive its influences on their academic performance. Though there are varied definitions for academic performance such as achievement or success, at times they are used interchangeably. The researcher has adopted the term academic performance based on the Revised Conceptual model of Academic Success of York, Gibson, & Rankin(2005) which portrays academic performance as one of the inclusive factors in academic success apart from satisfaction, career success, acquisition of skills, competencies, and attainment of learning outcomes. While considering the analysis of the socioeconomic status. Hauser(1994) says parental education, parental occupation, and parental income are characterized as the major aspects of socioeconomic status. Many studies of the past have highlighted academic performance to be directly associated with the parental occupation, which opens up platforms to provide for better job positions Occupation later to higher earnings and better status positions which is closely related to education and income of a household. In

A Conceptual study on Employee Engagement in Healthcare Industry during COVID-19

Dr S Uma Mageswari

Abstract

Employees are the backbone of any Organisation. Healthcare professionals play a very important role in the livelihood of the humankind all the time but now during COVID. When the entire nation was in lockdown, Doctors, Nurses and other healthcare professionals were on their full swing irrespective of the place they belong to. The remarkable contribution of these professionals has saved many lives. One of the important facets of the healthcare professionals is how they are engaged in the job they are doing during pandemic. This article is an attempt to analyse Employee Engagement of healthcare professionals especially during pandemic.

Key Words: Employee Engagement, motivation, healthcare professionals, organisation

Dr S Uma Mageswari- Assistant Professor, Department of Business Administration- Auxilium College (Autonomus), Vellore 632006 – mageswarisharma@hotmail.com, 9894767234

INTRODUCTION

The success and growth of an Organisation depends to a large extent on the employees. They are the one who play a major role in transforming the theory to practicality in all aspects. Healthcare industry has become one of India's largest sector, both in terms of revenue and employment. The entire nation was in mute after the breakdown of Corona from March 2020. The pandemic has reflected in so many ways in everyone's lives. Keeping this aside the whole nation is in praise of the remarkable service rendered by Doctors, Nurses, Technicians and all those in the health care industry. While work from home was the order of the day from March, the only exception was for emergency services – health care professionals who worked and are working tirelessly to save people. The way they engage themselves in their work is beyond words. The paper attempts to relate employee engagement in health care industry and its contribution towards the society.

EMPLOYEE ENGAGEMENT

Employee engagement in simple words is how employees engage themselves in the work they do. The match between the educational background and career relates only for very few people.

8. **Heading:** All heading must be bold-faced, Sentence Case, aligned left with 12 point-Times New Roman and sub-heading in 10 point.

9. **Article title:** It should be informative reflecting true sense of the manuscript and within three lines.

10. **Figures:** The title must be above the table and source of data should be mentioned below the figures and tables. Figures and tables should be centered and separately numbered. The authors should make sure that table and figures are referred to from the main text.

11. **Photographs:** Image files should be optimized to the minimum possible size (JPGE Format) without compromising the quality.

12. **Equations:** All the equations used in research paper or article should be consecutively numbered in parentheses, horizontally centered with equation number placed at the right.

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14. **Acknowledgement:** Acknowledgement of any funding sources, if any should be included at the end of the paper.

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ADOLESCENTS ' PERCEPTION ON PARENTING AND ACADEMIC ACHIEVEMENT

Ms. Preethi Prabhakaran

Research Scholar, Department of Business Administration, Auxilium College (Autonomous), Vellore- 632006

Dr. Beulah Suresh,

Head and Assistant Professor, Department of Business Administration, Auxilium College (Autonomous), Vellore- 632006

ABSTRACT

Parenting is the art of nurturing a child to grow into a person to meet the challenges of the world. Adolescence is the phase where there is a physical, mental, and developmental change that happens in children. It is during this stage that the children acknowledge or disapprove the parental bonding that exists. The current study was carried out with an intention to identify if the academic achievement of the adolescents where found to be affected by the parenting attributes. The study adopted the Parental Bonding Instrument of Parker to capture the perception of the 180 respondents who were considered in the study.

Keywords: Parenting, Adolescents, and Academic Achievement

1. Introduction

Parents are the first windows through which a child sees the world. It is through parents that children learn and progress forward. The love and warmth that parents provide makes the child feel protected and promotes growth in various ways. Parenting Style is defined as the style with which a parent, the mother or the father handles a child so as to guide them in their day-to-day activities and routine(Baumrind,1966).Parenting has been broadly classified into four types (Cherry,2012) states there are four types of parenting namely Authoritarian Parenting, Authoritative Parenting, Permissive Parenting, and the Uninvolved Parenting.

Authoritarian Parenting Style:Totalitarian Neglectful Parenting or Strict Parenting is the other names to Authoritarian Parenting, where the parents accentuate on the traditional values and observance andinstructions are provided to the children. This platform does not allow children to discuss with their parents, since the children are told what has to be done without advancing any reasons/ rules or boundaries. The parents do not discuss the problems rather they resort to spanking them and show less responsiveness to their children's needs. The children are accustomed to obey the decisions suggested by their parents. If the children refuse to obey parents resort to severe punishments. Researchers have said Children from authoritarian parents show lower levels of achievement in school.

Authoritative Parenting Style:It can be variedly called as `assertive democratic` or `balanced parenting'.Parents reflecting this style are able to command and curtail misbehavior with the intention of encouraging uniqueness and communicate to their children why a particular behavior is not acceptable. Parents are able to understand the feelings of their children. This is the most common type of parenting where parents are just in providing positive and negative sanctions to indicate to the child right from wrong. These parents uphold independence as key to capacity building and character molding.

Permissive Parenting: This indulgent or Free-ranger parenting or non-directive parenting style demonstrates leniency to a greater extent to the children to exhibit love which is the ultimate motive. Parents in this type do not want their children to be offended so provide their children with much freedom with a greater level of responsibility and conduct expected from the children. But the children end up being selfish as there are possibilities that children might lose self confidence, as the parents tend to be over committed and over protective which affects peer interactions and initiative development for the future. The common

Identification of the motifs of beta-turns and mutated amino acids studies on BCR (Breakpoint cluster region) protein using Insilico techniques

Anuradha Manogharan[1], Regina Mary Rathina Sami[*1], Ramadevi Mohan[2]

[1]Department of Zoology, Auxilium College(Autonomous), Gandhi Nagar, Vellore-632006, Tamil Nadu, India

[2]Department of Integrative Biology, VIT University, Vellore- 632014, Tamil Nadu, India

ABSTRACT

Recent investigations have rapidly added crucial new insights into the complex functions of the normal BCR gene and of the BCR-ABL chimaera. They are yielding potential therapeutic breakthroughs in the treatment of Philadelphia (Ph) chromosome-positive leukemias. The objective of the present *in silico* research investigation is to find out whether the functional part (beta-turns) is present in the mutated amino acids of BCR (Breakpoint cluster region) protein. Two significant steps are involved in this study. First, we performed protein sequence modeling of BCR using automated protein modeling servers and the 3D structure was visualized using molecular visualization software and tools. In the second step, the function domains and motifs regions of BCR gene-coded protein is predicted using "PDBsum generate" tool in order to show where exactly the beta-turns lie on the clinically-proven mutated amino acids of BCR protein. The results of our investigation can be used as potential drug binding sites in the field of drug docking studies. It can act as a potential therapeutic agent for Chronic Myeloid Leukemia (CML) type of Leukemia.

*Corresponding Author

Name: Regina Mary Rathina Sami
Phone: +91 9952355724
Email: fabiregi31@gmail.com

INTRODUCTION

Chromosomal aberrations related to BCR has been found in patients affected by chronic myeloid leukemia (Translocation t(9;22)(q34;q11) with ABL1). The translocation results in the production (ALL) (Chissoe *et al.*, 1995; Hariharan and Adams, 1987). The structural organization of the BCR gene which contains 23 exons present on chromosome 22 has been determined (Hariharan and Adams, 1987). The first exon comprises of a unique serine/threonine kinase activity and at least 2 SH2 binding sites. The fact that the BCR gene is directed with its 5-prime end toward the centromere of chromosome 22 has been demonstrated (Stam *et al.*, 1987). BCR gene is composed of 23 BCR exons with putative alternative BCR first and second exons (Chissoe *et al.*, 1995). About 10% of patients with acute lymphocytic leukemia (ALL) have the translocation t(9;22)(q34;q11) indistinguishable from that of CML. It has however, been found in 3 out of 5 such cases of ALL that the bcr region was not involved and that the 22q11 chromosome breakpoint was proximal (5-prime) to the bcr region (Erikson *et al.*, 1986). 2 Furthermore, the

Molecular effects of mutated amino acids involved in Transmembrane and Domain regions on the BCR oncogene protein using In silico techniques

Anuradha Manogharan[1], Regina Mary Rathina Samy[*1], Ramadevi Mohan[2]

[1]Department of Zoology, Auxilium College, Gandhi Nagar, Vellore-632006, Tamil Nadu, India
[2]Department of Integrative Biology, VIT University, Vellore- 632014, Tamil Nadu, India

ABSTRACT

BCR gene is expressed in patients with Philadelphia-positive Leukemias, known as chronic myeloid leukaemia (CML). Here, we focus on how the intramolecular domains and transmembrane segments are involved in the mutated sites of BCR. In this research work, we thoroughly analysed the transmembrane segments and the functional domains and predicted the 3D structure. We applied two kinds of techniques in our work. One is sequence-based, where we proved that the transmembrane segments in the functional domains contain the mutated sites. The second technique is structure-based, where we predicted the 3D structure of BCR gene-coded protein and visualised the transmembrane segments, which included the mutated sites. By using advanced molecular visualisation tools, the molecular structural properties of the respective transmembrane regions of amino acids will be determined. Both the techniques involved the use of advanced insilico tools and database. Our results elucidated that both the sequence and structure-based outcomes represented the identified transmembrane segments in the functional domains, which are potential candidates for drug docking studies. Hence, we finally concluded that this research work would play a vital role in clinical oncology and structure-based drug designing. Our research work is the first attempt to prove that potential drug binding sites are present in BCR oncogene-protein using insilico techniques. The results of this research investigation form a basic foundation for structure-based drug designing.

*Corresponding Author

Name: Regina Mary Rathina Samy
Phone: +91 9952355724
Email: fabiregi31@gmail.com

INTRODUCTION

In recent years, leukaemia is a major challenge in the field of medicine. In our research, we focus on the

lished the structural organisation of the BCR gene, which consists of 23 exons and is positioned in a region of about 135 kb on chromosome 22 (Heisterkamp et al., 1985). The first exon contains a unique serine/threonine kinase activity and no less than 2 SH2 binding sites. Stam and his co-workers showed that the BCR gene is positioned with its 5-prime end toward the centromere of chromosome 22 (Stam et al, 1987).

It was ascertained that the BCR gene consists of 23 BCR exons with putative alternative BCR first and second exons (Chissoe et al., 1995). It was shown that BCR, when purified, contains autophosphorylation activity and transphosphorylation activity for several protein substrates (Maru and Witte, 1991). It was found out that for this new phosphotrans-

Phytochemical Screening of Ethanol Extract of *Eugenia Jambolana* Lam.

AUTHORS: Sindhuja G, Rebecca Vinolia, A.F.Philomina, Yasmin M.
CORRESPONDING AUTHOR: Dr.A.Mary Agnes
Corresponding Author: Associate Professor
Authors: Research Scholar, Pg & Research, Department Of Zoology, Auxilium College (Autonomous), Katpadi, Vellore-6, TN, And India
Corresponding Author: Dr.A.Mary Agnes
Agnesanthony14@gmail.com

Abstract

The aim of the present study is to identify the important functional groups and Phytochemical constituents of the ethanol extract of *Eugenia jambolana*, which was analyzed by GC.The GC-MS analysis of the ethanol extract from the seed part of *Eugenia jambolana* detected the presence of 17 different compounds in each extract. Both extracts exhibit different compounds and biological activity. Results revealed various major compounds among which the Phytochemical compounds were identified: Hexadecanoic acid, Dotriacontane, Oleic acid, Cyclohexane, 1-(1,5-Dimethylhexyl)-4-(4-Methylpentyl), Hexadecanoic acid, Ethyl ester, T-Butyl Cyclopentaneperoxycarboxylate, 2,3-Anhydro-D-Mannosan, 2,3-Anhydro-D-Galactosan, Alpha-Cadinol, Tau-Murol, Diglycerol.GC-MS analysis revealed that the extracts contain a high concentration of phytoconstituents, which may be bioactive components involved in the plant's therapeutic properties..GC-MS analysis revealed that the extracts contain a high concentration of phytoconstituents, which may be bioactive components involved in the plant's therapeutic properties. These results can be used as a good preliminary indication for future applications of antifungal, antibacterial, antimalarial, antidiabetic, anti-inflammatory, antimicrobial, preservative, and antioxidant.

Keywords: GC-MS analysis, *Eugenia jambolana*, Seed part, phytochemical compounds

Introduction

Medicinal plants have been the basis of traditional medicine (TM) used for the treatment of various diseases in diverse cultures around the world. For many centuries, herbs and herbal-derived medicines have played a crucial role in health and disease management. Many ancient civilizations have shown documented evidence for the use of herbal extracts, concoctions, and various forms of plant preparations for the treatment of different kinds of diseases and ailments (Obidike I, et al., 2013). In India, from ancient times, different parts of medicinal plants (80,000 species) have been used as traditional medicines in different systems of Indian medicine for treatments of various diseases. At present, about 25% of the active constituents have been identified from medicinal plants that have been used as prescribed medicines. Certain reports have estimated that over 25,000 actual plant-based formulations are available in the Indian systems of folk and traditional medicine, which are prescribed by about 1.5 million practitioners in preventive, persuasive, and healing applications. Most of these plants, in addition to their medicinal values, have obvious economic, cosmetic, and social applications. These plants contain diverse secondary metabolites or constituents that are

FUZZY TRANSSHIPMENT MODEL USING FUZZY ONE POINT METHOD

L. SUJATHA[1], M. GEETHA PRIYA, N. PAVITHRA, AND R. AKILA

ABSTRACT. Fuzzy transshipment problem is a special case of fuzzy transportation problem. The fuzzy transshipment model recognizes that in real life it can be cheaper to ship through intermediate or transient nodes before reaching the final destination. In this paper, transshipment problem with fuzzy parameters is converted to a regular fuzzy transportation model. Then it is solved using fuzzy one point method in k - stages. The procedure adopted here is independent of the conventional procedure. Suitable numerical examples are included for the proposed approach along with the simulation result using TORA software.

1. INTRODUCTION

In the Fuzzy Transportation Problem (FTP) shipment of commodity takes place directly from sources to destinations. Whereas in the fuzzy transshipment problem shipments are allowed between sources and between destinations, sometimes there may also be intermediate points through which goods can be transshipped on their journey from a source to a destination. This type of shipment can be less expensive than the direct shipment in many cases. Hence fuzzy transshipment problem is very useful to reduce the fuzzy transportation cost. A number of effective solutions are available in the literature for fuzzy transshipment problem. Few among them are mentioned here. Nagoor Gani et al. [6–8] proposed the procedures to solve the fuzzy transshipment problem.

A mathematical model for apportionment and reapportionment using F26A graph and the magic labeling

Md. Shahira Sulthana[1]*, G. Margaret Joan Jebarani[2] and L. Sujatha[3]

Abstract
The Allotment of a set of integers to vertices and edges of a graph satisfying certain conditions termed as labelling of a graph. It was introduced in the late 1960s by (5). The concept of magic labelling which is one of the many labellings itself has a variety. By fixing some natural number (here some atomic numbers) to the edges of F26A graph, it is proved to be a magic graph.

Keywords
F26A graph, Magic Labeling, Apportionment, Reapportionment, Atomic Number of Elements with their symbols.

[1] Department of Mathematics, Auxilium College, Vellore, Tamil Nadu, India.
[2] Department of Mathematics, Auxilium College, Vellore, Tamil Nadu, India.
[3] PG and Research Department of Mathematics, Auxilium College, Vellore, Tamil Nadu, India.
*Corresponding author: [1] mdshahira.mphil@gmail.com; [2] gmjoanj@gmail.com [3] sujathajayasankar@yahoo.co.in

Contents

1. Introduction

The applications of concepts of graph theory keep increasing day by day. In particular ,the concept of Graph labelinghas a noteworthy contribution in such applications.The Authors of this paperwere inspired to work in graph labelings,the source being " A Dynamic survey of graph labeling ",the Electronic Journal of combinatorics,19(2009),1-219 by J.A.Gallian [1]. It is natural to be attracted towards Magic and the authors decide to use the magic labelingand present an application and hence this paper. By choosing the Graph F26A and the Magic Labeling they have proposed a Mathematical model for Apportionment and Reapportionment. Inorder to maintain secrecy with respect to the detailsof the apportionment,Atomic Numbers and symbols of certain elements are used.
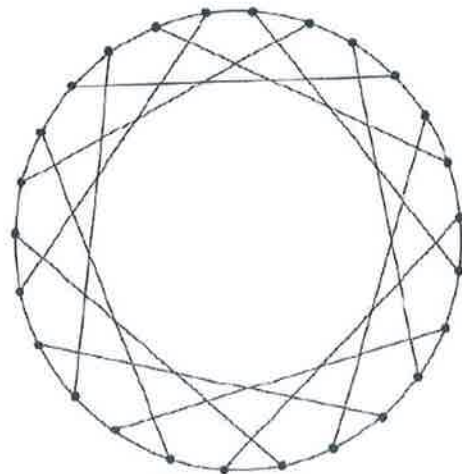

Figure 1. F26A

2. Pre-requisites

Definition 2.1 (F26A [3]). *The F26A graph is a cubic graph with 26 vertices and 39 edges.*

Definition 2.2 (Magic Graph [5]). *By assigning natural numbers to the edges such that the sum total of the edge values*

Journal of Computational Mathematica

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The Effects of Overeating, Socioeconomic Status and Modern Practices: A Structural Equation Modelling Approach to Obesity in Teenage Girls

Priyanka Victor[1*] and Preethi Victor[2]

[1]Assistant Professor, Dept. of Mathematics, Auxilium College (Autonomous), Vellore 632007

[2]Assistant Professor, Dept. of Mathematics, Jyothi Nivas College, Bangalore, Karnataka-560095

Abstract

This study investigates the effects and the relationship between the factors that cause childhood obesity. Several practices such as increased consumption of sweetened drinks, fast foods, eating while watching television (TV), skipping breakfast, reduced family meal times and lower consumption of healthy foods accelerate the rate of childhood obesity. Media plays a major role in the lives of millennials. Recent studies have established that there is an increase in obesity rates in low socioeconomic groups which indicates that it is an important factor to be considered while developing the model. Structural equation modelling (SEM) is a quantitative model approach which brings out the relationships between various factors. Exploratory factor analysis is used to examine the SEM model. The latent variables are over eating, socio economic status and modern practices. The observed variables are family income, educational qualification of parents, physical activities, stress, BMI, food practices, consumption of junk food, consumption of vegetables and media availability. The sample consists of school and college students (n=250) in Vellore-Tamil Nadu between the ages 13-18. The data collection was conducted through Questionnaires. SPSS (Statistics & Amos) software is used for SEM modelling. The proposed model is found to be an acceptable fit.

Key words:Childhood Obesity, Structural equation modelling, Exploratory factor analysis, Multi variate statistical analysis

AMS classification:

[1*]priyankavictor2@gmail.com,[2]preethivictor2@gmail.com

19-20

TRAUMA TO TRANSFORMATION: A DECONSTRUCTED PSYCHOLOGICAL STUDY ON MO YAN'S RED SORGHUM AND FROG

Kalpana Chatterjee

Research Scholar

PG & Research Department of English

Auxilium College Autonomous Vellore

kalpana12.india@gmail.com

7894489871

Vernum Cecilia P. A. A

Associate Professor& Head

Research Guide & Supervisor

PG &Research Department of English

Auxilium College Autonomous Vellore

9994308944

Abstract

Trauma is often highlighted in clinical studies yet, its depiction seems to be undervalued in literature. Psychiatrists consider trauma as a serious concern to be dealt with. Though it is portrayed in literature, trauma has been viewed as an unending process of life. Mo Yan's depiction of Chinese collective trauma in Red Sorghum and Frog is more than just being depressing and horrendous.Red Sorghum is a tale of love, family, war and bloodshed. Likewise,Frog creates space for the representation of motherly love and depression in the minds of Chinese women out of being deprived of cherishing motherhood. Both the novels present psychological change of the characters which take them from trauma to transformation. This paper attempts to bring out the positiveelements from these two novels which create a difference in the description of trauma in one's mind and a different perception towards trauma.

Keywords: Trauma, Literature, Depiction, Motherhood, Psychological change and Transformation

Mo Yan started his literary career with the novel *Red Sorghum* consists of five volumes titled *Red Sorghum, Sorghum Wine, Dog ways, Sorghum Funeral* and *Strange Death.* These volumes were first published separately as stories for different magazines in 1986. The year 1987 witnessed the publication of *Red Sorghum* as his first novel by compiling the previously published five volumes together. It got its film adaptation by Director Zhang Yimou which won the Golden Bear at the Berlin Film Festival. Later on it was translated into English by Howard Goldblatt in 1993 under the subtitle *Red Sorghum- A Novel of China.* The plot of *Red Sorghum* revolves around three generations of the Shandong family stretches from 1923 to 1976. These three

Deep- Rootedness and Empathy in Mo Yan's Depiction of Chinese Culture

Kalpana Chatterjee

 PhD Scholar

PG & Research Department of English

Auxilium College Autonomous

Vellore

kalpana12.india@gmail.com

 7894489871

Dr. Vernum Cecilia P.A.A

Associate Professor& Head

Research Guide & Supervisor

PG & Research Department of English

Auxilium College Autonomous

Vellore

9994308944

Mo Yan is a household name in China. He has become a significant part of the Chinese life with his prolific writings. Many of his characters face challenges and deal with the mundane problems such as hunger, aggression, war and desires, yet the emotional strength of these characters is visible through Mo Yan's works. He drives the political atrocities out by dealing with all the aspects of human life. Mo Yan firmly connects his readers with his characters hence there is a bonding between the readers and the characters and through this relationship visualisation of events becomes possible. This paper analyses the national spirit of Chinese masses which is articulated in the works of Mo Yan through his use of language and Chinese culture.

Key words: Mo Yan, Chinese culture, language, bonding, national spirit, political atrocities

Language is an inevitable element of a literary text which holds the ability to beautify or to ruin the entire work of an author. Contextual use of language becomes more important for an author in the long run to accomplish the goal of conveying his/her ideas to the readers. Therefore, the understanding of language use is apparently incomplete without being dealt within the context of a text. The foremost tool of a writer is language and the language skill of many writers has brought them fame. Language can also help to mirror one's culture. Mo

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Revisioning Myth: A Critical Analysis of Kavita Kane's *Sita's Sister*

Dr. Kalaiselvi R.H

Asst. Prof. of English

Auxilium College, Vellore-6

Tamil Nadu

Abstract:

Every society in human history in all generation seems to have owning, telling and re-telling a mythology that it has been fascinated and intrigued. In that sense every soul is entangled in some myth. One turns to myths not for searching binary answers instead to broaden one's understanding, gain wisdom and deepen universal insights that one typically misses out by the limited repertoire of thought, experience and personal narrative. It's fascinating how human societies systematically construct their ideologies through mythology. This article is a study on Kavita Kane's *Sita's Sister (2014)* to examine Urmila's character that was neglected and overlooked in original versions and break down Kavita Kane's redressal effort.

Key Words:

Mythology, Revisioning, Tribulations, Determination, Imagination, Interrogation.

Revisioning Myth: A Critical Analysis of Kavita Kane's *Sita's Sister*

Every society in human history in all generation seems to have owning, telling and re-telling a mythology that it has been fascinated and intrigued. In that sense every soul is entangled in some myth. One turns to myth not for searching binary answers instead to broaden one's understanding, gain wisdom and deepen universal insights that one typically misses out by the limited repertoire of thought, experience and personal narrative. It's fascinating how human societies systematically construct their ideologies through mythology.

Monica Khanna Jhalani in her book *Revisioning Indian Mythology* points out how patriarchy used mythology to popularize the ideologically constructed identity of women in Indian society. While examining five prominent female characters in Hindu myths, Sita, Gandhari, Draupadi, Ahalya and Surpanaka in her book she illustrates that mythology not only provides role models a woman must emulate, but also illustrates the consequences of transgressing the boundaries prescribed for women. However, certain literary texts have attempted to reinterpret mythological characters, and have given them a different dimension. She examines how contemporary authors have questioned, 're-visioned' and consequently subverted the stereotyped images of women in Hindu mythology. Thus, there is 'de-mythification' and consequently 're-mythification' of the original myths. Her analysis brought out new dimension to revisioning mythology. This article is a study on

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Journal of Interdisciplinary Cycle Research ISSN:0022-1945 (IMPACT FACTOR-6.2) An UGC-CARE Approved Group – II Journal (Scopus Indexed Till 1993)

8.Volume XII Issue VI June-2020- Revisiting the Classics and the Modern

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TRAUMATIC EXPERIENCE OF MOTHERHOOD IN TONI MORRISON'S *BELOVED*

Dr.Amutha Arockia Mary P.R Assistant Professor of English Auxilium College (Autonomous),
Vellore-632006

Abstract

The experience and expression of motherhood and the voice of the 'mute' mothers reverberating in Black Writing is an obvious phenomenon in Toni Morrison. One of the major themes to be considered in Beloved is mother-daughter relationship. Deconstruction and reconstruction of the mother image, the unexpressed emotions and traumatic experience of being a slave mother, a burden and pressure of forcing life and survival in a mother's body, the bond and exchange of painful memories between mother and daughter is well- expressed in the alternate fictional canon of Toni Morrison. Mother-daughter bonding and bondage suffuses Morrison's text. Morrison's novel Beloved flourishes with the essence of motherhood. The memories of Sethe, have an indepthmaternal feelings. The love, which leads to a murderous love of a mother, her fear to save her children from slavery, her grief for her lost children dominates the novels.

Feminist literary critics, those who are keen on psychoanalytic theories, involved in the more generalized feminist critique of motherhood as both as an institution and experience. Both of which being theoretical obstacles, especially the position of the mother in dominant theories of language, as highlighted by French feminist thought and the practical constraints on a mother's time, energy, and creative powers have been considered. The experience and expression of motherhood and the voice of the 'mute' mothers recuperated in the most recent fiction from repudiation of the mother, in various ways, by both nineteenth- and early-twentieth-century women writers. Some have seen a movement across the historical terrain of novel writing in particular that anticipates the pattern of second-wave feminism. Feminist critics like Susan Gubar and Sandra Gilbert traces the female literary history, questions the imitative literary fore-fathers image and the absence of the fore-mothers, they recommend the need of sisterhood and female sub-culture to be the subtheme of feminist criticism to position the feminist critic as daughter, anxiously trying to sort out her relations to her (literary) fore-mothers and suffering, like most feminist daughters, from deeply unresolved feelings about mothers and motherhood.

Elaine Showalter explains that a 'Female Culture', "means a conscious acceptance of the relationships between women, as mothers, daughters, sisters and friends, their sexuality, marriage motherhood, their ideas about female body etc., as the positive ingredients of woman's existence." (Showalter 131) The female culture challenge the masculine economy ofrepresentation and hegemonic dominance especially in case of Black Feministwriting by introducing black women, the triply invisible persons, and place them in center stage.

"The simple act of telling a woman's story from a woman's point of view is a revolutionary act"(Christ 8). Telling a story from a woman's point of view is not merely to establish rhetorical approach to their lives but also to learn to value everything about being a woman.

Women can exercise free and complete control over the bodies that they can make radical choices to prove that they are not victims, of sexist husbands and lovers. Besides sexuality, motherhood, marriage, abortion, relationships with husbands and children are also some of the major subjects. Certain characters such as mother, grandmother, sisterhood were portrayed as 'the guardian of the generations' Carole Boyce Davies calls them "mother-healers" 'daughters' seem to acknowledge "what these mother passed on would take you anywhere in the world you wanted to go" (Washington 161).

Deconstruction and reconstruction of the mother image, the unexpressed emotions and traumatic experience of being a slave mother, a burden and pressure of forcing life and survival in a mother's body, the bond and exchange of painful memories between mother and daughter is well expressed in the fictional canon of Paule Marshall, Toni Morrison, Alice Walker Gloria Naylor and Ntozoke Shange.

REINCARNATING THE WOMAN 'HERO'; AN ALTERNATIVE FEMINIST APPROACH IN OCTAVIA E. BUTLER'S WILD SEED

Dr. P.R. Amutha Arockia Mary

Assistant Professor of English, Auxilium College (Autonomous), Vellore-632006

Abstract

Octavia Estelle Butler isone of the well-renowned black feministic writers, an iconic American science fiction novelist, short story writer, and essayist. Her writing makes equal implications to the subaltern experience of the black and women experience in America as well as in the whole black Diaspora. Octavia Butler is best known as the author of the 'Patternist' series of science fiction novels, which involves a society whose inhabitants have developed telepathic powers over several centuries, Butler explores themes that have been given only cursory treatment in the genre, including sexual identity and racial conflict. Butler's heroines are black women who are powerful both mentally and physically. While they exemplify the traditional gender roles of nurturer, healer, and conciliator, these women are also courageous, independent, and ambitious. They enhance their influence through alliances with or opposition to powerful males.Octavia Butler's Wild Seed gives a neat feministic strategy as the heroine Anyanwu, the protagonist paired with or matched against, an equally powerful male. Butler portrays Anyanwu as a forceful woman. She is just not the victim, but a witness of slave-oppression; she breaks the stereotype representation of submissive slave woman who yearns and loses her self-identity. Anyanwu, a super-human with supreme power with her special healing ability, her physical strength, threatens and astonishes the dominant society.

Octavia Estelle Butler is a well-renowned black feministic writer, an iconic American science fiction novelist, short story writer, and essayist. She calls herself a "hermit", "feminist", and "a black". Being a womanist, revisionist, reconstructionist, Octavia Butler, has offered an avant grade fictional narratives in many respects. Her writing makes equal implications to black women experience in America as well as in the entire black Diaspora.Octavia Butleris best known as the author of the 'Patternist' series of science fiction novels, which involves a society whose inhabitants have developed telepathic powers over several centuries, Butler explores themes that have been given only cursory treatment in the genre, including sexual identity and racial conflict.

Butler's heroines are black women who are powerful both mentally and physically. While they exemplify the traditional gender roles of nurturer, healer, and conciliator, these women are also courageous, independent, and ambitious. They enhance their influence through alliances with or opposition to powerful males.

Butler incorporated the interrelated and interdependent themes that advance female agency reflecting the apparent growth in the nineteenth century literature, when female persons become speaking subjects, thereby challenging the objectification of women and rejecting an imposed victim status,which is a discourse wherein objectification and victimization are central concerns.

According to Marshall, Black women writers are different in the portrayal of their women characters in contrast to their predecessors and contemporaries. These women she observes;

> are not victims on one hand, they are oppressed women.... They are insulted and humiliated and so forth, but their whole way of reacting to that, their whole ability to find means of giving vent to their anger and frustration, their ability to exercise a kind of control

Magnetic, Thermal and Electrical Transport Properties of
o-Substituted Polyanilines Encapsulated with Fe₂O₃ Nanoparticles

R. Suganthi, S. Padmaja and S. Jhancy Mary[*]

Department of Chemistry, Auxilium College (Autonomous), Vellore-632006, India

*Corresponding author: Fax: +91 416 2247281; E-mail: jhancy2011@gmail.com

Conducting polymers are rapidly gaining attraction with improved processable materials having unique electrical, electrochemical and optical properties [1,2]. Polymeric nanocomposites (PNCs) containing nanosized metal oxides are under extensive research, since they exhibit exciting characteristics with unique applications such as quantum electronic devices, magnetic recording materials, sensors, capacitors, smart windows, toners in photocopying, conducting paints and rechargeable batteries [3-7]. However, due to poor mechanical properties, they cannot be processed easily [8-10]. By combining conducting polymers with metal oxide nanoparticles, one could produce polymeric nanocomposites, the properties of which can be fine-tuned depending on the composition of metal oxide in polymer matrix. Nanocomposites of polyaniline (PANI) have been widely studied [11-15] due to their unique electrical, dielectrical, optical and optoelectrical properties.

Nanocomposites demonstrate significant improvements in mechanical strength, toughness, electrical and thermal conductivity [16]. The combination of organic and inorganic precursors makes it possible to enhance their thermal and chemical stabilities.

The synthesis of polymeric inorganic composite has received a great deal of attention because it provides new materials with special mechanical, chemical, electrochemical and optical as well as magnetic properties [17]. Various morphologies of polyaniline and its nanocomposites including nanowires [18], nanofibers [19], nanospheres [20] and nanosheets [21,22] have been widely explored.

In this work, we report the thermal, magnetic and electrical transport properties of the chemically synthesized and characterized poly(2-nitroaniline), poly(2-nitroaniline-Fe₂O₃ and poly(2-methylaniline-Fe₂O₃ nanocomposite. An attempt has been made to understand and compare the influence of Fe₂O₃ on the magnetic properties, dielectric properties, impedance and electrical conductivity of synthesized nanocomposite. The frequency dependence of dielectric constant, dielectric loss, imaginary modulus, real modulus and tan δ are discussed. Complex impedance spectroscopic study was made for understanding the charge transport mechanism [23,24]. The frequency dependent conductivity and dielectric permittivity provide information on the electronic transport mechanism. It reflects the presence of disorder in the molecular structure of the materials and the process of electrical transport [24].

Screening Of Phytochemicals, Invitro Assessment Of Antioxidant, Anti-Inflammatory, Tlc Profiling And Anticancer Activity Of Aegle Marmelos (L.) Leaves

Palukuri Yashwanth Kumar[1], Parimalam M[2], Deepak Kumar K[3], Edwin Joseph[4], Deon David[5], Rebecca Vinolia[6*]

[1]Associate Professor, Department of Paramedical and Allied Health Sciences, School of Medical and Allied Sciences, Galgotias University, Greater Noida, Uttar Pradesh.

[2,3]Ph. D Research Scholars, PG and Research Department of Advanced Zoology & Biotechnology, Centre for Environmental and Medical Sciences (LIFE), Loyola College, Chennai.

[4] Ph.D Research Scholar, PG and Research Department of Zoology, CMS College, Kottayam.

[5]M.Phil Research Scholar, PG and Research Department of Advanced Zoology and Biotechnology, Loyola College, Chennai.

[6*]Assistant Professor, PG and Research Department of Zoology, Auxilium College, Gandhi Nagar, Vellore.
*Corresponding author: vrebecca91@gmail.com

ABSTRACT

The current study is aimed to evaluate the efficacy of methanolic extract of *Aegle marmelos* leaves for pharmacological properties. The qualitative phytochemical analysis was determined. The antioxidant and anti-inflammatory properties were analyzed using different assays. The TLC profiling was also determined to study the various phytochemicals. The MCF-7 cell lines were assessed for anticancer property. The phytochemical analysis revealed the presence of alkaloids, flavonoids, phenols, steroids, tannins, saponins, terpenoids and glycosides. The DPPH and ferric antioxidant reducing assay showed that the antioxidant capacity of the methanolic extract of *A. marmelos* leaves increased in a dose dependent manner. The anti-inflammatory activity using protein denaturation assay showed promising results. The TLC analysis exhibited the presence of different phytochemicals and the retention factor was also calculated. The anticancer activity in MCF-7 cell line significantly reduced the viability of the cancer cells in dose dependent manner. Hence, from this study the methanolic extract of *A. marmelos* can furthermore be explored for pharmacological properties.

Keywords: *Aegle marmelos*, antioxidant, anti-inflammatory, TLC, anticancer.

1. Introduction

The medicinal plants are mostly used for curing of human diseases employing phytochemical constituents. Phytochemicals are naturally present in the medicinal plants, leaves, vegetables and roots, which have defense mechanism and protect humans from various diseases (**Rastogi and Meharotra, 1990**). The herbal medicine have been used continuously in the history for a very long time. The development of medicinal and financial aids of the plants are on rise in some (**WHO, 1998**) developing countries. Traditional systems of medicinal plants have been practiced for thousands of years considering their medicinal value. The plants (**Kaul, 1997**) give mankind a novel medicine combining with different plant extracts.

Some of the useful outcomes ascribed to plants are the treatment done with experimental findings in hundreds of years (**Fakim, 2006**). The traditional medicine practice are widespread in some countries like India, Japan, Sri Lanka and Thailand. About 40% of the total medicinal (**Jones, 1998**) needs are fulfilled with tribal medicines. The important drugs of the past 50 years, are the revolutionized modern medicinal practice, which are isolated from the various medicinal plants. These phytochemical ingredients show the therapeutic potential of plant drugs. The WHO promotes the medicinal drugs in the national medicine sector programs, considering the accessibility to the common man. The medicinal plant

A STUDY ON SERVICE QUALITY DIMENSIONS OF ONLINE BANKING SERVICES IN VELLORE DISTRICT

*Dr.E.Anitha Alice **Ms.S. Purnima

*Assistant Professor & Research Guide Auxilium College, Vellore 632 006
**Research Scholar, Auxilium College, Vellore 632 006.

ABSTRACT

The present paper examines the concept of Service Quality Dimensions of Online Banking services. This study is to understand about the Service Quality of Customers' expectations. This Research carries with five dimensions on Service Quality. They are Reliability, Responsiveness, Communication, Accuracy and Security. Reliability refers to the promptness of delivering the required service and must be in an accurate way. Responsiveness refers to deliver the service and to deal the problem on-time in an easy and convenient way. Communication refers to help the customer to receive the messages in clear and must be in understandable forms. Accuracy refers to the services provided by the bank and they are available in convenient locations on 24X7 days. Security, it is most important that the bank must give security for safe processing of the online banking transactions and to protect the accounts and personal information. To analyse the improvement in value added services for Quality and convenience, as customer satisfaction is very much important.

Keywords: Reliability, Traditional Banking, Technology, Access

INTRODUCTION

Information Technology is playing a vital role in the current decade. There are many changes in the communication pattern and technology is with modern tools in the current situation. The modern technology has helped for a rapid growth of the world. It plays the role in banking services too. Information is wealth on one hand, and on the other, technology is to ease the functions, to reduce fatigue, to improve the economy, etc. Both information and technology in the rapidly developing world have gained the importance on banking services too. Earlier it was Traditional Banking which was having connection with customers and the respective branches only. The transactions and relationships were with bankers. It may be called as Branch Banking. We can deposit or withdraw money from a specific bank where we have accounts. This

CHILDREN ATTITUDE, BEHAVIOUR AND TELEVISION COMMERCIALS – A STUDY ON CHILDREN IN VELLORE

K. DEEPA

Assistant Professor of Commerce and Research Scholar.
Auxilium College (Autonomous), Vellore

Dr. D. PAULRAJ

Head, PG and Research Department of Commerce (Rtd.) and Research Supervisor.
Voorhees College, Vellore.

Abstract

TV has a conspicuous task to carry out as an incredible and powerful mode of correspondence and diversion. TV advertisements encourage a decent stage for advertisers to advance their items. TV programmesand plugs are seen and appreciated by all areas of individuals, regardless of whether youthful or old, rich or poor, educated or ignorant from the metropolitan and rustic portion of the general public. The advertisements that appeared on Television have a fascinating and permanent effect on the children generally. The sponsors use eye-catching stunts like humour, appealing music, animation characters and jingles to catch the consideration of children. In numerous groups of the advanced days, children are the choice factor for buys in the family. This purchase is decided to a large extent based on the advertisements viewed by the children on television and as they review them when they see the item in the racks of the stores. Children speak to a significant fragment of buyers,TV advertisements enable stores to sell a more prominent measure of their stock.

Keywords: TV advertisements, humour, jingles, purchase decisions

INTRODUCTION

More youthful children are effectively affected by what they see and don't have as much comprehension of the message behind the advertisement. They are all the more trusting and accept that the item that appeared in the advertisement will be equivalent to it shows up on TV if they somehow happened to get it. Advertisements additionally help small kids to find new items in their needslist. Small kids use advertisements to make arrangements for things they need and