National Conference

On

Recent Trends In

Chemistry and Environmental Issues in Chhattisgarh

KU-CHEM 2019"

19th- 20th September, 2019



Organized by

Department of Chemistry, Kalinga University

Nava Raipur, Chhattisgarh, India

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Role of Total Quality Management (TQM) Practices in Pollution Prevention and Environment Protection in Manufacturing Industry - A Case Study of Bhilai Steel Plant, Bhilai Chhattisgarh

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Abstract: Today pollution is a multi headed monster which has posed a grave threat to the existence and survival of the human society. Among many potent causative factors responsible for the ugly emergence and aggravation of the menace called pollution, manufacturing industries significantly contribute to all major forms of pollution be it Land, Water, Air, or Sound pollution. The fallouts of Pollution have adversely impacted the flora and fauna to an alarmingly high level and have brought colossal damage to the ecosystem and bio-diversity. The world over, Industry Professionals are trying to grapple with growing industrial Pollution manifested by highly toxic industrial gases, fumes, smoke emanating from chimneys, industrial/chemical processing, industrial wastes and effluents. Efforts are on to counter new challenges and threats by adapting to and adopting Quality systems and processes. Total Quality Management (TQM), a core, integrated and strategic quality management function has a vital role to play in Pollution Prevention and also to promote Environmental Protection and its upgradation for Sustainable Development (SD). Strategically aligned TQM initiatives and innovations can ensure conformance to environment quality norms and standards. This paper, using Case Study Method, makes an earnest attempt to highlight the Industrial Pollution and analyses how sound TQM Initiatives and Innovations can be leveraged to realize the industrial goals and objectives set for Pollution Prevention and Environment Protection.

Keywords: Pollution, Hazards, TQM, Pollution Protection, Environment Protection.

Pre-Sowing Electromagnetic Treatment of Soyabean Seed

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Abstract: The aim of the study was to improve the pre-sowing electromagnetic treatment of seeds of soya beanto breaking its seed dormancy is a subject of intense research. The seed were exposed to magnetic field 0.2 kG, 0.4kG, 0.6kG, for 5min, 10min, and 15min respectively. The treated and control seed sown in different trays for seven day in same laboratory condition, Magnetic field exposure of seeds significantly enhanced all growth parameters, compared to control seedlings, the noteworthy intensification in germination, germination percentage, relative germination percentage, relative root growth (RRG) and relative shoot growth(RSG) and biochemical parameter. Our result suggested that electromagnetic treatment 0.6 kG for 15 minutes respectable for soya bean seed, thus the presowing electromagnetic treatment of seeds can be effectively used for improving growth under normal laboratory condition.

Keywords: Seed dormancy, electromagnetic field, sustainable development.

Khadi: Recent Trends, Market and Environment Issues in Chhattisgarh

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Abstract: The Present study was conducted to explore the availability of khadi fabric in the market, commonly used khadi fabric and current market trend of khadi use in apparels, etc. Khadi over decades has moved from a freedom fighters identity fabric to a fashion garments. Today there is such an increasing demand for khadi that despite of the thousands of workers involved in spinning and producing khadi fabric, this demand of the market does not gets fulfilled. Khadi, or Khaddar, is a traditional fabric from India that was popularized by Mahatma Ghandiji before the independence. Before, it was only worn by rural people and political leaders, and its manufacture was quite limited. Khadi was encouraged by Ghandiji as an alternative and a statement against wearing British clothes. The Indian flag is also made of Khadi, adding to its significance as a national symbol. Today, the population demands more khadi than the manufacturers can supply due to its increasing popularity as a worthy addition to one's wardrobe. Early forms of khadi had coarse textures, but recently, khadi has been made with cotton, silk, and wool, making it more comfortable, and hence, more popular. One of the most surprising aspects of Khadi fabric is its ability to keep the wearer cool during the summer and at the same time keeping him or her warm during the winter. This fabric is also enhanced by washing, not worn out by it, but starch has to be added to avoid wrinkling easily. It can last for four to five years. Khadi is also normally embellished with designs and handwork. Men and women alike are involved in weaving this fabric in a pattern that allows air ventilation. Earlier, Khadi was dyed with earth tones, but today, different colors and prints are available on the market. The Present study is conducted with the objective to explore the current market trend of Khadiand use in Chhattisgarh State. In Chhattisgarh, surface water is mostly of good quality, but pollution is increasing in major towns due to increasing urbanization. Rivers such as Shivnath, Hasdeo, Indrawati, Kharoon etc. are found to be polluted at different stretches due to industrial, domestic and agricultural pollution. Air, Water & Soil in the state are disturbed, getting polluted due to major industrial hubs in state at Bhilai, Korba, Raipur, Bilaspur and Raigarh districts. Forest of the Chhattisgarh are in enormous pressure due to large Human and cattle population, Mining and widespread rural poverty. These pressures are resulting in deforestation and

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forest degradation. To overcome Environmental issue we need to take immediate steps like Bans burning of Crop residue, Waste Management, Water Conservation and Protecting & Increasing Green Cover.

Keywords: Khadi, Market, Trend, Gandhi, Chhattisgarh, Pollution.

Aimed to Analysis of Organic Molecules from the Waste Part of the Plants Which Could Help in the Regulation of Saturated Fat Composition in the Human Cell

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Abstract: It investigates the effect of corn silk which is considered as a waste by product of maize extracts (aqueous and methanolic) against obesity in human cell. Pharmacological studies haveproved that this traditional herb was found to have medicinal properties like anti-oxidant, anti-hyperglycemic, anti-diabetic etc. The 50% methanolic corn silk extracts derived from sweet and waxy corn silk cultivars will be investigated for their phytochemical compositions using HPLC, UV-method, anti-oxidation using FRAP and DPPH assays and anti-obesity potential in 3T3-L1 adipocyte. The anti-obesity potential of CSEs involving anti-adipogenesis and lipolysis induction is manifested in association with the composition of flavonoid and as the functional ingredient. The study however will show a significant increase in the serumlevels of white blood cell, platelet, lymphocytes, high-density lipoprotein cholesterol while the concentrations of total cholesterol, low-density lipoprotein cholesterol and artherogenic index value were significantly lowered. The significant decrease in TC, AC, and BMI will be detected in HCD-fed groups treated with corn silk extracts. It can be concluded that high maysin corn silk extract inhibits expression of genes involved in adipocyte differentiation, fat accumulation, and fat synthesis as well as promotes expression of silk extract on body weight and fat deposition in experimental human fat cells.

Keywords: Organix Molues, Human Cell

Bentonite Clay for the Removal of Copper Ions from Waste Water

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Abstract: The pollution of water due to various toxic components especially heavy metals are causing an adverse effect on the flora and fauna and also have a potential effect on the human well-being. Heavy metals pollutions from wastewater discharges present an increasing concern for health, eco-system and the environment due to their persistence and bio accumulation via the food chain. Therefore the removal of these ions from waste water becomes a critical issue from environmental point of view. In present study removal of Cu (II) from waste water through active absorption by clay bentonite is investigated. The removal of Cu(II) by sorption of bentonite clay has been found to be concentrations of metal, amount of adsorbent, pH, temperature dependent and shaking time. Lagergren equations have been used for kinetic study. Langmuir and Freundlich equation have been used to determine equilibrium study. It is evident that initial Cu (II) ion concentration contact time, temperature and pH have marked on adsorption. It is expected that Bentonite clay can effectively be used as an adsorbent under suitable conditions.

Keywords: Sorption, Bentonite, Environmental issues, Langmuir isotherm, Lagergren equation.

Allium Cepa: Medicinal Properties and Health Benefits

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Abstract: Chhattisgarh is known as rich herbal diversity state in India because variety of plants is being found here. Different parts of these plants like root, shoot, stem, leaves, flowers, bud, etc. are used to cure many diseases. Allium cepais significantly regarded for its remedial properties. It has been utilized as a sustenance cure from ancient time. Research demonstrates that onions may help to protect against many chronic diseases. Contain generous amounts of the flavonoid quercetin. Studies have shown that quercetin protects against cataracts, cardiovascular disease, and cancer. Onions contain large amount of other naturally occurring chemicals known as

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organ sulfur com-pounds that have been linked to lowering blood pressure and cholesterol levels. The onion has a wide range of beneficial actions on the body and when eaten (raw) on a regular basis will promote the general health of the body. Pharmaceutically important Allium cepa, onion is found in every house. The purple color onion several health benefits and is part of many home remedies and beauty solutions. This paper mainly reviews the medicinal and herbal properties that Allium cepa possess and health benefits of using it.

Keywords: Allium cepa, Remedial properties, Health benefits.

Casting of Carbon Cloth Enrobed Polypyrrole Electrode for High Electrochemical Performances

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Abstract: Flexible and highly conductive PPy electrode was made by festooning PPy nanoparticles on carbon cloth (CC) by using chemical liquid process. The developed porous PPy/CC composite have good flexibility with low weight (1.1 mg) and high electrical conductivity $(10\Omega^{-1}cm^{-1})$. Fourier-transform infrared and X-ray diffraction spectrometer confirms the formation of PPy on carbon cloth. From the scanning electron microscopy images, one can see that the PPy nanoparticles are encapsulated in carbon cloth. The fabricated carbon cloth has been used for solid-state symmetrical supercapacitors and low-cost electrode materials in potential energy storage devices. These film electrodes showed much superior electrochemical performance such as higher specific capacitance, encouraging energy density, lower internal resistivity, and more stability under different current loads. These flexible PPy/CC composite electrodes have promising applications in new kinds of electrochemical energy storage devices.

Keywords: Electrochemical Performances

Waste Management through Partnership System in Raipur

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Abstract: Urbanization and uncontrolled consumption of material automatically increased the waste generation quantity in every developing nation. Municipal Solid Waste, which contains remarkable amount of non-biodegradable and hazardous waste are major health hazard that undermines people's right to a safe life. These all forms of waste if not treated and disposed carefully by scientific methods are a threat to the health of people as well as the environment. The Municipal Waste (Management and Handling) were notified by the Ministry of Environment and Forest Govt of India. The present study mainly focused in existing and possibilities of Public Private Partnership in Municipal Solid Waste Management in Raipur city. It has found that the effective disposal of municipal solid waste through Privatization may leads to minimize the solid waste and also enhance social infrastructure in sustainable way. The local municipal system is facing difficulties like budgetary issue, non skill labour problem, and outdated machines. The recovery of energy and effective disposal of solid waste can be done in presented suggestion. The prime motivation for waste to energy is focused in concern with different environmental issues. Present study also focused on possible instruments related to challenges to PPP in Urban Infrastructure development.

Keywords: Municipal Solid Waste, Waste - energy recovery, Public Private Partnership, Challenges to PPP, Environmental Issues.

A Kinetic Study of Uncatalytic Oxidation of L-Histidine by Cerium (IV) in Aqueous Acid Medium

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Abstract: Kinetic of uncatalyzed oxidation of L-histidine has been studied by Ce(IV) in acidic medium. The rate of reaction determine at three different temperatures ranging from 298 K to 318 K. The reaction has been found to be a first order reaction with respect to Ce (IV) in presence or in absence of KCl in the oxidation of L-histidine. The reaction is of first order at lower concentration of Ce (IV) but at higher concentration of Ce (IV) it become as zero order reaction. Overall it is a pseudo first order reaction. The rate constant, K_{obs} decrease with increasing the concentration of $[HSO_4]$ and $[H^+]$ ion. The proposed mechanism and results is discussed in the kinetic studies.

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Industrial Enhancement in the Pretext of Green Manufacturing - A Review

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Abstract: The possibility of this audit paper is to make you acquainted with the idea of green manufacturing particularly with regards to the mechanical application, as it is the need of great importance to address the issues related natural effect and environmental funds owed to modern manufacturing. With the assistance of green manufacturing, these issues can be appropriately tended to, and this makes ready for practical application in the present aggressive world. This paper will likewise give data about how the green manufacturing practices are being actualized in different enterprises and what are the provokes that should be managed with the goal that the green manufacturing practices can be increasingly compelling for the development of businesses in a sustainable manner.

Keywords: Green manufacturing, green technologies, sustainable development, environmental impact

Inclusion Complex Formation of Novel Synthesis Ionic Liquids with B-Cyclodextrin

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Abstract: Inclusion complex formation of two amino acid based ionic liquids (AAIL) 1-(2-(octylamino)-2-oxoethyl)pyridin-1-ium bromide and 4-((hydroxyimino)methyl)-1-(2-(octylamino)-2-oxoethyl)pyridin-1-iumbromide into β -cyclodextrin have been investigated using spectroscopic techniques. UV-Vis spectroscopy, FT-IR and ¹H NMR were carried out to confirm the inclusion complexes (ICs) formation. The well-known Job's method and Benesi–Hildebrand method from UV-vis study was also applied for confirmation the host: guest complexation. The thermodynamic parameters such as Gibbs free energy (ΔG), enthalpy (ΔH) and entropy (ΔS) have been estimated with the help of van't Hoff equation. Significant shifts in IR stretching frequency also support the inclusion process. NMR measurement gives the molecular ion peaks corresponding to the IC of 1: 1 molar ratio of host and guest molecules and the mechanism of IC also be studied. The binding constants of β -CD are higher for OAOEPB as compared to HIMOAOEPB.

Keywords: Ionic liquids, Cyclodextrin, Inclusion complex, FTIR and NMR

Phytochemical Analysis of the Flowers of Peltophorum Pterocarpum (DC.) Baker Ex. K. Heyne

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Abstract: Flowers of higher plants have been used for centuries for several purposes such as medicine, food and garnishing in many parts of the world. Peltophorum pterocarpum (belonging to Fabaceae family) regarded as one of the most significant plant species in traditional system of medicine. Nature is our greatest medicine cabinet. It has provided mankind with numerous cures even for deadly diseases. Still there are so many cures that lie untapped in earth's ecosystem and many researches are being done in order to find the cures for many illnesses. The aim of the present study was to evaluate preliminary phytochemical screening, phenol and flavonoid content and pharmacological activity of leaves and flowers Peltophoram pterocarpum extracts. The extraction was done by individual soxhlet method using solvents like ethanolic and aqueous solvents. Total phenolic and total flavonoid content of different extracts was determined using Folin-ciocalteu assays and aluminium chloride colorimetric method respectively. The plant is used in different parts of the world for the treatment of several ailments like stomatitis, insomnia, skin troubles, constipation, ringworm, insomnia, dysentery, muscular pains, sores, and skin disorders and is the source of a diverse kind of chemical constituents such as aliphatic alcohols, fatty acids, amino acids, terpenoids, phenolics, flavonoids, alkaloids, steroids etc. Phenolic compounds and flavonoids play an important role in health benefits because of their highly antioxidant capacity. The isolated phytochemicals as well as different extracts exhibited numerous biological activities including antimicrobial, antioxidant, cytotoxic, aldose reductase inhibition and antiglycaemic activities.. Hence, up-to-date information on the chemical and pharmacological knowledge on this plant may be helpful to guide researchers anticipating to undertake further investigations on this plant. The presence of various bioactive compounds confirms the application of *P.pterocarpum* for various ailments by traditional practitioners. However, isolation of individual phytochemical constituents may proceed to find a novel drug.

Keywords: Peltophoram pterocarpum, phytochemical, pharmacological activity, flavonoids, antioxidant.

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A Review of the Phytochemical and Pharmacological Characteristics of Medicinal Plant

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Abstract: Medicinal plants are a reservoir of biologically active compounds with therapeutic properties that over time have been discovered and used by diverse groups of people for treatment of various ailments. In this regard, indian has an excellent historic research base of herbal medicines with about 70% of india households using medicinal plants to meet their health needs for several centuries. The plants are a reservoir of secondary metabolites, suitable for use in pharmacological studies with a high possibility of observing biologically active constituents. The present review provides an up-to-date a report on the phytochemicals and pharmacological activity of the medicinal plants widely used in India. The medicinal value of these plants lies in chemical substances that produce a positive physiological action on the human body and since plants synthesize an extremely diverse range of chemical compounds, they represent a great potential for the discovery and development of new pharmaceuticals. Some of these antioxidants seem to have a unique mechanism of action. The plants have been used in traditional medicines over a long period throughout the world. Medicinal plant contains many important phytochemicals and are well known in folk medicines. These phytochemicals exhibit interesting biological and pharmacological properties. Alkaloids, flavonoids, tannins, saponins, steroids, glycoside and polyphenolic compounds are some of the useful phytoconstituents used for the preparation of various medicines. This review is compiled to document the alkaloids, flavonoids, saponins, steroids and tannins present in the medicinal plant. It will throw a light on the treasure of phytochemicals with a potential for pharmaceutics. Based on this information, species can be selected and characterized to meet the requirements of human health care system. Traditionally, herbal medicinal plant is considered as one of the important medicinal plants in the treatment of a variety of ailments, including inflammation, pain, rheumatism, cancer, bone fracture and fever. Many pharmacological studies have shown the ability of this plant to exhibit analgesic, anti-inflammatory, antipyretic, anticancer, antioxidant, nootropic, hepatoprotective, gastroprotective, anti-ulcer, cardiovascular, anti-obesity, antiepileptic, anti-asthmatic, anti-diabetic, antiurolithiatic, diuretic, local anesthetic, anti-allergic, anthelmintic, wound healing, antimicrobial, immunomodulatory, and anti-diarrheal properties. This review is a comprehensive summary of the phytochemical and pharmacological activities as well as the traditional and therapeutic uses of plant.

Keywords: Phytochemicals, pharmacological activity, antioxidants, Therapeutic agent, Traditional medicines.

The Role of Green Chemistry in Controlling Environment and Ocean Pollution

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Abstract: Green Chemistry is defined as environmentally benign chemistry. As on today, pollution to the environment is caused by numerous chemical industries. Attempts have been made to design synthesis for manufacturing processes in such way that the waste products are minimum, they have no effect on the environment and their disposal is convenient. The quality of life on earth became much better due to the discovery of dyes, plastics, cosmetics and other material. Soon the ill effects [1] of chemistry also became pronounced main among them being the pollution of land, water and atmosphere. This is caused mainly due to the effects of by-products of chemical industries which are being discharged into the air, rivers/ oceans and the land. The use of toxic reactants and reagent also make the situation worse. To minimize the pollution beginning of Green Chemistry by the middle of 29th century. These toxic substance cause harms to both territorial and aquatic life. Longed live gases such as carbon dioxide, sulphar dioxide and nitrogen oxide gets dissolved in ocean water causing its acidification. Green Chemistry aims to minimize or eliminate the formation of harmful bio products and to maximize the desired products in an environmental friendly way. The three main developments in green chemistry include the use of super critical carbon dioxide, water as green solvent, aqueous hydrogen peroxide highlight on applying green chemistry to day to day life in order to control environmental and ocean pollution.

Keyword: Green Chemistry, waste reduction, Sustainability, desired products.

A Study on Phytochemicals, Antioxidants Activity and FT-IR Spectral Analysis of Flower Ethanolic Extract of Allamanda Cathartica Linn.

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Abstract: The plant Allamanda cathartica is a very widespread group throughout the world. It belongs to the family Apocynaceae. Medicinal herbs are an important source of phytochemicals that offer traditional medicinal treatment of various ailments. Various studies have confirmed that extracts and active substances isolated from the A. cathartica have multiple pharmacological activities. The species has emerged as a source of traditional medicine used for human health. These plants has been reported to possess anti analgesic, anti inflammatory, anti-depressant, anti-diabetic, would healing, purgative effect, anti hyperlipidaemic, anti-malarial, antioxidant, antimicrobial activity. The present study is to investigate the phytochemical, In-vitro antioxidant activity and to identify the functional groups present in Allamanda cathartica by Fourier transformer infra-red (FTIR) Spectrophotometer method of analysis of ethanolic extract of flower part. Preliminary phytochemical screening was carried out using standard procedures. The total phenolic content of the ethanolic extract was determined spectrophotometrically according to the Folin-Ciocalteau procedure and total flavonoid content of ethanolic extract was determined by Aluminium chloride method. The preliminary phytochemical screening revealed that alkaloids, glycosides, flavonoids, phenols, saponins, steroids, tannins, terpenoids, and amino acid was found to be present in the ethanolic extracts of flower part of Allamanda cathartica. Results of the FTIR Spectra of the ethanolic crude extracts revealed the presence of different functional groups as follows: OH stretching for hydroxyl (3460.2-3359.8 cm·1), C=O stretching for carbonyls (1751.2-1643.2 cm·1), C-O stretching for alcohols (1450.4 -1049.2 cm·1), carboxylic acid (1458.9-1242.1 cm·1), C-N stretching for amines (1253.6-1049.2 cm·1), N-H stretching for amines (3460.1-3359.8 cm·1), C=C stretching for aromatic (1643.2-1531.4 cm·1), C-H stretching for alkyl (2981.7-2931.6 cm·1), C-H bending for alkyl (1377.1 cm·1), C-H bending for methyl (1458.1-1450.4 cm·1). These findings indicate the presence of aldehydes, amines, amides, alcohols, phenols, aromatics and carboxylic acids in Allamanda cathartica. The medicinal value of the herb could be attributed to the presence of O-H, N-H, C-H, C=O, C-O, C=C, bond stretching of the detected functional groups. The total phenolic and total flavonoid content of the ethanolic extract was found to be 1.08 g 100 g-1 dry weight basis and 1.24 g 100 g-1 dry weight basis respectively. DPPH, superoxide radical scavenging activity of ethanolic extract of Allamanda cathartica flower part exhibited the IC₅₀ values of 65.29 and 29.13 µg/mL respectively. The reducing power activity showed increase with increase in concentration of extracts. The antioxidant potential may be directly linked to the phenolic and flavonoid contents present in the flower part of Allamanda cathartica. The outcome of the present investigation clearly indicates that flower part showed potential phytochemicals and they can be used as antioxidants. Further studies on the phytochemical and pharmacological properties and their mechanisms of action, safety, and efficacy in the species of A. cathartica are recommended.

Keywords: Allamanda cathartica, Phytochemicals, FT-IR, DPPH, Antioxidant activity, flavonoid. ethanolic extract

Review Research Paper on Reduced Pressure Freeze Mold Casting Technique

Prince Kumar Singh, Abhijeet Bhowmik

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Abstract: In the current casting industry is surrounded by various problems including high costing on mould binding agents and sand treatment plants are the significant points which need attention. In this paper I am reviewing/ giving out a literature survey on a new method of mould making which can rule out a couple of difficulties that are face in a general basis. Reduced pressure freeze molding technique in a non conventional mode of casting in which molds are made by using just silica sand and water. In this said technique the mould is frozen using a low pressure aspirator which acts a normal refrigeration unit. In this process there is no use of binding agents of any kind as the water act as the strength provider for the mold when it's frozen. The main advantage here being this process rules out the need of a sand treatment plant and there is no gas emission when the metal is poured in the mould as there is no additives there. This can most easily be the replacement for our conventional mould making process with emphasis on keeping it environmental friendly.

Keywords: Pressure Freeze Mold Casting

Study on Some Plants Used As Natural Products

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Abstract: Natural products are those chemical compounds or substances that are isolated from the living organism. It can be in form of primary or secondary metabolites. Plant secondary metabolites are organic compounds that are classified in to four namely terpens, phenolic compounds nitrogen and sulpher containing compounds. Natural products represent major approach for the discovery and development of new drugs, cosmetics, pesticides and other things. Plants produce a rich and

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diverse array of natural products. These compounds have important ecological functions, providing protection against pests, diseases, ultraviolet-B damage and other environmental stresses. They are also exploited as pharmaceutical drugs, agrochemicals, within the food and drink industry, and for a wide variety of other industrial biotechnology applications. Although plants are potentially a tremendous source of diverse and valuable natural products. In this paper I studied some plants like Murraya koenigii the leaf of it shows the maximum antioxidant capacity by the DPPH and Lipid peroxidation assay. Aloe vera L. Percent inhibition activity of alpha-amylase by different extracts of leaves of Aloe vera L. were evaluated and both flavonoids and alkaloids. Azadirachta indica higher antidiabetic potential of flavonoids and lesser antidiabetic activity of alkaloids of the plant. Andrographis paniculata Flavonoids of the whole plant, leaf, and root of the plant were found to have goof alpha-amylase inhibitory activity. Curcuma longa Turmeric powder is about carbohydrates, water, protein, fat, dietary minerals, essential oils.

Keywords: Chemical Compounds, Primary Metabolites, Secondary Metabolites, Ecology, Natural Products.

A Sensitive and Trace Level Nanodrop Spectrophotometric Determination of SB (III) in Industrial and Environmental Waste Water Samples

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Abstract: A novel and sensitive nanodrop spectrometric method has been demonstrated for the determination of Sb(III) at a trace level in environmental samples. The work basically focused on the surfactant mediated reaction of Sb(III) with Γ ions in the acidic environment to give a dark yellow coloured complex. Cationic surfactant i.e. methyltrioctylammonium chloride (MTOAC) was chosen for color enhancement. The molar absorbance of the [SbI₃] MTOAC complex in the terms of Sb(III) calculated and found to be 8.2×10^6 $L \text{ mo}\Gamma^1 \text{ cm}^{-1}$ at λ_{max} 360 nm with detection limit 4.0×10^{-3} ppm and limit of quantification 4.3×10^{-2} ppm. The present method is free from interferences of foreign ions that are associated during the determination of antimony in environmental samples. Present work has been applied successfully to the determination of Sb(III) in industrial and environmental wastewater with satisfactory outcomes.

Keywords: Nanodropspectrometer, Sb(III), Methyltrioctylammoniumchloride (MTOAC), Industrial waste water.

Chemistry Lab Practices In Higher Education

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Abstract: Good laboratory practice or practices are defined and accepted methods to carry out activities or operations in a chemistry laboratory. The laboratory organizations say that these practices help ensure safety and positive influence on the quality of the result. In higher education like collegiate and university when the learner come for laboratory work, they are assume that they have sufficient knowledge in regular laboratory practices but actually lot of precise and accurate practices with knowledge to handle the equipment inside chemistry lab are missing in their work. In the present paper we are focusing the different chemistry lab equipments and instruments which are frequently used inside lab during different performances.

Keywords: Laboratory Practices, Safety, Laboratory Equipments, Accuracy.

The Role of Green Chemistry in Controlling Environment and Ocean Pollution

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Abstract: Green Chemistry is defined as environmentally benign chemistry. As on today, pollution to the environment is caused by numerous chemical industries. Attempts have been made to design synthesis for manufacturing processes in such way that the waste products are minimum, they have no effect on the environment and their disposal is convenient. The quality of life on earth became

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much better due to the discovery of dyes, plastics, cosmetics and other material. Soon the ill effects [1] of chemistry also became pronounced main among them being the pollution of land, water and atmosphere. This is caused mainly due to the effects of byproducts of chemical industries which are being discharged into the air, rivers/ oceans and the land. The use of toxic reactants and reagent also make the situation worse. To minimize the pollution beginning of Green Chemistry by the middle of 20th century. These toxic substance cause harms to both territorial and aquatic life. Longed live gases such as carbon dioxide, sulphar dioxide and nitrogen oxide gets dissolved in ocean water causing its acidification. Green Chemistry aims to minimize or eliminate the formation of harmful bio products and to maximize the desired products in an environmental friendly way. The three main developments in green chemistry include the use of super critical carbon dioxide, water as green solvent, aqueous hydrogen peroxide highlight on applying green chemistry to day to day life in order to control environmental and ocean pollution.

Keyword: Green Chemistry, waste reduction, Sustainability, desired products.

Monitoring of Physicochemical Parameters and Heavy Metals in Water of Jonk River, Kasdol Area, Baloda Bazar District Chhattisgarh, India

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Abstract: The Jonk River is an inter mitten river in Chhattisgarh and Orissa. The present work aims to assess the physicochemical parameter and heavy metals contamination in Jonk River using heavy metal pollution index during monsoon season, winter season and summer season period in year 2018-2019. The monitoring area was three they are Rajandevri, Golajhar and Chandan. The monitor also river water quality in according to world health organization. The result indicates that the overall water quality in Jonk River is severely not much contaminated with respect to heavy metals concentration and could pose a likely threat to flora and fauna. The result outcome of overall season some little changes during the various season periods, respectively.

Keywords: Jonk River, Water quality, Pollution index, Physicochemical parameters, Heavy metals

Isotherm Study on Removal of Triton X 100 from Waste Water Using Agro Waste of Nelumbonucifera

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Abstract: Removal of higher concentration of Triton X 100 from waste water, using carbonized Nelumbonucifera(NS) as an adsorbent bed has been discussed in the present investigation. Carbonized Nelumbonucifera stem has been prepared in the lab by using muffle furnace at high temperature. Efficiency of removal of Triton X 100 is measured by pH meter using batch technique. Various concentration of Triton X 100 solutions from 200ppm, 400ppm, 600ppm, 800ppm and 1000ppm have been prepared and their pH values assessed after adsorption on carbonized NS. Adsorption Isotherms Langmuir adsorption Isotherms, Freundlich adsorption Isotherms and Temkin adsorption Isotherms are discussed and compared. \mathbb{R}^2 values of Freundlich adsorption Isotherms is best fit in an adsorbent bed.

Keywords: Adsorption Isotherms, Triton X 100, Surfactant, Carbonization, Adsorption, Freundlich Adsorption Isotherms, Temkin Adsorption Isotherms.

Adsorption Isotherm Study on Removal of Triton X 100 from Waste Water Using Agro Waste of Nelumbonucifera

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Keywords: Adsorption Isotherms, Triton X 100, Surfactant, Carbonization, Adsorption, Freundlich Adsorption Isotherms, Temkin Adsorption Isotherms.

Review Research Paper on Reduced Pressure Freeze Mold Casting Technique

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Abstract: In the current casting industry is surrounded by various problems including high costing on mould binding agents and sand treatment plants are the significant points which need attention. In this paper I am reviewing/ giving out a literature survey on a new method of mould making which can rule out a couple of difficulties that are face in a general basis. Reduced pressure freeze molding technique in a non conventional mode of casting in which molds are made by using just silica sand and water. In this said technique the mould is frozen using a low pressure aspirator which acts a normal refrigeration unit. In this process there is no use of binding agents of any kind as the water act as the strength provider for the mold when it's frozen. The main advantage here being this process rules out the need of a sand treatment plant and there is no gas emission when the metal is poured in the mould as there is no additives there. This can most easily be the replacement for our conventional mould making processwith emphasis on keeping it environmental friendly.

Keywords: Free Mold Cassting Technique

Characterization of Rice Mill (From Rajim Region)

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Abstract: Parboiled rice is one of the most popular rice products produced by various rice mills of Chhattisgarh districts. The process of parboiling involves soaking, steaming and drying and this requires large amount of water for soaking the paddy. The soak water contains high load of suspended and dissolved organic materials which putrefies overtime causing water and groundwater pollution. The current study will mainly focus on the effect of rice mills on groundwater at Mahanadi River near Rajim. The groundwater is polluted due to release of waste water from rice mills of this area. Various water quality parameters were characterized such as turbidity; Acidity, B.O.D., D.O, C.O.D., Iron, Hardness, Chloride, and Sulphate were studied. It has been found that the parameters such as Iron, B.O.D., D.O. and C.O.D., are not in the acceptable limit in accordance with the IS 10500 (2012) drinking Water Quality Standards.

Keywords: Rice Mill

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Green Synthesis and Characterization of Iron Nanoparticles Using Seed Extract of "Manilkara Zapota" and Evaluation of Its Antibacterial Activity

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Abstract: Many Synthetic routes are available for the synthesis of nanoparticles, but it is promising to develop a procedure which must be ecofriendly, non toxic and cost-effective.Hence, biological routes for the synthesis of nanoparticles become effective and important method. In Present study Iron Nanoparticles were synthesized using Manilkara Zapota(Chickoo) seed extract. The synthesized Iron Nanoparticles were characterized by UV-Visible absorption spectroscopy, Fourier transform infrared spectroscopy, X-ray diffraction spectroscopy and Scanning electron microscopy. UV-Visible absorption showed a characterization absorption peak of Iron Nanoparticle in the range of 250-300nm.FTIR spectroscopy measurement carried out to identify the possible molecule like Carbonyl, CH and OH band. In X-ray diffraction spectroscopy method, it is found that the average particle size of Iron Nanoparticle is 45 nm. From the Scanning electron microscopy (SEM-EDX) the Morphology and size distribution of nanoparticles were characterized, It confirms the presence of scattered and irregular shaped Iron Nanoparticles and the average size of Nanoparticle is around 50nm. Iron nanoparticle synthesis is simple and only requires precursor and seed extract, as the polyphenols present in seed extract is responsible for the reduction and stabilization. The synthesized Iron nanoparticles had antibacterial activity against pathogenic bacteria like Staphylococcus aureus, Escherichia coli and Salmonella.

Keywords: Green synthesis, Manilkara Zapota seed, Iron Nanoparticle, Polyphenols, Antibacterial activity.

Research Paper on Properties of Ductile Iron Casted Using Freeze Molding Technique

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Abstract: In the present time where we are constantly looking for better materials to work with we are also working hard on modifying the old ones we have using different methods. Doing the same thing scientist ended up finding Spheroidal Graphite iron which has mechanical properties better than that of malleable iron. This is a type of cast iron where unlike grey cast iron graphite provides continuity of structure and plasticity. Its higher mechanical properties are making it to be the best replacement for steel in the manufacturing business. The properties of the S.G. iron can be further increased/modified by heat treatment processes. Studies and various experiments are being conducted to understand the structure and the properties of S.G. iron in various places. In this paper we are determining different material/mechanical properties of ductile cast iron which is casted using a non conventional casting method (freeze molding technique) which is also eco friendly with various other advantages including being as effective as our conventional molding method.

Keywords: Ductile Iron, Molding

A Sensitive and Trace Level Nanodrop Spectrophotometric Determination of SB (III) in Industrial and Environmental Waste Water Samples

Saurabh Kumar Gupta¹, Kavita Tapadia²

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Abstract: A novel and sensitive nanodrop spectrometric method has been demonstrated for the determination of Sb(III) at a trace level in environmental samples. The work basically focused on the surfactant mediated reaction of Sb(II) with Γ ions in the acidic environment to give a dark yellow coloured complex. Cationic surfactant i.e. methyltrioctylammonium chloride (MTOAC) was chosen for color enhancement. The molar absorbance of the [SbI₃] MTOAC complex in the terms of Sb(III) calculated and found to be 8.2×10^6 $L mo\Gamma^1 cm^{-1} at \lambda_{max} 360 nm with detection limit <math>4.0 \times 10^{-3}$ ppm and limit of quantification 4.3×10^{-2} ppm. The present method is free from interferences of foreign ions that are associated during the determination of antimony in environmental samples. Present work has been applied successfully to the determination of Sb(III) in industrial and environmental wastewater with satisfactory outcomes.

Keywords: Nanodropspectrometer, Sb(III), Methyltrioctylammoniumchloride (MTOAC), Industrial waste water.

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Characterization of Geo-Chemical Properties of Soil over Geopathic Stress Location

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Abstract: Geopathic Stress (GS) is a term that is used most of the times to identify a broad range of problems which occur both naturally as well as made by man, and which exist in our surroundings. Whenever there is an underground stream of running water below 200 to 350 ft (70 to 120 meters), an electromagnetic field is generated due to its friction in the direction opposing its flow. This can create very strong unhealthy vibrations which alter the soil properties over that region. However, in civil engineering properties of soil is an important component; change in Geotechnical and Geochemical properties of the soil affects the stability of the structure. However in the present paper a comparative study of geo-chemical properties of soil over GS and non-GS at fifteen locations in the Deccan Trap flood basalt area in Pune region, Maharashtra, India. Result shows that chemical properties of soil over GS get changes as compared to non-GS locations.

Keywords: Geopathic Stress, geochemical, Soil properties

Monitoring of Physicochemical Parameters and Heavy Metals in Water of Jonk River, Kasdol Area, Baloda Bazar District Chhattisgarh, India

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Abstract: The Jonk River is an inter mitten river in Chhattisgarh and Orissa. The present work aims to assess the physicochemical parameter and heavy metals contamination in Jonk River, near Kasdol area of Baloda Bazar District, 21.6569°N and 82.1592°E using heavy metal pollution index during monsoon season, winter season and summer season period in year 2018-2019. The monitoring area was selected three sample site. They are Rajandevri, Golajhar and Chandan. The monitor also river water quality in according to world health organization. The result indicates that the overall water quality in Jonk River is severely not much contaminated with respect to heavy metals concentration and could pose a likely threat to flora and fauna. The result outcome of overall season some little changes during the various season periods, respectively.

Keywords: Jonk River, Water quality, Pollution index, Physicochemical parameters, Heavy metals.

Trible Use of Medicinal Plants Found in Jashpur District of Chhattisgarh

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Abstract: The Ayurvedic medicine has been used since time immemorial human consumption of various types of herbs from the forests in the Daily life should also be consumed by traditionally used. Hundreds of species of medicinal plants are available in Jashpur district, here the tribal's making the use of medicines received from forests for primary treatment. Fruits of medicinal plant are also used as flowering, stems and roots as medicines, as well as alcoholic addiction are being done by the Juice obtained from the fruit and bark of the tree plants due to being the district tribal multiplicity area, the people residing in the caste like urban, gond, oraon and the hill korawa are working to construct timber and various medicinal plants from the forests. They have made a means of earning their income by selling them in the markets. Pathalgaon tehsil of Jashpur district in which some medicinal plans available according to the statement of vaidyaraj local people have been used as medicine, it has also been found that we do not feel the need of the doctor it the general health is bad we also get the first treatment of people in our family and the surrounding areas, are coming from. In general some diseases are treated by vaidyaraj such as fever, bone pain, swelling, cancer, sugar, blood prasure, stomach problem, to improve diseases like stomachache diarrhea; and the tribal hare are mostly using medicines obtained from forest. The plants provides us food, Oil, Latex, clothing and different types of medicines.

Keywords: Medicinal Plants

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Waste Management in Chemistry Laboratory

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Abstract: The management of chemical waste streams is everyone's responsibility. The co-operation of all students, staff and maintenance section of the educational community is essential to ensure that all chemical waste is disposed of in the proper manner. Waste minimization strategies are crucial to reducing the volume and toxicity of chemical waste that are being disposed from the chemistry laboratory. The benefits from regular waste minimization practices include reducing potential health hazards, decreasing pollution, decreasing costs for various parties, and reducing potential long-term liabilities for disposal. In present paper some methods are describe to minimize the waste generated inside the chemistry laboratory. These methods are simple, effective in reducing chemical waste at the laboratory. Waste generators are strongly encouraged to actively explore and incorporate waste minimization strategies as a vital role in research and teaching operations.

Keywords: Chemical Waste, Minimization of Waste, Disposal, Waste management, Hazardous. Waste Generation

Quiescent NTFP Tamarind Yet Impending Its Optimal Industrial Consumption in Bastar

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Abstract: The present paper has been presented on the basis of the authors' involvement in the field of NTFP of Chhattisgarh from last two decades. This paper reveals that amid all the NTFPs tamarind contributes the highest income of approximately 35 - 40 % to the tribal people. It has been found from secondary sources that the total Tamarind production in India is about 30 Lakh Quintals which is almost 75% of total world production. The total estimated production of tamarind in the state of Chhattisgarh as per the data obtained from the CG Mandi Board and the Chhattisgarh Minor Forest Produce Marketing Federation (CGMFPFed) is approximately 4 Lakh Quintals per year. But according to the traders' estimate the total tamarind production in Chhattisgarh ranges between 5 to 8 Lakh Quintals and varies from year to year as the production is dependent on the weather conditions. In Bastar district t tamarind is traded through different Channels. Despite having such huge resources the rural tribal get very little margin out of this trade. The retailers (Kochia) and commission agents are the highest profit making channels. These tribal people are in need of lot of support in terms of their skill enhancement related to value addition, processing, packaging and grading of not only tamarind but also some other valuable NTFPs available in their vicinity. They also need support from government for its price fixation as they get very low price of tamarind from the middlemen. The lack of finance facilities, improper transport, insufficient storage and followed by high level of operational exploitation by traders often depresses the gatherers interest for tamarind marketing. Moreover if some processing units can be established in the region then it can be a reward for them to obtain better remuneration and it will also generate employment opportunities. Thus levelheaded intercession in this regard is need of time which will ultimately lead to augment the household income and further to improve the quality of living of the people.

Keywords: NTFP, Tamarind

Physico-Chemical Analysis of Municipal Solid Waste and Its Application in Agriculture

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Abstract: Composting is a biological process in which microorganism, mainly fungi and bacteria, convert biodegradable organic waste into humus like substance. This degraded product, which looks like soil, is high in N, P, K and is an excellent medium for growing plant. The studies of the characterization of these municipal solid waste are taken in the form of six samples from different depth, The chemical parameters determined are N, P, K and trace element like Ca, Mg, Zn, Fe, Cu, Mn, Physical properties pH, Electrical conductivity and salinity. Obtained values are compared with standard values. We may use these soil as organic fertilizer instead of chemical fertilizers and is better specially when used for vegetables. It increases the soil's ability to hold water and makes the soil suitable for cultivation. It helped the soil retain more of the plant nutrients.

National Conference on Recent Trends in Chemistry and Environmental Issues in Chhattisgarh, 19th- 20th September, 2019 www.ijsr.net 14 of 17 Licensed Under Creative Commons Attribution CC BY Keywords: Municipal solid waste, trace element, nutrients, chemical composition.

Parametric Study to Attain Maximum Power Density in Reverse Electrodialysis by Two Commercial Available Membranes: Selemiontm & Snow Pure

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Abstract: The demand for energy is the topmost concern among the world, thus we need a technology which can generate energy by salinity gradient difference and should be eco-friendly too. Reverse electrodialysis (RED) is a potential technology from which energy can be generated by mixing sea and river water which are present abundantly. In RED ion exchange membranes (IEMs) are the key component through which ion can be transported through one compartment to another compartment. Herein, our study reported the comparison of performance between two commercial available membranes viz Snow Pure and Selemion which are widely used for RED. Further, salinity difference between two solutions separated by IEMs is the driving force for the movement of ion. Thus to achieve maximum performance of membranes towards RED system we characterized NaCl based RED system with various parameters including concentration difference, flow rate, and the membrane types. The highest power density was achieved with the Selemion membrane which were 0.67 W/m² while the Snow Pure showed 0.34W/m² at a flow rate of 100 mLmin⁻¹ of the feed solution. Thus, Selemion membrane can be considered as a potential candidate for power generation if it is operated at 1.8/0.01 M concentration for (Hc/Lc) compartment at a flow rate of 100 mLmin⁻¹.

Keywords: Reverse electrodialysis, power density, Ion exchange membrane.

Environment Protection: Judiciary Intervention

Dr. Krushna Chandra Dalai*

"Law, it is without name, or Colour, or hands, or feet, which is smallest of the least, and Largest of the large, all and knowing all things, which hears without ears, sees without eyes, moves without feet, and seizes without hands"quoted by... -Emerson.

Abstract: The mother earth is crying for various reasons and environment is also injured due to natural as well manmade disaster and incidents happened rampantly over this rem. We all know that the public interest litigation has marched forward by leaps and bounds and has done great public service by protecting our environment, safeguarding human rights, promoting the administration justice, checking arbitrary action of the executive in different fields affecting general public, monitoring investigation of cases involving persons occupying high public offence against the environment. The constitutional courts also have been entertaining public interest petition in exercise of their writ jurisdiction is exercised. The courts have prescribed self imposed restriction and laid down guidelines to discipline it every manner. The rules framed by the High courts and by the Supreme Court contain provisions regarding filing of writ petition by individual litigants for their own cause. But nothing has been laid down as to the filing of PIL. The ecological imbalances and degradation of environment has an adverse effect to our future generation. As nuclear weapon and Acid rain is cause of concern as well endanger in this universe. The environmental degradation is a social problem. The state can't adhere to the growing awareness and the impact of this problem on and over the society. The law and judiciary take its own course for remedy dealt with this problem as the situation demands with regard to the present context. Promotion and Protection of environment is the need of this hour. The grand alarm and endanger is global warming and scarcity of drinking water inside the earth is a hue and cry over this universe. The man is starving for space water to meet cater needs and thrust of the society. The author tried his best to explore the rule of law and protection of environment with the intervention on judicial activism.

Keywords: Environment Protection

Olive Ridley - A Call For Environmental Stress And Ecological Challenge

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Abstract: Once the paradise of hundreds of thousands of Olive Ridley sea turtles for mass nesting or arribada, Gahirimatha, the Marine Sanctuary in the eastern coastal Odisha, India - has now turned into their graveyard. Decades of migratory habits of these turtles have received a genetic shock- so strong and so large in magnitude that they failed to appear in expected numbers this season in their largest rookery of the world. These turtles that migrate thousands of miles to nest during winter season are injured by illegal mechanised boat propellers and are slaughtered in the fishing nets. Illegal trawling and gill netting has caused high devastation to their populations. While traditional fishing methods pose little problem to the turtles, large mechanised fishing vessels dragging trawl nets behind them trap and drown tens of thousands of turtles as they congregate offshore to rejoice the new found life- to feed and to mate. Large scale development projects – such as the construction of a mega port called Dhamma, and offshore drilling for natural gas – National Conference on Recent Trends in Chemistry and Environmental Issues in Chhattisgarh, 19th- 20th September, 2019

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situated in the turtle's congregation areas and migration paths are creating increasing pressure for the sea turtles of Orissa. Other than this Oil spill from ships, encroachment of seashore, natural calamities such as storms, hurricanes and abnormal environmental conditions such as temperature-rise, ghost nets, animal predators, invaders, poachers, sea-wastes like plastic, industrial waste, human debris and artificial lighting pose potential threat to their existence. A staggering total of 130, 000 dead turtles have been washed ashore in the past decade in Odisha, almost all of them breeding adults. Belinda Wright, Executive Director, Wildlife Protection Society of India (WPSI) and a noted wildlife conservationist, was right, as she observed this as a tragedy of irreversible implication. She said that no species can survive such high mortality of it's breeding population. This paper seeks to interpret the causal factors that stand responsible for the increasing number of death of these sea turtles. It puts light upon the correlation between the conservation of the Olive Ridley Turtles and management of ecological balance of the world. It also aims to chart the noble attempts of local N.G.O.s to find out a way to conserve this harmless, wonderful marine creature.

Keywords: Olive Ridley Sea Turtle, Carapace, Arribada, Rookery, By-Catch, Conservation, Endangered, Ghost Nets, Ecological Balance

Utilization of Waste Recycled Aggregates in Construction

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Abstract: This paper highlights the results of various projects in Raipur city wherein detailed estimates of material quantities are carried out and scope of utilization of waste recycled aggregates from construction and demolition waste concrete rubbles is justified. Drawings of residential buildings were studied and estimate of material quantities is evaluated which suggests the scope of generation and utilization of waste recycled aggregates in fresh concrete. This research paper recommends the recycling of waste concrete rubbles and effective utilization of those in fresh concrete.

Keywords: Recycling, Waste recycled aggregates, rubbles, concrete.

Textile Industry Production & Its Effects on Environment

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Abstract: Textile industry is considered to play a major role in the economic development of any country but on the other hand, it is considered to be a major source of degrading our environment. Textile industry is said to be one of the polluted industry which adversely affects our mother Earth. Along with the technological developments in recent years, developments in the textile sector as well as in many sectors have played a major role in the increase of environmental problems. The main environmental impact in the textile industry is caused by the discharge of high amounts of chemical loads into the receiving environment. Other important elements are high chemical and water use, energy consumption, air pollution, solid waste and odor formation. Environmental issues related to textile and garment sector; it starts with drugs that are used in the cultivation of natural fibers and the emissions in the production of synthetic fibers. Due to high impact of global warming and conserving our environment along with public awareness about Eco friendly fashion, nowadays many companies and organizations focus on the environmentally friendly way of production. In order to create a sustainable textile, the main change factors have been linked to eco-materials so less and harmless waste, reusing/recycling, lesser usage of energy, water and chemicals and ethical issues in production processes. This article emphasizes the environmental effects of textiles in detail and contributes to cleaner production and sustainability in the textile industry by initiating a discussion on the opportunities for change in textile processes in accordance with the laws.

Keywords: Environment, Textitle Industry

A Novel Synthetic Approach and Physiochemical Studies of Chitosan Derivatives and Optimization of Reaction Conditions

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Abstract: The present paper deals with the systematic study of synthesis and characterization of Carboxymenthyl Chitosan (CMCS). CMCS has been synthesized by Carboxymethylation of Chitosan by using monochloroacetic acid by adopting chemical modification method. The degree of acetylation and degree of Substitution has been determined by conductometric titration method. The CMCS

National Conference on Recent Trends in Chemistry and Environmental Issues in Chhattisgarh, 19th- 20th September, 2019

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synthesized were characterized by various analytical techniques such as FTIR, NMR, XRD, Thermal (TGA/DTA/DSC) and Scanning electron microscopy.

Keywords: Chitosan Derivatives

Impact of Noise Polluion on Animals

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Abstract: Anthropogenic noise is an significant factor of environment. The resource managers, people and policy makers. Here we review a substantial literature detailing the impacts of noise on wildlife and provide a conceptual framework for future research. We discussed how several likely impacts of noise exposure have yet to be rigorously studied and outline how behavioral responses to noise are linked to the nature of the noise stimulus. Chronic and frequent noise interferes with animals' abilities to detect important sounds, where as intermittent and unpredictable noise is often perceived as a threat. Importantly, these effects can lead to fitness costs, either directly or indirectly. Future research work may be focused on understanding the behavioral and physiological responses of animals to pollutant. This will provide a better understanding of the mechanisms that govern wildlife responses to noise and help in identifying practical noise limits to inform policy and regulation.

Keywords: Anthropogenic noise, wildlife, behavioral response

