Proceedings
(ICAISET - 19)

INTERNATIONAL CONFERENCE
ON
ADVANCED INNOVATION IN SCIENCE, ENGINEERING & TECHNOLOGY

(8TH & 9TH NOVEMBER 2019)

TECHOWN
RESEARCH & PUBLICATION

SREE AYYAPPA COLLEGE, ERAMALLIKKARA
(Govt. Aided College Affiliated to the University of Kerala)
Accredited by NAAC with B Grade

International Conference on Advanced Innovation in Science, Engineering & Technology
(ICAISET - 19)

8th November to 9th November, 2019

Organized by
Sree Ayyappa College, Eramallikkara
& TECHOWN

SREE AYYAPPA COLLEGE ERAMALLIKKARA,
Chengannur, Alappuzha District, Kerala – 689109, India.

Dr. K.T. JALEEL
Minister for Higher Education
Minority Welfare, Hajj & Waqf

GOVT. OF KERALA

Thiruvananthapuram

Date : 05-11-2019

MESSAGE

It gives me immense pleasure to know that Sree Ayyappa College, Eramallikkara is hosting an International conference on Advanced Innovation in Science, Engineering and Technology on 8TH and 9TH November 2019. I am sure that this conference will provide a platform for all delegates with thought provoking discussions, debates and will inspire them to endeavour towards advanced innovations and achievements in future.

My best wishes for the success of the ICAISET-19

With loving regards

Dr. K.T. JALEEL

Prof. C. RAVEENDRANATH

MINISTER FOR GENERAL EDUCATION

GOVERNMENT OF KERALA

MESSAGE

I am very happy to learn that Sree Ayyappa College and TECHOWN host an international conference on Advanced Innovation in Science, Engineering & Technology

I hope that the conference will provide ample opportunity to students, teachers and young scientists to present innovative ideas for fruitful discussion and also to get familiar with modern trends in the field of science and technology

I wish all success to the endeavour.

C. RAVEENDRANATH

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Prof. V.P. MAHADEVAN PILLAI
Vice Chancellor

Tuesday, November 5, 2019

M E S S A G E

I am pleased to know that Sree Ayyappa College, Eramallikkara is organizing two day International conference on 'Advanced Innovation in Science, Engineering and Technology (ICAISET-2019)' on 8th and 9th November 2019. I wish that this conference will bring eminent professors, research scholars, academicians and students to interact and share scientific temper and ideas effectively.

The subthemes selected for this conference will profoundly provide an opportunity for all the researchers of multidisciplinary field.

I hope that the contents in the proceedings will help to disseminate and extrapolate of knowledge in the fields of science, engineering and technology.

I congratulate the management, principal, staff and students of the institution and I wish all the success for the conference.

PROF. V.P. MAHADEVAN PILLAI

Dr. K S Anil Kumar
Principal, Sree Ayyappa College, Eramallikkara

I am immensely happy and proud as Sree Ayyappa College, Eramallikkara is hosting an International conference on 'Advanced Innovation in Science, Engineering and Technology'(ICAISET-2019) on 8TH and 9TH November 2019.As an educational institution, Sree Ayyappa College has also opened a platform for many such discussions in the past 25 years. The proceedings of this ICAISET-2019, documented with atmost care is aimed to bring together the different ideologies and recent trends in research under one roof. I believe that the various sessionsin theconference on different domains, keynote addresses from the eminent professors and the opportunity to network with researchers across states will immensely benefit in their research career.

I thank the organisers who worked hard with the online publications of this proceedings. I also thanks all the well wishers, volunteers, staffs, students, scholars who were with us. It is with your constant support and encouragement we reached thus far.

With great pleasure I welcome all the participants and convey my regards for ICAISET-2019.

Dr. K S Anil Kumar
Principal, Sree Ayyappa College, Eramallikkara

SREE AYYAPPA COLLEGE
INTERNATIONAL CONFERENCE ON ADVANCED INNOVATION IN SCIENCE, ENGINEERING AND TECHNOLOGY (ICAISET-2019)
8th and 9th November 2019
PROGRAMME SCHEDULE

08-11-2019 (Friday)	INAUGURATION	Venue: College Auditorium SACE
09.30 AM	Prayer	College choir
09.35 AM	Welcome address	Prof K.C Prakash (IQAC Coordinator)
09.40 AM	Briefing about ICAISET	Dr. Rejiya C.S (Organising Convenor, ICAISET)
09.45AM	Presidential Address	Dr. K S Anil Kumar (PRINCIPAL, SACE)

LIGHITING THE LAMP

10.00 AM	Inaugural Address	Dr. Johan bin Mohamad Sharif, Faculty in Computer Science, University Technology, Malaysia
10.10 AM	Keynote Address	Prof. (Dr). Annie Abraham, Hon.Director of Research and Prof, Department of Biochemistry University of Kerala

10.25 AM
 	
10.30AM
	Felicitation	1. Dr.Gireeshan M G
		   Scientist, Research & Patent Consultation
		
		2. Shri. Prem Suganth V.T
		   Associate Director, Voonik Technologies Pvt Ltd
		
		3. Shri. Ashok Kumar
		   CEO TECHOWN – Research and Publications

10.35 AM	Vote of Thanks	Dr. Suresh.S, (Organising Co-convenor, ICAISET)

PAPER PRESENTATIONS		
11.00 AM	Paper presentations	Venue I MAIN HALL Venue II SEMINAR HALL 1 Venue III SEMINAR HALL 2
01.00 PM	Lunch Break	Dining Hall
02.00 PM	Paper Presentations	Venue I,II and III
CLOSING CEREMONY		**Venue: College Auditorium SACE**
04.30 PM	Certificate Distribution/Best Paper /Best Presentation Award	
04.45 PM	Ceremony concludes & **NATIONAL ANTHEM**	

INDEX

A Novel Approach for the Synthesis of Nanocellulose from Taro Stem Powder and Evaluation of its Antibacterial Activity

[1] Jumna Yoonus, [2] R. Resmi, [3] B. Beena

[1] [2] [3] Nanoscience Research Laboratory, Department of Chemistry, K.S.M.D.B. College, Sasthamcotta, Kollam, Kerala, India.

Abstract: Cellulose is abundant in nature, biodegradable, relatively cheap, and is a promising nanoscale reinforcement material for polymers. The potential areas of application of nanocellulose include reinforcing agents in nanocomposites, paper, biodegradable films, stabilizing agents in dispersions for technical films and membranes, texturing agents in cosmetics and medical devices such as wound dressings and bioactive implants. The present work focussed on the synthesis of nanocellulose from taro stem powder using alkaline and acidic hydrolysis followed by sonication method. The precipitate obtained was collected and dried. It was then characterized using X-ray Diffraction (XRD), Fourier Transform infrared (FTIR) spectroscopy and Scanning Electron Microscopy (SEM). XRD and SEM studies confirmed the formation of nanocellulose in the form of fibre with particle size of 27.86 nm. In FTIR, the broad band at 3440 cm^{-1} and absorption peak at 2919 cm^{-1} confirmed the presence of O-H and C-H stretching vibrations in cellulose molecule. FTIR results also confirmed the absence of non-cellulosic materials (i.e., hemicellulose and lignin) by the disappearance of the peak around 1700 cm^{-1}. The synthesized nanocellulose was screened in vitro for its antibacterial activity against E. coli and Pseudomonas aeroginosa (gram negative bacterias) and Staphylococcus aureus and Streptococcus mutans (gram positive bacterias) by agar well diffusion method. Among the different bacterial pathogens used, nanocellulose exhibited highest antibacterial activity for Pseudomonas aeroginosa (24mm) while the lowest activity was observed for E. coli (11mm).Thus the prepared nanocellulose could be a promising antibacterial agent that could be utilized in environmental preservation as well as in food processing and medical treatments.

Keywords: Nanocellulose, Taro stem powder, Antibacterial activity.

A Novel Collaborative PKI Framework in Public Cloud

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[2] Registrar, Bharathidasan University,Tiruchirappalli, India.

Abstract: Public Key Infrastructure (PKI) is a repository and management system for digital certificates. It can be the centralized or decentralized PKI system for issuing, managing, storing, verifying and distributing the key pairs, public key and private key, or one of the public key certificates. In public cloud, Data Owners and Data Users can upload or download their encrypted data along with services, resources and infrastructures in the hands of Cloud Service Provider. It creates the big security concerns in terms of data security and data privacy for the user and Cloud Service Provider is the sole responsibility to provide the Access Control Policy to restrict the cloud services centrally. With the emergence of cloud computing, Public Key Infrastructure (PKI) technology enables the secure communications in between systems. X.509 certificates are based on the centralized PKI and suffers so many issues in the public cloud. GnuPG certificates are based on the decentralized PKI system. Imagine a world with decentralized PKI system in which each Kerberos is also a Central Authority for issuing certificates to the systems or users. This proposed collaborative PKI framework describes the use of decentralized PKI in public cloud and provides acquisition of Public Key certificates from the client via Kerberized Central Authorities.

A Survey of Approaches to break-in Biometric Information Using Social Engineering

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Abstract: Social Engineering is a way of targeting and exploiting human weakness to elicit and gain access to needed sensitive data. SE attacks are very common now a days. Sensitive and private information are taken away from the users even without their knowledge which even includes biometric information. Organizations tries to make their employees aware of possible SE attacks as well as they take preventive mechanisms against it. It is found that biometric data are more difficult to steal than passwords. Hence, biometric technologies are used over passwords in most of the areas where information requires high security. This paper is an eye opener to the fact that biometric information are also prone to SE attacks. The major biometric technologies such as fingerprint identification, iris scan, hand geometry, face recognition, keystroke dynamics, signature recognition and voice recognition are susceptible to prime SE attacks like phishing, watering hole, baiting, persuasion, pretexting, quid pro quo, tailgating, vishing and even physical attacks. This paper seeks to locate prevalent SE attacks which divulges into and steals the irrevocable biometric data. Updated technologies, giving proper awareness, education and training to employees, implementing multifactor authentication technologies, liveness detection mechanisms, challenge-response etc. may help to reduce SE menace and damages.

Keywords: Information Security, Social Engineering, Cyber Attack, Biometric Technologies, SE attacks, Cyber Security, Defense Mechanism, Hacking Techniques.

Effect of Bisphenol S on Intermediary and Mitochondrial Metabolism on a Freshwater Fish, Oreochromis Mossambicus

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[1] [2] [3] Department of Zoology, University College, Thiruvananthapuram.

Abstract: Bisphenols (BPs) constitute a large family of chemicals that are present in a broad range of consumer products and in food stuffs. Bisphenol A (BPA) is the most prevalent bisphenol analogue in environment. As a result of stringent regulations on the production and usage of BPA, several bisphenol analogues have been introduced as a replacement in various applications. Bisphenol S is an industrial chemical that has been used recently to replace the potentially toxic BPA.The present study aimed to evaluate the effect of sub lethal concentration of BPS on enzymes involved in mitochondrial metabolism such as Mitochondrial Malate dehydrogenase(MDH), Nicotinamide adenine dinucleotide (NADH) dehydrogenase, Succinate dehydrogenase(SDH) and Cytochrome C Oxidase(CCO) responses in Oreochromis mossambicus. Changes occurred in the activities of mitochondrial enzymes which may affect the energy production and thereby Krebs cycle. It was also used to analyze the changes in the activity of enzymes involved in intermediary pathway such as Glucose 6 phosphatase(G6Pase),cytosolic Malic enzyme(cME),Isocitrate dehydrogenase(ICDH) and Lactate dehydrogenase(LDH).Significant variation($P<0.05$) occurred in the activities of intermediary enzymes which may disrupt its metabolic pathways. Therefore the current study point out that BPS at environment relevant concentration impairs the activity of intermediary and mitochondrial metabolic enzymes and thereby affects the TCA cycle and electron transport system.

KeyWords: Bisphenol S, Oreochromis mosambicus, Krebs cycle

Optimized Thresholding Technique for Segmentation of Nodules in Chest Radiographs

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[2] Department of Electronics, School of Technology and Applied Sciences, MG University Research Centre, Edappally, Kochi, Kerala.

Abstract: Patients with lung cancer often die within one year after the onset of clinical symptoms. Lung Nodules are usually diagnosed at an advanced stage and are not detected early. Screening and early detection play an important role in saving a patient's life. Chest radiography and computerized tomography scans are the most used diagnosis techniques for detecting tumour in lungs as it requires less radiation dose and is available in most of the diagnostic centers and costs less compared to other diagnosis techniques. Nodule detection by using conventional radiographs is still not much effective, so there arises a need for alternative image processing techniques to improve the efficiency of detection. Image segmentation has been considered as the first step in the image processing. An efficient segmentation result would make it easier for further analysis of the image. Most of the segmentation algorithms are implemented using thresholding techniques. There exits many multi thresholding algorithms and approaches. In this paper, an optimized and modified k-means algorithm is proposed for a single threshold value to segment the chest images.

Keywords: chest radiographs, segmentation, thresholding, Otsu's method, k-means.

Evaluation of Phytochemical Constituents and in Vitro Biological Efficacy of Bark Extracts of Tabernaemontana Alternifolia L

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Abstract: Plants are the important source of therapeutic drugs and play a vital role in the treatment of many diseases.The phytochemicals present in these plants contribute these properties to those plants. These are non- nutritive, naturally occurring chemical compounds,which possess various pharmacological activities. Considering the vast potentiality of thesebio active compounds, the present study was aimed for the improvement of medicinal uses of T.alternifolia.In this study qualitative and quantitative phytochemical analysis was done in order to identify the presence of bio active compounds and after that in vitro anti-diabetic,anti-oxidant, anti-inflammatory and anti-microbial activities of the bark extracts(Chloroform, alcohol and Ethylacetate)) of T.alternifolia were investigated. The phytochemical study of theextracts revealed that the chloroform extract contains carboxylic acid, saponins,steroids and phytosterols.Alcohol extract contains alkaloids, coumarins, flavonoids, steroids,tannins,glycosides,carotenoids,proteins and aminoacids. Carboxylic acid,steroids,tannins,glycosides and sugar were present in ethyl acetate extract. .The results of alpha amylase inhibitory activity and glucose uptake by yeast cells showed that chloroform,ethyl acetate and alcohol extracts of bark possess anti-diabetic activity. Among these, ethyl acetate extract showed highest activity.Results of various anti- oxidant assays revealed that bark contain ascorbic acid and tocopherol content and it possess DPPH scavenging activity,total anti- oxidant capacity reducing power and peroxidase activity.Anti- inflammatory studies indicated that inhibition of heat induced and hypotonicity induced haemolysis activity is higher in ethyl acetate extract .The results of antimicrobial activities revealed that ethyl acetate extract possessactivity against E.coli,Klebsiella pneumonia and Staphylococcus aureus.In the present study, the ethyl acetate extract of bark showed a high biological activities compared to other solvent extracts. Further ex-vivo and in-vivo investigations should be done for confirming various biological activity of the Plant.

Keywords: Phytochemicals, T.alternifolia, Anti-Diabetic assay,Anti-oxidant assay,Anti-Microbial assay.

Isolation and Charactarization of Uropathogens from Hospital Environments and Their Control Using Medicinal Plants

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[2] Department of Microbiology, Malankara Catholic College, Mariagiri, Kanyakumari Dist., Tamilnadu.
[3] Department of Zoology, MSM College, Kayamkulam, Kerala.

Abstract : The human urinary tract is one of the most vulnerable systems for bacterial infection. Establishment of a UTI depends upon the interaction of bacterial virulence factors with the host that is reported to frequent cause of illness in humans. The effective chemotherapy of studying UTI is possible only by using effective drug and alternative medicine like plant source and also the effective antibiotics of particular importance. UTI is an important cause of the morbidity and mortality affecting all age groups. The major organism involved in UTI is the Enterobacteriaceae family members, E. coli, Pseudomonas sp. etc. Apart from that, Gram positive organisms also encountered in UTI i.e., Staphylococcus sp. In addition, more frequent cause of antibiotics has resulted in the emergence of drug resistant pathogens. Antibiotic resistance among uropathogens constitutes a major deciding factor in the eradication of the disease. The serotypes of uropathogens possess properties that enable them to overcome host defense mechanism more easily. Herbal plants are a source of great economic value all over the world. Herbal medicine is still the main stay of about 75 -80% of the whole population and the major part of traditional therapy involves the use of plant extract and their active constituents. The herbal drugs derived from the medicinal plants are useful in the control of infectious diseases. In this study the antimicrobial activity of Cassia obtuse L., Solanum trilobatum L. Camellia sinesis L. was screened using chloroform, acetone and Distilled water. It is found that the all the uropathogens are inhibited by the tested herbal extracts. The maximum inhibition zone was given by Solanum trilobatum aqueous extracts against Streptococcus sp (23mm), followed by the acetone extracts against Pseudomonas sp (20 mm). Likewise, the acetone extracts of herbal plant Cassia obtusa L. also given the maximum zone of inhibition against Klebsiella sp. (20 mm). It should be noted that the tea plant, Camellia sinesis was active against all the uropathogens tested. Further the phytochemical study reveals that the choloroform extracts of Cassia obtuse L. revealed the presence of Phenols, Flavonoids, Proteins and free aminoacid, tannins, Xanthoproteins, Sugars. The chloroform extracts of Solanum trilobatum revealed the presence of Alkaloides, Flavonoids, Proteins and free aminoacids and resins. The cholororoform extracts of Camellia sinesis revealed the presence of Alkaloides, Flavonoids, Proteins and free aminoacids, quinines and resins. From this study, it is evident that the studied medicinal plants is having immense variety of phytochemicals and it is highly warranted to do further research to purity and screen the pharmacological profiles of this plant.

Key words: Antimicrobial activity, Cassia obtuse L., Camellia sinesis L., Drug resistant uropathogenes, Solanum trilobatum L.

Hydroponic Farming Ecosystem using IOT

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[3] [4] [5] M. Tech Student, Department of ECE, TKM College of Engineering, Kollam, Kerala, India.

Abstract: Hydroponics is an interesting new format that useslessareathanothers.Althoughhhydroponicsusesless space than conventional planting, it can provide many products for the farmer. In hydroponic farming, it is difficult to plant and manage if you aren't a professional farmer or don't have good knowledge aboutfarming.Forsomeitcanbe very hard to do hydroponicfarming. Thispaperwillproposea Hydroponic Farming Ecosystem (HFE) that uses IoT devices to monitor humidity, nutrient solution temperature, air temperature and pH. The HFE is made to support non-professional farmers, city people who have limited knowledge in farming and people who are interested indoing vertical planting in very small areas in the city such as building roof, balcony of high-rise buildings, and in small office spaces. To make the system easy to control and easy to use, we have an android application to control IoT devices in the HFE and alert users when their farm is in an abnormal situation.

Antihypertensive Potential of Coconut Neera (Cocos Nucifera, L.) on Selected Hypertensive Adults

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Abstract: The present study was conducted among 100 adult women in Convent Square, Alappuzha with and without hypertension (Stage I hypertension) of age 30-60 years.200 samples were screened for the study based on The Joint National Committee (JNC-8) categories.The plant sample chosen for the study was Coconut Neera (CN) collected from KarappuramNeera plant, Ayyappancherry,Cherthala. Coconut Neera is a natural and non- alcoholic beverage obtained from Cocos nucifera., L. of West Coast Tall Variety. Group -1 Control (25),Group -2 Control + Coconut Neera (25),Group -3 Hypertensive (25),Group -4 Hypertensive + Coconut Neera (25).The Coconut Neera collected fresh from the processing plant was supplemented 100ml/ day to the subjects for 45 days on same time, and blood pressure was measured before and after supplementation. The dietary method used was food frequency questionnaire which recalled the intake of foods daily, weekly, monthly and occasionally from all food groups to find out the food intake and dietary habits. Composition of Coconut Neera viz: sugars, protein, vitamin C, polyphenols, sodium, potassium, calcium, magnesiumwas analyzed. Sensory evaluation of Coconut Neera Viz.: appearance,colour,taste,feel,over all acceptability was evaluated. Systolic blood pressure, diastolic blood pressure, height, weight, BMI, serum total cholesterol, glucose tolerance, SGPT, SGOT, sodium, potassium, calcium, and magnesium were estimated. Then life style factors of normotensives was compared to hypertensives. Supplementation of 100 ml Coconut Neera of West Coast Tall variety (Cocos nucifera,L.) was found to be effective in controlling systolic blood pressure from 149±3mmHg to 126±3 mmHg. The diastolic blood pressure was reduced from 96 ±3mmHg to 81±2mmHg. 200 ml /day coconut neerasupplementation was found to produce hypotensive effect and 100ml/day was standardized for supplementation by pilot study. Coconut Neera was found to exert antihypertensive effects.

Key Words: Coconut Neera, Hypertension, Composition, Standardization,Organoleptic, Biochemical, Life style.

Design and Functional Characterization of Peptide Ligands Targeting Various Regions of CCR5

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[1] [2] Department of Pathogen Biology, Rajiv Gandhi Centre for Biotechnology, Trivandrum, Kerala

Abstract: HIV-1 suppressive activity of endogenous chemokines such as RANTES, MIP-1α, MIP-1β, SDF-1 provided the basis for the development of HIV-1 entry based inhibitors (therapies). However the potential adverse effects due to the high degree of redundancy exhibited by the chemokine system remains as a concern associated with its clinical development. Howeverby employing the concept of minimal N-terminal modifications and chemical synthesis, synthetic chemokine variants with high receptor affinity and selectivity can be generated. For the generation of peptides targeting CCR5, MCP-3 was selected as the template. The 15 residues from the N- terminal region was subjected for further designing. The designed peptides were then evaluated for their binding ability via bioinformatics tools, Rosetta FlexPepab-initi and Auto dock 4.2 with the receptor CCR5 (PDB ID: 4MBS). Initial docking of the peptides into the binding site of CCR5 was performed using Autodock 4.1.and FlexPepDock. The best peptide models were further subjected to molecular dynamics simulations using Gromacs 4.5.5 in a membrane mimicking environment and were chemically synthesized with the help of polymer support, purified by RP-HPLC using C-18 column and characterized by MALDI-TOF-MS. The binding and functional evaluation of these novel peptides was done in vitro.The secondary structure of the peptides was evaluated by CD spectroscopy. Using the above mentioned protocol small peptide ligands targeting the membrane proximal region of CCR5 (22KINKVQIAARLLPPLYS38) were also designed and chemically synthesized. In vitro receptor binding studies of both chemokine variants and short peptide ligands exhibited significantly better interaction. In vitrofunctional analysis of the chemokine variants and small peptide ligands revealed their antagonistic nature.

Topic- Biodegradation Analysis of Polythene By Bacteriafrom Plastic Contaminated Soil

[1]Aiswarya A. Kumar, [2] Dr. Mini M George, [3] Dr. A Jayakumaran Nair

[1] MSc.Biochemistry, Department of Biochemistry, AJ College of Science and Technology,Thiruvananthapuram.
[2] [3] Department of Biotechnology, University Campus, Kariavattom, Thiruvananthapuram.

Abstract: Polythene plays an important role in packaging of goods, food material, medicine and garbage bags etc. but its degradation becoming a great threat and vital cause of environmental pollution. There are various polythene degradation methods available but the safe, eco-friendly and acceptable method by using microbes known as Biodegradation. The present study deals with the isolation, identification, screening and degradation of polythene by bacteria obtained from soil. A total of 10 bacteria were recovered from different plastic waste accumulated areas. Further Screening of polythene degrading microorganism was done by the adherence of microorganisms on the exposed surface of polythene strips in Minimal agar plates after incubation. Out of 10 bacteria only 2 isolates showed the positive results-S1 (Bacillus cereus), and S2 (Pseudomonas sp) which showed better polythene degradation ability determined by % weight loss method, S1(18.2%) and S2(20.14%) over a period of 30 days of incubation in minimal broth containing polythene as the source of carbon.The smooth surface of the polythene sheets became eroded and with small cavites as a result of the biodegradation MSP medium inoculated S1 (Bacillus cereus), and S2 (Pseudomonas sp), observed by FESEM. Hence this method can be used for biodegradation and serve as a promising tool for the elimination of polythene from the environment.This requires understanding of the interactions between materials and microorganisms and the biochemical changes involved. Studies on the biodegradation of plastics have been carried out in order to overcome the environmental problems associated with synthetic plastic waste.

Keywords: Biodegradation,Environmental pollution, Polythene.

One-Pot Facile Synthesis of Graphene Oxide Using Agricultural Sugarcane Bagasse Oxidation Under Muffle Atmosphere And Evaluation of its Antimicrobial Activity

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[1] [2] D.B. Pampa College, Parumala, Pathanamthitta,PIN; 689626.

Abstract: A simple, rapid and green method has been designed and developed to catalytically convert agricultural waste into a useful product graphene oxide. In comparison with the Hummers, the use of toxic and highly flammable chemicals in the production of pre expanded graphite makes the proposed method more environmental friendly as no toxic gases will be emitted from the reaction. Antibacterial activity of GO shows, excellent bactericidal potential against both gram positive and gram negative bacterial strains. The simple and low-cost manufacturing process and the wide availability of GO could lead to cost-effective graphene-based gas sensors and other opportunities for graphene. Synthesis of Graphene Oxide in a simple one-step synthesis without any surfactants or template. Utility of such Graphene Oxide and its Antimicrobial activity will be the precise objective of this work.

Physiological and Molecular Responses of Sugarcane to Water Deficit Stress

Elma Susan Reji

Department of Biotechnology, Division of Crop Improvement ICAR-Sugarcane Breeding Institute, Coimbatore – 641007.

ABSTRACT: Climate change is the greatest threat to humanity, perhaps ever. Global temperatures are rising at an unprecedented rate, causing drought and forest fires and impacting human health. Current research and technological advances in agricultural field substantiates effective drought control strategies to conserve our organics. Sugarcane (Saccharum officinarum L.) is an important industrial crop for sugar and bioenergy production worldwide. Water deficit stress has been one of the major issues influencing its agricultural production and economic impacts in many regions of the world. The present study was conducted to examine the effects of drought stress and recovery at formative phase of sugarcane. The pot culture experiment carried out in the Department of Plant Biotechnology, Sugarcane Breeding Institute, Coimbatore, with two sugarcane genotype Co 06022 (Tolerant) and Co 8021 (susceptible) was exposed to water deficit stress (day/night) and maintained in environment chamber. The total chlorophyll content was found to be reduced due to the drought stress in both varieties. However, the tolerant genotype Co 06022 maintained better chlorophyll concentration compared to susceptible genotype of 8021. The tolerant genotype Co 06022 maintained better chlorophyll stability index, higher SPAD value compared to susceptible genotype of 8021. Chlorophyll fluorescence was found to be reduced due to the heat stress in both varieties. However, the tolerant genotype Co 06022 maintained better chlorophyll fluorescence (Fv/Fm ratio) compared to susceptible genotype of Co 8021. The tolerant genotype Co 06022 maintained higher relative water content (RWC) and less membrane injury index compared to susceptible genotype of Co 8021. The drought stress generally reduces the RWC and increases membrane injury in both sugarcane genotypes. Gene expression analysis of 12 genes (encoding Dehydrin, DREB, Calmodulin, SNAC, TPS, ERD4, ABRE, WRKY, Zinc finger proteins) using semi-quantitative RT-PCR indicated important differences in the expression profiles of the two genotypes and showed their enhanced expression in the genotype Co 06022. The increased expression levels of genes coding for WRKY, TPS and Zinc Finger Proteins in Co 06022 were validated using Real-Time PCR. The tolerant genotype Co 06022 was with better stability in drought stresses in the above mentioned parameters indicating their high drought tolerance behavior.

Keywords: Sugarcane varieties, water deficit stress, gene expression.

Biosynthesis of Zno Nanoparticles And Its Antibacteriial Activity Against Gram Positive and Gram Negative Bacteria

[1] R.Resmi, [2] Jumna Yoonus, [3] B.Beena

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Abstract: Zinc oxide is one of the most important inorganic metal oxidesand exhibits tremendous anti-bacterial activity .Themain goal of undertaking the current investigation was todetermine theantibacterial activity of biosynthesized Zinc oxide nanoparticles (ZnO NPs).ZnOwas synthesized by mixing $ZnSO_4 .7H_2O$ andNilgirianthusciliatus leaf extract.This plant is selected because it is a traditional plant having high medicinalvalue used for the treatment of many diseases. The obtained zinc oxide nanoparticles were characterized by XRD, FTIR , UV –Vis ,SEM , TEM and PL analysis .Significant bacterial activity was manifested by ZnO nanoparticles against both gram positive (S .aures and S .mutans) and gram negative (E .Coli and P.aeuriginosa) bacteria and it has dose dependent activity. The zone of inhibition(ZOI) of four bacterial species such asS .aures , S .mutans ,E .Coli and P.aeuriginosa are 14 mm,13mm,15 mm,17mm respectively .Thus green method of synthesis of ZnO NPs are very easy ,fast, cost –effective ,non-toxic,pollution –free ,eco-friendly and biologically active.

Keywords: Green Synthesis,ZnO NPs , Nilgirianthusciliatus ,antibacterial activity .

Detection of Breast Cancer in mammograms using Adaptive Approach

[1] Sreedevi S, [2] Terry Jacob Mathew

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Abstract: Breast cancer is one of the most deadly diseases of today and one of the leading causes of mortality among woman around the world. The early detection of breast cancer is important to reduce mortality, because early treatment interventions are more likely to increase the survival rate of patients. Among the large number of imaging modalities available today, high quality mammography is considered as the most cost-effective and sensitive method for detecting breast cancers at an early stage.This paper proposes an automated diagnosis of mammogram images by categorizing benign, malignant or normal after segmenting the suspected region. The proposed method concentrates on the algorithmic development of automated noise removal, contrast enhancement, pectoral muscle removal, segmentation of Region of Interest (ROI)of micro-calcification clusters, feature extraction, feature selection and classification of mammograms. For denoising the mammogram images, detectionand filtering mechanismsare used.Contrast Limited Adaptive Histogram Equalization (CLAHE) is applied to enhance the contrast intensity of the image, and for removing pectoral muscles, modified tracking algorithm is employed. For segmenting ROI that contains micro-calcification clusters in mammograms, hierarchical fuzzy c-means clustering, incorporating a feature vector containing 14 statistical and textural features, extracted from pre-processed imageare used. Adaptive h-dome transformation with threshold is used to segment the micro-calcification clusters from the segmented ROI. Fourteen textural and statistical features are further extracted from the segmented microcalcification clusters using Gray Level Co-occurrence Matrix (GLCM) for 00 angle and 3 pixel distances.A total of 7 features are finally utilized from the 14 extracted features using Naïve Baye's and Support Vector Machine (SVM) classifier. A hierarchical fuzzy c-means clustering algorithm performs the segmentation using the extracted feature vector and micro-calcification clusters are identified using adaptive h-dome transformation.The final classification performed using Naïve Baye's and SVM classifier resulted in an accuracy of 94.89% and 87.35% respectively. The proposed method also benefited in dimensionality reduction, reduced memory usage and time reduction, resulting in overall performance enhancement.

Screening of Diesel Degrading Organisms Using Redox Indicator DCPIP

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Abstract: Diesel oil, one of the major products of crude oil that can enter into environment through various reasons which can also reduce plant growth. Clean up of these contaminated areas can be achieved with bioremediation using oil degrading bacteria including Pseudomonas, Staphylococcus, Bacillus etc. The purpose of present study was to isolate,characterize and identify diesel oil degrading microorganisms. Rapid simple screening technique using redox indicator 2,6 dichlorophenol indophenols (2,6 DCIP), an enzyme catalysed oxidation electron acceptor,blue to Oxidized form, colorless to reduced form. During microbial oxidation of hydrocarbon electrons are transferred to electron acceptor DCPIP, incorporated into culture medium to as certain ability of microorganisms to utilize hydrocarbon substrate by observing colour change of DCPIP. Strains which decolourized DCPIP in quickest time were chosen as best oil degraders. We collected the samples, isolated degrading microorganisms, and then identified and characterized isolates by staining and biochemical tests. We used staining techniques like Gram staining and Endospore staining and for biochemical tests, Catalase test, Starch hydrolysis test,VP test,Simmon citrate test and estimated of diesel degrading capability of isolated bacterial species. It can be concluded that the isolated Bacillus strains from contaminated soil is good diesel degraders, were observed visually by change in color of the indicator and measure spectrophotometrically. This study can focus on more cost effective applications of native bacterial strains for diesel degradation at large scale. Our studies also proves that the biodegradation by indigenous bacterial species can be studied by simple and low cost technique using 2,6 DCPIP.

Emerging Trends in Human Resource Management And Human Resource Outsourcing (HR BPO)

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Abstract: The Human resource industry is undergoing a major innovative change from last ten years. The way of working and the technical data have collaborated to shape the human resources of an organization.The goal of this article is to establish the importance of human resource management (HRM) and how itemerged, to provide some evidence of its context, to discuss its potential and future development. Many specialistsunderlined the fact that human resource requires more attention and careful management than any other resources ofan organization.The role of the HR manager must parallel the needs of the changing organization. Successful organizations arebecoming more adaptable, resilient, quick to change directions, and customer -centered. Within this environment, theHR professional must learn how to manage effectively through planning, organizing, leading and controlling thehuman resource and be knowledgeable of emerging trends in training and employee development.Building on earlier attempts to integrate corporate responsibility and sustainability into the HRM performance construct, this article propose a multidimensional approach to sustainable HRM that encompasses activities aimed both at avoiding harmful consequences for stakeholders and contributing to positive outcomes. We discuss implications for research and develop a set of propositions and guidelines for future research.Recent advances in technology have transformed nearly every aspect of HR, right from sourcing to performance management. Some industry experts opined that technology is one factor that is impacting the HR department to a great extent.

Keywords: Human resource, Outsourcing, Big data, Social media, Corporate social responsibility.

Emergency Department Admission Prediction in Hospitals Using Machine Learning

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Abstract: Emergency Department (ED) overcrowding in hospitals seems to be a challenging factor in providing qualitative medical services for the patients. ED crowding occurs as a consequence of lack of sufficient resources, improper patient flow, lack of quality staffs and lack of inpatient beds. Data mining techniques were used earlier to avoid the bottlenecks caused by ED crowding. To enhance the performance of the ED system, machine learning techniques are used to develop prediction models to avoid ED crowding in hospitals. The prediction model predicts the possibility for the number of patients to get admitted to the ED ward each time. The model is trained and tested based on the dataset taken from the hospital administrative system. The prediction model involves predicting the disease based on the symptoms and finding the admission status for the patient. The predicted result can be used to make necessary arrangements in the ED ward in advance. The developed model can be implemented in hospitals and can be used to check if sufficient resources are available for the proper functioning of the emergency departments. The prediction model built achieves an overall accuracy of above 80%.

Keywords: Emergency Department overcrowding, Prediction model, Resource allocation.

A Study on Deterioration Varattar River in Pollution Perspective, Anthropogenic Activities and its Management

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Abstract: Varattar is a tributary of the Pamba River, the third longest river of Kerala. It flows through the outskirts of ChengannurConfluence of 3 rivers major rivers such as Pampa and Manimala and Varatar is at PathanathittaVarattar river is a victim of increased human intervention originating from the Pampa and flowing to the Manimala. A pilot study showed that the reminisce of River is highly polluted and resulted in degeneration of river and made the river water unfit for consumption bathing and other needs. In this study river water samples were collected at different sites and analyzed for physicochemical and bacteriological evaluation.Biological Parameters such as total Count coliform count MPN analysis for total coliforms, Primary and confirmatory test for the presence of E.coli ,BOD,COD,DO, TDS, Physical parameters ,Chemical parameters such as Hardness, Nitrate, Sulphate, Iron etc were analysed over a period of 18 months at three different season. More over biofilm formation on the surface of water was found to high. The observation and result of the study showed that the outskirts of the river and huge area river bed were underwent human invasion for agriculture practices and construction work. The sand bed level at the originating point of Varattar in Pampa (Adipamapa) has been so deepened by sand mining that there is no chance of water flowing into the second natural interlinking waterway. Downstream, there are several illegal encroachments and encroachers have planted coconut palms, and sugarcane apart from doing other cultivations. The water was found to have foul smell and low dissolve oxygen and high BOD level. Analysis of Biological parameters also showed high amount of total coliform and presence of E.coli . Presence of algal blooms were observed even at Adipampa where the river originates. This study showed that anthropogenic activities and human encroachment had resulted in the deterioration of this river. The study showed that the reminisce of River is highly polluted and needs further study to prevents the further degeneration of river. There was a collective effort made by the local inhabitants ,locals govt and self Goverment bodies, in association with NSS units, Dept of Microbiology and Industrial Microbiology of SreeAyyappa College who actively participated in Rejuvenation work, Management startergies made were effective which made the continuous flow of varatar After rejuvenation activity the total water quality analysis were made and it was found that there was considerable reduction in number of organisms . There was a significant reduction in Biofilm formation and algal biofilm formers in rejuvenated water.

Effects of 4-Nonylphenol on Metabolic Enzymes in a Freshwater Fish, Labeo Rohita

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Abstract: Nonylphenol ethoxylate (NPE) is one of the most dangerous chemical that are recorded in aquatic environments. 4-Nonylphenol (4-NP) is a breakdown product of NPE and attains much concern because of its persistence and toxicity to the aquatic organisms. The present study aimed to evaluate the effect of sub lethal concentrations of 4 Nonylphenol on major carp, Labeo rohita in the mitochondrial and intermediary metabolism in the hepatic tissue. Exposure to 4NP shows significant changes in the activities of mitochondrial enzymes like Nicotinamide Adenine Dinucleotide (NADH) dehydrogenase , Cytochrome C Oxidase (CCO), Malate dehydrogenase (MDH), Succinate dehydrogenase(SDH) and intermediary enzymes like Lactate dehydrogenase(LDH), Isocitrate dehydrogenase(ICDH), Glucose6 phosphatase(G6Pase) and cytosolic Malic enzyme (cME) when compared to the control (p<0.05). Therefore the current study indicates that 4-NP at environment concentration impairs the activity of intermediary and mitochondrial metabolic enzymes and thereby affects the TCA cycle and electron transport system. The alteration of these parameters can be effectively used to monitor the impact of 4 Nonylphenol in aquatic system.

Key words: 4 -Nonylphenol, TCA cycle and Electron transport system.

Expressison of P53 In Correlation With Hormone Receptor Status Of Breast Cancer

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Abstract: Current treatment scenario for breast cancer mainly focuses on surgical removal of tumor mass as a first line followed by radiation or chemotherapeutic administration to reinforce survival and abate recurrence. The new era of medicines that employs in targeted therapy against various oncogenic markers recognized in different tumors rendering treatment to be personalized to be a degree. It forms a snag in TNBC treatment due to the death in appropriate therapeutic targets. Mutations of p53 are currently an advanced research theme as they are found to be superior in prognosis and survival prediction. An alternative to the laborious sequencing technique in predicting p53 mutation paves way on to a new age in therapy. Studies are aimed in developing a new scoring method to assess the mutation status of p53 gene in accordance with its expression level as quantified from IHC result. The work correlated p53 expression with hormone receptor and HER2 status in breast cancer specimens. p53 was found to be highly expressed in TNBC when compared to non–TNBC. In addition this over expression of p53 is due to frame shift point mutation in TP53 gene.

MEDIOT - IoT Based Medical Applications

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Abstact: Improvements in IT have led to the emergence of Internet of Thing(IoT). It allows many hardware devices to capture transmit data, through the internet, providing more data interoperability methods. Now a day's IoT plays an important role not only in communication, but also in monitoring, recording, storage and display. Hence the latest trend in medical communication method using IoT is adapted. It can monitor and aggregate data necessary for medical field. My objective is to find some advancement in healthcare monitoring system based on IoT. The proposed system monitors the medical parameters and transmits the data through a wireless communication which is further transferred to a network via a Wi-Fi module. The data can be accessed anytime promoting the reception of the current status of the patient. In case any emergency recognized, the caretaker, as well as the doctors are notified immediately through a message service or an audio signaling device (buzzer),for that security is very important. Cloud computing and password protected Wi-Fi module handles authentication, privacy and security of patient details by allowing restricted access to the database. Hence the system provides quality healthcare to all. This paper is a review of medical monitoring using IoT. Due to the fast-paced ongoing development that is occurring in the IoT domain, it is important to understand some of the key terminologies and their variations that are used by engineers and the Industry. Here discuss about the Internet of Wearable things (IoWT); simply put, this is the combined use of the IoT and wearable devices. As development continues on wearables, they start to incorporate advanced features and we start to transition into the Internet of Wearable Things . It is evident that wearables significantly benefit from the IoT, and, hence, we see that they have already made it into many aspects of our lives, such as in fashion, health, and entertainment . Some well-known examples of IoWT devices in the market are computerized watches, such as the Samsung Gear and the Apple watch. They can gather information, such as a user's step count, pulse rate, kilometers travelled, and calories burnt . One distinction to consider is that these devices are lifestyle devices; however, the Health Industry is one of the most promising industries for IoT applications. In the same way as the IoWT, when wearables are used in medical applications, it creates another term and an industry called the Internet of Medical Things (IoMT). Biomedical wearables are then the devices used in the IoMT and, thus, function through the cloud to perform complex tasks.

Keywords: Biomedical Engineering, Body Sensor Networks, Intelligent Systems, Internet Of Things (Iot), Communications Standards, Security, Wearable Sensors. Wearables, Hardware, Internet Of Medical Things (Iomt), Electronic Textiles, Signal Acquisition, Edge Computing.

Strengthening of RC Beams With Different Types of FRP

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Abstract: Reinforced Concrete (RC) beam with transverse web opening is a facility that allows the services such as telephone lines, air conditioning and ventilating ducts, to pass through the structure. The introduction of an opening into a Reinforced Concrete (RC) beam leads to a reduction to both the beam stiffness and its overall structural capacity due to stress concentrations and local cracking around the opening. The region nearby the openings are measured as the weaker part of the beam. This study revealed the results of nonlinear finite element analysis conducted on reinforced cement concrete beams retrofitted with various types of Fibre Reinforced Polymer (FRP) such as Carbon Fiber Reinforced Polymer (CFRP), Glass Fiber Reinforced Polymer (GFRP) and Epoxy Glass Fiber Reinforced Polymer (E-GFRP). In this study, deflection analysis and stress analysis of the beam with various types of Fibre Reinforced Polymer (FRP) are done by using ANSYS 18.1

Keywords: CFRP, GFRP,E-GFRP, Retrofitting,ANSYS, RC Beam, Web opening.

Flexible Printed Circuit Board for Power Electronic Devices

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Abstract: Power electronics devices are capable of handling high current and voltage. Such devices are used in many applications like electric vehicles, inverters, motor drivers, heavy industrial machines, etc. Now a days the electronics devices are becoming very compact thus it saves lot of room space. But power electronic devices are usually bulky because of the limitations of their thermal management system. In this research, an attempt is made to reduce the size of the power electronic devices by changing its rigid circuit to a flexible one. The electronic components and connections (circuits) are made using an insulating board called printed circuit board(PCB). Usually PCBs are rigid because of its weight handling and high current carrying capacity. One of the main features of this rigid PCB is its capability for accommodating thermal management system such as heat-sinks. If a rigid PCB is converted to flexible, one can't attach temperature reducing heat-sinks on it. So, the intention is to avoid using these heat-sinks but introduce a new technique for reducing the temperature of the components in the flexible PCB. Here, a flexible PCB is developed which conduct heat from components to the surrounding air; that means PCB itself act as a heat sink. For creating this heat conducting flexible PCB, here employed a flexible copper sheet over which an insulating material is coated. Copper conducting tracks are made on this coated insulating layer. Its current and voltage carrying capacity and temperature handling capacity are also checked to test the efficiency of the developed PCB.

Keywords: Power electronics, thermal management systems, printed circuit board, flexible PCB.

NAVGO-Indoor Positioning System

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Abstract: Indoor localization techniques are becoming popular in order to provide a seamless indoor positioning system enhancing the traditional GPS service that is only suitable for outdoor environments.Indoor positioning and navigation services are more and more demanding nowadays and increasing research is being performed from both academia and industry, as there large variety of context-aware and location-based applications interested covering different fields such as security, healthcare and tracking. Outdoor location is widely performed via the Global Position System (GPS), but it is not suitable for indoor environments for several reasons, such as no line-of-sight, interference and noise, etc. Indoor Positioning Systems (IPSs) that use Wi-Fi signal intensity to estimate position. Other wireless technologies, such as Bluetooth Ultra-Wide Band and RFID have also been proposed. Another innovative approach uses geo-magnetism to create magnetic Fingerprints' to track position from disturbances of the Earth's magnetic field caused by structural steel elements in the building. Other alternatives for dealing with the problem of indoor location are the (combined) use of inertial sensors, exploiting the Smartphone accelerometer and gyroscope to build a reliable indoor positioning system without any infrastructure assistance. This paper will focus on the use of Wi-Fi and BLE technologies for the implementation of the indoor service.

Secure Phrase Search Over Encrypted Cloud Data

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Abstract: Cloud computing economically enables the paradigm of data outsourcing and high-quality data services. However, to protect data privacy, sensitive cloud data has to be encrypted before being outsourced to the commercial public cloud. This makes it very challenging to effectively utilize the data in the cloud. Although traditional searchable encryption techniques allow users to securely search over encrypted data through keywords, they supported only Boolean search. Secure ranked keyword search techniques utilize a one-to-many order-preserving symmetric encryption (OPSE) scheme and allows users to selectively retrieve the files of interest . This is done according to some ranked relevance criteria (e.g. keyword frequency based scores) and thus makes way for a privacy-preserving data hosting service in the cloud. To improve the search result accuracy as well as to enhance the user searching experience, it is also necessary for such a ranking system to support phrase-based searches, as a single keyword search often yields far too coarse results. This paper proposes a secure phrase-based searchable encryption system that defines and solves the problem of supporting efficient phrase based queries along with a ranked keyword search , for achieving effective utilization of remotely stored encrypted data in the cloud. Besides performing the pre-processing of search texts, this model calculates the sensitive weight information of multiple keywords and properly uses them in the existing OPSE scheme for ranking the matching files upon a search request. Thorough performance and security analysis has showed that the phrase-based searchable encryption system is secure and privacy-preserving, while providing the users with the capability of phrase-based ranked search results.

Keywords: Cloud computing, data privacy, ranking, keyword search, searchable encryption, phrase searching, security.

Enhancement of Fracture Properties of FRP Laminates With Sic Admixture

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Abstract: Thick throat inserts of rocket nozzles are made out of various ablative composite layers of different fibre orientations to cater thermo structural design. The dominant mode of failure is separation between the layers in the virgin regions that are almost in room temperature, deep inside free from thermal flux. The structural design of rocket nozzles are based on the interlaminar shear strength (ILSS) as one would expect slip between each layer due to the stiffness change at the insert end. In a multi-layered composite laminate, shear strength of the laminate is generally ten to twenty times lower than its tensile strength, which can be enhanced by suitable fiber orientations. An Alternate approach may be by improving the interlaminar shear strength properties. In the present work SiC powder of 10 microns with resin is used at different percentage by weight of the resin to achieve maximum fracture property of ILSS. For this purpose standard specimens like short beam, DCB and End notched specimens are made out of bidirectional glass fabric following vacuum bagging. Six specimen each are tested to obtained fracture parameters. A parametric study is carried by progressively varying the SiC additive in the resin system used and 1% SiC admixture (by weight) gives maximum ILSS value which is 72% higher with respect to control specimen 0% SiC. Similarly, the critical energy release rates of mode-I and mode-II for the case of 1% SiC increase by 85% and 98% respectively compared to the control specimen. Test data required for cohesive zone model is generated which is helpful for the estimation of residual strengths. Polar nature of the composite and non polar nature of the admixture has played vital role to improve the fracture properties.

Advanced Security System and Tracking Device for Automobiles using Interactive Gps System

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Abstract: Being secure is of utmost importance to most of us in this apprehensive, insecure world, especially while travelling. Unwary travelers can be easy target for thieves, especially because they may carry comparatively extra money, credit cards or valuables. We have heard quite a lot about robberies at State borders, where they target travelers from other states. Another issue faced by travelers, especially for people travelling to unknown places, is the unawareness of nearest fuel filling station, hotel or hospital, in case of an emergency. In this paper, we discuss about a vehicle tracking system that utilizes the wide possibility of Global Positioning System (GPS) & Global System for Mobile Communication (GSM) for interacting with the vehicle driver and tracking the vehicle in all emergency situations. This system- Interactive GPS (i-GPS) System also includes an anti-theft module to ensure complete security for vehicles. Thus, travelling can be made more comfortable and safe. Index Terms- Interactive GPS (i-GPS) System, Global Positioning System (GPS), Global System for Mobile Communication (GSM).

Nullor Based Design of Linear Equivalent Circuits

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Abstract: A direct approach towards the design of analog circuits is presented. The prominence is to showcase the benefits of nullor elements in analog design. Generation of linear equivalent circuits for amplifiers and filters for a given set of input & output resistances, gain and bandwidth are important concerns for analog designers. Hence, in this paper the emphasis is to introduce a guided analysis and/or design procedure for linear equivalent circuits. In a practical design scenario, after biasing is completed, the analog circuit is manually linearized at the specified regions of the operations for the active elements. This allows the designer to roughly assign linearized model parameters to the active devices. However, if the responses of this linear circuit and original non-linear circuit are compared, there may be some differences. As a solution, it is required to modify one or more device/s model parameters. This is because, they are just 'model' parameters and not the actual 'physical' ones. Thus the objective of this workis more focused, that is, to accurately linearize a nonlinear circuit for further analysis. A comparison between direct analytical approach and nullor approach is given, followed by a case study for proving the efficiency of nullor approach. The result shows that the nullor approach is better and can be extended to any other areas of analog design.

Keywords: Nullor elements, Fixator- norator pair, Linear equivalent circuis, Direct analytical method.

A Practical Proposal For Utilisation Of Water Hyacinth As A Potential Raw Material For Sustainable Construction Materials: A Review

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Abstract: The main constituent of traditional and ordinary construction material is cement. Cement production emits a huge amount of CO_2 in the atmosphere. At the same time, invasive aquatic weeds like water hyacinth (WH) are posing serious economic and environmental issues in Kerala. The plant chokes the life out of the freshwater ecosystem by preventing penetration of sunlight, required for the survival of underwater fauna. Mass fish die-off in lakes appeared several times due to drop in oxygen level caused by WH infestation. Other impacts of WH are decline in water quality, enhanced evapotranspiration, and reduced biodiversity. This paper reviews a practical proposal for utilization of WH as supplementary cementitious material for sustainable construction materials. This provides a summary of the existing knowledge about the successful use of WH in the production of panelboards, bricks and as a bio admixture in the concrete production. For panelboards, an optimum mix of 80 % WH with 20% cement shows excellent thermal insulation properties. Hence it could be used as an alternative to thermal insulation material. An optimum mix of 10% WH with soil is appropriate for brick production using WH as a partial substitute to the soil. The incorporation of 10% WH leads to 7% net saving in the consumption of fuel required for firing the bricks. In the case of concrete production, the optimum chemical admixture replacement is 20%, at which concrete shows good workability and compressive strength. The use of WH in the construction industry would contribute to a cleaner environment.

Keywords: Water Hyacinth, Evapotranspiration, panelboards, Admixture, Compressive Strength.

Structural and Luminescenceproperties of Strontium Gallate Phosphor

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Abstract: The $SrGa_4O_7$ceramic phosphor has been prepared using solid state reaction technique. The structural studies has been done using X-ray diffraction (XRD) and Fourier transform infra- red spectroscopy (FTIR) technique. XRD analysis of prepared phosphor at a calcination temperatureof 1200^0C reveals that it is a mixed phase of monoclinic structured $SrGa_4O_7$ and $SrGa_2O_4$. Using FTIR technique various vibrational modes and organic groups present in the prepared samples are identified. The optical properties of the samples were studied using UV- Visible absorption spectroscopy and Photoluminescence spectroscopy. Band gap energy determined from tauc's plot is found to be 4.25 eV.Photoluminescence (PL) and emission spectra (PLE) have been recorded. The excitation is found to be at 280 nm and emission peak is obtained at 420 nm for $SrGa_2O_4$ and 465 nm for $SrGa_4O_7$. The blue emission peaks of $SrGa_2O_4$and $SrGa_4O_7$are attributed by the self- activated Ga^{3+} present in the host lattice.

Key words: Gallium, phosphors, XRD, FTIR, UV-Visible, PL, SEM-EDX.

A Pathbreaking Approach For license Plate Identification

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Abstract: This paper proposes a solution to these problems and provide an efficient algorithm to overcome these problems.Object segmentation is the process of abstraction of object from an image or video frame. There are several techniques available to handle object segmentation from video frames. Existing methods have mainly two problems such as they do not consider the spatial parameters of an object in a frame, and it is not possible to handle complex scenes with highly dynamic background movements with existing methods. Tracking of license plate from an environment   involves several techniques available to handle object segmentation from video frames. , a system is proposed for detection of license plate that is able to correctly track occluded objects .This system includes algorithms such as foreground object segmentation, colour tracking, object specification and occlusion handling. An video is input to the system and every single frame of the video is analysed. With varying scales, a robust analysis mechanism is required to handle background regions or foreground movements. Also suggested method for object detection, identification and license plate identification from dynamic background videos. . The foreground objects are segmented with object segmentation algorithm and tracked with the colour tracking algorithm. An ID is assigned to each tracked object. Results obtained shows that the proposed system is able to continuously track an object and maintain the correct identity even after is has been occluded by another object.

IndexTerms: Background Subtraction, Object Segmentation, Robust Principal Component Analysis, Sparse Decomposition.

Overcoming Challenges of Space Walk: Reducing the Risk for an Astronaut

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Abstract: The goal of the paper is to eliminate the psychological and physiological impacts of long duration spaceflight and provide safe and affordable human access in severe effects of space. High reliability in performance, improving system supportability and reliability at reduced cost are the other features discussed. Hence, keep people healthy for long period in zero gravity. The paper includes space based psychological and physical health management and prompt medical care in a limited infrastructure to help astronauts survive in extreme environments and to effectively work in space for an extended period of time. Counter measures to reduce the severe effects of space developed which will help expand human presence in space.

Impact Of Bisphenol S On Oxidative Metabolism in a Freshwater Fish, Labeo Rohita

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Abstract: Bisphenol S (BPS) is an industrial chemical that has been used as a substitute for Bisphenol A (BPA) in making polycarbonate plastics, epoxy resins, thermal receipt papers and currency bills, since BPA has been reported to have adverse effects in living system. In this view point, it will be evident to know whether BPS has the same or rather more toxic effects like BPA or not. Limited studies were carried out on the effect of Bisphenol S on fish. The hepatic antioxidant enzymes such as Superoxide dismutase (SOD), Catalase (CAT), Glutathione-Stransferase (GST), Glutathione reductase (GR), Glutathione peroxidase (GPx) along with the nonenzymatic antioxidant Glutathione (tGSH) in a freshwater fish, Labeo rohita were selected as biomarkers. The results revealed that the sub lethal exposure of BPS significantly influenced the activities of these biomarkers. The alteration in the antioxidant enzymes activity following BPS exposure clearly showed that the fish experienced oxidative stress. The study showed that BPS is a pollutant with oxidative potential and disrupting the antioxidant enzymes.

Key words: Antioxidants, Bisphenol S, Oxidative stress.

Structural and Optical Characterisation of Manganese Doped Cadmium Sulphide Nanoparticles

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Abstract: Nanomaterials are the leading edge to the rapidly developed nanotechnology. Undoped and doped cadmium sulphide nanoparticles were prepared by using arrested precipitation method. X-ray diffraction spectra (XRD) of the sample showed the presence of cubic and hexagonal (wurtzite) structure. An average transmittance greater than 75% in UV–visible region was observed for all the samples. The band gap of the CdS nanoparticles were found to be 3.36eV. The photoluminescence (PL) emission spectra at excitation of 350 nm depicted emission peaks occur at around 410 nm and 550 nm showing the presence of manganese. The prepared samples have semiconducting behavior and can be used in dilute magnetic semiconductor applications and in various applications in LEDs.

Breast Cancer Diagnosis Using Stacking and Voting Ensemble Models With Bayesian Methods as Base Classifiers

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Abstract: Breast Cancer is a deadly disease affecting mostly women. Despite of many modern techniques Breast Cancer is still alarmingly on the rise and the diagnosis still needs to be improved for timely identification of the disease. A plethora of machine learning techniques have been used in disease diagnosis, risk, recurrence and survivability predictions in the yesteryears, Machine learning models have been used individually and as ensembles for classification and prediction in the medical field. Bayesian Methods provide better classification performance, interpretability and assist in constructing inferences in uncertain conditions. In this study the classification accuracy of single Bayesian Methods- Naive Bayes, Hidden Naive Bayes, Bayesian Belief Networks- in breast cancer diagnosis is analyzed. Bagging, Dagging and Boosting ensemble techniques are applied in conjunction with the Bayesian methods and analyzed. Two Models are proposed. A Stacking model and Stacking-Voting model. In the Stacking model the 3 Bayesian approaches in conjunction with Logistic Regression and Sequential Minimal Optimization as base classifiers and REPTree as meta classifier is used and, in Stacking and Voting - the 3 Bayesian Methods with 2- meta classifiers REPTree and Random Forest , Bayesian Network with Stochastic Gradient Descent and a 2 -meta classifier of REPTree and Decision Stump is proposed and the model performances are evaluated. It was seen that the new proposed ensembles had a better performance than the other models in most cases.

Keywords: Naive Bayes(NB), Hidden Naive Bayes(HNB), Bayesian Networks(Bayes Net), Breast Cancer, Ensembles, Logistic Regression(LR), Stochastic Gradient Descent(SGD), Reduced Error Pruning Tree(REPTree), Decision Stump.

Sbs/Pcl Based Shape Memory Polymer Nanocomposite Reinforced With Nano Diamensional Metallic Copper-Iron Oxide Filler And Its Morphological, Thermal, Mechanical And Shape Memory Properties

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Abstract: In this manuscript, we report a thermally invigorated shape memory polymer (SMP) SBS/PCL mix fortified with nano-metallic oxide filler, copper-iron oxide. Polymer nano-metal oxide composites were synthesized using simple melt mixing method and hot press. Prepared polymer nanocomposite samples were characterized and analyzed their morphological, thermal, mechanical, shape memory properties, etc. The composite micro structure was additionally studied utilizing spectroscopic techniques. It is seen that the introduction of these nano-metallic oxide fillers into the SBS/PCL mix improved the properties of the film prepared from its blend mixture essentially. During the union stage, the expansion of fillers expanded the thickness of the polymer grid. Physical, chemical, thermal, mechanical and shape memory properties were studied in detail on this polymer elastomer blend mixed with nano-metal oxide to form shape memory polymer nanocomposites (SMPNC).

Comparative Study of the Characteristics of Construction Bricks Produced With Fly Ash And Alkaline Activator as Total Replacement of Cement

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Abstract: Brick is one of the foremost extensively used construction materials for masonry purpose. Emphasizing the possibility to convey imperative effect against India's present-day lodging and industrial waste concerns are of paramount importance. This could be achieved by fabricating sustainable products using industrial wastes. Alkali-activated products are assumed to be eco-friendly and economical, leading to Portland cement-free products. This project work is an attempt to discover an eco-friendly brick for construction purposes by totally replacing the normal brick components by wastes from many industries. For the investigation purpose, we developed geopolymer bricks by utilizing fly ash as the binder, foundry sand as the fine aggregate, bentonite as an additive for improving its properties and finally the alkaline arrangement (a blend of NaOH and Na2SiO3). Fly ash combines with alkalis such as Sodium Hydroxide (NaOH) and Sodium Silicate (Na2SiO3) creating an alumino-silicate gel, that shows properties similar to that of cement and it can be used as the environment-friendly binding material. The design mix proportions of the current work are 0.54:0.44:0.04 (fly ash: foundry sand: bentonite), solutions to fly ash ratio is 0.5 and the ratio of Na2SiO3 to NaOH is 1.5. The basic characteristics of bricks such as compressive strength, water absorption capacity, density, soundness, efflorescence, and hardness were tested. It attains a compressive strength value ranging between 6-25Mpa, water absorption value in between 5-12% and also the developed bricks were light in weight. Also, the final conclusions were drawn after comparing the test results with other geopolymer bricks and clay burnt bricks. Geopolymer bricks seem to be incredibly beneficial as they will amalgamate a large quantity of industrial wastes. The utilization of waste raw materials (except for alkaline activator solution) resulted in a substantial reduction in the estimated production cost of the bricks.

Keywords: Fly ash, Foundry sand, Bentonite, Sodium Hydroxide (NaOH) and Sodium Silicate (Na2SiO3).

Hate Speech on Twitter:An Approach Based on Userlevel Relation Based Doublelayer Classification

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Abstract: The advancement of computing devices and smartphones made a drastic increase in the number of people using the various online social networks and other online forums. As the people who interacts in these social networking platforms comes from different social, educational, cultural and political backgrounds, the probability for verbal assaults due to the difference in opinion is increasing day by day. As a result the hate speech is used in various circumstances. So in such a situation an automated approach to detect hate speech and filter such contents is necessary. Rather than an conventional report and remove approach based on unigram and patterns, an active approach based on user level relation based double layer classification is necessary to perform sentiment analysis based on context of the speech.

Keywords: Hate Speech, Unigram, Machine Learning, Sentimental Analysis, Relational Classification.

Perception of College Students Towards Social Networking Sites

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Abstract: Social media effect almost everyone in the universe whether individuals, businesses, and society and also provide an equal opportunity to share thoughts, opinions, and share information. Social networking sites offer a wide variety of resources and services such as messaging, blogging, sharing photos, audios and videos, group discussion, and distribution of applications. Youngsters, especially students, are the avid users of these sites. Social networking sites enable students to get in touch with their friends, faculty members, and institutions and allow them to connect with more friends. Students can use these sites to create and share their identities and profiles that may include personal information, pictures, blog entries, videos and music clips. They can join groups and communicate with other students and faculty members by commenting on topics or by introducing topics that they hoped would encourage discussion.   The present study aims to Identify the various Social Networking Sites popular in use among college students, to analyze the perception of college students towards Social Networking Sites and to measure the differences in terms of demographic variables, to identify the reason for using Social Networking Sites and to measure the level of satisfaction from the use of Social Networking Sites.

Keywords: Social Networking Sites, Perception, Satisfaction.

Study of the Recent Technology Advancements in Photopolymerization Based Additive Manufacturing

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Abstract: Additive manufacturing technology is a rapidly growing manufacturing technique where the capability to print complex customized geometries is explored. The applications are diversified into various fields including aerospace, medical, automobiles etc. Customized end use products is another scope of additive manufacturing. Traditional layer by layer making of three dimensional objects is a slow process and lacks surface quality. The technology developments and researches are in the right pace to overcome the existing limitations. In this paper, the recent advancements in additive manufacturing using the principle of photopolymerization is reviewed. Continuous Liquid Interface Production developed by Carbon3D is used to produce three dimensional objects continuously from a pool of resin using light and oxygen in a controlled manner. Improvement in speed of the order of 100 times is achieved using this technology. Volumetric additive manufacturing using tomographic reconstruction showed simultaneous printing of all points within the required geometry by lighting a rotating volume of resin. Faster and continuous additive manufacturing using dual wavelength photoinitiation and photoinhibition volumetric polymerization produced complex geometries with print speeds of 2 m/hour approximately.

Keywords: Photopolymerization, Stereolithography, Continuous Liquid Interface Production, Additive Manufacturing, Volumetric Photopolymerization, Computed Axial Lithography.

CPW Fed Monopole Planar Antenna With Plus Shaped Slot

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Abstract: The performance analysis of a CPW fed printed monopole antenna with plus shaped slotsis presented. CPW fed plus shaped patch monopole with aplus shaped slot engraved on it is compared withrectangular patch with one ground plane of the CPW, loaded with plus shaped slot. The measured ($S11 < -10\ dB$) impedancebandwidth achieved for the first proposed antenna is from 2.16 GHz to 2.79 GHz with a gain of 2.18 dB which is useful for RFID,WLAN and WiMAX applications.The measured ($S11 < -10\ dB$) impedancebandwidth achieved for the second proposed antenna isfrom 2.42GHz to 12 GHzwhich is characterized by a peak gain of 2.32–5.5 dB and will be useful for UWB applications. There are four resonances at 2.8GHZ, 6.2GHz, 9.1GHz and 10GHz with a bandwidth of 9.6GHz.The current distributionand radiation patterns at various frequencies are plotted.

Keywords: CPW Fed, Monopole Antenna, Plus Shaped Slot.

Blockchain: Analysis and Possible Solutions of The Dangers it Carriers

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Abstract: Blockchain denotes a growing list of records, called blocks, that are linked using cryptography. Each block comprises of a cryptographic hash of the previous block, a timestamp, and transaction data. By design, a blockchain is unaffected to changes of the data.Once introduced to bring in the cryptocurrency named 'BitCoin', people soon found many applications to the concept of blockchain. The applications make use of the security level of blockchain but forget the cost of getting it. Blockchain works on complex encryption algorithms and rules which consume a lot of computational power. This indicates that its growth may be a threat to the environment in the coming future. The paper attempts to give a detailed explanation of how blockchain can be a potential danger to the environment and bring in possible solutions to the problem with minimal to none change in the security level blockchain promises. The explanation is done with the help of easy but real examples for a wider reach.

Keyword: Blockchain, Security, Power Supply, Environment Protection.

Intelligent Personal Medical Assistant for Continuous Healthcare Monitoring

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Abstract: Prevention and early detection of disease are increasingly viewed as critical to promoting wellness rather than just treating illness. Continuous health monitoring using Wireless Body Area Networks (WBAN) of Implantable and Wearable Medical Devices (IWMDs) is envisioned as a transformative approach to healthcare. The proposed device is a new perspective in personal healthcare. The aim of this paper is to develop a personal healthcare assistant that continuously checks the health conditions of an individual. This paper presents a system architecture, hardware and software organization, as well as development of a mobile application. The health status is monitored continuously, and the data is recorded for data analysis. For this work a mobile app namely J.A.I.M.A.X. was developed, which displays the current health condition of the individual. The proposed system was evaluated in several Android-based mobile devices and was found compatible to all. The expected benefits of our approach include a higher quality of care and reduced costs for health service providers.

Keywords: Wireless Body Area Networks, Implantable and Wearable Medical Devices, Android.

IOT Based   Real-Time Air Quality Monitoring System Using Raspberry Pi

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Abstract: In the recent past, air pollution rates have drastically increased in developing countries, which has accounted for a more portable and cost effective air quality monitoring system. Among all major pollutants, particulate matter is one of the most significant parameters having a critical role in the abrupt rise of air pollution in India. This accounts for the designing of a real time air quality monitoring system that measures and analyses the presence of noxious pollutants in the air. In this paper, the design and fabrication of a real-time standalone air quality monitoring system is presented, which estimates a number of parameters such as dust particles, carbon monoxide, carbon dioxide, specific humidity, temperature and air pressure. Nowadays Internet of Things which has significant use in most of the key sectors, assuming an important role in our proposed system as well. Internet of Things uniting with cloud computing offers a novel approach for better management of data coming from various sensors. This data is collected and transmitted by low power, low-cost ARM based minicomputer Raspberry pi. The developed model is tested in local environment and validated the test results. The recorded values of various parameters are displayed in IBM Bluemix Cloud. The potential benefit of the developed system is that the client can view the dashboard from anywhere in the world.

Keywords: Particulate matter, Internet of things, Cloud computing, Raspberry Pi, IBM Bluemix.

Mushrooms An Untapped Source of Novel Nutraceuticals

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Abstract: Mushrooms contain a large number of active compounds and hence are considered as a promising resource of physiologically functional food and as material for the development of medicinal and dietary supplements. For millennia mushrooms and their supplements are used for the treatment of a variety of human ailments. The number of mushrooms species on earth is estimated to be 1,40,000, suggesting that only 10 percentage are known. Assuming that the proportion of useful mushrooms among the undiscovered and unexamined mushroom will be only 5%, which implies 7000 yet undiscovered and unexamined mushrooms will be of possible benefit to mankind. The mushrooms contain a wide variety of bioactive molecules which include triterpenoids, polysaccharides, nucleotides, sterols, steroids, fatty acids, proteins/pesticides and several trace elements. Recently, medicinal mushrooms have attracted more and more attention as potential natural agents for the prevention and treatment of many diseases, such as cancer, cardiovascular diseases, diabetes mellitus and neurodegenerative diseases. Mushroom metabolites are increasingly being utilized to treat a wide variety of diseases, particularly as they can be added to the diet and used orally, without the need to go through phase-I/II/III trials as a synthetic drug, and they are considered as safe and useful for disease treatment. Most mushroom derived preparations and substances find their use not as pharmaceuticals (real medicines) but as a novel class of dietary supplements (DS) or nutraceuticals. This review summarizes current knowledge of mushroom bioactivities, including their antioxidant, anticancer, immunomodulatory, anti-inflammatory, and antimicrobial activities, which could be helpful for the full utilization of mushrooms.

Keywords: Mushrooms, functional food, bioactive, nutraceuticals, immunomodulatory.

An Effective Study on Basic Measures of Indexing in Journals

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Abstract: An indexed journal database for any discipline is needed to organize the research articles in a systematic way. It works as a simple bibliometric. An understanding of basic concepts and practices of indexed journal is a must for any author before publishing the article. In this modern era there are various publishers that the authors can approach to publish their articles, thesis, reports books etc. These publishers have several subject matter experts in various domains who review the submitted articles carefully before publishing the work of the author. Also, indexing reflects the high-quality work of the author which is calculated considering various factors and formulas.

Keywords: citation, journal, article, review, index, impact factor (IF), publish.

Study on Plant Leaf Detection Using CNN

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Abstract: As plants are main part of environment. There are variety of trees in this environment ,it is unable to recognise different kinds of plant leaf . Thus, this paper studies about plant leaf detection using CNN method. This method will help us to classify leaf, which would indirectly help us to classify different kinds of plants. Convolutional neural networks (CNN), a set of deep neural networks, which is used for recognition of plant leaf .In neural networks, Convolutional neural network mainly used for recognition of images, classifying different types of images , face recognition etc., CNN image takes image as an input , process that image and classifying it under different type of category.

Keywords:Neutral Networks, CNN, pooling, leaf classification.

Rainfall-Runoff Modelling Using Artificial Neural Network And Arc Gis -A Case Study At Karamana River Basin

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Abstract: Due to the recent flooding in Kerala, many lives were lost. This makes us think about what remedial measures can we adopt to avoid these floods. Rainfall-runoff modelling is one of such steps we can take. Here, with the factors affecting rainfall such as temperature, relative humidity, atmospheric pressure etc. rainfall for future is predicted. The future temperature, relative humidity etc. are available on the Global Climate Model (GCM) which we need to be downscale to Local Climate Model (LCM) for our study area. Rainfall is predicted by feeding these factors to the input portal of ANN of Matlab software and targeting the available up to date rainfall as the target data. We choose Karamana river basin in Thiruvananthapuram district as the study area. Because it is the source of fresh water for the entire city and has many tributaries, the predicted rainfall can be be used to find runoff for the future year. With this runoff redesign of drainages has to be done.

Keywords: Artificial Neural Network, Global Climate model, Local Climate Model, rainfall- runoff.

Policies pertaining to STEM fields in India: An Inquiry based on Text Analytics Techniques

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Abstract: The modern world is based on Science and Technology (S&T) and particularly, in the knowledge based 21st century, education and employment in Science, Technology, Engineering and Mathematics(STEM) fields have a vital role to play in India. Increasingly relevant skills for training scientists and engineers who will invent, adapt and operate modern technology, higher education in STEM is an absolute necessity. India has the largest young population but must be an owner of the largest young workforce with the highest level of knowledge skills in the world. Thus, STEM is essential to create a workforce capable of competing in the 21st century and hence producing a sufficient pool of qualified hands in STEM is a challenge for Universities and Colleges. For that she needs young people who are suitably educated and appropriately skilled for the economy. India needs to increase education attainment levels as well as the proportion of scientists and engineers in the population and in order to achieve the same, higher education and skills at the tertiary level are necessary. The present paper tries to find out the distortions in the policy on education and employment in STEM fields. This is done using Text analytics techniques of policy documents of STEM education. Text analysis uses many linguistic, statistical, and machine learning techniques. Text analytics information retrieval from unstructured data and the process of structuring the input text to derive patterns and trends and evaluating and interpreting the output data. R programming and python are used for text analytical methods in our work, and compare for them. Text analytics software solutions provide tools servers, analytic algorithm based applications, data mining and extraction tools for converting unstructured data in to meaningful data for analysis. The outputs, which are extracted entities, facts, relationships are generally stored in the relational, XML, and other data warehousing applications for analysis by other tools such as business intelligence tools or big data analytics or predictive analytics tools. The process of converting unstructuredtext data into meaningful data for analysis, to measure customer opinions, product reviews, feedback, to provide search facility, sentimental analysis and entity modeling to support fact based decision making. It also involves lexical analysis, categorization, clustering, pattern recognition, tagging, annotation, information extraction, link and association analysis, visualization and predictive analytics. There are many applications in text analytics and searches access of unstructured data. The big data analytics tries to understand and solve real- life problems. However, while a handful of studies have employed new data sources to tackle important research problem in hospitality, there has not been a systematic application of big data analytic technique in the studies related to policy documents. While analyzing the policy documents, it is found that the emphasize on S&T in the earlier ones were less found. On the other hand, the later documents are giving utmost importance to the enhancement of STEM education and through it, the country is trying to go ahead in the trajectories of economic development.

Radio Quotient Square Sum Labeling of a Graph

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Abstract: A radio quotient square sum labeling is a one to one mapping g from V (G) to N satisfying the condition d (u, v) + $\left\lceil \frac{[g(u)]^2 + [g(v)]^2}{(g(u)+g(v))} \right\rceil \geq 1 + dia$ (G)   for every u, v $\in$ V (G). The radio quotient square sum number of g, rqssn (g), is the maximum number assigned to any vertex of G. The radio quotient square sum number of G, rqssn (G) is the minimum value of rqssn (g) taken over all radio quotient square sum labeling g of G. In this paper we find the radio quotient square sum number of graphs with diameter three, Helms , LC_m, gear graph, half gear graph HG_m, Fr_m^3, $S(K_{m,n}$) and ($W_n \Theta \overline{K_2}$).

Keywords : Radio Quotient Square Sum Labeling, Radio Quotient Square Sum Number, Helms And Gear Graph.

A Novel Approach of Watermarking for Image Authentication Using Texture Synthesis

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Abstract: Steganography is a method for communicatingsecret data using appropriate multimedia carrier such as image, audio, and video files. The work proposes a novel approach for steganography using a reversible texture synthesis. The major focus is on the conversion of an image into texture image for steganography texture synthesis process. For steganography process, consider this texture image as a source image. A texture synthesis process resamples a smaller texture image, which synthesizes a new texture image with a similar local appearance and an arbitrary size. The algorithm conceals the source texture image and embeds secret messages through the process of texture synthesis. This allows us to extract the secret messages and source texture from a stego synthetic texture. This steganography approach offers three distinct advantages. First, this scheme offers the embedding capacity that is proportional to the size of the stego texture image. Second, a steganalytic algorithm is not likely to defeat our steganographic approach. Third, the reversible capability inherited from this scheme provides functionality, which allows recovery of the source texture. Then, apply a watermarking scheme, which is based on Residue Number System (RNS) which will impart a restriction on unauthorised access.

Keywords : Watermarking, Texture Image, Texture Synthesis, Data Hiding.

Organic Inorganic Hybrid Composite For Super Capacitor Application

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Abstract: Super capacitors represents a unique class of energy storage devices that exhibit high power capability, long cycle lifetime, and fast charge and discharge rates, with a range of applications from portable electronics, and memory backup systems, to hybrid electric vehicles, and industrial scale power and energy management systems. However, the energy storage density of existing super capacitors is limited, generally an order of magnitude lower than that of batteries. Improving the energy density of super capacitor devices maintaining the high power density and cycling stability remains a primary research focus in this field. NowadaysOrganic inorganic hybrid composite stands a versatile material for various applications in electr4onics and photonics. Pseudo capacitive transition-metal oxides have been studied extensively as active electrode materials for super capacitors owing to their high energy density and large charge transfer-reaction. Their pseudo capacitance is based on fast and reversible redox reactions at the electrode surface, resulting in much higher specific capacitance exceeding that of carbon-based materials using electric double layer charge storage. Conducting polymers are versatile class of materials for various opto electronic applications. Composites of these conducting polymers with the transition metal oxides will be one of the most promising candidate for super capacitors. The present work aims at developing such a composite material of polyaniline and mixed metal oxide of zinc and Nickel(MMO). The composite was prepared through the chemical oxidative polymerisation of aniline in the solution of MMO. MMO was prepared through microwave assisted sol gel route. The composite is characterized using FTIR, TGA, SEM and AAS. The applications of these composites as an electrode material for super capacitor have been investigated using cyclic voltammetry studies. From the results it is clear that the composite possesses better properties so that they can be used as an electrode material for super capacitors.

Keywords: Super capacitors, organic inorganic hybrid composites, polyaniline, mixed metal oxide.

The Mechanical Design and Fabrication of a Pneumatic Operated Deep Root Feeder And Subsurface Water Injector Towards Efficient Irrigation

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Abstract: Agriculture is the significant wellspring of nourishment for mankind, for which irrigation system assumes an indispensable job. Irrigation is the way towards providing water by counterfeit intends to farm fields. A portion of the primary sorts of irrigation techniques are surface irrigation, sprinkler irrigation and drip irrigation. Micro irrigation is one of the latest innovations for applying water and it represents a definite advancement in irrigation technology. It is the frequent application of small quantity of water directly, above or beneath the soil surface; ordinarily as discrete, persistent drops. Be that as it may, these current systems are pervious to numerous disadvantages and the major ones being evaporative loss, leaching loss and insufficient irrigation. In the vast majority of the present strategies, water doesn't reach down to the root zone which influences the efficiency and development of the yields. Micro irrigation additionally causes issues as the supply is given through pipes and ducts which when disintegrated could harm the soil. In this paper a new system is designed with the intention of injecting water to the root zone. The proposed design involves a pneumatic cylinder onto which a hollow rod and nozzle arrangement is associated, a direction control valve, compressor, pump, solenoid flow controlling valve and a flow meter. Compressed air from compressor is utilized to control the pneumatic cylinder, and utilizing this power the hollow rod is penetrated into the soil. Water is conveyed at high velocity through the nozzle to the soil. The flow meter estimates the measure of water injected by revolution of a turbine. The sensor and microprocessor shows the amount digitally on LCD unit. The flow of water to the nozzle from the pump is constrained by means of a solenoid flow control valve. As the quantified measure of water is injected, the valve is actuated by the microprocessor to cut the water supply. The fabrication of the system is done as per the design and user interface software is designed. The final design has been tested to check the efficiency of the system and from result it was clear that this framework helps in conquering the hindrances winning in the present procedures.

Keywords : Irrigation, Micro irrigation, Irrigation efficiency, Drip irrigation, Pneumatic cylinder, Nozzle, Flow meter, Solenoid flow control valve.

Multimodality Data Protection Mechanism Based on Web

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Abstract: Now a day data security is the important issues in the world. Data encryption techniques is to protect data confidentiality as it is stored on computer systems and transmitted using the internet or other computer networks. The paper proposed a data security protection mechanism based on multimodality data protection mechanism based on web. The system proposed two-level data encryption and decryption techniques. The sender sends an encrypted message to a receiver, sender requires to know identity of receiver but no need of other information such as certificate or public key. To decrypt the cipher text receiver has a private key or secrete key stored in the computer and a unique personal security device or some hardware equipment's (USB, CD). Without having these two things cipher text never decrypted. This data security mechanism improved the data security from unauthorized people. Using this technique, the data confidentiality and the security of data transition can be improved.

A Novel Method for Breast Cancer Prediction

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ABSTRACT: Nowadays, one of the main problems faced by women throughout the world is Breast Cancer. According to 2018 World Health Organization (WHO) reports, around 2.1 million women are being affected by Breast Cancer every year. Women of age group 40 and above possess high chances of malignancy as per the reports. i.e,the higher the age group, higher the chances of cancer .It can be prevented by early diagnosis. This paper proposes a web based system for the prediction of Breast Cancer using a combination of Machine Learning Algorithms. Support Vector Machine (SVM) classifier and C5.0 algorithm are used for the prediction of breast cancer. The operations are performed on clinical data set available freely on the Internet . The data set consists of both malignant and benignant values for training. Since it is a multimodality concept, higher accuracy levels are ensured with different kernel functions such as linear, non-linear, polynomial, radial basis function (RBF), etc.

Study on the Effect of Cyperus Rotundus L. on P^{53} Activation and Cell Cycle Progression on Human Lung Cancer Cells

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Abstract: Ayurveda, the science of life, deals with the holistic view of healthy living. It covers various physiology and pathology of diseases and their therapies. Since ancient times, several diseases have been treated by administration of plant extracts based on traditional medicine. Investigation of traditionally used medicinal plants is thus valuable on two levels, firstly, as a source of potential chemotherapeutic drugs, and secondly, as a measure of safety for the continued use of medicinal plants. Ethno pharmacology or using traditional medicines for treating healthcare burdens such as cancer is an area of recent research. Cyperus rotundus L. (Cyperaceae) is a plentiful species occurring throughout the plains of India, especially South India. It is well documented in ancient literature for the therapeutic uses of skin, urinary, digestive and reproductive diseases. Cyperus rotundus L. (CR) is rich in several phytochemicals such as alkaloids, flavonoids, phenols, tannins and terpenoids and is recognized for their broad spectrum of medicinal uses. A study was designed to determine the effect of Cyperus rotundus L. on cell cycle progression and p53 pathway to induce apoptosis on human lung cancer. The study was done in the isolated and purified alcoholic extract of CR by column chromatography and thin layer chromatography. The alkaloid rich fraction (ACR), with higher antioxidants was selected through antioxidant assays and was used for further studies. MTT cell viability assay has shown decrease in cell viability of Human lung cancer cells (A549) upon treatment with CR extract. The induction of apoptosis was confirmed by double staining. RT-PCR analysis of p53 gene showed an increased expression when compared with untreated control which can have a potent role in anticancer activity of the extracts. FACS Flow cytometry was employed to determine the induction of phase arrest of human lung cancer cells upon treatment with ACR extracts. The phase arrest can be attributed to the effect of compounds to interfere with cyclins and cell cycle check points. From our results, the cells in S phase are increased when compared with untreated control cells. The study suggests that Cyperus rotundus L. can be used as a p53 reactivator in cancer therapy and as a potent chemotherapeutic agent.

Keywords: Anticancer, Column Chromatography, RT-PCR, Lung cancer, Apoptosis, Cell cycle.

Effect of Oxalis Corniculata in Selenite Induced Cataractogenesis- in Vitro

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Abstract: Senile cataract or age-related cataract is the progressive opacification of eye lens and is the leading cause of visual impairment worldwide and the present study is aimed to evaluate the therapeutic efficacy of the flavonoid rich fraction of the leaf extract of the edible herb Oxalis corniculata (FOC) in ameliorating oxidative stress induced cataractogenesis in   vitro. Enucleated rat lenses were maintained in organ culture containing DMEM. Lenses in normal medium (G-I), lenses in sodium selenite (100 μM /ml) added medium (G-II), lenses in 5 μg/ml FOC supplemented medium (G-III) and lenses in sodium selenite added (100 μM /ml) and 5 μg/ml FOC supplemented medium (G-IV). Selenite was administered to medium on third day. Treatment with FOC was from second to fifth day under common culture conditions. After the treatment period morphological examination, ROS, RNS and TBARS levels were studied to evaluate the extend of lipid peroxidation and activities of SOD, catalase, GR, GPx and GSH content were determined to assess the antioxidant status of the cultured lenses. Lenses supplemented with sodium selenite showed a significant increase in the levels of ROS, RNS and TBARS compared to the normal control. The elevation produced by selenite was decreased significantly as a result of FOC administration. Selenite administration resulted in a decrease in the activities of antioxidant enzymes SOD and catalase and also the glutathione system viz. GSH, GPx and GR. Restoration of the levels of these factors were observed in FOC treated group which could be attributed to the antioxidant activities of the flavonoids present in the herb.Based on the results of this in vitro study it is concluded that supplementation of Oxalis corniculata leaf extract can offer protection against the development and progression of lens opacities by virtue of its free radical scavenging and antioxidant activities.

Keywords: Cataract, Oxidative Stress, Flavonoids, Oxalis Corniculata.

Impact of Concentrations on Structural, Electrical And Optical Properties of Zno thin Films Prepared by Spin Coating Method

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Abstract: Zinc oxide (ZnO) thin films are prepared with different solvent concentrations on an Indium Tin oxide coated glass substrate by spin coating method. The structural, electrical and optical properties were analysed. The X-ray diffraction provides the structure and orientation of the thin film crystal. The results indicates that the films were polycrystalline with hexagonal wurtzite structure. Scanning electron microscopy provides the surface morphology as homogeneous and continuous. The optical characterizations were provided by UV-Vis Spectroscopy and it indicates that as the Zinc concentration increases, the optical bandgap decreases. The transmittance in the visible range is found to be about 85%. The electrical characteristics were also calculated to get the resistivity value.

Keywords: Spin Coating, Crystal Structure. Optical Band Gap, IV Characteristics.

Validation of Goldstein-Wehner Law in Glow Discharge Argon Plasma

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Abstract: In this paper, we suggests a simple technique for validating the Goldstein–Wehner law for a stratified positive column of dc glow discharge for studying the properties of gas discharge. The appearance of bright and dark regions called "striations" in the positive column of glow discharge in a tube is a well known phenomenon which is a nonlinear one. Striations are observed in many gas discharge devices and they affect their performance. Stratification of the positive column of the dc glow discharge lowers the efficiency of a gas discharge laser. When one performs laser cutting, the presence of striations may lead to defects at the edges of the material under processing. The presence of striations is also observed in plasma display panels. Therefore, by finding the thickness of striations we can improve the efficiency of such systems. My basic aim here was to study about the striations in the positive column of dc glow discharge with argon as working gas. First photographs the discharge tube with striations at different gas pressure values and then determined the thickness of the first striation. Here I observe that as the number of striations increases, the thickness of striations decreases.

Three Dimensional Architecture of Lead Oxide Doped Polypyrrole Electrodes for High Performance Supercapacitors

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Abstract: Supercapacitor electrodes comprising of conjugated conducting polymers and metal oxides has become the focus of scientific research due to its high specific capacitance, low equivalent series resistance and high density with better cyclic stability. A 3D architecture is fabricated using polypyrrole and lead oxide as the building blocks by a facile, one pot chronoamperometry method to achieve a conductive additive free, binder free and scalable supercapacitor electrode. The superior electrochemical properties of the 3D PPy-PbO2 are due to its porous structure, high surface area and high electrical conductivity that endow rapid transportation of electrolyte ions and electrons throughout the electrode matrix. The synergistic effect between the components in a proper ratio improves the supercapacitor performance and material stability. The structure and electrochemical performance of the 3D composite are correlated. The high specific capacitance (330 Fg-1) and impressive cycling stability (>1000 cycles) estimated for PPy-PbO2 open up an opportunity to consider the 3D nanostructures as cutting edge materials for energy storage solutions.

A Review Paper on Different Cryptographic Techniques

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Abstract: Security is the most challenging aspect in the internet and network applications. Sensitive information requires secure and privacy measures. One of the most common method is cryptography. Encryption algorithm provides the necessary protection against the data intruders by converting information into an unreadable form. A number of cryptographic techniques are developed for achieving secure communication. This paper presents the performance evaluation of three selected cryptographic algorithms, which are DES, AES and RSA that are used in networking applications. Among the three we found out that AES is the appropriate one, because it has an own particular structure to encrypt and decrypt sensitive data and is applied in hardware and software all over the world. AES has the best ability to protect sensitive data from attackers and is not allowed them to break the encrypt data as compared to other proposed algorithm. It is extremely difficult to hackers to get the real data when encrypting by AES algorithm. AES has the ability to deal with three different key sizes such as AES 128, 192 and 256 bit and each of this ciphers has 128 bit block size. DES and AES produce the same level of output byte whereas RSA has a low level of output byte.

Nano Zinc Oxide Incorporated Nanocellulose Composite for the Photodegradation of Antibiotic Aueromycine Hydrochloride From Aqueous Solutions Under Visible Light Irradiation

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Abstract: Purpose of this study is to report the synthetic procedure of a photo catalyst, nanozinc oxide incorporated nanocellulose (ZnO/NC) for the effectivephoto degradation of AueromycineHydrochloride(AM), an antibiotic widely used inthe poultry. Nanozincoxide was prepared from TinosporaCordifolia plant stem extract and Nanocellulose from Sugarcanebagasse. By incorporating nano zinc oxide (ZnO) with NC, the band gap was enhanced to visible region. Thus the degradation of the AM was achieved under the visible light. Photo degradation was due to electron hole interaction. The photocatalystZnO/NC was characterized using FTIR, XRD, SEM and TEM. Various parameters such as the effect of pH, illumination time, amount of catalyst loaded and initial antibiotic concentration for the photodegradation of antibiotic AM was investigated. The optimum pH was found to be 6 and dose of the ZnO/NC was optimized as 2.5 g/L. Equilibrium was attained at 120 min and achieved a maximum degradation efficiency of 96.5%.

Keywords: Zno/Nc, Photodegradation, Aueromycine Hydrochloride, Electron Hole Interaction.

Three Dimensional Architecture of Lead Oxide Doped Polypyrrole Electrodes for High Performance Supercapacitors

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Abstract: Supercapacitor electrodes comprising of conjugated conducting polymers and metal oxides has become the focus of scientific research due to its high specific capacitance, low equivalent series resistance and high density with better cyclic stability. A 3D architecture is fabricated using polypyrrole and lead oxide as the building blocks by a facile, one pot chronoamperometry method to achieve a conductive additive free, binder free and scalable supercapacitor electrode. The superior electrochemical properties of the 3D PPy-PbO2 are due to its porous structure, high surface area and high electrical conductivity that endow rapid transportation of electrolyte ions and electrons throughout the electrode matrix. The synergistic effect between the components in a proper ratio improves the supercapacitor performance and material stability. The structure and electrochemical performance of the 3D composite are correlated. The high specific capacitance (330 Fg-1) and impressive cycling stability (>1000 cycles) estimated for PPy-PbO2 open up an opportunity to consider the 3D nanostructures as cutting edge materials for energy storage solutions.

V-Commerce to Drive the Future of E-Commerce

Dr. Nelson Babu

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Abstract: Voice commerce has an ability to change the way we do business and the way we communicate to the world. As we know voice commerce (v-commerce) is a technology that reduces the use of mouse and keyboard. It is a totally hands free experience. You can even place your order while taking a shower in the bathroom. This can be done at any time of the day. Time does not restricts the purchasing process. To make a purchase using voice technology, customers need a mobile device or a smart speaker with voice assistant.

Keywords: E business, voice commerce, voice assistantance, alexa, google home, Present E Commerce, new ways of doing business, voice assisted E Commerce, Online payment,risk of online payment, benefits of v commerce, challenges of v commerce. Voice enabled technology.

Design and Development of Dual Double Cantilever Flexure for in Situ Indentation

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Abstract: A dual double cantilever loading flexure has been developed and characterized for the insitu indentation and tribometer. The new dual double cantilever flexure is fitted with electromagnet to apply loads in the range of 10 mN to 1.5 N. The setup will be able to perform compression experiments at different contact pressures to observe the changes in molecular behavior of lubricants/coatings under compression. The new design enables the measurement of displacement and the load during indentation. The stiffness and strain of Stainless steel (SS304) dual double cantilever flexure were estimated using finite element method and were also validated experimentally . In addition modal analysis of the flexure is also carried out. The flexure shows a potential application as a loading flexure for insitu indentation and surface contact experiments.

Hepatoprotective Potential of Coconut Inflorescence Sap in Experimentally Induced Liver Toxicity

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Abstract: Coconut inflorescence sap(CIS) is a natural detoxifying healthdrink, high in nutritional value and an instant thirst quencher.It is a non alcoholic beverage with rich source of aminoacids,vitamins, antioxidants and minerals. . It is rich in carbohydrates, mostly sucrose . Its amazingly low GI is indirectly helpful in preventing many lifestyle diseases.Fresh CIS was collected by tapping the unopened spadix of Cocos nucifera.The present study was done for analysing the hepatoprotective potential of Coconut inflorescence sap in paracetamol induced liver toxicity.Six groups of Wistar albino rats weighing in the range of 150-180 g with six in each group was selected. Liver toxicity was induced by treatemet with Paracetamol. Effect of CIS and a standard drug Silymarin were also studied simultaneously. Effect of CIS on various biochemical parameters namely SGOT, SGPT, ALP, serum bilirubin, reduced glutathione, malondialdehyde(MDA), superoxide dismutase (SOD) and catalase levels were measured.The effect of CIS was confirmed by analysing the histopathology of liver.The levels of TBARS elevated in paracetamol treated group indicating acute hepatocellular damage and biliary obstruction. The rats that received CIS showed a significant decrease in all the SGOT, SGPT, ALP, total bilirubin and direct bilirubin, MDA compared to induced control group. Paracetamol intoxicated group has shown significant decrease in levels of GSH, SOD and CAT content, whereas extract treated group has shown significnt increase in the parameters compared to control groups.Acute administration of paracetmol produced produced a marked elevation of serum enzymes and bilirubin in treated groups with that of normal control. Treatment with CIS significantly reduced the elevated levels of serum enzymes.The increase in TBARS levels in liver in paracetamol treated groups suggests enhanced lipid peroxidation, leading to tissue damage and failure of antioxidant defense mechanisms.Treatment with coconut inflorescence sap significantly reversed these changes.

Keywords: Coconut Inflorescence Sap (CIS), Lipid Peroxidation, TBARS,Silymarin,Paracetamol, Liver Toxicity.

Novel Method for Facial Features Detection

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Abstract: As crime rate is increasing at an alarming rate so facial feature detection is helpful to find the facial expression of people in the scenario. Detection of facial feature points is often the first step in computer vision applications such as face identification, facial expression recognition, face tracking and lip reading etc. Facial feature points, such as the corners of the eyes, corners and outer mid points of the lips and nostrils, are generally referred to as facial salient points,which can be tracked easily, human face detection is the first step in facial feature detection, since face has a nice facial. In this paper we used Haar-like features for face detection, Shi-Tomasi's corner detection method for detecting all the trackable features within the mouth region. These algorithm is also tested against different lips pose like, smiling face, anger face, sad face and found to be detecting accurately.

Keywords: Face Detection, ROI, She-Tomasi's Corner Detection Method, Haar-Like Features, Ada-Boost Algorithm.

Facile synthesized MgO enriched $NiCo_2O_4$ Nanorods as an Electrode Material for high capacitive Asymmetric Supercapacitor

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Abstract: The MgO enriched $NiCo_2O_4$ nanorod was synthesized with the cost-effective co-precipitation method, and pursue post-heat treatment 300^oC and 600^oC. The newly synthesized $MgO/NiCo_2O_4$ nanorods were extensively investigated with physicochemical and electrochemical methods. In electrochemical performance in a three-electrode system demonstrate superior cyclic stability, high specific capacitance ($1815Fg^{-1}$ at 5 mVs^{-1}) after 5000 cycles capacitance as retain up to 95.0% at a current density 10 Ag^{-1}, with 6 mol KOH solution as an electrolyte. Ultra-thin (0.16mm) flexible asymmetric device was fabricated in two-electrode system, and its exhibit corking electrochemical performance, along with the electrodes achieves excellent areal capacitance with 1.2364 Ah/Cm^2. Remarkably The energy density of the asymmetric supercapacitor as 42.70 wh kg^{-1} at 8.634259 $Whkg^{-1}$ and the maximum power density as 40.21991 $Whkg^{-1}$ at 3.967935 Wh kg1. subsequently both active material as achieving 100 % specific capacitance retention more than 50000 charge-discharge cycles. Finally, it lights up 4 volts led diode after fabrication of 3 set serial setups. As a result of that, the electrochemical performance demonstrates the enriched magnesium oxide boost electrochemical activity, and cyclic stability of the transition metal oxide nanocomposite. The enhanced supercapacitor performance was conforming, which extends the prepared metal and metal-oxide composite for high-performance supercapacitor.

Keywords; Ternary metal oxide, Nickel oxide, Ultra-fast charging, Flexible Supercapacitor.

Antioxidant and Antidiabetic Properties of Carissa Carandas L

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Abstract: Carissa carandas L. is a species of flowering shrub commonly called urane berry, belongs to the family, Apocynaceae with a long history of traditional medicinal, economic and agricultural uses. The objectives of this study were to analyze the antioxidant and antidiabetic properties of Carissa carandas fruit and leaf, extracts in chloroform, ethanol and sterile distilled water. Preliminary phytochemical analysis showed the presence of various phytochemicals including phenols, flavonoid, fibres, lignins, saponins carbohydrate, lipid and reducing sugar in extracts from both fresh and dry samples. Further the number of phytochemicals evaluated was less in fresh samples and more in dry samples. The best antioxidant property was observed in lower concentrations, while best antidiabetic value was seen in fresh and dry extracts of leaves and fruits were obtained in higher concentrations. To conclude with, the obtained results tend to suggest that, the plant Carissa crandas has good content of phytochemicals, and has good antidiabetic and antioxidant properties.

Keywords: Antioxidant, Antidiabetic.

Investigations of Quantum Algorithms for High Level Computing Data in Image Analysis

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Abstract: Quantum image processing (QIP), exploits quantum-mechanical phenomena such as quantum super positions and quantum entanglement. To speedup computation of desired problems unique quantum based properties quantum superposition and parallelism are considered. The Review aims at implementing quantum based image analysis depending upon unique types of quantum image representation system that reduces the qubits required for processing the images. Here discuss a high efficient quantum based image analysis system, which segment the image data into different types of regions. The proposed analyze demonstrates faster speed of computation than the conventional image analysis system. Both theoretical and experimental setup of algorithm is proposed to be developed and evaluated in huge image databases.

Keywords: Key words: Quantum Information, Qubits, Quantum Entanglement, Quantum image, quantum movie.

Rule-Based Cognitive Modelling for Multimodal Intelligent Tutoring Systems

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Abstract: The aim of the work is to build a rule based multimodal Intelligent tutoring system. The interface is important as a communication medium, as problem solving environment that support student's leaning and as an external representation of system's knowledge and instructional model. A good interface will anticipate the user's action, provide high level of interaction and make use of metaphors, which in turn requires integration of various advanced technologies. Rule-based cognitive models serve many roles in intelligent tutoring systems (ITS) development. The work focuses on building a multimodal geometry tutoring system. Since geometry involves both verbal and visual mode of learning, it is a very good research area to explore the multimodal interaction in intelligent tutoring system.

Financial Modelling

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Abstract: Planning is the cornerstone around which business empires are built. Businesses which survive and thrive in the long run are often businesses which have thorough experience of their external environment and continued to plan ahead. In many ways, planning is intuitive to human beings. The most vital function of every innovative businessman and every management is to find out solutions to business problems through decision making process. Financial modeling enables key personnel to make better decisions. These models are used for various types of decision making. Hence, one model cannot be used for all types of decision making. As a result, several different types of models have to be created. Each of these models' requires different inputs and provides different outputs. A good financial modeler should be aware of the basics of these different types of models. It is important to understand that financial modeling is not a method wherein an exact process is followed, and exact results are obtained. Instead, the reality is that financial modeling is only a framework or a set of guidelines which are used to derive numerous financial models. Financial modeling is not a perfect science. In fact, it would be fair to say that financial modeling is part art and part science. This is because the specific steps required to create a financial model cannot be chalked out. However, there is a broad framework which needs to be followed in order to create a working model.

Keywords: Planning, Decisionmaking , Financial Models.

Some Aspects of Parallel and Distributed Fractal Compression Algorithms - A Survey

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Abstract: The concept of digital image compression is of considerable interest in the area of transmission and storage of images. The recent research in this area explores the combination of different coding techniques to achieve better compression ratio without compromising the image quality. Fractal based coding techniques got the attention of the research community from the very earlier days of data compression. However, those methods are computationally intensive at that time. Recent improvements in the computing techniques such as General Purpose Graphical Processing Unit(GPGPU) put back the fractal based coding methods in track. This paper reviews the use of parallel computation in the area of fractal based coding scheme. Experimental analysis shows that the use of parallel computation to encode the image using fractal coding scheme will significantly reduce the coding time and improve the efficiency.

Global Business Environment in 2020 Era

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Abstract: As the economy grows slowly at home, the businesses may have to look at selling internationally to remain profitable. Before examining foreign markets, one have to be aware of the major trends in international business so you can take advantage of those that might favor your company. International markets are evolving rapidly, and you can take advantage of the changing environment to create a niche for your company. The Fourth Industrial Revolution (4IR) has kicked off a new battle for global technological supremacy. In order for any international business to maintain its customer acquisition rate, and to progress in general, it must follow trends and adapt to new situations. There are new gadgets, online tools, apps, and platforms that help businesses around the world alter their approach, cut costs, and also advertise. The winner of the 4IR race will have an edge politically, economically, and militarily for years to come. As the winner has the potential to reshape the global operating environment, the stakes could not be higher. Being up to date helps you react on time, and make necessary alterations before your competition and thus appear unique and more relevant. So, I'm going to examine these current trends in international business that are likely to dominate the year 2019. This is your chance to start doing things differently before they become old news and build a higher brand authority in the process.

Keywords: Globalizations, Global Business Environment, Changing Buying Behavior; Global Power-Shift; Demographic Changes; Technological Trends; Future Trends.

Electrical Studies of Magnesium Ferrite and Zinc Ferrite Nanoparticles Prepared by Hydrothermal Method

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Abstract: Transition metal oxide nanoparticles find different applications in the field of science and technology. In electrical applications, ferrites have its own identity. This paper reports ac electrical studies of magnesium ferrite and zinc ferrite nanoparticles prepared in aqueous medium within a pressure reactor at moderate temperature condition(hydrothermal method). Structural and morphological characterizations are done using powder XRD and TEM analysis. Particles in the size range 10-15nm and having pseudo-cubical morphology is obtained both the ferrite particles.ac electrical study of the samples are carried out in the frequency range 5Hz-5MHz and at different temperature conditions. The dielectric constant show dispersion in the low frequency region but remain constant at high frequency regime. Thermally enhanced drift mobility of charge carriers are attributed to the increase in dielectric constant with temperature. The linear increase of ac conductivity with frequency suggests small polarons hopping type of conduction mechanism in the prepared spinel ferrites.

A Systematic Review on the Learning Analytics and Predictive Analytics on Educational Data Mining

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Abstract: Educational data mining is the systematic approach of applying machine learning or statistical method to the vast amount of educational data generated. Various approaches have been applied on the educational data of higher institutions to comprehend about the learning outcome and effectiveness of the pedagogy. This paper surveys the approaches and techniques used in the field of educational data mining in various dimensions. The aim of the survey is to classify the learning dimensions that have been benefitted from the application of machine learning approaches(analytics) to the data of higher educational institutions. The survey also aims to find the unexplored areas thereby suggesting future directions for research in this area. The application of EDM in the dataset of higher educational institutions can help the institutions in developing institutional level strategies that are more student-centric and also help in proposing methods that could be used for continuous assessment and improvement of educational policies.

Keywords: Computer aided learning, Data Analytics, Educational data mining, Higher Educational Institutions(HEI), Learning analytics, Predictive analytics, Student behavioral analytics.

A Study on the Effors of Indian Oil Corporation Ltd. for Promoting Cashless Economy During Demonitisation

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Abstract: Our Country has witnessed the sudden demonitistion of high value notes. The major aim of this master stroke was to eliminate parallel economy to rid the monetary supply of fake currency notes of high denomination and to bring behavioural change in millions of Indians by making them opt for digital payment modes. Eventhough not the first , promoting cashless payments is one of the major aim of our Central govt and in effect it has given a big push to electronic transactions. In this situation Indian Oil Corporation (IOC) Ltd. has proved its effort to promote cashless dealings by conducting several campaigns and implementing various programs. This paper aims to focuses on the efforts taken by IOCL in promoting cashless transactions in its dealings with customers. The inputs of this study were collected through the discussions with IOCL officials and also from the proceedings of IOCL The study revealed that IOCL has contributed to the ambitious digital economy drive of Indain Government by its stupendous effort.

Isolation of Novel Lipase Producing Microorganisms from Different Habitat

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Abstract: In recent years, the involvement of microorganisms in enzyme production has gathered a special attentionworld-wide because of their nontoxic, cost effectiveness , low energy input, reducing processing time and eco-friendly characteristics. Compared to other industrial enzymes, lipases have received least priorityin last few decades. In this study,we report the isolation of lipase producing organism from their natural habitat. From six soil samples collected from different oil rich locations like Coconut oil refinery plant, 28 bacterial Isolates and 3 fungal isolates were obtained. Among these isolates,four isolates that produced larger zone of inhibition were selected for further analysis of lipase production. Four organisms isolated from temple soil where camphor is burned, showed higher enzyme activity.The Positive producers of lipase enzyme were characterized biochemically. 16SrRNA gene amplification was performed for identifying the bacteria isolated from the environment. Lipase activity was determined qualitatively and quantitatively. A qualitative study was done by agar well diffusion and the quantitative study was done by the titrimetric method and spectrophotometry. Production of lipase enzyme was carried out by inoculating the isolated samples in the minimal medium. The supernatant was used as the crude enzyme solution. 28 bacterial Isolates and 3 fungal isolates were obtained from the 6 different samples. Among these isolates 4 isolates that produced larger zone of inhibition was selected for analysis of lipase production. Among the four organisms isolated from temple soil were camphor is burned showed larger enzyme activity.In this study, we have isolated efficient Lipase producing organisms, which can be further subjected to strain improvement to generate industrial quality Lipase producers.

A Lead up Trial on Recycling of Urine

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Abstract: Water makes up more that 95% of urine by weight. Inorganic salts and organic compounds makeup rest of the constituents. The largest solid constituent of urine is Urea. The major constituent of Urea is Hydrogen, Carbon, Oxygen and Nitrogen. Bacteria produce urease enzyme which hydrolyze urea to bicarbonate and ammonia which results in strong odor. This makes the practical storage and recycling of the urine very difficult. It is difficult to treat urine by conventional treatment method for the purpose of recycling, especially because of the strong odor emitted from ammonia. Practical recycling of human urine for agricultural purpose following a sequential process of solar distillation and electrolysis was the main purpose of this research. A solar distillation unit was fabricated in house in order to conduct the distillation studies. A solar concentrated was also developed in order to increase the flux of solar radiation on the distillation unit. An electrolysis unit was developed in lab using electrode materials grown in laboratory. The electrolysis unit was powered by a 12 V 0.5 W Si solar panel. A random sample of urine was first subjected to solar distillation. The distilled product was then subjected to electrolysis. Solar distillation of urine resulted in obtaining a clear color less water sample with pungent smell of urea. The bio-chemistry of the distilled sample showed that other than chloride content of the urine sample all of the other chemical constituents could be reduced by over 90% as a result of the 6 hour distillation process. The distilled solution when subjected to electrolysis resulted in complete removal of proteins and uric acid. All of the other chemical constituents could be further reduced with the electrolysis step. Electrolysis resulted in reduction of chloride content in the solution. We have undertaken a research work to test the feasibility of recycling human Urine using two processes using equipments designed and developed in-house. A random urine sample of 250 ml was first subjected to a solar distillation process which was completed in 6 hours time. The distillated sample was then subjected to electrolysis using an in-house designed electrolytic cell. Our results show that the recycled water may be used for domestic purposes. We also observed that the technique may be optimized for generation of H2 gas as urea solution which is the product of solar distillation process is a very good source of H2.

Keywords: Urine recycling, Solar distillation, Electrolysis.

Some Remarks on Biordered Set Languages

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Abstract: The concept of biordered set was introduced by K S S Nampooripad in 1972 which has a crucial role in determining the structure of a semigroup. It is well known that there is a correspondance between finite state automata and finite semigroups. Here we consider the biordered set languages, the languages recognised by biordered set of a fninte semigroup and give some of its properties.

Methodologies for Generating Pseudo-Computed Tomography Images for Evaluating Base of Skull Lesions and Craniovertebral Junction Lesions

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Abstract: Magnetic Resonance Imaging (MRI) is a good tool for evaluating the brain lesions. One of the advantage of MRI is that it provides better soft tissue contrast, but it lacks information regarding bony details because of the low proton density and fast decay time of bone tissue. The pseudoCT images are CT like images obtained from MRI. Recently, Zero-echo-time (ZTE) sequence for MRI technique is used for capturing bone signal from MRI but it requires post processing algorithm for converting ZTE MRI images into pseudoCT images. The pseudoCT images are CT like images obtained from MRI. This sequence provides unique advantages of detecting signals from rapidly decaying components of short -T2 tissue.

Keywords: Skull lesions, Pseudo-CT, Substitute CT, Virtual CT, MRI, Craniovertebral junction lesions.

Novel Approach of Waterfall Model for Data Hiding Using Texture Synthesis

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Abstract: This project focus on conversion of an image into texture image for steganography texture synthesis process. Consider this texture image as a source image for doing steganography method. A texture synthesis process resamples a smaller texture image, which synthesizes a new texture image with a similar local appearance and an arbitrary size. This paper weaves the texture synthesis process into steganography to conceal secret messages. In contrast to using an existing cover image to hide messages, this algorithm conceals the source texture image and embeds secret messages through the process of texture synthesis. This allows us to extract the secret messages and source texture from a stego synthetic texture. The objective of steganography is to hide information.This approach offers three advantages. First, this scheme offers the embedding capacity that is proportional to the size of the stego texture image. Second, a steganalytic algorithm is not likely to defeat our steganographic approach. Third, the reversible capability inherited from this scheme provides functionality, which allows recovery of the source texture. Then, apply a water marking method. This will help whether a given sender is authorised person or not.

Keywords: Watermarking, Texture Image, Texture Synthesis, Data Hiding.

Antibacterial Potential of an Actinomycete Isolate from Sargassum Fluitans

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Abstract: The discovery of new broad spectrum antibiotics is an urgent need to combat frequently prompting diseases for social welfare. The marine environment posses most diverse environment from which novel secondary metabolites can be derived. The various number of bioactive compound has been identified from marine samples. To address this issue, there is chance for identifying bioactive compounds from marine actinomycetes. The aim of study was to isolate and identify secondary metabolites producing actinomycetes from marine algae (Sargassum fluitains.).The isolate SWA4 was partially characterised by morphological and biochemical methods. Their antibacterial activity were further analysed by preliminary and Disc diffusion assays. Interestingly, the SWA4 isolate showed excellent inhibition activity aganist certain disease causing and human pathogenic bacteria. Here the methanolic extract showed efficient activity of 12,17,13,12mm zone aganist S.typhi, K.pneumonia, E.coli,B. cereus respectively. It has been concluded that, the marine algae is prominent tool for the isolation of new antibiotic producing actinobacteria. The secondary metabolites from these isolates shows their ability to interplay microbial genetics. Thus, our studies gives an intention for future drug development and agronomics applications.

Keywords:sargassum Sps, Disc Diffusion Assays, Zone Of Inhibition, Human Pathogenic Bacteria.

Variation of Surface O³ and its Precursor, Carbon Monoxide in the Troposphere

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Abstract: The Earth's atmosphere is like a blanket, which traps heat and making earth's temperature comfortable. The ozone layer in the stratosphere mainly blocks these dangerous ultraviolet rays on reaching by trapping these rays. But ozone (O3) in the troposphere is harmful, which is a strong green house gas, an oxidant, and a precursor of hydroxyl radical (OH). Ozone in the troposphere is known as surface ozone In the presence of sufficient concentrations of NOx, carbon monoxide (CO) acts as a precursor of surface O3. Surface O3 plays a vital role in the atmosphere through radiative and chemical processes. It is a colorless gas, reacts rapidly and strongly with living tissues. High levels of surface O3 can destroy agricultural crops and forest vegetation and damage building fixtures like rubber, metals, paintings etc.. As a strong greenhouse gas, it has direct impact on radiative balance of the atmosphere. In the present work vertical variations of surface O3 and one of its precursors CO in the troposphere over Thiruvananthapuram from 2016 to 2018 were studied. The study results showed O3 mixing ratio at different altitudes in the troposphere was also found to be decreasing with increase in altitude. It showed that the seasonal variation in surface O3 were strongly supported by variation in CO.

Reduction of Over-Fitting Error in the Simulation of Transistor by Artifical Neural Network

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Abstract: Artificial Neural Networks (ANN) have gained attention in the area of simulation of electronic devices. Black-box and component models proved to be able to stand with conventional simulation software. The application of ANN in the field of simulation of transistors had been acquiring more interest in researchers. An important step to achieve the desired result is the proper training of the ANN. In this study, reduction of over-fitting in the simulation of transistor characteristics, we select the best-fitted network with less error for processing. In most cases, the training of ANN carrying out by software until it converges. In this method, we trained the ANN for random iterations and select the best-fitted network based on the training error and the validation of the set. Even though the software mechanism detects fewer error values, it may not be the best-fitted network. Here we can ensure the use of best-fitted network for our simulation.

Keywords: Over-Fitting Reduction, Best Trained Network, Artificial Neural Network Optimization.

Design of a Flexible Tip Videolaryngoscope With Extension Mechanism

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Abstract: Laryngoscopy is a medical procedure to obtain a view of the larynx, the vocal folds and the glottis. Videolaryngoscopy is a new technology that can facilitate rapid acquisition of intubation skills. In videolaryngoscopy a better view of laryngeal visualization is obtained, and improves intubation success ratio in difficult airway management when compared to direct laryngoscopy. The Flexible Tip blade is used in difficult intubations where controlled elevation of the epiglottis is required with reduced force on the patient. It is extremely useful when encountering displaced larynx, teeth, tongue or mandible as well as with spinal injuries and neck stiffness. A lever mechanism is used to operate flexible tip. An extension mechanism is used which could perform the functions of all size blades in one. This paper describes the details of all mechanisms used in the novel laryngoscope and its advantages. The model is imported to ANSYS software and stress and strain analysis are carried out to find optimum design. Two different materials are used and their fatigue analysis are carried out.Some of the disadvantages of the video laryngoscope are eliminated using the novel laryngoscope.

Keywords: Videolaryngoscopy; Flexible Tip blade; Extension mechanism.

Towards a Fast and Effective Query Based Colour Image Retrievalframework Using Colour Averaging and Semantic Hashingtechniques

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Abstract: The ability of fast similarity imagesearchbasedonvisualsimilarity in a large-scale dataset is of great importance to many multimedia applications. Although hashing has been shown effective for visual search, among various hashing approaches, semantic hashing (SH) has shown promising performance. It accelerates similarity search by designing compact binary codes for a large number of images so that semantically similar images are mapped to close codes. Retrieving similar neighbors is then simply accomplished by retrieving images that have codes within a small Hamming distance of the code of the query. However in this method the memory utilization and query execution time are the major problems, so a combined set of methods based on color averaging technique is used in the proposed system to achieve higher retrieval efficiency and performance. An average mean based technique with reduced feature size is used. This is followed by, a feature extraction technique based on central tendency. Experiments on a Flicker image dataset show clear improvements in the proposed approach.

Keyword: Sementic Hashing (Sh), Hamming Distance.

Structural and Optical Studies of Silver Nanopaticles

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Abstract: One of the top-down approaches for the synthesis of silver nano materials is biosynthesis. Recently green synthesis pay an immediate attention rather than chemical reduction for the silver nano particle preparation since this method contain the eco-friendly reducing cum capping agents. Green synthesis can avoid further use of chemicals in Nano technology. Here Colloidal silver nanoparticles are prepared by biosynthesis using medicinal plants like Osimum Sanctum (Krishna Thulsi) and AdhaThodaVasica (Adalodakkam) leaf extracts. The formation and stability of silver nano particles in the colloidal solutions are monitored using UV-Visible absorption spectra. Here the plant extracts served not only as reducing agents but also as good stabilizing agents, which protects the aggregation of silver nanoparticles. Various optical constants like refractive index, band gap energy and dielectric constants of the medium with respect to given photon energy is also calculated. Transverse electron microscopic image of silver nano colloid shows the agglomeration of polycrystallites to form spherical nano particles. Structural studies can explain both the polychain pattern and Face Centered Cubic (FCC) nature of nano silver.

Keywords: green synthesis, silver nanoparticle, uv-visible spectra, transverse electron microscopic image, polycrystallite, spherical nano particle.

Beneficial Effects of Palmyra Sprout in Experimentally Induced Liver Toxicity

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Abstract: Liver is an important organ for maintaining our body's internal environment. It stores and synthesizes a number of compounds and is involved in the detoxification and catabolism. So maintain a healthy liver is a crucial factor for the overall health and well being. Liver disorders are one of the major causes of morbidity and mortality all over the world. According to statistics, around 10 lakh patients of liver toxicity are newly diagnosed every year in India. Drug-induced liver injury (DILI) is a significant clinical problem. More than 1000 drugs, toxins, and herbs have been reported to cause liver injury. Therefore, there is a necessity for an alternative to provide cure for liver toxicity. Palmyra sprout (panam kizhangu) is obtained from Borassus flabellifer commonly known as toddy palm, is native to the Indian subcontinent and Southeast Asia, including Nepal, India, Bangladesh, Sri Lanka etc. Sprouts are produced from palm seed. It is a forgotten traditional food rich with antioxidants, proteins, aminoacids, minerals and vitamins. A systematic study was essential to assess the theraputic efficacy of Palmyra sprout. The present study was anticipated to evaluate the hepatoprotective effects of palmyra sprout in experimental models. Aqueous hot and cold extraction of Palmyra sprout, quantitative and qualitative phytochemical analysis, DPPH radical scavenging assay and reducing power assay was done to assess the free radical scavenging potential of the extract. In the present study, hot aqueous extract of Palmyra sprout showed significant antioxidant activity and rich with potential phytochemicals. So the present study revealed that aqueous extract of Palmyra sprout was a promising candidate and found to be non-toxic rich with phytochemicals.

Keywords: DPPH assay, Palmyra sprouts, Antioxidant, Phtochemicals, Hepatotoxicity.

Phytochemical,Purification and Spectral Analysis of Compoundsfrom Root Tuber Extract Of Aparagus Racemosus (Willd)

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Abstract: Asparagus racemosus the queen of herbs is an important medicinal plant regarded as a ayurvedic rasayana, a plant drug which prevent ageing, increase longevity, impart immunity, improve mental function, vigour and add vitality to the body.It is the primary herb recommended for female health and is prescribed by the doctors in habitual abortions, weakness of the uterus, excessive bleeding during menstruation etc. Based on the fragmentary information an investigation of the crude methanolic extract of the roots for the presence of bioactive components was done adopting Harborne method. The phytochemical screening revealed the presence of chemical constituents such as alkaloids, flavonoids, steroidal saponins and carbohydrates.
The TLC profiling of the methanolic extract showed four active spots for flavonoids, saponins and other secondary metabolites. The spectral analysis using Gas Chromatography-Mass Spectrometry identified about 13 major and 5 minor activeconstituents of ethanopharmacological importance in the root extract. Identification of steroidal sapogenin from the GC/MS spectra was the highlight of this present study. Diosgenin, the steroidal sapogenin is the precursor for the semisynthesis of progesterone.

Keywords: Asparagus racemosus, Phytochemical analysis, Steroidal Saponin, TLC, Gas Chromatography-Mass Spectrometry.

An Analytical Approach for the Design of Reinforced Circular Hole in Acomposite Shell

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Abstract: Recent study following analytical equations for reinforced holes in orthotropic shell with large size circular hole for the case of uniaxial loading is based on the membrane stress distribution. It is quite obvious that the failure stress of a shell with the presence of a hole is much higher than estimated based on the hole edge stress due to the hole edge plastic zone. This effect was brought out analytically by WN failure criterionfor an infinite laminate with a circular hole as an equivalent approach by considering distribution ahead of the hole edge at a characteristic distance which is determined by test. Once characteristic distance is considered as a constant, then for any other hole size it is possible to make analytical prediction. However, in the case of a shell, bending stresses are predominant due to the shell curvature. As a part of total stress, bending stress constitutes to around 40% in the case of an isotropic shell. In the case of composite shell, it is likely to come down. Instead of membrane stress distribution for WN criterion, it is necessary to consider total stress which is sum of membrane and bending stress. In the present study, membrane stress distribution ahead of the hole around a reinforced circular hole in an orthotropic shell under axial tension reported in literature is used for WN criterion. Also, total stress distribution obtained by finite element analysis is considered. It is observed that for the type of layup sequences considered for an orthotropic shell for large size hole for curvature parameter β =2, for different characteristic distances show significant improvement in the prediction of notched strength. Present proposal for W-N criterion for shells considering the total stress is assumed as considering only membrane stress on the hole edge instead of including the characteristic distance. Present study can eliminate more number of testing.

Sum Comparison Sorting Algorithm (SCS)

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Abstract: Sorting is a crucial computational procedure which forms the basic building block of many mathematical models. Lot of research work had been carried out in this computational area which resulted in the formulation of many classifications of sorting algorithms like comparison sorting, counting sorting and so forth. In this paper, I have introduced a new sorting technique called "Sum Comparison Sort(SCS)" which aims at developing an alternate method of sorting. This algorithm arranges integer values in either ascending or descending order by comparing the elements with the sum value. The best performance of the algorithm is achieved when the input data elements are in smaller range and with repeated occurrences of elements. The complexity of the algorithm has been compared with some other comparison sorting methods to prove the stability of the algorithm.

Keywords : Algorithm, Sorting, Comparison, Complexity.

How Psychoinformatics can be Used to Solve Detrimental Aspects of Technology

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Abstract: Technology has made a profound effect in our lives.It has utterly changed every aspect of our society. Even though it can act as an advantageous tool, especially in learning environments, we cannot neglect the destructive consequences it made to us.The fact is that the more we connect to technology,the more we are away from humanity.It perturbing our social,emotional and cognitive well being. Psychology then comes to rescue us.But traditional psychological methods lack objectivity and solely depends on self-report measures.So to get an accurate picture,digital phenotyping is used which usesdigital traces obtained from Human-Machine Interaction.By merging Psychology and Informatics, a new discipline is emerged ,calledPsychoinformatics which makes use of digital phenotyping to cure problems of psychology using strategies of computer science. Psychoinformatics uses Big Data and Machine Learning techniques for it.

Keywords :Psychoinformatics, Digital Phenotyping, Big Data, Machine Learning.

Review on Digital Image Steganography Techniques

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Abstract: Steganography is the technique of hiding secret data within an ordinary, non-secret, file or message in order to avoid detection; the secret data is then extracted at its destination. Steganography's goal is to hide the very existence of embedded data so as not to arouse an eavesdropper's suspicion. For hiding secret data in digital images, large varieties of stenographic techniques are available, some are more complex than others, and all of them have their respective pros and cons. Steganography has various useful applications and the technique employed depends on the requirements of the application to be designed for. This paper intends to give thorough understanding and evolution of different existing digital image steganography techniques of data hiding in spatial, transform and compression domains. It covers and integrates recent research work without going into much detail of steganalysis, which is the art and science of defeating steganography. This paper refers to the present scenario; the better method of steganography is to combine the image and text data for the input data. Therefore, the techniques aim to hide the existence of a message, without worrying too much about robustness. This paper presented the recent research work in the field of steganography deployed in spatial, transform, and compression domains of digital images. Transform domain techniques make changes in the frequency coefficients instead of manipulating the image pixels directly, thus distortion is kept at minimum level and that's why they are preferred over spatial domain techniques. But when it comes to embedding capacity, spatial domain techniques give better results. However, there exists a trade-off between the image quality and the embedding capacity. Hiding more data results directly into more distortion of the image. So the steganography technique deployed is dependent on the type of application it is designed for.

Performance of State Transport Undertakings in India: Application of DEA – Based Malmquist Productivity Index

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Abstract: State Transport Undertakings (STUs) are Public utility service with a social objective. Hence, it is essential to regularly monitor their performance, specifically with a view to identify appropriate measures including proper investment and pricing policy and to improve their output efficiency. In public transport sector, efficiency measurement is the first step in the evaluation of individual performance of STUs. This study is an attempt in this direction to assess the technical efficiency changes, technological efficiency changes, pure technical efficiency changes, scale technical efficiency changes and total factor productivity efficiency changes of STUs in India. The study finds that the Total Factor Productivity Changes in the concerned duration was due to Technical Efficiency change, more than the Scale Efficiency Change. Most STUs experienced technological progress with an exception to the year 2013-14. They also showed an increase in the Pure Technical Efficiency change on an average. Also, the Municipal Undertaking fares very poorly compared to the other 3 STU groups of Departmental setup, Corporation setup and Company setup. It could be concluded that the Company setup and the Corporation setup fares better than the other two groups of Municipal Undertakings and Departmental set-up.

Keywords: State Transport Undertakings, Technical Efficiency Changes, Technological Efficiency Changes, Pure Technical Efficiency Changes, Scale Technical Efficiency Changes, Total Factor Productivity Efficiency Changes, Malmquist DPI, Output-oriented measure.

Design and Analysis of Unmanned Ground Vehicle Robot

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Abstract: Unmanned ground vehicle is a robotic platform that is used as an extension of human capabilities. These types of robots are used for military purposes and rescue operations. It operates without an onboard human presence. Generally, the mobile robot can be grouped into three categories based on their means of locomotion and climbing methods. The first group contains walking robots or legged robots. The second category is about commonly available wheeled robots. The third category contains mobile robots that travel by the motion of the tracks or belts. The aim of this paper is to find the best robot configuration for walking and wheeled motions in addition to traveling on flat surfaces. The legged and wheeled robot types were analyzed to determine the most suitable model based on stability, size, and energy use. This small unmanned ground vehicle has four shape-shifting tracks and each leg are independently controllable. The 3D model has been created on Solid works, the structural analysis and model analysis has been performed in Ansys by applying various materials, thickness and constant load including 5KN as a factor of safety. The final results are tabulated and the structural design was optimized.

Studies on Physico-Chemical Parameters of an Aquatic Ecosystem Pampa, Kerala, South India From Specific Upper Kuttanad Areas

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Abstract: Pampa river deified as Dakshina Ganga,has left ingrained mark in the cultural,religious and social life of the people of Kerala.Pollution of the Pampa river is a crucial environmental concern for the central Travancore and Kuttanad regions of Kerala.Anthropogenic activities are considered as the major source of pollution in Pampa river especially upper Kuttanad areas. Surface water samples of Pampa river were collected from five sampling stations Muttar ,Nakada,Thalavadi,Melpadam and Edathua (R1 to R5) belonging to upper Kuttanad areas for a period of one year from June 2017 to May 2018.Physico-chemical parameters such as temperature,pH ,turbidity, electrical conductivity ,dissolved oxygen and B.O.D were analysed using standard methods and procedures. In the present study temperature ranged between 26-33ºc, pH level 5.7-6.7, Electrical conductivity 30-83µmhos/cm, turbidity1-9NTU, Dissolved oxygen 3.6-8.1mg/L and B.O.D 1.2-3.4mg/L. The pH recorded was slightly acidic from the sampling stations indicated the presence of heavy metals. The statistical analysis revealed significant differences in the parameters especially electrical conductivity along the sampling stations.Indication of very low dissolved oxygen inpremonsoon season warned the presence of high algae content and organic materials.The current analysis specified that water samples of Pampa river from the stations Edathua, Muttar, Melpadamand Thalavadi are of sunken standards since the parameters pH, Dissolved oxygen and B.O.D were not in the permissible limits. There is acute need for sustained monitoring of this upper Kuttanad areas for the presence of toxic metals and pollutants like pesticides.

Keywords : Pampa river, temperature, pH, turbidity ,electrical conductivity ,dissolved oxygen, B.O.D.

Isolation and Characterization of IAA Producing Endophytic Microorganisms from Selected Drought Tolerant Plants in Kerala

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ABSTRACT: Drought is a major problem in our country. The scarcity of water adversely affects plants and this in turn drastically reduces agricultural productivity. Hence, active research is going on to develop various strategies to develop drought-resistant varieties and protective agrochemicals to protect plants from this physical stress. Various tolerance mechanisms have been suggested based on biochemical and physiological changes related to drought. Recent studies have indicated that plant-associated bacteria can help to withstand abiotic stresses more efficiently. If such microorganisms can promote growth, they become extra beneficial. IAA is an important phytohormone responsible for plant growth, stress tolerance and nutrient uptake and it is used by the microorganism for colonization through phytostimulation and circumvention of plant defense mechanism. Thus, the current work aimed to find the role of endophytic microorganisms in protecting the plant from drought. In this study, five IAA producing endophytic microorganisms were isolated from selected drought-tolerant plants in Kerala. Also, the action of bacteria observed under artificial drought conditions by pot study & stomata closure study. For further studies, these organisms can be exploited for protecting the crop plant from drought stress.

Cloud Environment Workload Predictions

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Abstract: Cloud environment has two important features Scalability and elasticity. Workload can be studied and future work load can be predicted for better resource allocation and efficacy of cloud platform there by reducing the cost. A number of work has been done using various soft computing algorithms, which are implemented using simulation models as well as tested on real cloud. The cloud applications can best exploit the benefits of on-demand elasticity, reducing wasted computing. Obtaining accurate prediction results is crucial to the efficient operation ofan automated resource scaling algorithm. This paper presents a number of such algorithms along with the proposed algorithm.

Dual Band Circularly Polarised Microstrip Antenna for Wireless Applications

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Abstract:The design and development of compact wideband circularly polarised microstrip antennas for wireless communication applications, is a challenging task for researchers. There important advantages associated with circularly polarized antennas include mitigation of multipath interference and flexibility in the orientation angle between transmitting and receiving antennas. Broadband CP antennas are highly inevitable as a communication standard with a higher data-rate capability has to be supported by antennas having a large operating bandwidth. CP microstrip patch antennas with large Q and compact structure normally have small impedance bandwidths and 3-dB axial-ratio (AR) bandwidths. Printed slot antennas are significant because they not only possess low profiles but also have larger impedance bandwidths and are easily integrable. The design, fabrication and experimental analysis of a dual band circularly polarized printed slot microstrip patch antenna having asymmetric geometric structure is presented in this work. In order to investigate various antenna characteristics, rigorous parametric analysis was also done. The design is validated using experimental method and simulation using ANSYS HFSS. Antenna elements include stubs and slots of different shapes both on the top radiating patch and on the bottom ground plane. Significant impedance bandwidth (IBW) and 3 dB axial ratio bandwidth (ARBW) were spanned over the two bands. The experimental analysis was carried out using Agilent Vector Network Analyser PNAE 8362B. The antennaoffered IBW of 4.72 GHz (2.63–7.35 GHz, 94.6%) with corresponding ARBW of 2.12GHz (3.62–5.74 GHz, 45.3%) in Band I, IBW of 0.98 GHz(7.86 – 8.84 GHz, 117.4%) with a corresponding ARBW of 1.82 GHz (7.06 – 8.88 GHz, 22.84 %) in Band II. The formation of two bands and the corresponding axial ratio bands are the result of peculiarities of the structure. For a wide range of frequencies, there exist numerous horizontal and vertical modes. There exists phase quadrature between them with equal amplitude. Average gain value was measured to be 3.09dBi in the operating frequency band pertaining to band I. Whereas in band II, the value got diminished to1.51dBi. Peak gain value obtained was 4.0dBi at 6.25 GHz. The measured antenna efficiency was 95.94% at 3.4GHz.In addition to its simple structure, the proposed antenna provides enhanced AR bandwidth and CP operation. It is highly useful for wireless applications.

A Study on Removing Rain Streaks from an Image in Outdoor Vision Systems

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Abstract: The quality of captured images will be highly affected by an unusual weather like rain or snow. Such bad weather conditions can downgrade the performance of outdoor vision systems like CCTVs, traffic cameras etc. Even if many bad weather conditions can affect the quality of captured images, rain affects the image in a more negative way because, it is observed as bright streaks. Because of the negative effect of rain on outdoor vision systems, rain removal is an important problem. Detecting rain streaks accurately is a difficult task since rain has no particular location in an image. Rain removal has been an active research topic over many years and several techniques has been proposed. From all these studies, rain removal from an image can be classified into four main categories. The first category is simply filtering based whereas the second category builds models for rain streaks. In the third category, a 2-step processing is performed for rain removal and in the fourth category, deep learning techniques are used. So, in this paper, I have done a detailed study on the effects of rain on images and various rain removal methods.

Antioxidant And Cytotoxic Analysis of Leaf of Morinda Citrifolia

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Abstract: The present study is based on the evaluation of preliminary phytochemical screening, cytotoxic and antioxidant activities of leaf of Morinda citrifolia. The components from Morinda citrifolia leaves were subjected to phytochemical screening tests by using standard procedures. The antioxidant activity was measured by using the 1, 1- diphenyl-2-picrylhydrazyl (DPPH) assay and ferric reducing power assay. The dose dependent increase was observed in DPPH activity of leaf (0.25, 0.50, 1 μg/ml). Components were investigated for its short term cytotoxicity on DLA cells by tryphan blue dye exclusion method. Morinda citrifolia leaf was proved to be an effective anticancer and antioxidant agent. These results suggest that the Morinda citrifolia has potential of antioxidant and antitumor activity that support the ethno pharmacological uses of this plant. The remarkable activity showed by the plant could be attributed to the synergic effect of the active compounds present in it.

Keywords: Morinda Citrifolia, Rubiaceae , Antioxidant, Cytotoxic Activity.

A Survey on Chat bot and its Algorithm

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Abstract: A chatbot is a piece of software act like a human conversation used for knowledge questsystem. Chatbots are mainly used for various practical purposes including customer care service, information regarding various systems like banking sector, education, actively considered as a stateful services, helpful for large audience. This paper discuss various methodologies, algorithms and applications in last half decade. From our review we understand that techniques like deep learning algorithms,innovators market place on data jacket [imdj], recurrent neural networks, and long-short term memory with attention mechanism has outperformed to establish bot for different applications.

Overlay Multi Cast Tree Construction Algorithm in CBIR Using Webs

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Abstract : Now a days, all the information retrieval is done through the internet facility. All the users use different ICT technology for such purpose. ICT is especially in all the education institutions under the smooth functionality of the data or information passing. Data sharing, information retrieval, etc are done through the website of the institution. So the aptness of the information is very essential part of the communication between student and faculties. A university is an institution of higher education and research which awards academic degrees in various academic disciplines. Universities typically provide undergraduate education and postgraduate education .The university case 11 million user accounts, and all users to present different needs. Users are students and colleges. In this paper, we present combination of COBRA, Subscription Aggregation Technique, different network topology, Dynamic Programming Approach, Cloud Computing, and Greedy method. The-Most-Efficient-First Algorithm (MEFA) and Dynamic Programming Algorithm (DPA) algorithms combine to developed overlay construction algorithm and overlay Multi cast Tree Construction Algorithm, used to optimize the system performance and provide Stable Multimedia Service .Finally delivering to each user a personalised subscribe based on their interests. We present the design, implementation, and evaluation of Cobra in three settings : A dedicated cluster, the Emulab testbed, and on Planet Lab. In a greedy algorithm, and the corresponding performance bound is analysed. Finally, we propose an overlay construction scheme to further fit the subscription aggregation. Extensive experimental results show that proposed algorithms achieve a good performance.

Keywords : COBRA, Subscription Aggregation, DPA, MEFA, Emulab Testbed.

Synthesis, Characterization and Bioavailability of Surface Modified Gold Nanorods in Skin Tumor Model

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Abstract: Gold nanorods (AuNRs) have the potential to perform various medical applications, however the toxicity of surfactant cetyltrimethylammonium bromide (CTAB) on their surfaces limits their application. In this paper we have investigated the characterization, bioavailability and toxicity of surface modified AuNRs in normal and skin tumor model. We have successfully synthesized and characterized the gold nanorods by UV-Vis-NIR spectrophotometry and High Resolution Transmission Electron Microscopy (HR-TEM). Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP- AES) and transmission electron microscopy (TEM) was used to determine the bioavailability and the sub cellular localization of AuNRs and found that gold nanorods was distributed in major organs and tumor skin tissues. Toxicity assessment studies in terms of routine blood exam results, biochemical parameters, liver and kidney function tests showed that there was no significant differences between control and AuNRs treated mice. Histological examination of major organs also showed no obvious pathological changes, no toxic health effects and no change in organ function. Overall, this study confirmed the nontoxic nature of AuNRs in vivo and recommends the use of these nanorods for further biomedical applications such as skin cancer.

Keywords: Gold Nanorods, Bioavalability, Toxicity, Skin Tumor.

A Study on Underwater Image Enhancement Techniques

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Abstract: Underwater images play a vital role in marine engineering, marine research etc. These images can be used for control of underwater vehicles, study of corals, fishes and other species. Underwater images suffer poor visibility and some important details may loss because of scattering and absorption. Obtaining a clear underwater image is very important and it is difficult too. Underwater image enhancement has been an active research topic over many years and several techniques has been proposed. This paper introduces a study on various techniques used to enhance the underwater images and classified the techniques into four categories.

Bacteriological Analysis of Water Bodies In Venganoor Grama Panchayat

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Abstract: The Total Coliform and Faecal Coliform count can be taken as a standard to determine the quality of a water body. The bacterial load of seven ponds located in Venganoor grama panchayat, Thiruvananthapuram district, Kerala were studied for a period of 24 months. Notable values which shows that the waterbodies are contaminated is observed. The relationship between seasons and the observations found are presented here.

Key words: Water. Pond, Pollution, Bacteria, Coliform, Contamination.

Novel Approach For Data Hiding Methods: A Comparative Study

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Abstract: The definition of passing data from one side to other side by a traditional way is been changed due to internet and communication technology. There are so many internet applications such as steganography, cryptography and watermarking. Steganography is a technique of hiding secret data within an ordinary file. Cryptography is associated with the process of converting ordinary plain text into an unreadable format. Cryptography not only protects data from alteration but also used for authentication. Watermarkingis the process of hiding digital information in a carrier signal and hidden information doesn't need to certain a relation to the carrier signals. It is used for the authenticity and integrity of the carrier signal. The most common approaches to information hiding in images are Least significant bit(LSB) insertion, Masking and Filtering techniques, Algorithms and Transformations.This paper mainly deals with the comparative study of the steganography, cryptography and watermarking.

Rule-Based Cognitive Modelling for Multimodal Intelligent Tutoring Systems

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Abstract: The aim of the work is to build a rule based multimodal Intelligent tutoring system. The interface is important as a communication medium, as problem solving environment that support student's leaning and as an external representation of system's knowledge and instructional model. A good interface will anticipate the user's action, provide high level of interaction and make use of metaphors, which in turn requires integration of various advanced technologies. Rule-based cognitive models serve many roles in intelligent tutoring systems (ITS) development. The work focuses on building a multimodal geometry tutoring system. Since geometry involves both verbal and visual mode of learning, it is a very good research area to explore the multimodal interaction in intelligent tutoring system.

Vital Role of Moringa Oleifera (LAM) In Aquatic Ecosystem

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Abstract: Use of antibiotics in aquaculture causes deterioration of coastal aquatic ecosystems, in addition to the development of resistant strains of pathogens. Thus, boosting of fish immune system is the ideal solution for the control of diseases in aquaculture practices. This work aim to evaluate the immunomodulatory potential of the ethanolic extract of Moringa oleifera leaves in the fish Oreochromis mossambicus. Generally, haematological profile; reflect the immunological status of the fish. This study was carried out to determine the major haematological parameters, via, RBC count, WBC count, Haemoglobin, PCV, MCV, MCH, and MCHC of O. massambicus were analysed by applying sub-lethal concentrations of ethanolic extract of Moringa oleifera leaves through injection method. The administration of herbal extract through injection enabled the immunostimulant to be quickly absorbed and functional . Preparation of injection dose by weighing the extract powder properly and different doses were prepared by dissolving it in distilled water (as the polar substitute for ethanol).Administration of extract was done by intraperitonial injection into the fish using a tuberculin syringe with a 24 – gauge needle. Here fishes were divided into group A, group B, group C and group D. Group A were considered as control without any leaf extract. Group B, Group C and Group D were received 0.4 mg/kg, 4mg/kg and 40mg/kg (0.2 ml/fish) ethanolic extract of Moringa olefiera respectively. Values of RBC count, WBC count, haemoglobin , PCVand MCV shows the highest value in fish injected with 4mg/kg ethanolic extract of Moringa olefiera .Fishes were injected with dose between 0.4 mg/kg - 4mg/kg showed a significant increase of these parameters than control. Fishes were injected with 40mg/kg of M. oleifera extract showed a decrease in the recorded values of RBC count, WBC count, haemoglobin , PCVand MCV.Calculated haematological indices such as MCH and MCHC shows gradual increase throughout the experimental period . Fishes were injected with 40mg/kg of extract shows slighty increased values than the previous concentration applied. Thus, the present study shows that in addition to an improvement in nutritional qualities, M. oleifera leaf extract also had a clear immunostimulant property in O. mossambicus in culture conditions. More studies are required involving immunological parameters other than the haematological indices to ascertain the immunostimulatory effects of M. oleifera in culture fishes.

Keywords : Haematology, Oreochromis Mossambicus, Intraperitonial Injection, Moringa Olefiera, Immunostimulant.

The Survey on Visual Cryptography

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Abstract: Visual Cryptography is a Cryptography techniques for securing the visual information to be encrypted in a way that the decrypted information appears as a visual image. Theimage are divided into several parts that are known as shares. This provide information security for user's simple algorithm like the traditional Cryptography. Visual Cryptography is used specifically in the areas of biometric security, watermarking, remote electronic voting, and Bank Customer identification. Image processing of processing the images such that the visibility of images is clear to user. Sometimes in image processing security is an important concern and also used for the hiding of information in images. This paper is aimed to study the various visual Cryptography schemes also to analyse the performance on the basis of expansion of pixel, number of secret images, image format and type of share generated.

Small Railway Stations Revenue Hike and Development Strategy in Kerala

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Abstract: In the present, all small railway stations in Trivandrum & Palakkad divisions of Kerala state need some more exposure and development for the enhancement of the transportation system in the rural area. In this journal paper, the author has applied the theory of Marketing Management in the area of Small railway station up gradation. We have discussed how pull system of Marketing can be applied in the Small railway station to attract more passengers in the railway stations. In this paper, the author has done a case study in Pudukad Railway station which comes under E class category under Trivandrum division of Kerala state.

Customised Banking – A Study with Special Reference to Customers in Pathanamthitta District

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Abstract: The economy of any country depends on the financial sector of the country. Banks are the financial institutions which play the major role in providing financial services to the society. Any country which thrives for development needs the assistance of a financial institution. Emergence of private sector banks and New Generation Private Banks resulted in stiff competition in the banking sector. So banks should not focus simply on Providing financial services to customers, they should focus on customer oriented services in order to compete with other financial institutions in the society. This paper focuses on the perception of customers towards the customized Services of Banks in Pathanamthitta District.

Design and FPGA Implementation of EPR Data Hiding in Encrypted Image for Secure Medical Data Transmission

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Abstract: Medical applications such as telemedicine and tele diagnosis require information exchange across insecure networks. So, the major challenge is to ensure integrity and confidentiality of the data and image. Another major issue is to store the Electronic patient record (EPR) in the medical image using any reversible data hiding scheme. Embedding capacity and transmission time also play key role in the data transmission across open network. Here a novel reversible data hiding scheme in medical images encrypted using AES algorithm is proposed. Image is encrypted using AES algorithm and to that encrypted image data is embedded using Least Significant Bit (LSB) replacement algorithm. The encryption key is also embedded in the image after encoding with a random sequence. Before transmission to network, row and column permutation is performed to enhance security since LSB replacement is fragile in nature.Linear Congruential Generator and Lagged Fibonacci number generator is used to achieve row shuffling and column shuffling.The output image obtained after this process is highly impervious to brute force attacks. To obtain real time performance, configurability and speed up calculation the system is implemented in Xilinx Virtex 6 FPGA. The scheme is tested using 6 real time MRI images of different sizes. Experimental results gives a PSNR value above 100dB with SSIM 0.9.From the best of our knowledge this is the first EPR data hiding scheme in a medical image in encrypted domain with row and column shuffling in software and hardware domains.

Design of Micro-Pmu Based Monitoring System for Decentralized Voltage Control of Distribution Network

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Abstract. Historically as the distribution grid is built in a radial structure and supposed to carry one-way power flow, only peak loads, fault currents, etc. are monitored continuously. The high penetration of Distributed Energy Resources (DER), Demand Response (DR) programs and new types of loads like Electric Vehicles (EV), etc. causes strain on the distribution grid and may cause congestion and power quality issues. This may lead to equipment failure and eventually to blackouts. All these factors necessitate continuous monitoring of operating states which can be attained by monitoring voltage and current phasors. Wide Area Monitoring System (WAMS) gives a snapshot of the distribution system through the deployement of Micro-Phasor Measurement Units (Micro-PMU) at selected distribution system buses. This paper presents an optimal design of measurement and communication infrastructure for decentralized voltage control of distribution system through an optimization algorithm named NashDE algorithm. In NashDE, variables of the optimization problem are decomposed into number of domains based on the connectivity by Markov Clustering (MCL) algorithm. For the decentralized control, the distribution grid has been divided into number of zones with the objective of loss minimization and voltage regulation. The optimal buses for installing Micro-PMU in each control zone are found out using NashDE algorithm. The proposed communication network is based on the partitioned network in which Dijkstra algorithm is employed to find out the optimal position of the decentralized control center or Phasor Data Concentrator (PDC)

Polyvinyl Alcohol/Beetroot Dye Film as Light Absorbing Material in Solar Cell

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Abstract: Solar energy is the green source which can replace unsafe and unclean methods for the generation of electricity. Solar cell is a device that directly converts solar energy into electrical energy through the photovoltaic effect. Ease of processability and film forming properties are very important requirement for light absorbing material in organic solar cell. Here we report the preparation of a novel light absorbing material from the natural dye extracted from beetroot. Beetroot dye showed good absorption from the UV-Visible region of the electromagnetic spectrum. So it can be used as a light absorbing material in organic solar cell. But it will not form uniform film because of its low mechanical stability. So in our work, we have prepared a new material by mixing beetroot dye with polvinyl alcohol (PVA). We have selected PVA because of its low cost, water solubility, high mechanical strength and good film forming properties. This new material combined the photo physical properties of beetroot dye along with high mechanical strength of PVA.

Keywords—solar cell, light absorbing materials, natural dye film.

Study on The Effect of Different Plant Extracts Against Rhynchophorus Ferruginous - A Potent Palm Pest

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Abstract: The present study explores the morphological and histological changes of fourth Instar larvae of Rhynchophorus ferrugineus. Experiments were carried out to evaluate the insecticidal potential of three medicinal plants - Ocimum sanctum, Saraca asoka and Asparagus racemosus against the serious coconut pest Rhynchophorus ferrugineus (Red Palm Weevil). Plant extracts were prepared using solvents such as acetone, ethanol and water. Different doses of these plant extracts were applied to the fourth instar larvae of R.ferrugineus. The results showed the plant extracts had direct toxic effect on red palm weevil larvae and among them aqueous extracts of A.racemosus showed significant morphological changes and moulting disturbances in treated insects and the effect was dose dependent. LD 50 value was assessed using Probit analysis. After screening treated larvae with the sublethal concentration of Asparagus ethanol extracts at concentration 8000ppm and LD 50 1041.08 on fourth instar larvae they showed certain abnormalities.The effect of the plant A.racemosus was found to be most significant causing highest mortality compared to other extract and sublethal concentration of this extract elicited significant changes in the histological architecture.

Keywords : Rhynchophorus ferrugineus, Ocimum sanctum, Saraca asoka and Asparagus racempest.

Study on Antioxidant Activity of Ipomea Sepiria Koenig Ex. Roxb. And Evolvulus Alsinoides Linn. By Dpph,Frap,Abts Methods

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Abstract: Nature has been a source of medicinal agents for thousands of years and a remarkable number of modern drugs have been isolated from them, many based on their use in traditional medicine. Ipomea sepiria Koenig Ex. Roxb. (Mal: Thiruthali) which belongs to the family convolvulaceae is a herb, perennial climber growing on the bank of rivers, streams, especially over hedges. This plant is used as traditional medicine to treat various diseases. Evolvulus alsinoides Linn. (Mal : Vishnukranthi) also belongs to the family convolvulaceae. The plant is widely used as antibacterial, anthelmintic, adaptogenic (anti-stress), anti-amnesic and as a good memory tonic. Aqueous and ethanolic preparation of these plants were analyzed for antioxidant activity assay, total phenolics and qualitative analysis of phytochemicals. The antioxidant activity of aqueous and ethanol extract of these traditional medicinal plants were carried out by DPPH,ABTS and ferric reducing antioxidant power assay.
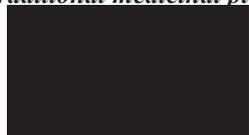
Study on Antioxidant Activity of Ipomoea sepiaria Koenig Ex. Roxb. and Evolvulus alsinoide Linn. by DPPH, FRAP and ABTS Methods

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Abstract: Nature has been a source of medicinal agents for millennia. A remarkable number of modern drugs have been isolated from plants, many based on their use in traditional medicine. Ipomea sepiaria Koenig Ex. Roxb. which belongs to the family convolvulaceae is a herb, a perennial climber growing on the bank of rivers, streams, especially over hedges. This plant is used as traditional medicine to treat various diseases. Evolvulus alsinoides Linn. also belongs to the family convolvulaceae. The plant is widely used as antibacterial, anthelmintic, adaptogenic (anti-stress), anti-amnesic and as a good memory tonic. In the present study, aqueous and ethanolic preparations of these plants were analyzed for antioxidant activity, total phenolics and qualitative analysis of phytochemicals. The antioxidant activity of aqueous and ethanolic extract of these traditional medicinal plants were carried out by DPPH, ABTS and ferric reducing antioxidant power assay.

Keywords: Ipomoea sepiaria, Evolvulus alsinoide, Phytochemical analysis, DPPH, Ferric reducing antioxidant power assay, ABTS.

Cryptographic Solutions for Credibility and Liability Issues of Genomic Data

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Abstract: With the rapid decrease in the cost of whole genome sequencing and genotyping, today, genomic data is widely used in healthcare, research, and even in recreational genomics. However, benefits due to this wide use of genomic data come along with potential threats against individuals' privacy. Genomic data of an individual includes privacy sensitive data about him such as his physical characteristics, predisposition to diseases, and family members. Therefore, it is crucial to protect privacy of an individual's genomic data while allowing him to utilize his data to receive certain healthcare or recreational services. As a result, there has been significant amount of research efforts on privacy preserving processing and secure storage of genomic data. The main aim of this paper is to protect privacy of an individual's genomic data while allowing him to utilize his data to receive certain healthcare or recreational services. Lots of individuals share their (anonymized) genomic data for research purposes. Such donations are very important for the research community as researchers need large amounts of genomic data samples to increase the statistical power of their studies. The proposed schemes are between a data owner and a service provider. Using the proposed schemes, on the one hand, a service provider can check the validity (or legitimacy) of genomic data it receives from a data owner (individual). On the other hand, the individual, via a digital consent, can make sure that the service provider will not further share his data without his permission. The proposed schemes are based on homomorphic signatures and aggregate signatures, and these cryptographic primitives enable us to link the information about the legitimacy of the data to the consent and the identity of the individual.

Keywords: Genomic data, Privacy, Homomorphic Signatures and Aggregate Signatures.

Comparison of Nanomaterial Coating on Hot Surfaces

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Abstract: The Thermal barrier coatings (TBCs) are low thermal conductivity ceramics used in the application of gas turbine engines like aircraft propulsion, power generation and marine propulsion, for providing thermal insulation to metallic components from hot gas. TBC system consists of ceramic thermal barrier layer, thermally grown oxide (TGO) layer between the topcoat and bond coat, the metallic bond coat layer, and substrate. Each layer has its own physical and chemical properties for meeting the required function of TBC. The TBCs are used to provide internal cooling of the underlying superalloy components. It advances gas turbine engines to operate at a temperature above the melting temperature of the superalloy and provides a temperature reduction up to 300 K. So it can achieve a remarkable increase in the efficiency and performance of engines. In this proposed work, compare the thermal properties of materials like yittria stabilized zirconia (YSZ) and zirconia by changing the coating materials. Results show that YSZ has lowest thermal conductivity than zirconia. For bond coat and Nickel are the suitable substrate materials along with the effective top coat material. Also, the optimized thickness for the bond coat and top coat materials are 60μm and 120μm respectively.COMSOL 4.3 multiphysics software is used in this work.

Keywords: thermal barrier coating, thermally grown oxide, yittria stabilized zirconia,nickel super alloy 718.

Exploring the varied types of scale cells overlaying the translucent wings of Dysphania percotica using llight microscopy

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Abstract: Dysphania percotica is belonging to a moth group commonly called Blue tiger moth under the family Geometridiae. The present work focuses on the different types of scale cells present in the varied coloured wing areas. The study has been conducted experimentally by scrapping off different coloured scales to a glass slide and fixing it with xylene and observing it under a light microscope. The dimensions of the scales were also studied by measuring it using micrometry. A total of 144 scales were identified, which included 63 scales of the dorsal wing, comprising of 33scales from violet spotted region and 30 scales from white coloured portion and 81 scales of the ventral wing, comprising of 51 scales from violet coloured tip region and 30 scales from violet spotted region. Analysis of dorsal wing areas revealed the presence of several blue, violet and green coloured scales. Varied coloured scales are less abundant on the ventral side. Scale cells have a length range of 90.5 µm to 145.7 µm and width range of 63 µm to 82.7 µm. Results of this work explicated that even though the moth are not as much attractive as other members of the order Lepidoptera including butterflies, they still possess variety of abundant scales on its surface irrespective of their visible colour patterns.

Keywords: Moth, Dysphania percotica, wing scale, Light microscopy, Micrometry.

$Baga_2o_4$:Eu^{3+}Phosphor for Photoluminescence and Dielectric Applications

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Abstract: Developing single phase phosphors for light emitting device has great demands for LED applications. $BaGa_2O_4$doped with one molar concentration of europium has been prepared by high temperature solid state reaction route. The structural studies were done using X-ray diffraction technique. UV-Visible absorption spectrum, Photoluminescence(PL)and Dielectric studies were also done.Exciting the sample at 270 nm produce a strong red emission at 613 nm with a wide host peak ranges to 360-570 nm.The sample doped with Eu shows strong emission at 613 nm with several weak emission peaks in the red region when excited at 393nm. After 1kGy gamma irradiation, the sample shows a high intense emission than the unirradiated sample. The optical bang gap of the sample is found to be 5.01eV from the UV visible absorption studies. The conductivity studies of the sample are also carried out. The insulating character of $BaGa_2O_4$changes with the doping as evidenced by the increase in conductivity.

Keywords:UV-Visible Absorption Spectrum ,Photoluminescence (PL),Dielectric.

Efficient Algorithms for Adaptive Load Scheduling Using Artificial Neural Networks

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Abstract: Nowadays, due to the non-linearity property of the systems, Artificial Neural Network (ANN) based technology is popularly accepted. The non-linear behavior of voltage and current through the loads leads to increase power loss or it leads to the system damage. Power harmonics due to these non-linear characteristics of loads and also from the sources may cause a serious damage of electrical devices. Energy losses due to the variation of impedance are another major issue. For an ANN level application, we need to specify the architecture and learning algorithm. Back Propagation Neural Network (BPNN) is treated as the most popular neural network technique. A trained neural network can be used to execute an isolated task by rearranging the value of weights between the elements. The neural network system is modified, based on difference of the system response and the target value, until the network output equivalent the target. We perform the training operation or adjustments of the network until a specified input leads to a specific target response. In supervised learning algorithm a numbers of such input/ target pairs are used to adjust or instruct a neural network. To obtain the voltage stability, arrange the output from sources based on the availability and cost using the neural network. In this work, we train the neurons based on different parameters like solar source, hydro source, demanded load and power loss. Here we consider more than one area for the scheduling of energy. In this algorithm the target sources is the hydropower source. That is, initially we consider the non -conventional power source that is solar source as the primary source. If the solar energy is not sufficient, then using our algorithm, the additional required energy is drawn from the target source so as to meet our load demand. To optimize the feed forward neural network training backpropagation technique and to minimize the errors, Levenberg-Marquardt algorithm is used. The slow speed of convergence and getting stuck in local minima are some negatives of backpropagation in complex computation. To overcome these drawbacks an innovative meta-heuristic search algorithm like Modified Ant colony optimization (MACO) and Modified Artificial Bee Colony Optimization (MABC) are used to provide back propagation with good initial connection weights.

Keywords: Artificial neural network, Backpropagation, Levenberg-Marquardtalgorithm, MACO, MABC

Implementation of Artificial Intelligence in Internet of Things

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Abstract: Artificial Intelligence still being the best solution to the data mining manage and control of congestion in the network. IoT nowadays becoming more and more popular with the inventions of high-speed internet networks and many advanced sensors that can be integrated into a microcontroller. The data flows internetsnowwillhavesensorsdataanduserdatathatsendand receive from the workstations. With the increase in the number of workstation and more and more sensors, some data may be facing problems on the storage, delay, channels limitation and congestion in the networks. To avoid all these problems, there were many algorithms were proposed in the past of 10 years. Among all the algorithms, Artificial intelligence is the best solution to manage huge data flows and storage in the IoT network. The aim of this paper is to present the application of artificial intelligence system in the IoT. The importance of data mining and management willbe highlighted in the paper. In addition, the method used in the Artificial Intelligence likefuzzylogicsandneuralnetworkalsowillbediscussedinthis paper in conjunction with IoT network. The self-optimizing network and software-defined network are parts of the important parameters in the Artificial Intelligence IoT System.

Keywords: Neural network; self-optimizing network; software-defined network; IoT; Artificial

Design and Development of a Novel Alginate Based Carrier for Delivery of Trichoderma Viride for Plant Protection and Nutrition

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Abstract: Food safety is threatened by numerous contaminants, which is originated from environmental pollution, such as toxic metals and organic halogenated compounds, chemicals used in the production of food, such as pesticides and veterinary drugs, contaminants formed during food production and cooking, contaminants arising from food packaging or natural toxins in food. Trichoderma, a potent bio control agent, is a genus of asexually reproducing fungi that have long been recognized as agents for the control of plant diseases and for their ability to increase plant growth and development. The emerging field of microencapsulation is a promising step to obtain the controlled and effective release of these microorganisms for targeted agricultural applications. The present study aims to determine the efficacy of alginate entrapped Trichoderma viride for its biocontrol activity.isolation and identification of trichoderma and aspergillus were done. The Trichoderma spores were immobilized in calcium alginate beads and were dried to be used in Trichoderma growth in dual culture technique and slide method. SDS PAGE analysis of entrapped and free Trichoderma viride was done to assess the protein content. Activity of the enzymes, cellulase and chitinase were assayed. Trichoderma viride and Aspergillus niger cultures were identified. Trichoderma entrapped in calcium alginate beads showed more production of cellulase and chitinase than Trichoderma spores as it is. SDS PAGE analysis showed more protein expression in lanes corresponding to sample isolated from bead encapsulated Trichoderma viride. Immobilization and microencapsulation is an advanced technology which has the possibility to overcome the drawbacks of biocontrol agent formulations, resulting in extended shelf-life, and controlled microbial release from formulations enhancing their application efficacy. The present study focus on analyzing the efficacy of immobilized Trichoderma viride spores on alginate beads and to determine its biocontrol efficiency. Trichoderma viride were purified and encapsulated to alginate beads and biocontrol activity was determined by slide culture test. The increase in hydrolytic enzymes such as chitinase and cellulase was determined spectrophotometrically and relative increase in protein content was confirmed by SDS PAGE analysis.

Key words: Trichoderma viride, biocontrol activity, microencapsulation, cellulase, chitinase Intelligence.

Green Approach to the Synthesis of Zinc Oxide Nanorods by Calycopteris Floribunda (Roxb.) Lam

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Abstract: The progress of green chemistry in the synthesis of ZnO nanorods with the use of plant extract has absorbed a great attention. This study reports the vine water of Calycopteris Floribunda Lam for the synthesis of ZnO nanorods by hydrothermal method. Calycopteris Floribunda is a large climbing shrub. Its stem and leaves are said to have large medicinal properties. The present exploration describes the synthesis and characterization of ZnO nanorods prepared by green chemical method. X-ray diffraction(XRD) pattern reveals the rod like morphology. UV-Vis absorption shows characteristic absortion peak of ZnO. Photoluminescence (Pl) emphasizes its Emission properties.

Keywords: Zinc Oxide Nanorods, Calycopteris Floribunda, Green Synthesis, X Ray Diffraction, Scanning Electron Microscope.

Multiband F Shaped Microstrip Patch Antenna For Wireless Application

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Abstract: Slot antennas formed by slots in the patch. The opening cut in the metallic patch acts as an antenna. Slot antennas are mainly in the frequency range from 300 MHz to 25 GHz. Most of the development of wireless communication is due to the advancement in the field of the antenna. In this work an antenna is designed for multi-band frequencies. Due to the easiness in design and fabrication, microstrip slot antennas are chosen. In the proposed work proximity coupled feeding technique is used. The patch has a dimension of 17mm X 19mm. This antenna achieves return loss of -19dB for 1.80 GHz, -11dB for 2.70 GHz, -25dB for 2.84GHz, -25dB for 3.22 GHz, -13dB for 3.53GHz and -26.5 dB for 4.07 GHz. In the proposed work 'F' and its flipped mirror image slots are made on the patch. This proposed antenna gives 6.32 dBi gain for 1.8GHz. The bandwidth given by this antenna is 61MHz for 1.80GHz frequency, 61 MHz for 2.70GHz, 81 MHz for 2.84 GHz, 88 MHz for 3.22 GHz, 81MHz for 3.53GHz and 135 MHz for 4.07 GHz. This antenna is widely used in the various wireless applications, such as Bluetooth, Wi-Fi, Wi-Max, and WLAN applications.

Keywords: Slot antennas, Microstrip antenna, Proximity Coupling.

Demosaicing of Color Filter Array Captured Images Using Multi Scale Gradients and Efficiency Comparison Using Patterns

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Abstract: Most of the current digital cameras use single sensor covered with a colour filter array(CFA). Single sensor digital cameras capture one color value for every pixel location. The remaining two color channel values need to be estimated to obtain a complete color image. This process is called demosaicing or Color Filter Array interpolation.In this paper, A directional approach to CFA interpolation that makes use of multiscale color gradients. The relationship between color gradient on different scales is used to generate signals in vertical and horizontal directions. The method is easy to implement since it does not make any hard decision, noniterative and threshold free. The developed method is applied to Bayer and Lukac pattern with great results which shows that the relationship between gradients at different scales can be a very effective feature to optimally combine directional estimates. Result can be used to compare efficiency of both pattern by using PSNR and MSE values.

Keywords: Color Filter Array(CFA)interpolation, Demosaicing, Directional Interpolation, Multiscale Color Gradients.

Fermentation Biology in Ayurveda – A Biochemical Perspective on Process Control Parameters And Phytochemical Changes During The Preparation of 'Balarishta'

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Abstract: Ayurveda, the traditional system of medicine in our country with its multifaceted treatment strategies is evolving rapidly through systematic scientific approaches. Ayurveda envisages a therapeutic approach that efficiently integrates all aspects of human health rather than dealing with the disease alone. The current demand for alternative systems of medicine worldwide has exemplified the need for extensive research in Ayurvedic science.Sandhanakalpana is the Ayurvedic dosage form referring to the acid/alcohol fermented formulations. Fermented preparations of medicinal plants known as Asavaarishtas form one of the major categories of Ayurvedic formulations. They are polyherbal formulations known for their pharmacological potency in a multitude of disease conditions. Fermentation of expressed juice of herbal constituents produce Asavas and Arishtas are derived from fermentation of herbal decoctions. Fermentation involves either cane sugar or jaggery as the sugar source and also respective powdered medicines are added as inscribed in the concerned Ayurvedic literature. The biochemical changes occurring during fermentation augments the bioavailability of herbal constituents and aids better absorption at the gastrointestinal surface. Biotransformation of phytoconstituents in the herbal decoctions and infusions contribute to the pharmacological properties of the drug. The present study describes the sequential changes in the process parameters during the preparation of Balarishta. The physicochemical and phytochemical assessments were conducted at different stages of processing. The formulations were tested for physicochemical parameters like pH, total solids, specific gravity, ethanol content, absence of methanol etc.The physicochemical analysis of the different stages of Balarishta showed progressive changes in pH, total solids and specific gravity.The total solids in the medium is constituted by the extracted components in the decoction stage, added jaggery ,powdered medicines as well as the bio transformed phytochemicals during the fermentation. The dissolution of phytochemicals was found to increase in the final stages of the formulation as the generated alcohol extracted more phytochemicals from the medium into the drug formulation. It was concluded that there was gradual increase in the total dissolved solids in the medium with increasing days of fermentation. Specific gravity of the medium showed a decreasing trend owing to the utilization of jaggery sugar for alcoholic fermentation by the microorganisms. The decreasing concentration of reducing sugar also substantiated the utilisation of sugars by the microorganism in the medium. From the data obtained from the quantitative estimation of phenolic compounds and flavonoidsit was observed that these secondary metabolites are converted by microorganisms into bioactive components. In vitro studies assessing the inhibition of protein denaturation by herbal extractscan be adopted as a method for preliminary screening of anti-inflammatory potential of plant extracts. In this study anti-inflammatory response of Balarishta during different stages of processing were evaluated by protein denaturation method. From the results it can be inferred that the protein denaturation inhibition potential of each stage of Balarishta increased gradually with successive biochemical changes in the medium. This strongly validates the significance of biomedical fermentation adopted in traditional medicine for potentiating the therapeutic benefits of the finished drug by effectively enriching the drug formulation with bioactive components from the herbal raw materials. Also the anti-microbial properties of the various stages of the preparation was analysed against Escherichia coli and Staphylococcus aureus. Significant antibacterial effect was manifested by the extracts in the different stages of preparation. The phytochemical composition of Balarishta is derived from the decoction prepared from nine different plants.Sida cordifolia and Withania somnifera are among the major ingredients.Evidence from scientific studies has identified ephedrine, withaferin A and gallicacid as phytochemical markers of Balarishta.Anti-inflammatory activity of Withaniasomniferahas been attributed to biologically active steroids, of which withaferin A is a major component.withaferin A demonstrated significant anti-inflammatory activity in adjuvant induced arthritis experimental models when compared to hydrocortisone, implicating its role in rheumatoid arthritis.To summarise, the present work focuses on the various process parameters required for the quality assurance of fermented Ayurvedic preparations. The work discusses the significance of biomedical fermentation in terms of its specific role in biotransformation of secondary metabolites into therapeutically active ingredients. The prospects of integrated approach to describe and validate the age old Ayurvedic therapeutic strategies will revolutionise the field of phytopharmaceutical industry.

Keywords: Fermentation, Balarishta, Phytochemicals

Issues and Prospects of Public Private Partnership in Kerala

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Abstract: The introduction of PPP as an alternative to public or private sector development initiatives has great significance in the context of modern economies where market failures and public provision are crucial choices. Market failures and public choices are occur due to Sub-Pareto optimality. In a resource constraint economy like Kerala, it is practically difficult to provide public utilities through government initiative alone. It requires a participative form of investment with the involvement of public and private. But the state is not in a position to make substantial investment and therefore PPP initiative has a great significance. It requires a participative form of investment with the involvement of public and Private. It has also been pointed out that there is in overarching emphasis on infrastructure in hard sectors. As per Economic Review 2018, Kerala is having 12 PPP projects at various stages- under construction, completed, terminated or operational in Kerala. The type of projects are mainly infrastructure. The projects consist mainly of transport, IT, energy, etc. Interestingly the setting up of PPP in the state raised serious concerns. Further, Kerala encounters many problems in its PPP projects. An understanding of these problems are highly needed to evolve better policies in its infrastructure development. The present paper is an attempt on that line. It proposes to examine the evolutions strategies, composition and functioning of PPP projects in Kerala. The present paper follows an analytical approach to explore the viability of PPP Projects.

Keywords: Public Private Partnership, Market Failure, Investment, Infrastructure

Spectroscopic Studies on 2-Methylimidazolium D-Tartrate Organic Crystal by DFT Method

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Abstract-Nonlinear optical (NLO) crystals having good stability, high transparency in the visible region and superior nonlinear susceptibilities are noteworthy due to their influence on the development of laser technology and optoelectronic industry. Single crystals of 2-Methylimidazolium D-tartrate has been synthesized bys low evaporation solution growth technique and the quantum chemical computations has been performed with the resource of density functional theory (DFT). Geometry optimization was done using Gaussian '09 program package at the B3LYP level with a standard 6-31G* basis set. The first hyperpolarizability of the molecule was computed by density functional theory. The observed vibrational wavenumbers in the experimental spectra were compared with the calculated results. From UV-vis absorption spectrum, excitation energy, maximum absorption wavelength and optical energy band gap have been performed. The HOMO-LUMO energy gap of the compound is calculated. HOMO and LUMO energies reveal the chemical reactivity, kinetic stability and hardness of molecule.

Keywords: B3LYP, Raman, FT-IR.

Automated Essay Grading

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Abstract: Essays are paramount for assessing the academic excellence along with linking the different ideas with the ability to recall but are notably time consuming when they are assessed manually. Manual grading takes significant amount of evaluator's time and hence it is an expensive process. With the increasing number of people attempting several exams like GRE, TOEFL, IELTS etc., it will become quite difficult for each paper to be graded besides the difficulty for humans to focus with a consistent mindset. Now-a-days we require such interfaces to practice in improving efficient writing skills along with their presence as graders in competitive exams. In this scenario a person finds it very difficult to grade numerous essays every day within time bounds. Automated grading if proven effective will not only reduce the time for assessment but comparing it with human scores will also make the score realistic. Automated essay grading has been a research area to maximize Human-Machine agreement for automatic evaluation of textual summaries or essays. The project aims to develop an automated essay assessment system in Python by use of machine learning techniques by classifying a corpus of textual entities into small number of discrete categories, corresponding to possible grades. The whole system is web-based, and random prompts are provided along with the minute details of grading.

Keywords: Essay, NLP, Feature Extraction, Classification, Text Similarity.

Hydrothermal synthesis of orange-red light emitting LaPO₄: Eu Nanoparticles

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Abstract: Lanthanum phosphate (LaPO4) is one among the lanthanide family of rare earth phosphates characterized as a fluorescence material. The fluorescence of the rare-earth-doped lanthanum phosphate (LaPO4) NPs is due to the bulk properties of the material and is therefore independent of their size. We are interested in white light generation and orange –red fluorescence is not observed in the sample. In order to include this region we are doping LaPO4 with Eu3+. From the XRD pattern it is clear that the particles having monoclinic structure and the crystalline planes are identified In XRD diffraction the diffraction peak of LaPO4:Eu shows a little shift compared with pure LaPO4.This shows that the size of the Eu3+ is smaller than the size of the La3+ in the nine fold coordination of monoclinic structure. From the emission spectrum presence of Eu3+ is confirmed and the reversal of the spectrum intensity indicates that Eu3+ ions are located in a highly symmetric environment.

Isolation and Characterization of a Novel Xylanase Producer, Streptomyces Rubiginosohelvolus From Western Ghats Region of Kerala

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Abstract- Xylanases are enzymes that break down the plant hemicellulose component- xylan, into a simple sugar called xylose. This enzyme have wide range of industrial applications, especially in paper and pulp industries. Western Ghats forest soil samples are rich in plant litter and thus the chances of obtaining potent xylanase producers are high. In the present study Western Ghats forest soil samples were pre-treated with heat and calcium carbonate. It was then enriched in media containing xylan as the sole carbon source for the isolation of xylanase producing actinomycetes. Of the 178 actinomycete isolates thus obtained, three were selected for further studies based on clearance zone formation during primary screening on xylan agar plates by congo red assay. These were subjected to a secondary screening by DNS assay and one potent isolate named TBG-B3 was chosen for further studies. The actinomycete isolate TBG-B3 was identified as Streptomyces rubiginosohelvolus by using polyphasic approach i.e.; by using conventional ISP methods and molecular (16s rDNA sequencing) taxonomic methods. The isolate was found to be negative for cellulase production when screened on CMC agar. Xylanase production was observed to be maximum at 6 days incubation period when checked by Remazol brilliant blue- plate assay. Streptomyces rubiginosohelvolus seems to be a promising isolate for the industrial production of cellulase free xylanase, which has important application in pulp bio-bleaching.

Keywords- Xylanase, Streptomyces rubiginosohelvolus, Western Ghats.

Damage Simulation in Total Hip Arthroplasty Using Finite Element Method

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Abstract: Hip arthroplasty is a well-known surgery to replace the damage in the hip joint. One of the major reasons for failure in hip arthroplasty is a femoral bone fracture. The purpose of this study is to analyse the effects of Total Hip Arthroplasty (THA) on the femoral bone fracture. Finite Element Analysis was used for the optimization of femoral bone fractures in Total Hip Arthroplasty. A model of femur bone was constructed and a prosthetic implant consisting of the stem made of Titanium alloy and ball made of Yttria-Tetragonal Zirconia Polycrystal (Y-TZP) were modelled and inserted to the femur bone. Finite Element Analysis with six different configurations was conducted which represent axial compression, torsion, lateral bending, stance and two different falling conditions. The loading was normalized to the body weight from 1BW to 3BW. The bone deformations were noted and the location of equivalent stress and maximum principle stress were evaluated. The analysis showed that the loading directions can predict variations and locations of damage formation in Total Hip Arthroplasty. Frequency analysis is also done for finding the external frequencies which may cause damage to the bone. Frequency analysis is also done in bone implant assembly. The results showed that in the implanted femur most of the load is carried out by the implant and the strength of the bone can be increased by using prosthetic implant.

Keywords: Total Hip Arthroplasty, Lateral bending, Damage formation, Frequency Analysis.

Oxidative Stress And Antioxidant Responses In The Indian Major Carp, Labeo Rohita To 4-Nonylphenol

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Abstract- Nonylphenol ethoxylates (NPEs) represents the most critical metabolite of alkylphenols (APs) and alkylphenol ethoxylates (APEs), non-ionic surfactants widely used in the formulation of domestic and industrial products. Bacterial degradation of NPEs produces more toxic nonylphenol (NP). The organic alkylphenol 4-Nonylphenol (4-NP) is one of the widely diffused and stable environmental contaminants. The present study aimed at investigating the 4-NP propensity to induce oxidative stress and antioxidant responses in the Indian major carp, Labeo rohita (L. rohita), a freshwater fish. From this viewpoint, L. rohita was exposed to various sub-lethal concentrations of 4-NP to evaluate the activities of the enzymatic antioxidants such as Superoxide Dismutase (SOD), Catalase (CAT), Glutathione Peroxidase (GPx), Glutathione-S-Transferase (GST), Glutathione Reductase (GR), non-enzymatic antioxidant such as glutathione (GSH) and lipid peroxidation products (LPOs) such as Malondialdehyde (MDA) and Conjugated Diene (CD) in the liver of the experimental fish. The results demonstrated that 4-NP, a ubiquitously present surfactant in aquatic systems significantly affects the antioxidant enzymes and LPOs with respect to control ($p < 0.05$). Exposure to the chemical was found to enhance the production of hydroxyl radicals and lipid peroxidation in a concentration-dependent manner. Therefore, the current results are relevant in understanding the toxicity of 4-NP and contribute knowledge about the possible hazardous effects in humans by consuming the contaminated fish.

Keywords: 4-Nonylphenol, Oxidative Stress, Antioxidant Enzymes.

Isolation of Salmonella Species from Cocos Nucifera Obtained After 2018 Kerala Flood

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Abstract: Foodborne diseases encompass a wide spectrum of illnesses and are a growing public health problem worldwide. They are the result of ingestion of foodstuffs contaminated with microorganisms or chemicals. The contamination of food may occur at any stage in the process from food production to consumption ("farm to fork") and can result from environmental contamination, including pollution of water, soil or air. The most common clinical presentation takes the form of gastrointestinal symptoms; and can also have neurological, gynaecological, immunological problems. Multiorgan failure and even cancer may result from the ingestion of contaminated foodstuffs, thus representing a considerable burden of disability as well as mortality. Salmonella are a group of bacteria that can cause gastrointestinal illness referred to salmonellosis. Coconut (Cocos nucifera) is packed with high nutirents, macro nuritents, vitamins etc so they are very much prone to contamination.Coconut has protective layers of exocarp , mesocarp making up the husk and the seed is protected by a stony shell endocarp and is an aseptic. Frozen shredded coconut is one of the major exporting product of coconut.There are many frozen food industries which are making great profits out of this. But after the Kerala flood of 2018, coconut collected from Palakkad and Ernakulam where highly contaminated with Salmonella and other organimsms because of the contaminated flood water. Salmonella Enteric bacteria and Coliforms have been isolated during the routine microbial analysis using Rappaport Vassiliadis Medium and Xylose Lysine Deoxycholate agar, which was further confirmed by biochemical analysis. This is one of the first studies which showed up the contamination by Salmonella and other organisms on "Cocos nucifera" through the penetration of contaminated water through the husk and shell.This study highly emphasis on the potential risk of obtaining Salmonellosis from the unprocessed raw coconut used as the raw material in food industry during 2018 kerala flood.

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