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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the last five years

Link to the uploaded papers, the first page/full paper on the institutional website

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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the last five years

Sl. No.	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (Doi) number		
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1	Mycotoxins Food: Their occurrence, impact on health and Economy and control measures- A review artical	**Kity Maurya and Dr. Aneeta Sen**	**CHEMISTRY& Economics**	Ijfance International Journal of Food and Nutritional Sciences	**2022**	2320-7876	Link101	Link1	UGC Care Listed
2	Recent Advances in Methods for Synthesis of Carbon Nanotubes and Carbon Nanocomposite and their Emerging Applications: A Descriptive Review	Dr. Satish Piplode	CHEMISTRY	*Journal of Nanomaterials*	**2022**	1687-4110	Link103	Link3	UGC Care Listed

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3	Environmental and human health implications of metal(loid)s: Source identification, contamination, toxicity, and sustainable clean-up technologies	Dr. Satish Piplode	CHEMISTRY	Frontiers in environmental Science	**2022**	2296-665X	Link104	Link4	UGC Care Listed
4	Unemployment Analysis during and after COVID-19	**Dr. Ravi Kumar Vishwakarma**	Mathematical	Ymer Journal	**2022**	0044-0477	Link105	Link5	UGC Care Listed
5	**Poly(lactic acid-co-glycolic acid) as sustained drug delivery vehicle for melanoma therapy**	**Sunil Kumar**	**ZOOLOGY**	**Materials Today Communications**	**2022**	**2352-4928**	Link106	Link6	UGC Care Listed
	Publication Year - 2021								
	NIL								
	Publication Year - 2020								
6	**An efficient mathematical model for solving one-dimensional cutting stock problem using sustainable trim**	**Dr. Ravi Kumar Vishwakarma**	**MATHAMETICS**	**Advances in Industrial and Manufacturing Engineering**	2020	**2666-9129**	Link109	Link9	UGC Care Listed
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7	BiOCl nano pellets preparation and their white/solar light mediated photocatalytic activities evaluation on carbamate preticide oxamyl and sythetic dye azure B	Dr. Satish Piplode	CHEMISTRY	Biotechnological Communication	2019	2321-4007	Link111	Link11	UGC Care Listed
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UGC CARE Listed (Group -I) Journal

Research Paper

Mycotoxins in Food: Their occurrence, impact on health and Economy and control measures – A review article

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Abstract –
Mycotoxins are naturally occurring toxins produced by certain moulds (fungi) and can be found in food. The moulds grow on a variety of different crops and foodstuffs including cereals, nuts, spices, dried fruits, apples and coffee beans, often under warm and humid conditions. Mycotoxins can cause a variety of adverse health effects and pose a serious health threat to both humans and livestock. The adverse health effects of mycotoxins range from acute poisoning to long-term effects such as immune deficiency and cancer. The economic impacts of mycotoxins to human society can be thought of in two ways: (i) the direct market costs associated with lost trade or reduced revenues due to contaminated food or feed, and (ii) the human health losses from adverse effects associated with mycotoxin consumption. This article is an effort to highlight different features of Mycotoxins and their economic impacts so that bad impacts of Mycotoxins can be minimised.
Key Words- Mycotoxins, Economy, Health impact, Moulds, cereals.

Introduction-
Mycotoxins are toxic compounds that are naturally produced by certain types of moulds (fungi). Moulds that can produce mycotoxins grow on numerous foodstuffs such as cereals, dried fruits, nuts and spices. Mould growth can occur either before harvest or after harvest, during storage, on/in the food itself often under warm, damp and humid conditions. Most mycotoxins are chemically stable and survive food processing.
Several hundred different mycotoxins have been identified, but the most commonly observed mycotoxins that present a concern to human health and livestock include aflatoxins, ochratoxin A, patulin, fumonisins, zearalenone and nivalenol/deoxynivalenol. Mycotoxins appear in the food chain as a result of mould infection of crops both before and after harvest. Exposure to mycotoxins can happen either directly by eating infected food or indirectly from animals that are fed contaminated feed, in particular from milk.

Occurrence of Mycotoxins – Mycotoxins are found in various crops, cereals, millets, various plant processed products like coffee, groundnuts etc. There are three types of toxicogenic field fungi: plant pathogens such as *Fusarium graminearum* (deoxynivalenol, nivalenol); fungi that grow on senescent or stressed plants, such as *Fusarium moniliforme* (fumonisin) and sometimes *Aspergillus flavus* (aflatoxin); and fungi that initially colonize the plant before harvest and predispose the commodity to mycotoxin contamination after harvest, such as *Penicillium verrucosum* (ochratoxin) and *A. flavus* (aflatoxin).

- **Cereals and Millets** - Cereal grains and their processed food products are frequently contaminated with mycotoxins. Among many, five major mycotoxins of aflatoxins, ochratoxins, fumonisins, deoxynivalenol, and zearalenone are of significant public health concern as they can cause adverse effects in humans. Being airborne or soilborne, the cosmopolitan nature of mycotoxigenic fungi contribute to the worldwide occurrence of mycotoxins. On the basis of the global occurrence data reported during the past 10 years, the incidences and maximum levels in raw cereal grains were 55% and 1642 µg/kg for aflatoxins, 29% and 1164 µg/kg for ochratoxin A, 61% and 71,121 µg/kg for fumonisins, 58% and 41,157 µg/kg, for deoxynivalenol, and 46% and 3049 µg/kg for zearalenone. The

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Review Article

Recent Advances in Methods for Synthesis of Carbon Nanotubes and Carbon Nanocomposite and their Emerging Applications: A Descriptive Review

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Nanomaterials have gained huge applications ever since their discoveries, especially in the field of electronics, medicine, research, and environmental cleanup. Nanomaterials have a high surface area-to-volume ratio along with high surface energies making them suitable for such wide applications. Carbon nanotubes (CNTs) and carbon nanocomposite (CNC) materials are remarkable nanomaterials that have become the backbone of most industries these days. Both materials have gained huge attention in the last decade by the scientific community. CNTs come in two variants, i.e., single-walled CNTs (SW-CNTS) and multiwalled CNTs (MW-CNTs). Due to their wider applications, CNT synthesis is currently emerging with the advancement in technology. Currently, CNTs are being synthesized by chemical as well as physical approaches. The current review article focuses on the vital research and application for the synthesis of CNTs depending on the quality of the nanotube materials. Controlled routes to their organization and assembly are also discussed in detail over here. The aim is to provide recent advances in the synthesis methods, of CNTs, their current applications, future applications, and the potential of agrowaste and industrial waste for the synthesis of CNTs and nanomaterials.

1. Introduction

With the advances in nanotechnology and nanosciences, a drastic change is observed in the field of material sciences. Being small in size and having a high surface area-to-volume ratio (SVR), nanoparticles have gained huge attention in the field of electronics, medicine, and environmental cleanup [1, 2]. Among all the nanoparticles, carbon-based nanoparticles like graphene and carbon nanotubes are most widely exploited for industrial applications. Currently, CNTs have overpowered all carbon and metallic-based nanoparticles due to their unique and remarkable properties like high mechanical

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Environmental and human health implications of metal(loid)s: Source identification, contamination, toxicity, and sustainable clean-up technologies

Pankaj Kumar[1,2]*, Amel Gacem[3], Mohammad Tauheed Ahmad[4], Virendra Kumar Yadav[5]*, Snigdha Singh[6], Krishna Kumar Yadav[7], Mohammad Mottahir Alam[8], Vinars Dawane[9], Satish Piplode[10], Parul Maurya[6], Yongtae Ahn[11], Byong-Hun Jeon[11]* and Marina M.S. Cabral-Pinto[12]

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Environmental pollution is becoming more prevalent in both human life and the ecosystem. The increased use of fossil fuels, mining, and the burning of wastes, as well as industrial wastewater discharge, are polluting natural resources such as water, soil, and air. Metals (loid)s (Cu, Cr, Cd, Zn, Ni, Pb, Hg, Sb, Sn, and As) contribute to several ecological problems when exposed to humans and the environment resulting in serious health and environmental risks. The pollution of aquatic and terrestrial sites with these elements is an issue of environmental as well as public health significance. The present review highlights environmental problems instigated by the toxic metal (loid)s, their source, and respective health/environmental concern along with the importance of creating low-cost, environmentally acceptable clean-up technologies for treating household and industrial wastewater. Various physical, chemical, biological, and/or biochemical as well as their various combinations have been described from the sustainable technological point of view. Techniques such as ion exchange, membrane filtration, photocatalysis, bioremediation, phytoremediation, economical biosorbents, and nanomaterials have been discussed in detail along with respective recent case studies to gain a significant inside towards the solution of the environmental problems focused and action-oriented sustainable

Unemployment Analysis during and after COVID-19

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Abstract

In this paper, we focus the unemployability in India and various parts of the country with their earning resources. The main of the paper is to review and analysis the situation at the time of covid-19 and after pandemic specially the stream down impact, inequality and unemployment, joblessness among the young generation, wages and earnings of young generation workers and labor force participation rate (%) by age and location. Then, the comparison of some states with India overall unemployability with special reference Madhya Pradesh is proposed and states the challenges of unemployment situation in India.

Keywords: *Joblessness, Unwarranted work, Work-family boundary, Disparity, Youth redundancy, Unemployment interventions.*

1. Introduction

The Centre for Monitoring Indian Economy (CMIE) said that the Pandemic crisis prompted a spike in the nation's joblessness rate to 27.11% for the week finished May 3, up from the under 7% level before the beginning of the pandemic in mid-March. The Mumbai-based research organization said the pace of joblessness was the most noteworthy in the metropolitan territories, which establish the greatest number of the red zones due to the COVID cases, at 29.22%, as against 26.69% for the rustic regions. Experts have been cautioning about the apparition of joblessness since the time the nation was put under lockdown. Scenes of travellers escaping metropolitan focuses including Delhi and Mumbai just affirmed the since quite a while ago held worries on their work as the financial action went to a grinding stop. The administration has so far reported salary and food backing to the weak individuals as a major aspect of a ₹1.70 lakh crore monetary boost to the monetary, budgetary and perhaps helpful emergency, and is additionally reflecting on a second round of measures soon. A harming sway on an economy as extensive as India's caused because of a complete lockdown was inescapable. Joblessness went up to 24 percent on May 17, 2020. This was perhaps a consequence of a reduction popular just as the interruption of the workforce looked by organizations. Moreover, this caused a GVA loss of in excess of nine percent for the Indian economy that month.

This Research work speaks on the cumulative vision of a gathering of researchers in professional brain science who have looked to build up an examination plan

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Poly(lactic acid-co-glycolic acid) as sustained drug delivery vehicle for melanoma therapy

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ABSTRACT

The suitability of poly(lactic acid-co-glycolic acid) (PLGA) as sustained drug delivery vehicle for melanoma treatment has been revealed through paclitaxel (PTX) encapsulated PLGA nanoparticles (NPs) and PLGA film. The efficacy of PLGA-PTX formulations in different forms has been compared using both *in vitro* and *in vivo* melanoma model. Drug release from both the delivery systems has been compared using *in vitro* drug release assay and eventual chemotherapeutic effects indicate greater impact of NPs as compared to film due to higher surface area and better encapsulation efficiency. *In vitro* application of PLGA-PTX NPs and film led to significantly reduced melanoma cell proliferation. These results are successfully extrapolated in mice melanoma model causing considerable reduction in melanoma tumor volume and expression of melanoma inhibitory activity protein as compared to pure drug and control group. The greatest advantage of the sustained drug delivery systems is visualized in the form of least damage to vital organs such as liver, kidney and spleen as confirmed through histopathological examination. Liver and kidney function tests using blood serum also indicate least side effects in the groups treated with PTX encapsulated PLGA film and NPs as compared to pure PTX. The present study demonstrates the significance of PLGA as sustained drug delivery vehicle and its application in melanoma tumor treatment.

1. Introduction

Polymeric film and NPs are considered among the efficient drug delivery systems. Poly (lactic acid-*co*-glycolic acid) (PLGA) has been used as a potential biomaterial in a wide range of biomedical applications. PLGA films and NPs have tremendous application as drug delivery vehicles and encapsulation of drugs to these carriers ensure adequate concentration of drug over a prolonged period through sustained drug release [1–3]. The major reason of widespread application of PLGA is attributed to its biocompatibility, biodegradability and approval of various agencies for clinical use [4,5]. PLGA is soluble in a variety of solvents and can be given any shape and size as per biomedical needs. Due to low hydrophilicity, PLGA absorbs less amount of water and ensures slower degradation which provides an added advantage in sustained drug delivery applications [6]. The PLA and PGA ratio along with molecular weight of PLGA directly affects the degree of crystallinity and melting point of the polymer. Higher glycolic acid content in PLGA is known to facilitate the faster degradation [7]. Additionally, nature of drug is also a crucial factor in determination of degradation and release rate from PLGA matrices [8]. Potential encapsulation of wide range of drugs in PLGA offers several biomedical and therapeutic applications. For example, drug embedded PLGA nanocarriers overcome the shortcomings of pure drug by increasing the drug bioavailability, tolerability and therapeutic index [9]. Precisely, drug loaded PLGA prolongs the systemic circulation time of drug and thereby increases the therapeutic efficacy with minimum side effects [10]. Furthermore, PTX is a potent anti-cancer drug as evidenced by beneficial pharmacological effects in a wide range of solid tumor types such as breast, ovarian and prostate cancer [11,12]. Paclitaxel encapsulated PLGA film and NPs have tremendous application in cancer therapy and prevention including melanoma treatment [3,13,14].

Conventional treatment methods of melanoma include surgery, cryotherapy, chemotherapy, photodynamic therapy and immunotherapy [15,16]. Unfortunately, clinical responses to most of these therapeutic approaches are very poor and melanoma treatment remains a challenge in cancer research [17]. Conjugation of potential anti-cancer

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An efficient mathematical model for solving one-dimensional cutting stock problem using sustainable trim

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ABSTRACT

The cutting process is an important stage of the industries which are dealing with cutting of small pieces from large items in such a way so that the wastage should be minimum. In this study, we present an effective model for solving one-dimensional cutting stock problem (1D-CSP) using sustainable trim based on Cesàro means of order λ (λ is real > -1), with the provision of cutting at most two order lengths at a time, which is acceptable in many practical cases. Additionally, we present the comparison of the model with Residual Greedy Rounding (RGR) and CUT. It is shown that increased sustainable trim decreases the total trim loss by providing greater variety of stock lengths, which can be effectively used in future orders.

1. Introduction

The Cutting Stock Problem (CSP) occur in many industries like transmission towers, paper, readymade garments, metal, textile etc. (Gradisar et al., 1997, 1999; Shahin and Salem, 2004; Lu and Huang, 2015). Several types of these problems have been tackled by economists, computer scientists and mathematicians, who considered minimization of wastage, cost, space, time and consumption of stock or maximization of profit, total production etc. (Gradisar et al., 1997, 2002; Poldi and Arenales, 2009; Cherri et al., 2009; Lu and Huang, 2015; Powar et al., 2017). Initially, the cutting stock problem was identified as a research problem by Kantarovich (1960). Later, many researchers (Gilmore and Gomory, 1961, 1963; Dyckhoff, 1990; Gau and Wascher, 1995; Haessler, 1992; Scheithauera, 1991; Gradisar et al., 1997; Cui et al., 2015a, b) entered into this field and tried to resolve this problem of optimization on several industrial processes.

Typology plays an important role for categorizing the problems and understanding the extensive literature. Therefore, Wäscher et al. (2007) proposed an improved Dyckhoff's typology (Dyckhoff, 1990). The difference between the cutting stock problems and bin packing problems is only in the variability of input (Cintra et al., 2007). The solution of these problems are either exact or heuristic. The exact methods are mostly effective for problems of small scale. Therefore, the majority of authors propose heuristic or combined methods.

The One Dimensional Cutting Stock Problem (1D – CSP) can be of two types standard and general (Gradisar et al., 2002). The 1D-CSP is said to be General if all stock lengths are different and if stock lengths are of the same length or a few groups of stock lengths are of standard lengths, then we get Standard 1D-CSP. For standard 1D – CSP, Gau and Wascher (1995) designed a problem generator CUTGEN1 which allows comparison of different solution methods. Poldi and Arenales (2009) presented some heuristic methods in case of limited quantities of available stock lengths for standard 1D - CSP. Scheithauer (1991) investigated the handling of residual stock lengths which can be used in further cutting process and solved the continuous relaxation problem by column generation procedure (Vanderbeck, 1999). The cutting stock problem is solved by using relaxed linear programming problem. Then, there is difference between the optimal objective function of original problem and its relaxed problem (Rietz and Dempe, 2008). This difference is called gap. The size of this gap has been considered to formulate the principles for construction of instances of the one-dimensional cutting stock problem with large gaps by Rietz and Dempe (2008). Valério de Carvalho, (2002) have been derived the relations between the corresponding LP relaxations and their relative strength and developed branching scheme in the exact solution of these problems by using branch-and-price.

After completion of cutting process, the residue of stock length, if it is large enough, to be used in future cutting process is called useable leftover (Poldi and Arenales, 2009), otherwise is a waste (Cherri et al., 2009). Linear programming and sequential heuristic procedure were

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BiOCl Nano Pellets Preparation and their White/Solar Light Mediated Photocatalytic Activities Evaluation on Carbamate Pesticide Oxamyl and Synthetic Dye Azure B

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ABSTRACT

A quick, reliable, simple and one-pot sonochemical method has been discussed for the synthesis of BiOCl nanomaterial by using Bismuth Nitrate as a precursor along with HCl, Ammonia and L – lysine in water medium at 298.15 K under the designed and developed open glass double-walled beaker reactor. The nanomaterial was further characterized by using PSA, DLS, FTIR, BET, FT-RAMAN, Photoluminescence spectroscopy, HRXRD and HRFESEM. As a result, highly pure and well crystalline BiOCl nano pallets were obtained. HR-XRD results revealed their sizes between 40-50 nm followed by PSA, DLS and HRFESEM analysis. The prepared nanomaterial was tested for its photocatalytic activities under the designed and developed reactor on a carbamate pesticide Oxamyl and a synthetic dye Azure B under the white light lamp and solar light. Prepared BiOCl nanomaterial showed the impressive photocatalytic activity against pesticide under solar light only and able to degrade selected dye under both lights. Present results concludes a potential future utilization of BiOCl nanomaterial as great environmental remediation technology for various hazardous as well as persistent compounds removal.

KEY WORDS: BiOCl NANOMATERIAL, SYNTHESIS, CHARACTERIZATION, OXAMYL PESTICIDE, AZURE B DYE AND PHOTOCATALYSIS.

INTRODUCTION

The Bismuth oxychloride has been extensively studied as an impressive material and a promising technology in the field of oxide-based semiconductors and heterogeneous catalytic degradation of various organic contaminants as well as environmental remediation purposes (Chen et al., 2010; Guerrero et al., 2014; Gao et al., 2018; Yang et al., 2018). BiOCl class of nanomaterials are very efficient photocatalytic semiconductor catalysts (Zhao et al., 2014) because of specific layered structures (Zhang et al., 2006), various 1 & 2-dimensional arrangements (Yang et al., 2019) and nanonetwork assemblies (Guo et al., 2018) viz. nanoflakes (Li et al., 2011), nanoflowers (Cheng et al., 2012), nanofibers (Zhang et al., 2016), nanowires (Wu et al., 2016), nanobelts (Wang et al., 2017), nanosheets (Shi et al., 2018) and several other self-similar micro (Mendez-Alvarado et al., 2020) - mesosphere structures (Guo et al., 2012; Xie et al., 2015; Ji et al.,

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