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Study β and A coefficient of some Heterocyclic Drugs at 29°C in Methanol-Water and Acetone-Water mixtures Viscometrically

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Abstract:

The basic principle of viscosity measurement is to study the interactions between solute and solvent. The viscometric measurement of heterocyclic drugs viz 1,5 dihydro-4H-pyrazolol (3,4-d) pyrimidin 4-one (Ligand-1) and 4-Hydroxy-3-[1(4-nitrophenyl)-3oxobutyl]-2H-chromen-2-one (Ligand-2) were carried out at various concentrations of solvents Methanol and Acetone at 29°C. The data obtained during this investigation were used for the characterization as Structure Formers or Structure Breakers.

Key words :- β - coefficient, viscometry, viscosities and Densities.

Introduction:

The refractive index is an important additive property of molecular structure of liquid. Every liquid offers some resistance to flow. This resistance to flow is called viscosity. It is developed in liquids because of sharing effect of moving one layer of liquid past another motion of liquid can be visualized as a movement of one layer over another. A layer move quickly then second and so on. This type of flow is called laminar flow or streamlined flow. Useful information about solute-solute and solute-solvent interaction provides when the behavior of electrolytes are

studied by viscometry. Many workers [1-3] have been studied these interactions in aqueous and non-aqueous solutions.

Ikhe [4] has studied the viscosity of [HBMPP] and [AHBMPPP], [PHNMPMPP] and captopril in 70% dioxane water mixture at different concentrations. Molecular interactions of electrolyte in binary mixture of two liquids in terms of viscosity, β - coefficient have been studied by Mehrotra et.al.[5], Das et.al.[6], Nikam[7], Kalra et.al.[8], Pandey et.al.[9] and Raut et.al.[10]. Gadpayle M.R.[11] have studied the β -

ROLE OF MODERN THERAPEUTIC CHEMISTRY IN BOOSTING DRUG DISCOVERY PROCESSES

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ABSTRACT

Speeding up business lead requires handling the central specialized obstacle of therapeutic chemistry, which is the need to have to enhance effectiveness at the natural focus on even though concurrently keeping bioavailability simply by the suitable restorative path of supervision as well as staying away from toxicity; an extremely difficult multi-factorial design and style issue. Not surprisingly, the layout make-test-analyze cycle virtually all generally utilized as a cyclic prototyping procedure generally needs a big quantity of periods for achievement, with the chemists applying encounter, chemical expertise and basic guidelines for assistance.

Keywords: NCE, drug discovery, Artificial Intelligence, Machine Learning

1. INTRODUCTION

The complex diseases happen to be a main reason of impairment and so death worldwide and require DNA solitary nucleotide polymorphisms, post-translational protein adjustments and external affects. The virtually all regular complicated illnesses are Alzheimer's disease, Parkinson's disease, coronary artery disease and some choices of cancer [1].

The uncommon Mendelian disorders are fairly very well portrayed but small improvement provides been quite manufactured in the discovery of wide-spread gene variants that predispose to intricate conditions. The difficulty of these complications started to end up being analyzed even more regularly by the graphic solutions of info control like the sophisticated network/chart theory. Any actual difficult system some as drugs, protein, nucleic acids, metabolisms, disorders or perhaps communities can get numerically characterized as well as , likened based on the relationship spaces amongst its parts [2].

So, the graphical methods turn into an effective device to explain elaborate communities built out of nodes such as atoms related through chemical bonds (drug), amino acids hooked up by peptide chemical a genuine (protein), nucleic facets attached by phosphate an actual (DNA/RNA), protein/genetics/inter-mediate linked by a change or connection or individuals joined by a prevalent activity [3].

IDENTIFICATION OF THE NEED FOR THE EVALUATION OF NEW CHEMICAL ENTITIES AND MODERN CHEMISTRY INCLUSION

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ABSTRACT

Every plant is usually recognized by its personal diverse healing houses credited to energetic bioactive molecule. In the contemporary program of medication, natural drug substances will be announced to become essential and include significant functions. Their beneficial role was first validated by the existence of their bioactive substances. Credited to disease-inhibiting features, they are incredibly beneficial as natural prescription drugs, offer fundamental bioactive substances that will be much less harmful and even more successful, and provide natural and chemical substance ways of changes and removal of natural products into powerful drug. This paper overviews the need of the discovery of new chemical entities and focusing over the modern chemistry developments.

Keywords: NCE, drug discovery, click chemistry, combinational chemistry

1. INTRODUCTION

Combinatorial chemistry [1,2], high-throughput testing, bioinformatics, proteomics, and genomics are newer approaches which have surfaced broadly in the discipline of pharmaceutical discovery analysis. All drug discovery [3] exploration as well as , technology have got tremendous probable to utilize the chemical substance and so natural diversity of products. Recently created techniques will be developing quickly with great results in natural drug discovery.

The Iron Age as well observed the creation of most of the simple components of metropolitan production we will be comfortable with at this time many of these as cements, bitumen and mortars. During this time, populations evolved into progressively urbanized in huge towns top rated to building of the initial appropriate highways [4].

Around 500 years and years back, chemistry has become a serious profession. Components various others than normally happening metals had been getting recognized and the properties had been staying discovered even though they had been nonetheless not really completely comprehended [5]. Persons did not however include very much of an gratitude of the fundamental knowledge that decided materials houses and so it was first ambiguous how many diverse standard or much needed

Study of Physico-Chemical Parameter of Soil Analysis

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Abstract:

The soil is a mixture of solid, water and gases and also a mixture of minerals, organic matter, gases, liquid and other macro or microorganisms and it performs four important functions.

The basic of the status of soil we decide requirement of fertilizer to increase the fertility of the soil. This work examines the principal physical and chemical attributes that can serve as indicators of a change in soil quality under particular agro-climatic condition. You will find that different soil can vary greatly in their composition. Proposed indicator including soil depth to a root restricting layer, water holding capacity, organic matter, N, PH, K, Cl, electrical conductivity, moisture content. We also confirmed the justification for selecting these key attributes, their measurement, critical limit for monitoring change in solid productivity and soil quality and crop growth in that soil.

Keywords:

Fertility, pH, organic carbon

Introduction:

Soil is a complex collection of Organic and Inorganic matter. Soil is called the Skin of the Earth^[1] and interfaces with the lithosphere, the hydrosphere, the atmosphere, and the biosphere.^[2] The term pedolith, used commonly to refer to the soil, literally translates ground stone. Soil consists of a solid phase of minerals (the soil matrix) and organic matter, as well as a porous phase that holds gases (the soil atmosphere) and water (the soil solution).^{[3][4][5]} Accordingly, soils are often treated as a three-state system of solids, liquids, and gases.^[6]

Physically, soils are composed of mineral and organic particles of varying size. The particles are arranged in a matrix that results in about 50 per-cent pore space, which is occupied by water and air. This produces a three-phase system of solids, liquids, and gases. Essentially, all uses of soils are greatly affected by certain physical properties.^[7]

Experymantal:

Fundamental Soil forming Processes on the basis of

Humification

Eluviation

Illuviation

Horizonation

An experiment was conducted by Sridevi et al. To study the effect of sole and conjunctive application of urea, straw and Glycidia on physical and chemical properties of dry land alfisol and they observed that the application of nitrogen through straw area and glycidia relatively increased to organic carbon and more availability of P and K.^[8]

Yadav et al. Conducted a field experiment on soil to show the effect of integrated nitrogen management on forage on soil, nitrogen available and amount of microbes in the soil and observed that application of 100% N through organic manure significantly increases the available nitrogen content and microbial count as compared to 100% N through chemical

**"TO STUDY THE MOLAR REFRACTIVITIES AND POLARIZABILITY
CONSTANTS OF AMOXYCILLIN, LOPERAMIDE AND LORAZEPAM IN
METHANOL AND ACETONE MEDIA AT 29°C."**

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Abstract:

Refractive indices, densities, molar refractivities and molar polarizability constants Amoxicillin, Loperamide and Lorazepam have been studied in Methanol and Acetone at 29°C ($\pm 0.10^\circ\text{C}$) temperature and at different concentrations (0.63×10^{-3} to 10.00×10^{-3} M). Molar refraction for the above system was calculated theoretically. Experimental data and theoretical values of molar refraction were compared from these observations. The value of molar refractivity (R) and molar polarizability (?) are found to be decrease the concentration of solute.

Keywords: Molar refraction, Refractive indices, polarizability constants, Abb's refractometer

Introduction

Refractive index is one of the most important additive properties of liquid. When a ray of light passes from one medium to another, it suffers refraction that is a change of direction. If it passed from less dense to denser medium then there is a change in direction of refraction and also angle of refraction changes and ultimately the refractive index changed. The refractive index is the ratio of the viscosity of light in vacuum to that in the medium and it depends upon the temperature and wave length of light. The result obtained during this investigation directly through light on the dipole association of ligand intermolecular attraction between solution and solvent, dielectric constant of medium, polarizability and mutual compensation of dipole. These results are much more useful for transmission, stability activity and effect of drug hence, this study is essential.

Sangita Sharma et.al [1] has been studied density and refractive index of binary liquid mixture Eucalyptol with Hydrocarbon at different temperature. Oswal et.al [2] have studied dielectric constants and refractive indices of binary mixtures of ethyl acetate with toluene ethyl benzene, o-xylene, p-xylene and p-dioxane. Oswal et. al. [3] have been studied refractivity properties of some homologous series such as n-ethanoates, methyl alkanates, ethyl alkanates etc. were measured in the temperature range 298.15 to 333.15 oK. Sonar et. al. [4] have been studied refractivity of some heterocyclic compounds at 303oK. Ubarhande et.al [5] have been studied refractive index of 1,3 diaryl carbamides in different percentage of binary liquid mixture. A.M. Kshirsagar et.al [6] have been studied refractometry of S-trizinothiocarbamides

Pharmacophore Analysis for Anti-Malarial Activity of Pyrido[1,2- A] Benzimidazoles

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ABSTRACT

The present work is an attempt to identify key structural features that govern the anti-malarial activity of Pyrido[1,2-a]benzimidazoles using pharmacophoric analysis. The work is based on a dataset of fifty-six molecules comprising diverse derivatives of Pyrido[1,2-a]benzimidazole. The structures were drawn, optimized and aligned using standard protocol. The final model was developed using aligned molecules. The analysis reveals that the anti-malarial activity of Pyrido[1,2-a]benzimidazoles is related with features. The analysis points out that in future modifications these features should be retained.

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Introduction

Malarial is a deadly and vector borne disease with high economic burden on developing countries from Asia, Africa and South America. It is still a major cause of mortality in many countries^{1,4}. Even though, treatments are available to control this fatal disease, but emergence of resistance against existing drugs like Chloroquine, etc. is an issue which should be addressed in time. The process of developing a new drug is a long and costly process^{1,4}. To speed up this process, modern techniques like Pharmacophore modeling, molecular docking, etc. could be used. These methods are cheaper and time saving^{2,4}.

Recently, Singh *et al.*¹ Synthesized and screened a good number of Pyrido[1,2-a]benzimidazole derivatives. The results showed that Pyrido[1,2-a]benzimidazole could be used as a core to develop new drug for malaria. Even though, structure activity relationships were discussed by them, no attempt was executed to develop a pharmacophore model. A pharmacophore model will be useful to get idea about common features as well as features responsible for change in activity profile of Pyrido[1,2-a]benzimidazoles. Therefore, in the present work, we have performed pharmacophoric analysis to achieve this goal.

Experimental methodology^{1,4,5}:

Dataset selection: The dataset comprises fifty-six derivatives of Pyrido[1,2-a]benzimidazole¹. The presence of substituents at different positions ensures the covering of broad chemical space. The activity against NPS4 cell lines reported as IC₅₀ has been used for the present work. The five most and least active molecules have been presented in Table 1.

Structures generation, Optimization and Alignment:

The SMILES notations provided by Singh *et al.* were used to generate 3D-structures for all the molecules using OpenBabel. The 3D-structures were then optimized using MMFF94 force field using OpenBabel. The optimized

structures were then aligned using Open3DAlign. The aligned structures were used for generation of final pharmacophore model using pyMOI and its plugin 'LIQUID'^{1,4}.

Table 1. Five most and least active molecules used in the present work.

Compound ID	SMILES notation	NPS4 IC50
1	<chem>C1C1=CC(N=C2N3C(NC(NC)C)CC(C4=CC=CC(F)(F)F)C=C4)=C2C#N)=C3C=C1</chem>	0.02
2	<chem>C1C1=CC(N=C2N3C(NC(NC)C)CC(C4=CC=CC(F)(F)F)C=C4)=C2C#N)=C3C=C1</chem>	0.03
3	<chem>C1C1=CC2=C(N=C3N2C(NC(NC)C)CC(C4=CC=CC(F)(F)F)C=C4)=C3C#N)C(C1)=C1</chem>	0.03
4	<chem>OC(C1)CN1CCNC2=CC(C3=CC=CC(F)(F)F)C=C3)=C(C#N)C4=NC5=CC=CC=C5</chem>	0.04
5	<chem>C1C1=C(C1)C=C(N=C2N3C(NC(NC)C)CC(C4=CC=CC(F)(F)F)C=C4)=C2C#N)C(C1)=C1</chem>	0.05
6	<chem>O=S(=O)(NC1=CC=C(C=C1)C2=CC=CC(F)(F)F)C=C2)C(C#N)C4=NC5=CC=CC=C5</chem>	7.31
7	<chem>OC(C1)CCN1C2=CC(C3=CC=CC(F)(F)F)C=C3)=C(C#N)C4=NC5=CC=CC=C5</chem>	8.43
8	<chem>O=S(=O)(NC1=CC=C(C=C1)C2=CC=CC(F)(F)F)C=C2)C(C#N)C3=NC4=CC=CC=C4</chem>	17
9	<chem>O=C(C)NC(NC1=CC=C(C=C1)C2=CC=CC(F)(F)F)C=C2)C(C#N)C3=NC4=CC=CC=C4</chem>	
10	<chem>OC(C1)CN1C2=CC(C3=CC=CC(F)(F)F)C=C3)=C(C#N)C4=NC5=CC=CC=C5</chem>	

Results and Discussions

The present pharmacophoric analysis led to generation of a pharmacophore model. For the sake of convergence and understanding, the pharmacophore models of molecule number 1 and 10 have been presented as representatives in figure 1 and 2.

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ANALYSIS OF THE CONVOLUTION NEURAL NETWORK APPROACH IN EARLY DETECTION OF PLANT INFECTION

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Abstract

Numerous ways include been lately applied in previous to detect and stop diseases in plants to reduce any deficits in the crop. The diseases of the plants can become in previous or later on step. Plants, where diseases happen at an early point, contain no visual symptoms, as well as human eyes, will be not really capable of imagining the existence of any types of pathology influencing the plant. In some conditions, effective microscopes are required. The author explains the two treatments to identify diseases in such scenarios. The approaches will be spectroscopic and image resolution techniques and risky organic and natural metabolites as feasible biomarkers. One even more strategy focused on remote sensing is likewise employed in the exact framework on multi and hyper-spectral image shot data.

Keywords: biotechnology, bioinformatics, plant disease, artificial intelligence, CNN.

1. Introduction

Plant pathology may present in several parts of a plant like origins, plant, come, leaves, and fruits and veggies. The author focuses on the pathology present in plant leaves and comes. The numerous subsections explain the suggested complex solutions and their rendering as presented by dominant writers [1,2]. The number of explorations protected under this section features used a prevalent method of image order, pre-processing, segmentation, and feature extraction [3] adopted by diverse acknowledgment and classification methods. Some of the explained methods are needed to control lab's natural environment under which they run. Acknowledgment of patterns is to determine as well as get comparable features explaining the organizations present in different patterns. To be classified any pattern in a fresh environment goes to one of the pattern classes.

2. Literature Review

The author manufactured an approach to acknowledge the chili plant diseases. This algorithm consists of the four actions that covered 1st; the chili disease and healthy and balanced images shot utilizing a digital camera as well as LABVIEW software. The total amount of selections gathered is 107 trials. 1 / 3, producing pixels clustered based on the staff of color pixels [4]. Next, draw out color features from color-founded segmentation performed on healthier and harmful chili leaf images. The authors recorded acceptable effects of detection of chili leaf diseases, but the provided explanation of the algorithm is not really great [5].

The author targeted to realize and classify infections in lemon or lime leaves. The proposed process initially made use of the limit for the detection of citrus canker lesions for removing worldwide features. Second, to discover another type of comparable canker infection utilized area-based regional features extraction. A feature threshold and weighted voting program were used for the last classification. The writer designed the AdaBoost algorithm for classification with the highest classification cost. The author explains the method utilizing orthogonal non-linear discriminant projection for five types of maize plant disease reputation [6,7]. The RGB images are transformed into HIS color space; face mask and take out the green pixels; section these parts using thresholding strategy. Change matrices are built by training data by applying OLDP. The info, therefore organized is forecasted into low-dimensional feature space to forecast the related course packaging employing

CARBON NANOCOMPOSITES FOR ENHANCED CATALYTIC ACTIVITIES FOR NITROPHENOL REDUCTION

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ABSTRACT

For many uses of nanomaterials, efficient methods of production and self-assembly of nanocomposites were crucial. Herein, we report the effective synthesis of novel carbon nanotube (CNT)-Cu₂O nanocomposites using a simple method. Choosing CNT as the anchoring substrate for loading Cu₂O nanoparticles allowed for the fabrication of composite catalysts that were both stable and reusable. Scanning electron microscopy, energy dispersive spectroscopy, X-ray diffraction, X-ray photoelectron spectroscopy, and thermogravimetric analysis all confirmed that binary Cu/Cu₂O nanocomposites (NCs) were effectively produced on Mag-S-MS without self-aggregation and oxidation. In further research, it was tested as a catalyst for the hydrogenation-based reduction of 4-NP to 4-aminophenol (4-AP) using NaBH₄ as the reducing agent. It was studied how much of a catalyst was used, as well as how much NaBH₄ and 4-NP were present at the outset. After 4 hours of contact time, at pH 7, the catalytic activity of investigated materials was greater than under acidic and basic environments, resulting in degradation rates of up to 93%. The highest catalytic characteristics were found in an amorphous iron hydroxide with a Zr/Fe molar ratio of 75%:25%. As an alternative to traditional methods of combating organic compound-induced water pollution, these cutting-edge materials hold considerable promise.

Keywords: Nanocomposite, Cuprous oxide, Carbon nanotube, Catalytic reduction, P-nitrophenol

INTRODUCTION

Carbon nanotubes (CNT) have sparked a flurry of investigation into their potential as catalysts, flexible supercapacitors, electronic sensors, and a sustainable means of wastewater treatment. CNTs have been recognised as exceptional materials because to their great chemical stability, good electrical conductivity, enormous specific surface area, and tremendous mechanical strength. Due to their unique characteristics, CNTs are a boon to scientific inquiry. Research on CNT catalysis has increased in recent years, with most studies focusing on composites using transition metals. For instance, Karimi-Maleh et al. have created CuO/CNTs nanocomposite as high sticky carbon paste electrode using chemical precipitation approach. Since nanoscience and nanotechnology have recently advanced, it has become crucial to devise a simple and inexpensive method of producing multi-functional carbon material. Simultaneously, a wide variety of nanomaterials, including Pd, TiO, Mo, Zn, Au, and Ag,

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BHARAT PUBLICATION

PREDICTION OF PLANT DISEASE EPIDEMIC BY EXPONENTIAL MODELING FOR LARGE-SCALE YIELD FOR USE OF BIOPESTICIDE USING BIOCHEMICAL FORMULATION

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ABSTRACT

India is known as agricultural land. The global economy of the country majorly depends on agricultural export. However, in the past decade, many researchers are coming up with high-ended research in the area of the agrochemical, biochemical, biotechnology, and allied domains of science. The major problem in agricultural development is organic farm product demands and crop management. Traditionally, many chemical pesticides were in use, which led to numerous health issues like neurological disorders, intestinal problems, and even cancer. Subsequently, Govt. of India has taken a step to promote healthy and secure food production by means of subsidies for organic farming. Organic farming is facing issues relating to yield ratio improvement because of the bacterial/microbial and pest epidemics. To cope with this issue, worldwide integrated pest management research is in progress. This paper focused on plant disease prediction by exponential methodology.

KEYWORDS: Biochemistry, Biotechnology, Plant disease management, biopesticide

1. INTRODUCTION

The objective of plant disease management is to decrease the financial as well as visible harm triggered by means of plant diseases. Typically, this is known as plant disease control; however, recent social and environmental ideals consider "influence" as becoming complete and the term as well rigid [1,2]. Since the origin of agriculture, from the decade's farmers used various growing methods for dealing with the numerous troubles experienced by the crops. Pursuing such findings of the triggers of plant diseases in the early nineteenth century, the developing comprehension of the relationships of viruses as well as host features allowed us to develop a large mixture of steps for the regulation of particular plant diseases [3]. Organic agriculture is improved in importance globally over the previous 20 years and years, with development costs of an additional 10% each year in most countries. By 2015, around 3 million certified organic suppliers farmed extra than 47 million hectares of certified organic agricultural land. Organic plant production is partly indicated by means of the

Analysis and Modeling of Azadirachta Indica and Rapeseed Oil Formulation as an Effective Biopesticide

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ABSTRACT

It is necessary to lower the plant disease epidemics to boost agricultural production. Hence, the proposed research focused on the biopesticide formulation which is harmless to humans and animals. The existing research study is conducted for understanding the present state of biopesticide as it is globally accepted for the reason that it is not harmful to humans and animals and also provides good defeat for pest control. We formulated and modeled the best-suited combination using the Azadirachta Indica and rapeseed oil in the ratio 1:1, 1:2, 2:1 and tested on 1m X 1m area for leafy green vegetable soil beds. The optimum results are noted for 1:1 formulation. The proposed research used the Stanford University Simulation and modeling software. Also, as a hypothetical test for validation of research, we have used IBM SPSS software for a sample size of 400. The proposed research recommends the use of Azadirachta Indica and Rapeseed oil formulation for optimum yield gain and safe vegetables, which can be exported as per the (chemical, and fertilizer use) regulations of export. This research can be very useful and can be developed for more combinations like canola oil, linseed oil, etc. as future development.

KEYWORDS: *Biochemistry, Biotechnology, Plant disease management, biopesticide*

1. INTRODUCTION

Researchers think that Rapeseed oil [1,2] repels insects by changing the external coating of the leaf surface area or by performing as an insect irritant. The variations in the framework of utilized rapeseed-based polyols in the production of biopesticide will be noticeable. Cross-linking denseness is determined from the modeling of rapeseed oil-based polyols and is effectively team-up with neem oil. The mixture can become patterned by applying a mathematical model technique.

NEED FOR TEXTILE DYE POLLUTION CONTROL USING SEMICONDUCTORS AND ALTERNATE METHODS FOR METAL OXIDES NANOPARTICLE ANALYSIS BY X-RAY DIFFRACTION PROCESS

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Abstract

External smog credited to the populace's development and quick industrialization of the growing areas provides turn into a crucial concern on the latest occasions. The advancement of world features triggered carbon dioxide in air, soil, and water, which considerably positions risks to both human wellness and environmental security. Concerning all the methods, systems centered on nanomaterials will be participating in a progressively essential part. Early on, attempts on expanding nanomaterials for toxin removals primarily concentrated on photocatalysis for the destruction of industrial chemical dyes. This paper concentrates on the x-ray diffraction technique intended for zinc oxide activity.

Keywords: textile pollution, ZnO, x-ray diffraction, nano-material synthesis

1. Introduction

Even more lately, many growing organic and natural impurities many of these as endocrine-disrupting chemical substances and pharmaceutical effluents as well as personal care items includes likewise gone selected to end up being the focus on pollution seeing that they happen to be not really efficiently cured by standard water cure procedures [1]. The amazing accomplishments connected by way of the plasmonic components own allowed large applications, like the design and synthesis of effective photocatalyst [2]. Photocatalysis with plasmonic subunits contains come utilized in water splitting, photovoltaics, blue remediation, etc. Right here, we primarily talk about the advancement of the design of photocatalyststocatalysts. Nevertheless, many semiconductors (e.g., ZnO) can just get triggered within UV light irrespective of the impressive achievements on the activity [3].

2. Literature Review

About two decades back, "plasmonic", was first given for and encouraging new technology that allows energetic treatment of light through metal nanomaterials [4]. Presently, plasmonic, a growing interdisciplinary technology and concept field, is definitely becoming regarded as a metallic bullet for its probable uses in various industries incorporating external executive. The concepts that travel plasmonic possess gone launched virtually all thoroughly in several latest assessment documents [5].

Nanostructures that assist area plasmons encounter a standard electromagnetic field when thrilled by light, as their dimensions will be very much smaller sized than the wavelength [6]. On the other hand, for nanostructures that have at least one dimension near to the provocation wavelength, the electromagnetic field can be not really standard as well as exterior plasmons pass on back again and on amongst the ceases of the constructions. Photo-thermal properties will



SIGNIFICANCE OF BIOPESTICIDE OVER THE TRADITIONAL METHODS FOR PLANT DISEASE MANAGEMENT

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ABSTRACT

The immediate effect of the decreasing quantity of traditional pesticides is the improved marketplace demand for biopesticide for some useful factors. This kind of rewards consist of, but will be in no way unique to, changing the program of pest resistance, low toxicity properties, supporting insight to fabricated insect poison, eco-friendliness, specificity, biodegradability, and small or no issue of post-harvest contaminants, balance against abiotic tension and compatibility in integrated pest management. Hence, this paper presents the study of traditional and modern pesticide views.

KEYWORDS: Biochemistry, Biotechnology, Plant disease management, biopesticide

1. INTRODUCTION

Among these natural herbs, Neem (*Azadirachta indica*) owed to the Meliaceae family members provide surfaced as an extremely powerful bio-pesticide [1]. This classic, fast-growing plant referred to as the Indian lilac provides enormous anti-feedant buildings scheduled for its effectiveness in controlling the feeding feeling in insects, at concentrations actually much less than 1 parts per million. It can be a condensation resistant shrub that thrives in a sub-humid to sub-arid weather by a total annual rainfall of 400-800 mm. It contains even more than 200 chemicals common in adjustable concentrations in the various parts of the plant, offering a range of pesticidal properties [2]. Seeds from this forest consist of 30% of oil with azadirachtin as the main lively element, which is certainly primarily accountable for the insecticidal process of neem [3]. Furthermore, the seeds wedding cake acquired during the control of neem oil is

REVIEW OF THE SYNTHESIS CHARACTERIZATION AND PHOTOCATALYTIC ACTIVITIES OF GRAPHENE OXIDE/METAL OXIDE NANOCOMPOSITES

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ABSTRACT

Numerous studies show that sustainable water processing strategies may enhance water quality. Photocatalytic technology, among other methods, has shown impressive promise as a low-cost, ecologically friendly, and sustainable technology in recent years. The ideal photocatalyst must have high photocatalytic activity, a large specific surface area, collect sunlight, and exhibit recyclability; this is the greatest hurdle to the commercialization of photocatalyst technology. With this in mind, this review focused on the methods used to create graphene/metal oxide nanocomposite, how it is characterised, and its most important applications in photocatalysis. Rate-limiting factors that were discussed include photocatalyst loading, photocatalyst structure, temperature, pH, oxidising species' influence, and light wavelength. Intermediates formed during photo-oxidation of organic contaminants by these photocatalysts are also explored. Graphene-based materials were summarised in terms of their significance in the context of this study's ultimate goal, which was to examine the efficacy of their use in the context of pollution control. At the end, a high-level summary of the issues and potential solutions is provided.

Keywords: graphene oxide, metal oxide, photocatalyst, zinc oxide nanocomposite, titanium oxide nanocomposite.

INTRODUCTION

To maintain good health, people need access to clean water. In order to maintain human health, water must be free of harmful contaminants such heavy metals, chemicals known to cause cancer, and infectious pathogens. Authorities and civil society all across the globe have had to respond quickly to the pressing needs posed by the world's rapid industrialization and population growth. By 2050, the United Nations Water Development Report 2020 predicts that the global population would be 748 million people short of clean drinking water, and that industrial water use will have increased by a staggering 400 percent. In areas where harmful metal ions and industrial waste are not effectively removed, potable water is a serious issue. This results in a significant risk to human health from a wide variety of toxic organic and inorganic substances found in the water supplies. An improved wastewater treatment method is urgently needed to deal with problems of this kind. Natural aerobic procedures, coagulation,