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Stability Indicating RP-HPLC Method for the Simultaneous Estimation of Glecaprevir and Pibrentasvir in Drug Product

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Abstract:

The aim of the method was to develop and validate a rapid, sensitive and accurate method for simultaneous estimation of Pibrentasvir and Glecaprevir in drug product by liquid chromatography. The chromatographic separation was achieved on C8 column (Hypersil BDS-C8 100*4.6, 3.5um) at ambient temperature .The separation achieved employing a mobile phase consists of 0.1%v/v Trifluoroacetic acid in water: Methanol: Acetonitrile (30:60:10). The flow rate was 0.8ml/ minute and ultra violet detector at 225nm. The average retention time for Pibrentasvir and Glecaprevir found to be 2.107 min and 2.341 min. The proposed method was validated for 2.341selectivity, precision, linearity and accuracy. All validation parameters were within the acceptable range. The assay methods were found to be linear from 40.0 – 120.0µg/mL for Pibrentasvir and 100.0 - 300.0µg/mL of Glecaprevir.

Key words: Pibrentasvir, Glecaprevir, Isocratic, HPLC, C8, Trifluoro acetic acid, Acetonitrile, Methanol and validation

1. INTRODUCTION

Pibrentasvir

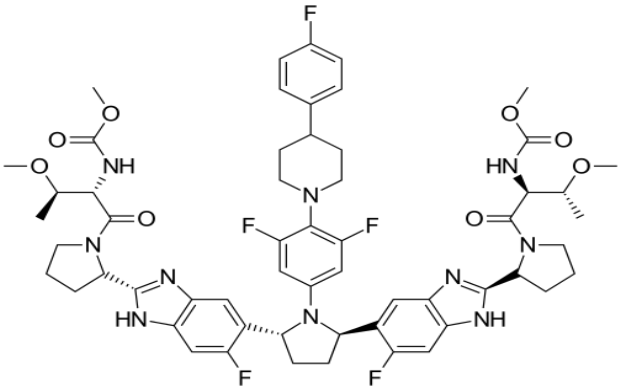

Fig.1. Chemical structure: Pibrentasvir

Pibrentasvir is an antiviral agent. In the United States and Europe, it is approved for use with glecaprevir as the combination drugglecaprevir/pibrentasvir (trade name *Mavyret* in the US and *Maviret* in the EU) for the treatment of hepatitis C.

Pibrentasvir is chemically designated as Methyl {(2*S*,3*R*)-1-[(2*S*)-2-{5-[(2*R*,5*R*)-1-{3,5-difluoro-4-[4-(4-fluorophenyl)-1-piperidinyl]phenyl}-5-(6-fluoro-2-{(2*S*)-1-[*N*-(methoxycarbonyl)-*O*-methyl-L-threonyl]-2-pyrrolidinyl}-1*H*-benzimidazol-5-yl)-2-pyrrolidinyl]-6-fluoro-1*H*-benzimidazol-2-yl}-1-pyrrolidinyl]-3-methoxy-1-oxo-2-butanyl}carbamate. Its molecular formula is $C_{57}H_{65}F_5N_{10}O_8$, and its molecular weight is 1,113.20 g·mol^{-1}.

Glecaprevir

Glecaprevir (INN,[1]) is a hepatitis C virus (HCV) nonstructural (NS) protein 3/4Aprotease inhibitor that was identified jointly by AbbVie and EnantaPharmaceuticals. It is being developed as a treatment of chronic hepatitis C infection in co-formulation with an HCV NS5A inhibitor pibrentasvir. Together they demonstrated potent antiviral activity against major HCV genotypes and high barriers to resistance *in vitro.*

Glecaprevir is chemically designated as (3aR,7S,10S,12R,21E,24aR)-7-tert-Butyl-N-{(1R,2R)-2-(difluoromethyl)-1-[(1-methylcyclopropane-1-sulfonyl)carbamoyl]cyclopropyl}-20,20-difluoro-5,8-dioxo-2,3,3a,5,6,7,8,11,12,20,23,24a-dodecahydro-1H,10H-9,12-methanocyclopenta[18,19][1,10,17,3,6]trioxadiazacyclonon adecino[11,12-b]quinoxaline-10-carboxamide. Its molecular formula is C38H46F4N6O9S, and its molecular weight is 838.87 g·mol−1.

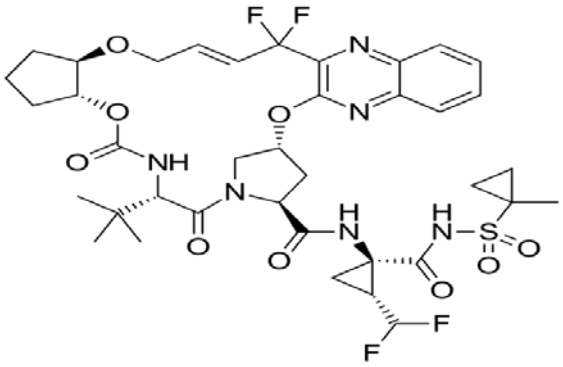

Fig.2. Chemical structure: Glecaprevir

2. MATERIALS AND METHODS

2.1 Equipments: The chromatographic technique performed on a waters 2695 with 2487 detector and Empower2 software, reversed phase C8 column (Zorbax SB-C8 100*4.6, 3.5µm) as stationary phase ,Ultrasonic cleaner, Scaletech analytical balance and Vacuum micro filtration unit with 0.45µ membrane filter.

2.2 Materials: Pharmaceutically pure sample of Pibrentasvir/Glecaprevir were obtained as gift samples from Fortune pharma training institute, Sri Sai nagar colony, KPHB, Hyderabad, India.

HPLC-grade Methanol and Acetonitrile were obtained from qualigens reagents pvt ltd. Trifluoro acetic acid (AR grade) was from sd fine chem.

2.3 Chromatographic conditions The sample separation was achieved on a (Hypersil BDS-C8 100*4.6, 3.5µm) C8 column, aided by mobile phase mixture of 0.1%v/v Trifluoro acetic acid in water: Methanol:Acetonitrile (30:60:10). The flow rate was 0.8 ml/ minute and ultra violet detector at 225nm that was filtered and degassed prior to use, Injection volume is 10µl and ambient temperatures.

Preparation of mobile phase:

Buffer Preparation: Taken accurately 1ml of Trifluoro acetic acid in 1000mL of water

Mobile phase: Then added 20 volumes of buffer and 80 volumes of Methanol mixed well and sonicated for 5 min.

Diluents: Water: Acetonitrile: 50:50 v\v

2.4 Preparation of solutions

2.4.1 Standard solution: 40mg of pure Pibrentasvir and 100mg of Glecaprevir were weighed and transferred to 25 ml of volumetric flask and dissolved in diluent. The flask was shaken and volume was made up to mark with diluent to give a primary stock solution. From the above solution 1ml of solution is pipette out into a 10 ml volumetric flask and volume was made up to

Development and Validation of Imipramine Hydrochloride In Tablet Formulation – A New Rp-HPLC Method

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ABSTRACT

A validated HPLC method was developed for the determination of Imipramine Hydrochloride in pharmaceutical formulation. Isocratic elution at a flow rate of 1.0ml/min was employed on Phenyl Bondapak 10µm (3.9 x 300 mm) or equivalent. A mixture of 0.1 Ammonium Phosphate: Acetonitrile in the ratio of 60:40V/V was prepared and used as mobile phase. The UV detection wavelength was 254nm and 10µl sample was injected. The run time is 5min and the flow rate was found to be 1.2 ml/min. The Approximate retention time was founded as ± 8 minutes. The% R.S.D Imipramine Hydrochloride was 0.1. The LOD was found to be 15µg/ml and the LOQ was found to be 25µg/ml. The mean Percentage recovery for Imipramine Hydrochloride was found to be 81%. The method was validated as per the ICH guidelines. Thus, the proposed HPLC method can be successfully applied for the routine quality control analysis of formulations. The method developed is simple and is better than the methods reported in the literature.

Key Words: *Imipramine Hydrochloride, HPLC, UV detection, Recovery.*

1. INTRODUCTION

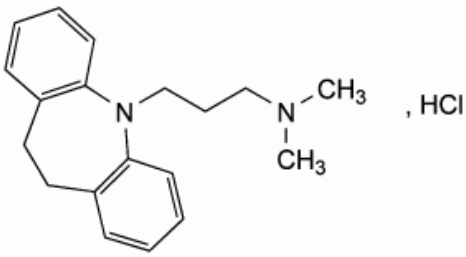

Fig: 1 Structure of Imipramine HCL

Influence of iron content on the structural and magnetic properties of Ni-Zn ferrite nanoparticles synthesized by PEG assisted sol-gel method

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Abstract

Ni-Zn ferrite nanoparticles of smaller particle size and high saturation magnetization have gained a special attention for their use in biomedical applications. The development of such nanoparticles requires rigorous processing conditions in arriving at desired characteristics. Ni-Zn ferrite nanoparticles of three different compositions $Ni_{0.65}Zn_{0.35}Fe_2O_4$, $Ni_{0.65}Zn_{0.40}Fe_{1.95}O_4$ and $Ni_{0.60}Zn_{0.35}Fe_{2.05}O_4$ containing varying amounts of iron concentration 50.00 mole%, 48.75 mole%, and 51.25 mole% respectively were processed by the sol-gel method using polyethylene glycol (PEG) as a chelating agent and characterized by techniques X-ray diffraction, Transmission electron microscopy, field emission scanning electron microscopy and Fourier transform infrared spectroscopy in elucidating the structural parameters. Ferrite compositions containing lower and higher iron content require the lower annealing temperature to produce higher saturation magnetization as compared to the stoichiometric composition. The composition of lower iron content favoured smaller particle size of 9nm, while the material of higher iron content showed enhanced saturation magnetization of 91.9emu/g. From the knowledge of literature and our previous works, it is opined that no other chelating agent than PEG proved to be an efficient one in controlling the particle size and improving the microstructure.

Keywords: Ni-Zn ferrite, Sol-gel process, Magnetic properties, TEM & FESEM images

1. Introduction

Ni-Zn ferrites have been the subject of investigation for the past several years due to their exciting and growing industry applications. The extensive study of several researchers on Ni-Zn ferrite system has revealed that Ni-Zn bulk ferrite is the only core material useful for high frequency applications due to its reasonably high saturation magnetization, moderate magnetic permeability, high Curie temperature, moderate DC resistivity and low power loss [1, 2]. The properties of bulk ferrites are highly sensitive to the method of processing, the amount of constituent ions and the kind of impurities present in the system [3]. The high sintering temperatures adopted in conventional ceramic technique are, in general, promote undesirable aspects like the evaporation of zinc from the product, formation of larger grains, presence of impurity secondary phases, and ferrous ions [4, 5]. In circumventing these, most of the researchers had introduced sintering aids [6-8] for the preparation of Ni-Zn ferrites at lower temperatures. However, the formed bulk products have shown no significant changes in their properties. The usage of bulk nickel-zinc ferrites as core material is limited to 100 MHz due to their moderate saturation magnetization and DC resistivity. The operational frequency of core material beyond 100 MHz can be made possible by increasing the specific

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A Note on Study of Game Problem Using Simplex Method

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Abstract: In this paper, optimal strategies of game problem which does not have a saddle point using simplex (Big-M) method calculated.

Keywords: Linear programming problem, Game problem, Optimal strategies, Big-M method.

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1. Introduction

Game theory is the study of the strategic interaction of two or more decision makers, or "players", who are attentive that their actions affect each other. Game theory describes the situations involving conflict in which the payoff is affected by the actions and counter-actions of clever opponents [1]. Two-person zero-sum games play a essential role in the development of the theory of games. In order to know the theory of game, consider the following game in which player P has two choices from which to select, and player Q has three alternatives for each choice of player Q [1,2]. The payoff matrix M is given below:

		Player Q		
		$j=1$	$j=2$	$j=3$
Player P	$i=1$	a	b	c
	$i=2$	d	e	f

In the payoff matrix, the two rows ($i = 1, 2$) represents the two possible strategies that player P can employ, and the three columns ($j = 1, 2, 3$) represent the three possible strategies that player Q can employ. The payoff matrix is oriented to player P, meaning that a positive M_{ij} is a gain for player P and a loss for player Q, and a negative M_{ij} is a gain for player Q and a loss for player P. For example, if player P uses strategy 2 and player Q uses strategy 1, player P receives $M_{12} = d$ units and player Q thus losses d units. Clearly, in our example player Q always loses; however, the objective is to minimize the payoff to player P [1, 2, 3].

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(Brief Communication)

Vibrational Spectra of Copper Tetramesityl Porphyrin Using Vibron Model

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ABSTRACT

In this paper we calculated the fundamental level vibrational spectra of Metalloporphyrin (bio molecule) copper tetramesityl porphyrin (Cu(TMP)) using Vibron model.

Keywords: Vibrational spectra, Vibron model, Metalloporphyrins, Cu(TMP).

INTRODUCTION

Group theory is a well known tool that simplifies the process of obtaining a variety of information about molecules and their symmetries. Molecules are classified according to their symmetry properties and from that one can identify, the molecular symmetry point group. The molecular symmetry point group of metalloporphyrins is D_{4h}, which contains the principal C_n axis, n perpendicular C_2 axis, and the horizontal plane of symmetry.

I-IV are pyrrole rings; 1-8 are substituent positions. X positions are (=CH-) bridges

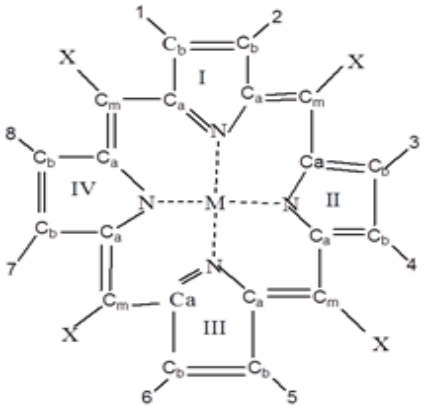

Fig.1. The strucure of metalloporphyrins

A PAPER ON CUSTOMER RELATIONSHIP MANAGEMENT

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Abstract—

"CONSUMER IS THE KEY OF BUSINESS"

In today's globalized world, relation is more important for any business. In business the activities which is conducted and about to conduct for making profits. Without profits there is no survivalence for making business decisions, so to attain profits you must consider the people expectations on your product. If the product performance is matches the buyer expectation, the consumer is delighted, the reverse is just as true. So if the product performance is perceived by buyer's expectations, expectation is first step to define your target. Then you have to design and develop according to the consumer's needs, wants and demands. If your product performance is matched the consumers' expectations then your product is automatically sells. Then after that your communication is starts with that potential consumer. If he finds any difficulty to attain your product then you have a chance to maintain to build your customer relation is the name of management. So management is means, how to plan, how to define strategy and how formulate that strategies in to proper mechanism. Then this management offers several chances to those who are working in the organization to develop and sustain in the competitive world. After that the consumer comes to your store again and again for his buying's and gets the products to satisfy his personal and professional needs. In this paper I need to study the relationship strategies and how these strategies will improve the customer relation to get the success of every organization.

INTRODUCTION

Marketing

Marketing is the science of meeting the needs of a customer by providing valuable products to customers by utilizing the expertise of the organization, at same time, to achieve organizational goals. According to The American Marketing Association, Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large.

With this definition, it is important to realize that the customer can be an individual user, a company, or several people who contribute to the purchasing decision. The product can be a hard good, a service, or even an idea – anything that would provide some value to the person who provides an exchange. An exchange is most often thought of as money, but could also be a donation of time or effort, or even a specific action. A producer is often a company, but could be an individual or non-profit organization.

Classical marketing is often described in terms of the four "P's, which are:

- **Product** – what goods or services are offered to customers
- **Promotion** – how the producer communicates the value of its products
- **Price** – the value of the exchange between the customer and producer
- **Placement** – how the product is delivered to the customer.

A complete analysis of these categories is often called the **Marketing Mix**. More detail on these categories can be found in the later entry on the Marketing Plan.

"A PAER ON THEORETICAL VS PRACTICAL PHYSICS"

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ABSTRACT

The most famous physicists are all theorists who stayed well grounded in experiment, e.g. Newton, Einstein, Maxwell, Boltzmann, and the founders of QM. The great experimentalists in physical science before quantum physics are today remembered as chemists and engineers; Rutherford is an example of someone who considered himself an experimental physicist and is today mostly remembered as a chemist. Saying "Who ordered the theorist?" is like saying "Who ordered Matter waves?"(De Broglie), "Who ordered anti-matter?" (Dirac), "Who ordered QED?"(Feynman et al), "Who ordered Bose condensates?", "Who ordered W and Z?", etc or more fundamentally "Who ordered calculus?", "Who order probability and statistics?" (gee i dunno, is Gauss more of an experimentalist, or a theorist?). I don't see a need to fight, and I am not saying "who ordered the experimentalist?" but if choosing between extremes I prefer mathematics to the short-sighted empirical method as a way of gaining knowledge, but we should all agree that combining these two into the scientific method has been a great success. Edit: The "Who needs.." article is dishonest because it is written in 2000 and is talking about the J/Psi and prior events, but it is a well known fact that the standard model (a theory) has predicted every observation since the J/Psi in the 1970s. Hopefully the discovery of super symmetry of even relatively large extra dimensions at the LHC would boost the status of theoretical physics

INTRODUCTION

All preoccupations of physicists are channeled towards the investigation and study of the physical properties of the universe; the interactions and interrelations of matter and energy at different scales - from atomic scale (Quantum Physics), human scale (Classical Physics) and cosmic scale (Cosmology & Astrophysics).

Theoretical Physicists spend their time, energy and resources to conceive and develop models (*usually conceptual, philosophical and thoroughly mathematical) in order to describe observable or non-observable physical phenomena and also the laws governing the interactions and interrelations of matter and energy at all scales.

Experimental Physicists on the other hand spend their time, energy and equipment (resources) performing tests and experimentation on models and theories. Experimental Physicists could be very practical in the sense that they are more inclined to become Engineers using physical principles, laws and models to invent technologies - of the present and of the future.

Both Theoretical and Experimental Physics seem like imperatives for investigating the universe or studying physics. They are the Yin and Yang of the discipline.

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A Study on Training of Employees at Vijaya Diary, Vijayawada

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***Abstract*: "Consumer is the Key of Business" In today's globalized world, relation is more important for any business. In business the activities which is conducted and about to conduct for making profits. Without profits there is no surveillance for making business decisions, so to attain profits you must consider the people expectations on your product. If the product performance is matches the buyer expectation, the consumer is delighted, the reverse is just as true. So if the product performance is perceived by buyer's expectations, expectation is first step to define your target. Then you have to design and develop according to the consumer's needs, wants and demands. If your product performance is matched the consumers' expectations, then your product is automatically sells. Then after that your communication is starts with that potential consumer. If he finds any difficulty to attain your product, then you have a chance to maintain to build your customer relation is the name of management. So management is means, how to plan, how to define strategy and how formulate that strategies in to proper mechanism. Then this management offers several chances to those who are working in the organization to develop and sustain in the competitive world. After that the consumer comes to your store again and again for his buying's and gets the products to satisfy his personal and professional needs. In this paper I need to study the relationship strategies and how these strategies will improve the customer relation to get the success of every organization.**

***Keywords*: training of employees**

1. Introduction

Human resources are the term -- first used in the early 1900s and then more widely in the 1960s -- for the people who work for the organization, in aggregate.

HRM is really employee management with an emphasis on those employees as assets of the business. In this context, employees are sometimes referred to as human capital. As with other business assets, the goal is to make effective use of employees, reducing risk and maximizing return on investment (ROI).

The modern HR technology term, Human Capital Management (HCM), has come into more frequent use than the term, HRM, with the widespread adoption by large and midsize companies and other organizations of software to manage many HR functions.

Definition of human resource management

The process of hiring and developing employees so that they become more valuable to the organization.

Human Resource Management includes conducting job analyses, planning personnel needs, recruiting the right people for the job, orienting and training, managing wages and salaries, providing benefits and incentives, evaluating performance, resolving disputes, and communicating with all employees at all levels.

A. Human Resource Management & Its Core Functions: Managerial & Operative

As per Armstrong (1997) Human resource management is defined as "a strategic approach to acquiring, developing, managing, motivating and gaining the commitment of the organization's key resource—the people who work in and for it." In general, human resource management is concerned with hiring, motivating and maintaining workforce within businesses.

Functions of Human Resource Management Includes:

- Managerial Functions
- Operative Functions

B. Managerial Function Includes

1) Planning

One of the primary function where number & type of employees needed to accomplish organizational goals are determined. Research forms core HRM planning which also helps management to collect, analyze and identify current plus future needs within the organization.

2) Organizing

Organization of the task is another important step. Task is allocated to every member as per their skills and activities are integrated towards a common goal.

3) Directing

This includes activating employees at different levels and making them contribute maximum towards organizational goal. Tapping maximum potentialities of an employee via constant motivation and command is a prime focus.

4) Controlling

Post planning, organizing and directing, performance of an employee is checked, verified and compared with goals. If actual performance is found deviated from the plan, control measures are taken.

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A Study on Consumer Buying Behaviour with Reference to Big Bazaar, Vijayawada

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***Abstract*: In today's globalized world, Consumer behavior involves the psychological processes that consumers go through in recognizing needs, finding ways to solve these needs, making purchase decisions (e.g., whether or not to purchase a product and, if so, which brand and where), interpret information, make plans, and implement these plans. Consumers often buy products not because of their attributes per se but rather because of the ultimate benefits that these attributes provide, in turn leading to the satisfaction of ultimate values. The important thing in a means-end chain is to start with an attribute, a concrete characteristic of the product, and then logically progress to a series of consequences (which tend to become progressively more abstract) that end with a value being satisfied. Thus, each chain must start with an attribute and end with a value. An important implication of means-end chains is that it is usually most effective in advertising to focus on higher level items.**

A market comes into existence because it fulfills the needs of the consumer. Consumer behavior is a complex, dynamic, multidimensional process, and all marketing decisions are based on assumptions about consumer behavior. Models of consumer behavior play a key role in modern empirical Industrial Organization. The objective of the research endeavor is to achieve a better understanding of consumer behavior with the factors influence consumer buying processes. This article aims to identify different streams of thought that could guide future consumer research.

***Keywords*: consumer buying behaviour**

1. Introduction

The marketing orientation is perhaps the most common orientation used in contemporary marketing. It is a customer-centric approach that involves a firm basing its marketing program around products that suit new consumer tastes. Firms adopting a marketing orientation typically engage in extensive market research to gauge consumer desires, use R&D to develop a product attuned to the revealed information, and then utilize promotion techniques to ensure consumers are aware of the product's existence and the benefits it can deliver. Scales designed to measure a firm's overall market orientation have been developed and found to be relatively robust in a variety of contexts.

Marketing is an ancient art & is everywhere. Formally or informally, people &organizations engage in a vast number of activities that could be called marketing. Good marketing has become an increasingly vital ingredient for business success. It is embedded in everything we do- from the clothes we wear, to the web sites we click on, to the ads we see. Marketing deals with identifying & meeting human & social needs or it can be defined as "meeting needs profitably".

A. Definition

Marketing is defined by the American Marketing Association as "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large. "The term developed from the original meaning which referred literally to going to market with goods for sale. From a sales process engineering perspective, marketing is "a set of processes that are interconnected and interdependent with other functions" of a business aimed at achieving customer interest and satisfaction.

Philip Kotler defines marketing as Satisfying needs and wants through an exchange process.

B. Importance of marketing

1. Marketing widens the market.
2. Marketing facilitates exchanges in the ownership and possession of goods and services.
3. It helps in optimal utilization of resources.
4. It increases national income.
5. It provides employment.
6. It provides maximum satisfaction of human wants.

2. Review literature

Review of literature is an indispensable part of research which opens the eyes of researcher to carry out their research in various dimensions. Through the review of earlier studies related to a relevant area in which research is intended to be carried on, the researcher came across the various ways in which the research was started, the path through which such research journeyed and how such research reached its destination. Hence this study was born out of the earlier studies related to consumer behaviour in organized supermarket retail stores which were found in various international and national journals and magazines. The review lighted the present study into a meaningful, thought provoking and a brighter one. Further the review of earlier studies has helped this research to have a good shape in analytical terms.

The Study of Data Warehouse and Data Mining in Cloud Computing

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Abstract: This paper expresses the use of data warehousing and data mining in cloud computing. Data warehouse is a centralized, persistent data store and data mining is a process of extracting potential information from raw data. Cloud computing is a new paradigm for hosting and delivering services over the internet and attracted business people, as it eliminates the requirement for users to plan ahead for provisioning and allows enterprises to start from the small and increase resources only when there is rise in service demand. Additionally, we compared how retrieval of data from data warehouse in the cloud environment reduces time, infrastructure and storage, over traditional method.

Keywords: Data Warehousing, Data Mining, Cloud Computing.

I. INTRODUCTION

Cloud Computing: Cloud computing is the next stage in the internet's evolution. Cloud computing is typically defined as a type of computing that relies on sharing computing resources rather than having local servers or personal devices to handle applications. In cloud computing, the word cloud is used as a symbol for "the Internet," so the expression cloud computing means "a type of Internet-based computing," where different services such as servers, storage and applications are delivered to an organization's computers and devices through the Internet.

Why there is a need for cloud?

It is faster because it provides infrastructure on demand in terms of APIs. It is cheaper because reduced need for huge investment in purchasing hardware and software i.e. barrier to entry is much lower. It is better because no need to worry about infrastructure it is someone else's problem and we can focus on core business.

"Cloud computing is a model for on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction". Before cloud computing traditional business applications have always been very complicated and expensive. The amount and variety of hardware and software required to run them are scary. We need a whole team of experts to install, configure, test, run, secure, and update them. With cloud computing, we can eliminate those headaches because we are not managing hardware and software-that's the responsibility of an experienced vendor. Present is the age of information technology. The aspect of work and personal life are moving towards the concept of availability of everything online. Understanding this trend, the big and massive web based companies like Google, Amazon, and Salesforce.com came with a model named "Cloud Computing" the sharing of web infrastructure to deal with the internet data storage, scalability and computation. The shared infrastructure means it works like a utility. We only pay for what we need. Upgrades are automatic and scaling up or down is easy.

Figure 1: Internet Based Cloud Computing.

Internet based cloud computing Cloud-based apps can be up and running in days or weeks, and they cost less. With a cloud app, we just open a browser, log in, customize the app, and start using it. Anything from basic word processing to collaboration to email to multimedia processing can be accomplished more efficiently using cloud computing than using one's personal computer. Cloud is classified into four types Public, Private, Community and Hybrid. These four are also called as four-pillars of cloud.

Physical, structural and optical properties of Chromium doped Antimony Borate glass system

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Abstract. Binary Glass system with the composition $40Sb_2O_3$-(60-x) B_2O_3: xCr_2O_3 for x = 0.1, 0.3 and 0.5 mol % were prepared by the melt-quenching technique. The prepared glass samples were characterized by XRD, FTIR, EPR, PL and Optical absorption spectra. The physical properties were also studied. From the XRD studies, the glass samples were amorphous in nature. From the FTIR spectra, it is observed that the % of transmittance decreased with the increase of dopant concentration. From the EPR spectra of pure and Cr^{3+} doped antimony borate glasses, two principal resonance lines are observed. The first is a broad asymmetric band at low magnetic field with an effective g value of 4.2281 and the second is a broad asymmetric line at high magnetic field with an effective g value of 1.9716. No EPR signal was detected for the pure glass, which indicates that the pure glass is free of paramagnetic impurities. Optical absorption and luminescence spectra of all the glasses were recorded at room temperature. From the observed absorption edges optical band gap, the Urbach energies were calculated. The optical band gap is found to decrease with the concentration of Cr_2O_3. The luminescence spectra exhibited conventional near infra-red emission bands at around 789, 845 nm under 420 and 460 nm excitation wavelength.

INTRODUCTION

Glass may be defined as “material cooled from the melt without crystallizing”. Glass is not a single composition but a state of matter. It is a subset of solid state. Glass is a network of atoms bonded to each other through covalent bonds with oxygen atoms. It is usually tetrahedral bonded together in a random arrangement. The glass transition from solid glass to the viscous liquid glass is an important property. Basically glass is an elastic solid below the transformation region and a viscous liquid above it. The structure of the solid has all the attributes of a liquid, except that solid does not flow on any meaningful time scale. If glass is cooled from the melt faster, the overall glass structure will have large volume (lower density) than one that is cooled slowly.

Glass is an elastic solid without the structural periodicity and long range order of crystalline material. It looks like a liquid but behaves like a solid. Generally glass systems thermodynamically have higher potential energy than crystalline material due to their random arrangement.

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Visible Spectrophotometric Determination of Gemigliptin Using Charge Transfer Complex

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ABSTRACT

A visible spectrophotometric method was developed and validated for the determination of gemigliptin present in bulk drug and tablet formulation. It involves an indirect method of charge transfer complex formation in presence of NBS, metol and suphanilic acid. Gemigliptin was subjected to oxidation with excess amount of oxidant (NBS) and the unconsumed NBS oxidizes metol to give p-N-methylbenzoquinone monoamine (PNMM) which in turn forms a charge transfer complex with sulphanilic acid. Then validated the above developed method as per the current ICH guidelines. An excellent correlation coefficient (> 0.999) was found for the obtained regression equation ($y = -0.0302x + 0.928$) in the range of 2.0–30.0 µg mL^{-1}. The method was found to be simple and rapid because it does not involve any solvent extraction. The recovery levels of the drug were in the range 99.92 – 100.08.

Keywords: Gemigliptin, Validation, Determination, Metol, Charge transfer complex.

INTRODUCTION

Gemigliptin is a selective, competitive and potent anti-hyperglycemic agent which is useful in the treatment of type 2 diabetes. It belongs to DPP-4 (dipeptidyl peptidase-4) inhibitor class[1]. Secretion of glucagon is decreased by it. Either as a monotherapeutic agent or in combination with metformin, it is effective[2]. It is administered orally. $C_{18}H_{19}F_8N_5O_2$ is the molecular formula and molecular weight is 489.36. (3S)-3-amino-4-(5,5-difluoro-2-oxopiperidino)-1-[2,4-di(trifluoromethyl)-5,6,7,8-tetrahydropyrido[3,4-d]pyrimidin-7-yl]butan-1-one (Fig. 1) is its IUPAC name. At initial stages, it was developed by LG Life Sciences (LGLS) and later Double-Crane Pharmaceutical Company joined for the development of final product. It was marketed together in china. License was issued to Stendhal (Mexico) and Sanofi (Paris) to market it in 104 countries. Gemiglo® and LC-150444 are the other names of it[3].

Literature survey reveals that HPLC-Isocratic[4-5] and LC/MS-MS[6] methods were developed

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A Study on Training of Employees at Vijaya Diary, Vijayawada

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***Abstract*: "Consumer is the Key of Business" In today's globalized world, relation is more important for any business. In business the activities which is conducted and about to conduct for making profits. Without profits there is no surveillance for making business decisions, so to attain profits you must consider the people expectations on your product. If the product performance is matches the buyer expectation, the consumer is delighted, the reverse is just as true. So if the product performance is perceived by buyer's expectations, expectation is first step to define your target. Then you have to design and develop according to the consumer's needs, wants and demands. If your product performance is matched the consumers' expectations, then your product is automatically sells. Then after that your communication is starts with that potential consumer. If he finds any difficulty to attain your product, then you have a chance to maintain to build your customer relation is the name of management. So management is means, how to plan, how to define strategy and how formulate that strategies in to proper mechanism. Then this management offers several chances to those who are working in the organization to develop and sustain in the competitive world. After that the consumer comes to your store again and again for his buying's and gets the products to satisfy his personal and professional needs. In this paper I need to study the relationship strategies and how these strategies will improve the customer relation to get the success of every organization.**

***Keywords*: training of employees**

1. Introduction

Human resources are the term -- first used in the early 1900s and then more widely in the 1960s -- for the people who work for the organization, in aggregate.

HRM is really employee management with an emphasis on those employees as assets of the business. In this context, employees are sometimes referred to as human capital. As with other business assets, the goal is to make effective use of employees, reducing risk and maximizing return on investment (ROI).

The modern HR technology term, Human Capital Management (HCM), has come into more frequent use than the term, HRM, with the widespread adoption by large and midsize companies and other organizations of software to manage many HR functions.

Definition of human resource management

The process of hiring and developing employees so that they become more valuable to the organization.

Human Resource Management includes conducting job analyses, planning personnel needs, recruiting the right people for the job, orienting and training, managing wages and salaries, providing benefits and incentives, evaluating performance, resolving disputes, and communicating with all employees at all levels.

A. Human Resource Management & Its Core Functions: Managerial & Operative

As per Armstrong (1997) Human resource management is defined as "a strategic approach to acquiring, developing, managing, motivating and gaining the commitment of the organization's key resource—the people who work in and for it." In general, human resource management is concerned with hiring, motivating and maintaining workforce within businesses.

Functions of Human Resource Management Includes:

- Managerial Functions
- Operative Functions

B. Managerial Function Includes

1) Planning

One of the primary function where number & type of employees needed to accomplish organizational goals are determined. Research forms core HRM planning which also helps management to collect, analyze and identify current plus future needs within the organization.

2) Organizing

Organization of the task is another important step. Task is allocated to every member as per their skills and activities are integrated towards a common goal.

3) Directing

This includes activating employees at different levels and making them contribute maximum towards organizational goal. Tapping maximum potentialities of an employee via constant motivation and command is a prime focus.

4) Controlling

Post planning, organizing and directing, performance of an employee is checked, verified and compared with goals. If actual performance is found deviated from the plan, control measures are taken.

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Research Article

OPTICAL AND LUMINESCENCE PROPERTIES OF SM3+ (0.5%) DOPED BAO-B2O3 GLASS

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ABSTRACT

Binary glasses with the composition 40BaO-(60-x) B2O3: x Sm2O3 for x = 0 and 0.5 mol % were prepared by the melt-quenching technique. The prepared glass samples were characterized by optical absorption and photoluminescence spectra were recorded at room temperature. From the optical absorption studies it is found that five transitions from 6H5/2 → 4I11/2, 6P5/2, 6P3/2, 6P7/2 and 4D3/2 were observed at wavelengths 486 nm, 401 nm, 375 nm, 360 nm and 343 nm respectively. From the observed absorption edges optical band gap, the Urbach energies were calculated. The luminescence spectra exhibited conventional orange -red emission bands at around 563 nm, 600 nm, 647nm and 712nm corresponds to the 4G5/2 → 6H5/2, 6H7/2, 6H9/2 and 6H11/2 transitions respectively. The emission spectrum was observed under various excitation wavelengths. The emission spectrum measured is characterized through Commission International d'Eclairage (CIE) 1931 chromaticity diagram to explore its suitability for display and w-LED applications.

INTRODUCTION

Glass is a network of atoms bonded to each other through covalent bonds with oxygen atoms. It is usually tetrahedral bonded together in a random arrangement. The glass transition from solid glass to the viscous liquid glass is an important property. Basically glass is an elastic solid below the transformation region and a viscous liquid above it. The structure of the solid has all the attributes of a liquid except that solid does not flow on any meaningful time scale. If glass is cooled from the melt faster, the overall glass structure will have a large volume (lower density) than one that is cooled slowly. Glass is an elastic solid without the structural periodicity and long range order of crystalline material. It looks like a liquid but behaves like a solid.

Recent development of optical devices was based on rare earth ions doped materials is one of the interesting field of research. Rare earth doped glasses were used as optical device materials, sensors, solar concentrators, flat panel displays, fluorescent lamps, white LED's etc. [1-4]. Glasses doped with rare earth ions are proving to be luminescence materials as they have high emission efficiencies. These emissions correspond to 4f-4f and 4f-5d electronic transitions in the rare earth^{n+}. The 4f-4f transition gives sharp fluorescence pattern from the UV to the infrared region. This is due to shield effects of the outer 5s and 5p orbital's on the 4f electrons [5]. The lanthanum group doped materials is important because of their potential applications in the fields of optical device technology, optoelectronic devices, infrared to visible up-converters and phosphors [6].

Glasses are attractive materials in these applications as their ability to be cast in large and optically homogeneous pieces resulting in reduced cost. Over the past few years, there has been a considerable interest in the study of borate based glasses due to their structural and optical properties.

Therefore luminescence properties of rare earth doped different glass hosts are being prepared and investigated with the purpose to know their utility for luminescence applications. When alkaline or alkaline earth cations are introduced in the borate glass matrix, more structural variations can be observed.

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Physical, Optical and Luminescence properties of Dy^{3+} doped Antimony Borate glass system

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Abstract

Binary glasses with the composition $40Sb_2O_3$-$60B_2O_3$: xDy_2O_3 for x = 0 and 0.5 mol% were prepared by the melt-quenching technique. The prepared glass samples were characterized by Photoluminescence and optical absorption spectra. Physical properties of the prepared glass samples were also done. From optical absorption spectra of the glass is recorded at room temperature shows six inhomogeneous absorption bands due to the absorption transitions of Dy^{3+} ions. These absorptions are assigned from ground state $^6H_{15/2}$ to various excited state of Dy^{3+} ions. From the figure we observed absorption peaks at 324, 349, 366, 388, 426 and 450nm. Among these 349 and 388nm are the strongest absorption peaks. These bands are attributed to $^6H_{15/2} \rightarrow {}^6P_{9/2}$, $^6H_{15/2} \rightarrow {}^6P_{7/2}$, $^6H_{15/2} \rightarrow {}^6P_{5/2}$, $^6H_{15/2} \rightarrow {}^4F_{7/2}$, $^6H_{15/2} \rightarrow {}^4G_{11/2}$, and $^6H_{15/2} \rightarrow {}^4I_{15/2}$ transitions respectively. From the observed absorption edges optical band gap, the Urbach energies were calculated. The luminescence spectra exhibited conventional blue, yellow and red emission bands at around 478 nm, 575 nm and 662 nm corresponds to the $^4F_{9/2} \rightarrow {}^6H_{15/2}$, $^4F_{9/2} \rightarrow {}^6H_{13/2}$ and $^4F_{9/2} \rightarrow {}^6H_{11/2}$ transitions respectively. The effect of Dy^{3+} ion concentration on the intensity ratio of yellow to blue emission bands has also been studied. The luminescence spectra are studied under different excitation wavelengths. The emission spectra is characterized through Commission International d'Eclairage (CIE) 1931 chromaticity diagram to explore its suitability for display and WLED applications.

Keywords: *Trivalent ion, dysprosium, glasses, annealing, melt-quenching, optical, luminescence Properties*

1. Introduction

Glass is a network of atoms bonded to each other through covalent bonds with oxygen atoms. It is usually tetrahedral bonded together in a random arrangement. The glass transition from solid glass to the viscous liquid glass is an important property. Basically glass is an elastic solid below the transformation region and a viscous liquid above it. The structure of the solid has all the attributes of a liquid except that solid does not flow on any meaningful time scale. If glass is cooled from the melt faster, the overall glass structure will have a large volume (lower density) than one that is cooled slowly. Glass is an elastic solid without the

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A Study on Employee Welfare and Wellness (with Reference to Heritage Pvt. Ltd.)

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***Abstract*: One of the major elements causing excess savings in the Indian economy is Indian people's concern about their living in the future. Given the fact that the cause for many socio-economic problems in these days does not lie in excess of welfare, but in the insufficiency of are liable welfare system, it is important to transform or guide such an inadequacy into effective demand. A systematic implementation of policy programs to this end is the key to put the Indian economy on the next growth path. The main objective of the study is to study about the employee welfare measures of Swarnaraj Engineering Works and to study the various welfare measures applicable to employees. The need for the study arises from the very nature of the industrial system, which is characterized by two basic factors; one, the conditions under which work is carried on are not congenial for health; and second, when a laborer joins an industry, he has to work in an entirely strange atmosphere, which create problems of adjustment. The working environment in a factory adversely affects the workers 'health because of the excessive heat or cold, noise, odors, fumes, dust and lack of sanitation and pure air etc., lead to occupational hazards. These must be held in check by providing ameliorative services, protective devices and compensatory benefits following accident or injury or disablement. Descriptive research design has been used in this study. The researcher has taken the simple random sampling technique to analyze the probability. The data are collected from both primary and secondary sources respectively like Questionnaire and Journals. Population of the study is 200. The sample size is 100.When a worker, who is in fact a retaliate, comes to work in a factory, he has to work and live in unhealthy, congested factories and slum areas, with no outdoor recreation facilities. To escape from the trying conditions of his tedious and tiresome job, he absents himself, becomes irregular and often undisciplined. Hence the need for providing welfare service arises. In the conditions of work and life of the employees, whatever leads to increasing adaptation of the worker to this job, and whatever makes him fully contented, lessens his desire or need to leave the factory for a time and lighten for him the burden of this social invasion of the factory. Suggestions were made based on the findings.**

***Keywords*: Employee Welfare and Wellness**

1. Introduction

Human resource management (HRM) is the function within an organization that focuses on recruitment of management and providing direction for the people who work in the organization line managers can also perform human resource management.

Human resource management is the organizational function that deals with issues related to people such as compensation, hiring, performance management, organization development, safety wellness benefits, employee motivation, communication administration and training.

While Miller defines it as "those decisions and actions which concern the management of employees at all levels in the business and which are related to the implementation of strategies directed towards creating and sustaining competitive advantage."

Some Basic Features of HRM:

- It is concerned with the employees both as individuals and as group in attaining goals.
- It is continuous in nature
- It is concerned with emotional, behavioural and social aspects.

Motivation is the primitive measure that has to be done in every employee welfare activities. So every organization is providing maximum motivation to the employee by providing several employee benefits and welfare activities by which the employees are feeling happy to work within the organization.

By this welfare activity which is providing directly or indirectly to the employee, he is able to work with satisfaction and obedience among the higher authorities and proud to be work within the organization. According to this attitude of employee to the organization will be increased on behalf of the employee and they are interested to work at a maximum strength.

The company is not only providing the welfare activities but also helps to increase the improvement of technical skills of the employee. That means the employee is not only working in the company but also educating himself by the help of company's faculty who improve the employee's technical skills.1 organization manifest themselves, not only through individual sections but also through group interactions, personal feelings, perceptions, desires, motives, attitudes and values etc. so that people management is not only related to the technical skills it needs the other human resources.

Employee welfare implies the setting up of minimum desirable standards and the provision of facilities like health, food, clothing, housing, education and job security etc.; such facilities enable the worker and his family to lead a good work like family and social life. Employee welfare also operates to naturalize the harmful effects of large scale industrializations and urbanizations.

OPTICAL AND LUMINESCENCE PROPERTIES OF Dy^{3+} (0.5%) DOPED BISMUTH BORATE (BiB) GLASS

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Abstract In this work binary glasses with the composition $40Bi_2O_3$-$(60-x)B_2O_3$: xDy_2O_3 for x=0 and 0.5 mol % were prepared by the melt-quenching technique. The prepared glass samples were characterized by Photoluminescence and optical absorption spectra and were recorded at temperature. In order to confirm the amorphous nature of the glass samples, XRD analysis was done. Physical properties of the prepared glass samples were also measured and presented in this paper. From the obtained absorption edges optical band gap, the Urbach energies were calculated, the optical band gap is found to decrease with Dy_2O_3. The luminescence spectra exhibited blue and greenish-yellow emission bands at around 482 nm (broad with less intensity) and 562 nm (sharp with high intensity) corresponds to the $^4F_{9/2} \rightarrow {}^6H_{15/2}$ and $^4F_{9/2} \rightarrow {}^6H_{13/2}$ transitions respectively. The emission spectrum was characterized through Commission International d'Eclairage (CIE) 1931 chromaticity diagram to explore its suitability for display applications. CIE chromaticity diagram for the prepared BiBDy0.5 glass (λ_{ex} =280 nm) and the values of the (x, y) color coordinates are found to be (0.393, 0.604) with CCT 4663K. It is noted from figure that, the (x, y) color co-ordinate values are found to lie in the greenish-yellow region, which is useful for white light generation. The same prepared glass sample, BiBDy0.5 shows chromaticity co-ordinates (0.479, 0.520) with CCT 3995K which is in yellow region in the chromaticity diagram under 387nm excitation wavelength, which can be useful for display applications.

Keywords**:** Trivalent ion, dysprosium, glass, annealing, melt-quenching, optical, luminescence

I. INTRODUCTION

Glass is not a single composition but a state of matter. It is a subset of solid state. Glass is a network of atoms bonded to each other through covalent bonds with oxygen atoms. It is usually tetrahedral bonded together in a random arrangement. The glass transition from solid glass to the viscous liquid glass is an important property. Basically glass is an elastic solid below the transformation region and a viscous liquid above it. The structure of the solid has all the attributes of a liquid except that solid does not flow on any meaningful time scale. If glass is cooled from the melt faster, the overall glass structure will have a large volume (lower density) than one that is cooled slowly. Glass is an elastic solid without the structural periodicity and long range order of crystalline material. It looks like a liquid but behaves like a solid. Generally thermodynamically glass systems have higher potential energy than crystalline material due to random arrangement.

Recent development of optical devices was based on rare earth ions doped materials is one of the interesting field of research. Rare earth doped glasses were used as optical device materials, sensors, solar concentrators, flat panel displays, fluorescent lamps, white LEDs etc. [1-4]. Glasses doped with rare earth ions are proving to be luminescence materials as they have high emission efficiencies. These emissions correspond to 4f-4f and 4f-5d electronic transitions in the rare earth^{n+}. The 4f-4f transition gives sharp fluorescence pattern from the UV to the infrared region. This is due to shield effects of the outer 5s and 5p orbital's on the 4f electrons [5]. The Judd-Ofelt (JO) theory was helpful to estimate the intensities of the transitions for rare earth ions. This theory defines three intensity parameters, Ω_λ (λ= 2, 4, 6) that are sensitive to the local environment of the rare earth ions. The lanthanum group doped materials is important because of their potential applications in the fields of optical device technology, optoelectronic devices, infrared to visible up-converters and phosphors [6]. Therefore luminescence properties of rare earth doped different glass hosts are being prepared and investigated with the purpose to know their utility for luminescence applications.

The visible luminescence of trivalent dysprosium (Dy^{3+}) mainly consists of narrow lines in the blue (470–500 nm, $^4F_{9/2} \rightarrow {}^6H_{15/2}$) and yellow (570–600 nm, $^4F_{9/2} \rightarrow {}^6H_{13/2}$) region [7]. The later one belongs to the Hyper sensitive transition (L = 2, J = 2), which is strongly influenced by the environment. Out of the 14 lanthanide elements, dysprosium in its trivalent state (Dy^{3+}) is an efficient emitter in the visible region and it is the only ion that emits two intense colors that on combining in appropriate proportions yields white light. At an appropriate yellow-to-blue (Y/B) intensity ratio, Dy^{3+} particle emits white light. Thus, light emitting materials doped with Dy^{3+} ion are used for generation of w-light in glasses and phosphors. By adjusting the Y/B intensity ratio, it is possible to obtain near white light emission in Dy^{3+} activated luminescent nanophosphors [8].

The present work reports optical and luminescence properties of Dy^{3+} doped bismuth borate glass is characterized through optical absorption, excitation and emission spectral measurements. The intensities of the transitions for rare earth ions have been investigated using Judd-Ofelt (JO) theory. The characteristics of the emission color were examined through CIE 1931 chromaticity diagram.

II. MATERIALS AND METHODS

2. 1 Glasses preparation

The glass samples were prepared by the standard melt quenching method with the following compositions. $(60-x)B_2O_3$-$40Bi_2O_3$: xDy_2O_3 where x= 0 and 0.5 mol%. These glasses can be designated as BiBDy0 and BiBDy0.5 depending on the Dy^{3+} ion concentration respectively. About 10 gm of the batches of composition were taken and grounded completely using an agate mortar to get homogenised mixture. The homogeneous mixture was then taken into a ceramic crucible and heated at 1000 ºC in an electrical furnace for 10 min until the

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A Study on Economic Development in India

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***Abstract*: This paper presents a study on economic development in India.**

***Keywords*: economic development**

1. Introduction

The economic development in India followed socialist-inspired politicians for most of its independent history, including state-ownership of many sectors; India's per capita income increased at only around 1% annualised rate in the three decades after its independence. Since the mid-1980s, India has slowly opened up its markets through economic liberalization. After more fundamental reforms since 1991 and their renewal in the 2000s, India has progressed towards a free market economy.

In the late 2000s, India's growth reached 7.5%, which will double the average income in a decade. IMF says that if India pushed more fundamental market reforms, it could sustain the rate and even reach the government's 2011 target of 10%. States have large responsibilities over their economies. The average annual growth rates (2007–12) for Gujarat (13.86%), Uttarakhand (13.66%), Bihar (10.15%) or Jharkhand (9.85%) were higher than for West Bengal (6.24%), Maharashtra (7.84%), Odisha (7.05%), Punjab (11.78%) or Assam (5.88%). India is the sixth-largest economy in the world and the third largest by purchasing power parity adjusted exchange rates (PPP). On per capita basis, it ranks 140thin the world or 129th by PPP.

The economic growth has been driven by the expansion of the services that have been growing consistently faster than other sectors. It is argued that the pattern of Indian development has been a specific one and that the country may be able to skip the intermediate industrialization-led phase in the transformation of its economic structure. Serious concerns have been raised about the jobless nature of the economic growth.

Favorable macroeconomic performance has been a necessary but not sufficient condition for the significant reduction of poverty amongst the Indian population. The rate of poverty decline has not been higher in the post-reform period (since 1991). The improvements in some other non-economic dimensions of social development have been even less favorable. The most pronounced example is an exceptionally high and persistent level of child malnutrition (46% in 2005–6).

The progress of economic reforms in India is followed closely. The World Bank suggests that the most important priorities are public sector reform, infrastructure, agricultural and rural development, removal of labour regulations, reforms in lagging states, and HIV/AIDS. For 2018, India ranked 77th in Ease of Doing Business Index. According to Index of Economic Freedom World Ranking an annual survey on economic freedom of the nations, India ranks 123rd as compared with China and Russia which ranks 138th and 144th respectively in 2014.

At the turn of the century India's GDP was at around US$480 billion. As economic reforms picked up pace, India's GDP grew five-fold to reach US$2.2 trillion in 2015 (as per IMF estimates).

India's GDP growth during January–March period of 2015 was at 7.5% compared to China's 7%, making it the fastest growing economy. During 2014–15, India's GDP growth recovered marginally to 7.3% from 6.9% in the previous fiscal. During 2014–15, India's services sector grew by 10.1%, manufacturing sector by 7.1% & agriculture by 0.2%. Indian Economy Grows at 7.6 & 7.1 in FY 2015–16 and FY 2016–17 Respectively as Major Reforms had Been Taken Place like Demonetization and Implementation of GST in FY 2016–17 the Economic Growth has Been Slow Down in 2017–18 as it is Expected to Grow at 6.7 and Forecasted to Rebound by 8.2% in 2018–19.

1) Agriculture

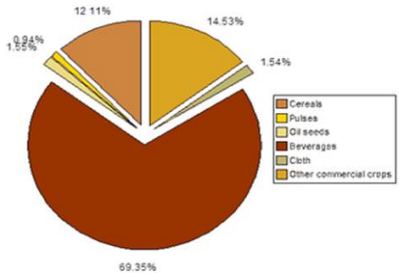

Fig. 1. Agriculture

Composition of India's total production of food grains and commercial crops, in 2003–04, by weight.

India ranks second worldwide in farm output. Agriculture and allied sectors like forestry, logging and fishing accounted for 18.6% of the GDP in 2005, employed 60% of the total workforce and despite a steady decline of its share in the GDP, is still the largest economic sector and plays a significant role in the overall socio-economic development of India. Yields per unit area of all crops have grown since 1950, due to the special emphasis placed on agriculture in the five-year plans and steady

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Number Theory and its New Developments

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***Abstract*: This paper presents an overview on number theory and its new developments.**

***Keywords*: number theory**

1. Introduction

Number theory (or arithmetic or higher arithmetic in older usage) is a branch of pure mathematics devoted primarily to the study of the integers. German mathematician Carl Friedrich Gauss (1777–1855) said, "Mathematics is the queen of the sciences-and number theory is the queen of mathematics." Number theorists study prime numbers as well as the properties of objects made out of integers (for example, rational numbers) or defined as generalizations of the integers (for example, algebraic integers).

Integers can be considered either in themselves or as solutions to equations (Diophantine geometry). Questions in number theory are often best understood through the study of analytical objects (for example, the Riemann zeta function) that encode properties of the integers, primes or other number-theoretic objects in some fashion (analytic number theory). One may also study real numbers in relation to rational numbers, for example, as approximated by the latter (Diophantine approximation).

The older term for number theory is arithmetic. By the early twentieth century, it had been superseded by "number theory". (The word "arithmetic" is used by the general public to mean "elementary calculations"; it has also acquired other meanings in mathematical logic, as in Peano arithmetic, and computer science, as in floating point arithmetic.) The use of the term arithmetic for number theory regained some ground in the second half of the 20th century, arguably in part due to French influence. In particular, arithmetical is preferred as an adjective to number-theoretic.

A. Dawn of arithmetic

The first historical find of an arithmetical nature is a fragment of a table: the broken clay tablet Plimpton 322 (Larsa, Mesopotamia, ca. 1800 BCE) contains a list of "Pythagorean triples", that is, integers such that . The triples are too many and too large to have been obtained by brute force. The heading over the first column reads: "The takiltum of the diagonal which has been subtracted such that the width..." The table's layout suggests that it was constructed by means of what amounts, in modern language, to the identity which is implicit in routine Old Babylonian exercises. If some other method was used, the triples were first constructed and then reordered by , presumably for actual use as a "table", for example, with a view to applications. It is not known what these applications may have been, or whether there could have been any; Babylonian astronomy, for example, truly came into its own only later. It has been suggested instead that the table was a source of numerical examples for school problems. While Babylonian number theory—or what survives of Babylonian mathematics that can be called thus—consists of this single, striking fragment, Babylonian algebra (in the secondary-school sense of "algebra") was exceptionally well developed. Late Neoplatonic sources state that Pythagoras learned mathematics from the Babylonians. Much earlier sources state that Thales and Pythagoras traveled and studied in Egypt.

Euclid IX 21–34 is very probably Pythagorean; it is very simple material ("odd times even is even", "if an odd number measures [= divides] an even number, then it also measures [= divides] half of it"), but it is all that is needed to prove that is irrational. Pythagorean mystics gave great importance to the odd and the even. The discovery that is irrational is credited to the early Pythagoreans (pre-Theodorus). By revealing (in modern terms) that numbers could be irrational, this discovery seems to have provoked the first foundational crisis in mathematical history; its proof or its divulgation are sometimes credited to Hippasus, who was expelled or split from the Pythagorean sect.

This forced a distinction between numbers (integers and the rationals-the subjects of arithmetic), on the one hand, and lengths and proportions (which we would identify with real numbers, whether rational or not), on the other hand.

The Pythagorean tradition spoke also of so called polygonal or figurate numbers. While square numbers, cubic numbers, etc., are seen now as more natural than triangular numbers, pentagonal numbers, etc., the study of the sums of triangular and pentagonal numbers would prove fruitful in the early modern period (17th to early 19th century).

We know of no clearly arithmetical material in ancient Egyptian or Vedic sources, though there is some algebra in both. The Chinese remainder theorem appears as an exercise in Sunzi Suanjing (3rd, 4th or 5th century CE.) (There is one important step glossed over in Sunzi's solution: it is the problem that was later solved by Āryabhaṭa's Kuṭṭaka

There is also some numerical mysticism in Chinese mathematics, but, unlike that of the Pythagoreans, it seems to have led nowhere. Like the Pythagoreans' perfect

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Ulipristal acetate determination using MBTH

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Ulipristal acetate,
MBTH,
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Method development,
Validation

ABSTRACT

A simple visible spectrophotometric method is proposed for the determination of ulipristal acetate present in bulk and tablet formulation. The currently proposed method is established based on MBTH oxidation by ferric ions to form an active coupling species (electrophile), followed by its coupling with the ulipristal in acidic medium to form high intensified green colored chromophore having λmax at 609 nm. Validated the method as per the current guidelines of ICH. Beer's law was obeyed in the concentration range of 6.25 – 37.50 μg mL^{-1} with a high regression coefficient (r > 0.999). Reproducibility, accuracy, and precision of the method are evident from the low values of R.S.D. This method can be used in quality control laboratories for routine analysis of ulipristal acetate in bulk drug and pharmaceutical dosage forms.

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INTRODUCTION

Ulipristal acetate (UPA) delays the ovulation process approximately for 5 days and hence is useful to prevent inadvertent pregnancy. Tissue selective mixed progesterone agonist is exerted by it. It also exerts antagonist effects in endometrial tissue and myometrial (Attardi *et al.*, 2004). The P4 activity in target tissues is blocked due to its selective progesterone receptor modulating activity. Its oral bioavailability is good. Fibroids management is possible by the administration of a single oral dosage per day due to its good half-life (Pohl *et al.*, 2015). Its initial development was done by NICHD, USA, and later stage by HRA Pharma (Attardi *et al.*, 2004; Gainer and Ulmann, 2003). Its development was originally aimed at gynecological applications. CDB/VA-2914 is its other name. With the trade name Ella, UPA got FDA's approval in 2010 to use it as an emergency contraceptive (Fine *et al.*, 2010). Esmya® was the trade name product from Gedeon Richter (UK) Ltd. Approval was granted for it in EU for alternating treatment of uterine fibroids symptoms (European Medicines Agency, 2016; Garnock-Jones and Duggan, 2017). It has a steroidal structure (Figure 1). It has free solubility nature in solvents like $CHCl_3$, CH_3OH, and CH_3CN, but in water has sparingly soluble nature (Prajapati, 2015). Different methods were proposed for the determination of UPA by using UV (Prajapati, 2015), HPLC-gradient (Béni *et al.*, 2014), HPLC-isocratic (Gong and Zhu, 2015) and LC-MS/MS (Pappula *et al.*, 2017; Nandakumar *et al.*, 2017). But no visible spectrophotometric method was reported. Hence, a method is proposed using MBTH as a coupling agent and then validated for its applicability in routine analysis.

MATERIALS AND METHODS

Preparation of reagents

Preparation of standard drug solution

The standard drug of ulipristal acetate (50 mg) was

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A Study on Customer Satisfaction at Sangam Dairy, Guntur

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***Abstract*: Any organization has to listen to its external customers and stakeholders. A number of studies have shown that the long-term success of a corporation is closely related to its ability to create and maintain loyal and satisfied customers, adapt to customer needs and changing preferences. In order to monitor customer satisfaction, and to take action for improving it, a number of different methods have been developed and tested.**

Any organization could definitively take advantage of a proven systematic customer satisfaction model. The challenge for organizations is to implement and secure a standardized customer satisfaction process across their playing field; class of markets and geographic markets (countries). Customer satisfaction can be addressed as a strategic business development tool and it does have a positive effect on an organization's profitability. Satisfied customers form the foundation of any successful business as customer satisfaction leads to repeat purchase, brand loyalty, and positive word of mouth. On the bases of my research I recommend organizations to implement a customer satisfaction model to enhance their business development and improve their overall level of quality.

The objective of all customer satisfaction models is to provide results that are relevant, reliable, and valid and have predictive financial capability. Customer satisfaction research should be done with greatest care. Measuring customer satisfaction must be a continuously, consistent, timely, accurate and reliable process. This is where a new customer satisfaction approach becomes a powerful strategic business development tool for organization.

Theory and best practices have proven that sustainable customer satisfaction models needs to be built on well-defined transparent processes and on a consistent approach. The means by which (customer) satisfaction is build may differ from time to time and from customer group/segmentation, whether this is based on geographic zone, business unit, country, product, or demographic culture is not relevant as long as accountable managers and marketers understand the relevance of each model (latent and manifest) variable in relation to the target group. As a consequence of the above, organizations could benefit from a well-defined customer satisfaction model. I recommend organizations to carry out the following strategic proposition; Implement the European Customer Satisfaction Index as used by EPSI. Customize EPSI survey questionnaire & implement NPS attributes Secure process ownership and process managers. Customer satisfaction survey on a monthly base. Standardize process flow and reporting structures.

***Keywords*: customer satisfaction**

1. Introduction

A. Marketing introduction

Marketing is the business function that identifies customer needs and wants, determines which target markets the organizations can serve best, and designs appropriate products, services and programs to serve these markets. However, marketing is much more that just an isolated business function-it is a philosophy that guides the entire organization. The goal of marketing is to create customer satisfaction profitably by building value – laden relationships with important customers. The marketing department cannot accomplish this goal by itself. It must team up closely with other departments In the company and partner with other organizations throughout its entire value – delivery system to provide superior value to customers. Thus, marketing calls upon everyone in the organization to "think customer "and to do all they can to help create and deliver superior customer value and satisfaction.

Many people see that marketing only as advertising or selling. But real marketing does not involve the art of selling what you make so much as knowing what to make! Organizations gain market leaderships the understanding customer needs and finding solutions the delight customers through superior value, quality, and service. If customer value and satisfaction are absent, no amount of advertising or selling can compensate.

Marketing is all around us, and we all need to know something about it. Marketing is used not only by manufacturing companies, wholesaler's retailers, but by all kinds' individuals and organizations. Lawyers, accountants and doctors use marketing to manage demand for their services. So do hospitals, museums and performing art groups. We are learning about how to apply the basic concepts and practices of modern marketing as they are used in a wide variety of settings:

People throughout these organizations need to know how to define and segment market and how to position themselves strongly by developing need- satisfying products and services for chosen target segments. They must know how to price their offerings to make them attractive affordable and how to choose and manage intermediaries to make their products available to customers. And they need to know how to advertise and promote products so customers will know about and warn them. Clearly marketers need a broad range of skills in order to sense,

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ఆధునిక సాహిత్యవేత్త యిక్కుర్తి నరసింహారావు గారి కవిత్వం - ప్రకృతి వర్ణన

- గౌరారపు శ్రీనివాస్, శాఖాధిపతి, తెలుగు విభాగం, ఎ. జి & ఎస్. జి. సిద్ధార్థ డిగ్రీ కళాశాల, ఉయ్యూరు. కృష్ణా జిల్లా.

యిక్కుర్తి నరసింహారావుగారు 1949 ఏప్రిల్ 23 వ తేదీన వీరరాఘవరావు, శకుంతలమ్మ పుణ్యదంపతులకు జన్మించారు. 14-7-1975 న శ్రీకాంతమ్మతో వివాహం జరిగింది. వీరికి ముగ్గురు సంతానం. కృష్ణా జిల్లా ముసునూరులో M.E.Oగా చేస్తూ 2007వ సంవత్సరంలో పదవీ విరమణ చేశారు.

సంక్షిప్త పరిచయం :

కవితల ద్వారా సమాజానికి సందేశం ఇవ్వడం, వ్యంగ్యంగా, నిశితంగా సమాజాన్ని పరిశీలిస్తూ ప్రజలలో మార్పు తీజుకురావచ్చనే ఉద్దేశ్యంలో కలంచిందులు, సహృద్గీత అనే కవితా సంపుటులను యిక్కుర్తి నరసింహారావు గారు రాశారు. ఈ కవితలలో అనేకమైన సామాజిక అంశాలతో పాటు ప్రకృతిని గురించి వర్ణన చేశారు.

యిక్కుర్తి నరసింహారావు గారి కవిత్వం- ప్రకృతి వర్ణన :

ఆధునిక కవులలో భావ కవిత్వపు జాలును తెలుగు సాహిత్యంలో చూపించిన కవి యిక్కుర్తి. ఎంతోమంది కవులు ప్రకృతిని ఇతివృత్తంగా తీసుకుని గొప్ప రచనలు చేశారు మనిషి జీవితంలో కవిత్వం ఎంతో ప్రాధాన్యాన్ని సంతరించుకుంది అందులో ప్రకృతి కవిత్వం ఎంతో మంది కవుల కలాలలో గొప్పగా సాగింది.

ఆకులో ఆకునై అంటూ సాగిన దేవులపల్లి, నండూరి ఎంకి పాటలు, కృష్ణశాస్త్రి పుష్ప లావికలు మల్లెమాల ఫల విలాపం వంటి రచనలలో చక్కని ప్రకృతి వర్ణనల ద్వారా పర్యావరణ పరిరక్షణ, ప్రకృతిపట్ల ప్రేమను ఎంతో చక్కగా వర్ణించిన తీరును చూస్తే వారికి ఎంతో బాధ్యత ప్రకృతి పట్ల వుందని తెలుస్తుంది.

అలాంటి వరుసలో నిలబడిన కవి యిక్కుర్తి. వారి సాహిత్యంలో అనేక సందర్భాలలో వారి కవితలలో, పాటలలో ఎంతో చక్కగా చేసిన ప్రకృతి కవిత్వం హృదయాలను ఉప్పొంగేలా చేస్తాయి. అంతటి నిగూఢత్వం, నిర్మలత, వారి సాహిత్యంలో కనిపిస్తాయి. అంతగా మన సాహిత్యంలో పర్యావరణానికి ఎంతో ప్రాధాన్యతను కలగించారు.

మనసంతా ఆనందం పులుముకుని ఆసక్తితో, ఉత్సుకతతో ఒక్కసారి యిక్కుర్తి వారి ప్రకృతి తోటలోకి అడుగు వేసి విహరిద్దాం.

"నల్లని ఆకాశంలో
తెల్లని మంచు తునక లాంటి
జాబిల్లి చిరునవ్వులో
చల్లని తుంపరలు కురిశాయి
నల్లని కోయిల కంఠం
కమ్మగా పలికింది
నల్లని కలువ చిరునగవులలో
తెల్లని జాబిలి మెరిసింది
చల్లని ఈ లోకం
కమ్మని అనుభూతినిస్తున్నది."

(సుహృద్గీత పుట సంఖ్య - 83)

యిక్కుర్తి వారి ప్రకృతి వర్ణన ఇలా సాగుతుంది. నల్లని ఆకాశం, అందులోని మంచు లాంటి తెల్లని మబ్బు తునకలు నిండు పున్నమి నవ్వితే తుంపరలుగా మెరిసాయి అంటారు కవి. ఇదొక అలౌకికమైన భావన.

కోయిల నల్లగా వున్నా దాని గొంతు తియ్యగా కమ్మగా పలికిందంటారు. ఈ లోకం చల్లదైనదని ఎంతో కమ్మని అనుభూతిని కలిగిస్తుందని కవిభావన మన మనస్సుకు ఎదో తెలియని హృదయ తాపాన్ని కలిగించి మురిపిస్తుంది.

ప్రకృతి ఎంతటి రమణీయమైనది ఎంతటి మనోజ్ఞమైనది ఎంతటి సౌందర్యమైనది. చూసే మనస్సు వుండాలేగాని జగమంతా సౌందర్యమే నిండివుందని పిస్తుంది. ఇలా సాగుతుంది వారి కవిత్వపు యేరు.

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యిక్కుర్తి నరసింహారావు గారి నాటిక "నరజాతి చరిత్రసమస్తం" సామాజికాంశాలు

- గొరిరపు శ్రీనివాస్, శాఖధిపతి, తెలుగు విభాగం, ఎ.జి. & యస్.జి. సిద్ధార్థ డిగ్రీ కళాశాల, ఉయ్యూరు, కృష్ణ జిల్లా.

యిక్కుర్తి నరసింహారావు గారు 1949 ఏప్రిల్ 23వ తేదీన వీరరాఘవరావు శకుంతలమ్మ పుణ్యదంపతులకు జన్మించారు. శ్రీకాంతమ్మతో 14-7-1975న వివాహం జరిగింది. వీరికి ముగ్గురు సంతానం. కృష్ణా జిల్లా ముసునూరులో MEO గా చేస్తూ 2007వ సంవత్సరంలో పదవీ విరమణ చేశారు.

ఉపోద్ఘాతము :

తెలుగు సాహిత్య చరిత్రలో నాటక సాహిత్యానికి ఒక ప్రత్యేకమైన శైలి.నాటకం దృశ్యకావ్యం. అందుకే ఎన్నో భాషలలో నాటకానికి ప్రత్యేక స్థానం వుంది. నవరసాలను అలవోకగా రంగస్థలంపై ప్రదర్శించి ప్రేక్షకుల (పాఠకుల) హృదయాలను రంజింపచేయగల సత్తా నాటకానికి వుంది. నాటకం కాలంతరాలలో విభిన్న రూపాలలోకి మారినా దాని ఉద్దేశ్యం మూలసూత్రం మాత్రం సమాజ హితమే.

తెలుగు సాహిత్యంలో ఎన్నో ఇతివృత్తాలతో నాటకాలు వచ్చాయి. ఎందరో కవులు నాటకాలను రచించారు. ఎన్నో గొప్ప నాటకాలు, నాటికలు జనాదరణ పొందాయి. గురజాడ అప్పారావు గారి కన్యాశుల్కం వంటి సామాజిక నేపథ్యం కలిగిన నాటకాలు మన తెలుగు సాహిత్యానికి దిశానిర్ధేశం చేశాయి. సాహిత్యంలో నాటకం కూడ తన వంతు పాత్రను ప్రత్యేకంగా సంతరించుకుంది. నేటి సినిమాలకు నాటకం మూలం అని మనందరికి తెలిసిన విషయమే కదా!

అటువంటి పరంపరలో మన యిక్కుర్తి నరసింహారావు గారి కలం నుండి జాలువారిన నాటికలు ఎంతో ప్రాముఖ్యాన్ని పొంది సమాజ హితాన్ని చాటాయి. అందులో ఎంతో సంపాదించాయి. నాటిక సాహిత్య ప్రక్రియలో తనదైన ముద్రను వేసుకున్నారనుటలో అతిశయోక్తి లేదు.

సమాజాన్ని ఇతివృత్తంగా చేసుకొని సాగిన వారి నాటక సాహిత్యం గొప్ప మేలుకొలుపుగా అందించారు. వారు రచించిన నాటికలలో సమాజంలోని కష్టాలు, పేదరికం, వెనుకబాటుతనం, నిరక్షరాస్యత, సామాజిక చైతన్యం వంటి అంశాలు కనిపిస్తాయి. బొమ్మలాట, సర్వేజనా సుఖినోభవంతు, నరజాతి చరిత్ర సమస్తం, ఉట్టి, సుఖీభవ నాటికలు సమాజాన్ని పేరేపించేవిగాను, ప్రభావితం చేసేవిగాను కనిపిస్తాయి. వారి ప్రతినాటిక ఏదో ఒక పరమార్థాన్ని కలిగిస్తుంది.

సమాజాన్ని నిశితంగా పరిశీలించిన వాని జీవితాను భవాలు స్పష్టంగా గోచరిస్తాయి. సమాజం ఎంతగా మానవుల జీవితాలపై ప్రభావం చూపుతుందో విశదీకరిస్తాయి. ప్రతి నాటకం చిన్న చిన్న ఇతివృత్తాలతో నిండినదైనా గాని అందులో విశేషమైన ప్రయోజనాన్ని చూపించారు. యిక్కుర్తి గారి నాటికలు ఏదో తెలియని గొప్ప చైతన్యాన్ని కలిగించాయి. సాధారణమైన అంశాలతో విశేషమైన ప్రయోజనాన్ని వారి నాటికలు కలిగిస్తాయనడంలో సందేహం లేదు. వారి నాటికలను నిశితంగా పరిశీలిస్తే మనకు అందులోని సామాజిక స్థితిగతులు దర్శనమిస్తాయి.

నరజాతి చరిత్ర సమస్తం :

ఇతివృత్తం :

ఏ దేశ చరిత్ర చూచినా ఏమున్నది గర్వకారణం "నరజాతి చరిత్ర సమస్తం" పరపీడన పరాయణత్వం అన్న శ్రీశ్రీ గారి కవితా పంక్తుల నుండి స్వీకరించిన ఈ నాటిక శీర్షికలోనే సమాజంలోని అసమానతలను రచయిత చూపించారు.

ఈ నాటికలో ఒక రిక్షా తొక్కి కుటుంబాన్ని పోసించుకునే ముసలితాత. మంచం మీద జీవితం సాగిస్తున్న భార్య. పెళ్ళీడుకొచ్చిన కూతురు. పెళ్ళయి పెళ్ళాం వదలివేసిన తాగుబోతు కొడుకు. జులాయి బావమరిది, సమాజంలోని కుళ్ళును, కుతంత్రాలను చూడలేక

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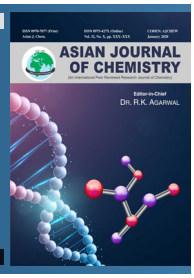

Impact of 2-Aminonicotinic Acid and/or β-Cyclodextrin on the Morphology of Metal Carbonates (M = Ca^{2+} and Sr^{2+}) Crystallization

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We examined the crystallization impact of the surfactant, 2-aminonicotinic acid and/or β-cyclodextrin on the formation of two anhydrous metal carbonates, MCO_3 (M = Ca^{2+} and Sr^{2+}), from their respective calcium chloride and strontium chloride salts along with $NaHCO_3$ at room temperature. By varying the concentrations of this hybrid surfactant to the concentrations of MCO_3 during the preparations and examined their particle sizes by PXRD, FTIR, TGA and SEM. The characterization on these newly formed anhydrous metal carbonates clearly indicated that $CaCO_3$ formed with three different shapes such as truncated calcite, hexagonal calcite and rod shaped aragonite. Whereas, $SrCO_3$ formed with two different shapes such as hexagonal poles and bloom scale bars by varying concentrations of the surfactants. The mixed surfactant certainly made an impact on the metal carbonates formations with different shapes and sizes by varying surfactants concentrations and conditions.

Keywords: β-Cyclodextrin, Calcium carbonate, 2-Aminonicotinic acid, Strontium carbonate, Morphology.

INTRODUCTION

Nature utilizes many natural surfactants from plants and animals to control and direct the crystallization process during natural mineral formations. The natural and biological macromolecules could control the nucleation process during their formation to get various beautiful precious stones with amazing shapes and gem morphology. For example, natural network comprises of an auxiliary system of compromising hydrophobic macromolecules related to acidic macromolecules that go about as a nucleation surface for bio-mineralization. Later, these natural minerals give another course to integrate with various other minerals and materials to form a variety of new materials with desired properties and applications. In nature, thr assortment of strong inorganic minerals and materials with intriguing properties and various leveled structures are solidified affected by natural surfactants [1]. Moreover, natural surfactants certainly impact the size, shape and morphologies of minerals and materials, which could certainly play a crucial role in their physical, biological and mechanical properties of formed materials. In the literature, various studies were reported to investigate the impact of natural surfactants on the nucleation, development and morphology of inorganic materials [2-8].

Reused by the formation process of the biominerals utilizing natural layouts, along with new synthetic methodologies and processes achieved extraordinary materials in the field of biomimetic area of research and materials science [9-16] too. In fact, among the many important commonly used minerals, $CaCO_3$ is a seriously contemplated in light of its bounty as a biomineral in nature. Henceforth, for making a variety of morphologies of $CaCO_3$, various methodologies were tried including Langmuir monolayers [17], self-amassed monolayers [18], miscelles [19], microemulsions [20], *etc*. Moreover, as fluctuated dissolvable added substances such as manufactured peptides [21], dendrimers [22], microorganisms [23] and chiral compounds [24] have been studied to control polymorphs, directional conglomeration, size and shape control of $CaCO_3$ precious stones.

"A STUDY ON HUMAN RESOURCE PLANNING PROCESS AND DEVELOPING"

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ABSTRACT

The current places of business in a reasonable and straightforward manner, the administration of HR in help associations where staff is applicable to the accomplishment of arrangements, objectives and targets. they give the inventive and profitable flash and are basic for authoritative achievement. The paper is identified with profession advancement and the phases of a lifelong program. It ponders the advancement of the person's work over the long run, stressing the stages: investigation (endeavor of new jobs), foundation, support and plummet, dividing exercises by phases of improvement, their relationship with the ordered age of the individual and the overall degree of interest and impact, related with each stage.

Keywords: Human assets, the board and arranging, human asset cycles, creating and preparing, and key variables of HRM.

INTRODUCTION:

The association is where a specific gathering of individuals complete a progression of exercises in an organized way and as per a specific various leveled structure to accomplish targets (Zakirova and Gimadiev, 2019). In an organization, a progression of assets (human and material) are utilized in a coordinated and organized approach to accomplish results (produce merchandise or offer types of assistance). The making of the hierarchical structure of the organization requires recognizing what are the errands that should be created to accomplish the item or administration offered and facilitate them appropriately to accomplish the ideal outcome (Bagheri, 2016). This coordination infers building up connections between the various gatherings to guarantee that the association capacities in a fitting way. In the structure of the association, these viewpoints should be thought of:

1. Complexity

Authoritative unpredictability alludes to the quantity of progressive levels, the level of division of work and the geological scattering of the organization.

2. Normalization

Normalization alludes to the quantity of inner guidelines, rules and techniques in an association.

3. Centralization/decentralization

This measurement alludes to where the power to settle on choices lives. The essential territories of the organization are set up by the board, characterizing the various capacities that should be created in it to accomplish its targets in a coordinated a lot way (Ali, 2019).

The elements of the organization are those exercises that happen in it and that, acting in a planned way, permit the organization's goals to be accomplished. Clearly, these capacities will rely upon your region of action (for instance, an assistance organization won't have a creation zone) and its size. The principle regions normal to organizations are portrayed beneath; Depending on their size and the manner by which the organization is organized, these capacities will be expected, in entire or to some degree, by one or a few people.

4. Directions

The administration work is answerable for organizing the specialized, human, monetary and material assets of the organization to center them towards the accomplishment of the proposed destinations. The administration work includes the assignments of arranging, association, coordination and control (Shah, 2018).

5. Financial

It is liable for acquiring and dealing with the monetary assets fundamental for the activity of the organization and for making ventures.

6. Production and supply

It is liable for the stockpile of crude materials and the cycle of their change into eventual outcomes, at times including their capacity (Oke and Kefas, 2019). It covers the arrangement of exercises that are created to make and plan the items or administrations that the organization offers on the lookout.

"A STUDY ON FLEXIBLE HUMAN RESOURCE MANAGEMENT AND FIRM INNOVATIVE NESS WITH SPECIAL REFRENCE TO MEDIATING ROLE OF INNOVATIVE WORK BEHAVIOUR"

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ABSTRACT

The paper inspects the connection between adaptable Hrm, imaginative work practices, and firm innovativeness. We built up a hypothetical structure that interfaces the builds together. Inventive work practices, adaptable Hrm alongside its 3 sub-measurements (Hr rehearses adaptability, Employee aptitude adaptability, and Employee social adaptability), and firm inventiveness alongside its 3 sub-dimensions (Product advancement, Process development, and authoritative development) are interlinked. Utilizing the example of 153 gathered from the top and center supervisors of high innovation organizations, the information was broken down whose discoveries demonstrated that adaptable Hrm decidedly impacts imaginative work practices. Further, inventive work practices decidedly impact firm creativity.
Keywords: Adaptable human asset the executives; inventive work practices; firm ingenuity; high innovation companies

INTRODUCTION:

Computerized age and information economy have molded substantial changes in the corporate world. (Chen and Li, 2015).Organizations are presently confronting intense rivalries in the dynamic, questionable, changing and complex Climate (Sanz-Valle and Jiménez-Jiménez, 2005).in request to accomplish upper hand and in any event, for the endurance, firms intensely relies upon their capacity to adjust and react to the climate, adaptability and presentation ability of novel thoughts and items (Jiang,Wang and Zhao, 2012; Beugelsdijk, 2008;mumford, 2000;Chen and Huang, 2009).
An organization that follows inventive and creative techniques ought to have workers who convey sort of enterprising and inventive practices. So it's essential to see appropriately what actually makes people at work environment to carry on inventively and how the organizations can shape that sort of practices (Eenink, 2012). Human asset the executives are accepted to be firmly implanted in the business techniques to successfully uphold the advancements (Kozlowski, 1987). Another arising field that begin creating research interest in Human asset the executives is adaptable human asset the board, since it empowers the organizations to stretch and adjust to changing, unsure and different prerequisites in both inside and outside climate (Wright and Boswell 2002; Kumara and Pradhan, 2014). adaptable Human resource management is viewed as significant part of firm adaptability as it shapes the properties of representatives (aptitudes, capacities, characteristics and practices) as indicated by evolving natural conditions (Ngo and Loi, 2008).Basically in adaptable Human asset the executives representatives are urged to use and absorb new and powerful information from the climate and are given adaptable changes in the structures, work modes and plans of motivations and preparing (Chen and Li, 2015). adaptable Human asset the executives (fHm) additionally impacts creative work conduct as they are focused on towards worker expertise, inspiration, capacities and openings improvement (Puikene, 2016). fHrm essentially engages their workers to show class their ability and convey their yield looking like imaginative thoughts byusing the maximum capacity of their insight, aptitudes and capacities. (Chen and Huang, 2009; Prieto and Perez-Santana, 2013).

According to definition, creative work practices is amultistage measure and is worried about age, appropriation and execution of the original thoughts (Scott and Bruce, 1994; Kanter, 1998; Xerri and Brunetto, 2013). Essentially imaginative work practices are so pivotal for development looking for organizations since accomplishment of inventive organizations lies in their representatives whose practices are the main wellspring of driving towards developments. (Abstein and Spieth, 2014). iWB are accepted to be themajor perspective in changemanagement that really drives associations towards developments and at last expanding their serious positions (Puikene, 2016). Althoughmajority of the corporate pioneers currently see imagination and development as indispensable for the long termsuccess of their business, however a significant number of them are as yet following conventional ways to deal with development whose benefits rarely surpasses their expense, normally they fizzled or gone delivered (molino et al, 2013).
Hrm function in advancement stayed a region of obliviousness. As per (Hr innovAsian report, 2014) there are just 20% Hr experts who got occupied with the cycle of developments in the corporate world.›is figure portrays that associations still not understand the significance of the job Human assets play in advancement measure. moreover, the way to creative exhibitions of associations are the imaginative work practices of their workers (farr and portage, 1990; De Jong and Den Hartog, 2010) yet notwithstanding

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INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

"A STUDY ON THE LINEAR ALGEBRA & MATRIX IN MATHEMATICS"

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ABSTRACT

In this we are presenting a study on the linear algebra and matrix in mathematics. Linear algebra is the branch of mathematics concerned with the study of vectors, vector spaces (also called linear spaces), linear maps (also called linear transformations), and systems of linear equations. Vector spaces are a central theme in modern mathematics; thus, linear algebra is widely used in both abstract algebra and functional analysis. Linear algebra also has a concrete representation in analytic geometry and it is generalized in operator theory. It has extensive applications in the natural sciences and the social sciences, since nonlinear models can often be approximated by linear ones.

Keywords: Linear Algebra, Matrix, Linear Spaces, n-Tuples, Vectors, Linear Equation.

INTRODUCTION

Direct polynomial math had its beginnings in the investigation of vectors in Cartesian 2-space and 3-space. A vector, here, is a coordinated line section, described by the two its extent, spoken to by length, and its course. Vectors can be utilized to speak to actual substances, for example, powers, and they can be added to one another and increased with scalars, subsequently framing the main illustration of a genuine vector space. Current straight polynomial math has been reached out to think about spaces of subjective or limitless measurement. The vector space of measurement n is called a n-space. The majority of the helpful outcomes from 2-and 3-space can be reached out to these higher dimensional spaces. In spite of the fact that individuals can only with significant effort imagine vectors in n-space, such vectors or n-tuples are valuable in speaking to information. Since vectors, as n-tuples, are requested arrangements of n parts, it is conceivable to sum up and control information proficiently in this structure. For instance, in financial matters, one can make and utilize, say, 8-dimensional vectors or 8-tuples to speak to the Gross National Product of 8 nations. One can choose to show the GNP of 8 nations for a specific year, where the nations' structure is determined, for instance, (United States, United Kingdom, France, Germany, Spain, India, Japan, Australia), by utilizing a vector (v1, v2, v3, v4, v5, v6, v7, v8) where every nation's GNP is in its individual position. A vector space (or direct space), as an absolutely unique idea about which hypotheses are demonstrated, is important for conceptual polynomial math and is all around incorporated into this control. Some striking instances of this are the gathering of invertible straight guides or networks, and the ring of direct guides of a vector space. Straight polynomial math likewise has a significant influence in investigation, strikingly, in the portrayal of higher-request subordinates in vector examination and the investigation of tensor items and substituting maps.

In this theoretical setting, the scalars with which a component of a vector space can be duplicated need not be numbers. The lone prerequisite is that the scalars structure a numerical structure, called a field. In applications, this field is normally the field of genuine numbers or the field of complex numbers. Straight guides take components from direct space to another (or to itself), in a way that is viable with the expansion and scalar augmentation given on the vector space(s). The arrangement of all such changes is itself a vector space. In the event that a reason for a vector space is fixed, each straight change can be spoken to by a table of numbers called a framework. The definite investigation of the properties of and calculations following up

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A study of uncoated and coated nickel-zinc ferrite nanoparticles for magnetic hyperthermia

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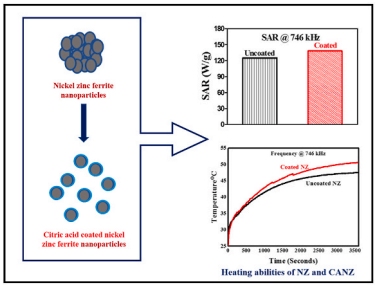
HIGHLIGHTS

- Developing nanoparticles of size in the range 3.6–8.2 nm by the sol-gel process.
- Establishing single domain, and super-paramagnetic nature of nanoparticles.
- Observing therapeutic temperature in the range 40–45 °C for longer time.
- Observing improvement in the bio-compatibility and colloidal stability of coated nanoparticles.
- Obtaining SAR of 131.5 W/g for citric acid coated nanoparticles of concentration 12 mg/mL.

GRAPHICAL ABSTRACT



ARTICLE INFO

Keywords:
Ferrite nanoparticles
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ABSTRACT

The paper describes how to arrive at the required characteristics suitable for the study of magnetic hyperthermia in a nanoferrite. The composition selected for the study, $Ni_{0.60}Zn_{0.35}Fe_{2.05}O_4$ was synthesized by sol-gel process with an adequate control on its particle size using a chelating agent, polyethylene glycol (PEG). Nanoparticles with mean particle sizes in the range 3.6–8.2 nm were obtained by annealing the as-prepared powder at different temperatures. Identification of single phase spinel structure, particle size determination and magnetic properties of all the samples were made available with X-ray diffraction, Transmission electron microscopy, and Vibration sample magnetometer. The single domain nature of the nanoparticles was established from the particle size dependence of the coercivity. The superparamagnetic behaviour of two annealed samples having a mean particle sizes 3.6 nm and 4.4 nm was established from the temperature dependence of the field cooling and zero field cooling magnetization curves. The observed higher blocking temperature (below room temperature) for smaller particles was attributed to interactions between the particles in the powder samples. The effect of interparticle interactions on heating efficiency was examined by comparing the specific absorption rate (SAR) of nanoparticles dispersed in water at different concentrations. The higher zeta potential values of citric acid coated nanoparticles

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PUBLICATIONS

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Calculation of Vibrational Frequencies of Sulfur Dioxide by Lie Algebraic Framework

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In this paper, we have demonstrated the application of the U(2) Lie algebraic method to predict the vibrational frequencies of sulfur dioxide (SO_2). A Hamiltonian that preserves the $C_{2\nu}$ point group symmetry of the molecule is devised using three interacting Morse oscillators. Root mean square deviation of the calculated vibrational frequencies is found to be 1.054 cm^{-1} with reference to their experimental values. This asserts that the U(2) Lie algebraic method is successful in calculating the fundamental vibrational frequencies, and their higher overtones near to the spectroscopic level of accuracy.

topics: vibrational frequencies, sulfur dioxide, U(2) Lie algebraic method

1. Introduction

Theoretical calculations of vibrational frequencies of polyatomic molecules have been one of the interesting research areas for scientists on account of the development of innovative spectroscopic techniques. The investigation of vibrational spectra of molecules has been improved in recent years both theoretically and experimentally. Two approaches have been predominantly used so far in the study of experimental spectra: the well-known Dunham-like expansion of energy levels in terms of rotation–vibration quantum numbers and the solution of the Schrödinger equation with potential functions.

In this work, we applied the Lie algebraic method to study the vibrational frequencies of sulfur dioxide. This method reformulates the Hamiltonian operator in terms of elements of the Lie algebra and provides the same physical information as that of the Dunham and potential approaches [1, 2]. The advantage of the proposed method, as compared to that of the Dunham or potential approach, is that usually fewer parameters are required to get the same level of accuracy, in contrast to their comparators [3, 4]. The Lie algebraic method makes it possible to predict the vibrational frequencies much more accurately and possibly at a much lesser computational cost as compared to other theoretical approaches. The lesser computational cost of the Lie algebraic framework is evident from the lesser demand of computational time for performing algebraic manipulations, rather than integration and differentiation of the potential function as in other approaches [1, 2].

2. The U(2) Lie algebraic method

Sulfur dioxide (SO_2) is a bent triatomic molecule with the equilibrium structure belonging to the $C_{2\nu}$ point group symmetry. The molecule is non-linear with 3 vibrational degrees of freedom. Each of the vibrating bonds in SO_2 molecule is effectively described by a one-dimensional Morse oscillator and is assigned with a corresponding U(2) Lie algebra, as per the schematic shown in Fig. 1.

The two possible chains of dynamical symmetry groups in SO_2 molecule, corresponding to the local and normal couplings in stretching vibrations, are given by

$$U_1(2) \otimes U_2(2) \supset O_1(2) \otimes O_2(2) \rightarrow {}^{\text{local}}_{\text{coupling}} \quad (1)$$

$$U_1(2) \otimes U_2(2) \supset U_{12}(2) \supset O_{12}(2) \rightarrow {}^{\text{normal}}_{\text{coupling}} \quad (2)$$

The interaction results in three normal mode vibrations ν_1, ν_2, and ν_3, correspond to the symmetry species A_1 (symmetric stretch), B_1 (asymmetric stretch), and A_1 (bend).

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SIMULTANEOUS QUANTIFICATION OF TIAGABINE AND ITS RELATED SUBSTANCE BY A STABILITY-INDICATING RP-HPLC METHOD

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ABSTRACT

The proposed study is the development of the RP-HPLC method for simultaneous quantification of tiagabine (TBN) and its related substance – A (TBN RS-A). The method was validated for its applicability both in bulk drug and tablet dosage form. For an isocratic elution, a mobile phase comprising of methanol: 0.1 mM acetate buffer mixture (65:45 v/v, pH 5.6) was used at 1 ml/min flow rate and ProntoSIL ODS C18 column (250mm × 4.5 mm; 5µm) column. At 240 nm as λmax, sharp peaks of TBN RS-A and TBN were observed at 3.7 and 5.2 min respectively. As per the ICH guidelines, the method was validated. Validation of the method was done as per the guidelines of ICH. Linear regression for the calibration curve was carried out for concentration ranges of 75-450 and 1-6 µg/mL respectively for TBN and TBN RS-A. The respective detection limits (LOQ and LOD) of the TBN and RS-A were found to be (2.014 and 0.032 µg/ml) and (6.103 and 0.098 µg/ml). The method was successfully extended for stability-indicating studies under different stress conditions.

Keywords: Tiagabine, Related Substance A, HPLC Analysis, Method Validation, Forced Degradation.

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INTRODUCTION

Tiagabine (TBN) is a well-known drug to treat epilepsy. It is effectively used for patients having refractory focal seizures as an adjunctive therapy. TBN mechanism of action is demonstrated from its inhibition of the uptake of GABA (γ-aminobutyric acid). In the form of its hydrochloride, the tablet dosage forms available in the market are 2.5, 5, 10, and 15 mg. In focal seizures, its efficacy was established with the given divergent mechanism when compared to other antiepileptic drugs. The time duration of its peak levels is 0.5 to 2.3 hours.[1]A comparative study on the low and high dosages (6 to 36 mg/day) has revealed that the adverse effects related to CNS are dosage dependent.[2] Similarly, adverse effects are also affected by the frequency of dosage. This conclusion was drawn based on the tolerability studies in patients with refractory focal seizures where severe adverse effects were noticed with 2 times daily dosage of TBN compared to and 3 times as a part of adjunctive therapy.[3] Hence, it is advised the initial dosage level as 4 or 5 mg/day with two to four dosing frequencies per day. The dosage increment is 4 or 5 mg/day on weekly basis. To avoid a sudden rise in plasma concentrations, TBN supplementation should be done along with feeding. Multiple dosages per day are the major drawback of this drug because of its tiny half-life. Five to nine hours of the half-life of elimination is observed, however, co-medication involving inducing of enzymes will further reduce its half-life to two to four hours. Promoted clearance can be observed in children.[4,5]

Due to stimulation of its metabolism, tiagabine clearance is improved by antiepileptic drugs, capable of inducing the enzymes. CYP3A4 cytochrome mediates the oxidative metabolism of TBN which leads to purging. The use of tiagabine in unclassified epilepsies and generalized epilepsy syndromes should be

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Review JoMCCT

A Mini-Review on Spectral (UV-Visible, FT-IR, ^{1}H NMR, GC-MS) Analysis of Various Shaded Dried Leaves Extracts

Gorumutchu Giri Prasad[1,*], K. Chandra Mohan[2], K. Ramesh[1]

Abstract

To collect the different types of leaves in various places, wash collected leaves with distilled water and dried these leaves in various processes like under shade dry for 15 days, placed in oven (45°C) for 1 hour. Grind well using the above-dried leaves, so these leaves are changed to powder form. Utilize these shaded dried leaves powder, to prepare extract with different solvents like methanol, ethanol, hexane, carbon tetrachloride, petroleum ether, ethyl acetate, benzene, chloroform, and water in various methods like mechanical stirring, Soxhlet extracted, etc. Finally using extract to characterize the spectral (UV-visible, FT-IR, ^{1}H NMR, GC-MS) analysis. This review provides literature on spectral analysis of shaded dried leaves extracts from 2010 to the 2021 covered. The principles of UV-visible spectroscopy "species containing three types of electrons are bonding, anti-bonding, and non-bonding electrons. Bonding and non-bonding electrons (n-electrons) can absorb energy in the kind of visible or ultraviolet light to go to a higher energy (excited) state. These electrons are present in upper energetic anti-bonding molecular orbitals". The Vibrational Spectroscopy develops spectra from matter and infrared radiation collaboration through emission, reflection, or absorption. The principle of NMR spectra involves three steps: (1) to attract nucleus by using stable (B_o) magnetic field, (2) these spins weakly magnetic field, generally this field suggested to as an (RF) radio-frequency pulse, (3) evaluation and recognition of the electromagnetic signals produced by the nuclei. NMR spectroscopy is mainly used for the determination of inorganic and organic molecules. GC-Mass spectroscopy instrument is to identify various organic compounds.

Keywords: Spectroscopy techniques, shade dried leaves extracts, Soxhlet extraction, mechanical stirring, bonding, and non-bonding electrons

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INTRODUCTION

Spectroscopy mainly deals with measuring, interpreting, and producing spectra developing from matter and electromagnetic radiation collaboration. To solve a large range of analytical problems by using various spectroscopic methods. Those are: (1) UV-Visible Spectroscopy, (2) FT-IR Spectroscopy, (3) ^{1}H NMR Spectroscopy, (4) GC-Mass Spectrophotometry [1].

UV-Visible Spectroscopy

UV-Visible spectroscopy (electronic spectroscopy) (Figure 1) range is 200–800 nm. The UV range among 200–400 nm at shorter wavelength, the visible range among 400–800 nm at the longer wavelength. Principle of UV-visible

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Original Article

SIMULTANEOUS DETERMINATION OF TIGECYCLINE AND ITS POTENTIAL IMPURITIES BY A STABILITY-INDICATING RP-HPLC-UV DETECTION TECHNIQUE

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ABSTRACT

Objective: Stability representing the RP-HPLC method was established for synchronized quantification of Tigecycline and its impurities. This method was confirmed for its applicability to both tablet dosage and bulk drug forms.

Methods: Intended for an isocratic elution, a mobile phase containing methanol: 10 mmol Triethylamine Buffer mixture (75:25 v/v, pH 6.1) was used at 1 ml/min flow rate and Agilent ZORBAX Eclipse XDB C_{18} (250 mm × 4.6 mm, 5 µm) column.

Results: At 231 nm as wavelength, high-pitched peaks of Tigecycline (Tig) and its impurities (1and2) were detected at 6.55, 8.73 and 4.87 min correspondingly. The linearity of tigecycline and its impurities (impurity-1 and 2 and) were estimated with ranging from 75–450 µg/ml for Tigecycline and 1–6 µg/ml for both impurity 1 and 2. The corresponding recognition limits (LOD and LOQ) of the tigecycline and its impurities were originated to be (1.37,0.047 and 0.071 µg/ml) and (4.15, 0.143 and 0.126 µg/ml).

Conclusion: The technique was effectively stretched for stability signifying studies under different stress conditions. Justification of the method was done as per the current ICH guidelines.

Keywords: Tigecycline, Impurities, Forced degradation, HPLC analysis, Method justification

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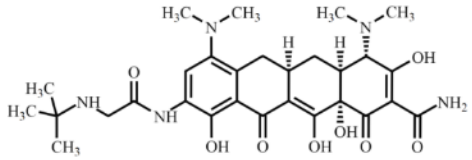
INTRODUCTION

Tigecycline (fig. 1a) is a glycylcyclines member that belongs to tetracycline derivative antibiotic medication used for the treatment of a number of bacterial infections and is potent against gram+ve and gram–ve organisms, including multi-drug resistance organisms [1]. Tigecycline is prescribed for the treatment of several bacterial infections including difficult skin/intra-abdominal contaminations and community-acquired bacterial *pneumoni* [2].

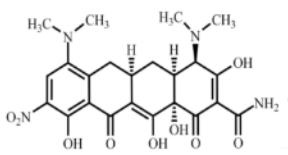
Tigecycline is the tetracycline derivative having N,N-dimethyglycylamido group in the 9-position of tetracycline ring and due to this structural modification, it having high minimal inhibitory concentrations against microbes than other tetracyclines [3]. It works by binding bacterial 30S ribosomal subunit and blocks the interaction of aminoacyl-tRNA with the A site of the ribosome [4]. The side effects of Tigecycline are similar to that of the other tetracyclines. Vomiting and Nausea are the common side effects and swelling, pain, and irritation at the injection site are the less common side effects by the use of Tigecycline [5, 6]. Every 5 ml Tygacil container holds 50 mg of tigecycline (web). This drug is used only in conditions where other different antibiotics are located not appropriate. Tigecycline and its impurities (fig. 1b-c) 1 and 2 are degraded. Which are separated and characterized by NMR, HRMS and IR spectral investigation. In antimicrobial action Impurities, 1and2 shows good activity in the direction Gram-negative and Gram-positive. That's why Impurities 1 and 2 show good activity than Tigecycline [7].

The literature survey for the estimation of Tigecycline confirms that few HPLC [8-12] and one UV spectrophotometer [13] assay methods reported for the estimation of Tigecycline in pharmaceutical formulations. One bio-analytical method was reported for the estimation of Tigecycline in rabbit plasma [14]. Liquid chromatography-mass spectrometry (LCMS) analysis methods were reported for the estimation of Tigecycline in plasma and applied for pharmacokinetic study [15-18].

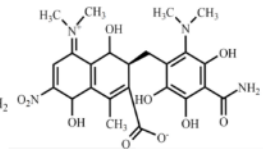
The review of the literature confirms that no analytical method was reported for the determination and quantification of Tigecycline and its related impurities. Hence the technique aimed to develop a simple and precise method for the separation and quantification of impurities 1 and 2 in bulk drug and formulations. The molecular structure of impurities 1 and 2 were given in fig. 1b and 1c, respectively. The established HPLC system was used for the evaluation of the drug with their impurities by *in vitro* method. Various abstractions were tried to used Methanol, Triethylamine [11, 19].



1a. Tigecycline



1b. Impurity 1



1c. Impurity 2

Fig. 1: Molecular structure of tigecycline and its impurities in the study

MATERIALS AND METHODS

Tigecycline standard drug with 98.73% purity and its Impurities studied were obtained from Lupin Ltd, Hyderabad. Methanol (HPLC Grade) and Acetonitrile (HPLC grade) were obtained as Merck chemicals, Mumbai. Ultra-Pure (Milli-Q®) Water was used during the study. All the other substances used during the study are of analytical substance grade and were purchased from Merck chemicals, Mumbai.

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A NOVEL DECISION MAKING PROBLEM SOLVING USING SOFT SET

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Abstract

In real world, there are facing many decision making issues based on the available data. This is mainly works on the incomplete information and indefinite decision. Generally, various mathematical models are there to work on the decision making. Soft set is the mathematical model that is used to solve the various decision making problems. Optimal solutions are selected for the solving the various complicated decisions making issues. In this paper, a novel decision making problem solver with the integration of soft set. This will solve the complicated issues in decision making, solving and results.

Introduction

Decision making is a daily activity in today's first moving world. It takes significant role in the field of selection of best fit in different alternatives. Different parameters and their values help decision makers to take right decision at right time. The decision making process involves series of activities to draw final conclusion from listed data available for analysis. Sometimes a preplanned decision process might not help to conclude an analysis. In such situation other parameters to be added in the existing analysis process to derive an effective solution to a specific problem. The inherent problem of decision making is related to vagueness and uncertainty aspects due to partial definition, lack of information, having less time to

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PUBLICATIONS

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Original Article

Physical growth of Natural Soils Contamination and their metamorphosis of Mineralogical soils in vermiculite

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Abstract

This present work established the consequences of acidic and alkaline pore fluids over swell performance to inclusive soil. Observing the behaviour for transformations to various soils alkalis contaminate those is much needed to identify unique mineralogy and morphology variations. Authors are well concentrated on the effect of interactions of alkali over soils with increasing strength to a definite period along with an increase in interaction period to specified strength. A total of three different forces for sulphuric acid and potassium hydroxide were utilised as pore fluids for understanding the influence of variable strengths over the swell action of the soil. In contrast, their swelling decreased in the initial stage at a lower strength of sulphuric acid, later enhanced with an increase in solution strength. Two different vermiculite (magnesium-aluminium-iron silicate) soils were used as Diopside and tremolite. These are interacted by various strengths (0.5N, 0.1N, 2N, and 4N) of potassium hydroxide solutions within 9, 32, and 98days. Complexity in swell variations in contaminated soil is identified accurately by investigating with the help of X-ray diffraction, SEM, and Energy dispersive analysis of X-ray at the end of an interaction. Artificially contaminated samples are subjected to research using various instruments and finally concluded with SEM to mineralogical and their diagnosis variations. Keywords: Vermiculite, Metamorphosis, SEM, Dispersive analysis of Energy.

Keywords: Vermiculite, Metamorphosis, SEM, Dispersive analysis of Energy.

INTRODUCTION

The spawning of different projects for industries and poor waste disposal practices is an excellent understanding of soil behaviour. This is changed latter extreme circumstances for the environment; even though pollutant of soil interaction alters fundamental properties of soil, swelling behaviour of soil, having the capability for causing damage to foundations and superstructures built over it. Valuable (Mal'tsev 1998) insight into the effects of infiltration of solutions like acids and alkalis of different strengths in beds of their structure production. In previous years, several researchers have reported various studies on the effect of acids and alkali over distended clayey soils (Assa'ad 1998, Chunikhin et al. 1988, Joshi et al. 1994). Different authors identified various essential factors, including the composition of chemical and strength of pore fluid, pH-medium, type and degree of electrolyte dissociation (Kabanov et al. 1977, Shekhtman et al. 1995, Sridharan et al. 1981) chemicomineralogical composition, and exchange capacity (Rao et al. 1994), etc.; Studies disclosed that even soil fabric and its structure significantly influences geotechnical properties whenever interacting by different contaminants under disparate strengths (James et al. 1981, Mitchell et al. 2005). Additional case studies are more related to soil contamination; alkali to crack causes failure to foundation soils and superstructures (Rao et al. 1994, Sinha et al. 2003), as impacts are asymptomatic. The behaviour of stable minerals is affected by contamination by alkali (Turer 2005, Sivapullaiah et al. 2005). Various literature on mineral types present in soil under alkali circumstances can attribute different phases in mineral transformations to various temperature circumstances. Anyhow, out of multiple available soils, Red natural earth and commercial china clay are studied in this work. Interaction of (De la Villa et al. 2005) montmorillonite by alkali solutions among pH 1013.5 denoted in zeolites formation. Various researchers' information revealed that the association of smectite by Ca(OH)2, NaOH, and KOH solutions altered fraction by the construction of interstratified illite smectite, a crystalline form of alkali alumina silicates.

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"A STUDY ON CONSEQUNCES OF GLOBALIZATION ON DOMESTIC SAFETY"

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ABSTRACT

The first National Security Constitution was enacted by the US Congress in 1947, which is when the concept of national security first appeared in American history after the Second World War. It typically concerned the use of economic, military, political, and diplomatic methods to defend the state against external aggression. Nevertheless, it has recently been expanded to incorporate human security, a people-centered approach to security, relating development to security and widening both the identification of potential threats and the players in charge of creating and addressing insecurity. The three areas of globalization-related national security concerns are typically considered to be: the nature of security risks in a globalised society, the implications of the phenomena of globalisation on the pursuit of national security and the dilution of the state's monopoly as a national security provider.

KEY WORDS
National Security Constitution, diplomatic methods, globalization, monopoly

INTRODUCTION

Globalization is by and large comprehended as the close coordination of individuals and the nations across the mainlands bring about the help of exchange and venture, decrease in the expense of transportation and at last breaking the counterfeit hindrances for the smooth and proficient progression of products, information, administrations, and capital including individuals across customary country state borders. The presentation of the term globalization showed up on the worldwide scene during the 1980s, featuring developments, and innovative headways which made ready for rapid monetary streams and exchanges. Globalization appears in expansion past the public lines of country states.

Financial globalization has become one of the main highlights of world monetary exercises since the finish of the Virus War. It has not just delivered a sweeping effect on the political, monetary, and social parts of the world but at the same time is defying the world financial framework with remarkable difficulties. With existing issues under the ongoing monetary request as yet exceptional, the financial request under globalization has introduced new and harder security issues to nations of the world, particularly non-industrial nations. As globalization of the world's economy has progressively turned into another sort of financial expansionism by created nations of the North after agricultural nations of the South, it is without a doubt beneficial for us to investigate the effect of monetary globalization on public safety.

"A Critical Assessment of Energy Systems Models and their Applications"

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ABSTRACT

The transition towards cleaner and more sustainable energy sources is rapidly changing the global energy landscape. To tackle the challenges that come with this transition, energy systems modeling has become an essential tool for understanding and predicting energy system behavior, as well as for developing policies. This review paper provides a critical assessment of various energy systems models developed and applied in recent years.

The paper evaluates the strengths and weaknesses of different energy systems models and their potential applications for addressing energy-related challenges. For example, energy systems models can aid policymakers in developing countries to plan energy systems and provide energy access. Likewise, they can assist policymakers in developed countries to design more efficient energy systems that minimize greenhouse gas emissions and reduce dependence on fossil fuels. Additionally, energy systems models can be used to assess the environmental impact of energy systems and identify opportunities to reduce emissions.

Furthermore, the paper evaluates the accuracy and reliability of energy systems models in predicting energy consumption, production, and storage. Although energy systems modeling has advanced significantly in recent years, there are still limitations and challenges associated with the accuracy and reliability of these models. Energy systems models often rely on assumptions and simplifications that may not fully represent the complexity of real-world energy systems. Therefore, continued research and development are necessary to improve the accuracy and reliability of energy systems models.

In conclusion, this review paper emphasizes the critical role that energy systems modeling plays in understanding and addressing the challenges of energy transition. It highlights the need for continuous critical assessment of these models to ensure their relevance and applicability to real-world energy challenges. Additionally, it underscores the importance of investing in research and development to improve the accuracy and reliability of energy systems models.

Key words: Energy systems modelling, Energy transition, Policy development, Environmental impact assessment, Accuracy and reliability

INTRODUCTION:

Since the early 1970s, there has been a wide variety of models available for analyzing energy systems or sub-systems, such as the power system. These models serve several purposes, including designing a better energy supply system given a level of demand forecast, better understanding of present and future demand-supply interactions, energy and environment interactions, energy-economy interactions, and energy system planning. Energy system models are formulated using theoretical and analytical methods from various disciplines, including engineering, economics, operations research, and management science. These models apply

DEVELOPMENT OF BIO-ANALYTICAL METHOD OF LASMIDITAN IN SPIKED HUMAN PLASMA SAMPLES BY LIQUID CHROMATOGRAPHY AND MASS SPECTROSCOPY

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Abstract:

A sensitive, simple bio-analytical method using the Liquid Chromatography-Mass Spectroscopy (LC-MS) technique for the quantification of Lasmiditan (LST) in human plasma was developed and validated. The drug was extracted by using simple liquid-liquid extraction using a mixture of ethanol and diethyl ether in the ratio of 80:20 (v/v) for the sample preparation involved prior to LC-MS analysis. Separation of analytes and eletriptan (ETN) internal standard were chromatographed on a Phenomenex Luna C18 (100×4.6mm, 5µ) column. The mobile phase Methanol, Acetonitrile, and 0.8% Triethylamine (TEA) mixture in the ratio of 55:30:15 (v/v) with pH 5.6 was eluted using a gradient elution mode a with a flow rate of 0.6 mL/min. Quantification of the drug in plasma was performed in (MRM)multiple-reaction-monitoring mode with the ion transitions m/z 378 → 97 for LST, m/z 383 → 84 for ETN.The method was fully validated with linearity, precision, accuracy,matrix effects, recovery, and stability. The method results showed linearity in the range of 0.1–300 ng/mL (r2 = 0.999) and the stability study confirms that the method was found to be stable. The method showed good precision (RSD% values between 0.59- and 1.03%) and accuracy (90.3 -98.1 %). The present study could be readily applicable for therapeutic monitoring of the Lasmiditandrug in patients'blood.

Keywords: Lasmiditan, LC-MS, Bioanalytical methods, Method validation.

ASSESSMENTOF TOTAL HYDROCARBON LEVELS IN DIFFERENT OIL-POLLUTED AQUATIC REGIONS – COASTAL REGION

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ABSTRACT

The Presence of Total Hydro Carbon(THC) levels in different surface waters, rocks, and minerals, as well as the remains of plants and animals in oil-polluted wetlands situated in various regions of Coastal Andhra Pradesh, INDIA, are considered in this present work. From this work, results demonstrated the elevated THC mean levels in water (19.3 $\pm$ 2.2mg/l), sediment (284.32 $\pm$ 38.32µg/g), Snails (398.12 $\pm$ 45.24µg/g) and Fish (194.31 $\pm$ 28.06486µg/g). These results revealed that the environment is polluted. The values of THC present in the water stream areas were beyond 9.8mg/l. There was a clear-cut seasonal variation observed in dry seasons which is $P < 0.01$ this is mainly due to more activities related to oil. In water levels of total hydrocarbon are enforced substantially as $r = 0.816$ by using levels of total hydrocarbon content in sediment which is also $P < 0.01$. From obtained results, the authors concluded that if the THC is presented continuously in various areas, it impacts many organisms, shown by important correlations noted as $P<0.01$ of total hydrocarbons among different species and surroundings. Maximum levels of THC present in sediments and surface water of these areas suggested that the quality of aquatic life unfavourably influences the activity of biological species.

Keywords:THC, Sediment, dry season, organisms

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Introduction

Among the chemicals that are more appropriate as contaminants, those that have occurred environment, hydrocarbons from petrol are of distinct significance. As per the information from various scientistsper year,6-10 million barrels of crude oilenter into the aquatic