



चौधरी महादेव प्रसाद महाविद्यालय C. M. P. DEGREE COLLEGE

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About this book

ETHYLENE IN PLANT BIOLOGY

Comprehensive resource detailing the role of ethylene in plant development regulation, gene regulation, root development, stress tolerance, and more

Ethylene in Plant Biology presents ethylene research from leading laboratories around the globe to allow... [Show all](#) ▾

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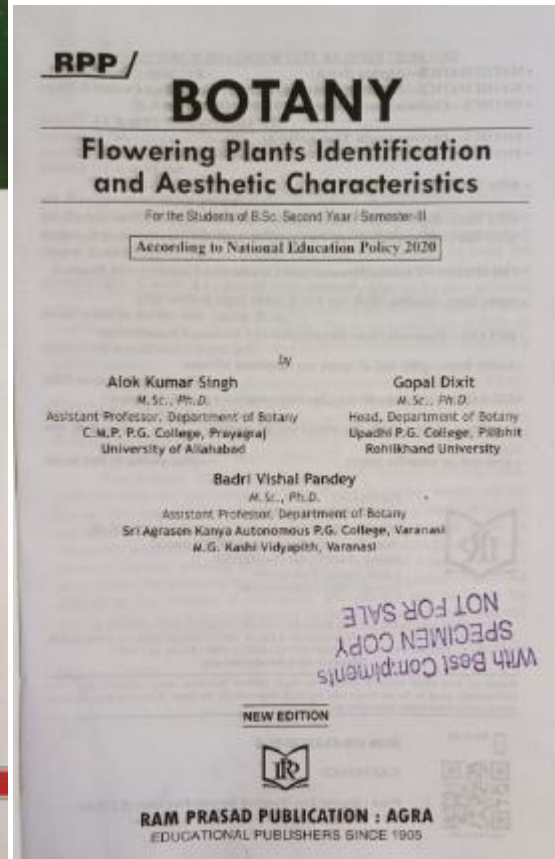
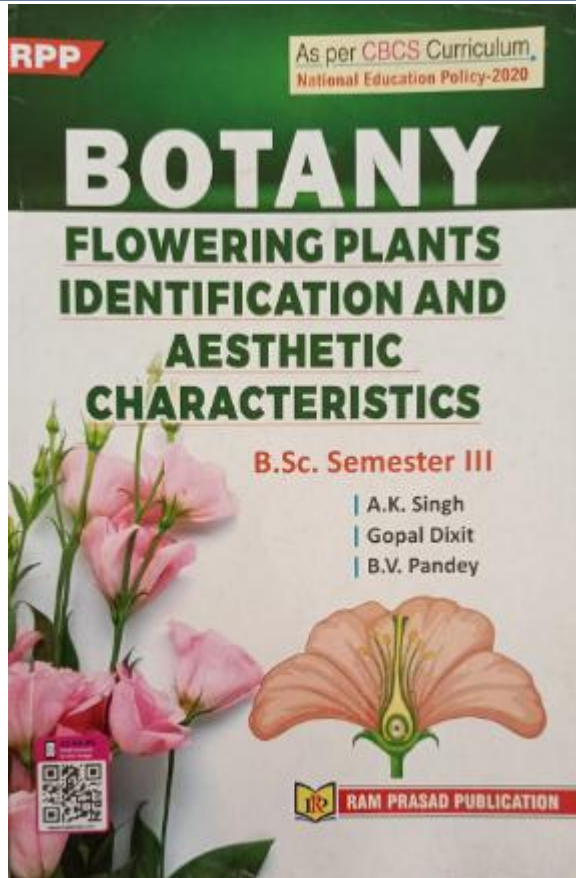


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Innovations in Agricultural
& Biological Engineering

Phytochemicals and Medicinal Plants in Food Design

Strategies and Technologies
for Improved Healthcare



Editors

Megh R. Goyal | Preeti Birwal | Santosh K. Mishra



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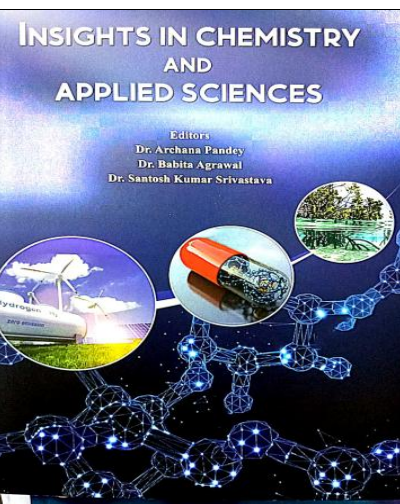
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Hydration Mechanism of C_3S in Cements
Ranshan Kumar, Kamalaj Lal, Sunanda Das And Anil Kumar Shukla

Trisulphate silicate is one of the major constituents of the Portland cement plays an important role in controlling the various engineering properties of cement. It is often taken as the model system by the scientists in studying cement chemistry. For a given particle size distribution and w/s ratio C_3S set after set and set time is a matter similar to that of a typical Portland cement. Using XRD and other methods it may be shown that about 70% typically reacts in 28 days and virtually all in one year and the products are CSH and a newly amorphous calcium silicate hydrate (C-S-H) having the properties of a rigid gel.

C_3S is generally prepared by heating a stoichiometric mixture of calcium hydroxide and SiO_2 at 1500 degree centigrade.

However, several modifications of this method have been used and different manufacturers and fluxes were also used to lower down the temperature of formation of C_3S . [1]

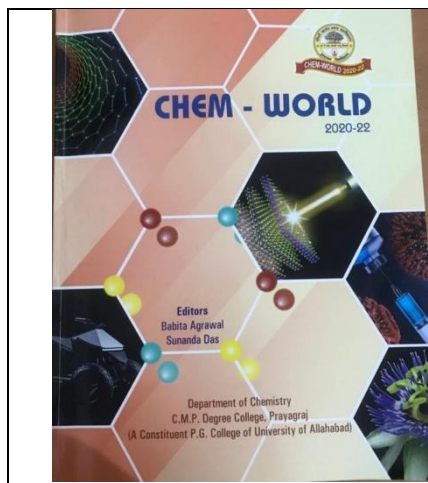
There is a vast amount of literature [4-6], discussing the basic mechanism of C_3S hydration.

This is due to:

1. Recognition of C_3S as the main component of Portland cements, and
2. Extremely complex and still unresolved details of its reaction mechanism with water.

The hydration of C_3S involves a sequence of overlapping reaction, so slow and

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Innovations in Graphene in Chemistry
Sunanda Das*, Kanhya Lal and A.K.Shukla*
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(A Constituent PG College of University of Allahabad), Prayagraj – 211002.
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A graphene is a two-dimensional form of crystalline carbon. It is either a single layer of carbon atoms forming a honeycomb or hexagonal lattice or several coupled layers of this honeycomb structure.

The word graphene, when used without specifying the form (e.g. bilayer graphene, multilayer graphene), usually refers to single-layer graphene. A graphene is a parent form of all graphite structures of carbon – for example –

Graphite is a three-dimensional crystal consisting of relatively weakly compiled graphene layers.

Nanotubes – this may be represented as scrolls of graphene,

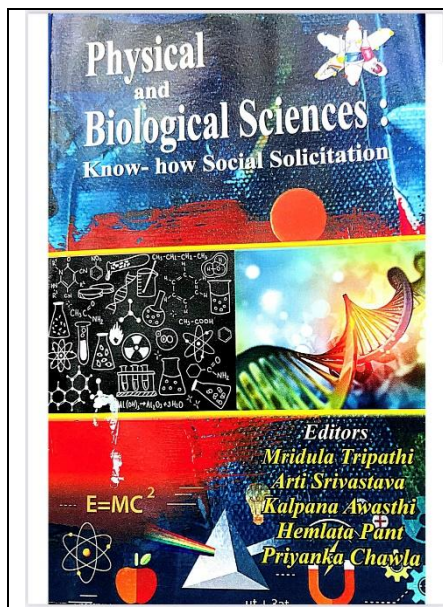
Bucky balls are spherical molecules (ball-like) made from graphene with some hexagonal rings replaced by pentagonal rings.

The first studies on graphene started in 1947 by Philip R Wallace to understand the electronic structure of graphite. Chemists Hanns – Peter Boehm, Ralph Setton and Eberhard Stuppig in 1986 introduced the term graphene with a graphic-like structure with the suffix –ene referring to polycyclic aromatic hydrocarbons in which carbon atoms form hexagonal ring structures. In 2010, physicists Andre Geim and Konstantin Novoselov were awarded the Nobel Prize for Physics isolating single-layer graphene using an extremely simple 'scotch-tape method', by exfoliating the top layer from graphite and studying their physical properties.

The field of graphene science and technology is relatively new, having emerged since Geim and Novoselov's work in 2004. In the decades that followed, it remained difficult to say which application would prove to be most popular. Progress depends upon the development of new ways to produce graphene on an industrial scale as obtaining graphene by exfoliation is too expensive for mass production.

Applications –
The applications of graphene and its derivatives in the chemical analysis have been described. The properties of graphene materials that are essential for their use in the chemical and biochemical analysis are characterised. The materials are used in sensors and biosensors in electrochemistry, chromatography and in the sample preparation techniques are studied. Chemical and electrochemical sensors containing graphene materials are useful devices for

30



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**Physical and Biological Sciences:
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'Wonder Material' Graphene has tremendous future potentials

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Abstract

Graphene is a material that has the potential to change the future. It is the thinnest and lightest material in the world, yet is roughly 300 times stronger than steel. It conducts electricity faster than stretchable, transparent, and water-proof. It is bendable and rusting. It is even biodegradable. A few potential uses for graphene that is a flat sheet of atoms where electrons can zoom around quickly. Because of its immaculate hexagonal matrix, graphene offers almost no resistance, making it the best electrical conductor. In fact, graphene super capacitors would take roughly five seconds to charge the phones. Graphene amazing properties brings scope of various future applications in the field of efficient bioelectric sensory devices such as able to monitor glucose level, cholesterol, DNA sequencing, haemoglobin level etc. Graphene as anti-cancer treatment, optical electronics, ultra filtration, composite materials, photovoltaic cells are to name a few.

Keywords: Graphene, biodegradable, wondermaterial.

Introduction

Graphene would also revolutionise solar energy. This remarkable material can be used to create stronger and better

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MENTHA : SOURCE OF MENTHOL AND ITS BIOLOGICAL ACTIVITIES

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Introduction

Genus *Mentha* presents group of plants which are the most studied in family Lamiaceae. *Mentha piperita* (Peppermint) is an aromatic herb in the mint family. It's a hybrid mint that's a cross between *Mentha spicata* (spearmint) and *Mentha aquatica* (watermint). It can be found naturally in North America and Europe. Peppermint essential oil can be extracted from the leaves of the peppermint plant (*Mentha piperita*) and is used for a variety of purposes. Peppermint oil can be used as a remedy for a irritable bowel syndrome (IBS), nausea, and other digestive issues, as well as the headache and common cold. It is also used for relief from itching and muscle pain. Peppermint used as a flavoring agent in foods and added to products such as mouthwashes, soaps and cosmetic products to feel fresh and pleasing scent.

It has a sharp odor that's cool and refreshing, and the taste is similar. The main chemical components of peppermint oil is menthol. However, there are many more as well.

Menthol, the main component of Peppermint is a monoterpenic alcohol obtained from oils of *Mentha piperita* var. *Valgaris* (Black peppermint) & *Mentha piperita* var. *officinalis* (White peppermint). Menthol is present in the essential oils of the mint family such as mint (*Mentha arvensis*), peppermint (*Mentha piperita*), spearmint (*Mentha spicata*) and others. *Mentha* species contains about 1-3% of volatile oils & oil contains not less than 44% menthol. Menthol has biological activities such as antibacterial, antifungal, anti-inflammatory, antimicrobial, antiseptic activities.

In 2017, it was the 193rd most commonly prescribed medication in the United States, which more than two million prescription. Menthol is a cyclic monoterpene with molecular formula of $C_{10}H_{18}O$. It is also known as mint camphor. Menthol is a white or colorless, waxy crystalline substance. It is in the form of solid at room temperature with a density of 0.890g/cm³ (25°C) and melt slightly. Melting point of menthol 41-42°C depending on its purity. Menthol is not soluble in water but soluble in alcohol, diethyl ether or chloroform.

It is an optically active compound and many isomers of menthol exists some with mentol smell or some without smell. In nature menthol exists only (-)-menthol which has strongest smell which are peppermint oil. (-)-menthol is saturated compound mp 43°C and the functional nature of oxygen atom by its reaction menthol form ester and oxidation of alcohol converted menthone.

Menthol is also included as an ingredient in a variety of consumer products including pharmaceuticals cosmetics and pesticides can dies chewing gum, lipgums, toothpaste shampoo, and soaps as a cooling and flavour enhancing ingredient. [Fig-1]

In the West, menthol was first isolated in 1771, by the German, Hieronymus David Gaubius. The IUPAC name of menthol is 2-isopropyl-5-methylcyclohexanol with molecular formula $C_{10}H_{18}O$. Menthol contain 3- asymmetric carbon atoms and four pairs of optical isomers namely (+)- and (-)- isomenthol, neoisomenthol, scoumenthol, and menthyl. [Fig-2] Generally (-)-menthol found in nature with the configuration 1R,3R,4S. This form of menthol is commonly used in cooling properties.



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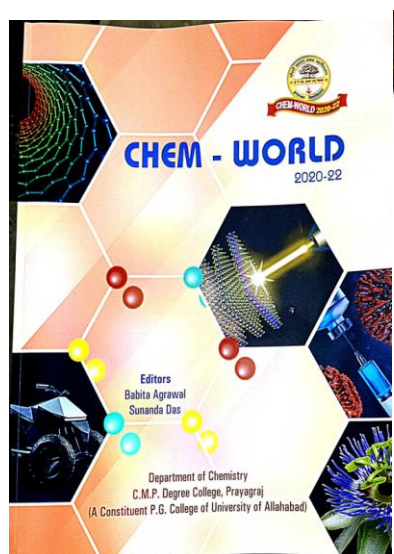
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Lithium Ion Battery Technology: Present and Future Perspectives Sakshi Singh¹, Shweta Jaiswal¹, Siddharth Agrawal¹ and Babita Agrawal⁴*

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Introduction

The Lithium-ion (Li-ion) batteries are commonly known as power components of transportable electronic devices for example laptop, mobile, camera and other electronic devices^[1]. Lithium ion batteries are most commonly use in new electric vehicles replacing nickel-metal hybrid batteries in compare to other batteries. Lithium ion battery have features of high energy density, low self discharge rate, high power density, long service life and are widely used in consumer electronics^[2]. The lithium ion battery can play very essential role in our daily life as well as in modern society^[3].

Nobel Prize in chemistry in the year 2019 was awarded to John B. Goodenough, M. Stanley Whittingham, and Akira Yoshino for their work on Lithium ion batteries^[4]. The three scientists were honored for a truly transformative technology that has permeated billions of lives across the planet, touching everyone using cell phones, laptop, pacemaker, electric car or any other device that is powered by a rechargeable battery.

Lithium ion batteries (LIBs) have four basic components that are, a cathode, an anode, an outer casing and an electric separator^[5]. Each component has exact mass and its chemical composition vary between different manufactures. Battery has 25-30% weight of cathode and consists of aluminum current collector sheet which is usually layered with metal oxide, which is often referred as cathode materials^[6]. Anode has 15-30% total weight in Lithium ion battery and is typically made up of copper current collector sheet which is coated with graphite layer (Fig.1). The remaining useful life (RUL) and state of health (SOH) are the most important parameters of lithium ion battery to assess the current health condition^[7]. In general, the assessment of battery health affected is also referred to as the state of health (SOH) assessment^[8].

In recent advances, lithium ion battery have enabled electric vehicles (EVs) to achieve driving range that can compete with Eden-powered cars. Due to the rapid growth in demand for EV's Lithium ion batteries will result in shortage of Lithium in the coming decades. In this review article we have discussed the present and future utilizations of Lithium ion batteries

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Report: Academic Activities (January 2020-October 2022)

Dr. Babita Agrawal

1. Release of Annual Bulletin of Chemistry Department "CHEM-WORLD" Vol IV&V (2017-19) on 28th Jan 2020
2. Release of book **Advances in Chemical and Applied Sciences- Vol-II (2019)** Chemical Society, CMP; First Print Publications-Prayagraj; ISBN: 978-81-9350520-5. on CMP Degree College Founders' Day Celebrations; 22nd Feb. 2020:
3. Release of book **Advances in Chemical and Applied Sciences-Vol III'**. (2020) Chemical Society, CMP; First Print Publications, Prayagraj; ISBN: 978-93-88018-19-7. on CMP Degree College Founders' Day Celebrations; 22nd Feb. 2020:
4. Release of book **Environmental Challenges & Issues in Present Scenario. (2019)** Chemical Society, CMP; First Print Publications, Prayagraj; ISBN: 978-93-88018-18-0. on CMP Degree College Founders' Day Celebrations; 22nd Feb. 2020:
5. **Quiz on COVID-19 Pandemic (online)**
Event Time: From 21st May 2020 9:00 AM to 25th May 2020 at 9:00 PM for social awareness on COVID-19 pandemic. No. of Participants - 3070
6. **Test Your Knowledge in Chemistry: A Quiz Program-2020(online)**
Event Time: From 28th May 2020 12:00 PM to 6th June 2020 12:00 PM.
No. of Participants -473
7. **The Ganges Quiz-2020** Jointly organized by Department of Chemistry and Library of CMP Degree College, Prayagraj for social awareness on holy river Ganga on occasion of Ganga Dussehra. (online)
Event Time: From 30th May 2020 12:00 PM to 30th June 2020 12:00 PM.
No. of Participants- 1722
8. **Quiz On Conservation Of Environment(online)**
Jointly organized by the Department of Chemistry and Library of the College for social awareness on conservation of the environment on the occasion of World Environment Day
Event Time: From 5th June 2020 10:00 AM to 15th June 2020 10:00 AM.
No. of Participants- 836
9. Three days National Webinar On "Insights Into Fundamentals Of Chemistry" was organized by Department Of Chemistry, C.M.P. Degree College on ZOOM platform from 18th-20th June 2020. The webinar received registrations from all over the country. No. of Participants-631

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Report: Social Responsibilities

Dr. Babita Agrawal

In Social responsibility of Chemistry Department the whole department transmits appropriate values, traditions, skills and cultural norms and academic success to the next generation.

Faculty members of the department of chemistry are actively involved in the social responsibilities of the society to play a role in creating capacity in community work and social problem.

Ecofriendly Moves

1. The faculty members contribute to sustainable development as started the plantation of a wide variety of plants in the Department of Chemistry and outside the boundary wall of college from 28th July, 2021 in the supervision of Dr. Archana Pandey. Ten plants has been planted near the boundary wall of Chemistry Department and regular watering done by faculty members of Department with office staff and students.
2. Department distributed cloth carry bags to replace polythene bags to save environment.
3. Dr. Archana Pandey, senior Associate Professor of Chemistry Department regularly distributing saplings of variety of medicinal plants to common people.



Tree Plantation on August 2021



Regular watering of Plants



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Report: National Seminar "Save Ozone Layer: Save Life"

Dr. Babita Agrawal

On the occasion of 'World Ozone Day' on 16th September 2022, National Seminar on "Save Ozone Layer Save Life" organized by Department of Chemistry, CMP Degree College. It was jointly organized with Department of Zoology, Botany and Physics under aegis of DBT Star College scheme in the auditorium of the Department of Botany. Professor Shekhar Srivastava, Dean Science, University of Allahabad was the chief guest in the program, Dr. Avinash Srivastava of Professor Rajendra Singh Rajju Bhaiya University, Prayagraj was present as the key speaker and the program was presided by Professor Ajay Prakash Khare, Principal, CMP Degree college. The program started with lamp lighting by the guests and Saraswati Vandana by the students.

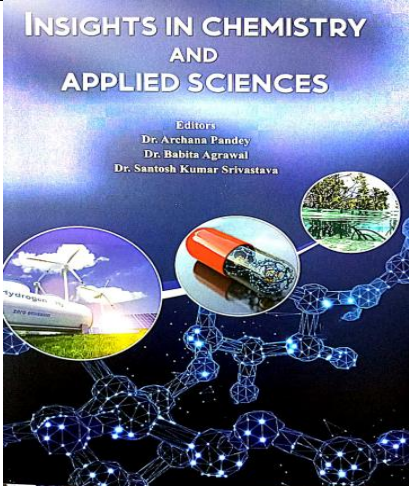
Coordinator of the program Dr. Babita Agrawal, Convener of Department of Chemistry, welcoming the guests and while giving detailed information about World Ozone Day, exhorted that we have to preserve the environment with small efforts. Using Solar energy, electric vehicle, eco-friendly cleaning products will reduce ozone depletion and therefore 'save ozone layer and save life'.

Chief guest, Professor Shekhar Srivastava, Dean Science, University of Allahabad, while discussing the depletion of ozone layer said that water management can deal with the challenges of water. The issue of lack of availability of water is related to water quality, 70 percent of water sources are polluted and our major rivers are drying due to pollution. Today, the amount of fluoride and arsenic in ground water is increasing. Due to which many water borne diseases are arising.

As the keynote speaker, Dr. Avinash Srivastava of Professor Rajendra Singh Rajju Bhaiya University said that water is considered a deity in the Vedas and Upanishads. It is unfortunate that today man is continuously exploiting the natural resources due to his irrational decisions and colonial thinking. Only the concept of nature-centred development is capable of dealing with these challenges.

Presiding over the Seminar, Professor Ajay Prakash Khare, Principal of the college said that developed countries emit all toxic gases and it is the responsibility of those who have created

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Dr. Babita Agrawal
Dr. Santosh Kumar Srivastava

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**Recent Trends
in Science and
Technology**

Editors
Dr. Ajeet Singh, Dr. Praveen Pratap Singh
Dr. Vishal Srivastava & Dr. Pravin K. Singh

2022

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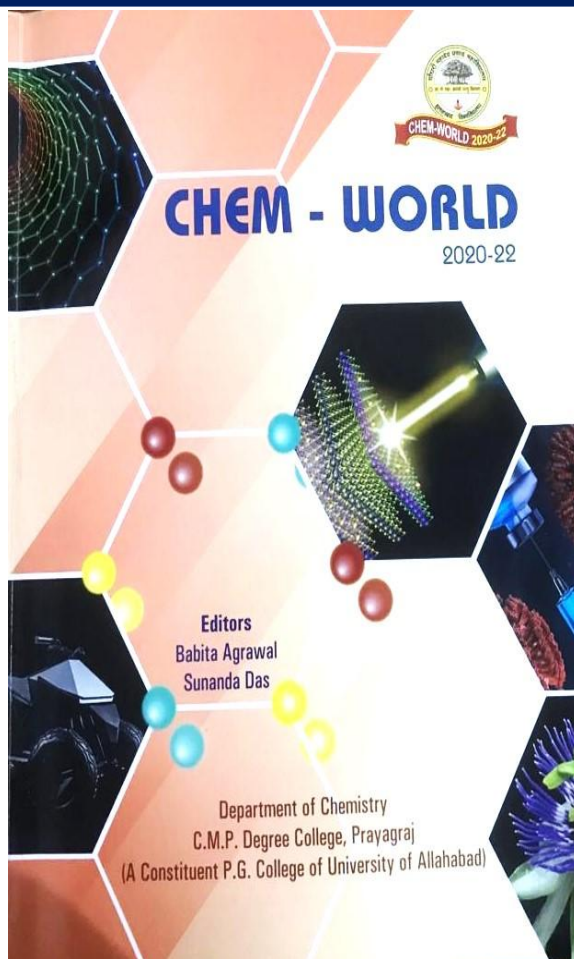


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Nanoparticle for Drug Delivery in Cancer Treatment

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Abstract

Cancer remains one of the most pressing global health problems. Although there is a large number of drugs that can be used in cancer treatment but the problem is selectively killing all the cancer cells while reducing the collateral toxicity to healthy cells. There are several biological barriers to effective drug delivery in cancer such as renal, hepatic, or immune clearance. Nanoparticles loaded with drugs that can be designed to overcome these biological barriers to improve efficacy while reducing morbidity. Nanomedicine has ushered in a new era for drug delivery system by improving the medicinal indices of biologically active pharmaceutical ingredients within nanoparticles. This chapter highlights the biological barriers in effective drug delivery in cancer, emphasizing the need for nanoparticles for improving therapeutic outcomes.

Introduction

Cancer is currently one of the leading causes of death worldwide, with 1,688,780 new cancer cases and an estimated 600,920 cancer deaths for 2017. The number of new cases is projected to increase by about 70% over the next 20 years[1]. Current treatment of cancer such as chemotherapy, radiation, and surgery, but the effects of these procedures can kill not only tumor tissue only but also normal tissue. Weinberg and Hanahan have described a group of six hallmarks of cancer, which may help to distinguish characteristics between the normal and tumor tissue and may provide better choice treatments of cancer. These hallmarks include protection proliferative signaling, evading development suppressors, activating invasion and metastasis, enabling replicative immortality, induce angiogenesis, and resisting cell death[2]. Cancer cells can retain growth signals and continue to spread, even in the absence of loss or growth. Normal regulators of cell growth and apoptosis are usually inhibited. High levels of telomerase can help cancer cells maintain the integrity of their DNA and thus permit to replicate indefinitely. Formation of new blood vessels, or angiogenesis, is a way for cancer cells to get nutrients and remove waste. Cancer cells can also migrate to new

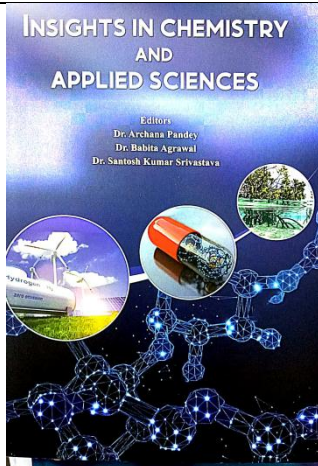


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Natural Products: Sources and their Applications in Drug discovery

Shraddha Tivari, Mohd. Zaheeruddin Beg and Vishal Srivastava*

Abstract:

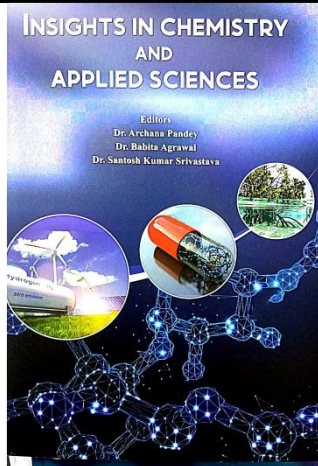
Natural products have consistently been the most productive source of medication development leads. Over a hundred novel products are in clinical trials, primarily as anti-cancer and anti-infective. Molecular biological techniques are being used to increase the availability of novel compounds that can be easily produced in bacteria or yeasts, while combinatorial chemistry approaches based on natural product scaffolds are being used to create screening libraries that closely resemble drug-like compounds.

Key Words: Lead compounds, Natural product, pharmaceuticals, Anti-diabetic, Anti-inflammatory and Anti-viral.

Introduction:

Chemical compounds produced from animals, plants, and microbes have been employed to cure human sickness since the beginning of medicine. The majority of the active chemicals in medicines have come from natural items. When it came to drug development in the "olden days," before high-throughput screening and the post-genomic age, this was commonly accepted: more than 80% of drug compounds were natural products or inspired by a natural component. A natural product or chemical substance that has biological activity and potential as a disease treatment that can be used for the development of new pharmaceuticals or medicines. Once a lead molecule has been identified and is utilized as a beginning chemical structure for manufacturing medicine that has biological activity and has the least negative effect on humans, the lead

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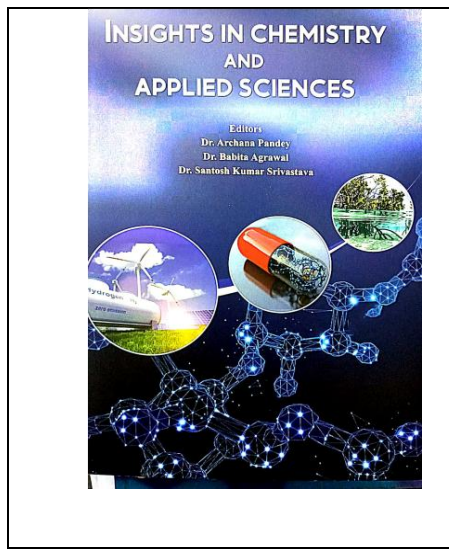
**Heterogeneous Catalysts:
 Microwave assisted heterocyclic synthesis**
 Nivedita Srivastava, Himani Chaurasia, Jaya Srivastava,
 Pragati and Santosh Kumar Srivastava*

ABSTRACT
 Heterogeneous catalysis has traditionally focused on developing and improving catalysis for optimizing chemical processes. The influence of microwave dielectric heating on heterogeneous catalysis involving solid catalyst is been widely explored for numerous applications. Recent advances in the application of heterogeneous catalysis combined with microwave irradiation in the synthesis of heterocyclic compounds are reviewed in this article. A detailed summary of different catalysts applied in the synthesis of heterocycles is also provided in this section.

KEY WORDS: Heterocycles, catalyst, microwave irradiation, synthesis

INTRODUCTION
 Heterocyclic compounds are widely distributed in nature and many of these possess veterinary, medicinal, biological, pharmacological, agrochemical properties. These compounds have always been on the forefront of attention due to their numerous uses [1]. In addition to nature-derived heterocycles, a large number of synthetic heterocycles are being used in medicines. The enormous majority of commercially available synthetic drugs [2] (upto 70%) have a heterocyclic structural components [3]. Heterocyclic compounds having a wide range of applications such as in sanitizers, antioxidants, anti-malarial, anti-diabetics, anti-fungal, anti-bacterial, anti-tumoral, anti-cancer, anti-mycobacterium, anti-leishmanial, lipid peroxidants, etc. Due to worldwide interest in heterocycles, the synthesis of these compounds has always been

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Basic Concepts in understanding nano-structured functionalized materials: Properties and Applications

Pragati, Nivedita Srivastava, Himani Chauhan and Santosh K. Srivastava*

Abstract: Practically useful magnetic, electronic, or optical properties appear in a material at early stage of dimensions, called functionalized materials. They represent either high energy materials or in a more general "nanomaterials". Such materials involved a confined distribution of atoms, molecules, or even small particles, in a specific pattern at a nanometer scale. This specific class of materials is designed of artificially created or engineered structure, i.e., "nanomaterials". This represents an altogether new class of materials of tunable functional properties to meet the applications, depending on the dimension, morphology, and surface topology, and in general the microstructure. It will be discussed with selected examples of metals, ceramics, composites and organic-inorganic hybrid materials. This includes CMO, ferroelectric and optoelectronic materials and typical applications in part of our work of synthesis of such materials using chemical methods. The results infer that neither quantum chemistry nor non-classical laws of physics as such hold in such materials of unconfined dimensions.

1. Introduction

2.1. Half-metals and half-metallic compounds

The physical properties of metal oxides are diverse, including semiconductors or insulators (ZnO, ZnO, TiO₂), good metals (NiO), and metal-insulator systems (VO) in terms of the electron band structure and variation of electrical conductivity (σ) as a function of temperature (T), i.e., thermal coefficient of σ , expressed as σ^* (σ^*/T). In terms of distributing the magnetic spins (of total

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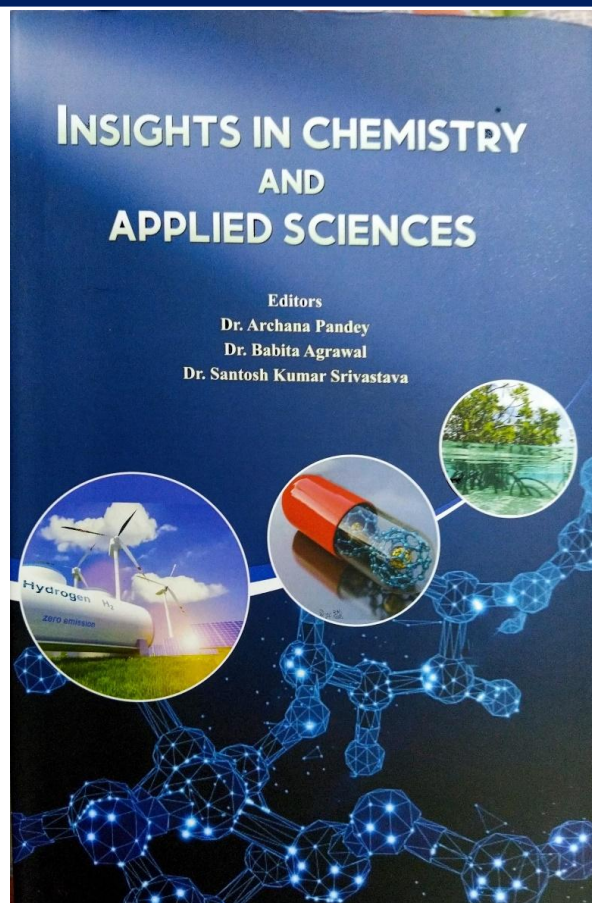


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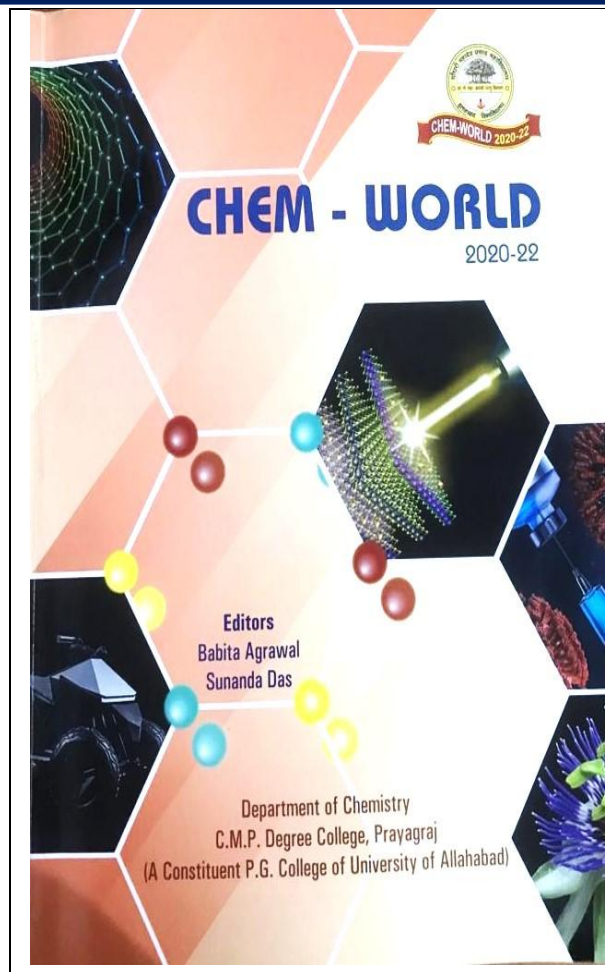


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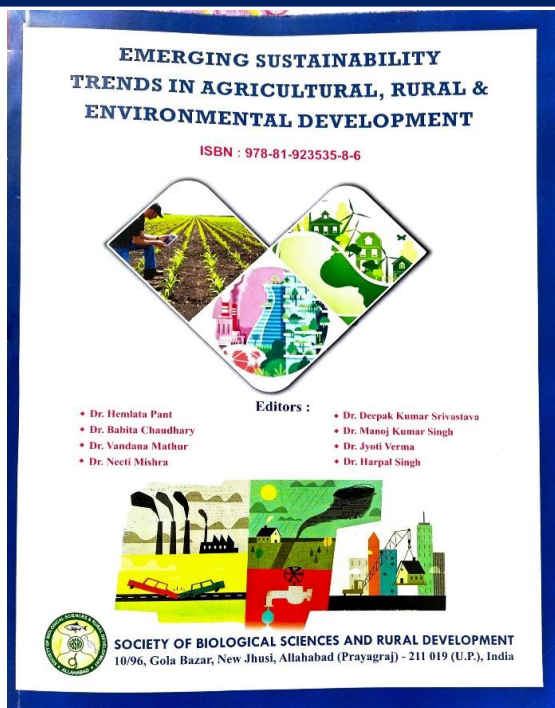


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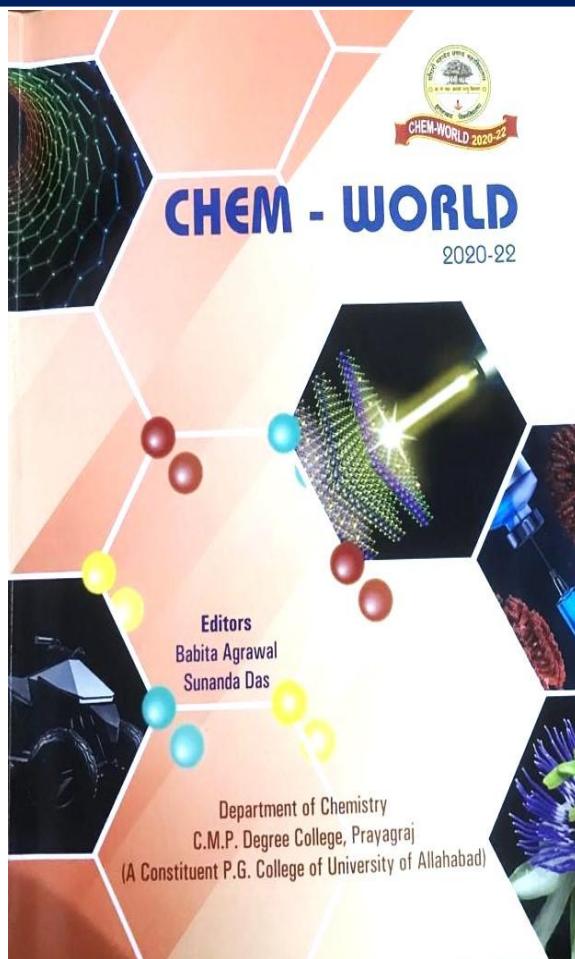


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Tranquillizing Plants

Archana Pandey and Pramod Kumar
Associate Professor, Assistant Professor

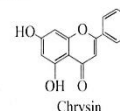
Anxiety is a type of mental disorder. Mental disorders are a psychological or behavioural pattern that occurs in an individual to cause stress, mood disorders, anxiety and depression. Anxiety is defined as a subjective emotional state of uneasiness, not pleasant and even fearful. The term "Sedation" implies a general slowing down of cognitive functioning whereas hypnotic specifically means the induction of sleep and tranquillization signifies emotional calming that may or may not lead to sleep but does not induce the feeling of drowsiness.

Here are few plants which have tranquillizing effect and medicinally helpful for anxiety patients:

1. Passiflora species (Passion flower):

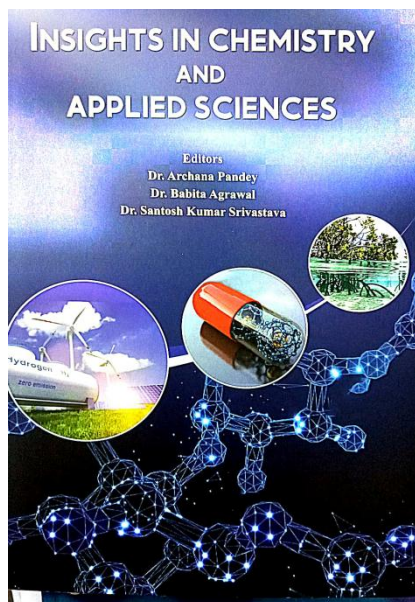
Passiflora foetida leaf infusion is used to treat hysteria and insomnia in India. This plant is widely cultivated in India. The use of *Passiflora* as a medicine was lauded for the first time by a Spanish researcher Monardus in Peru in 1569 because the beautiful flowers of *Passiflora* appeared to him to be symbolic of the passion of Christ. The extract of *Passiflora alata* with aloe has been used as an anxiolytic, sedative, diuretic and an analgesic. *Passiflora incarnata* is used to treat epilepsy, insomnia in infants and anxiety in aged. *Passiflora quadrangularis* is a very good sedative and has been put to use for headaches.

Passiflora coruella (blue passion flower) is the most vigorous and tender species having traditional use of its fruits as a sedative and anxiolytic. In Netherlands and South America, the root has been used as sedative and vermifuge. In Italy, the plant is used as an antispasmodic and sedative. In Mauritius, tincture and an extract of the plant had been used as a remedy for insomnia. In Argentina, it is used as sedative. The active principle of this plant is Chrysin [5, 7-dihydroxy flavone].



Chrysin

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Novel Aspects of Azolla

Asbwni Sharma, Arti Gupta and Archana Pandey

Abstract

Azolla is an aquatic fern, genus of seven species which is rich in proteins, essential amino acids, vitamins A, beta-carotene, growth promoter intermediates and minerals like calcium, phosphorus, potassium, iron, copper and magnesium. Experimentally, it exhibits properties like antioxidant, bioremediation, plant development promotion, hepatoprotective, and antimicrobial activity. Nowadays, it is used to produce Hydrogen and Ethanol production from *Azolla fillicoides* and *A. pinnata*, also as universal feedstock.

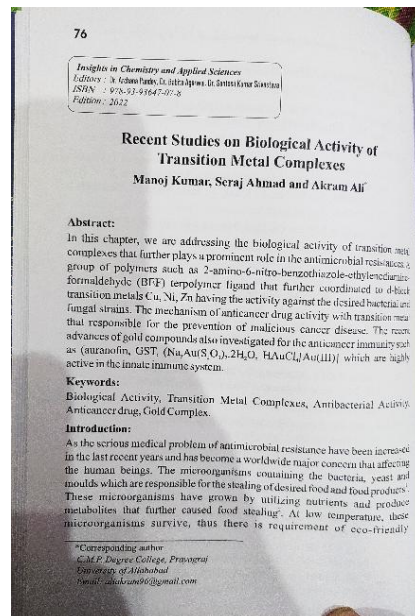
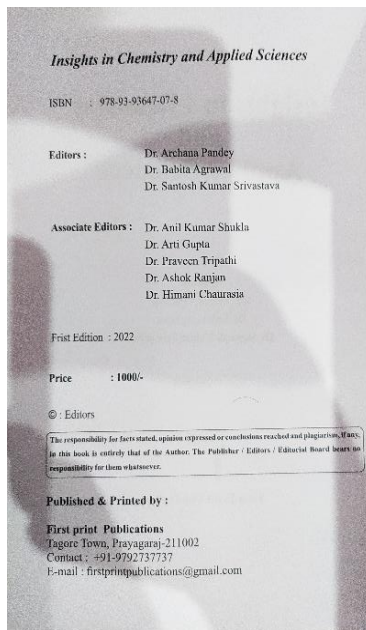
Keywords: Antioxidant, Antimicrobial, Biofuel, Biodesoil

Introduction

Azolla (*Azolla* sp.) is an aquatic fern consisting of a short, branched, floating stem, bearing roots which hang down in the water. The leaves are alternately arranged, each consisting of a thick aerial dorsal lobe containing green chlorophyll and a slightly larger thin, colourless, floating ventral lobe [1]. Azolla is a genus of seven species of aquatic ferns in the family Salviniaceae. They are extremely reduced in form and specialized, looking nothing like other typical ferns but more resembling duckweed or some mosses [2]. Commonly known as mosquito fern, duckweed fern, fairy moss, waterfern (English) and जलजैतु (Hindi).

It belongs to Class: Polypodiopsida, Order: Salviniiales, Family: Salviniaceae, Kingdom: Plantae and Clade: Tracheophytes. Around the world, azolla is found in ponds, ditches, warm temperate tropical and rice fields. Every species has a distinct natural habitat: *Azollamicrophylla*, tropical and subtropical America;

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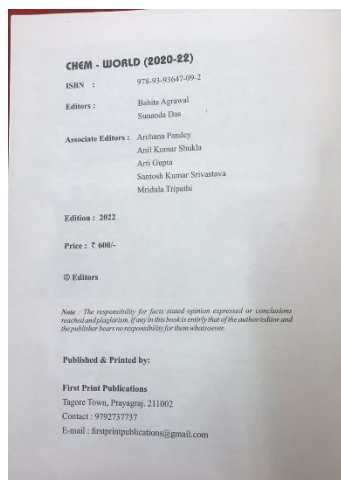
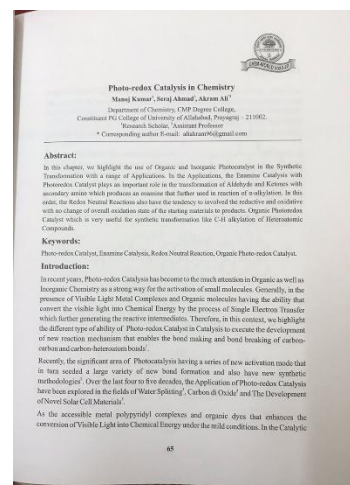
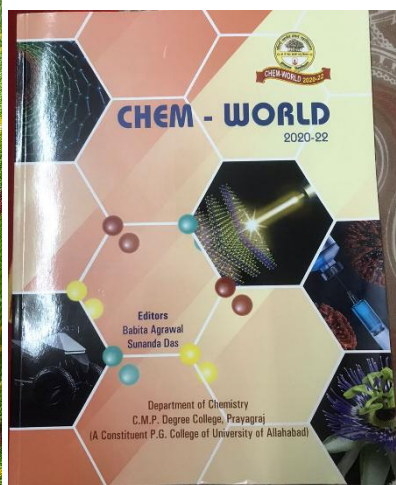
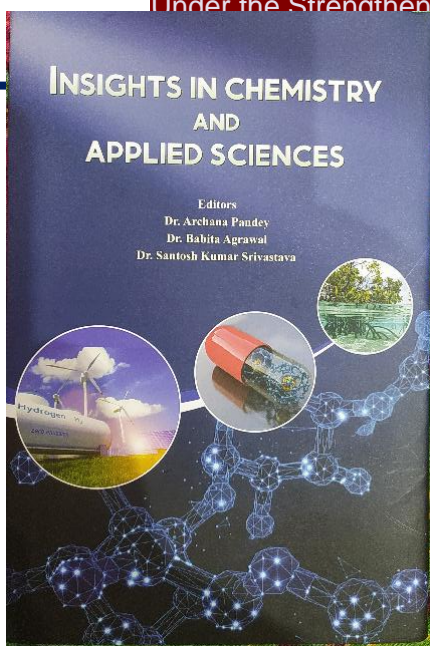


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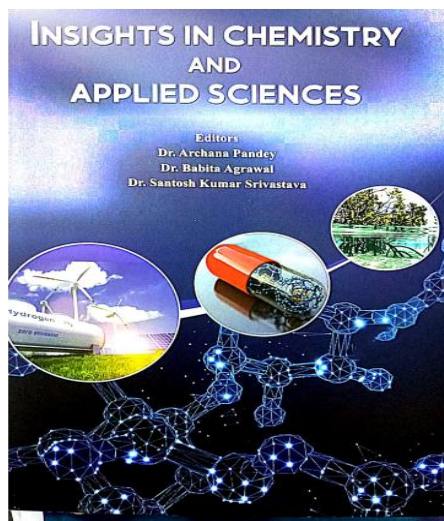


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Heterogeneous Catalysts: Microwave assisted heterocyclic synthesis

Nivetha Srivastava, Himani Chaurasia, Jaya Srivastava,
Pragati and Santosh Kumar Srivastava*

ABSTRACT

Heterogeneous catalysis has traditionally focused on developing and improving catalysts for optimizing chemical processes. The influence of microwave dielectric heating on heterogeneous catalysis involving solid catalysts is being widely explored for numerous applications. Recent advances in the application of heterogeneous catalysis combined with microwave irradiation in the synthesis of heterocyclic compounds are reviewed in this article. A detailed summary of different catalysts applied in the synthesis of heterocycles is also provided in this section.

KEYWORDS: Heterocycles, catalyst, microwave irradiation, synthesis

INTRODUCTION

Heterocyclic compounds are widely distributed in nature and many of these possess veterinary, medicinal, biological, pharmacological, agrochemical properties. These compounds have always been on the forefront of attention due to their numerous uses [1]. In addition to nature derived heterocycles, a large number of synthetic heterocycles are being used in medicines. The enormous majority of commercially available synthetic drugs [2] (upto 70%) have a heterocyclic structural components [3]. Heterocyclic compounds having a wide range of applications such as in sanitizers, antioxidants, anti-malarial, anti-diabetic, anti-fungal, anti-bacterial, anti-tumoral, anti-cancer, anti-mycobacterial, anti-leishmanial, lipid peroxidants, etc. Due to worldwide interest in heterocycles, the synthesis of these compounds has always been

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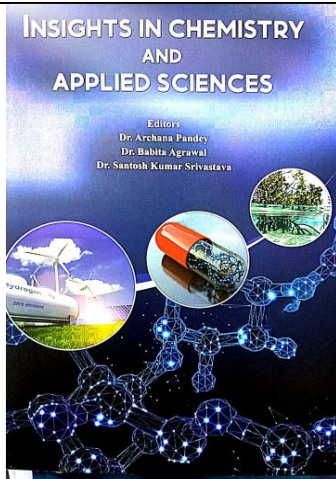


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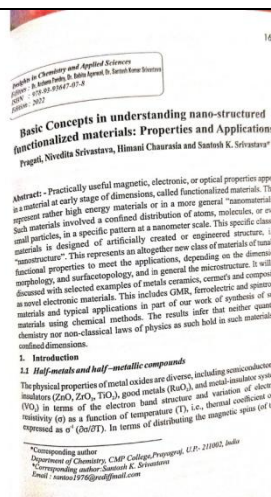
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Basic Concepts in understanding nano-structured functionalized materials: Properties and Applications

Pragati, Nivedita Srivastava, Himani Chaurasia and Santosh K. Srivastava*

Abstract - Practically useful magnetic, electronic, or optical properties appear in a material at early stage of dimensions, called functionalized materials. They represent rather high energy materials or in a more general "nanomaterials". Such materials involved a confined distribution of atoms, molecules, or even small particles, in a specific pattern at a nanometer scale. This specific class of materials is designed of artificially created or engineered structure, i.e., "nanomaterials". This represents an altogether new class of materials of tunable functional properties to meet the applications, depending on the dimension, morphology, and surface topology, and in general the nanostructure. It will be discussed with selected examples of metals, ceramics, composites and organic materials and typical applications in part of our work of synthesis of such materials using chemical methods. The results later that neither quantum chemistry nor non-classical laws of physics as such hold in such materials of confined dimensions.

1. Introduction
1.1 Half-metals and half-metallic compounds
The physical properties of metal oxides are diverse, including semiconductors or insulators (ZnO, TiO₂, TiO₂), good metals (RuO₂), and metal-insulator oxides (VO) in terms of the electron band structure and variation of electrical resistivity (ρ) as a function of temperature (T), i.e., thermal coefficient of ρ , expressed as α^* ($\rho/\rho T$). In terms of distributing the magnetic spins (of total

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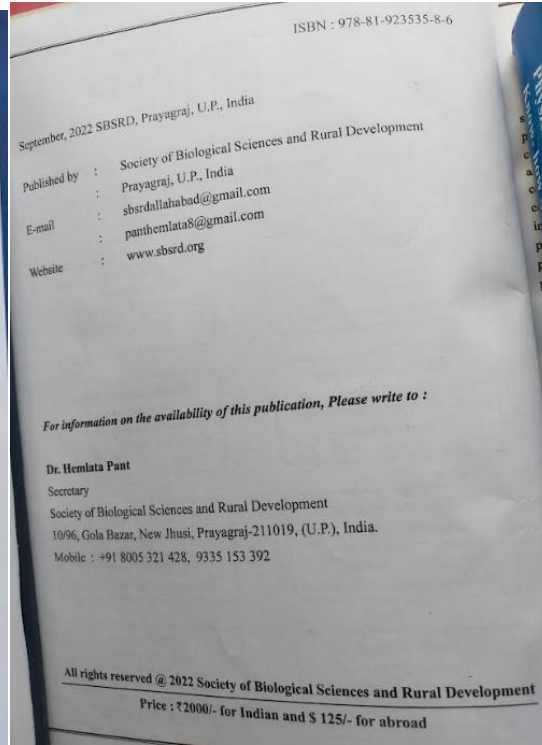
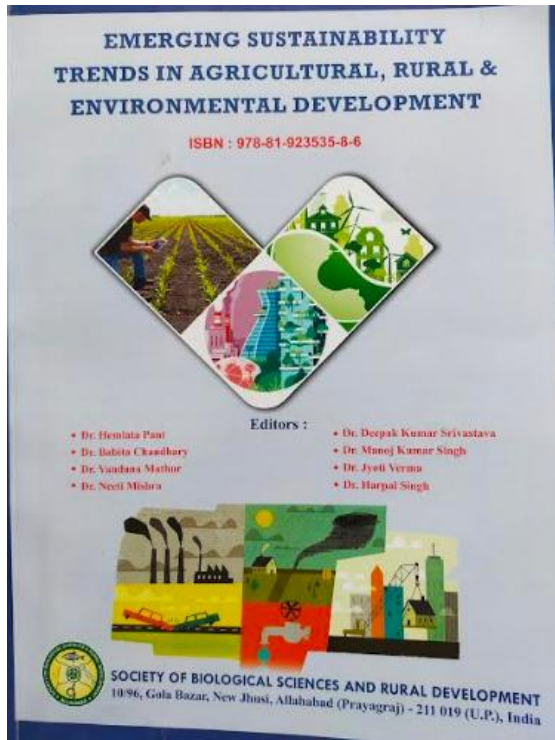


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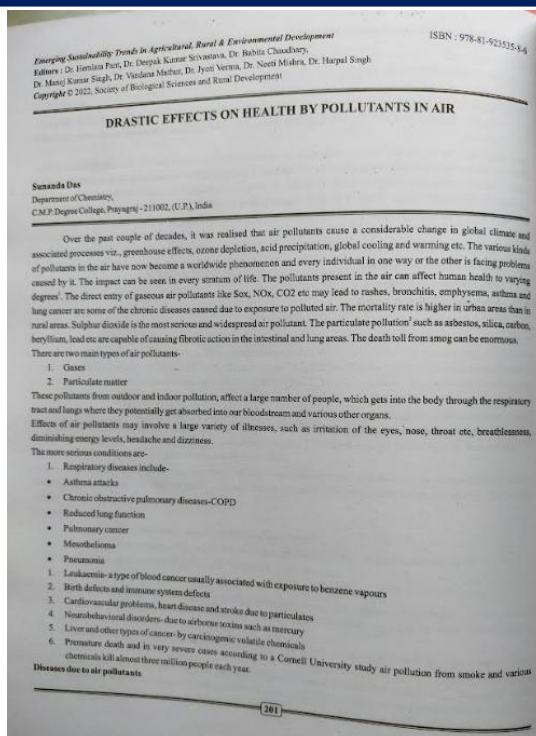


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GLOBAL IMPACT DUE TO CLIMATE CHANGE Sunanda Das*, Kanhaya Lal and Anil K. Shukla

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CMP Degree College (A constituent college of the University of Allahabad),
Prayagraj, Pin-211002 U.P. India

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Abstract:

One of the most significant environmental problems the world is now experiencing is climate change. It has gained considerable attention in recent years. This is a result of the greenhouse gas emissions that impact our environment. As a result, it begs the question of whether human activity is to blame for the issue, merely a contributing factor, or whether it is just a result of the natural cycle.

India is dealing with several issues. Some adverse effects of climate change are linked to agriculture, water resources, forests and biodiversity, health, coastal areas management and temperature rise. Agriculture's declining productivity in India is most affected by climate change. In addition, a large portion of the population is dependent on agriculture formally or informally. Climate change would put the natural system under extra stress and socioeconomic systems, which are currently under extreme strain from rising urbanization, industrialization, and economic growth. It is, therefore, essential to realize the contributing elements to climate change by some implications of environmental-harming changes, the relationship between people and nature in the context of India and the global scenario.

Keywords: Climate change, global warming, greenhouse gases

Introduction:

Climate changes due to global warming are being extensively discussed throughout the world. These debates highlight the worldwide risks brought on by global warming, which are associated with how people are exploiting the planet's resources. An increased emission from human activities has led to heat-trapping greenhouse gases, altering the earth's climate and significantly impacting the environment. Glaciers and ice sheets are melting, River, sea and lake ice are breaking up, and plant ranges are shifting; plants and trees are bursting, and sea levels are rising. More severe heat waves are just a few of the effects of global climate change that scientists have long anticipated are happening. The sun's radiation provides energy to the planet. Greenhouse gases are crucial in keeping the earth's temperature at a level that supports life by trapping heat. The greenhouse effect is a natural occurrence required to sustain life on earth. Otherwise, the world would be around 33°C colder without the greenhouse effect. Increased atmospheric greenhouse gases due to centuries-long fossil fuel use and deforestation led to numerous possible environmental, social, and economic developments worldwide [1]. Most of the time, these consequences have a more significant impact on society. Climate change is anticipated to increase the frequency and severity of extreme weather events such as heat waves, heavy rains, floods, storms, droughts, and forest fires in India.

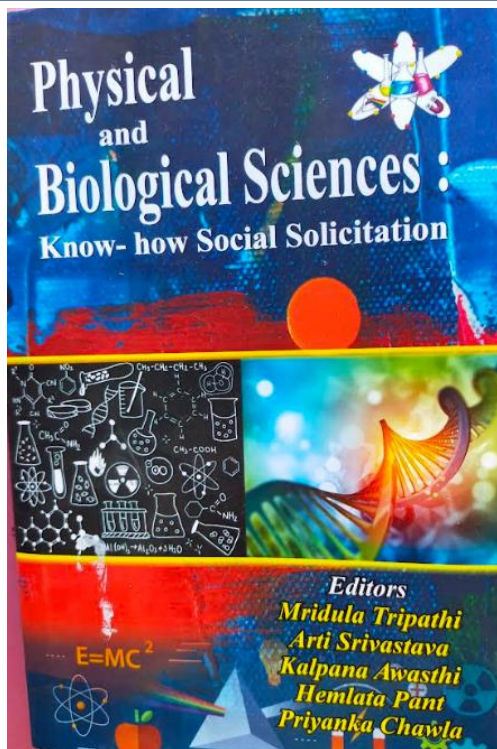


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'Wonder Material' Graphene has tremendous future potentials

Sunanda Das, Kanahiya Lal & A.K. Shukla
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Abstract

Graphene is a material that has the potential to change the future. It is the thinnest and lightest material in the world, yet is roughly 300 times stronger than steel. It conducts electricity faster than copper and conducts heat better than a diamond. It is bendable, stretchable, transparent, and waterproof. It prevents corrosion and rusting. It is even biodegradable. A few potential uses for graphene that is a flat sheet of atoms where electrons can zoom around quickly. Because of its immaculate hexagonal matrix, graphene offers almost no resistance, making it the best electrical conductor. In fact, graphene super capacitors would take roughly **five seconds to charge the phones**. Graphene amazing properties brings scope of various future applications in the field of efficient bioelectric sensory devices such as able to monitor glucose level, cholesterol, DNA sequencing, haemoglobin level etc. Graphene as anti-cancer treatment, optical electronics, ultra filtration, composite materials, photovoltaic cells are to name a few.

Keywords: Graphene, biodegradable, wondermaterial.

Introduction

Graphene would also revolutionise solar energy. This remarkable material can be used to create stronger and better

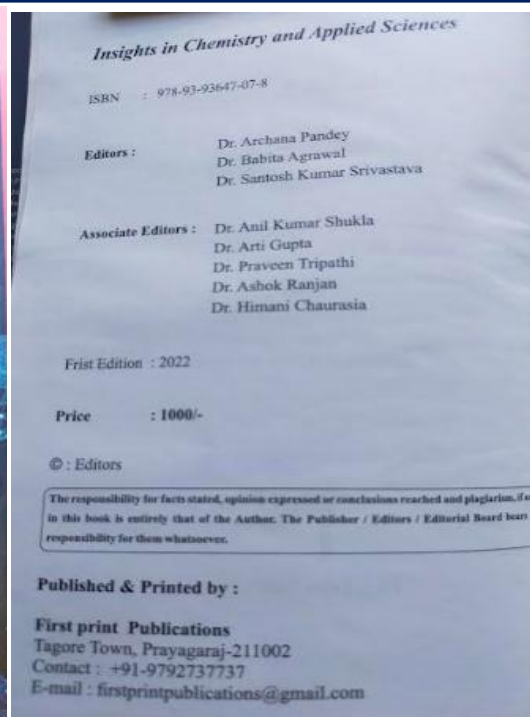
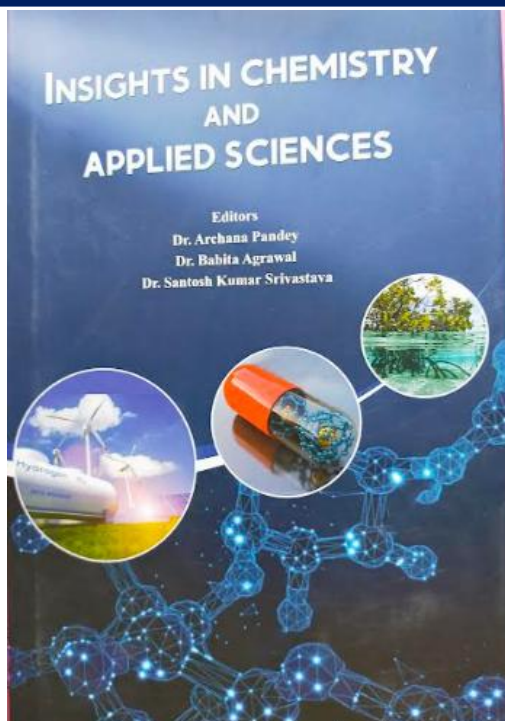


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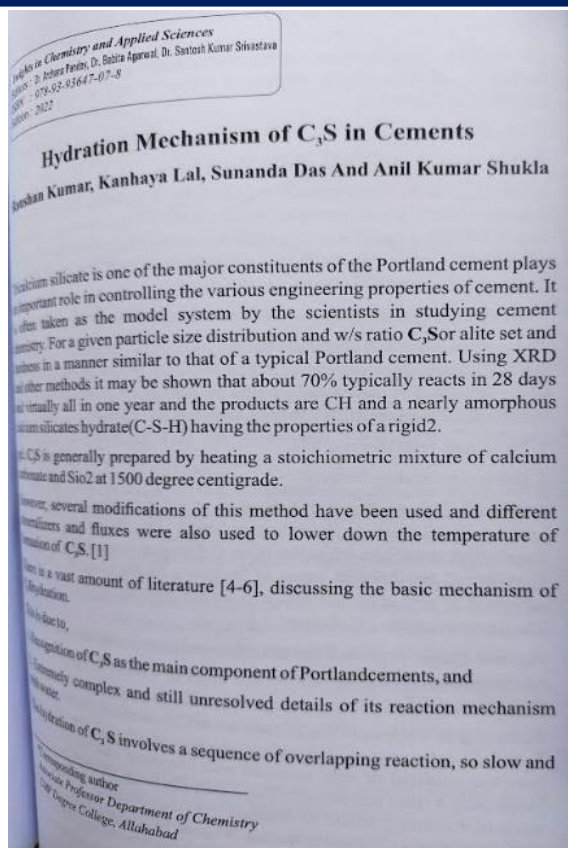


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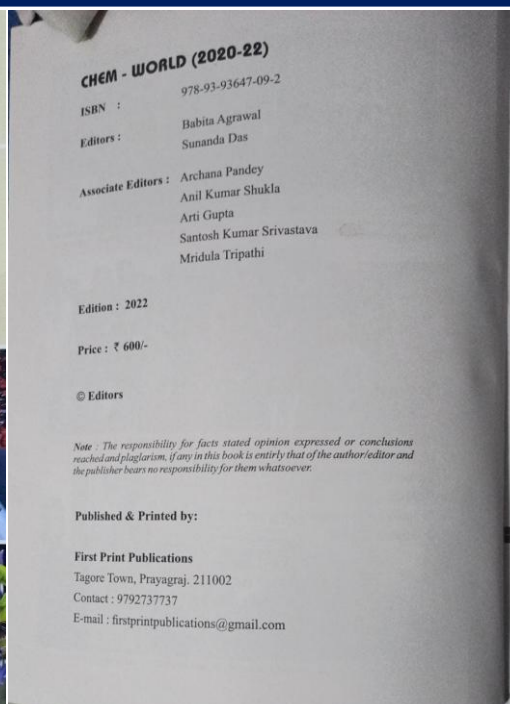
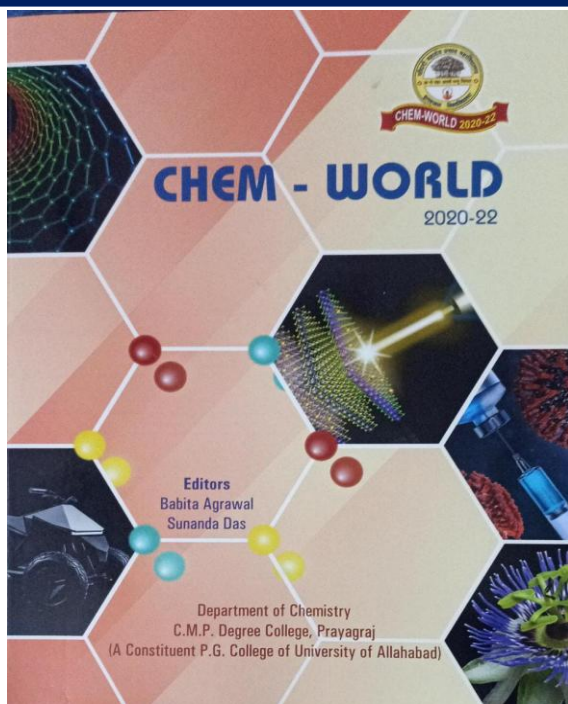


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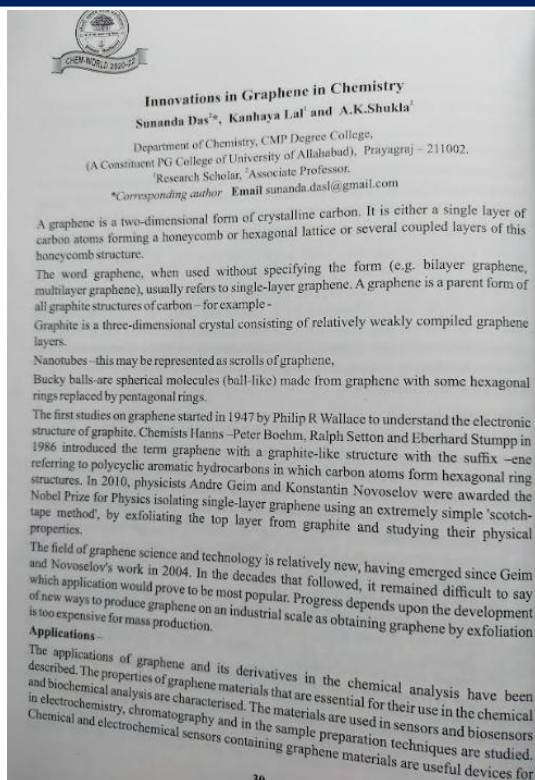


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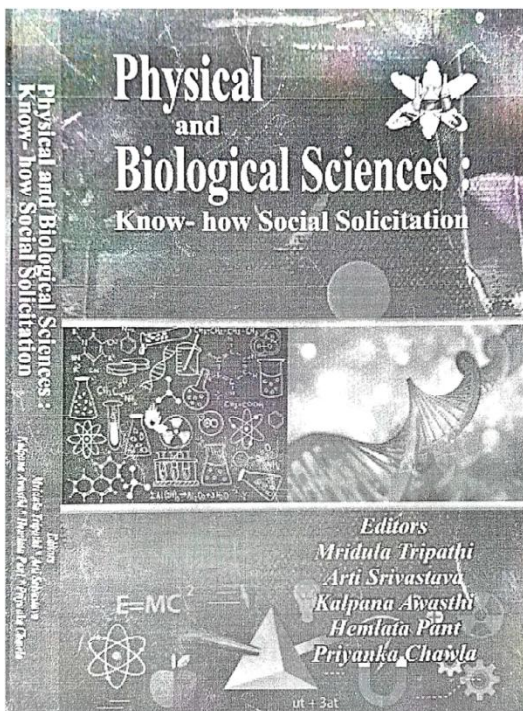


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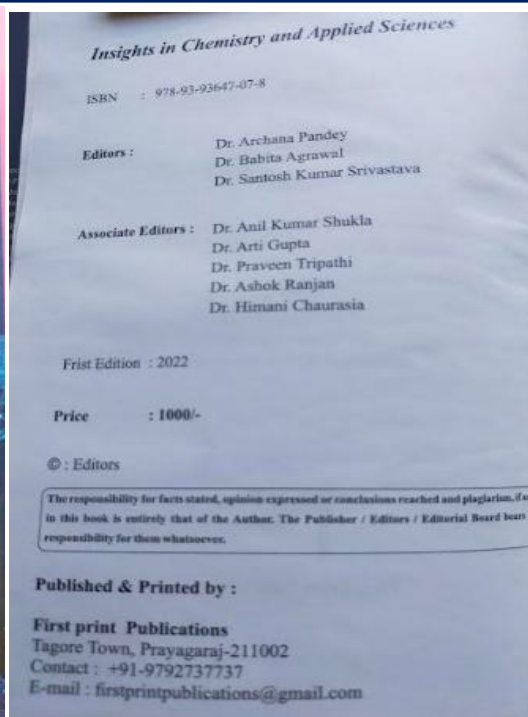
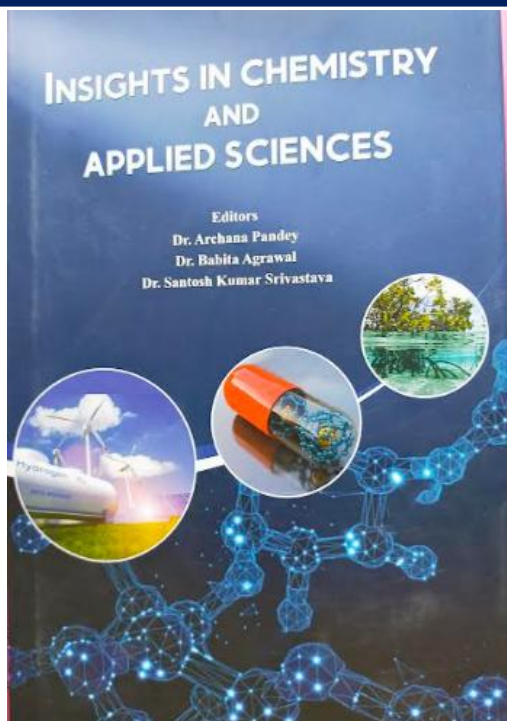


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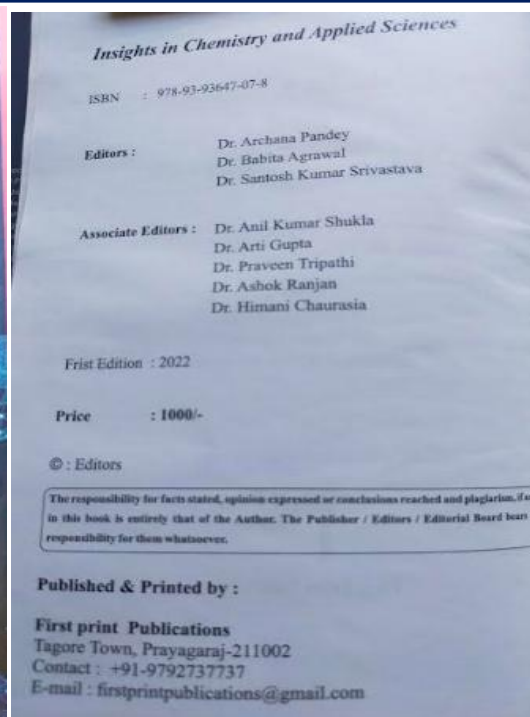
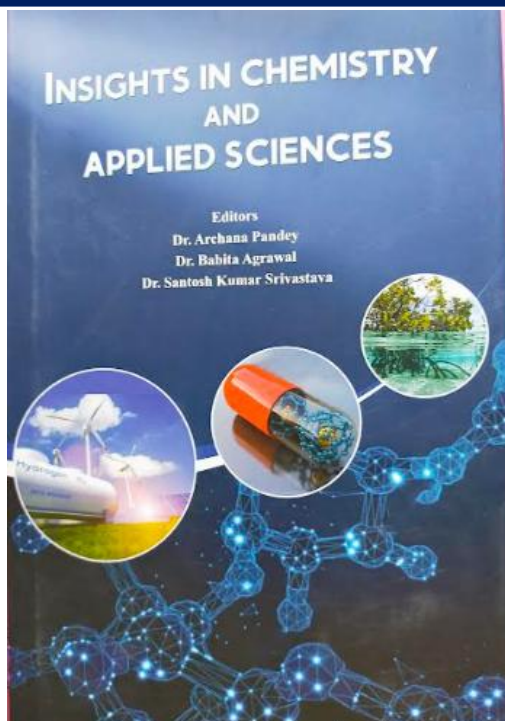


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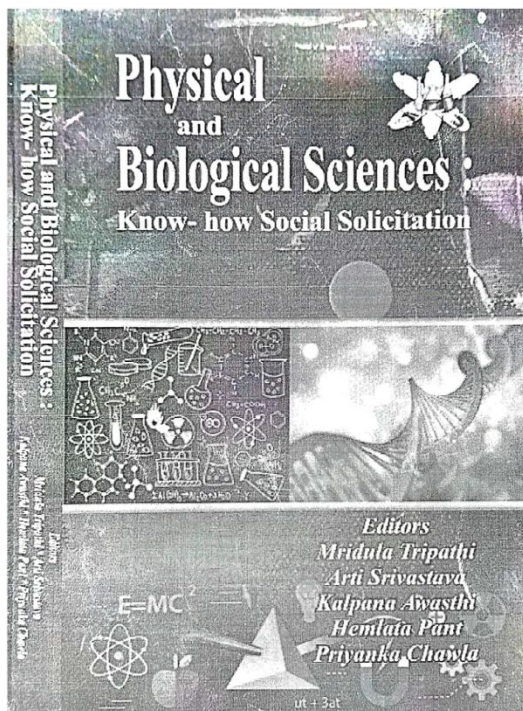


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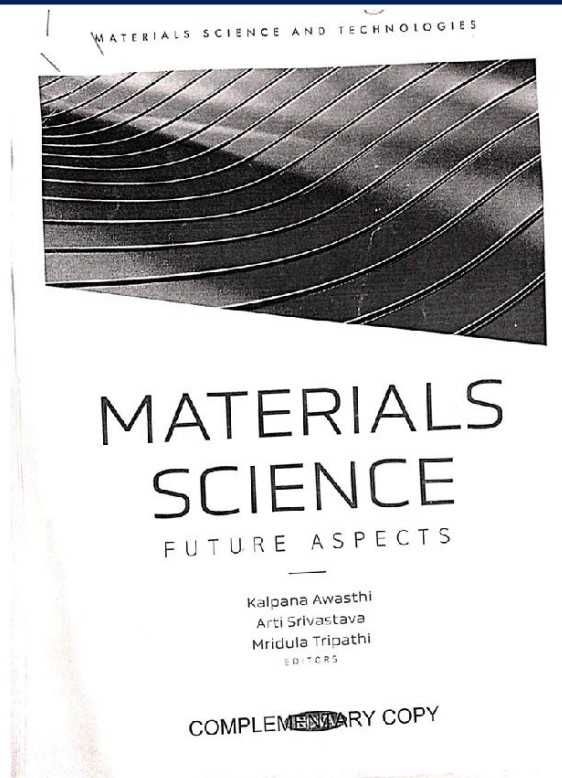


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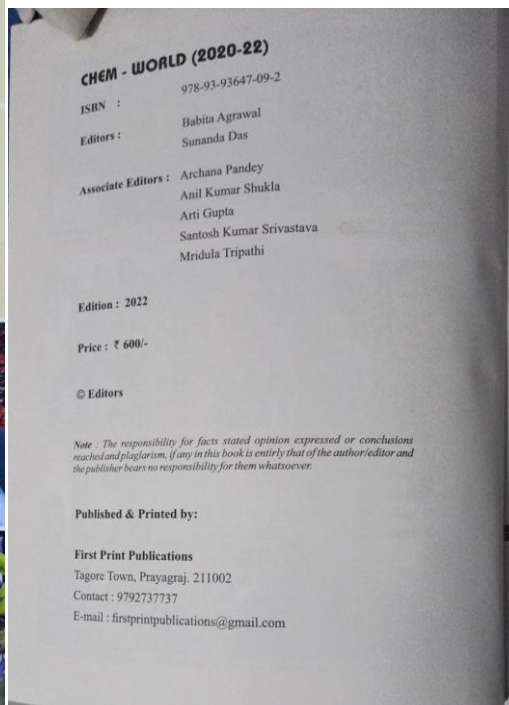
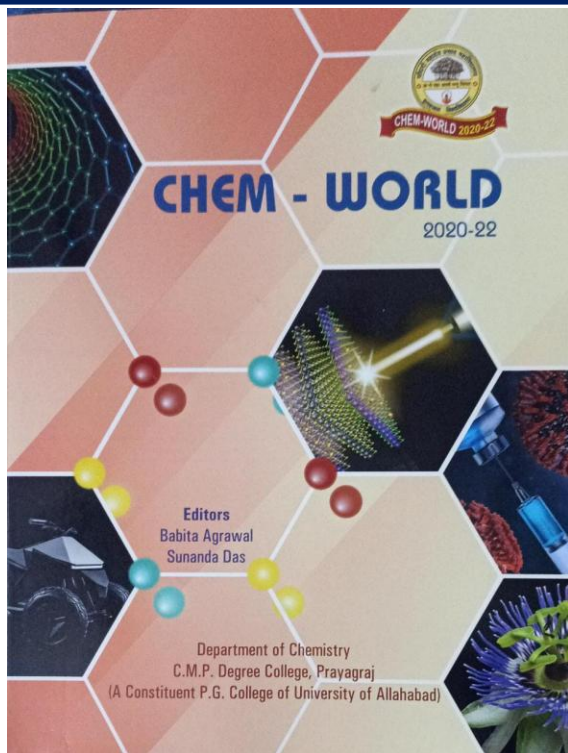


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Application of Nanoparticle in Treatment of Covid-19
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Department of Chemistry, CMP Degree College, Prayagraj
(A Constituent PG College of University of Allahabad), Prayagraj – 211002.
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The outbreak of coronavirus disease 2019 has break down many health care system and cursed numerous economies [1]. The human corona virus was first identified by a scientist in 1965 [2]. They are large, roughly spherical with unique surface projection club shaped glycoprotein spikes in the crown like or coronal appearance which disease starting in December 2019 in the city of Wuhan in China [3]. The primary symptoms of Covid-19 include fever, severe respiratory illness, pneumonia and dyspnea. The initial out break efficient human to human Coronaviridae, this newly emerging infection disease is caused by the novel severe acute respiratory syndrome corona virus-2 (SAR-CoV-2) virus and that average diameter of 80 to 120 nm. The covid-19 pandemic is confirmed by the World Health Organization (WHO) and believed to have close similarities with severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) [4]. If a nanomaterial can be modified with specific antiviral ligands (e.g., copper, zinc, silver (Ag)), these nanoantivirals could benefit COVID-19 management [5].

Treatment of Covid-19 by Nanoparticles: Nanomaterial offers a number of solutions to fight against covid-19 as well as including novel vaccine and drugs. These nanomaterial for direct delivery of broad spectrum antiviral and support targeted therapies to other diseases.

Treatment in Gold Nanomaterial (Au-Np) for Covid-19: Gold nanoparticles (AuNPs) are widely reported to guide an impressive resurgence in biomedical and diagnostic as well as virus testing and detection reported by various groups of clinically relevant viruses with a special focus on the applied types of bio-AuNP hybrid structures, virus detection targets, and assay modalities and formats [6]. Malhotra et al. AuNPs capped with thiol-modified antisense oligonucleotides (ASOs) [AuNPs-ASOs], a colorimetric biosensing approach has been reported for the detection of SARS-CoV-2 [7]. Pan et al. are reported on the development of a colorimetric ordinal based on gold nanoparticles (Au-NPs) and capped with suitable contemplated this modified antisense oligonucleotide specific for N-gene of SARS-CoV-2. These are capped gold nanoparticle lots selective in the presence of its target RNA sequence of SARS-CoV-2 and change in its surface Plasmon resonance with a red shift of -40

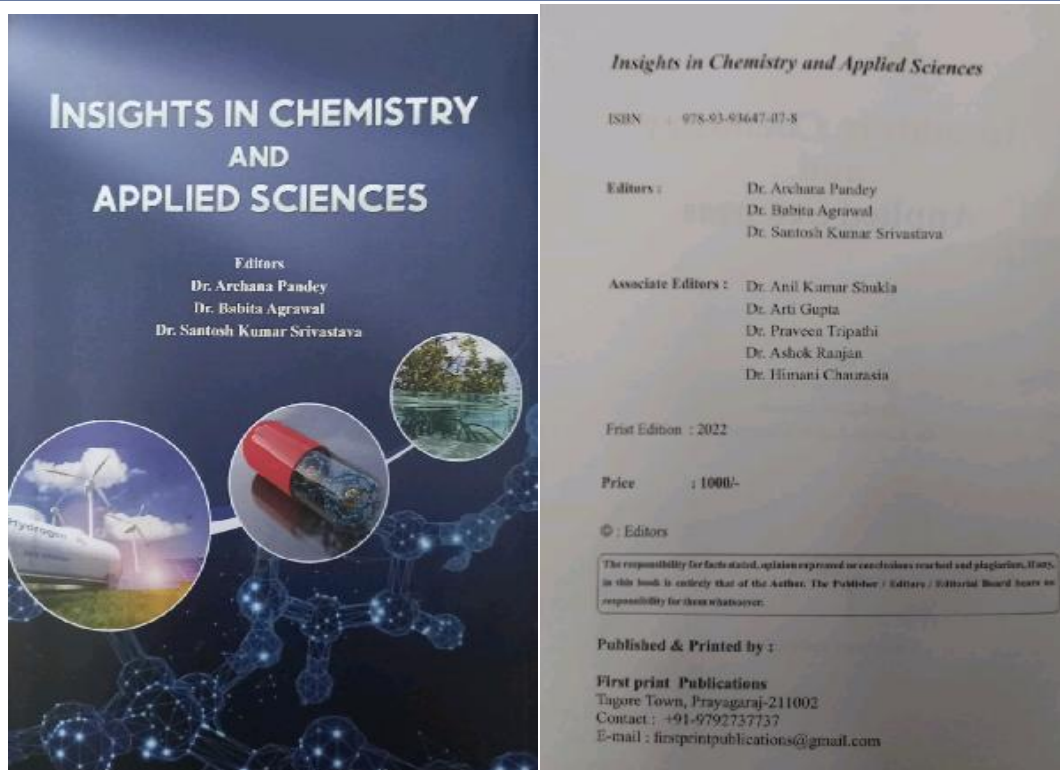


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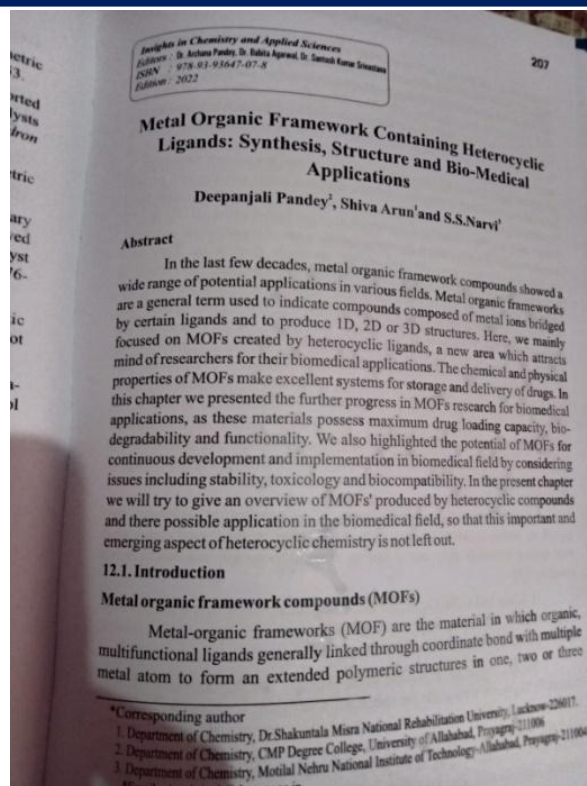


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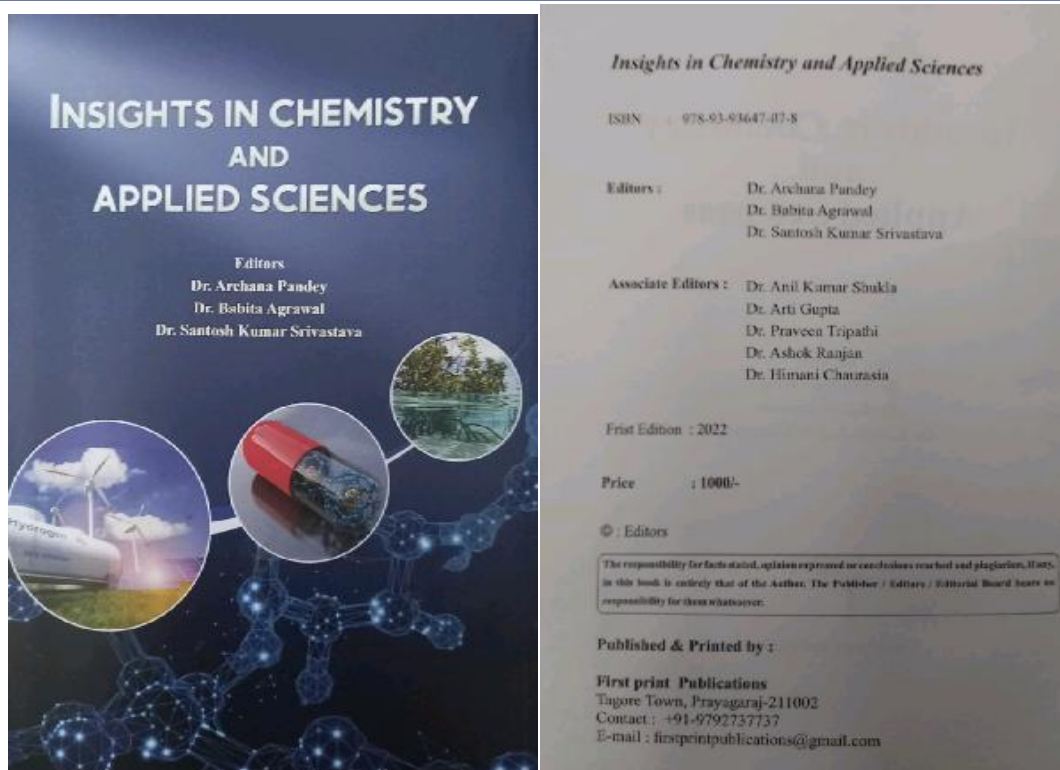


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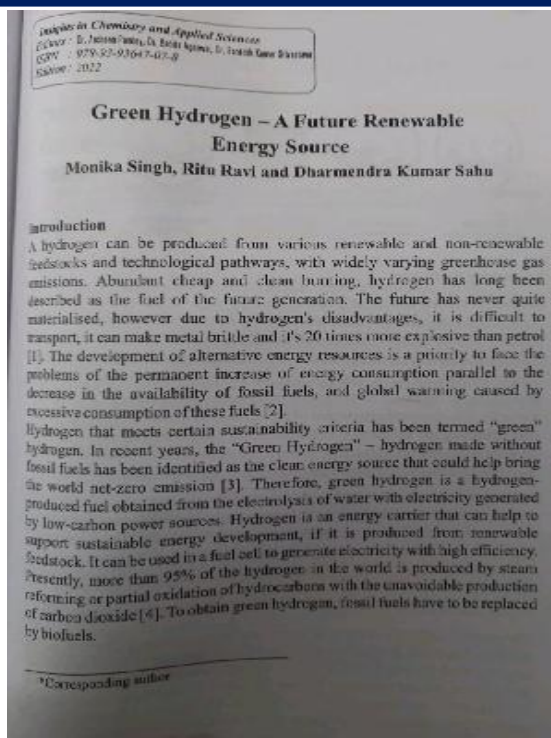


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Artificial Intelligence – An Emerging Future of Chemistry¹

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Introduction

Artificial intelligence (AI) has entered in many realms of society and its methods are used for performing the diverse tasks such as human speech recognition, autonomously operating cars and so on. The application of artificial intelligence (AI) to chemistry has grown tremendously and so on. The application of artificial intelligence (AI) to chemistry has grown tremendously, where in recent years, AI can feasibly be applied to various tasks in the field of chemistry, where in complex relationships are often present in data sets. For example, the solubility of a new compound may be predicted either through equations based on empirical data or by using theoretical calculations. Alternatively, prediction of solubility may also be accomplished by an AI program that has developed structure–solubility relationships after being trained on numerous compounds with known solubilities [1].

The use of AI for tasks, such as property prediction have proliferated in recent years due to explosive growth in computing power, open-source machine-learning frameworks, and increasing data literacy among chemists. AI implementations have proven to dramatically reduce design and experimental effort by enabling laboratory automation, predicting bioactivities of new drugs, optimizing reaction conditions, and suggesting synthetic routes to complex target molecules [2].

Chemists have to a large extent gained their knowledge by doing experiments and thus gather data. By putting various data together and then analyzing them, chemists have fostered their understanding of chemistry. Since the 1960s, computer methods have been developed to perform this process from data to information to knowledge. Simultaneously, methods were developed for assisting chemists in solving their fundamental questions such as the prediction of chemical, physical, or biological properties, the design of organic syntheses, and the elucidation of the structure of molecules [3]. This eventually led to a discipline of its own: chemoinformatics. Chemoinformatics has found important applications in the fields of drug discovery, analytical chemistry, organic chemistry, agrochemical research, food science, regulatory science, material science, and process control. From its inception, chemoinformatics has utilized methods from artificial intelligence, an approach that has recently gained more momentum [4].

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SENSING OF METAL ION CONTAMINANTS THROUGH METAL ORGANIC FRAMEWORK COMPOUNDS

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Abstract

Pollution is one of the major problems of the current times, which is increasing rapidly in modern and technologically advanced societies. Entire world is conscious and concerned about this problem. Now-a-days, Methodology in control environmental contamination is necessary for human beings. High sensitivity, high selectivity and reliability are sensitivity techniques which is new emergence in this field. The sensing techniques with outstanding performance, i.e., high sensitivity, high selectivity, and reliability are new initiatives in this direction. More recently, Metal organic frame-works have shown promising performance as sensing platform in this field. Coordination Polymers or MOFs are the combination of suitable metal ions and organic ligands having 1,2 or more donor groups. Due to the versatile properties such as large area of surface, tunable pore size, size with heavy density and versatile catalytic activity, metal organic framework is precious for humanity. Detection of metal anions, metal ions, different organic compounds and gases have been done by using various sensing materials for environmental contaminant. In this brief review, recent developments in MOF-based environmental sensors is presented with a focus on optical, electrochemical and field-effect transistor sensors. These MOF-based sensors have shown uncommon and promising performance in water and gas contaminant sensing. Moreover by incorporation with other functional materials, MOF-based composites can greatly improve the sensor performance. The current limitations and future directions of MOF-based sensors will also be highlighted as well. In this Chapter, we discussed various research methodology in the use of coordination polymer or metal-organic-framework compounds based nano-materials as sensors of luminescent for sensing different metal ions in aqueous biological and environmental samples.

Introduction

From the last few years, with the exponential rise in population and then boom in industry to meet out the demand of the increasing population for better life, environmental contamination has become a main concern for the ecology and public well-being. Potential health risk is related with many types of contaminants detected in water and air, e.g., heavy metal ions, organic compounds and toxic gases [1].

A sensor is generally an assembly of sensing unit and a transduction unit which translates the sensed information into electrical or optical signal. A mechanism of sensor is mainly based on its transduction. It is based on changes in the electrical, optical, photo-physical, or mechanical properties of the sensing element in the sensor after interaction with the analytes. The unique properties like good sensitivity, selectivity, short response time, reusability, long-term stability and cost should be present in sensor materials. Hence, the selection of any sensor material based on its capacity of sensing. At present, various micro- and nanomaterials with different properties have been applied as environmental monitoring sensors including nano-carbon materials, metals and metal

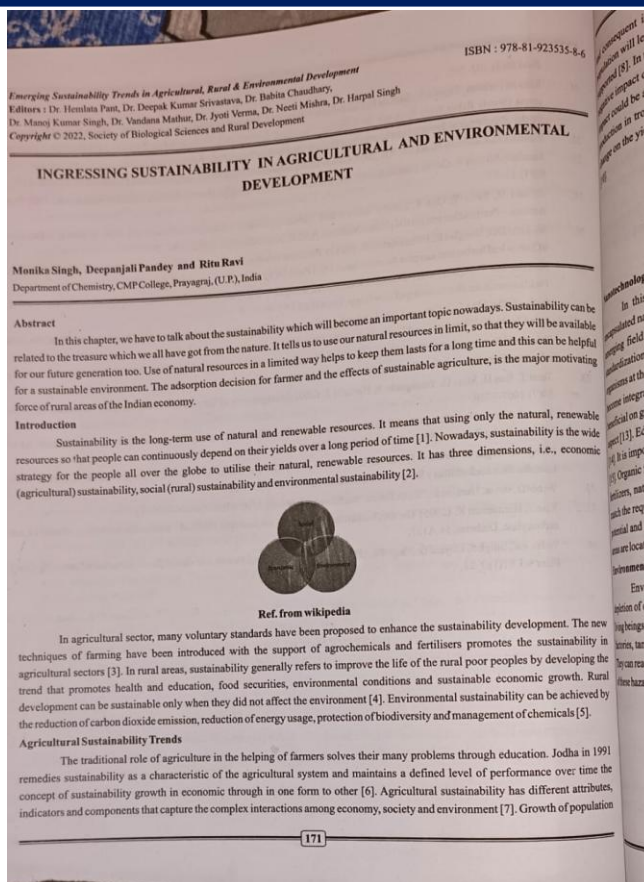


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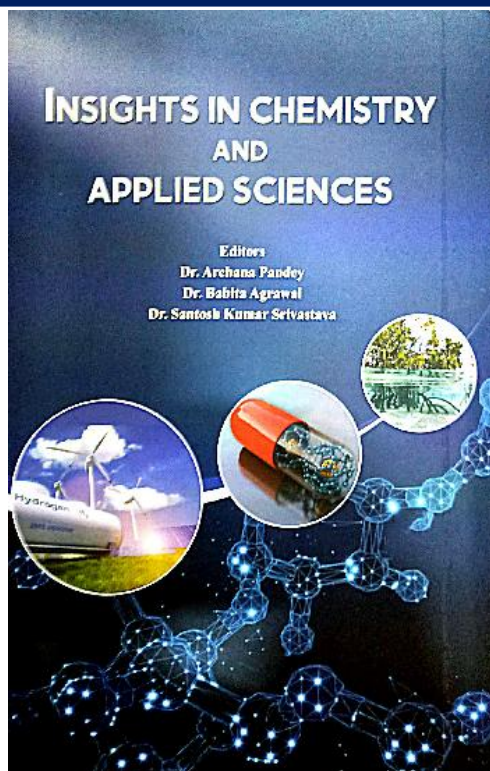


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Nanotechnology
Dr. Praveen Tripathi

Nanotechnology, also shortened to nanotech, is the use of matter on an atomic, molecular, and supramolecular scale for industrial purposes. The earliest, wide spread description of nanotechnology referred to the particular technological goal of precisely manipulating atoms and molecules for fabrication of nano scale products, also now referred to as molecular nanotechnology.[1][2]

A more generalized description of nanotechnology was subsequently established by the National Nanotechnology Initiative, which defined nanotechnology as the manipulation of matter with at least one dimension sized from 1 to 100 nanometers.

Nanotechnology as defined by size is naturally broad, including fields of science as diverse as surface science, organic chemistry, molecular biology, semiconductor physics, energy storage, [3] [4] engineering [5], micro-fabrication and molecular engineering [7]. The associated research and applications are equally diverse, ranging from extensions of conventional device physics to completely new approaches based upon molecular self-assembly, [8] from developing new materials with dimensions on the nanoscale to direct control of matter on the atomic scale.

Scientists currently debate the future implications of nanotechnology. Nanotechnology may be able to create many new materials and devices with a vast range of applications, such as in nanomedicine, nanoelectronics, biomaterials, energy production and consumer products. On the other hand, nanotechnology raises many of the same issues as any new technology:

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Physical and Biological Sciences: Know- how Social Solicitation

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Arti Srivastava
Kalpana Awasthi
Hemlata Pant
Priyanka Chawla

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Metal Complexes: Medicinal and Biological Uses

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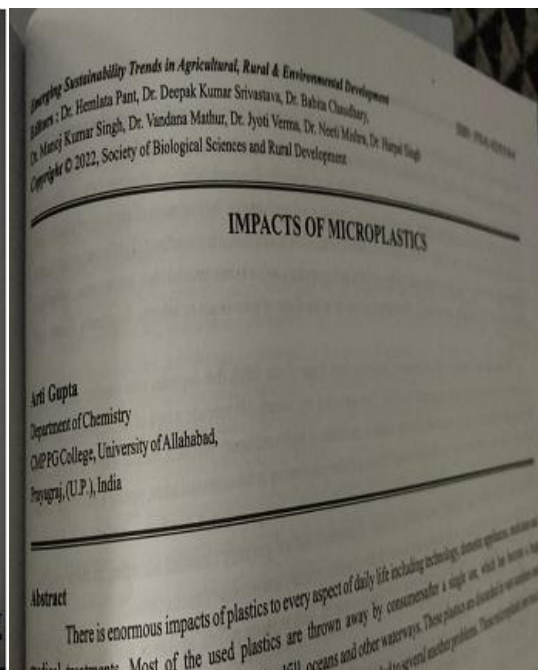
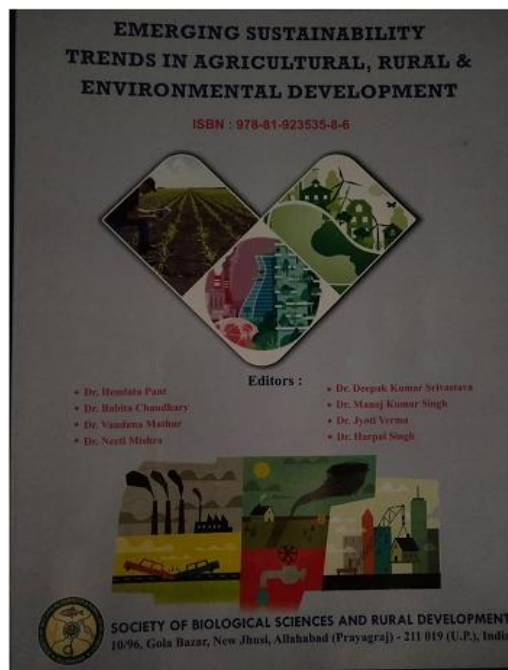
Abstract

The evidences of the medicinal uses of alum, arsenic, sulphide, asphalt, galena, haematite, iron, lead, pyrite, salt, sulphur, thermal water, green vitriol and zinc has been widely studied. Inorganic elements being the basic building blocks of human lives are involved in all life processes and have been recognized as beneficial and useful in the medical field. Both metals and non-metals of the known elements in the periodic table of elements are essential to life and their complexes are used for medicinal purposes.

Keywords: alum, sulphide, complexes, medicinal.

Introduction

Metals and metal complexes play key role in many important functions in human beings. Metal compounds as anti-diabetic, anti-inflammatory, antimanic, antimicrobial, antiparasitic, antiulcer, antihypertensive agents were reported [1]. Traces of metals are essential for the biological processes as about 30 - 40 % of all known proteins including metalloenzymes require metal cofactors (iron, copper, zinc, nickel, manganese) [2,3]. Metals in pharmaceuticals have played an increasingly important role in medicine, particularly in cancer therapy and diagnostic imaging methods. Medicinal applications of coordination chemistry focus on the role that transition metals play in clinical applications [4]. Metal ions function in numerous



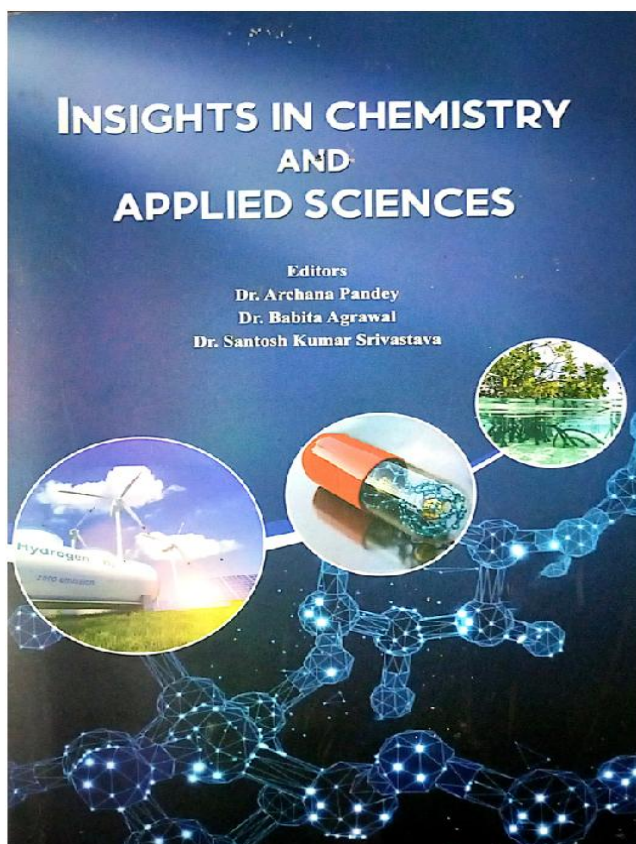


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A Case Study of Some Pharmacological and Herbal Antidiabetic Drugs

Manima Mishra, Amit Jaiswal, Pramod Kumar, & Ranjeet Kumar*

Introduction:

Diabetes is a serious metabolic disease that affects a huge percentage of the global population. It is a chronic metabolic condition defined by a high amount of glucose caused by an insulin or insulin receptor deficit [1]. A mix of hereditary and environmental factors influences diabetes [2]. Due to insulin's inadequate and environmental factors influences diabetes [2]. Due to insulin's inadequate action, the body's cells are unable to adequately metabolise sugar throughout the development of diabetes, on target tissues as a result of insulin sensitivity or lack of insulin (a peptide hormone that regulates blood glucose). When the pancreas produces insufficient insulin or the body's insulin is not utilised properly, insulin is unable to metabolise sugar. This causes the body to break down its own fat, protein, and glycogen to make sugar, resulting in high blood sugar levels and the production of excess by-products known as ketones by the liver [3-4]. Diabetes damages, malfunctions, and fails numerous organ systems over time (heart, blood vessels, eyes, kidneys, and nerves), resulting in incapacity and death [5]. To scientists are using a range of approaches to reduce morbidity and death. Because of the disease's proclivity, precise measures and methods are required for control [6]. Diabetes therapy research is gaining traction as the global diabetes population grows each year, reaching 439 million adults by 2030 [7]. As a result of increased awareness of the problem, a plethora of new pharmaceuticals and natural therapies derived from herbal plants have been discovered. Many active chemicals extracted from herbal plants have medical qualities that are still unknown, such as hypoglycaemic action, antioxidant activity, and others. In light of this, researchers conducted a study on anti-

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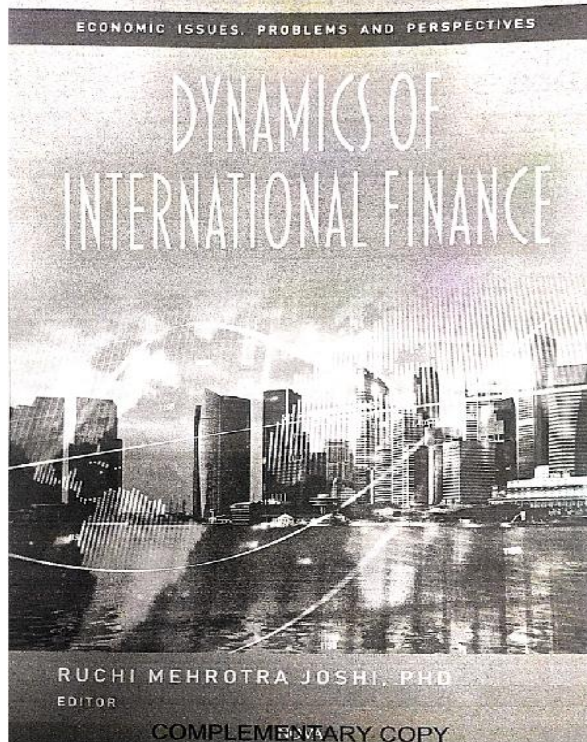


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Chapter 9

A Study of the Effect of the COVID-19 Pandemic on Globalization

Bireshwar Pandey*

Department of Commerce, C. M. P. Degree College (University of Allahabad),
Prayagraj, India

Abstract

Globalization clarifies a borderless world or world as a global village in general way. It very well might be supported by sped up progression of capital and products, energy, individuals, viable data across borders, regularly empowered by technological developments. The aim of this research paper is to discuss the study of effect of COVID-19 pandemic on globalization. In the course of recent years, globalization has vanquished the world's economic order. Worldwide travel with simple or no visas, exchange without duties, capital streams with not many hindrances, cross-line pipelines and energy frameworks, and consistent worldwide correspondence continuously gave off an impression of being the objectives towards which the world was moving. By the by, on the opposite side, globalization has been censured by fueling worldwide inconsistencies, spread of global illegal intimidation and cross-line coordinated wrongdoing, and take into account the fast spread of sickness. These patterns cover way for an anti-globalization or protectionism notion, which may additionally strengthen because of the spread of the COVID-19 pandemic.

Keywords: globalization, COVID-19, global village, protectionism, world's economic order

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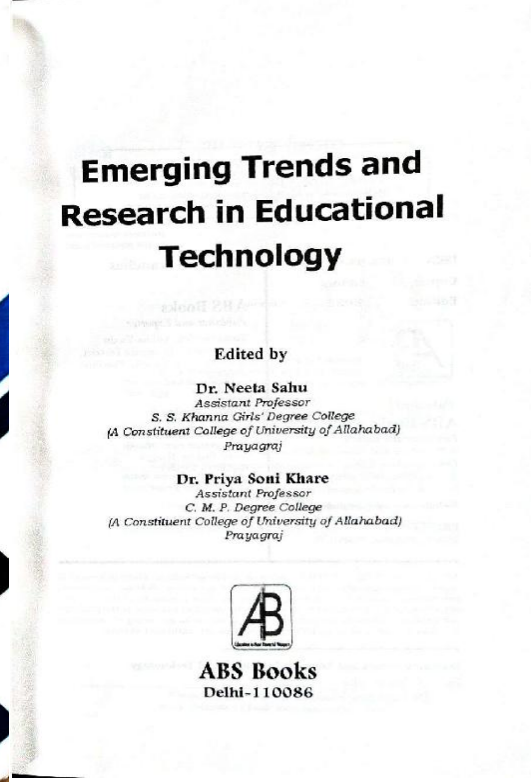
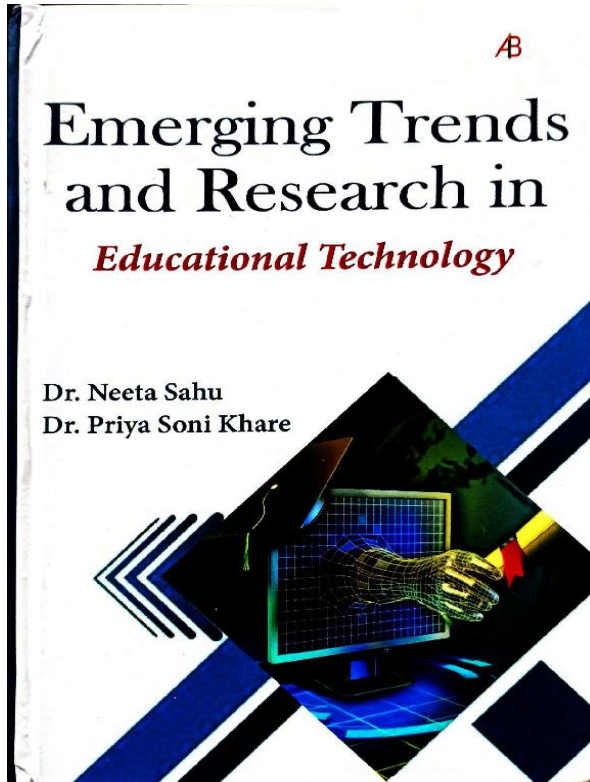


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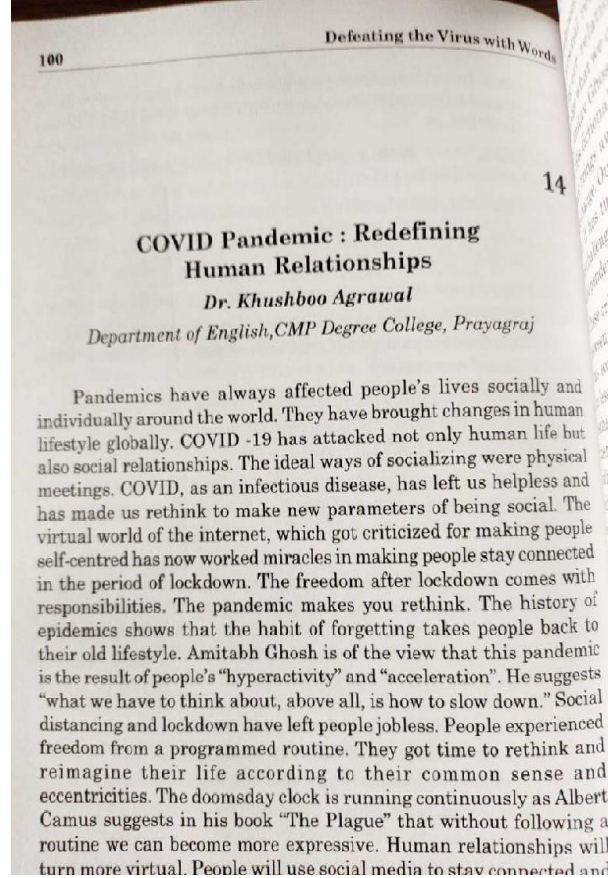


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Her wide ranging interests and publications relate to declining ground water level, surface runoff and its conservation in semi arid regions, geospatial technology for urban regional planning, digital change detection technique in land use and land cover mapping and ethno political conflict in North East India.



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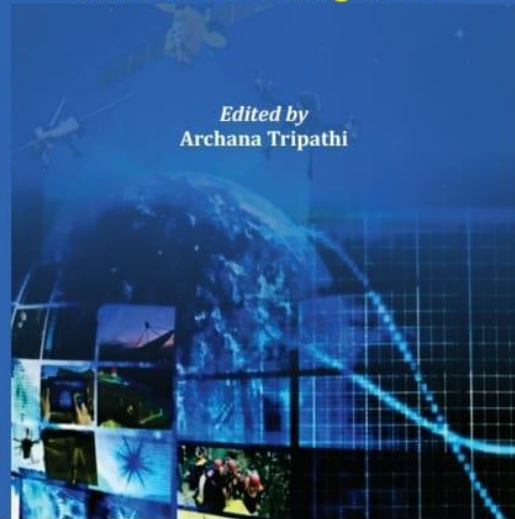
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Archana Tripathi



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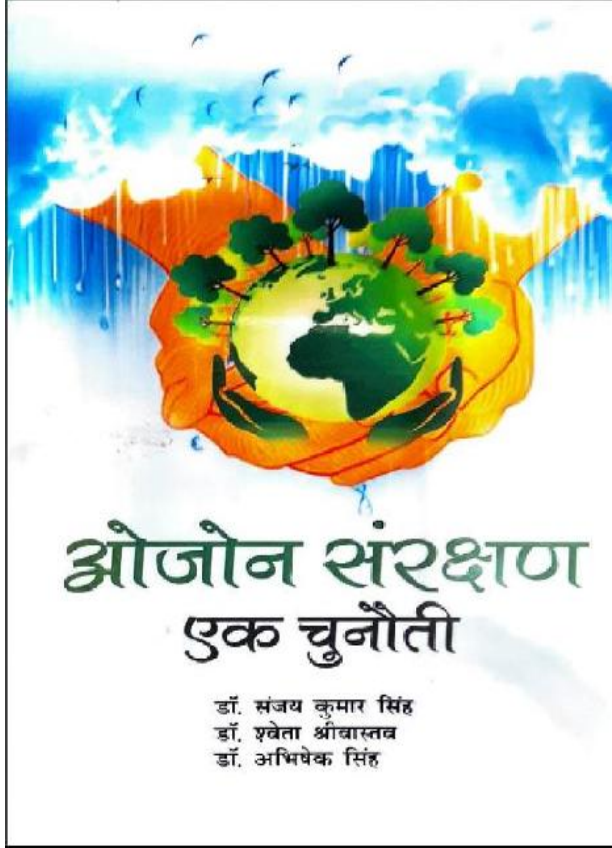


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17

Assessment of Urban Sprawl in Dehradun City Area

Uttara Singh¹, Pravin Konkane² and Lallawmsanga Ngente³

Abstract

The paper attempts to assess the urban sprawl of Dehradun city over a decade (2009-2019) using Remote Sensing and GIS tools to detect the changes. Consequent to this, the team took the time series data from LANDSAT to observe the growth of built-up environment over the period (i.e., 2009-2019). The aim of this study is to have an overall estimate of the city's expansion during the said time period. Particularly in the built-up environment.

The study area, Dehradun is located in the North-west corner of the state of Uttarakhand, extending between 29°58' N and 31°02'30" N latitude and 77°34'45" E to 78°18'30" E longitude. The district of Dehradun comprises tehsils namely Dehradun, Doiwala, Herbertpur, Vikaspur, Sahaspur, Rishikesh, Raiwala and Clement Town.

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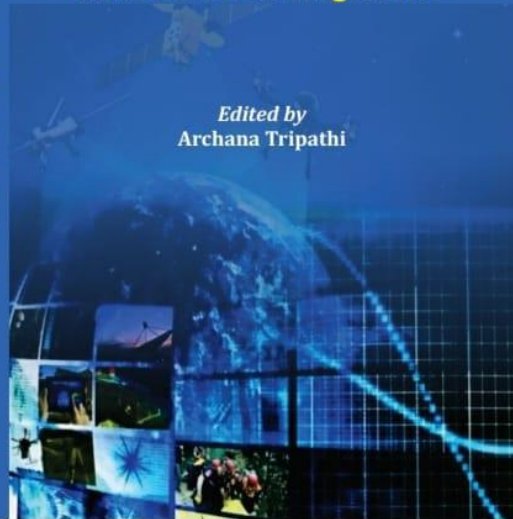
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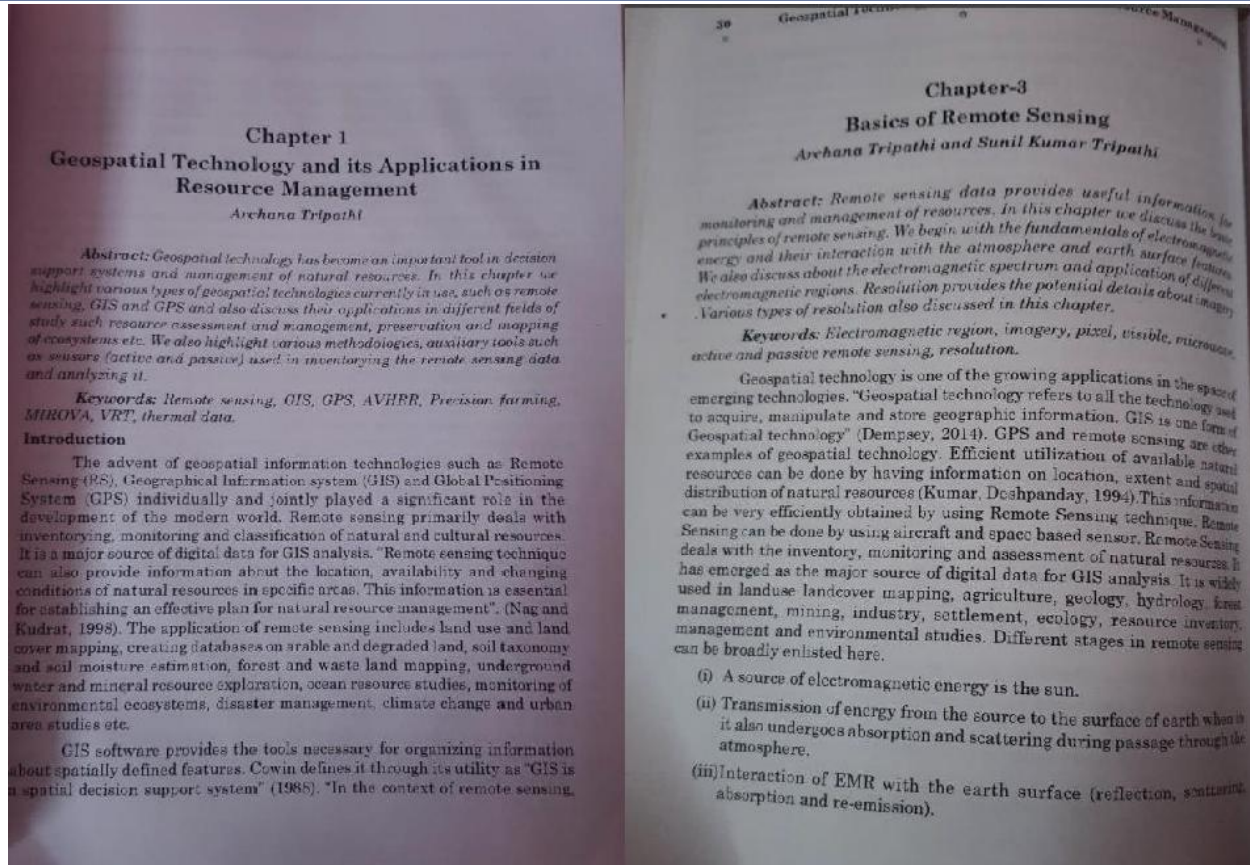


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Geospatial Technology and its Applications in Resource Management

Dr. Archana Tripathi



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Chapter-6 Geographical Information System –An Overview Sunil Kumar Tripathi and Archana Tripathi

Abstract: GIS is a new branch of information technology for managing the spatial and non spatial data and can effectively be used in sustainable development and humanitarian affairs. Planning and complex development goals require spatial analysis and map creation capabilities. Data for this purpose is required from different sources and different agencies. GIS uses computer technology to integrate, manipulate and display wide information to create a picture of the study area and its socio-economic characteristics. This paper reviews the various components and spatial and non spatial data structure of GIS and also discusses various data formats of raster and vector data.

Key words: GIS, spatial data, raster and vector format, hardware and software

Introduction

The term GIS is dynamic in nature and changes from individual to individual and from time to time. Like the field of Geography, the term Geographic Information System (GIS) is so versatile that it is difficult to define. It represents the integration of many subject areas. Accordingly there is no absolutely agreed upon definition of a GIS (de Mers 1997). A broadly accepted definition of GIS is the one provided by the National Center of Geographic Information and Analysis: "a GIS is a system of hardware, software and procedure to facilitate management, manipulation, analysis, modeling, representation and display of geo referenced data to solve complex problems regarding planning and management of resources" (NCGIA, 1990).

Macquire (1995) states that "definition of GIS is likely to change as technology and application develops further because the dynamic nature of GIS, in precise definition could be put forth". In spite of this number of scholars have tried their best to define and explain the term GIS is proving to be an empowering set of tools that allows everyone to communicate spatial relationship more easily than ever before.

"Geographic Information System has Geography (referenced spatial information about features and phenomena) and system (organization)



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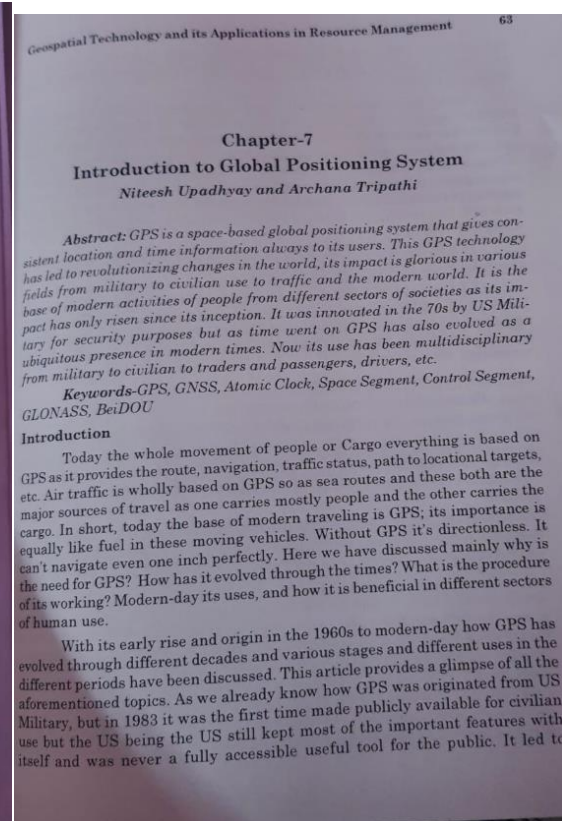
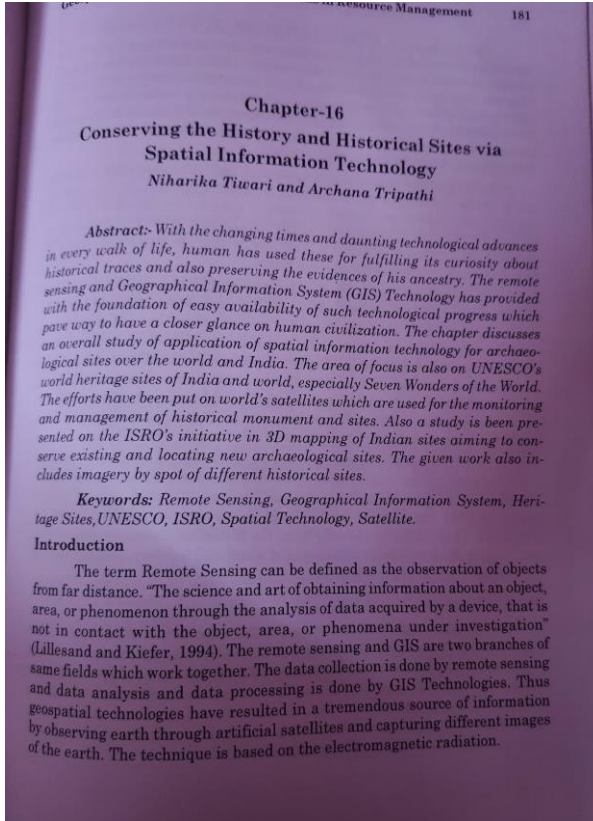


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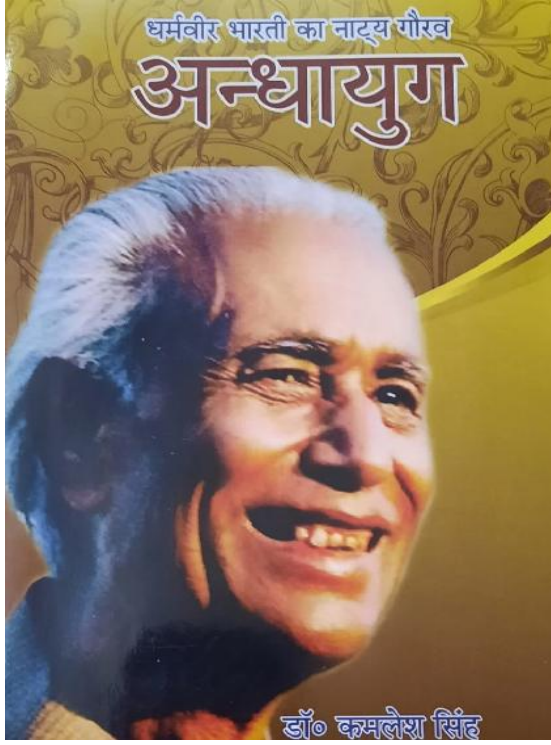


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युद्ध विभीषिका और उत्तर परिणाम

डॉ० आमा त्रिपाठी

अंधायुग को कालजयी रचना कहा जा सकता है क्योंकि इस नीतिनाट्य में धर्मवीर भारती जिन प्रश्नों को उठाते हैं जिन समस्याओं की हलचल कथ्य के साथ अन्तर्भूक्त करते हैं वे आज के विश्व की समस्याएँ तो हैं ही शायद दुनिया इनसे हर काल में जूझती रही है। अंधायुग में दे पौराणिक आख्यान के माध्यम से द्वितीय विश्वयुद्ध के उपरान्त की स्थितियों का आकलन करते हैं। युद्ध ने मनुष्य की आस्था, विश्वास, श्रद्धा को हिलाकर रख दिया है। ईश्वर की मृत्यु की उद्घोषणा भी हो चुकी है। अंधायुग में भारती कृष्ण की मृत्यु के पश्चात् जब अंधेरा, निराशा, पशुता, बर्बरता, निष्क्रियता, विकृति, अंधापन गहराता चला जाता है, मानव भविष्य के बचने पर प्रश्न चिन्ह लगा है। अस्तित्व अनास्तित्व में परिणत होने ही वाला है, जरा व्याघ्र प्रभु के कहे शब्द बार-बार दोहराता है। आस्था-अनास्था, प्रवृत्ति-निवृत्ति, घृणा प्रेम, जय-पराजय, उत्थान-पतन के प्रश्न अनुत्तरित रह जाते हैं। ईश्वर और मनुष्य के बीच का अंतर मिटला दिखाई देता है। वह कहता है-

सबका दायित्व लिया है मैंने अपने ऊपर
अपना दायित्व सौंप जाता हूँ मैं सबको
अब तक मानव भविष्य को मैं जिलाता था
लेकिन इस अंधेयुग में मेरा एक अंश
निष्क्रिय रहेगा, आत्मघाती रहेगा।'

इस कृति का कथ्य भारती के अपने ही शब्दों में जटिल है जिस पर आगे बढ़ना अभिशाप भूमि पर कदम रखने की तरह पीड़ादायक है लेकिन उस पीड़ा से मुक्ति भी संभव नहीं है। अंधायुग को वे अंधों के माध्यम से कही गई ज्योति कथा के रूप में प्रस्तुत करते हैं। जिसकी विशिष्ट उपलब्धि उनके अपने शब्दों में इस प्रकार है- पर एक नशा होता है अधकार के गरजते महासागर की चुनौती स्वीकार करने का, पर्वताकार लहरों से खाली हाथ जुझने का, अनमापी गहराइयों में उतरने



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जीवन और साहित्य के विविध आयाम



अरविन्द कुमार 'मौर्य' डॉ० नम्रता जैन



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डॉ० वर्धा अग्रवाल

(हिन्दी विभाग)

सी०एम०पी० डिग्री कॉलेज, प्रयागराज, उ०प्र० भारत

शैलेष मटियानी मूलतः आंचलिक साहित्यकार हैं। इनके जीवन का सम्बन्ध प्रमुखतः दो अंचलों से रहा है-कुमायूँ और बम्बई। कुमायूँ इनकी जन्मभूमि है और बम्बई इनकी आजीविका एवं साहित्य सर्जना का केन्द्र स्थल। 'बोरीवली से बोरी बन्दर तक', 'कबूतर खाना', 'किस्सा नर्वेदा वैन गंगु बाई' तथा 'पुनर्जन्म के बाद' बम्बई अंचल से सम्बन्धित हैं। 'होलदार', 'फिट्टी रसैन', 'मुख सरोवर के हंस', 'चौधी मुट्ठी' तथा एक मूठ सरसों कुमायूँ अंचल से सम्बन्धित आंचलिक उपन्यास हैं। शैलेष मटियानी का प्रथम आंचलिक उपन्यास उनके द्वारा सन् 1956 में श्रीकृष्ण पुरी बम्बई में लिखा गया। इसका प्रकाशन 1959 में हुआ। बम्बई में बोरीवली और बोरीबन्दर दो स्टेशन हैं। मटियानी जी ने इन उपन्यास (बोरीवली से बोरीबन्दर) में बम्बई के इन दो स्टेशनों के बीच निवास करने वाले समस्त समाज का अपनी अनुभूतियों के आधार पर आंचलिक चित्रण किया है। जिसमें एक तरफ धनाढ्य वर्ग की विलासता, शासन के कर्मचारियों का अमानवीय व्यवहार और दूसरी ओर फुटपाथों, रेलवे स्टेशनों पर कराहती मानवता के यथार्थ चित्रण द्वारा उपन्यासकार ने इन लोगों की संवेदना को प्रस्तुत करने में सफलता प्राप्त की है। इसके साथ ही इस क्षेत्र में रहने वाली वेश्याओं के जीवन की यथार्थ झलकी प्रस्तुत करते हुए शरीर का सौदा करने की विवशता पर सहानुभूति प्रकट की है और उससे प्राप्त होने वाले कर से तत्कालीन शासन व्यवस्था पर तीव्र व्यंग्य किया है। उपन्यास के प्रमुख पात्र 'वीरेन्द्र' में कथाकार के स्वयं के व्यक्तित्व की प्रतीति होती है जो नौकरी की खोज में अपने घर बाढ़ेछीना से एक पण्डित के साथ बम्बई आया है और बेकार है। जब अपना उपनाम 'रैल' बताता है।

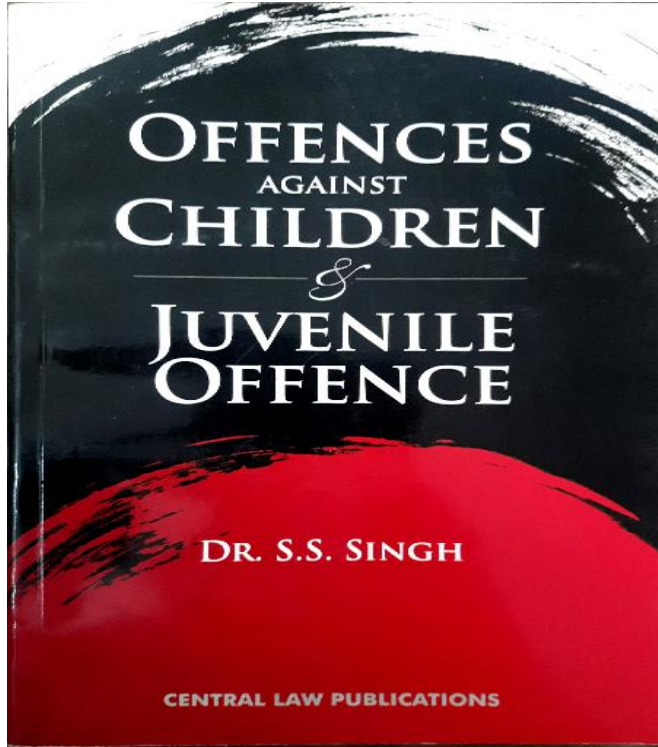


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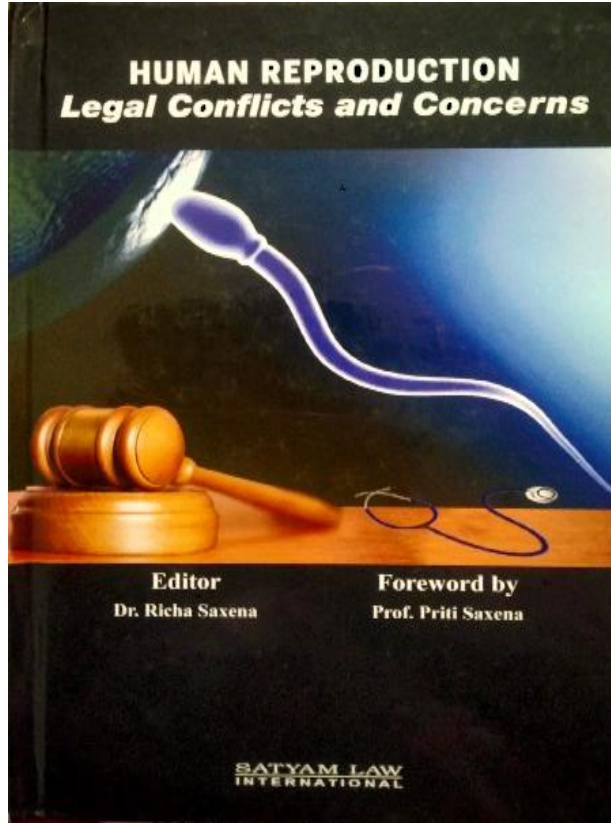


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Chapter 18

Legal Protection to Motherhood in India

Nandini Rautada

ABSTRACT

"God could not be everywhere, and therefore he made mothers."

-Rudyard Kipling

"Motherhood is an important as well as the most challenging phase of womanhood. In India, we practice patriarchy because of which women are generally dominated by males in almost all spheres especially at the time of decision making. Wives are considered subordinate to their husbands and most often the wife is expected to follow the commands/wishes of the husband. In such scenario motherhood becomes even more challenging. It is the mother who has to keep the child for nine months in her womb, she has to bear all the pain and even the after care of the baby is done by the mother but the decision as to when the couple wishes to get into parenthood and the number of children they wish to have, depends upon the wishes of the husband. Secondly, sex determination and female foeticide/forced abortions is another dark aspect of motherhood. Thirdly, pregnancy in cases of Rape creates more mental pain to the victim. Fourthly, motherhood for working women is really very complicated and tough. Taking these four issues primarily, the author wishes to analyse the leading judgements on these issues along with the provisions cited in the Medical Termination of Pregnancy Act, PCPNDT Act, Maternity Benefit Act, along with proposed amendments. The author shall also be willing to discuss the provisions relating to adoption of a child by women (divorced/unmarried). Also the provisions related to guardianship in cases of legitimate/illegitimate child".

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Democracy, Diplomacy and Development



Dr. Govind Gaurav
Dr. Arun Kumar Verma



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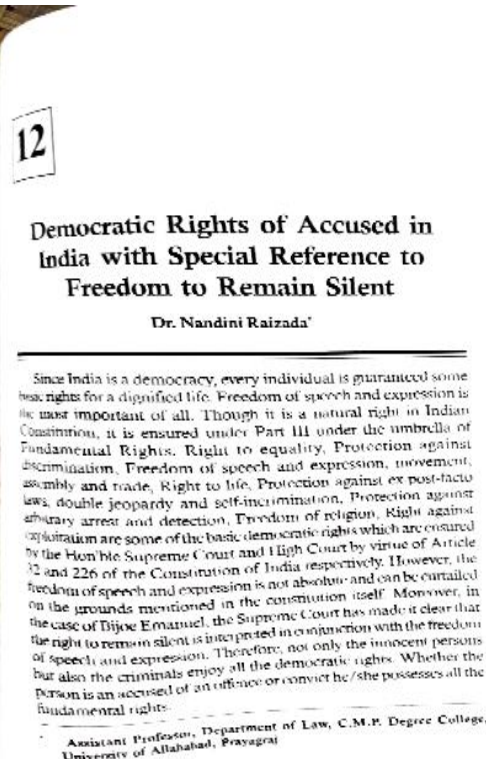
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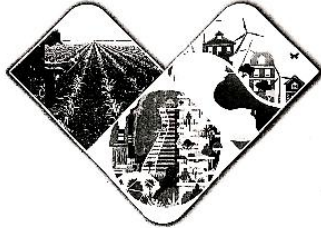
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EMERGING SUSTAINABILITY TRENDS IN AGRICULTURAL, RURAL & ENVIRONMENTAL DEVELOPMENT

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- Dr. Hemlata Pant
- Dr. Bobita Choudhary
- Dr. Vandana Mathur
- Dr. Neeti Mishra

Editors :

- Dr. Deepak Kumar Srivastava
- Dr. Manoj Kumar Singh
- Dr. Jyoti Verma
- Dr. Harpal Singh



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LEGAL PROTECTION TO BIOLOGICAL DIVERSITY

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"The value of biodiversity is that it makes our ecosystems more resilient, which is a pre-requisite for stable societies. The human race needs to be able to weather fire to our lifeboat."
 — John Rockstrom —

Introduction

The origin of life can be traced back 3.5 to 4.67 billion years ago when Prokaryotic organisms. Charles Darwin identified the first of the origin of modern bio-diversity, namely that all species were linked in a great phylogenetic tree of life, or that all life could be traced back to a general single original species or some distant link in the geological past.¹

Biodiversity is the characteristic feature of any ecosystem. An ecosystem is a geographic area where plants, animals, and other organisms live and work together. They all make a life cycle.

Meaning & Importance

The term biodiversity (Biological Diversity) originates from the Greek word *Bios* = Life and *Diversitas* = Diversity.

Variety or Differences. And *Omnia* the whole taken refers to the meaning 'variety of life'.²

Bio-diversity plays a very important role in the sustainable conservation of nature. And conservation of biodiversity ensures the ecological stability of our planet. This term is oftenly used as a measure of the health of ecological systems.

Importance of biodiversity can be understood from the following images:

Image I

Image II

International agreement on legal protection to biodiversity

Keeping in view the importance of biodiversity and in order to cope up with the problems of the 21st century, several attempts have been made universally. These attempts were made through discussion of-

- 1) Biodiversity Moquette
- 2) International Commission

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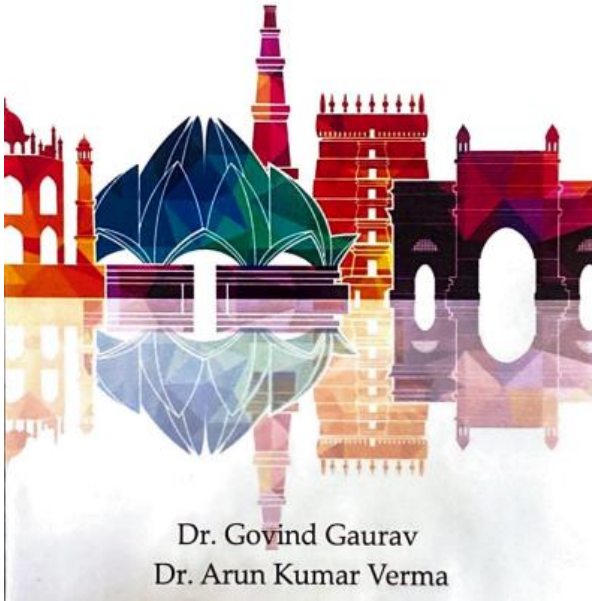
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INDIA@75

Democracy, Diplomacy and Development



Dr. Govind Gaurav
Dr. Arun Kumar Verma

India@75: Democracy, Diplomacy and Development

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11

Democratic Water Governance for Women in India

Dr. Ritu Raghuvanshi*

Water is one of the most precious resources which we have on earth. In fact, water is the reason of life on earth, thus it is vital to handle water resources in the best possible manner. However, we as human beings have the tendency of taking every such thing for granted which comes easy. We never think about sustaining such resources unless the situation becomes alarming. Something similar happened in the case of water. That is why, we experience a shift from the concept of water management to water governance. However, this shift is not sufficient as the standard notions of water governance are unable to fulfill the changing needs of the society. As this standard approach is needs based, it was felt that perhaps a right based approach to governance can bring about better results. And thus, came into being the human rights-based approach to water governance as water in its very basic essence is a human right and the same has been established in this chapter by drawing support from various international conferences and statements. Hence, this chapter moots a case for the human rights-based approach to water governance as water in the first place is a basic human right. The chapter bases its case on the premise that for every right, there exists a duty. Therefore, water governance too needs enhanced participation from all the stake holders by strengthening their right to claim and by increasing the accountability to the duty holders.

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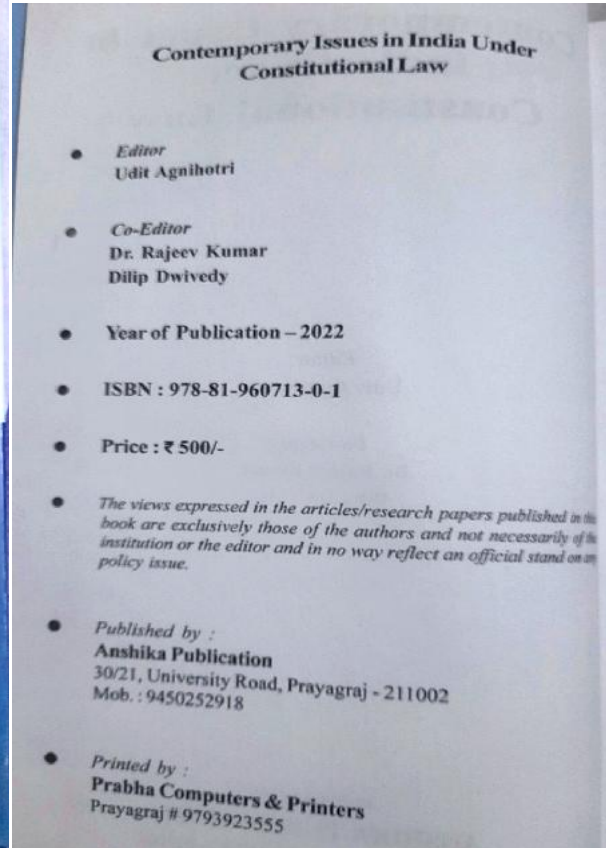
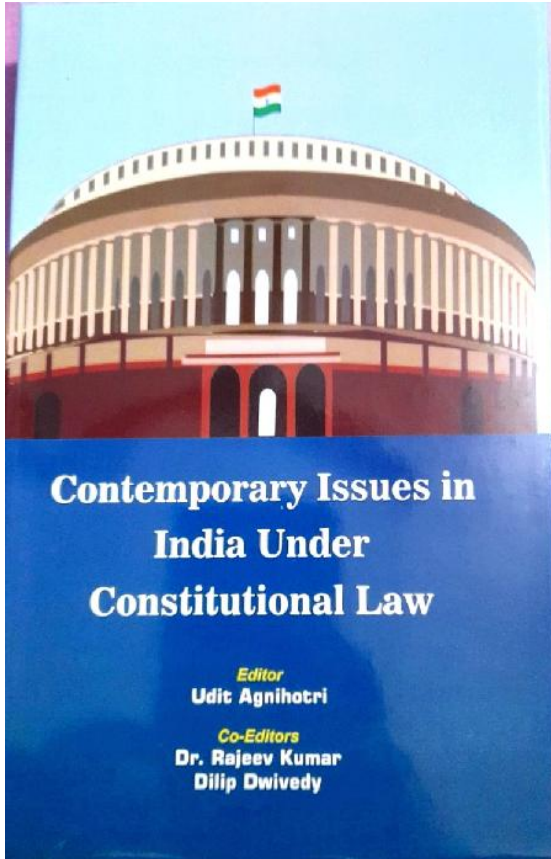


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RIGHTS OF MINORITIES IN INDIA : A CONSTITUTIONAL OVERVIEW	
Ramesh Kumar Singh*	
Abstract	
<p>The rights granted to minority was the result of a sense of insecurity among minority due to their vulnerable position in the society. This led to minorities demanded rights which were rejected by the Constituent Assembly and instead gave rise to Article 30 which came without any restrictions to minorities. However, it was important for minorities to realise that the rights granted to them was not above the law which led to intervention of Supreme Court in the interest of minorities. The Supreme Court, through various cases, has laid down the criteria and ambit to be covered under Article 30 granting minority community the right to establish and administer educational institutions for the betterment of their community. The objective of Article 30 is to prevent the majority to make legislation which takes away minority rights. The intervention of Supreme Court was due to the vulnerable position of minorities in the society.</p>	
Keywords : Minorities, Rights of Minorities, Educational Institutions, Autonomy.	
Introduction	
<p>Democracy paves the way for emergence of rule of law. The principles of rule of law recognise the rights of the citizens. Minority groups are vulnerable groups in any society and require protection and safeguards. The minority communities deserve the attention of the legislature and the</p>	



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Criminal Law Handbook on New Dimensions of Crime Against Women and Child

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5.

Laws & Policies in India For Domestic Impetuosity

Dr. Rakesh Kumar Gautam*

Background

Although a woman in India is awarded with the fundamental right of 'gender equality' and 'right to life and liberty', ensuring dignified and equal status to that of a man under the constitution of India, the man-oriented conspiracy has prevented the significant contributions of women from receiving due recognition.

There are a plethora of laws and constitutional promises, but the gender justice remains will-o-the-wisp. There are various and varied factor which are responsible for pitiable condition of the fair sex. Century's old inertia, projecting and adoring them only as embodiment of sacrifice, patriarchal domination and anti-women social, economic and cultural morals are some of these factors. The role of women, irrespective of her social, economic or political position, is considered ideal only when she also plays the role of a house wife with soul destroying labour and where she cannot call soul her own. A major portion of women population remains illiterate which is main stumbling - block in their progressive development.

*"Universalization of Human Rights of Women: Supreme Court sets the Pace." 2001 (AIR) J. at p. 89.

Rakesh



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पुष्कर वाद्यों से तबले का प्रारंभ



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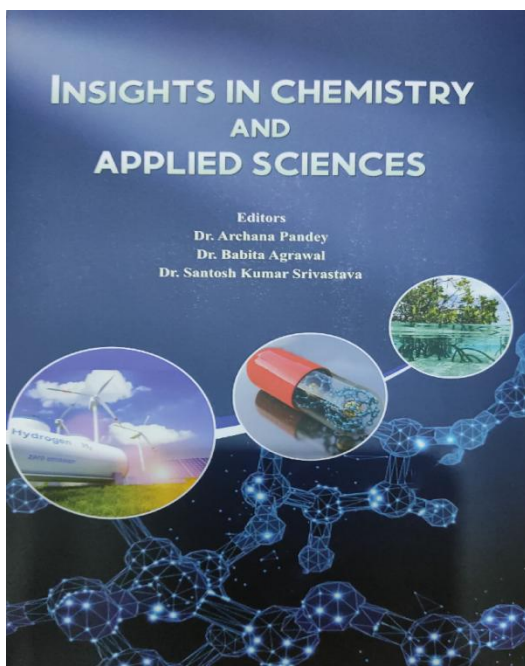
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सी.एम.पी. डिग्री कॉलेज, प्रयागराज

सारांश

तबला सरल और भारतीय परम्परायुक्त होने के कारण जन साधारण के जीवन, कीर्तन आदि में इसका प्रयोग होने लगा था। मुक्ति युग शासक प्रतिके वस्तु को उर्दू का रूप देना चाहते थे अतः इस परिस्थिति जाय जो कि पर्यायत एव मुद्रंग के आधार पर निर्मित हुआ उसी तबले का उद्भव हुआ। जिसका अर्थ फारसी भाषा में ऐसे वाद्य से है जिसका मुख ऊपर की ओर हो और उसका कपरी भाग सपाट हो। तभी से इस वाद्य के विषये तबला शब्द प्रचार में आया है। इस प्रकार मुद्रंग एवं मर्यादक के आधार पर ही तबले की उत्पत्ति हुई।

मुख्य शब्द: तबला, मर्यादक, मुद्रंग, वाद्य, संगीतज्ञा, ब्रदिश, सांस्कृतिक, मजान, पीतन।

जब हम तबले के आकार के विषय में जानना चाहते हैं तो हमारा ध्यान मरतकालीन (दशवीं शताब्दी के) सल्तनतों की ओर भनायारा आकर्षित हो जाता है। मरत के काल में मुद्रंग नामक वाद्य के तीन भाग होते थे। इनमें एक भाग आकृतिक था जो पृथ्वी पर लेता रहता था। इसे रोने और से मजाते थे। दूसरे और तीसरे भाग फरक चर्बक और आसिंध थे, जो छंदे रखे जाते थे और दुन्हे एक ओर से बजाया जाता था। अली, सातवीं शताब्दी के उपरान्त इसमें परिवर्तन हुआ और कुछ दिनों तक केवल आकृतिक और एक ऊर्ध्वमुखी बाध ही प्रचार में रहा। फारसतार में द्वारा ऊर्ध्वमुखी भाग भी हटा दिया और केवल आकृतिक भाग ही मुद्रंग का मूल नाम से प्रचलित रह गया। इसी काल में मुद्रंग अथवा कड़ा जाये कि आकृतिक का जो ऊर्ध्वमुखी बाधों के रूप में अलग-अलग वादन होता रहा। किन्तु यह रूप शास्त्र सम्मत न होने के कारण न तो इसका नामकरण भी हुआ और न यहाँ से ही उत्पन्न किया गया। इस प्रकार मुद्रंग की यह संदिग्ध अवस्था लगभग 17 वीं शताब्दी तक रही। 17 वीं शताब्दी तक हमारे दो परिवर्तन हो चुके थे। एक तो इसकी लम्बाई कम कर दी गयी थी और दूसरे अर्थात् दक्षिण भाग में जो शिष्टों के लोग के स्थान पर लोक वर्ग से बने मसाले का प्रयोग होने लगा था। बाद और इस समय की आदत की पुष्टिच लगभग जाती थी।



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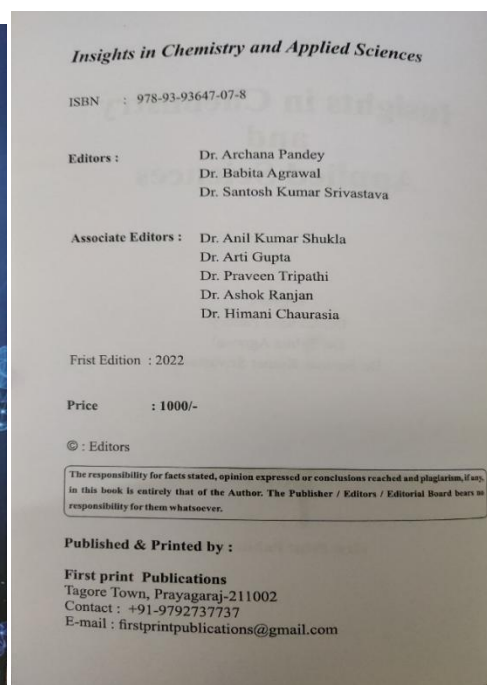
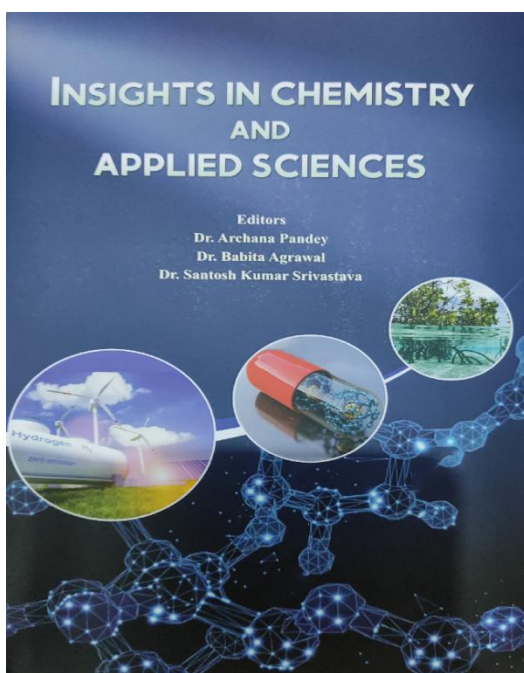
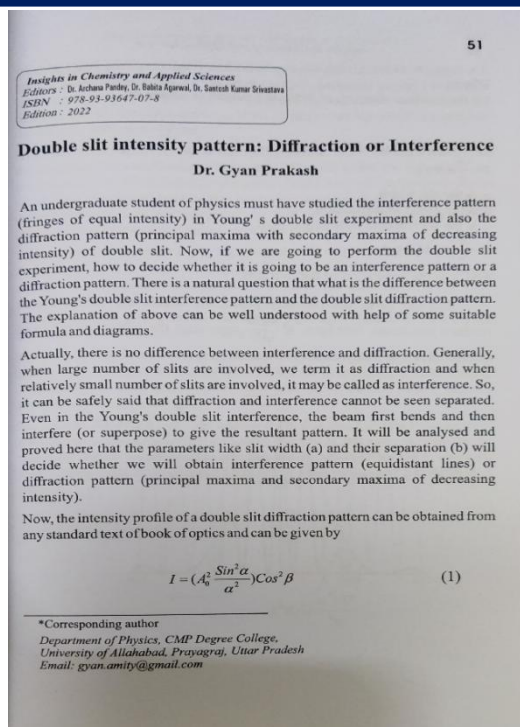


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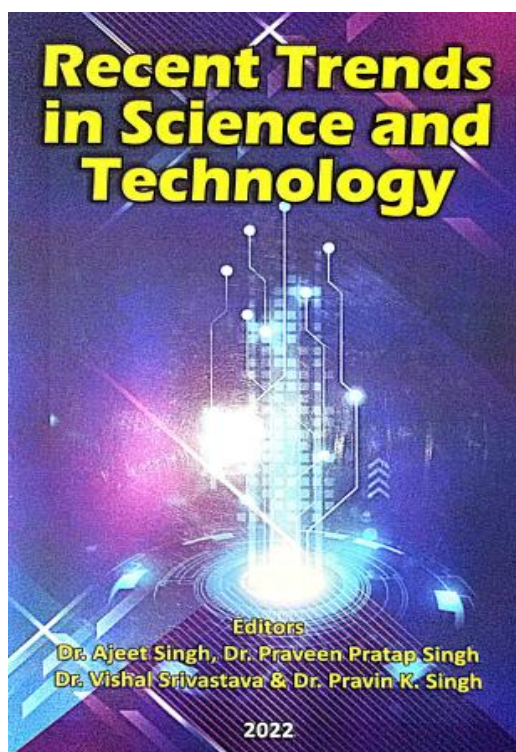
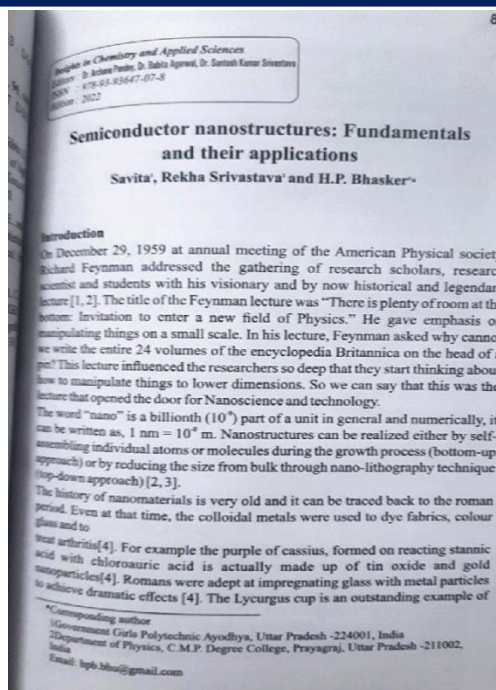


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CO-Releasing Molecules (CORM): Advancement, Mechanism and Theoretical Insights

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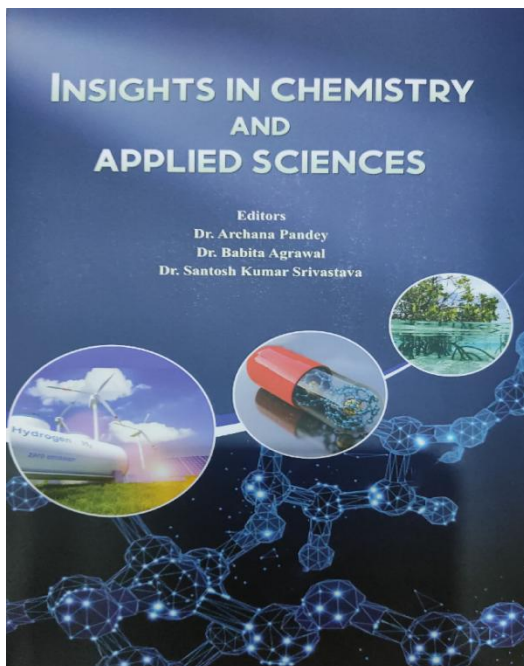
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Introduction: Carbon monoxide is silent killer gas. It is an odourless, colourless and poisonous gas that can cause serious and long-term health problems. One of the most important reasons is that it binds more strongly to hemoglobin than oxygen. CO on the other hand, is an important signalling molecule that is created endogenously during the breakdown of heme-by-heme oxygenases. [1] Despite the fact that the public figure and popular belief is that CO gas is extremely harmful to humans, it is difficult to imagine that it will be used as a treatment agent for chronic diseases such as cancer.

In this light, the first research appeared in the 1990s. [2] CO, on the other hand, is only sparingly soluble in aqueous systems with concentrations as low as 1 mM [3] CO gas administration has been shown to be useful in animal models of human diseases in preclinical studies, however the inherent toxicity of CO gas, combined with its limited solubility in aqueous mediums, limits therapeutic CO inhalation. As a result, CO transporters must deliver this molecule to a specific location in order to release carbon monoxide locally [4] Although it is well accepted that endogenously produced CO can have beneficial biological activities, the molecular processes that underpin these functions are yet unknown. This is owing in part to problems in the precisely dosed and timed CO delivery to biological systems, as well as potential side effects resulting from CO-releasing compounds. CORMs have several advantages, including (i) light-triggered CO liberation, which allows for non-invasive activation, (ii) solubility in aqueous media, which allows for the preparation of stock solutions with a predetermined concentration, and (iii) inactive CO carriers and degradation products. Irradiation (photo CORMs),

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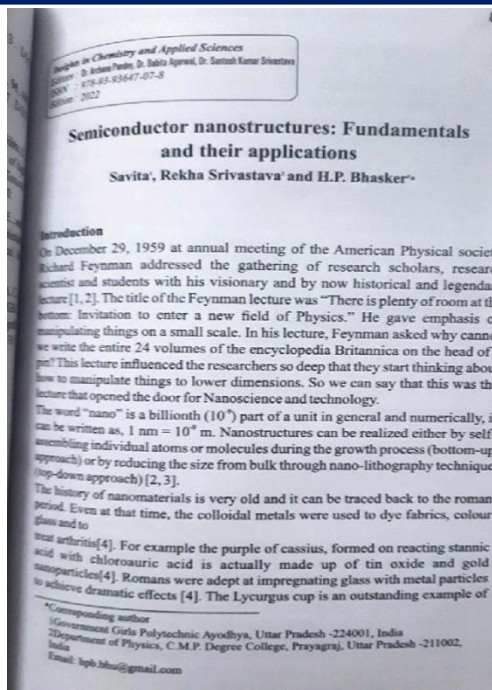
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Chapter 23

Photoacoustic spectroscopy: a novel optical characterization technique in agricultural science

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1. Introduction

Agriculture has been associated with the production of essential food crops for centuries, and at present, above, and beyond farming it also includes food cultivation and forestry. Agriculture has greatly benefited from scientific research and technological developments. In the meantime science has become a large component of innovation and quality control in agriculture. People, at all times, have needed access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life [1]. With the increasing population and the lack of proper food supply, millions of people around the globe do not have access to good quality food [2]. One of the major reasons for the situation is a decrease in agricultural productivity, which is related to the crop loss or damage caused by various plant diseases such as bacteria, fungi, and viruses. Early detection and diagnosis of these diseases in crops are vital to minimize disease-induced damage in crops and maximize productivity.

Recently, imaging-based optical sensors such as RGB (Red, Blue, Green) optical sensors, spectral sensors, thermal sensors, and imaging technology are being used to detect diseases in plants [3–5]. For the last few decades, work has progressed to evolve, screen, and develop disease-resistant varieties of plants through scientific methods and research. However, new plant diseases continue to cause heavy losses through a reduction in the quality and quantity of plant products. Photoacoustic spectroscopy (PAS) is a novel optical method, which can be used for quick and reliable detection/diagnosis of plant diseases.

PAS is a simple, cost-effective, and reliable technique suitable to study the sample in any physical state, that is, solid, semisolid, and liquid, gel, vesperations. PAS requires no special sample preparation. It has the capability to perform depth profile analysis which is very much relevant to agricultural science or plant science. It provides in-vivo and real-time analysis of the sample of interest. PAS offers a great advantage to determine the absorption coefficients with better sensitivity as compared to conventional spectroscopy. It is a nondestructive technique used to study various types of samples, such as opaque, translucent, and even highly scattering samples. A wide range of samples that correspond to scattering media and difficult to study by conventional spectroscopy can be easily studied using PAS as scattered or reflected photons do not contribute to PA signal. An unambiguously important in the matter of PA signals, the nonradiative de-excitations can be studied efficiently, which is not possible with conventional spectroscopy. This finds an important application in the study of the pathways of energy transfer in plants after absorption of photons. The basic physics behind PAS involves the conversion of photon energy into an acoustic signal. The principle of photoacoustic optical generation involves four-step processes that can be easily understood using the flow chart and schematic diagrams given in Fig. 23.1.

When a modulated or pulsed optical radiation of a particular wavelength/frequency and appropriate intensity is absorbed by the sample, the molecules of the sample are excited from the ground state to higher energy states. The excited molecules may relax to the ground state through radiative or nonradiative emission (electric dipole forbidden transition).

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Chapter 28

A comparative account of PAS and LIBS for compositional studies of gallbladder stones

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1. Introduction

A number of diseases are occurring as a result of changing lifestyles of human beings. Scientists from all over the world are involved in research to improve human health. The urges of women in the gallbladder of the human body is a painful disease and the presence of large and prolonged gallstones may cause gallbladder cancer. According to recent research, 65% of the human population around the world are suffering from the stone formation in their body. The increasing incidence of gallbladder stones is of great concern to physicians as virtually there is no medicine by which the gallbladder stones could be dissolved or removed from the human body.

The gallbladder is a small organ in the upper right abdomen and below the liver in the human body. It is shaped like a swollen pea pod and contains bile, a greenish-yellow liquid that helps in digestion (Fig. 28.1). The occurrence of gallstone or other disease caused by the formation of gallstone in the gallbladder is known as Cholelithiasis but when the gallstone moves into the bile ducts, it is known as cholelithiasis. The size of a gallstone ranges from as small as a grain to as large as a ball. Some people can have only one gallstone, while some others may have multiple gallstones at the same time. People suffering from gallstone disease usually go for the surgical removal of the stones, a treatment known as Cholecystectomy [1].

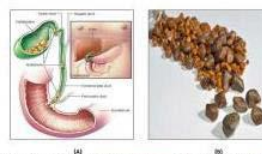


FIGURE 28.1 (A) Position of gallbladder in the human body (1–10) and (B) various of gallbladder (10–1000 mg).

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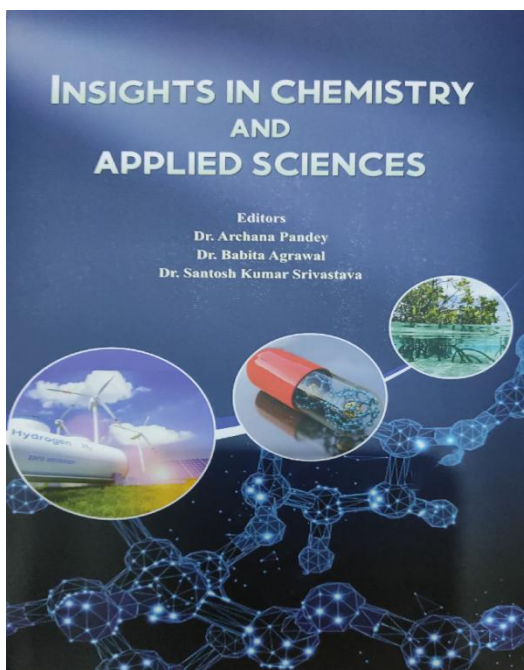


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Extraction of β -carotene from Carrot and Spectroscopic Study

Shivam Kumar¹, Nilesh Kumar Rai^{1*}, Mridula Tripathi²

1. Introduction

Carotenoids are one of the most important groups of natural pigments and are responsible for many of the yellow and orange colours of fruit and vegetables. Beta carotene is one of the most important carotenoid and provitamin-A precursor (retinol) so being used to prevent vitamin-A deficiency. It cleaves and forms two molecules of retinal, one of which is further metabolized to form retinoic acid and retinol. Beta-carotene has three isomers alpha, beta and gamma out of which beta isomer is the most active.

Beta-carotene is most abundant in carrots however; pumpkins, apricots and dark green vegetables such as spinach and broccoli are also very good sources of it. Infact, orange colour of Beta-carotene in these dark green vegetables is masked by the green colour of chlorophyll. The consumption of Beta-carotene rich food has been associated with numerous health benefits. Beta-carotene is being converted into vitamin A. vitamin A is essential for enhancing functions of body immune system, protects cornea (eye surface) improves night vision, promotes healing of wounds, illnesses [1].

Beta-carotene is a good antioxidant as it neutralizes the reactive oxygen species including free radicals, reduces oxidative stress and oxidative damage to DNA, improves memory and cognitive function, reduces symptoms of Alzheimer's disease and age related cognitive decline, protects skin against UV radiation from the sun and maintain skin health [2-6]. Recently, Beta-carotene has been identified to play roles in decreasing type 2 diabetes, insulin resistance,

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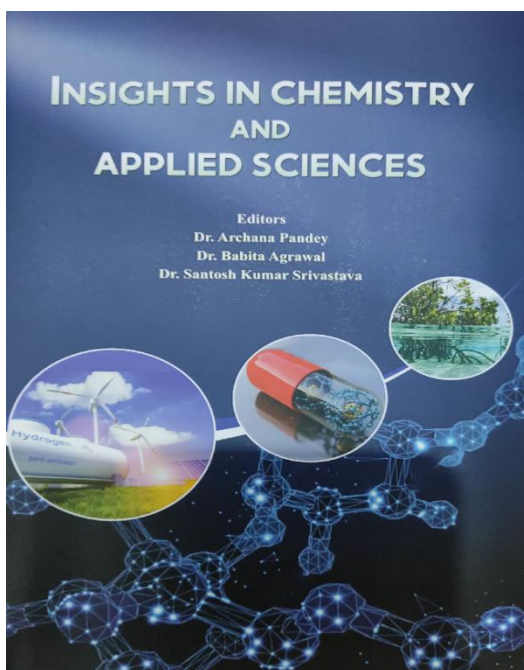


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Basic concept and First Law of Thermodynamics Dr. Rajesh Kumar Yadav

1.1 Introduction :

Thermodynamics is the study of the energy principally heat energy, that accompanies chemical or physical changes. Some chemical reactions release heat energy, they are called exothermic reaction, they have negative enthalpy change, other absorb heat energy and are called endothermic reaction, and they have positive enthalpy change. But thermodynamics is concerned with more than just heat energy. The change in level of organization or disorganization of reactants and products as changes take place is described by the entropy change of process.

For example the conversion of one gram of liquid water to gaseous water is in the direction of increasing disorder, the molecules being much more disorganized as a gas than as a liquid. The increasing in disorder is described as an increasing in entropy, and then change in entropy is positive.

Whether the chemical reaction or physical change will occur depends on both the enthalpy and entropy of the process, which are quantities that can be calculated from tabulated data. Both the terms are combined in the free energy, the third and most important thermodynamics terms. If the change in free energy is negative, the reaction will proceed to the right, this reaction is called spontaneous reaction.

If the sign is positive, the reaction will not proceed as written, this reaction is non-spontaneous. A powerful prediction as to whether a reaction will or will not take place can be made using tabulated data to calculate the change in free energy.

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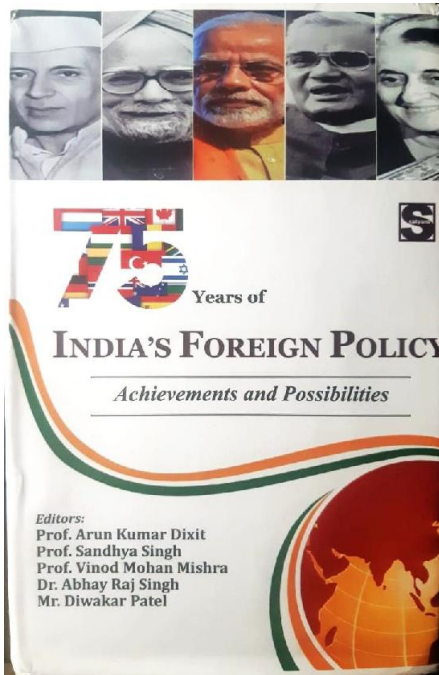


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Shifting Terrain of India's Foreign Policy: Towards Assertiveness and Pragmatism

Dr. Govind Gaurav¹

Introduction: India's foreign policy is undergoing a new test of preferences and partners in the world system. Degree and dimensions of strategic autonomy and strategic engagements of India is also at stake and dilemma. Although, it is not new in the history of India's dealings with the world, the shift in the style, stances and substances are dramatically different. This shift in India's foreign policy can be seen with the emergence of Narendra Modi as the prime minister of India.

From the day one in his office as a prime minister, Narendra Modi has planned to look at the world from a different prism. In contrast to his predecessors, Modi proved a very enthusiastic traveller, embarking on as many foreign visits during his first term in office, attending a series of high-profile summits, and aiming to establish rapport with his counterparts in China, Japan, and the United States, as well as in South Asia. His government also revamped key initiatives—such as 'Look East', rendered into 'Act East'—and lunched others, including a renewed effort to build better ties with India's neighbours, branded 'Neighbourhood First'. It promised to play a major role in providing security and improving infrastructure in the Indian Ocean region, as well as to enhance its defence and diplomatic ties with states stretching from the Middle East through Central and South Asia to Southeast Asia. Significantly, the Modi government also pledged to reground Indian foreign policy in a set of principles more in tune with what it views as India's traditions, and to restore its standing in the world, ensuring its status

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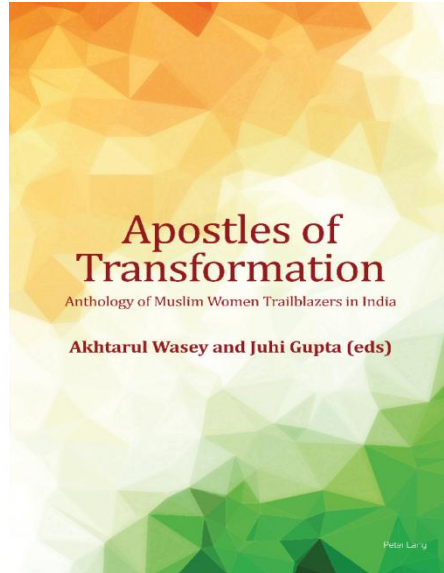


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RUCHIKA VARMA

Shareefa Hamid Ali: An Icon in the History of India

Women in Islam is a topic of great relevance both at national and international level. There is a general perception that women in minority groups are marginalized not only because of their social identities but also due to their membership in the category of other sex. Muslim women of Indian society have contributed a lot to different domains and it is now the right time to honor their contributions. Muslim women have made commendable contributions, although unnoticed. The present chapter is an attempt to bring forth the contributions and efforts made by an important female Muslim figure who not only played a role model for future generations but also existed as a strong lady of the late twentieth century. Her name was not mentioned in the social sciences books and was gradually removed from history. There are many women in India who remain disappeared from mainstream history in India. Women in the nineteenth century contributed in a highly diversified manner. There were no strict specialized areas of education, and hence this resulted in multi-faceted personalities of women of those times. Shareefa Hamid Ali is an important name in this category who was not only a political figure but also an Indian feminist Nationalist advocate.

The present chapter takes into account not only the biographical sketch of this famous woman but also on her significant contributions in the women's movement all over the country. Hamid Ali was a dynamic person with diversified interests. Her contributions as a woman in the history of the women's movement need considerable acknowledgment. Her efforts as a politician, a women's activist and an advocate bring forth her personality into the forefront.



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A Road Map for Global Development

Rajani Srivastava, PhD
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Chapter 12

Strategies to Attain and Sustain Good Mental Health and Well Being

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Abstract

Healthy and long life is the first requirement of human beings. The present chapter stresses the outlook of health from a psychological perspective. Non-communicable chronic diseases are plummeting quality of life. Non-compliance with medical treatment, dropouts of follow-up, and slow or poor body response to drugs are challenging issues for health workers. Body and psyche are the two aspects of the same coin. Now there is time to understand the role of psychological factors like perception, emotion, motivation, self-concept, behavior, and thought processes, in health as well as in mental and physical illnesses. Establishing good mental health and wellbeing with physical fitness is the requirement of time, especially in the era of pandemic. Perception and belief systems affect the appraisal of illness and as a consequence direction of health behavior changes. Emotions are interlinked with body functions, positive emotions generate long life with stable relationships whereas negative emotions exhaust body energy and promote numerous physical and mental problems. High motivation is required to deal with chronic suffering and side effects of drugs. Psychological services strengthen our self-esteem and develop resilience against illness. Learning principles like modeling, classical and operant conditioning guide us to reduce maladaptive practices and

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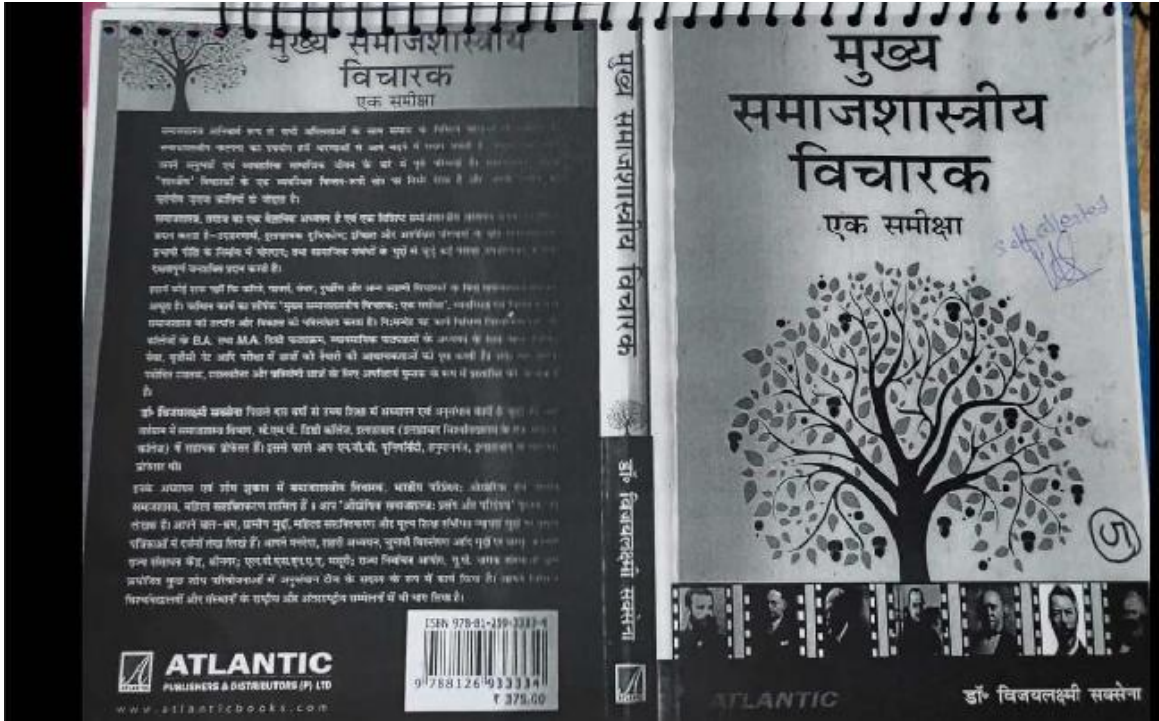


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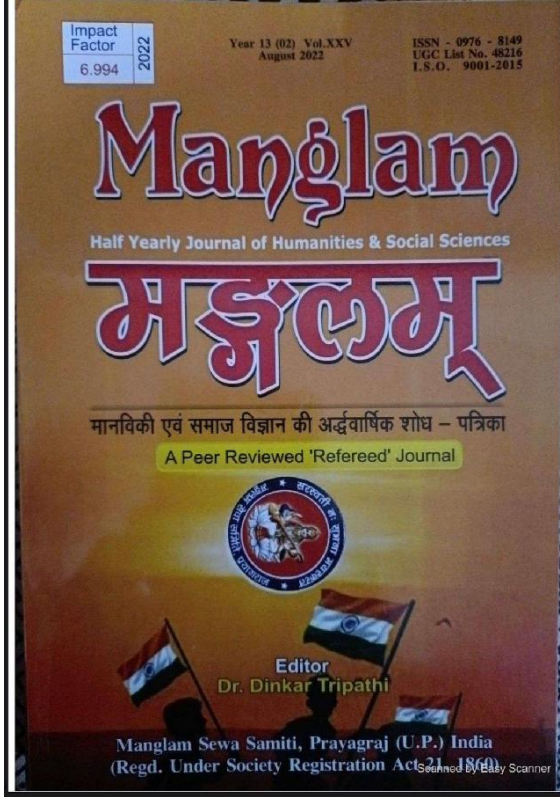


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श्री अरविन्द का सामाजिक अनुचिन्तन

श्री० आर्य समाज

भारत की पुनर्जागरण पर अनादि काल से ऋषिगीर्ण प्रगति एवं सभ्यता का अविनाश होता रहा है। जिनके तपसूत चिन्तनों में देश, समाज, व्यक्ति एवं विश्व विषयक व्यवस्थाओं का निर्देशन प्राप्त होता रहा है। इन्हीं व्यवस्थाओं से हमारे देश और समाज का सञ्चालन एवं नियमन होता चला आया है। भारतीय ऋषि ऋतम्भरा को अपने अनुचिन्तनों से आपुरित करने वाले महर्षिजी की यक्ति में यदि हम श्री अरविन्द जी को सादर स्थान पदान करें, तो इसमें कोई भी अतिशयोक्ति नहीं होगी। जिन्होंने भारतीय राष्ट्रीय स्वतन्त्रता आन्दोलन का प्रथम उद्बोधन किया। देश की जनता के हृदय में राष्ट्र प्रेम की भावना मनने का प्रयत्न प्रयास किया। व्यक्ति एवं समाज को सम्मार्ग पर चलने का अद्भुत संज्ञान एवं प्रेरणा सुझाया। श्री अरविन्द के अद्वितीयता पूर्ण सामाजिक एवं आध्यात्मिक अनुचिन्तनों की अपनी निज विशिष्टता रही है। उनके समाज विषयक विचारों की समाज शास्त्रीय विवेचना किये जाने की सर्वदा अपेक्षा बनी रही है। श्री अरविन्द के सामाजिक संरचना सम्बन्धी चिन्तन बहुव्यापकता से उनके अपने साहित्य में निरूपित एवं संदर्भित हैं। प्रस्तुत शोध-लेख में 'श्री अरविन्द का सामाजिक अनुचिन्तन' शीर्षकित विषय के माध्यम से उक्त अपेक्षा सम्बन्धी तथ्यों का अनुरोध करने का एक प्रयास है।

ज्ञातव्य है कि श्री अरविन्द ने अपना सामाजिक चिन्तन यद्यपि अपने सम्पूर्ण साहित्य में सन्दर्भित एवं संकेतित किया है, तदपि उनके द्वारा लिखित 'The Human Cycle' अर्थात् 'मानव चक्र' नामक ग्रन्थ में विशेष विवेचन किया है। श्री अरविन्द के समाज दर्शन परक तथ्यों के विस्तार असीमित होने के कारण उनका संक्षेपण मात्र ही यहाँ प्रस्तुत किये जा रहे हैं—

श्री अरविन्द की दृष्टि में हम समाज को दो वर्गों में विभक्त प्राप्त करते हैं। इन दोनों वर्गों को उन्होंने सामान्य (Normal) अथवा औसत तथा आध्यात्मिक (Spiritual) के नामों से उल्लिखित किया है। इन दोनों प्रकार के समाजों के सन्दर्भ में श्री अरविन्द का समग्र सामाजिक विमर्श सम्भव रहा है किन्तु यह भी सत्य तथ्य है कि उनकी सामाजिक अकारणता का विवेचन किन्ती भी शोध-लेख में ही नहीं, अपितु शोध-प्रबन्ध में भी समेटा जाना सम्भव नहीं है। तथापि उक्त उभयविध समाजों को आधार बनाकर श्री अरविन्द के समाज दर्शन का समाज शास्त्रीय दृष्टि से विवेचन अग्रलिखित क्रम में अवलोकनीय है—

*अतिरिक्त प्रोफेसर, समाजशास्त्र विभाग, सी०एच०पी०, पी०जी० कॉलेज, इलाहाबाद विश्वविद्यालय प्रयागराज (७०७०)

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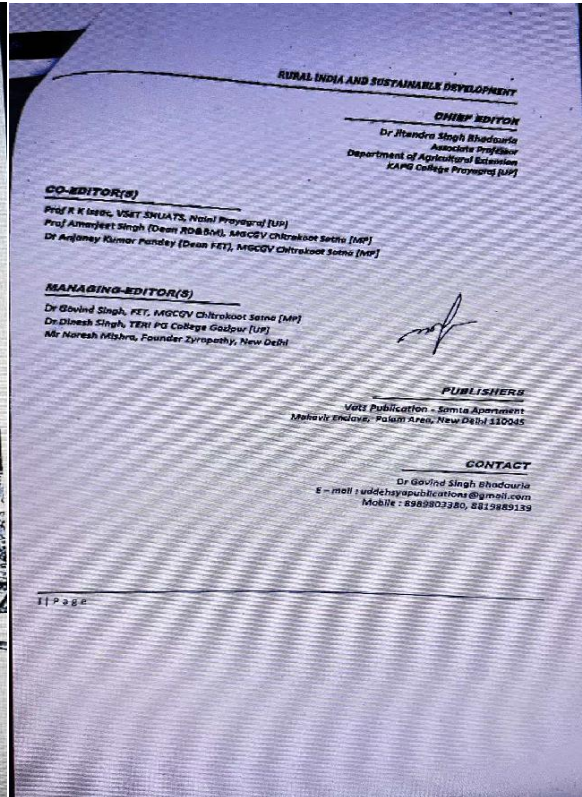
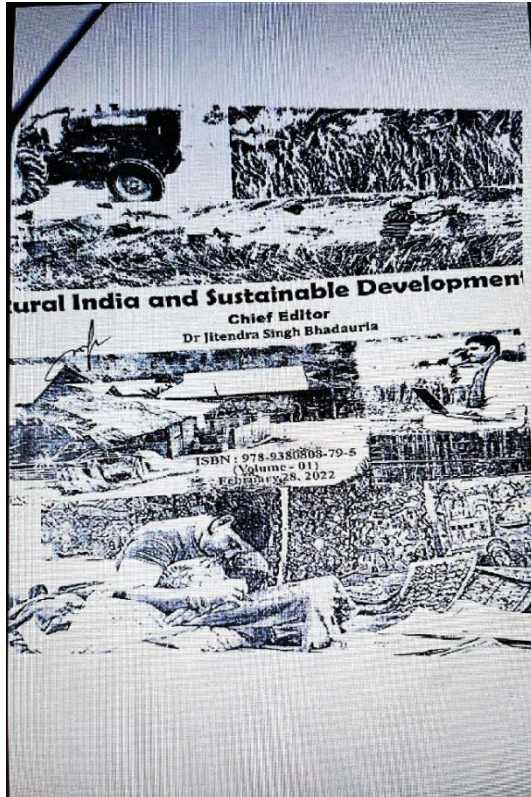


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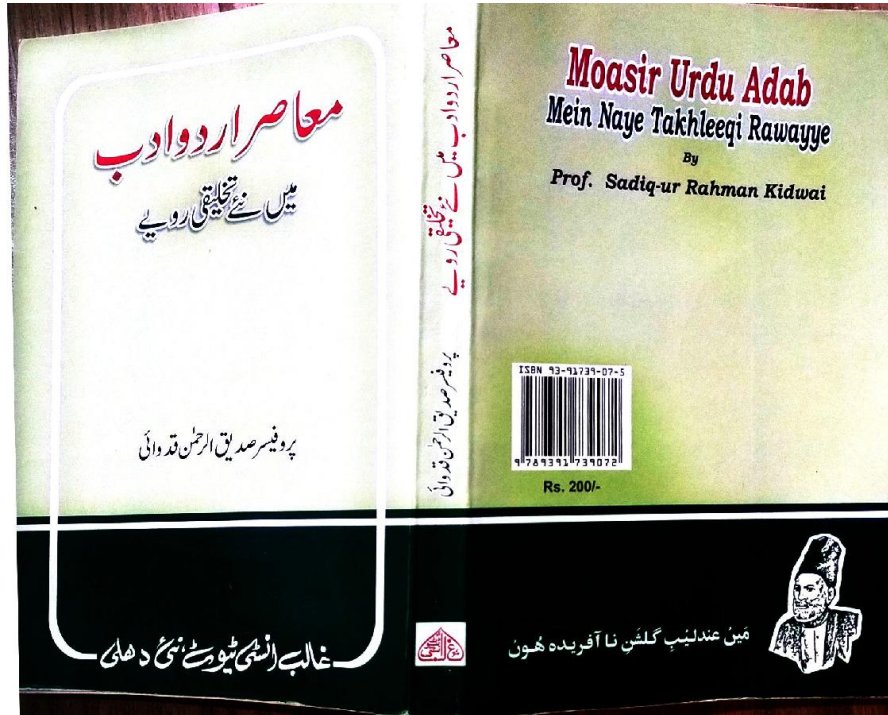
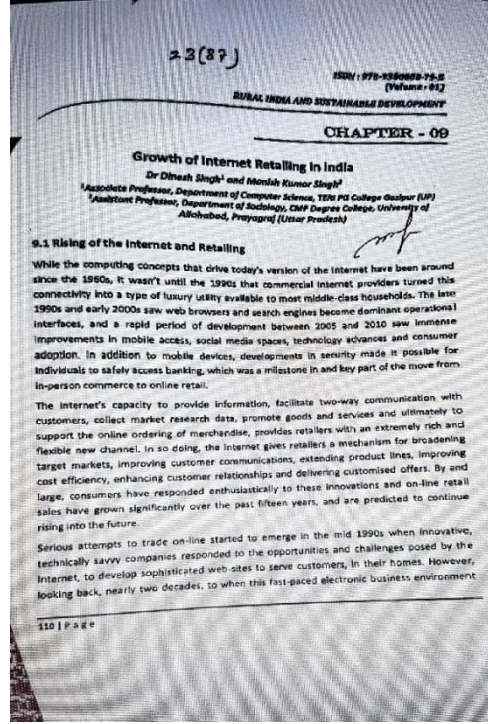


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Other Books of the Author:


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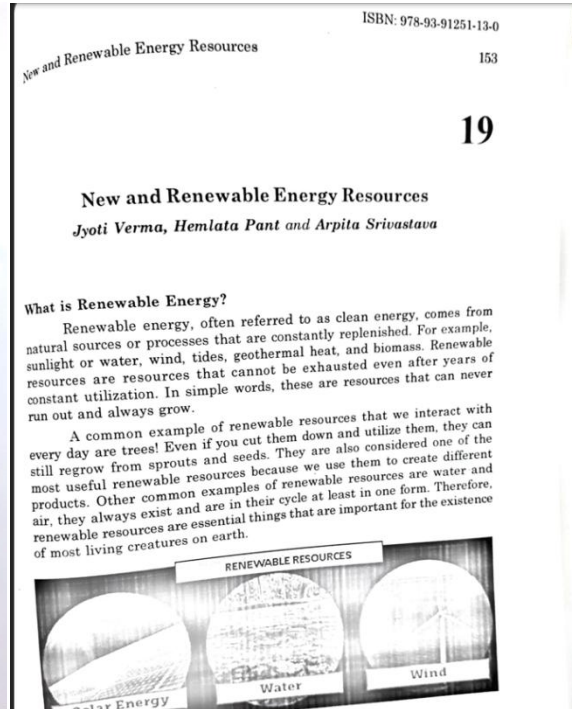
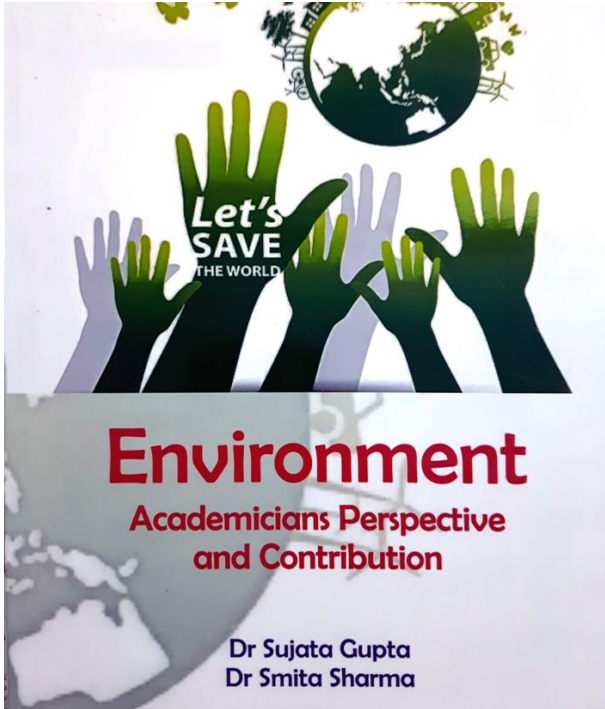


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Chapter 24 Wildlife Conservation and Management using GIS and Remote Sensing

Hemlata Pant, Jyoti Verma & Surbhi Richhariya

Abstract: The conservation of wildlife species is an important issue. GIS and Remote Sensing Technology plays a vital role in wildlife analysis. Wildlife management requires reliable and consistent information on the abundance, distribution of species and their habitats as well as threats. The present chapter highlights the application of remote sensing (RS) and geographic information system (GIS) in the wildlife management and conservation.

Keywords: Manipulative Management, Custodial Management, Species Reintroduction, In-situ Conservation

Introduction

We have got the most precious gift from Mother Nature "Wildlife", the most important natural asset. It is estimated that global warming may cause the extinction of 15-37% of species by 2050, unlike other environmental losses this one cannot be reversed because nature does not give a second chance to biodiversity. Wildlife refers to uninhabited animal species that live or grow in the wild. Wildlife can be found in all ecosystems like deserts, forests, rainforests, plains, grasslands, and other areas, including the most developed urban areas, all have distinct forms of wildlife. Wildlife is a renewable resource that generates many environmental services.

India has a rich and diverse wildlife fauna with immense natural beauty in its lions, tigers, leopards, deer, elephants, one horned rhinoceros etc. India has more types of elegant deer and cats than any other country in the world. In fact, India includes more than 120 families of terrestrial vertebrates. It has been estimated that in India there are more than 400 species of mammals, 1200 species of birds, more than 350 species of reptiles and more than 29,70,000 species of insects. India is home to a large variety of animals. It is a biodiversity hotspot with its various ecosystems ranging from the Himalayas in the north to the evergreen rain-forests in the south, the desert sands of the west to the marshy mangroves of the east. The Indo Malayan realm of India lays a home

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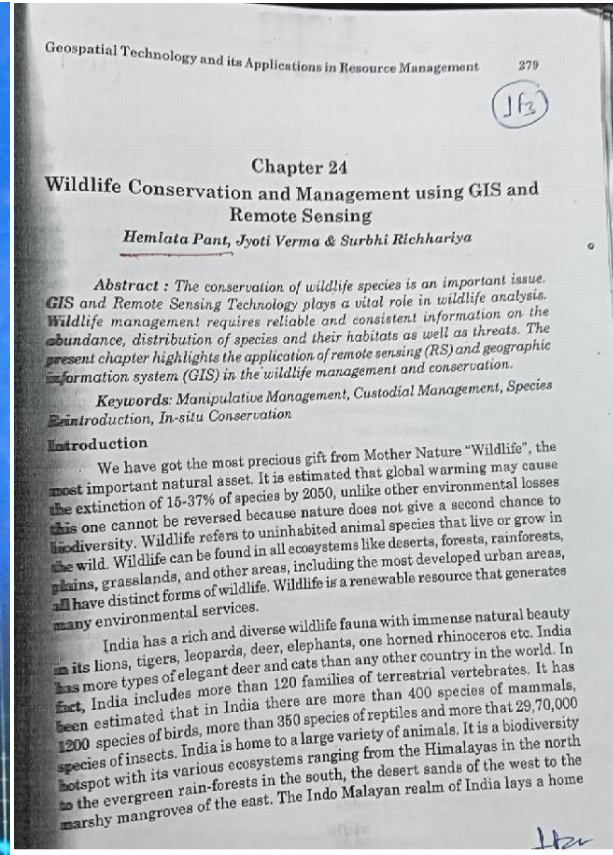
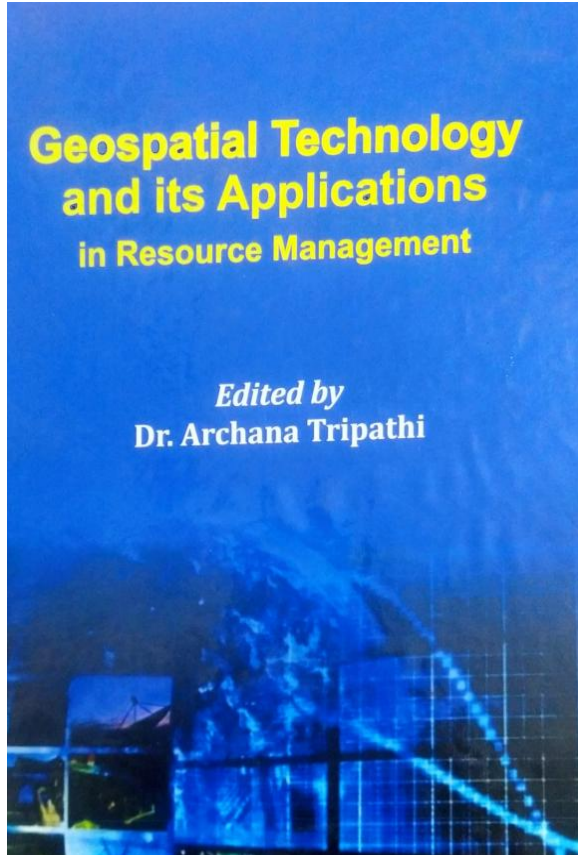


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Chapter-23 Diversity of Hemiptera (insecta) Fauna in the Landscapes of Gangetic Plains of Prayagraj, Uttar Pradesh

Sandeep Kushwaha, S. Sambath, Priyamvada Bagaria, Arghya
Chakrabarty and Hemlata pant

Abstract: The present study yielded the identification of 31 species belonging to 10 families of the order Hemiptera, reported for the first time from Prayagraj district and nearby regions. The distribution of these species were analysed by using the GIS in this paper.

Keywords: Gangetic plains, Hemiptera, Water Level, ESRI, Topographic level

Introduction

Hemiptera commonly called true bugs, a very large and one of the diverse orders of class Insecta. The order Hemiptera is hemimetabolous insects that undergo incomplete metamorphosis. They are plant feeders, damage to plants and some predaceous in nature.

Globally, 138 families of Hemiptera are found worldwide, consisting of about 184000-193000 species (Hodkinson & Casson, 1991). Distant (1902, 1904 & 1906) recorded a detailed account of Hemiptera fauna in north India but, no detailed studies have been carried out in this area. Literature study reveals that scattered studies were carried out by various authors. The present study helps to understand the diversity of hemipteran fauna of Gangetic plains of Prayagraj District and its surrounding area.

23.1 Material and Methods

During the survey of the Prayagraj and adjoining areas by the team of Zoological Survey of India Kolkata, a total of 115 bugs were collected from various localities of the Prayagraj and nearby district viz. the Agriculture University of Prayagraj, Gangetic and Yamuna plains of Prayagraj, Jhusi, Kausambi district, Naini, etc. Collections of hemiptera were made by handpicking, net trap and light trap. The field collected specimens, were sorted



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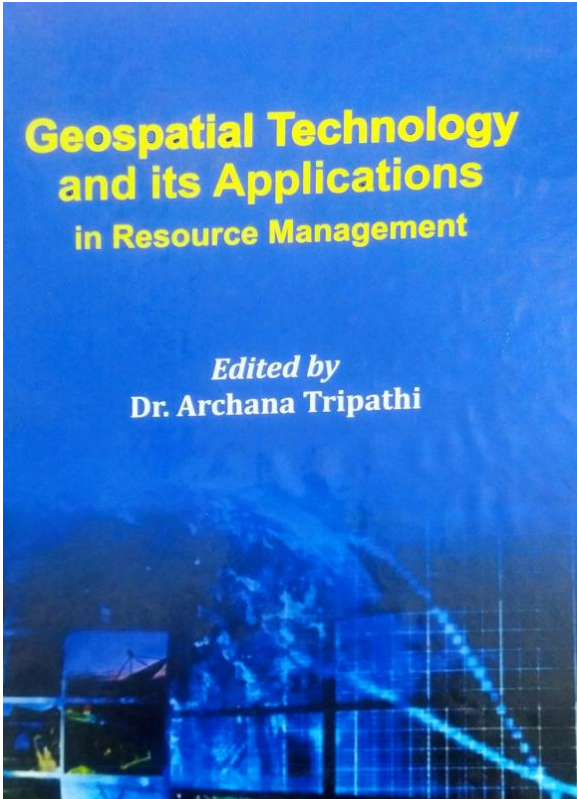
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Chapter-18

Applying Remote Sensing to Assess Animal diversity and Distribution

Ajeet Kumar Singh

Abstract- Many biologists are intrigued by the potential of remote sensing to assist their biodiversity assessment. However, interdisciplinary dialogue between biologists and remote-sensing scientists is frequently impeded due to differences in technical backgrounds and languages. In this context, the present article attempts to describe potential application of remote sensing technologies in the field of animal diversity, from the viewpoint of a biologist. Assessment of animal diversity is a cumbersome task due to elusive and secretive nature of animals. It requires surrogate variables that can be derived from remote sensing data. In this review, five classes of surrogates of animal diversity viz. habitat suitability, photosynthetic productivity, multi-temporal patterns, habitat structural properties, and forage quality has been discussed which are useful in determining animal biodiversity. Few recent examples of utilizing these surrogates in the assessment of animal diversity have been highlighted.

Keywords: Biological diversity, spatial heterogeneity, LiDAR, SAR, Trophic composition, NDVI, Plant diversity

Introduction

The significance of biodiversity conservation is generally acknowledged by modern societies, and therefore a widespread concern about its current state has been raised. From genes to species to ecosystems, biodiversity is characterized at various levels of biological variation and richness. However, because of the multifaceted character, it is impossible to condense it into a single definition or description, thus it can't be assessed using a single metric. The need to quantify various degrees and domains of biological variety has prompted the quest for appropriate biological markers from which biodiversity may be assessed. Species, habitats, and eco-regional features are examples of