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A STUDY ON CONCERNS AND CHALLENGES IN GLOBALIZATION AND DIGITALIZATION

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A Survey on Machine Learning Techniques for the Diagnosis of Liver Disease

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*Abstract---*Owing to excessive alcohol consumption and inhalation of contaminated air, the number of people suffering from liver disease is increasingly rising. As a result of gas, medications, food poisoning, and food pickling, the medical expert system will assist a doctor in making an automatic prediction. Early detection of liver disease is now possible thanks to continued advancements in machine learning technology, allowing people to diagnose the deadly disease at an early level. This would be more beneficial in the healthcare department, and a medical expert system can also be used in a remote location. The liver is vital to life because it aids in the elimination of toxins from the body. SVM, KNN, K-Mean clustering, neural network, decision tree, and other forms of machine learning, supervised, unsupervised, and semi-supervised, Reinforcement Learning for liver disease diagnosis offers different accuracy, precision, and sensitivity. This paper aims to provide a survey and comparative study of all machine learning techniques for diagnosis and prediction of liver disease in the medical field that have already been used for liver disease forecasting by various authors, with the analysis focusing on Accuracy, Sensitivity, Precision, and Specificity.

*Keywords---*Liver Diagnosis, Machine Learning, Expert System, Artificial Intelligence

Prediction of Covid-19 Using Lung X-Rays

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Abstract—Novel corona virus disease is the most challenging problem for the world. Covid-19 continues to have catastrophic effects on the lives of human beings throughout the world. To combat this disease it is necessary to screen the affected patients in a fast and inexpensive way. One of the most viable steps towards achieving this goal is through radiological examination, Lung X-Ray being the most easily available, least expensive option and is one of the important, non-invasive clinical adjuncts that playan essential role in the detection of such visual responses associated with SARS-COV-2 infection. However, the limited availability of expert radiologists to interpret the CXR images and subtle appearance of disease radiographic responses remains the biggest bottlenecks in manual diagnosis. In this study, we present an automatic COVID screening (ACoS) system that uses radiomic texture descriptors extracted from CXR images to identify the normal, suspected, and nCOVID-19 infected patients.

Automatic Detection of Diabetic Retinopathy using Deep Learning Techniques

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Abstract
Diabetic retinopathy (DR) is a common complication of diabetes associated with retinal vascular damage caused by long status diabetes. Nowadays, a number of the most commonplace causes of visible impairment and blindness are diabetic retinopathy, glaucoma, hypertension and macular degeneration. These eye illnesses take place themselves within the retina and all of these diseases may be detected through a direct and regular ophthalmologic exam. Furthermore, the diagnosis of DR frequently relies upon at the commentary and assessment of fundus images to which technique may be time-consuming even for knowledgeable experts. Therefore computer aided automated diagnosis approaches have excellent potential in medical to accurately detect DR in a quick time that may further help to improve the screening fee of DR and decrease the wide variety of blindness.

Supervised mastering strategies for fundus image segmentation may be engaged to analyze a version committed to the set of question snap shots. The contribution of our technique can be summarized into two components: first, to the high-quality of our understanding our work is the first to address such a practical fundus segmentation problem with the aid of leveraging the existing categorized dataset 2d, the proposed approach is capable of synthesizing fundus images that are practical-searching in terms of the query images, while retaining the annotated vessel systems of the reference dataset.

For a deep learning model, the most critical parts that should to be focused on are records set, community architecture and training approach. Before being used to teach our model, fundus images records set acquired from public assets is preprocessed and augmented. OD (Optic Disk) detection based on structured learning which belongs to a supervised method to keep away from making assumptions. The proposed method utilizes the brink statistics of the fundus image to detect the OD. It is different from the conventional method which applied the conventional side detector, including Prewitt area detector, to capture the brink records. Since the vascular edges on the fundus picture are very sturdy, whilst the traditional edge operator is applied to stumble on the OD side, many vascular edges are detected except OD side. Finally the RNN (Resilient Neural Network)classifier is used to test whether or not the fundus image is normal or abnormal.

Enhanced Deep Neural Networks for Single Image and Video Super-Resolution

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Abstract

Single image super-resolution (SISR) is a really new subject matter in the field of computer imaginative and prescient, which ambitions to reconstruct a super resolution (SR) picture from a single low resolution (LR) one. Deep convolutional neural networks (CNNs) have contributed to the significant development of the SISR field due to their superior capability of feature illustration. CNN-primarily based models have accomplished dramatic success against traditional techniques in picture recuperation, specially, incredible-resolution, given their effective capability of function expression. The low-stage features from the original input play a significant role inside the SR challenge and lots of proceeding CNN-based totally strategies ignore their significance. A tender facet reconstruction community is the CNN version used to reconstruct the picture smooth-aspect without delay from the LR photograph. The Edge Net can work independently for the photograph soft-area reconstruction or be embedded as a subnet into any SR model to offer photograph soft-side previous for first rate SR photograph reconstruction. Soft-edge assisted Network that is a properly-designed community that introduces the Edge-Net to offer photograph smooth-area previous.

The goal of Image resolution is to technique an image so that result is extra appropriate than original photograph for precise utility.Digital image enhancement techniques provide a lot of selections for enhancing the visible fine of images. Image enhancement plays a fundamental role in imaginative and prescient packages. Image enhancement refers to accentuation of image features which includes edges, boundaries or assessment to make an image display greater beneficial for show and analysis. The enhancement technique does not growth the inherent records content material inside the records. But it does increase the dynamic variety of the chosen features so that they may be detected easily. Image enhancement is the mechanism to process the enter photograph to make it more appropriate and certainly seen for the required software. Image enhancement improves the information content of the image and alters the visual effect of the photograph on the observer.

Still there can be some presence of terrible frequency components. It is made use of right here to perform motion on low frequency statistics. The place close to zeros is to be highlighted for the enhancement and brightness maintenance. Hence, after the deep neural network (DNN), the vicinity round zeros is greater. This is observed by way of grouping of pixels, where in clustering is performed to increase the high decision pixels. At this stage, the picture pixels are transformed again to RGB color model and pixels highlighted to a certain degree. In this research proposal video format can also be enhanced.

CONCEPTUAL SURVEY ON HUMAN IRIS BIOMATRIC TRAIT

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Abstract :Securing the information and protecting the copyright of an individual, or an organization is always been a challenging task that should never be overlooked, especially while sending them through the internet. There are many different techniques proposed and used in the field of information security for many years. Determining the authenticity of information sent by a person has always been a very important issue in the world of security. The uniqueness of biometric traits plays a vital role in identifying an individual. The biometric recognition technique has been developed drastically over the few years. Since no two individuals have the similar biometrics, it plays the major role in the process of authentication. Thereare many biometric traits that are used for the authentication process, like fingerprints, palm prints, knuckle prints, the iris pattern of an eye are to name a few. The iris recognition system is widely used and the most preferred recognition system in the recent times. The unique features of the iris data help in identifying the ownership and the copyright of the content. This paper gives the list of different methods and techniques for authentication and privacy protection using the iris biometric data. This paper also compares on the safety and efficiency along with theidentification of gap for future works in these techniques.

Keywords:

Biometric recognition, image analysis, iris encryption, feature extraction,cryptography, digital watermarking.

1. INTRODUCTION

Today's world is immersed with data and information. Each and every data that are sent through the network must be sent carefully with at most security. The major issues that are concerned with the information are copyright issues, authentication issues and data accuracy issues. Especially, when it comes to confidential data, it must be protected by various techniques that ensure its security..
Some of the methods and techniques proposed for securing thedata are namely,

- *Digital watermarking*: The process of embedding information into a digital medium visibly or invisibly is known as Digital watermarking. A digital watermark is aspecial message embedded in an image, whether it is a photo, video or other digital content [25].

- *Cryptography:* The process of encrypting the digital content in such a way that it cannot be read easily without a key to decrypt it is known as cryptography

- *Steganography*: The process of hiding secret data into a digital medium is known as steganography.

Can be used to ensure security for the data.

Analyzing House Sales Prices byhyperparameters tuning Method Using Deep Learning (DL) Techniques

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Abstract

One of the familiar trends in this world is house price prediction whereas the researchers have performed their studies using Deep Learning (DL) techniques. The prediction model development in house price trends help the real estate agents or selling house owners for determining better decision making over predicting house price. The existing model in predicting house price is not provided with sufficient data which may affect the house prices that need to be considered for predicting the house prices accurately. However, the accurate house pricing prediction is essential to several bodies involved in the businesses of real estate are property owners, building contractors, real estate organization as well as banksandfinancial sectors. Hence, the end to end support is a significant factor to a model for prediction of house pricing. Thus, the paper focuses on hyperparameter tuning protocol which gets implemented in Convolution Neural Network (CNN) technique by optimizer sensitivity. The optimizer which involved in this model is based on Learning Rate (LR) adoption in which seven optimizers are selected and implement with house sales price dataset. The various outcomes from the optimizer with several epochs are analyzed that have capable of hyperparametertunability on DL method of CNN model. The best optimizer provide less Error Rate (ERR) as well as high accuracy is evaluated have been considered as an improved CNN model for predicting the better house sales price. This proposed CNN model assist house buyer and also for house seller to predict the exact house sale price based on their requirements.

1452

1. Introduction

As like other property market, housing market is also understandable that can be operated whether directly from an owner to buyer or services through real estate brokers. The attention of several individuals and organizations over this house market may presented with high opportunities of profit that can be accomplished through global housing demands. There are various factors like economy, politics and demography plays the major role in influencing these demands.Due to this reasoning, the housing market analysis has become challenging all over the world to data analyst as well as Machine Learning (ML) engineers. Thesekinds of challenges need to be addressed, various data type with large scientific fields range to accomplish accurate results for stakeholders and customers [1, 2] are utilized. Based on the analysis of transaction records, buyers can recognize that received house price is fair or not as well as the seller can able to estimate the house price who can sell the house with particular road section. In the application of financial technology, prediction of house price is considered to be required with reasonable estimation system to mortgage estimation as well as house auctions.

The learning can be accomplish at several levels through DL in which inputs have been progressed as an initial level and get transformed in form of conceptual at the subsequent level until the process is turned in to precise form. Similarly, the learning can be obtained deeper.

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ANALYSE THE GROUNDWATER DATA IN LOCAL AND CLOUD STRUCUTURE USING FP-GROWTH ASSOCIATION MINING ALGORITHM

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Abstract: One of the most well-known methods in data mining is frequent itemset mining. Apriori, Equivalence Class clustering and bottom-up Lattice Traversal (Eclat), and Frequent Pattern Growth (FP-Growth) are examples of successful algorithms. While each algorithm has advantages and disadvantages, and many comparisons between algorithms have been conducted, this paper focuses on the efficiency of the FP-Growth method in identifying frequent itemsets with respect to groundwater quality data collected by the Tamil Nadu government in order to develop public policy for water management. The efficiency of the FP-Growth algorithm is examined in two scenarios in this paper. The first is local implementation, and the second is cloud mining. This is done with a forward-thinking goal in mind. With plans already in the works to integrate spatial attributes into the groundwater dataset and record data from larger regions, scale becomes an important factor, and thus the performance of FP-Growth in the cloud domain for the groundwater dataset becomes important. The results show that FP-Growth performed exceptionally well in identifying associations that are critical for determining water quality, and that the cloud version of the algorithm outscored its local implementation.
Keywords: Frequent itemset, FP-Growth Association Mining, Local Vs. Cloud Mining, Performance of FP-Growth, Runtime Optimization, Efficacy of AWS Implementation

1. INTRODUCTION

Association rules are "if-then" statements that help to demonstrate the likelihood of relationships between data items in large data sets in a variety of databases. To find correlations and co-occurrences between data sets, association rule mining is used. It has a variety of uses, including assisting in the discovery of sales correlations in transactional, medical, and retail data sets. Groundwater, also known as "ground water", is water that exists beneath the surface of the earth. The water that our well draws from beneath the ground is known as groundwater. Underground streams and aquifers are water bodies that exist beneath the surface of the earth. Ground water has contributed significantly to India's economic growth and has served as a key catalyst for the country's socioeconomic development. The fact that ground water resources meet more than 85 percent of India's rural water for domestic needs, 50 percent of its metropolitan water needs, and more than 50 percent of its irrigation purposes demonstrates its value as a valuable natural resource in the context of india.

The analysis underlined in this paper compares the efficiency of FP-Growth pattern mining algorithm in determining association attributes with groundwater data when implemented locally and in the cloud. One of the most widely used itemet mining algorithms is FP-Growth and various modifications have been done with this algorithm to boost its efficiency. Regardless, the default algorithm is powerful enough to identify frequent itemsets and associations very well. Mining in the cloud has attained prominence over the last few years, thanks to online retails markets like Amazon and Video on Demand services like Netflix and Youtube to a certain extent. With access to massive amounts of data, adapting the algorithm frameworks to use the advantages of cloud computing has been in rapid progress of late. Amazon Web Services (AWS) and its computing instances provide a lot of flexibility to carry out such a study without a whole lot of complexities. The standard implementation of the algorithm as presented in [1] and [2] is used in this study. This paper compares the performance of FP-Growth when implemented locally and in AWS. Groundwater quality data used in this analysis has only scratched the surface and with a much larger policy in place at the

A SURVEY ON THE RESEARCH CHALLENGES OF BIG DATA ANALYTICS

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Abstract: In the recent years, the rapid growth of science and technologies gave a way to adoption of SMAC. SMAC is Social, Mobile, Analytics and Cloud where four technologies are currently driving the entire universe. Also, permeate physical spaces and lives of human and produce huge amount of heterogeneous data known as Big Data for analysis. Human sourced information from social network, processed mediated data from business systems and machine generated data from Internet of Things, Web, healthcare sectors are the primary sources of big data. The heterogeneous data is transformed into a precious knowledge by using artificial intelligence (AI) and machine learning (ML). Further the generated knowledge will play a vital role in decision making, system performance boosting and optimum utilization of resources. Big data mining attracted researchers that make use of Hadoop. MapReduce is the programming paradigm used for processing big data. It is done in distributed environment with parallel processing. This paper focuses on challenges encountered in handling big data which are utilized by the various researchers and show case the issues faced by them.
Keywords: Big Data Analytics, DBSCAN, Partition Around Medoids, Markov Random Fields, Support Vector Machine

I. INTRODUCTION
The importance of data in day-to-day escalation plays a crucial role in many fields. Organizations know what they are looking for to compete with their competitors. The goal is to collect the data what is needed and go after the data to meet the objectives. The data are collected for the analysis and predictions from various sources. These collected data was huge in volume. This has coined the term "Big Data". These data are processed in such a way that traditional data mining techniques are unable to analyze. Data is scrutinized to diagnose behaviors, patterns and market trending information to make decisions. The bulk of data generated comes from three key resources – social data, machine data and transactional data. The figure 1 represents the exponential growth of big data by the year 2025.

Characteristics of big data: Big data are treasure trove for research and computational tools are developed to extract knowledge from such data. The four main features of big data are volume, velocity, variety and veracity. Volume refers to the size of data that are used to archive. The size of data is important in determining the value out of data and also based on the volume a particular data is considered big data or not. The velocity refers to the speed at which data is generated and processed. The data flows from sources like social media, application logs, business processes, smart IoT devices is enormous and continuous. In an enterprise, with the development of sensors, smart devices, and social collaboration technologies data in an organization has become complex.

EDUCATIONAL DATA MINING IN BLENDED LEARNING: AN UPDATED SURVEY ON EDM TECHNIQUES AND LEARNING TOOLS USED IN BL

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Abstract: Blended learning (BL) is a pedagogical approach that integrates online digital educational technologies with traditional methods. This research addressed potential upcoming approaches to adult education in blended learning environments to enhance the higher education experience in academic social networking systems. It reviews the ample study of literature in Data Mining on Education (EDM) techniques and Learning analytics (LA) to look over the academic achievement of lifelong learners. Recognizing trends and patterns of student learning experience in VLEs, Analyzing student activity in CMS/LMS, student's in-class and out-class behavior and student learning using classification and clustering techniques, machine-learning algorithms and statistical methods forecasting strategies. This paper provides the current state of the art by reviewing the key publications, digital technologies in educational environments, specific tools and techniques and future trends. The learning system can increase student success rates and employability, as it can develop collaborative learning processes and facilitate lifelong learning for lifelong learners, educators and academic institutions.
Keywords: Data Mining on Education, Collaborative Learning, Lifelong Learning, Learning Management Systems, Academic performance, Learning Innovation.

I   INTRODUCTION

The educational system around the world is rapidly changing, resulting in scientific and technological advancements including information and communication technologies. These changes in science and technologies lead to innovative pedagogical approaches to teaching and learning methods. Blended learning is a combination of face-to-face learning and online learning with the use of digital/social media platforms. It has become a popular learning strategy for monitoring student performance progress. Data analytics software can reduce the frequency with which individual students access the CMS/LMS, the amount of time they are spending in a course, and the number and nature of instructional interactions. These interactions can be categorized into assessments (tests, assignments, or quizzes), content (global resources, videos, or simulations viewed), and collaborative activities (blogs, discussion groups, or Wikipedia) that enhance the student's knowledge and interest.

[1] Educational data mining is a growing field of research that uses machine learning algorithms and statistical analysis to analyze patterns in data and develop new algorithms / models for predicting student performance. [2] Educational Data Mining (EDM) involves discovering new methods for analyzing distinct types of data that come from educational environments. [3] HLVQ hybrid algorithm used to increase student success rate and employability. However, there is no confidence that these predictors can accurately determine whether a student placed or not. [4] Learning analytics focused on the process of measuring, collecting, analyzing and visualizing data about lifelong learners and their environment to simplify and optimize learning.

A SURVEY ON THE ANALYSIS OF SOCIAL MEDIA DATA BY DICTIONARY AND CORPUS BASED APPROACH IN SENTIMENT ANALYSIS

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Abstract: Social media data plays a very vital role in analyzing different kind of data available in various data base repositories. A number of methods utilized for the analysis which include classification, clustering, sentiment analysis and etc. Above all, sentiment analysis produces virtuous results based on the social media data to ensure the upper most utilization of the same. Sentiment analysis (SA) is a natural language process approach aimed at mining huge corpus of data to identify the emotions from certain topic to gain its opinions. In order to apply algorithms in sentiment analysis, the corpus is broken down into smaller unit called tokenizing, then segregated into groups and label the adjectives such as positive, negative and neutral. This study is carried out to evaluate the social media data like twitter, face book and etc. In particular, only the text data are taken into account for the analysis. Among the lexicon based and machine learning based approaches, this work uses, only the lexicon based approach. In particular, within the lexicon based approaches, the dictionary and corpus based methods are considered. A survey has been done in this work for the comparative study to establish leading edge of SA (Sentimental Analysis) from recent literature, comprehends. Finally, it clinches a method that is best suited for analysis of text data. Number researches were contemplated in this comparative survey and put in evidence around the datasets, topics, data creators, downstream applications, algorithms used and its evaluation.

*Keywords***:** Social media data, Dictionary based methods, Corpus based approach, Sentimental Analysis.

1. Introduction

Social media produces a large amount of data for every login of user's. This data is been used by business, political and governments. This data is used to assimilate the views, opinion and thinking of users. For the analysis of this content, organization uses Sentiment analysis. Sentiment analysis is a computational science which is aimed at identifying the producer's opinion from the large corpus of data. These data may be from a text document, social media document, and medical data document and so on. The data can be a text, image, audio, and video.

The SA is aimed at categorizing the corpus as positive, negative and neutral, and this categorization is used to understand customer, gauge brand reputation and etc… There are methods to perform the opinion mining from the data corpus. In this paper we take social media data and use dictionary based and corpus classification methods and review the previous work on them. SA has various classification techniques as shown in the Figure.1.

ANALYSIS OF MOMENTS OF NARRATIVE IMPACT AND METAPHORS IN THE VOOT SELECT WEB SERIES 'ASUR'

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Abstract

This article investigates the effects of web series on an audience, using an interdisciplinary empirical approach connecting film analysis and metaphorical mapping. It discusses the Voot Select web series 'Asur' directed by Oni Sen. The features of the web series that are relevant to the moments of narrative impact are determined on the basis of Wuss's analytical film model. The model postulates that films can be described as a combination of different kinds of narrative structures that predetermine the reception, which is conceptualized as a process of problem solving. The metaphors in web series are a type of narrative produced by multiple elements, as well as a mode of deduction based on real life. According to the related theories of metaphorical mapping, this study explores the analogical narrative process of images in this web series, as based on Gentner's structural mapping theory. In summary, this study is expected to serve as a reference for further exploration of the moments of narrative impact in the future. The establishment of the metaphors in this web series also evokes significant reactions among the audience.

Keywords: Empirical approach, Wuss's analytical film model, Gentner's structural mapping theory, moments of narrative impact and metaphors.

REVIEW OF LITERATURE

Most general-purpose extractive summarization models are trained on news articles, which are short and present all important information upfront in an organized manner. As a result, such models are biased by position and often perform a smart selection of sentences from the beginning of the document. When summarizing long narratives, which have complex structure and present information piecemeal, simple position heuristics are not sufficient enough (**Papalampidi, Keller, Frermann, & Lapata, 2020**). Currently, this approach relies solely on textual information; further, it would be interesting to incorporate additional modalities such as video or audio. Audiovisual information could facilitate the identification of key events and scenes.

The features of the film that are relevant to the reception process, the so-called moments of narrative impact, are determined on the basis of Wuss's analytical film model. The model postulates that films can be described as a combination of different kinds of narrative structures that predetermine the reception, which is conceptualized as a process of problem solving (Suckfüll, 2010). The idea to conceptualize films and their reception as a process of problem-solving has led to the specification of moments of narrative impact. After the audience seeing the movie, significant reactions showed up in the heart rate data; also only partial reactions showed up in the skin conductance data.

The narrative messages involving images are much more rigorous than those from dictation or narration. Therefore, the means to construct story context in an animation narrative is more than the intuitive narrative of character language. Message transmission by hints seems to be an important technique of image narrative in a plot. Potential messages involve metaphors in rhetoric. When applied to an image narrative context, linguistic techniques have gone beyond the scope of literal modification

A NARRATIVE ANALYSIS OF THE AMAZON PRIME ORIGINAL WEB SERIES "PAATAL LOK"

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Abstract

A critical look on the Amazon Prime Original Web Series "Paatal Lok", directed by Avinash Arun and Prosit Roy in 2020 gave the impression that it used some or all the principles of narrative construction postulated by Vladimir Propp in the realm of functions and categories of personae. A structural analysis of the content and communication channels peculiar to the art of cinema like sound and images has been effectively carried out and the results were discussed in this paper. The success factors of the Paatal Lok web series were constructed using this analysis and such studies will greatly help the online entertainment platforms in future.

Keywords: *Paatal Lok, Propp's functions, Structural analysis and Communication channels.*

INTRODUCTION

In any medium, a narrative is considered as a chain of events occurring in time and space and linked by causes and effects. The basic principle of the commercial cinema is that a narrative should consist of a chain that is easy for the spectator to follow. Narrative is a way of interpreting the world around us. In other words, it is a kind of "rewording of circumstances." Principles of narrative analysis were shown in Vladimir Propp's famous study, Morphology of the Folktales. In Morphology of the Folktales, first published in 1928, Vladimir Propp (1985) analyzed hundreds of Russian fairy folktales and then compiled a list of thirty-one functions and seven categories of characters. He found that these thirty-one functions of characters remained unchanged in all folktales. These thirty-one functions and seven categories contain theory-based representations for precise narrative analysis.

FOCUS

This case study is about the Amazon Prime Original web series "Paatal Lok" (2020) directed by Avinash Arun and Prosit Roy. The motive of the present analysis has been to find out there exists any relation between Propp's narrative units and the syntagmatic formation of "Paatal Lok" (2020). Syntagmatic analysis studies the surface structure of a

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Received and Perceived Status of Health Management Information System (HMIS) Software: A Structural Equation Model (SEM) Approach

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Abstract

More thansupply the demand for health care usually determines the design of public health services. This is more so when technological developments, including that of information and communication technologies, pierce through the process of utilization of any service by the public. Although prior research papers have focused on the factors that impact on the adoptionof information technology, there are limited empirical research works that simultaneouslycapture technology factors (TAM, TAM2) and end-user development specific factors (perceived technology usage and intention to recommend) helping healthcare professionals to adopt Health Management Information System (HMIS) software in the healthcare environment. To fill this gap, the present paper used the Technology Acceptance Model (TAM), the extended TAM model (TAM2) and identified the important determinants of user acceptance perceived risk and trust. This is specifically undertaken in order to describe ESIChealthcare professionals behavioral intention to adopt HMIS software services. The study was conducted in the Employees' State Insurance Corporation (ESIC) main hospital and dispensaries in the Tirunelveli sub-region. The required data were collected from 171 ESIC healthcare professionals in the Tirunelveli sub-region. AStructural Equation Model (SEM) approach was used. Convergence anddivergence with earlier findings were found, confirming that Perceived Usefulness (PU), Perceived Ease of Use (PEOU), social influence, facilitating conditions and training hadsignificant influence on the intention of healthcare professionals to adopt HMIS software. The study provideda basis for further refinement of technology adoption model.Improvingperceived usefulness factor (perceived long-term usefulness) may turn healthcare professionals towards adoption of HMIS.

Keywords: *Information Technology, Technology Acceptance Model, Employees' State Insurance Corporation, Perceived Usefulness and Perceived Ease of Use.*

Introduction

In recent years, there has been growing global emphasis on the need for Information Systems (IS) in all sectors. The elementary conditions that enable global competition in the information society are the development of communication technologies and the importance of the administrative information flows and the inter-institutional communication networks. Therefore, more emphasis is placed on flexible and cost efficient information systems in the competitive presentation of public services. Information systems are one of the means by which public institutions can save economic indicators, such as time and cost. Assuring and promoting quality in health care services continues to be a priority for any health care system. Besides evaluationof health status through morbidity andmortality estimates, there has been equalemphasis

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Antimicrobial Potential of Streptomyces Sp. From Soil and a Study on its Antibacterial Activity against Clinical Pathogens

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ABSTRACT

A total of 50 diverse Streptomyces colonies was isolated from soil samples acquired from various sampling sites. The isolates were screened for their ability to produce antimicrobial substances. Upon primary, secondary, and tertiary screening, the isolate that possessed maximum antibacterial activity against both Gram-positive and Gram-negative microorganisms was selected. Solvent (ethyl acetate) extraction of metabolites from the fermentation broth of the best isolates was carried out. Based on Bergey's manual of determinative bacteriology and the International Streptomyces Project (ISP), the potential isolate was morphologically, physiologically, and biochemically characterized.

Minimum inhibitory concentration (MIC) of the compound obtained by solvent extraction was compared with the MIC of the standard antimicrobials against various clinical pathogens and its synergistic effect with the antimicrobials was studied. The ethyl acetate extract was further analyzed by thin-layer chromatography and UV-visible spectroscopy. FTIR studies of the extract further revealed the functional groups of the antimicrobial compound.

Keywords: Antimicrobial compound, UV Spectroscopy, minimum inhibitory concentration, TLC.

INTRODUCTION

The history of the drug discovery process indicates that the majority of the new skeletons come from natural resources [1]. Microorganisms and plant extracts are screened in this process. [2]. Infectious diseases are increasingly resistant to antimicrobials throughout the world [3, 4] and consensus has emerged that it is essential that novel antimicrobial classes be developed as part of the strategy to control the emerging drug-resistant pathogens [5, 6, 7]. Search for new antimicrobials which are effective against multi-drug resistant pathogenic bacteria is an important area of antimicrobial research. Novel structures of natural products have been found to possess biologically useful properties. Antimicrobials are a chemically diverse group of compounds produced by microorganisms that have micro static or microcidal activity e.g., Penicillin produced by fungi in the genus *Penicillium*, Streptomycin produced by bacteria of the genus *Streptomyces*. [8]. Almost 50 years ago, antimicrobials were discovered and used for the first time in clinical trials, which coupled with improvements in immunization drastically reduced human suffering and mortality from infectious diseases.

Marine actinomycetes have been attracting the attention of scientists for a long time. In the early works, the species of *Mycobacterium, Actinomyces, Nocardia, Micromonospora* and *Streptomyces* have been isolated from the marine sediments [9, 10, 11]. A significant part of these actinomycetes was found to exhibit antimicrobial activity, suggesting that the marine environment can be an interesting source for bioprospecting. Recently, researchers have gained considerable attention to microbial communities from extreme environments because their diversity and biological activity, primarily for their abilitytoproducenovel chemical compounds that have high commercial value [12, 13] .

More than 5000 antimicrobials have been identified from Gram-positive, Gram-negative, and filamentous fungi, but only about 100 antimicrobials have been used in the treatment of human, animal, and plant diseases [14]. The need for less toxic, more potent antimicrobials from non-infective organisms, which overcome the resistance exhibited against the existing antimicrobials, is felt acutely. The Actinomycetes have provided many important bioactive compounds of high commercial value in the past decades. Due to this, they are routinely screened for new bio-active compounds. These searches have been remarkably successful, and approximately two-thirds of naturally occurring antimicrobials have been isolated from actinomycetes [15, 16]. Actinomycetes, which are prolific producers of antimicrobials and important suppliers to the pharmaceutical industry, can produce a wide variety of secondary metabolites [17]. In nature, Actinomycetes are widely distributed, and their ability to produce secondary metabolites with diverse chemical structures and biological activities makes them useful for the pharmaceutical industry [18]. It has been discovered that *Streptomyces* produces countless antimicrobials, but these represent a small part of the entire repertoire of bioactive compounds [19, 20]. It is

Overview of Clinical Trials in Drug Development and its Adverse Effects Against COVID-19 Disease

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Coronavirus is a vast group of infections known to cause disease that change between the normal cold and most extreme illness to include Severe Acute Respiratory Syndrome (SARS) known as the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and the resulting disease is recognized as COVID-19. A tale Covid-19 was distinguished in December 2019 in Wuhan City, Hubei territory, China. The frequency of Covid-19 continues to increase, because of global protection and isolated activities. Because of the outbreak of Covid-19 (SARS-CoV-2) specialists and pharmaceutical companies are quickly searching for antiviral therapies ready to mitigate the manifestation of the disease. There is no clinically endorsed antiviral drug to be utilized against Covid-19. In the current review, encapsulate the conditions of details about therapeutic agents to treat Covid-19 and its adverse effects in forthcoming clinical trials. This review anticipates that the analysis of the current and emerging research in clinical studies of therapeutic agent will lead to the advancement of future research.

Introduction

In January 2020, a group of pneumonia cases in Wuhan city, Hubei territory, China, was recognized as having been induced by the SARS-CoV-2 infection, currently named COVID-19. Covid-19 was confirmed as an outbreak in March 2020 by the World Health Organization (WHO) and the Chinese Centre for Disease Control and Prevention (CCDC) as distinct outbreak [1]. In India, till now, general safety measures to control disease transmission have mandatory steps to self-segregate, socially isolate, as a result of lockdown [2]. Covid-19 is incorporate infections with a single strand, positive-sense RNA genome around 26 - 32 kilobases in size and having a place with the family Coronaviridae (order Nidovirales). The Coronaviridae family contains four genera to comprise Alpha - Covid (α - CoV), Beta - Covid (β - CoV), Delta - Covid (δ - CoV) and Gamma - Covid (γ - CoV). The archive for α CoV and β CoV is believed to be bats and rodents. Presently it is less apparent which species are transmitting the δ CoV and γ CoV [3, 4].

Covid-19 is an envelope, positive - sense single stranded RNA β CoV and is fundamentally like SARS-CoV-1 and Middle East

Respiratory Syndrome Covid (MERS-CoV) which were distinguished in the 2003 SARS and 2012 MERS outbreak, respectively (figure 1). Considering the danger of the Covid-19 epidemic and historical association in the treatment of SARS and MERS, numerous efforts in vaccine and treatment system improvement are being made actively [5]. Hunhan fish market in Wuhan city of China, where the outbreak was started. In the Hunan fish market, living species are frequently marketed, including bats, frogs, snakes, etc. The virus was introduced as a new Covid by the sequence examination of activates with the patients. Besides, the genetic arrangement additionally accommodated the conclusion of viral contamination. Upon contamination with SARS-CoV-2, the infection ties to a host cell's Angiotensin Converting Enzyme 2 (ACE2) receptors. ACE2 is normally communicated on the epithelial cells of alveoli, windpipe, bronchi, and bronchial serous organs of the respiratory tract [6]. The infection enters and imitates in these cells. The newly evolved virions are also delivered; infect new objective cells [3].

Yet more research, though, reported that a certain individuals had the illness even without a report of entering the fish market. These experiences indicated the human to human opportunity of this virus to transmit that was eventually confirmed more than 100 countries around the world [7]. The infection is transmitted between human and human leading to close contact with a contaminated person, coughing, sneezing, respiratory droplets or

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ADOPTION OF HEALTH MANAGEMENT INFORMATION SYSTEM (HMIS) IN ESIC MAIN HOSPITAL AND DISPENSARIES IN TIRUNELVELI SUB-REGION: HMIS USAGE BY URBAN HEALTHCARE PROFESSIONALS VS RURAL HEALTHCARE PROFESSIONALS

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Abstract

E-health solutions have already been embraced in the developing countries and it has brought about superb advancements in the healthcare industry. The researcher surveyed the adoption of Health Management Information System (HMIS) in a large-scale population based study, involving a representative sample of 171 healthcare professionals in the ESIC main hospital and dispensaries in the Tirunelveli sub-region. The issues examined include the HMIS infrastructure in place for the urban and rural ESIC healthcare professionals, the knowledge of the healthcare professionals in terms of the benefits gained through the use of HMIS software in the ESIC environment and the challenges posing barriers to the adoption of HMIS among the healthcare professionals in the ESIC main hospital and dispensaries. Consequently, suggestions on how to tackle the various adoption challenges have been addressed in this paper.

Keywords: *Health Management Information System, developing countries, healthcare professionals and adoption.*

INTRODUCTION

Health Management Information systems are usually designed to meet specificpurposes. The functions of a health management information system areto monitor, inform and evaluate a health system and to makeclinical and management decisions. HMIS allows physicians or hospital administrators to makeinformed decisions since it allows daily workflow of medical services in all the departments within the hospital to beevaluated and monitored. Patient records are also updated andtherefore made immediately available to the doctors and healthcare professionals.A technology assessment was therefore carried out withinthe urban andrural doctors and healthcare professionals in the Employees'State Insurance Corporation (ESIC) main hospital and dispensaries in Tirunelveli sub-region to investigatethe HMIS adoption process. Consequently, suggestions on how to tackle the various adoption challenges have also been addressed in this paper.

A Semiotic Analysis of the film "Mandela" on Caste and its Politics

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Abstract

The distinctiveness and existence of caste, culture and politics of Tamil Nadu have been portrayed in numerous ways in Indian cinema. The Tamil movie Mandela - released in 2021- has a unique portrayal of this social structure through village and an individual, and their minimal activities. The unconventional strategy and the political satire used in the film makes it more loquacious. This study intends to de-code the intricate and sensitive parts of the movie to bring a broader picture of how actions, mise-en-scene, dialogues, frames and angles act as symbols and signs in communicating the caste and its politics present in the southern region of Tamil Nadu.

Seven C's of Communication in Thirukural

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Abstract

Communication is at the heart of the people and no one can do away with communication, be it verbal or non-verbal communication. Social workers communicate in all spheres. This paper attempts to link the Seven C's of communication namely complete, concise, consideration, clarity, courtesy, concrete and correct respectively with Thirukural. Thirukural is classical Tamil literature. This work reveals that the Indic values or Indic perspectives could develop appropriate and relevant culturally-based knowledge for a better understanding of the Western concepts. In this way, the Indic literature which is developed could add value to Bharatiyakaran of Social Work education.

Key words: Thirukural, indigenization, communication, Bharatiyakaran.

Introduction

We cannot live without communication be it verbal or non-verbal. Robbins & Judge (2017) defined communication as "the transfer and understanding of meaning". Wijn & van den Bos (2010) said management, feedback, emotional sharing, persuasion, and information exchange as the functions of communication. Communication plays a vital part in all professions and Social Work is no such exception. Written, oral or non-verbal are the primary methods of communication. Communication can be formal or informal. Concerning the structure, the communication is classified as upward communication, downward communication, and horizontal or lateral communication (Kondalkar, 2007). However, incompetence in communication is widespread (Spitzberg, 1994). Resnick (1976) said, "indigenization is the process of relating social work function and education to the cultural, economic, political and social realities of a particular country". Osei-Hwedie (1996) pointed out that "indigenization involves understanding and articulating local indigenous resources, relationships, and problem-solving networks; and the underlying ideas, rationale, philosophies or values" (as cited in Gray et al, 2008). Albert Schweitzer asserted that "there hardly exists in the literature of the world, a collection of maxims in which we find so much of lofty wisdom" (as cited in Zvelebil, 1973).

Thiruvalluvar says the goodness of speech is better than any other goodness (Chapter 65). This paper is an earnest attempt in understanding the seven c's of communication with the Indic perspectives of Thirukural. The exploration of the indigenous knowledge base of India could be taken further through linking the Thirukural couplets with that of the Seven C's of communication.

Thirukural and Seven C's of Communication

Complete

Communication which provides all necessary and complete information as desired by the listeners is called complete communication (Murphy, Hilderbrandt & Thomas, 1997). Complete communication persuades the audience. Valluvar also praises saying that the world listens and gathers around the person who speaks astutely (Couplet: 648). On explaining completeness of communication (Couplet: 689), Valluvar says a person is fit to communicate (with integrity, influence, and intrepidity) who possesses firmness and does not utter even inadvertently which reflects discredit.

Concise

Messages are conveyed in the fewest possible words, yet the message should be conveyed with all important information (Murphy, Hilderbrandt & Thomas, 1997). Valluvar says that those who do not know how to speak a few faultless words only utter many words (Couplet: 649). Chapter 20 on 'Against profitless conversation' also presents the essence of the importance of conciseness in communication.

Consideration

One should understand the qualities of the person who hears the speech and should speak accordingly (Couplet: 644). This is the essence of empathy which is mentioned under consideration. Chapter 25, compassion implies the empathetic values one should possess. Chapter 72 'On Judging the Audience' rightly points out the concepts in consideration. Couplet 714 explains that one should be like a light in the assembly of the enlightened, but assumes ignorance among fools. Valluvar also warns that who speaks good things with great power among the councils of good should not even speak forgetfully among the council of means.

An Experimental Evaluation of Load Balancing Policies using Cloud Analyst.

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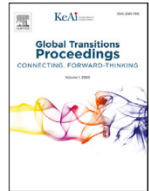Chennai, India
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Abstract. With the rapid growth of cloud computing, the number of customers accessing the cloud systems and the workload of the servers has been increased tremendously. Resource management of IaaS (Infrastructure as a Service) is an important aspect in cloud computing that involves scheduling the resources among customers, but improper scheduling of cloud resources degrades the performance of the overall cloud systems. Load balancing is a technique in cloud computing that provides a solution to this problem through efficient resource management which improves the resource utilization, scalability, and overall performance of the cloud systems. In this paper, we made a comparison on various static and dynamic load balancing methods and implement them using a cloud analyst simulator to study and assess its performance and the performance analysis is also presented and the primary metrics used to measure these algorithms are response time, data center processing time and cost.

Keywords: Cloud Computing, Load Balancing, Virtualization, Static Load Balancing, Dynamic Load Balancing, Cloud Analyst, Response Time,Data Center Processing Time.

1 Introduction

Cloud computing is an emerging technology in the area of computer science and IT industry, it offers enormous services like IaaS, SaaS, and PaaS to the small scale and startup large scale industries. IaaS delivers customizable infrastructure on demand and allows the customers to outsource their IT infrastructures. i.e., it

Apache Hadoop based effective sentiment analysis on demonetization and covid-19 tweets

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ABSTRACT

In Recent, Twitter is the well-known public Network acquires a huge number of tweets. Sentiment analysis in twitter data are tremendously valuable in social media observing as it allows getting an overview of extensive global opinion in certain issue. This data are utilized for industrial, government, social and economic approaches by analyzing the tweets as per the requirement of the user. Processing and storing these data are more complicated to analyze. Hadoop is a distributed environment which process with Big and Huge variety of dataset which supports processing components that collectively called Hadoop Ecosystem. In this paper, regular tweets are analyzed by sentiment analysis technique in Hadoop Eco system. Dataset are taken from Kaggle data repository. This research has done by Apache Pig in Demonetization and Covid 19 twitter dataset.

1. Introduction

Social Media like twitter and LinkedIn are very influential communication tools. Thousands of tweets are posted regularly in these social networks [1–3]. The improvement in the technology has made to deliver their perception and depends on these reviews [4–6]; user can send opinions to make decisions [7,8]. The data taken from tweeter can be used for analyzing people's judgment [9–14]. The data stored from these social media can be analyzed the opinion and sentiments of the user. Sentiment Analysis is the process of user's sentiments as positive or negative estimations. In first, it can be identified as subjective or objective. If the statement is subjective, it will be divided as positive or negative opinions [10].

For analyzing the large number of data, Hadoop is suitable for large file processing and large storage of wider data units. Generally, big data processing is a critical task to recognize the originality of the data. Most of the data are utilized in social network are not structured [22–26]. That is 79% of data which used in social media are unstructured. Therefore, data process becomes complex task in big data Analytics. Apache Hadoop is an efficient and convenient framework to analyze the social media content [11]. In this paper, Apache pig is used to analyze the twitter dataset [12]. Using the Apache Flume, the demonetization and covid19 tweets were collected from web server and aggregated it into HDFS for Apache Pig Analysis. Apache Flume is distributed open source tool for aggregating log activities from the web server into Hadoop Distributed File Systems (HDFS) [13].

Unstructured data processing become crucial to analyzes and predicts the accuracy of the data as it is not fit into the fixed size [27–32]. And also social media data like twitter are having emotions, opinions, and user's judgement and meaningless symbols as reviews. These reviews are used for advertising a particular product and it can be utilized to know the quality of the product. [14] Moreover, Tweets in social media have made some decisions for the important government plans and Announcements [15].

1.1. Problem statement

As discussed earlier, twitter data are not comfortable to process in a simple way as they have not predetermined in a particular structure. So this leads to the problem for researchers who want to access the data. They could not able to fetch the data in their way because every tweet contains emotions, meaningless words, symbols for cheerful, miserable and personal belief. And also user's tweets have some symbols. The above known problems are overcome by Hadoop core components that are perfectly suitable to deals with the problem of collecting data from web server, storing wider range of data in HDFS and effective processing of the data by using Hadoop Tools. The main intend of this paper is to prove the significance of sentiment analysis and how it is handled by the Effective techniques of Big data Analytics. In this paper Twitter Sentiment Analysis (TSA) algorithm is implemented in demonetization and covid -19 datasets for analyzing tweets, then their result is compared by using classification algorithms.

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Research Article

Classification of Myopathy and Amyotrophic Lateral Sclerosis Electromyograms Using Bat Algorithm and Deep Neural Networks

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Electromyograms (EMG) are a recorded galvanic action of nerves and muscles which assists in diagnosing the disorders associated with muscles and nerves. The efficient discrimination of abnormal EMG signals, myopathy and amyotrophic lateral sclerosis, engage crucial role in automatic diagnostic assistance tools, since EMG signals are nonstationary signals. Hence, for computer-aided identification of abnormalities, extraction of features, selection of superlative feature subset, and developing an efficient classifier are indispensable. Initially, time domain and Wigner-Ville transformed time-frequency features were extracted from abnormal EMG signals for experiments. The selection of substantial characteristics from time and time-frequency features was performed using bat algorithm. Extensively, deep neural network classifier is modelled for selected feature subset using bat algorithm from extracted time and time-frequency features. The performance of deep neural network exerting selected features from bat algorithm was compared with conventional artificial neural network. Results demonstrate that the deep neural network modelled with layers 2 and 3 (neurons = 2 and 4) using time domain features is efficient in classifying the abnormalities of EMG signals with an accuracy, sensitivity, and specificity of 100% and also exhibited finer performance. Correspondingly, the developed conventional single layer artificial neural network (neurons = 7) with time domain features has shown an accuracy of 83.3%, sensitivity of 100%, and specificity of 71.42%. The work materializes the significance of conventional and deep neural network using time and time-frequency features in diagnosing the abnormal signals exists in neuromuscular system using efficient classification.

1. Introduction

The arrangement of human neuromuscular structure in human anatomy is a complex aggregation of muscular and nervous system [1]. The structure of neuromuscular (NMR) system is influenced by NMR disorders. Myopathies, multiple sclerosis, myasthenia gravis, and progressive neurodegenerative disease such as amyotrophic lateral sclerosis (ALS) are various distinct disorders which affects the neuromuscular system [2]. The NMR disorder is principally classified into two categories, namely, myopathy and neu-

ropathy [3]. Myopathies are the ailments in connection to muscles and its fiber, which are further grouped into types, inherited and acquired myopathies. Myopathies can be manifested from several symptoms which include muscle weakness, fatigue, muscle atrophy, and myotonia [4]. Similarly, disorders related to nerves are termed as neuropathy, i.e., Lou Gehrig's disease also known as ALS. ALS is an incessant disease which affects motor neurons, causing injury to neuron cell, and respiratory system failure leading to death [5, 6]. ALS is categorized into two types, the sporadic and hereditary ALS.

RESEARCH CHALLENGES IN BIG IOT DATA ANALYTICS

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ABSTRACT: The incredible growth in the number of devices with sensors and actuators connected through the internet reflects the tremendous growth of big data with IoT. The IoT-driven human and machine collaboration enhances operational efficiencies and productivity. Analytics of data from IoT has improved decision-making and the quality of life. The evolution of the smart world has become inevitable. Internet of Things connects the physical world to the internet that shares critical information to the surface quickly than a system depending on human intervention. The data collected by the things in IoT is enormous and big data provides faster and efficient storage and processing of the data. Big data analytics applies analysis tools to the huge volumes of data generated by IoT devices to help in efficient decision making. The convergence of IoT, big data analytics and cloud has created several research opportunities to explore. In this paper, the concept of IoT, the applications of IoT, characteristics of big data, the relationship between IoT and big data analytics is discussed. The IoT layer architecture,IoT and big data architecture, the tools used for analytics of big data and the challenges in analysis of big IoT data is elaborated.

Keywords: IoT, Big Data, Big Data Analytics, Challenges in Big Data Analytics

1. INTRODUCTION

The tremendous amount of data that is exponentially increasing due to the recent advancement in technology has become inevitable. The data explosion is caused by the following: increase in the number of data generating smart devices with sensors and actuators which are connected globally through the cloud, increase in the number of users of the internet, increase in virtual reality and augmented reality, 5G cellular network, increase in e-commerce transactions etc[1]. The global internet protocol traffic has grown at a compound annual growth rate of 26% from 2017 to 2022[2]. The number of devices connected to the internet will be three times the global population by 2022. Smartphones will be 44% of total IP traffic. Digital world will reach a brontobyte in the coming decade.

We live in a Big data era and information is the new gold. The data explosion has created challenges in the collection of data, storage of data, retrieval, processing and representation due to volume, variety and velocity of data. Discovering value or useful patterns from Big data poses many challenges requiring enormous computing resources, technological infrastructure and skilled data analysts. Internet of Things(IoT) is one of the technological revolutions in this era posing a serious challenge in the ability to exploit huge amounts of data. IoT and Big Data are two independent technologies where IoT would generate large amounts of data and Big data would enhance storage efficiency and processing of the data.

The objective of this paper is to highlight the association between IoT and Big Data Analytics and explore the research perspective in this area. The relationship between IoT and Big Data in terms of transforming the huge data into more understandable and meaningful patterns is discussed. The platforms available for Big Data Analytics of IoT data are elaborated.

2. OVERVIEW OF IOT, BIG DATA AND BIG DATA ANALYTICS

Internet of Things(IoT) refers to the network of physical objects that are embedded with sensors, softwares and technology for communicating and exchanging data with other objects on the internet[3]. A thing in the Internet of Things can be any object that can be assigned an Internet

Computation Performance Optimization Technique of Shortest Path Routing Algorithm in Networks Using Out-degree

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Abstract

Objective: This paper presents a novel technique in Dijkstra's routing algorithm by considering the concept of out degree which will decrease the computational cost and increase the speed of execution.

Methods: In this proposed method the time taken by this algorithm that runs as a combination of the input distance is calculated. Conversely, a computation time complexity measures how efficient it is. accuracy of this method. The Shortest Path Problem is the problem of finding a path in a digraph between two vertices or nodes to minimize the sum of the weights of the edges of its constituent. In the existing approach it specifies a number of nodes as the plot unfolds and calculates the quickest route between it and most other nodes. which will complex the speed of execution.

Findings: The proposed out degree approach will resolve that drawback by computing two minimum distance from initial table and this operates from the source node and determines the shortest path over the network as a whole. It also guarantees to find a globally optimal solution path with accurate results.

Novelty: The algorithm's description and comparison are presented in graphical ways to determine the algorithm's features. The analysis shows that the best route from source to destination will be established which provides the shortest distance. The optimal pathways discovered as a result of the analysis which reduce the distance traveled by the company in shipping products and reduce the time and cost of delivery.

Key-words: Dijkstra's Algorithm, Out Degree, Shortest Path, Optimal Solution, All-Pairs Shortest Path.

BaZrO₃ perovskite – A UV light mediated congo red dye deactivator catalyst with good optical switching and antimicrobial abilities green synthesized using *Moringa oleifera* leaf extract

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ABSTRACT

In this paper, BaZrO₃ was chemically synthesized using liquid NH₃ as precipitating agent and green synthesized using *Moringa oleifera* (*M. oleifera*) leaf extract without the addition of liquid NH₃. X-ray diffractograms confirmed the cubic nature of the samples with.

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1. Introduction

Perovskite-type mixed metal oxides has been widely used in solid oxide fuel cells, chemically sensors, oxygen permeating membranes and thermoelectric devices [1]. Amongst them, alkaline earth zirconates of chemically formula MZrO₃ (M = Ca, Sr, Ba) are excellent structural and electronic ceramics which when suitably doped becomes ionic and/or electronic conductors [2]. Barium zirconate (BaZrO₃) is an excellent cubic perovskite which possesses good mechanical strength, high thermal and chemically stability with low coefficient of thermal expansion [3]. Good proton conducting ability, high dielectric constant, low loss characteristics and high dielectric permittivity makes BaZrO₃ suitable as solid electrolyte in fuel cells [4], humidity sensors [5], microwave applications [6], wireless communications as electro-ceramic capacitors [7], etc. However, BaZrO₃ is a less studied material for its photocatalytic, antimicrobial and non-linear optical ability due to its widened band gap (5 eV). The present work aims to rectify the above said

demerits and to utilize BaZrO₃ for photocatalytic, antimicrobial and optical switching applications.

A wide variety of processes have been employed earlier and BaZrO₃ perovskite with different sizes and shapes have been obtained such as nanocubes [8], polyhedron [9], decaoctahedron [10], nanowires [11] and mono dispersed particles [12] so that enhanced optical, magnetic and electronic properties has been realized. Various synthesizing methods such as solid-state reaction [2], single-step combustion [7], hydrothermal [3], sol–gel [13], precipitation [14], etc are widely used to synthesize BaZrO₃ NPs. By proper choice of synthesis procedure, the size, shape and composition of BaZrO₃ could be controlled and utilized for catalytic [10] and microwave [3] applications.

It is well known that band gap narrowing in metal oxides is feasible through doping. Instead of doping, an alternate approach i.e. green synthesis using plant leaf extract has been adapted here to synthesize BaZrO₃ NPs suitable for photocatalytic, antimicrobial and optical switching applications. The plant leaf extract promotes stable synthesis
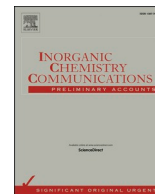

A comparative study on the photocatalytic performance of two third order NLO active nanocomposites (NiO-CdO and NiO-CuO) green synthesized using *Psidium guajava* leaf extract

S. Anitha [a], A.R. Balu [a,*], S. Balamurugan [a], M. Suganya [a], Z. Delci [b], M. Karthika [a,c], C. Kayathiri [a], S. Chitra Devi [a]

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ABSTRACT

A comparative study has been performed in this paper on the photocatalytic activity and third order NLO properties of NiO-CdO and NiO-CuO nanocomposites green synthesized using *Psidium guajava* leaf extract. Under visible light illumination for about 90 min, the NiO-CdO nanocomposite degraded 86 % and the NiO-CuO nanocomposite degraded 91.5% of rhodamine B dye. Decreased crystallite size, larger specific surface area, enhanced visible light absorbing ability, least band gap value and greater dispersibility of CuO are responsible for the better degradation ability of the NiO-CuO nanocomposite than the NiO-CdO nanocomposite. The occurrence of reverse saturable absorption (RSA) effect from the Z-scan studies confirmed that both the composites are well suited for nonlinear optical and photonic devices. The high value of NLO susceptibility possessed makes the NiO-CuO nanocomposite highly polarized than the NiO-CdO nanocomposite.

1. Introduction

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For the synthesis of NCs, a wide variety of physical and chemical methods have been adopted. Chemical methods are found to be superior than the physical methods due to low cost and easy handling. However, in chemical methods the use of environmentally non-benign chemical,

Effect of different polyvinylpyrrolidone and 3-mercaptopropionic acid concentrations on structural, morphological, and optical properties of cadmium sulfide quantum dots

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ABSTRACT

The ultimate aim of this manuscript is to understand and analyze the influence of polyvinylpyrrolidone (PVP) and 3-mercaptopropionic acid (3-MPA) concentrations on the properties of cadmium sulfide (CdS) quantum dots. In this scenario, PVP- and 3-MPA-capped CdS quantum dots (QDs) were prepared through chemical precipitation method. The synthesized CdS quantum dots were characterized by powder X-ray diffraction (PXRD) analysis, Fourier transform infrared (FTIR) spectroscopy, scanning electron microscopy (SEM), transmission electron microscopy (TEM), energy-dispersive X-ray (EDX) analysis, ultraviolet–visible (UV–Vis) reflectance spectroscopy, photoluminescence (PL) analysis, the Commission International de I'Eclairage (CIE) 1931 chromaticity analysis, and dynamic light scattering (DLS) study.

1 Introduction

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ORIGINAL PAPER

Electrochemical Studies of Novel X-Type Barium Hexaferrite Nanoplatelets for Supercapacitor Applications

M. Suganya[1] · J. Kishor Kumar[1] · S. Anand[2] · K. Mohamed Racik[2] · S. Muthupandi[2] · S. Muniyappan[3]

Abstract

In this study, X-type barium hexaferrite ($Ba_2Co_2Fe_{28}O_{46}$) nanoplatelet was prepared by sol–gel auto-combustion route and the detailed electrochemical analysis were reported. Various equipments were used to study the synthesized hexaferrite particles including XRD, FTIR, HRSEM, TEM, EDX, XPS, and VSM analysis. The XRD results revealed the single-phase X-type hexagonal structure. Metal oxygen stretching bands in various environments such as tetragonal and octahedral coordinates have been confirmed using FTIR spectra. Hexagonal plate-like-shaped grains were clearly seen from the morphological studies. The elemental analysis using EDX spectra and XPS study confirmed the existence of proposed elements in $Ba_2Co_2Fe_{28}O_{46}$ grains and valence states of barium, cobalt, iron, and oxygen ions are also studied via XPS analysis. The ferrite samples annealed at 1350 °C established the magnetic properties, such as high squareness ratio (~0.583), saturation magnetization (54.89 emu/g), retentivity (32.03 emu/g), and coercivity (2.779 kOe). The electrochemical (EC) performance of the $Ba_2Co_2Fe_{28}O_{46}$ nanoplatelets was studied for the first time with CV, GCD, and EIS analysis. A high value of specific capacitance of 139.83 F/g at 0.5 A/g is obtained for $Ba_2Co_2Fe_{28}O_{46}$ hexaferrite prepared at pH 07. These results demonstrated that X-type barium hexaferrite ($Ba_2Co_2Fe_{28}O_{46}$) nanoplatelet is one of the potentially interesting electrode materials for supercapacitor applications.

Keywords X-type barium hexaferrite · Sol–gel auto-combustion · Magnetic studies · XPS · Supercapacitors

1 Introduction

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For several decades, hexagonal ferrites have dominated the permanent magnet market owing to their inexpensive prices, chemical stabilities, and high frequency sustainability [6]. Hexaferrite exhibits a quite complex crystallographic structure and could be categorized into 6 major types dependent on their crystal structures and chemical formulas: $BaFe_{12}O_{19}$ (M-type), $Ba_3Me_2Fe_{24}O_{41}$ (Z-type), $Ba_2Me_2Fe_{12}O_{22}$ (Y-type), $BaMe_2Fe_{16}O_{27}$ (W-type), $Ba_4Me_2Fe_{36}O_{60}$ (U-type), and $Ba_2Me_2Fe_{28}O_{46}$ (X-type),

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BaZrO₃ perovskite – A UV light mediated congo red dye deactivator catalyst with good optical switching and antimicrobial abilities green synthesized using *Moringa oleifera* leaf extract

C. Kayathiri [a], A.R. Balu [a,*], M. Suganya [a], G. Vinitha [b], Z. Delci [c], S. Balamurugan [a], M. Karthika [a,d], S. Anitha [a], A. Prabavathi [a,e]

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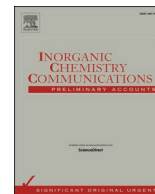
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ORIGINAL PAPER

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Vehicle Detection And System Tracking Using Yolo V3 Model, A Computer Vision Technique

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Abstract

Vehicle Detection and System Tracking is a real-time embedded system that recognises different types of vehicles automatically. This system is currently widely used in a variety of applications. The proposed method was created to recognise high-resolution digital photographs using the most up-to-date Computer Vision and Machine Learning approaches. A comparison of the different extant Computer Vision approaches utilised in YOLO v3 is made for this goal, as well as a detailed understanding of the operation and mode of use of the most often used Machine Learning algorithms, which are: Artificial Neural Networks, You Only Look Once (YOLO). Furthermore, a large vehicle picture dataset is required for the creation of an efficient, rapid, and trustworthy YOLO v3 model.

Keywords: YOLO V3, YOLO V2, Number Plate Detection, Darknet, Object Detection, Localization.

1. INTRODUCTION

The increased number of automobiles everywhere in today's scenario is obvious. During critical hours, it is extremely difficult to detect the numbers on the vehicle licence plate. As a result, this article proposes a Python method for detecting the vehicle number using the YOLO model. The YOLO (You Only Look Once) v3 model is a system capable of identifying vehicles without human intervention by using a high-speed image capturing technique with supporting illumination, detection of vehicles among the supplied images, and verification of the sequences as being those from a vehicle to convert image to xml [1], resulting in a set of metadata that identifies an image containing a vehicle and the associated

Research Article

Classification of Myopathy and Amyotrophic Lateral Sclerosis Electromyograms Using Bat Algorithm and Deep Neural Networks

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Electromyograms (EMG) are a recorded galvanic action of nerves and muscles which assists in diagnosing the disorders associated with muscles and nerves. The efficient discrimination of abnormal EMG signals, myopathy and amyotrophic lateral sclerosis, engage crucial role in automatic diagnostic assistance tools, since EMG signals are nonstationary signals. Hence, for computer-aided identification of abnormalities, extraction of features, selection of superlative feature subset, and developing an efficient classifier are indispensable. Initially, time domain and Wigner-Ville transformed time-frequency features were extracted from abnormal EMG signals for experiments. The selection of substantial characteristics from time and time-frequency features was performed using bat algorithm. Extensively, deep neural network classifier is modelled for selected feature subset using bat algorithm from extracted time and time-frequency features. The performance of deep neural network exerting selected features from bat algorithm was compared with conventional artificial neural network. Results demonstrate that the deep neural network modelled with layers 2 and 3 (neurons = 2 and 4) using time domain features is efficient in classifying the abnormalities of EMG signals with an accuracy, sensitivity, and specificity of 100% and also exhibited finer performance. Correspondingly, the developed conventional single layer artificial neural network (neurons = 7) with time domain features has shown an accuracy of 83.3%, sensitivity of 100%, and specificity of 71.42%. The work materializes the significance of conventional and deep neural network using time and time-frequency features in diagnosing the abnormal signals exists in neuromuscular system using efficient classification.

1. Introduction

The arrangement of human neuromuscular structure in human anatomy is a complex aggregation of muscular and nervous system [1]. The structure of neuromuscular (NMR) system is influenced by NMR disorders. Myopathies, multiple sclerosis, myasthenia gravis, and progressive neurodegenerative disease such as amyotrophic lateral sclerosis (ALS) are various distinct disorders which affects the neuromuscular system [2]. The NMR disorder is principally classified into two categories, namely, myopathy and neu-

ropathy [3]. Myopathies are the ailments in connection to muscles and its fiber, which are further grouped into types, inherited and acquired myopathies. Myopathies can be manifested from several symptoms which include muscle weakness, fatigue, muscle atrophy, and myotonia [4]. Similarly, disorders related to nerves are termed as neuropathy, i.e., Lou Gehrig's disease also known as ALS. ALS is an incessant disease which affects motor neurons, causing injury to neuron cell, and respiratory system failure leading to death [5, 6]. ALS is categorized into two types, the sporadic and hereditary ALS.

Strong β-$\mathcal{H}$-Open Sets In Generalized Topological Space

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Abstract - *The aim of this paper is to characterize and discuss the properties of strong β-$\mathcal{H}$-open sets in a generalized topological space (X, λ) with a hereditary class $\mathcal{H}$.*

Keywords - *Hereditary class, Pre-$\mathcal{H}$-open set, $\mathcal{H}_R$-closed set, Semi-$\mathcal{H}$-open set, $Semi^* - \mathcal{H}$-closed set, Strong β-$\mathcal{H}$-open set.*

2010 hematics subject classification: 54A05, 54A10.

I. INTRODUCTION

Let X a nonempty set. A nonempty subfamily λ of $\wp$(X) is called a generalized topology on X [1] if Ø ∈ λ and λ is closed under arbitrary union. The pair (X, λ) is called generalized topological space. A GTS (X, λ) is said to be strong if X ∈ λ. Elements of λ are called λ -open sets and the complement of a λ -open set is called a λ -closed set. The largest λ -open set contained in a subset A of X is denoted by $int_\lambda(A)$ [2] and is called the λ -interior of A. The smallest λ -closed set containing A is called the λ - closure of A and is denoted by $cl_\lambda(A)$ [2]. A subset A is said to be λ -dense if $cl_\lambda(A) = X$. A generalized topology (X, λ) is said to be a quasi topology [4] on X if M, N ∈ λ implies M ∩ N ∈ λ. A hereditary class $\mathcal{H}$ is a nonempty collection of subset of X such that A ⊂ B, B∈ $\mathcal{H}$ implies A ∈ $\mathcal{H}$[2]. For each subset A of X, a subset $A^*(\mathcal{H})$ or simply A^* of X is defined by $A^* = \{x \in X \mid M \cap A \notin \mathcal{H}$ for every M ∈ λ containing $x\}$ [2]. Let (X, λ) be a generalized topological space and $\mathcal{H}$ be a hereditary class of subset of X if $cl_\lambda^*(A) = X$ then A is called λ* - dense. If $\mathcal{H}$ is said to be λ-codense if λ∩ $\mathcal{H}$ = {Ø} [2] and is said to be strongly λ-codense [2] if M, N ∈ λ and M ∩ N ∈ $\mathcal{H}$, then M ∩ N = Ø. Every strongly λ-codense hereditary class is λ -codense but the converse is not true [2]. If $cl_\lambda^*(A) = A \cup A^*$ for every subset A of X, with respect to λ and a hereditary class $\mathcal{H}$ of subsets of X, then $\lambda^* = \{A \subset X / cl_\lambda^*(X - A) = X - A\}$ is a generalized topology [2]. Elements of λ* are called λ*-open sets and the complement of a λ*-open set is called a λ*-closed set. $Int_\lambda^*(A)$ *is the interior of A in* (X, λ^*). Let (X, λ) be a generalized topological space and H be a hereditary class of subsets of X. If cl_λ^*(A) = X, then A is called λ*-dense.

Lemma. 1.1[3].

Let (X, λ) be generalized topological space and $\mathcal{H}$ be a hereditary class of subsets of X. If $E, F \subset X$ then the following hold

(i)   If $E \subset F$ then $E^* \subset F^*$
(ii) $(E^*)^* = E^*$ For every $E \subset X$.
(iii) $E \subset F \subset X$. implies that $cl_\lambda^*(E) \subset cl_\lambda^*(F)$.
(iv) $(E \cup E^*)^* \subset E^*$ *for every* $E \subset X$
(v) $(E \cup F)^* = E^* \cup F^*$
(vi) $\lambda \subset \lambda^*$.
(vii)   *If* $\beta = \{N - H : N \in \lambda, H \in \mathcal{H}\}$ *is a base for* λ^*.

Definition 1.2[3].

A subset E of a generalized topological space (X, λ) with a hereditary class $\mathcal{H}$ is said to be

1.   λ*-dense in itself if $E \subset E^*$
2. λ^*-closed if $E^* \subset E$

Photophysical and molecular docking studies of photoinduced electron transfer (PET) and non-PET based fluorophores of acridinedione derivatives with a glycoprotein: Ovalbumin

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ARTICLE INFO

ABSTRACT

Photophysical studies of resorcinol-based family of acridinedione (ADR) dyes with a glycoprotein, ovalbumin (OVA) were carried out in water. Addition of OVA to photoinduced electron transfer (PET) based dye (ADR1) resulted in a considerable red shift of emission maxima with a slight increase in the fluorescence intensity, whereas no significant variation in the fluorescence intensity or shift of emission maxima results in the case of a non-PET dye. Fluorescence lifetime studies illustrates that the PET lifetime component enhances by several fold on the introduction of OVA which is accompanied with the formation of multi lifetime components in the aqueous phase of varying distribution as observed in well-known globular protein, bovine serum albumin (BSA). Interestingly, a decrease in the fluorescence lifetime of non-PET dye (ADR2) with the evolution of more than one distinct lifetime species results with OVA. This behaviour ascertains the presence of at least two different micro environment of dye residing in aqueous phase on the addition of OVA. The introduction of OVA induces the formation of several distinguishable micro environments around the close vicinity of the dye molecule that are subjected to various binding forces. Further, the dye bound to several amino acid residues through conventional and non-conventional hydrogen-bonding interactions accompanied with hydrophobic interactions, pi-pi, pi-alkyl interactions and weak van der Waals forces also coexist. The variation in binding energies of various dye-OVA conformations are established from molecular docking (MD) techniques. The combination of docking techniques validates and authenticates the origin of multi decay characteristics of dye-OVA complex that correlates dye bound to different binding sites in protein. A combined approach of fluorescence techniques along with MD methods and Isothermal Calorimetric Titration (ITC) studies provides an excellent approach in determining the nature of interaction and binding stability of dye-protein system in a micro heterogeneous environment.

Introduction

Studies involving binding of drugs or probes with water soluble globular proteins in the field of medicinal chemistry and biochemistry provides a significant information and knowledge regarding the pharmacodynamics and pharmacokinetics on the mechanism of action and the effect of drug on proteins. Biomolecules, when subjected to these probes/drugs are either bound strongly or weakly, and it comprises specific non-covalent bonding interactions such as hydrogen-bonding, hydrophobic interactions, electrostatic and other weak forces of interaction [1]. Although several reports in this domain of study has been published for decades, the thirst for establishing the nature of interaction of drugs with biomolecules, the probable orientation and affinity of a specific drug or ligand towards the active site in the protein has created a larger scientific audience to experiment in depth to analyze and provide breakthrough in the field of medicine. Characteristic variation on the helical structures, exposure of the buried residues that involve conformational changes in the structure both at the microscopic and

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Original article

Investigation of phytochemical profile and *in vivo* anti-proliferative effect of *Laetiporus versisporus* (Lloyd) Imazeki mushroom against diethylnitrosamine-induced hepatocellular carcinoma

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ARTICLE INFO

ABSTRACT

The purpose of the study is to explore the bioactive compounds present in *Laetiporus versisporus* (LVEE) Lloyd Imazeki ethanolic extract and its anticancer activity against hepatocellular carcinoma (HCC) induced by DEN in rats. The bioactive compounds present in the LVEE was analyzed by GCMS. The anti-cancer activity of LVEE was analyzed with the DEN induced rats were orally treated with LVEE (250 mg/kg), cyclophosphamide (50 mg/kg) to the respective treatment groups for 45 days. The levels of tissue markers, phase-I metabolizing enzymes was measured calorimetrically. ELISA was used to determine the level of AFP and CEA. The expression of apoptotic genes Bcl-2, p53, caspase 3 and caspase 9 was assessed by real time RT-PCR. Results of the phytochemical screening analysis showed that 12 bioactive molecules were existing in LVEE. Results of pharmacodynamics analysis showed that the 45 days of treatment with LVEE and cyclophosphamide (CPA) therapy significantly (p < 0.05) decreased the levels of MDA, AFP, CEA, cytochrome P450 and cytochrome b_5, and increased levels of tissue markers and bilirubin in serum. The findings of RT-PCR analysis showed that the LVEE and CPA were significantly (p < 0.05) downregulated the pro-apoptotic genes Bcl-2 and upregulated the p53, caspase 3 and caspase 9 mRNA expression through mechanisms involved in promoting the cell apoptosis, and preserving the functional integrity of the liver membrane. *L. versisporus* (LV) can be considered as new anticancer agent that offers new opportunities for anticancer therapy.

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1. Introduction

According to the World Health Organization report in 2018, liver cancer is the fourth most important cause of morbidity and mortality worldwide. Among 9.6 million cancer deaths in 2018, liver cancer accounts for 782,000 deaths. Hepatocellular carcinoma (HCC) represents approximately 90% cases of principal liver cancer and leads to chronic liver disease and cirrhosis, which predominantly occurs in patients (Llovet et al., 2016). Most of the essential biological features called metastasis are the key cause of treatment failure and death due to liver cancer. Metastasis and recurrence rate can reach up to 50% even in the case of small HCC. Liver cancer

Electrochemical Investigation and Molecular Docking Techniques on the Interaction of Acridinedione Dyes with Water-Soluble Nonfluorophoric Simple Amino Acids

Sumita Anupurath, Vasanthi Rajaraman, Shoba Gunasekaran, Anju Krishnan,
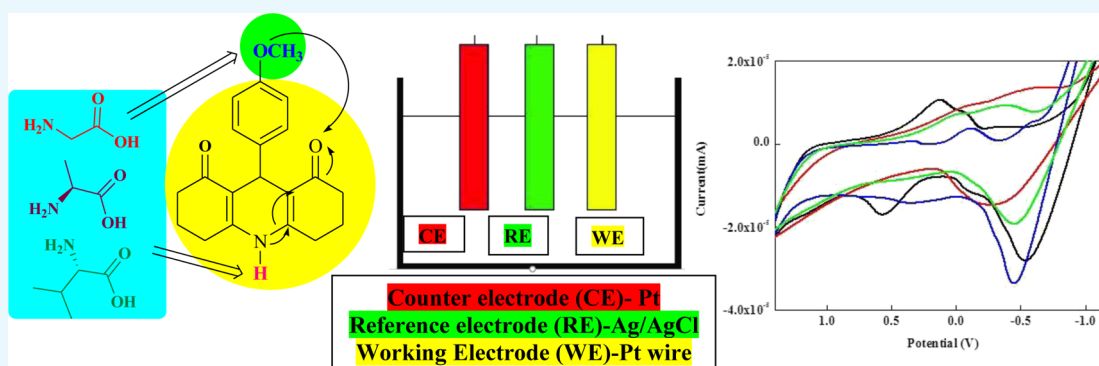Sangeetha Murugan Sreedevi, Seba Merin Vinod, Balakumaran Manickam Dakshinamoorthi,
and Kumaran Rajendran*

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ABSTRACT: Electrochemical studies of resorcinol-based acridinedione (AD) dyes with nonfluorophoric simple amino acids, glycine, alanine, and valine, were carried out in water. AD probes are classified into photoinduced electron transfer (PET) and non-PET-based dyes, wherein the electrochemical properties and photophysical and photochemical behavior vary significantly based on the nature of substituent groups and the nature of the solute. The oxidation potential of PET dye (ADR1) to that of non-PET-based dye (ADR2) differs significantly such that the addition of amino acids results in a shift of the oxidation peak to a less positive potential and the reduction peak to a lesser negative potential. The extent of shift of oxidation and reduction potential in PET dye is more pronounced than that of non-PET dye on the addition of valine rather than glycine. The variation in the shift is attributed to the presence of an electron-donating moiety (OCH$_3$) group in the ninth position of ADR1 dye. Consequently, the quenching of fluorescence is observed in ADR2 with non fluorophoric amino acids that are authenticated by the shift of the anodic and cathodic peaks toward a lesser positive potential. Molecular docking (MD) studies of PET and non-PET dye with amino acids portray that neither hydrophobic interactions nor electrostatic or weak interactions such as van der Waals and pi−pi interactions govern the electrochemical nature of dye on the addition of amino acids. Furthermore, the formation of a conventional hydrogen bond between dye and amino acid is established from MD studies. The existence of dye−water−amino acid competitive hydrogen-bonding interactions is presumably well-oriented throughout the aqueous phase as observed through photophysical studies which support our electrochemical investigation.

INTRODUCTION

Fluorescence spectroscopy of probes coupled with electrochemistry play a significant and important role on the view of chemists and biologists, which is attributed to their photophysical and redox properties.[1,2] The electrochemical studies in combination with fluorescence techniques help us in providing a detailed understanding of local organization in monolayer and multilayer interfaces.[3] However, these studies correlate to the oxidation and reduction properties of the fluorescent probes predominantly in nonaqueous solvents and to a lesser extent in aqueous medium.

Acridinedione (AD) dyes belong to a class of extrinsic fluorescent probes, wherein enormous studies confined to the photophysical studies in the presence of hydrogen-bonding and hydrophobic solutes have been carried out both in

A review on the toxicity of silver nanoparticles against different biosystems

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HIGHLIGHTS

- Studies on the toxicity of nanosilver are highlighted.
- Data to date showed both positive and negative effects.
- Knowledge gaps are identified and discussed.
- Suggestions are given to prevent or minimize the future conflicts.

GRAPHICAL ABSTRACT
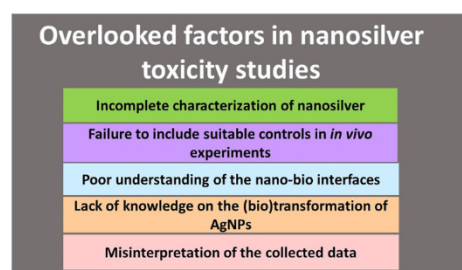
ARTICLE INFO

ABSTRACT

Despite significant progress made in the past two decades, silver nanoparticles (AgNPs) have not yet made it to the clinical trials. In addition, they showed both positive and negative effects in their toxicity from unicellular organism to well-developed multi-organ system, for example, rat. Although it is generally accepted that capped (bio)molecules have synergistic bioactivities and diminish the toxicity of metallic Ag core, convincing evidence is completely lacking. Therefore, in this review, we first highlight the recent *in vivo* toxicity studies of chemically manufactured AgNPs, biologically synthesized AgNPs and reference AgNPs of European Commission. Then, their toxic effects are compared with each other and the overlooked factors leading to the potential conflict of obtained toxicity results are discussed. Finally, suggestions are given to better design and conduct the future toxicity studies and to fast-track the successful clinical translation of AgNPs as well.

King Saud University

Journal of Saudi Chemical Society

ORIGINAL ARTICLE

Comparative studies on biophysical interactions between 4-dicyanomethylene-2,6-dimethyl-4H-pyran (DDP) with bovine serum albumin (BSA) and human serum albumin (HSA) via photophysical approaches and molecular docking techniques

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Abstract Photophysical studies of 4-Dicyanomethylene-2,6-Dimethyl-4H-Pyran (DDP) dye with globular proteins, Human Serum Albumin (HSA) and Bovine Serum Albumin (BSA) were carried out in aqueous solution. An isosbestic point resulted on the addition of serum albumins, which signifies a complex or an equilibrium state of DDP dye with albumin. Addition of BSA to DDP dye results in a fluorescence enhancement accompanied with a significant hypsochromic shift, whereas
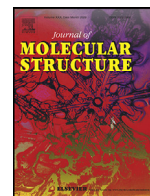
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Structural characterization, spectral investigation and antimicrobial studies Of $ZnWO_4$ and $Zn_{0.9}Cu_{0.1}WO_4$ nanoparticles synthesized by microwave and sucrose mediated solgel method

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ABSTRACT

Zinc-Copper tungstates of varying composition were synthesized by sucrose mediated solgel (SSG) method and by microwave assisted metathetic approach (MWMA). The structural characterizations of nanoparticles, NPs were investigated by X-ray diffraction technique (XRD). The average crystallite size of $ZnWO_4$-SSG (ZW-S), $Zn_{0.9}Cu_{0.1}WO_4$-SSG (ZCW-S), $Zn_{0.9}Cu_{0.1}WO_4$-MWMA (ZCW-M) NPs were found to be 20.19 nm, 19.18 nm and 21.12 nm respectively. Elemental mapping at the micro structural level were done using scanning electron microscopy (SEM) with energy dispersive X-ray spectrometry (EDS). The characteristic vibrational modes of O-W-O and Zn-O-W were analysed by FTIR and Raman spectral studies. The optical performance of synthesised NPs exhibits smart optical properties with band gap of 2.88, 2.53and 2.59 eV for ZW-S, ZCW-S and ZCW-M respectively using UV-Visible Diffuse Reflectance Spectroscopy, DRS. The antibacterial and antifungal activities of ZW-S, ZCW-S and ZCW-M NPs of varying concentrations25, 50, 75 and 100 µg/ml were tested against one Gram-positive––*Staphylococcus aureus*, two Gram-negative––*Escherichia coli, Pseudomonas aeruginosa* human pathogenic bacteria; and three fungal strains––*Aspergillus niger, Aspergillus fumigatus, Candida albicans*. Further, the ZCW-S NPs adopted "Apoptosis" mechanism for inhibiting fungal cells and Cu^{2+}in ZCW-S undergoes a mechanism of "Homeostasis". In the present investigation it was established that ZCW-S NPs was effective against *Staphylococcus aureus* than the standard azithromycin drug.

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1. Introduction

The rise in incidence of bacterial and fungal infections has augmented the necessity for next generation antibacterial and antifungal agents, since the currently available drugs possess undesirable side effects, ineffective against the recurring bacterial and fungal strains and also results in an increase in the antibiotic resistance [1]. Therefore, the emergence of strategy to combat drug resistant pathogens had become inevitable to discover the nanoparticle drug with low toxicity, broad spectrum of activity, and a new mode of action. Nanoparticles (NPs) for human cells are generally considered to be cytotoxic and immune response. It is important to investigate alongside the medical application to establish equilibrium between the optimum concentrations necessary for desired activity with minimized cytotoxicity accompanied with immune response. Although NPs are a potential solution to this issue, due to their multitarget mechanism of action, more quantum of work has to be carried out in studying their role in the field of medicinal chemistry.

The metal tungstates are microporous material possessing wolframite structures have larger application in various technological fields [2]. Among various tungstates, zinc tungstates and copper tungstates are a promising material for photovoltaics, sensors and serves as a photocatalyst [3,4]. In the present study, $ZnWO_4$-SSG (ZWS), $Zn_{0.9}Cu_{0.1}WO_4$-SSG (ZCWS), $Zn_{0.9}Cu_{0.1}WO_4$-MWMA (ZCWM) NPs were analysed for their antibacterial and antifungal activities against selective pathogenic strains. Azizi-Lalabadi et al. [5] studied on the antimicrobial property of zinc oxide (ZnO) nanoparticles doped 4A zeolite against *Escherichia coli, Listeria monocytogenes, Pseudomonas fluorescens* and *Staphylococcus aureus* provides information where microbial inhibition concentration

GREEN SYNTHESIS OF SILVER NANOPARTICLES FROM KOHLRABI (*BRASSICA OLERACEAE*) LEAF FOR ANTIBACTERIAL ANTIOXIDANT AND CYTOTOXIC ACTIVITY ON MCF-7 CELLS

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ABSTRACT

In this study, Biocompatible silver nanoparticles synthesized from aqueous leaf extract of Kohlrabi (Brassica oleraceae var. Gongylodes). The green synthesized AgNPs were characterized by various spectroscopic and microscopic techniques (UV Spectroscopy and SEM). The UV-visible spectroscopic analysis showed the absorbance peak at 418nm, the synthesized AgNPs were round and spherical shape and 68nm size were confirmed by scanning electron microscopy (SEM). Initial phytochemical analysis revealed the presence of secondary metabolites in the aqueous Kohlrabi leaf extract. The antibacterial activity of Kohlrabi leaf extract and AgNPs was dose-dependent manner and it was revealed synthesized silver nanoparticles showed potential antibacterial activity than Kohlrabi leaf extract. The antioxidant activity of synthesized AgNPs showed highest free radical inhibition (80.2%) at 250 µg/ml as compared to Kohlrabi leaf extract (62.21 %). The biosynthesized silver nanoparticles were observed to possess high cytotoxicity against Breast (**MCF-7**) cancer cells with IC50- 66.46 µg/ml. In conclusion, the results obtained in the present study revealed the green synthesized silver nanoparticles from Kohlrabi leaf extract exhibited considerable antioxidant, antibacterial and anticancer potential.

KEYWORDS: Silver nanoparticles, *Brassica oleraceae* MCF-7 cells, antibacterial, antioxidant.

Introduction:

Nanotechnology is the application of science to control matter at nano level. This technique increases the scope of investigation and regulation of nanoparticles at cellular stage, the drug delivery diagnostics imaging cancer detection, artificial implant, HIV inhibition, water filtration. A number of approaches are available via chemical and photochemical reaction for synthesis of nanoparticles, such as reverse micelles, thermal decomposition of metallic compounds, radiation assisted, electrochemical, and microwave assisted. Plants sources used nanoparticles synthesizing methods have a lot of focus due to its eco-friendly and utilization of nontoxic chemicals (Bharathi & Bhuvaneshwari, 2019). Silver nanoparticles play a profound role in the field of biology and medicines due to their attractive physiochemical properties.

Silver have long been known to have strong inhibitory and bactericidal effects, as well as a broad spectrum of antimicrobial activities which have been used for centuries to prevent and treat various diseases most notably infections. Silver nanoparticles are reported to anti-fungal, anti-inflammatory anti-viral, activities. Recently plant mediated biological synthesis of noble nanoparticles is gaining importance due to its simplicity, eco-friendliness and it eliminates the elaborate process of maintaining cell culture. Although biosynthesis of silver nanoparticles by plants viz. papaya fruit, jatropa curcus latex, lantana camera fruit, cauliflower, portulaca oleracea, have been reported, the potentially of the plant as biological materials for synthesis of nanoparticles is yet to be fully explored. The plant mediated AgNPs has high biological properties (Shah et al., 2020).

Silver nanoparticles Among metal nanoparticles, AgNPs are playing a major role in the field of nanotechnology and Nanomedicine. Malignancy is an obstruction in the mechanism of controlling of typical development, multiplication and cell death. Silver nanoparticles act as antitumor by slowing progressive growth of tumor cells (Gomathi et al., 2020). the last decades,

Biogenic synthesis of copper nanoparticles using *Vitis vinifera* L. seed extract, and its in-vitro biological applications

Janakiraman Vardhana[1] · Ramarajan Sivasankaran[2] · Thakku R. Ramkumar[3] · Jeyachandran Anitha[4]

Abstract

The production of copper nanoparticles with the aqueous extract of dried grape seed is described in this paper. The UV–Vis spectra revealed absorption peaks above 350 nm, indicating that copper reduction resulted in nanoparticles production. The FTIR spectra of Cu nanoparticles revealed that they were surrounded by several organic compounds. The X-ray Diffractometer revealed intense peaks that corresponded to the face-centered cubic (fcc) structure's features. SEM confirmed that the produced nanoparticles ranged in size from 54 to 80.98 nm. EDS examination revealed the purity of CuNPs and only the existence of the copper phase in the samples. The nanoparticles' anti-diabetic efficacy was tested using the—amylase assay. The copper nanoparticle extract showed a percentage of inhibition of 32 percent at a concentration of 1000 μg/ml. CuNPs demonstrated a maximum zone inhibition of about 2 cm in E.coli, whereas the aqueous extract showed 1 cm, and a maximum zone inhibition of about 1.3 cm in *Streptococcus Sp.*, whereas the aqueous extract showed 0.5 cm. The samples when treated on HCT-15 cell line, showed potent cytotoxicity from the MTT assay performed. Our research showed the eco- friendly method of synthesizing nanoparticle from seed extract which when compared to other synthesis methods proves to be a potential method.

Keywords Grape seed extract · Copper nanoparticles · Cytotoxicity · Antibacterial activity · Antidiabetic activity

Abbreviations

CuNP	Copper Nanoparticle
MTT	3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromidefor
UV	Ultra violet
FTIR	Fourier transformed infrared spectroscopy
SEM	Scanning Electron Microscopy
DMEM	Dulbecco's Modified Essential Medium
PBS	Phosphate Buffered saline
DNS	Dinitrosalicylic acid
EDS	Element Dispersal Spectrum

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Throughout recent years, agricultural work has focused on the impacts of certain minor elements on the plant economy. Grapes are a type of fruit that grows in clusters between 15 and 300 and may be crimson, black, dark blue, yellow, green, orange, and pink (Scott et al. 2016). In addition, "white" grapes are green in color and evolutionarily derived from the purple grape (Lopez 2016). All the plants are made up of phytochemicals that have certain biopharmaceutical activities. Purple grapes are rich in anthocyanins that appear to be an essential polyphenolic compound. The grape seed contains numerous chemical compounds such as vitamin E(Zhan et al. 2016), linoleic acid, flavonoids (resveratrol, quercetin, and catechin), and polyphenols (flavonoids, phenolic acids, phenolic alcohols, stilbenes, and lignans(Kanaya et al. 2014), B4, and B6 procyanidins, and gallate 2 trimmer(Jeyabalan 2014; Mak et al. 2013). Nanoparticles play a critical role in various biological applications apart from specific natural phytochemicals. Synthesis of nanoparticles by biological process paves the way for the detection of cancer in medical treatment. The synthesis of nanoparticles using the green method is yet another promising challenge in the future

INSILICO PHYLOGENETIC ANALYSIS AND DOCKING STUDIES OF HEXOSE TRANSPORTER IN PLASMODIUM FALCIPARUM

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ABSTRACT

In silico analysis, it helps in collecting biological data, identification of new genes and also used for studying evolutionary relationships and functional mechanism. (Jaco De Rider, 2006). CONSURF tool was used to analysis the phylogenetic tree for the protein 6M20 (Plasmodium falciparum Hexose transporter). This information can be used for the identification of a genomic sequence tag, matching the glucose transporter family using BLAST tool (Rina H, Gunawan P.W. 2012). 6M20 is a transporter protein that act as a glucose carrier to the parasite for its growth and development. In this silico study, the active compounds of PfHT1 are screened, which is responsible for glucose transportation and to inhibit it using docking study. HIV protease inhibitors, cancer inhibitors, neem inhibitors and various other malaria inhibitors were used as ligands for the docking analysis. The structure was obtained from PubChem and docking analysis was done using autodock vina tool. Each ligands affinity towards the protein was studied and compared. 6M20 is actually conserved among most other species so, even if the parasite mutates, this transporter protein remains the same.

Key words: Phylogenetic tree, Autodock Vina, PfHT1, Plasmodium Falciparum.

INTRODUCTION
1.1 Phylogenetic tree

A protein is not a single term, it's a big family where all members within a protein family are related by a phylogenetic tree. The phylogenetic tree is helpful for inferring the evolutionary history of the protein family. A phylogenetic tree consists of a root, where the last common ancestor of a protein family present, followed by branches whose lengths corresponds to the number of substitutions and finally tips that represents modern sequences. Using the data from the tree it is possible to reconstruct the ancestral sequences and, these sequences can be used for homology modelling (when we do not know the structure for a particular protein, we can create one new structure using the data of similar protein that is available on the phylogenetic tree). And we can also compare trees to reveal similar evolutionary history between different protein families. In this paper I have experimented and analyzed the phylogenetic data for the protein 6M20 (plasmodium falciparum hexose transporter) and have found the closely related organism from the data obtained.(Charles J.W., Richard J, et.al. 2020).

1.2 Origin of malaria and molecular docking

Anopheles mosquitoes, that is well known for causing deadly disease called malaria, which basically feeds onto human blood only when she is pregnant. There are five different parasites that are responsible for causing malaria namely, P.falciparum, P.vivax, P.ovale, P.malariae and P. knowlesi. Among which plasmodium falciparum is known to be very virulent and its keeps on mutating. (T Triglia, J Thompson,et.al 2feb2001). The parasite within the mosquitoes is known as gametocytes and later when it enters human blood it is termed as sporozoites.

This parasite ride to the blood stream seeking its first target i.e., the liver which act as the core of human body's blood filter system. Kupffer cell present in liver is the entry point for the parasite into liver tissue. The parasite starts feeding the glucose present in the cell and starts multiplying asexually within the liver cell and kills the host cells. The newly generated cells are

GOLD NANOPARTICLES AND THEIR APPLICATIONS IN TUMOR DIAGNOSIS AND TREATMENT

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Abstract:

Because of their unique basic features, gold nanoparticles (AuNPs) have been extensively explored and employed in the field of tumour diagnostics and therapy. There must be a thorough investigation of all aspects of AuNPs' natural features and the connections between these qualities to improve their use for tumour detection or therapy. Physical and chemical aspects of the natural features of AuNPs were discussed. The LSPR, radioactivity, and high X-ray absorption coefficient of AuNPs are among the physical features that are commonly exploited in tumour diagnosis and therapy. Unlike many other nanoparticles in chemicals, AuNPs may establish stable chemical interactions with S- and N-containing groups, which is a distinct benefit. For example, ligands or polymers with specified functions can be attached to AuNPs using this method. AuNPs' biocompatibility, targeting, and drug delivery are greatly improved as a result of these surface changes. The intrinsic connections and physicochemical features of AuNPs were comprehensively summarised in this review. The most recent advances in fundamental research and clinical studies that make use of these features will be discussed next. We also go through the challenges to be faced and possible solutions along the way from basic laboratory research to clinical application. Finally, it was determined whether or not the findings could be translated into clinical trials. Our goal is to help oncologists better leverage the remarkable physicochemical features of gold nanoparticles.

Characterization of Extracellular Polymeric Substances (EPS) produced by *Pseudomonas aeruginosa*

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Abstract

Recently many investigations have been carried out in microbial biofilms. Biofilms produced by microbial species has fascinated application in industries. In this present study, *Pseudomonas aeruginosa* isolated from sputum and urinary catheter and screened for biofilm formation. The extracellular polymeric substances (EPS) produced by microbes are composed of biopolymers involving polysaccharides, nucleic acids, lipids, proteins and humic substances. Morphology of the *Pseudomonas aeruginosa* EPS was characterized by HR-TEM and FTIR. Antibacterial activirty of EPS produced from *Pseudomonas aeruginosa* was examined by disc diffusion method against *Staphylococcus aureus and Acenatobacter baumannii*. Environmental factors influencing EPS production such as temperature (22 ºC and 31 ºC), pH (5.5, 7.0 and 8.5) and incubation time (24hrs, 48hrs and 72hrs) were monitored. The potent EPS production by *Pseudomonas aeruginosa* was observed at temperature 31 ºC, pH-8.5 and incubation period of 72 hrs. Crude EPS and dry EPS produced in optimum conditions were quantified by total protein and total carbohydrate concentration.

Keywords: *Pseudomonas aeruginosa*, EPS, characterization, antibacterial activity

Introduction

It has long recognised that bacteria can switch from planktonic unicellular organisms to sessile multicellular communities known as biofilms (1, 2). Microbial biofilms pertain its integrity and is protected by a matrix composed of microbes isolated from polymeric compounds called extracellular polymeric substances (EPS) (3). The biosynthesis of EPS is believed to play a crucial role in enhancing the initial attachment of cells to solid surfaces, synthesis and maintenance of microcolonies, structure of mature biofilm and increased biofilm resistance to disinfectants and environmental stress (4, 5, 6). EPS compounds belong to different classes of macromolecules such as polysaccharides, proteins, nucleic acids, glycoproteins and phospholipids (7, 8). EPS is known to be the efficient factor enhancing the biofilm formation in microbes. Recent studies evaluated that mostly exo-polysaccharides, extracellular proteins and extracellular DNA are responsible for the morphology and structure of the biofilm matrix (8, 9, 10). From a medical perspective, it was observed that the attached bacteria on catheters, lenses or implants are of the major concern which causes serious infections (11). In this present study, we investigate the extraction of EPS from *Pseudomonas aeruginosa,* its morphology characterization by HR-TEM and optimization at temperature (22 ºC and 31 ºC), pH (5.5, 7.0 and 8.5) and incubation period (24hrs, 48hrs and 72hrs). Antibacterial activity of crude EPS was evaluated and presence of bioactive compounds were analysed by FT-IR spectroscopy.

Materials and methods:

Isolation of bacteria:

Sputum, urinary catheters and hospital swab were collected from Pondicherry hospital. The isolation of organisms was performed by using serial dilution method.

Screening of biofilm bacteria:

Potent biofilm producer were screened by adherent assay using glass, rubber and plastic chips as surfaces (12). The surfaces were rinsed with acetone, placed in a detergent for 1 hr, washed with distilled water and dried for 1hr at 160 ºC. The chips were aseptically immersed into each of the sterile conical containing selected culture. The flasks were incubated at ambient temperature of 28 ºC for 24 hrs. At the end of incubation chips were removed and subjected for biofilm quantification using crystal violet binding assay (13). Efficient biofilm producer found in all the 3 surfaces was taken for further studies.

ISOLATION AND SCREENING OF THE EFFICACY OF PLANT GROWTH PROMOTING BACTERIA (PGPR) ON THE GROWTH OF GROUNDNUT PLANTS.

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Abstract:

Plants require macro and micronutrients for healthy growth. Among these nutrients nitrogen and nitrogen and phosphorus are highly essential. Naturally these compounds are provided by some of the soil organisms called plant growth promoting Rhizobacteria (PGPR).Rhizobia in root nodules of leguminous plants fix atmospheric N and convert it into plant assimilable compounds. Phosphate solubilising bacteria(PSB) release double form of phosphorus from the bound form. In the present study, nitrogen fixing bacterium and phosphate solubilising bacterium were isolated from agricultural soil and humus and were inoculated individually and in combination to pot-grown groundnut plants. Plant height and the number of the leaves produced were measured days after transplantation to pots.Height of all the treated plants was significantly greater than that of control plants.There was no marked difference in the number of leaves among the control and the treated plants.

KEYWORDS: Nutrients, Plant growth promoting bacteria, Groundnut plants.

Introduction

Nitrogen (N) and phosphorus (P) are among the most limiting nutrients for the growth of the plants. Inadequate P restricts root growth, the process of photosynthesis, translocation of sugars, and other such functions, which directly or indirectly influence nitrogen fixation by legume plants (Olivera *et al* 2004). The replenishment of N and P nutrients is mostly done through the application of inorganic fertilizer to the soil. However, the prices of nitrogen and phosphatic fertilizers have increased, particularly in developing countries. Therefore, it is very challenging for the farmers to supplement N and P fertilizers in the soil to avoid the nutrient deficiencies. Given the reported negative environmental impacts of chemical fertilizers as well as the increasing costs, and utilization of plant growth promoting rhizobacteria (PGPR), and rhizobia is advantageous for sustainable agricultural practices. Thus, one area of increasing interest is the use of microorganisms with the ability to solubilize the mineral and organic P (Khan *et al* 2006; Fernández *et al* 2007; Shiri-Janagard *et al* 2012) or to fix the nitrogen (Uribe *et al* 2012).

Phosphorus is an indispensible mineral nutrient for the growth and yield of the plants. So, large amounts of chemical fertilizers are applied to provide inorganic phosphate to the soil. It is estimated that nearly

ORIGINAL ARTICLE   OPEN ACCESS

Extraction of Chitin and Chitosan from Prawn Shell Waste

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ABSTRACT
Chitin is a natural polysaccharide made up of N-acetyl-D-glucosamine units linked through a β-(1, 4)-glycosidic bond and is produced by a variety of living organisms. Chitin is a major component present in the exoskeleton of arthropods cell wall of fungi and yeast. The most vital function of chitin is to provide strength and structure to the organism and protection. Chitin tries to exhibit more properties when it is converted into a chitosan. A chitosan is a linear polymer that consists of β-linked D-glucosamine and N-acetyl-D-glucosamine. These are non-toxic, biodegradable and biocompatible polymers. When chitins present in shells of crustaceans are treated with an alkaline substance like sodium hydroxide, chitosans can be obtained. Organisms like shrimp, crab, lobster, prawn, and squid also contain roughly about 14-35% of chitin. The present study was to extract chitin and chitosan from the shells of the prawn and convert these biological wastes into a useful product. Chemical methods like deproteinization, demineralization and decolorization for chitin, and further deacetylation for chitosan were used to extract the same from prawn shells. FTIR analysis of chitin and chitosan were also carried out to identify the functional groups present in it. India generates approximately 9.5 million tons of shell wastes per year. The whole idea is to recycle these wastes and make use of these as fibers, biofilms, affinity chromatography column matrix, plant disease resistance promoter, anti-cancer agent, wound healing promoting agent, antimicrobial agent, preservation of fruit, cosmetics and in pharmaceuticals, instead of dumping them and piling up the waste.
Keywords: Chitin, Chitosan, Exoskeleton, FTIR, Biocompatible polymers.

INTRODUCTION
Chitin is typically a natural biopolymer predominantly found in the exoskeletal structures of a variety of crustaceans [1]. Chitin is a polymer of amino sugars and creates a very hard and tough outer shell in various organisms for protection [2]. Consumption of chitin externally through diet serves as a tremendous source of insoluble fibers by providing prebiotic properties to the flora present in the gut [3, 4]. The enzyme responsible for breaking down chitin is known as chitinase [5]. This enzyme is required by insects and other crustaceans when they undergo molting [6]. Humans express two kinds of chitinases called chitotriosidase 1 and acid mammalian chitinase [7, 8]. They play a role in the destruction of cell walls of pathogens entering our body. Chitosan is a derivative of chitin and tends to exhibit even greater properties than that of chitin [9]. Chitosan is made up of two monomers- glucosamine and N-acetyl-glucosamine [10]. Chitosans are soluble in water; hence they are biodegradable and biocompatible polymers [11]. They have a wide range of applications in the food and biomedical industry [12, 13]. Crustaceans and arthropods are the main and rich sources of chitin [14]. Tons of waste shells obtained from prawns get dumped. Chitin is acetyl glucosamine groups while chitosan is obtained by removing enough acetyl groups and they are highly soluble in diluted acids. Chitosan is a biodegradable polymer has wide application in pharmaceutical and biomedical industrial, wastewater treatment and food industries [15, 16]. Chitin exhibited anti-proliferative capacity against colon cancer cell HCT116 with its unique feature of degree of acetylation chitosan showed high anti-tumour activity [17]. Chitin polymer films have greater tensile strength compared to commercially available films [18]. The objective of the present study is to extract chitin and chitosan from the waste shells by chemical methods.
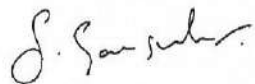
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Patient Monitoring in Healthcare IoT: A Research perspective of Security and Privacy Challenges, Threats and Solutions.

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Abstract

The Internet of Things (IoT) transformed the healthcare business in allowing patients, medical equipment and healthcare professionals to communicate and interact with one another. Consequently and established on data collected from linked items, enhanced healthcare and continuous monitoring of patients are possible. This permits medical practitioners to accumulate data and without any intervention, decision-making principles are applied to enable early therapeutic participation. In healthcare IoT, this article discusses the importance of IoT healthcare systems in delivering enhanced patient care established on treatment of patients and observation. Sadly, the safety risks connected with connecting these devices to the Internet are often neglected by medical companies. The healthcare IoT system has significant security and privacy issues because of the large quantum of equipments and the network's dynamic nature, as the system is frequently subjected to attacks and threats that may affect the system. This paper offers an overview of the IoT in healthcare and its security and privacy concerns. At last, it proposes a Physical Unclonable Function (PUF) authentication system to deal with the numerous privacy and security concerns. This study also aims to examine security concerns in various levels of IoT and make recommendations in order to guarantee privacy and security.

10925

1.Introduction

The IoT is a web of physical technology like automobiles, gadgets, hospitals and buildings that could be accessed via internet [1]. Innovative technologies are being created to aid and enhance healthcare's present structure, thanks to growing advancements in internet and computer devices [2]. Healthcare is a type of medical service that involves the organization of audiovisual and information content as well as the handling of medical archives. The IoT integration done in health monitoring methods are difficult due to its large volumes of data collected and the need for security to protect from hackers regarding the patients' personal information [3]. In this current age, patients are monitored using IoT devices on a 24/7 basis [4]. Even though these gadgets are little in size, they possess an ability to monitor those patients utilizing it. The patient could be watched distantly during an emergency and appropriate steps are performed.These gadgets can identify irregularities and give emergency assistance

Title: Cluster-based convolution process on big data in privacy preserving data mining

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Abstract: The main intension of this paper is to privacy preserving-aware over big data in clouds using KNN and MapReduce framework. This paper consists of three phases such as, MapReduce phase, clustering the map reduced data and evaluation phase. In MapReduce phase, we are splitting the input data after the splitting process we are including a k-means clustering algorithm to cluster the map reduced data. Then, we are performing a convolution process to the dataset and create a new matrix. Once it is over, the privacy-persevering framework over big data in cloud systems is performed based on the evaluation base. In evaluation module, deduplication is performed with the aid of the KNN algorithm. In this phase using the KNN technique to check the duplication of data based on the threshold. Thus the non-duplicated data's are stored in cloud database, which is improving the utility of the privacy data.

A SURVEY ON THE RESEARCH CHALLENGES OF BIG DATA ANALYTICS

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Abstract: In the recent years, the rapid growth of science and technologies gave a way to adoption of SMAC. SMAC is Social, Mobile, Analytics and Cloud where four technologies are currently driving the entire universe. Also, permeate physical spaces and lives of human and produce huge amount of heterogeneous data known as Big Data for analysis. Human sourced information from social network, processed mediated data from business systems and machine generated data from Internet of Things, Web, healthcare sectors are the primary sources of big data. The heterogeneous data is transformed into a precious knowledge by using artificial intelligence (AI) and machine learning (ML). Further the generated knowledge will play a vital role in decision making, system performance boosting and optimum utilization of resources. Big data mining attracted researchers that make use of Hadoop. MapReduce is the programming paradigm used for processing big data. It is done in distributed environment with parallel processing. This paper focuses on challenges encountered in handling big data which are utilized by the various researchers and show case the issues faced by them.
Keywords: Big Data Analytics, DBSCAN, Partition Around Medoids, Markov Random Fields, Support Vector Machine

I. INTRODUCTION

The importance of data in day-to-day escalation plays a crucial role in many fields. Organizations know what they are looking for to compete with their competitors. The goal is to collect the data what is needed and go after the data to meet the objectives. The data are collected for the analysis and predictions from various sources. These collected data was huge in volume. This has coined the term "Big Data". These data are processed in such a way that traditional data mining techniques are unable to analyze. Data is scrutinized to diagnose behaviors, patterns and market trending information to make decisions. The bulk of data generated comes from three key resources – social data, machine data and transactional data. The figure 1 represents the exponential growth of big data by the year 2025.

Characteristics of big data: Big data are treasure trove for research and computational tools are developed to extract knowledge from such data. The four main features of big data are volume, velocity, variety and veracity. Volume refers to the size of data that are used to archive. The size of data is important in determining the value out of data and also based on the volume a particular data is considered big data or not. The velocity refers to the speed at which data is generated and processed. The data flows from sources like social media, application logs, business processes, smart IoT devices is enormous and continuous. In an enterprise, with the development of sensors, smart devices, and social collaboration technologies data in an organization has become complex.

Stress Coping Skills and English Language Attitude of College-Going Students in Chennai

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Abstract

Stress and stress coping skills of college students during their learning process are novel topics among the research scholars searching for the psychological reasons behind the problems of adolescents in educational institutions. As adolescents are in an age of transition, stress-related problems are very common among them and their developmental process in cultivating their identity in adjusting to the environment. This paper provides the link between the stress coping skills of college students in their English learning process. This has proved that a moderate correlation exists between stress coping skills and the English learning attitude. The alarming rate of suicides among college students has motivated the researcher to bring out the facts between these two variables. The differences, associations, and relationships between these two variables are statistically proven with gender, community, Location, Residence, etc. The teaching communities, parents, and educators need to understand this fact to help the students cope with their learning process.

Keywords

Stress, Coping Skills, English Language, Students in Chennai, Brain, Nervous System, Physical Condition of The Body.

Life Coping Skills & English Language Attitude among College Students in Chennai

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Abstract

Man is a social animal. Any education aims to form the person to live following others. It is an essential quality during the adolescent period, especially for college students. This study focuses on the life coping skills of students such as home, health, social, emotional and educational in their developmental period along with their learning attitude, especially the English language in and around Chennai. Becoming a person of sociability will enhance their learning attitude. The major problems concerning adjustment include a series hierarchy and differences in Emotional, Social, Health, Home and Educational realms. Though every human being is responsible for growing with their identity, educational institutions need to provide a systematic and scientifically proven psychological ground or avenue to foster integrated human persons. According to Erickson, a healthy personality is the ultimate task of any young person during adolescence.

Keywords

Life Coping Skills, English Language, Attitude Among College Students in Chennai; Determines the Emotional Growth, Ability of A Person.

Confederation of Ecology and Literature in the Selected Poems of Mary Oliver

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Abstract

Eco-criticism has evolved into a system of interlinking literature and environment by the postmodern writers of Twenty First century. It made the contemporary writers to expose the possibilities of creating awareness through their writings. Environmental issues become the highly discussed in global arena where literature also has come forward in support of bringing cohesive and sustainable development through literary pieces. Eco-criticism allowed the readers to identify and question the contemporary misgivings against natural wrongdoings. Mary Oliver is one of the environmentalist and poet who penetrated the idea of providing equal space for every species through his writings. He, as a poet brought out the problems and sufferings of multiple issues faced by the natural livings and its repercussions on human lives. The articles deals with the eco-critical issues dealt in his selected poems and how does he expose to the world through his works.

Keywords: Eco-criticism, Literature, environment, ecology, human lives.

INTRODUCTION

"The earth is what we all have in common"

-Wendell Berry

The world has seen tremendous changes in various fields. But, one common notion on literature still remains the same. It has a power to reproduce the hidden energy it has in it. Sometimes, the literary pieces produced by well-known writers use it as a medium to transform the modernistic society through their pen and paper. This is the base for the emergence of criticism. According to Wikipedia, literary criticism can be defined as the study of evaluation, interpretation of literature and it's often influenced by literary theory to achieve its goals and methods (Wikipedia contributors, 2022). The belief in the literary works which can bring out the influence of various changes have achieved what it intended by the writers. A critical piece can be a tool to improvise the upcoming generation's ideas and it can also substitute the treasures of knowledge the text has it. The literary criticism has seen various theories and theorists, right from the structuralism to post-modernism etc. But, the contemporary learners started to induce multiple new theories into literature and started to use it in modern literary pieces. One of the important theory which evolved into this category of new dimensions to literary pieces is Eco-criticism.

The modern innovations which were created by human for the past two to three decades made the people to go against the nature. Sometimes, it has no other choices than accepting what it gives back by the nature. This is how, the eco-criticism in the context of ecology emerged in the modern period. Nature in the twentieth century has represented as the representation of symbolic or ideological properties of the world, not as an image which it has dealt (Kern.R, 2000). In research from Clemens on the glossary

ENLIGHTENING WILLIAM SHAKESPEARE'S *KING LEAR* THROUGH CLT IN ELT FOR THE MILLENNIUM LEARNERS

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Abstract

This research article mainly deals with the magnitudes of teaching William Shakespeare's *King Lear* for the contemporary learners through the innovative pedagogy - Communicative Language Teaching (CLT); creates a paradigm shift in the field of English Language Teaching (ELT). English Literature and Language are inseparable, considered being one of the practical requirements for enhancing the profession besides articulate the observations appropriately. It also focuses the contemporary learners' sanguine qualities such as grooming, etiquette, leadership skills, and effective communication which broaden the intention of the beginners to generate a strong aspiration towards the English Language as well as the literature with role-play, games, pair-work etc., The implication of CLT with William Shakespeare's *King Lear* is a paradigm shift in generating the contemporary learners to communicate, comprehend, listen and write in English effectively which also flourishes self-confidence and commitment towards excellence. It chiefly helps out the individual to be adept in all circumstances including the workplace with towering qualities of aptitude and attitude. It further aims at various missions and pact with the individuals deftly enhances the lifestyle of the personality. The act of implementing CLT for teaching William Shakespeare's *King Lear* is essentially the ground-breaking pedagogy as well as the exchange of various proficiencies and adeptness by inculcating moral ethics, co-operation, tolerance, self-discipline, learning-willingness, attitude awareness etc., The pedagogy of teaching William Shakespeare's *King Lear* through CLT plays a crucial role to engrave skillful carvings in the personality of the contemporary learners.

Key Words: *Communicative Language Teaching (CLT), English Language Teaching (ELT), Contemporary Learners, Paradigm Shift, Pedagogy*

Introduction on Communicative Language Teaching

Communicative Language Teaching (CLT) is one of the important methodologies in the field of English Language Teaching (ELT) which progressed in the 1970s and early 1980s in both Europe and the United States. It is otherwise acknowledged as the *Communicative Approach*, particularly highlights the teaching technique which bridges the interaction style of learning in the target language among the learners with the predominant aspirations. The foremost concept of CLT is to generate opportunities for the learners in focusing not only on language but also the learning process in the classroom by sharing their experiences, views and ideologies through fluency-based activities like role- plays, use of grammar, pronunciation practices, games, pair-works, task based communication activities, self-correction discussions, etc., CLT is a model of learning with eclectic,

STUDY OF ANTI-FUZZY GK SUB ALGEBRA AND ANTI-FUZZY GK IDEAL

J.KAVITHA AND R.GOWRI

ABSTRACT. In this paper, we establish the theory of Anti-fuzzy GK sub algebra and Anti-fuzzy GK ideals. We defined lower-level set of GK algebra and discussed some of its aspects in this paper.

1. INTRODUCTION

In 1991, the fuzzification of BCK algebras was introduced by O.G. Xi [10] discussed its characteristics and its properties. In 1993, the concept of Fuzzy BCI algebra was introduced by B. Ahamed [1], in this study he explored the properties of Fuzzy BCI algebras. In 2003, Ahn and Bang [2] introduced fuzzified B algebra and in this article, they classified the sub algebras by their family of level sets. Many authors [3-7] have introduced new algebraic structures and fuzzified the same and obtained many interesting results and also derived new concepts of that new algebraic structure. Inspiring by these kinds of articles, we introduced new algebraic structure namely GK algebra [8]and fuzzified [9] it. In this paper we discuss about Anti-fuzzy GK sub algebra and Anti-fuzzy GK ideal and brought very interesting results.

2. ANTI-FUZZY GK SUB ALGEBRA AND ANTI-FUZZY GK IDEAL

Definition 2.1. A fuzzy set ρ_{gk} in GK algebra T is said to be an anti-fuzzy sub algebra of T if

$$\rho_{gk}(i \circledast j) \leq max\{\rho_{gk}(i), \rho_{gk}(j)\}, \text{ for all } i, j \in T.$$

Theorem 2.2. *Let ρ_{gk} is an anti-fuzzy sub algebra of GK algebra. Prove that $\rho_{gk}(1) \leq \rho_{gk}(i)$, for any i in T.*

Proof. We know that $i \circledast j = 1$ from the definition of GK algebra
Now, $\rho_{gk}(1) = \rho_{gk}(i \circledast j)$
$$\leq max\{\rho_{gk}(i), \rho_{gk}(j)\} \leq \rho_{gk}(i)$$
Therefore $\rho_{gk}(1) \leq \rho_{gk}(i)$. □

Definition 2.3. Let ρ_{gk} be any fuzzy subset of a GK algebra and let $q \in [0,1]$. The set $\Gamma(\rho_{gk}, q) = \{i \in T : \rho_{gk} \leq q\}$ is called a lower-level subset of ρ_{gk} in T.

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Direct Product of GK Algebra

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Abstract

Objectives: To find the direct product of an algebraic structure na algebra. **Methods/Findings:** We derive some important results in w product of two GK algebra is again GK algebra as a particular cas derive the general case of the same then after investigate the direct kernel of GK algebra.

Keywords: Direct Product; Kernel; isomorphism; Homomorphism;

1 Introduction

BCK-algebras and BCI-algebras are abridged to two B-algebras. The BCK coined in 1966 by the Japanese mathematicians, Y. Imai and K. Iseki[1], Tw are created from two different provenances. In 2007, the new algebraic struct said to be BF algebra, was explored by Andrze J Walendziak[2] which is a ge of BCI/BCK/B-algebras. In 2008, the generalization of B algebra called as initiated by Kim & Kim[3]. In 2009, another algebra which is generaliz algebra and dual BCK/BCI/BCH algebras, namely CI algebra was initiated I Meng[4].

Direct product plays an important role in algebraic structures. In 2 Widianto, Sri Gemawati, Kartini[5–7] were discussed about the Direct pr algebra. Likewise, many authors have discussed this topic in their work by these, in this paper we discuss about direct product of GK algebra ar some interesting results. In 2018, we introduced the new algebraic structure algebra[8] and discussed about its characteristics and investigated some re paper we discuss about the direct product of GK algebra and investigate its

2 Direct product of GK algebra

2.1 Definition

Let $(M, \circledast, 1_M)$ and $(N, \circledast, 1_N)$ be GK algebras. Direct product $M \times N$ is structure $M \times N = (M \times N; \otimes ; (1_M; 1_N))$, where $M \times N$ is the set $\{(m, n)/m$

and $\otimes$ is given by

$$(m_1, n_1) \otimes (m_2, n_2) = (m_1 \circledast m_2, n_1 \circledast n_2)$$

This shows that the direct product of two sets of GK algebra M and N is denoted by $M \times N$, which each (m, n) is an or

2.2 Theorem

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Unitary Cayley graphs whose Roman domination numbers are at most four

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ABSTRACT

Let R be a finite commutative ring with nonzero identity. The unitary Cayley graph of R is the graph obtained by letting all the elements of R to be the vertices and defining distinct vertices x and y to be adjacent if and only if $x - y$ is a unit element of R. In this paper, we characterize all unitary Cayley graphs with Roman domination number at most four.

1. Introduction

The Roman domination number of a graph, introduced by ReVelle in [11, 12], is a variant of the domination number. We begin by describing this variant. Let G be a simple graph with vertex set $V(G)$. Suppose V_0, V_1 and V_2 are subsets, possibly empty, of $V(G)$ which are mutually disjoint such that their union is $V(G)$. By a function $f = (V_0, V_1, V_2)$ on G, we mean a function $f : V(G) \longrightarrow \{0, 1, 2\}$ such that $f(v) = i$ for all $v \in V_i$ ($i = 0, 1, 2$). A *Roman dominating function* on G is a function $f = (V_0, V_1, V_2)$ on G satisfying the condition that every vertex u for which $f(u) = 0$ is adjacent to at least one vertex v for which $f(v) = 2$; that is, every vertex in V_0 is adjacent to at least one vertex in V_2. If $f = (V_0, V_1, V_2)$ is a Roman dominating function on G, its *weight* is defined to be $\sum_{v \in V(G)} f(v) = |V_1| + 2|V_2|$. A $\gamma_{\mathfrak{R}}$-*function* on G is a minimum Roman dominating function on G; that is, a Roman dominating function on G whose weight is minimum. The *Roman domination number* of G, denoted by $\gamma_{\mathfrak{R}}(G)$, is the weight of a $\gamma_{\mathfrak{R}}$-function on G.

Constructing graphs from commutative rings was initiated by Beck [2] through his work on zero-divisor graphs. This led to the constructions of various types of graphs associated with commutative rings. One such graph is the unitary Cayley graph. Let R be a finite commutative ring with nonzero identity and denote the set of unit elements of R by $U(R)$. The *unitary Cayley graph* of R, denoted by $G(R)$, is

the simple graph whose vertices are all the elements of R, and distinct vertices x and y are defined to be adjacent if and only if $x - y \in U(R)$. Unitary Cayley graphs were introduced in [4] and their properties were investigated in [1, 5–8]. More specifically, the chromatic, clique and independent numbers of $G(R)$ are studied in [5].

In this paper, the Roman domination number of unitary Cayley graphs is studied. We characterize all finite commutative rings with nonzero identity whose associated unitary Cayley graphs have Roman domination number at most four. This characterization is the main result of this paper and is stated as follows:

Theorem 1.1. *Let R be a finite commutative ring with nonzero identity. Then $\gamma_{\mathfrak{R}}(G(R)) \geq 2$. Moreover, the following properties are satisfied:*

a. *The equality $\gamma_{\mathfrak{R}}(G(R)) = 2$ holds if and only if R is a field.*

b. *The equality $\gamma_{\mathfrak{R}}(G(R)) = 3$ holds if and only if R is a local ring with maximal ideal $\mathfrak{m}$ for which $|\mathfrak{m}| = 2$.*

c. *The equality $\gamma_{\mathfrak{R}}(G(R)) = 4$ holds if and only if either R is a local ring with maximal ideal $\mathfrak{m}$ for which $|\mathfrak{m}| \geq 3$, or $R \cong \mathbb{Z}_2 \times \mathbb{F}$, where $\mathbb{F}$ is a field.*

To prove Theorem 1.1, we first present some preliminaries and auxiliary lemmas in Section 2. The proof of Theorem 1.1 itself will be given in Section 3.

Ethanol Production with Natural Carbon Sources Using *Saccharomyces* sp

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Abstract:

    Bioethanolisthe most commonly used biofuel to minimize emission of green house gases. When compared to other micro organisms, yeast especially *Saccharomycescereviceae* is the common microbe used in ethanol production because of its high productivity, tolerance and ability to fermenta wide range of sugar. Ethanol produced by yeast has wide applications so it becomes important to look out economical and feasible method to increase the production of alcohol. Carbon being the most important medium component, as it is energy source for the microorganisms it is important to use the readily available cheaper carbon source for the production within short duration. Different fruit juices honey, dates syrup and molasses were used as natural carbon sources and the effects ofco-factors on alcohol production by *Saccharomycessp*. were studied. Higher protein concentration effects production of alcohol. Yeast cells exhibits higher ethanol production when high percentage of carbohydrate is provided but higher sugar concentration has inhibitory effects on yield of ethanol.

Keywords: Bioethanol, *Saccharomyces*sp., Carbon and Nitrogen source.

1.INTRODUCTION:

The continuous increase in the population has directly upsurge the demand of energy from fossil fuels, which are exploiting at a great speed. Thus, there has been renewed interest in the expansion of alternative energy sources. A significant reduction in greenhouse gas emissions is expected to be achieved through alternative fuels, worldwide availability of raw materials and capability of being produced from renewable feedstocks [1].

Bioethanol has several advantages as a fuel energy, higher octane number (108), evaporation enthalpy, and flame speed and a wider range of flammability are acclaimed. As a result of these characteristics, fuel ethanol gives a higher compression ratio (CR) and a shorter burning time, providing theoretically higher efficiency than that of gasoline in an integrated circuit (IC) engine [2]. A rise in ethanol production has also been observed in countries such as China and India. The dramatic rise is primarily due to the fast depletion of global oil resources and deteriorating environmental conditions [3]. Currently around 80% of the total world ethanol is produced from the fermentation of simple sugars using yeast strains [4]. In countries like USA, India, China, Brazil and Pakistan bio-ethanol is being used as an alternative fuel, among which Brazil is the main producer and consumer of bio-ethanol.

Conventionally, industrial production of ethanol as fuel is accomplished by *Saccharomyces*

Streptomyces sp Isolated from Vermicasts: Statistical Optimization of Culture Conditions for the Production of Bioactive Compounds

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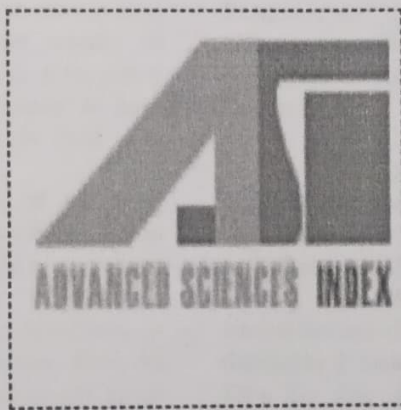
Abstract

In the present work, the culture conditions appropriate for the maximum production of bioactive metabolites by Streptomyces spp. isolated from vermicasts were tested. Two of the *Streptomyces sp*. isolated from vermicasts collected from Madhavaram Botanical Garden and Agriculture farm from Thanjavur were subjected to various environmental optimization conditions. These isolates were subjected to various physicochemical parameters and the optimum conditions were identified for the maximum production of bioactive compounds with antimicrobial activity. US1 showed a maximum biomass production in Starch casein broth medium with a higher zone of inhibition against *Bacillus subtilis*; whereas, US3 showed a maximum biomass production and bioactive compound production in nutrient broth. Both isolates US1 and US3 showed maximum cell growth and zone of inhibition in the medium containing starch as a carbon source. For US1, maximum growth and zone of inhibition were observed in the medium supplemented with casein as a nitrogen source.

Keywords: Antimicrobial activity, Bioactive compound, Optimization, Streptomyces, Vermicasts.

Introduction

Earthworms are social animals and are crucial to maintaining a healthy soil ecosystem. They play an important role in rotting organic matter in the soil. As compared to termites, earthworms contribute more and have a better digestive system.Composting with vermicomposting uses specially bred worms for aerating the soil and converting organic matter into compost. In order to produce worm castings, worms feed on the bacteria growing on the waste organic matter and pass it through their digestive system.An earthworm's excreta is rich in nutrients and humus, which is known as vermicompost. Microorganisms like actinomycetes and protozoa reside inside the gut of the earthworm (Jayakumar and Natarajan, 2012). Actinomycetes are Gram-positive bacteria whose DNA contains a high concentration of G+C. They produce a variety of secondary metabolites, including antibiotics. Actinomycetes isolated from terrestrial environments can be used to produce secondary metabolites (Saadoun and Gharaibeh, 2003). The majority of antibiotics are produced by actinomycetes (Arifuzzaman et al., 2010; Holkar et al., 2013).

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THE INFLUENCE OF AGE AND GENDER ON INVESTMENT BEHAVIOUR OF EMPLOYEES

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ABSTRACT

Investment plays a significant role in the development of a country's economy because it bridges a gap between money savers and borrowers. A recent survey exhibits that there was a drastic increases in the number of investors below the age of 35 and number of female investors in last 4 years. This study intends to examine the influence of age and gender on the investment behaviour of employees in Chennai. The extensive earlier literatures proved that Demographic factors are influencing the investment behaviour/ pattern though the concept of investment behaviour is a cognitive in nature. The data collected for this study is through primary source with the sample size of 150 employees. This study used Chi-Square test to understand the relationship between Age and Risk Aptitude & Gender and Risk Aptitude. The author adopts T-Test to examine the influence of Age and Gender towards the Type of Investment. Analysis of Variance (ANOVA) been adopted to understand the significance of Age and Gender towards the percentage of investment.

Key words: Risk aptitude, Investment Behavior, Investment Pattern, Demographic factors, Investment Decision Making.

BACKGROUND

In the sense of economy, an investment is the acquisition of goods which are not used today but in future to create wealth. In financial view, an investment is a monetory asset purchased with an intention to earn incomein future or the same be sold at a greater price tto earn profit.

The day-to-day usage of the term investment can mean a variety of things, but to a common man it usually refers to some sort of money obligation. For example, a commitment of money to buy a new fridge or vehicle is certainly an Investment from an individual's view point. But these are so in general and extended sense of the word, since rate of return calculation is not involved and there is no expectation of financial return or capital growth.

Financial investment is a specific form of the general and extended sense of investment. Investors to distinguish between the pseudo-investment concept of consumer and the real investment concept of the businessmen often use the term financial investment.

In a nutshell, the term financial investment would imply the employment of funds with the objective of obtaining additional income or growth in value of investment at a future date.

The Investment Behaviour of an Individual is influenced by various factors viz Demographic, Psychological, Behavioural, Economic and so on., But in this study, the author concentrates on the influence of demographic factor (with specific to Age and Gender).

METHODOLOGY

Objectives of the Study

This study aims to identify the association of twin Demographic factors viz Age and Gender towards type of investment, percentage of investment and risk aptitude of investors.

Sampling & Data Collection

Data for this study are collected through primary souce by circulating Questionnaire via Google Forms. The questionnaire for this study has been classified into 2 different part viz demographic questions and investment related questions. Likert scale questions have also been asked the respondents to assess the risk tolerance and motives of the investment. This study concentrates only on the employees in Chennai city. The author collected 150 respondents using Random Sampling Technique.

Variables

The Dependent Variable (DV) of the study are Age and Gender where as Type of Investment, Percentage of Investment and Risk Aptitude are the Independent Variables (IV) of the study.

ANALYSIS OF MOMENTS OF NARRATIVE IMPACT AND METAPHORS IN THE VOOT SELECT WEB SERIES 'ASUR'

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Dr.V.Mohanasundaram, *Associate Professor and Head, Department of Economics (UA), PSG College of Arts & Science, Coimbatore, Tamil Nadu, India*

Abstract

This article investigates the effects of web series on an audience, using an interdisciplinary empirical approach connecting film analysis and metaphorical mapping. It discusses the Voot Select web series 'Asur' directed by Oni Sen. The features of the web series that are relevant to the moments of narrative impact are determined on the basis of Wuss's analytical film model. The model postulates that films can be described as a combination of different kinds of narrative structures that predetermine the reception, which is conceptualized as a process of problem solving. The metaphors in web series are a type of narrative produced by multiple elements, as well as a mode of deduction based on real life. According to the related theories of metaphorical mapping, this study explores the analogical narrative process of images in this web series, as based on Gentner's structural mapping theory. In summary, this study is expected to serve as a reference for further exploration of the moments of narrative impact in the future. The establishment of the metaphors in this web series also evokes significant reactions among the audience.

Keywords: Empirical approach, Wuss's analytical film model, Gentner's structural mapping theory, moments of narrative impact and metaphors.

REVIEW OF LITERATURE

Most general-purpose extractive summarization models are trained on news articles, which are short and present all important information upfront in an organized manner. As a result, such models are biased by position and often perform a smart selection of sentences from the beginning of the document. When summarizing long narratives, which have complex structure and present information piecemeal, simple position heuristics are not sufficient enough (**Papalampidi, Keller, Frermann, & Lapata, 2020**)**.** Currently, this approach relies solely on textual information; further, it would be interesting to incorporate additional modalities such as video or audio. Audiovisual information could facilitate the identification of key events and scenes.

The features of the film that are relevant to the reception process, the so-called moments of narrative impact, are determined on the basis of Wuss's analytical film model. The model postulates that films can be described as a combination of different kinds of narrative structures that predetermine the reception, which is conceptualized as a process of problem solving (Suckfüll, 2010). The idea to conceptualize films and their reception as a process of problem-solving has led to the specification of moments of narrative impact. After the audience seeing the movie, significant reactions showed up in the heart rate data; also only partial reactions showed up in the skin conductance data.

The narrative messages involving images are much more rigorous than those from dictation or narration. Therefore, the means to construct story context in an animation narrative is more than the intuitive narrative of character language. Message transmission by hints seems to be an important technique of image narrative in a plot. Potential messages involve metaphors in rhetoric. When applied to an image narrative context, linguistic techniques have gone beyond the scope of literal modification

A NARRATIVE ANALYSIS OF THE AMAZON PRIME ORIGINAL WEB SERIES "PAATAL LOK"

*Dr.C.Sriram,
**Dr.V.Mohanasundaram,

Abstract

A critical look on the Amazon Prime Original Web Series "Paatal Lok", directed by Avinash Arun and Prosit Roy in 2020 gave the impression that it used some or all the principles of narrative construction postulated by Vladimir Propp in the realm of functions and categories of personae. A structural analysis of the content and communication channels peculiar to the art of cinema like sound and images has been effectively carried out and the results were discussed in this paper. The success factors of the Paatal Lok web series were constructed using this analysis and such studies will greatly help the online entertainment platforms in future.

Keywords: *Paatal Lok, Propp's functions, Structural analysis and Communication channels.*

INTRODUCTION

In any medium, a narrative is considered as a chain of events occurring in time and space and linked by causes and effects. The basic principle of the commercial cinema is that a narrative should consist of a chain that is easy for the spectator to follow. Narrative is a way of interpreting the world around us. In other words, it is a kind of "rewording of circumstances." Principles of narrative analysis were shown in Vladimir Propp's famous study, Morphology of the Folktales. In Morphology of the Folktales, first published in 1928, Vladimir Propp (1985) analyzed hundreds of Russian fairy folktales and then compiled a list of thirty-one functions and seven categories of characters. He found that these thirty-one functions of characters remained unchanged in all folktales. These thirty-one functions and seven categories contain theory-based representations for precise narrative analysis.

FOCUS

This case study is about the Amazon Prime Original web series "Paatal Lok" (2020) directed by Avinash Arun and Prosit Roy. The motive of the present analysis has been to find out there exists any relation between Propp's narrative units and the syntagmatic formation of "Paatal Lok" (2020). Syntagmatic analysis studies the surface structure of a

Received and Perceived Status of Health Management Information System (HMIS) Software: A Structural Equation Model (SEM) Approach

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Abstract

More thansupply the demand for health care usually determines the design of public health services. This is more so when technological developments, including that of information and communication technologies, pierce through the process of utilization of any service by the public. Although prior research papers have focused on the factors that impact on the adoptionof information technology, there are limited empirical research works that simultaneouslycapture technology factors (TAM, TAM2) and end-user development specific factors (perceived technology usage and intention to recommend) helping healthcare professionals to adopt Health Management Information System (HMIS) software in the healthcare environment. To fill this gap, the present paper used the Technology Acceptance Model (TAM), the extended TAM model (TAM2) and identified the important determinants of user acceptance perceived risk and trust. This is specifically undertaken in order to describe ESIChealthcare professionals behavioral intention to adopt HMIS software services. The study was conducted in the Employees' State Insurance Corporation (ESIC) main hospital and dispensaries in the Tirunelveli sub-region. The required data were collected from 171 ESIC healthcare professionals in the Tirunelveli sub-region. AStructural Equation Model (SEM) approach was used. Convergence anddivergence with earlier findings were found, confirming that Perceived Usefulness (PU), Perceived Ease of Use (PEOU), social influence, facilitating conditions and training hadsignificant influence on the intention of healthcare professionals to adopt HMIS software. The study provideda basis for further refinement of technology adoption model.Improvingperceived usefulness factor (perceived long-term usefulness) may turn healthcare professionals towards adoption of HMIS.

Keywords: *Information Technology, Technology Acceptance Model, Employees' State Insurance Corporation, Perceived Usefulness and Perceived Ease of Use.*

Introduction

In recent years, there has been growing global emphasis on the need for Information Systems (IS) in all sectors. The elementary conditions that enable global competition in the information society are the development of communication technologies and the importance of the administrative information flows and the inter-institutional communication networks. Therefore, more emphasis is placed on flexible and cost efficient information systems in the competitive presentation of public services. Information systems are one of the means by which public institutions can save economic indicators, such as time and cost. Assuring and promoting quality in health care services continues to be a priority for any health care system. Besides evaluationof health status through morbidity andmortality estimates, there has been equalemphasis

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ADOPTION OF HEALTH MANAGEMENT INFORMATION SYSTEM (HMIS) IN ESIC MAIN HOSPITAL AND DISPENSARIES IN TIRUNELVELI SUB-REGION: HMIS USAGE BY URBAN HEALTHCARE PROFESSIONALS VS RURAL HEALTHCARE PROFESSIONALS

*Dr.C.Sriram
**Dr.C.Pichaandy

Abstract

E-health solutions have already been embraced in the developing countries and it has brought about superb advancements in the healthcare industry. The researcher surveyed the adoption of Health Management Information System (HMIS) in a large-scale population based study, involving a representative sample of 171 healthcare professionals in the ESIC main hospital and dispensaries in the Tirunelveli sub-region. The issues examined include the HMIS infrastructure in place for the urban and rural ESIC healthcare professionals, the knowledge of the healthcare professionals in terms of the benefits gained through the use of HMIS software in the ESIC environment and the challenges posing barriers to the adoption of HMIS among the healthcare professionals in the ESIC main hospital and dispensaries. Consequently, suggestions on how to tackle the various adoption challenges have been addressed in this paper.

Keywords: *Health Management Information System, developing countries, healthcare professionals and adoption.*

INTRODUCTION

Health Management Information systems are usually designed to meet specificpurposes. The functions of a health management information system areto monitor, inform and evaluate a health system and to makeclinical and management decisions. HMIS allows physicians or hospital administrators to makeinformed decisions since it allows daily workflow of medical services in all the departments within the hospital to beevaluated and monitored. Patient records are also updated andtherefore made immediately available to the doctors and healthcare professionals.A technology assessment was therefore carried out withinthe urban andrural doctors and healthcare professionals in the Employees'State Insurance Corporation (ESIC) main hospital and dispensaries in Tirunelveli sub-region to investigatethe HMIS adoption process. Consequently, suggestions on how to tackle the various adoption challenges have also been addressed in this paper.

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A Conceptual Study on effectiveness of advertisement on the purchase of FMCG – Health Drinks

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Abstract:

As the FMCG companies are spending a lot fatty cheques for advertisement. But how far the advertisements given were effective in converting potential target market as customersis still agrey area. This research paper is aimed to find out the effectiveness of advertisement on the purchase of FMCG – Health Drinks. The conceptual research method was employed. After the extensive study of review of literature, it is concluded that the advertisement need to follow some features to be effective to reach and stimulate the target market. It is also found TV and Print are the effective mediums of communication.

Keywords: FMCG, Health Drinks, Effective Advertisement

Introduction: In the recent years manufactures producing Health drinks are playing an important role in full filling the need of the consumers. In the mid of covid-19, people awareness started shifting from soft drinks to health drinks. This gave a huge surge of sales volumes of health drinks and inception of new health drinks companies. Health Drinks Manufacturing companies are clueless about how far their advertisements reach the target audience and stimulate the purchase decisions made by consumers/Buyers. Effectiveness of advertisement on the purchase of FMCG health drinks is not an easy task for any organization. Companies spend a lot of money for the purpose of various marketing Communications, out of which advertisement comes at the top of other marketing communication in terms its wide reach and frequency. This study explores effectiveness of advertisement as marketing communication on the purchase of health drinks.

INFLUENCE OF E-HRM PRACTICES OVER OUTCOMES
OF IT COMPANIES IN CHENNAI

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Abstract

IT Firms face more significant problems than ever before due to the growth of e-business. By integrating technology in the human resources department, firms are looking for better ways to conduct their HR operations. Upper-level management of IT firms fully understands the value of IT technologies to achieve corporate objectives. Thus, this research paper aims to evaluate the present and Emerging concepts of Electronic Human Resource Management (E -HRM) practices in information technology (IT) organizations in Chennai and investigate how they affect the outcomes of IT firms. A survey was conducted, and the effects of E-HRM practices on organizational development, team management, motivation, and retention were examined using Regression and ANOVA. The findings indicated that electronic-human resource management strategies appear to have an effect on organizational development, team management, motivation, and retention.

Keywords: E-HRM practices over outcomes, organizational development, Team management, motivation & retention

INTRODUCTION:

An e-HRM system is one in which technology is used to provide firms with adequate Human Resource services. It is all about people working in an organization, which is what HRM or Human Resource Management is all about. It is a more humane method of leading employees to do their best work for a company. As a result, managers view their workers as an integral part of their growth. HRM is, therefore, a system that works for the development of human resources and the dignity of employees who work for the company (Ganeshan, 2010). Executives in human resources began looking for decision-supporting devices powered by modern technology. Organizational success is enhanced by incorporating technology into the decision-making process. Using information technology, HRM may become more strategic, adaptable, customer-oriented, and cost-effective in the modern environment. Research shows that information technology may cut administrative expenses, speed up reaction times, boost productivity and improve decision-making and customer services (Mishra, 2008).

Research Gap There has been only a small amount of research into e-HRM practices. The existing electronic, human resource management models have also been created in Europe and the United States. There have only been a few studies conducted to investigate the association between E-HRM practices and their outcomes in information technology enterprises in Chennai. As a result, there is a pressing necessity to evaluate the influence of E-HRM practices and over its outcomes in greater depth.

A CORRELATIONAL STUDY ON TOOLS OF INTEGRATED MARKETING COMMUNICATION ON THE PURCHASE OF FAST-MOVING CONSUMER GOODS

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ABSTRACT
This study is undertaken to understand the impact of Integrated Marketing Communication on the purchase of fast-moving consumer goods based on correlation and percentage analysis. Descriptive research method was used and samples were selected based in simple random sampling. Inter-relationships among the variables such as publicity and public relations, sales promotion, advertisement and internet marketing were studied to given suggestions on effective combination of Integrated Marketing Communication. All the above variables result in the purchase of fast-moving consumer goods independently. Results were not the same when it is integrated.

Keywords: Integrated Marketing Communication, fast-moving consumer goods, IMC, FMCG

INTRODUCTION
Marketing communications are vitally important in order to increase the purchase of fast-moving consumer goods. All fast-moving consumer goods (FMCG) companies spend millions of dollars on marketing communications. However, it is still up in the air as to which communication tool or integrated communication strategy will provide the most value. This research paper investigates the relationship between Integrated Marketing Communication tools (internet marketing, Sales Promotion, Advertising, Public relations and Publicity) and purchase decision on fast-moving consumer goods

REVIEW OF LITERATURE
Ruswanti et al. (2019), predicted the influence of Integrated Marketing Communication (IMC) techniques (sales promotion, advertising, direct marketing, and personal selling) on customers' intent to buy organic goods in a local Indonesian supermarket was projected. The primary data was gathered through the distribution of questionnaires to customers. A total of 128 consumers were included in the sample size. Before hypothesis testing, the data was subjected to a reliability and validity study. Only direct marketing had a substantial beneficial effect on the intention to buy organic products, according to the findings. Integrated Marketing Communication informs consumers about organic product purchasing policies.

Abdul Haseeb et al. (2017), discovered how Integrated Marketing Communication, such as internet marketing, public relations, advertising, sales promotion, and direct marketing, influences consumer purchasing decisions of internet services. The primary goal of this research study was to investigate the impact of Integrated Marketing Communication on consumer purchasing decisions for Mobilink's internet service and make recommendations to marketing professionals. 435 To acquire primary data from respondents, questionnaires were employed. The findings revealed that online marketing, public relations, advertising, sales promotion, and direct marketing all have a favourable influence on customer purchasing decisions. It is recommended that marketing managers focus more on digital promotion and public relations when designing an Integrated Marketing Communication programme in the future, which will build a better image about the company and its internet services, influencing customer purchasing decisions.

Agodi Joy and Aniuga (2016) investigated the impact of Integrated Marketing Communication on the creation of customer-based brand value for enterprises and their customer. In today's technology-driven marketing environment, traditional promoting media such as TV, radio, magazines, and newspapers look to be losing their hold on consumers. Because of the shift in the type of media brought about by the dynamic marketing situation, advertisers have been forced to reassess how they must connect with consumers and increase the brand value for the company and its customers, applying the concept of Integrated Marketing Communication has shown to be a viable option. Marketing communications are the tactics used by businesses to educate, persuade, and remind customers of the presence of a brand. Integrated Marketing Communication tries to mix and match communication options – that is, how to use communication options in an orderly or coordinated manner to create customer-based brand value. According to the customer-based brand value model, marketing communication can increase market value by making customers familiar with the brand; connecting the brand's purposes of equality and point-of-contrast relationship in shoppers' memories; evoking good brand decisions or emotions; and encouraging a more grounded customer brand association and brand resonance. The primary focus of this study is on the impact of Integrated Marketing Communication on customer-based brand value.

FACTORS DETERMINING THE JOB SATISFACTION OF EMPLOYEES WORKING IN A FERTILIZER COMPANY- A STUDY

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ABSTRACT:

In every organization the performance of the employeetoalargeextent is influencedby the level they are motivatedand satisfied with their job.Job satisfaction means the extent to which an individual is feeling happy with their job aspects and the work environment. A satisfied employee always portrays positive attitude at the workplace which results in performing the given job more effectively and efficiently.In lieu of the relevance of one's satisfaction with job and its other aspect the current study is undertaken with a view explore the extent to which employees working in a fertilizer company are satisfied with their current job. In addition to the above the researchers also envisaged to identify those factors which determine one's satisfaction towards their job. So as to get the results for the stated objectives primary data is collected from 100 samples out of the universe of 235 employees with the help of a questionnairewhich is self- designed via convenience sampling method. The questionnaire relied mainly on dependent variable (i.e.)Job Role, Reward & Recognition, Working Condition, Interpersonal Relationship and Other Benefits. The raw qualitative information so collected from the samples is quantified with the help of percentage analysis and chi square test which depicts that morale of the employees working in the company is high. The researchers opinioned that few aspects of the job require more attention, namely, reward & recognition as well as canteen facility. Thus, they concluded sayingit is advisable for the organization to create a congenial atmosphere and sense of belongingness among the employees through various engagement activities.

ARTIFICIAL INTELLIGENCE: AN E-HRM PRACTICE FOR EFFICIENCY IN ORGANISATIONS

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ABSTRACT

Machines are becoming responsible for easily ending daily chores and are at times smarter than humans. Once having had prime place in the field of computer science, the machines are very popular owing to the recent advances in artificial intelligence and machine reading. In this scenario, the researchers are aiming for making a concept study about AI as an e-HRM practice for efficiency in organisations. The researchers have adopted systematic literature (SLR) review method for the purpose of gathering information and data from reviews from the repute journals. Such information was sorted through PRISMA framework. The findings have revealed that artificial intelligence assists quality HR practises such as administration, recruitment, employee management, training, Performance Appraisal, training and employee separation effectively and efficiently without any errors

Key-words: AI, e-HRM practice, machine reading.

1. INTRODUCTION

The growth of machine learning and artificial intelligence frightens the human beings with a view to take over persuading, influencing, social understanding, intuition and empathy which are considered to be important features of humans. Perhaps, empathy and emotional elements are emerging as important as possible, while operating and dealing with machines. Emotional elements have become a part and parcel with very employee in an industry/organisation. Therefore, emotional intelligence should be understood properly followed by artificial intelligence.

Artificial intelligence is defined as machines being stimulated to act like humans and they are programmed to think like humans and minimise actions. AI could be a device or software or machine that works effectively by fusing large amounts of data and intelligent algorithms from features of data. It could act like humans with the help of the Turing test, cognitive modelling approach, rational agent and law of thought approach. Natural language processing initiates communication, which makes humans think as if they are communicating with humans. Through introspection model and brain imaging it recognises our thoughts, facial expression and responds to us as humans do. AI is transforming the business operations and predicting the outcomes which facilitates humans' pro-activeness, creativity and innovation. It reduces operational cost, increasing revenue, improved customer experiences and employee satisfaction.

Currently, the organisations and companies have started having AI for its maintenance and effective functioning. The AI does faster than humans in the organisations and AI is part of the organisations. Large organisations have already got adopted to AI. Perhaps, having understood about AI, the researchers are at the following objectives.

- To find out recruitment process with the help of Artificial Intelligence.
- To understand Artificial Intelligence techniques in Human resource management.
- To identify techniques managing people at workplace through Artificial Intelligence.