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**Research Paper**

#**Grading and Estimation of Genetic Variability from Fresh and Stored Seeds of J*atropha curcas* L.**#Chavan Arun, V.K. Gour and Niharika Shukla#1-5#1.ISCA-ISC-2013-1AFS-14.pdf

Abstract

Jatropha curcas L. belonging to family Euphorbiaceae originated from South America. The oil extracted from seeds can be converted into biodiesel by transestrification4. The present study involves 92 plants over 59 accessions to estimate variation and grading for seed characteristics. The variability in seed length was used as base to formulate seed grade (I to IX). The grading based on seed length and subclasses within unfilled and filled class of seeds in eight accessions revealed that grade I to IV with seed length of 1.3 to 1.6 cm constitute unfilled class of seeds called underdeveloped, where as grade V to IX with 1.7 to 2.1 cm length constitute filled class of seed called developed seeds. The seed traits of accessions under study have shown maximum seed range in the seed length, thickness and breadth (1.3 cm to 2.1 cm, 1.0 cm to 1.2 cm and 0.8 cm to 1.0 cm) is higher than reported11,12. The facts reveal that variation could be mainly due to genetic variation. The variation need to be screened to identify plants with higher length breadth and thickness and also to develop mechanical screening based on seed size to isolate desired grade for oil extraction.

**Keywords:** Jatropha, seed breadth, fresh and stored seeds, plus tree and seed grading.

#**Effective Communication modes Increases yield of Groundnut in Rural Agriculture of Kalwan Tahsil of Nashik District, Maharashtra, India**#Aher D.K.#6-8#2.ISCA-ISC-2013-1AFS-20.pdf

Abstract

Groundnut (Arachis hypogea L.) is the major edible oilseed crop of India. It accounts for 45% of the area and 55% of the production of total oilseeds in the country. It also accounts for 43% of total oil production in the country. Within the country, Andhra Pradesh ranks second in both area and production. The crop is grown in rainy (85% area), post-rainy (10% area) and summer (5% area) seasons. The rainy season groundnut is generally Rainfed, while post-rainy and summer groundnuts are irrigated. Productivity of the crop is however low, primarily because of its cultivation in marginal and sub-marginal soils under Rainfed conditions subjected to frequent droughts, poor agronomic practices and low levels of input, use of traditional low yielding varieties, incidence of insect pests and diseases. The average yield of Kharip groundnut in India is extremely low, 750 kg/ha, compared to yields at over 3000kg / ha in the developed countries. In this research paper Forty eight farmers were selected from rural Tahsil i.e. Kalwan of Nashik District. All farmers are grouped into four classes A, B, C and D. Group ‘A’ and ‘B’ farmers were supplied Rhizobium biofertilizer packets for seed dressing. Farmers were communicated by seed dressing at homes, at fields, supplied pamphlets, arranging poster show in respective villages. To determine per hectare yield, pods were harvested and weighed separately. The pod yield of treated plots was compared with untreated plots. The pod yield data was recorded, tabulated and statistically analyzed. The pod yield increases by 18 to 21 %, which is stimulatory for Groundnut in Kharif season.

**Keywords:** Bio-fertilizer, Communication Modes, Groundnut, *Rhizobium*.

#**Radial Variation in Wood Properties of Plantation grown *Terminalia* *myriocarpa* Heurck and Muell-Arg in Nagaland, India**#Sharma C.L., Sharma M. and Jamir L.#9-14#3.ISCA-ISC-2013-1AFS-21.pdf

Abstract

The present study was conducted on five 16 years old trees of T. myriocarpa collected from plantation located at Ungma village in Mokokchung district of Nagaland. The selected wood properties were fibre length, vessel length, fibre length increment and wood density. The main aim of the study was to evaluate radial variation in wood properties from pith to bark for effective utilization. The mean range of fibre length, vessel length, fibre length increment and wood density were 736.68µm -1300.03 ± 33.56µm, 341.10µm -431.44 ± 14.71µm, 381.31 µm -825.85 ± 19.60 µm and 0.33-0.53 ± 0.38 respectively. ANOVA carried out among trees showed non-significant variation in all wood properties. Wood density, fibre length and fibre length increment increased from pith to 40mm. and afterwards it remained more or less constant. There was gradual increase in vessel length from pith to bark. The regression models for fibre length, fibre length increment, vessel length and wood density were Y=675.26+110.87lnX, Y=312.96+100.28lnX, Y=389.76+0.31X and 0.30+0.04lnX respectively. Distance from pith had significant and positive correlation with fibre length, fibre length increment and wood density while the relationship between distance from pith and vessel length was too weak to be significant. On the basis of radial variation in wood properties, the boundary between juvenile wood and mature wood could be marked at 40mm. from pith for all selected parameters. The present study revealed that the plantation timber of Terminalia myriocarpa could be suitable for different end uses at this age.

**Keywords**: *Terminalia* *myriocarpa*, wood properties, juvenile wood, mature wood, regression.

#**Effect of Accelerated ageing on Seed Viability and Biochemical Components of the Edible Bamboo *Dendrocalamus brandisii* (Munro) Kurz**#Lakshmi C.J., Seethalakshmi K.K., Chandrasekhara Pillai P.K. and Raveendran V.P.#15-18#4.ISCA-ISC-2013-1AFS-64.pdf

Abstract

Dendrocalamus brandisii is a very large evergreen bamboo, which is commonly used for house building, for making baskets, handicrafts and furniture. Young shoots of D. brandisii are edible. Although, abundant seed production is observed during gregarious flowering, viability of seeds under natural conditions is very short. In the present study, accelerated ageing test was carried out to predict the storability of seeds. Seeds were subjected to accelerated ageing at 42±1°C with a relative humidity of 100% for 0, 1, 3, 5 and 8 days, in a covered water bath. Germination test and biochemical analyses were carried out for control and aged seeds. The initial germination percentage was 59.71% and after accelerated ageing germination declined to 15.39%. Total soluble proteins, sugars and starch content decreased during the ageing process. There was a gradual decrease in the activity of acid and alkaline phosphatase and peroxidase, while the activity of α-amylase and β-amylase increased during accelerated ageing. Hence the decrease in the viability of D. brandisii seeds may be due to the changes in the biochemical content and the activity of enzymes involved in the degradation of seed reserves.

**Keywords:** *Dendrocalamus brandisii*, accelerated ageing, seed viability, edible bamboo, amylases, peroxidase.

#**Studies on the Role of Arbuscular Mycorrhizal Fungal Enhancement on Soil Aggregate Stability**#Srimathi Priya L., Kumutha K., Arthee R. and Pandiyarajan P.#19-28#5.ISCA-ISC-2013-1AFS-93.pdf

Abstract

Arbuscular Mycorrhizal (AM) fungi isolated from various crop rhizosphere of sodic soil sites were purified and selected for inoculation along with two standard strains namely, Glomus intraradices and Scutellospora calospora in a pot culture experiment with maize as host crop to study their influence on soil aggregation. Analysis on soil parameters responsible for improving soil aggregation after a period of 24 weeks showed influence of AM fungal inoculations on root colonization (93 %), soil spore load (620 spores 100 g-1 soil), particulate organic matter (60 mg g-1 soil), microbial count (9.7 x 105 of bacteria, 10.3 x 104 of fungi and 1.4 x 103 of actinobacteria), micronutrient contents (4.96 ±0.06, 0.83±0.05 and 3.52±0.20 ppm of iron, copper and zinc respectively) soil organic carbon (0.37 %), total glomalin production (62 µg of protein g-1 of soil) as well as the water soluble carbohydrate content (0.67 mg g-1 soil). Therefore the aggregate stability of the soil has been increased to 53 % where, the standard strains ranked the highest followed by the sodic soil isolates, Glomus mosseae (TRY 3) and Scutellospora sp. (TRY 2). Overall results showed the positive influence of AM fungi on soil aggregation.

**Keywords:** Glomus intraradices, soil aggregation, micronutrient, water soluble carbohydrate, glomalin.

#Impact of Monocrotophos on the Histopathological Changes in the Gills of Mosquito Fish, *Gambusia Affinis*#Theurkar S.V., Gaikwad A.N., Ghadage M.K. and Patil S.B.#29-32#6.ISCA-ISC-2013-02AVFS-18.pdf

Abstract

Gambusia affinis is a fresh-water fish, but occurs also in brackish water. In aquatic resources, fishes are sensitive to the toxic substances mixed into water and deleterious effect of metals or heavy metals on fishes. The mosquitoes are breeding the larvae into the water which is the feeding source of the mosquito fish, called as Mosquito fish. The toxic substances are damage to the organism and degree of the cell damage reflects the various concentrations of the pollutants. In the present study an attempt is made to the Monocrotophos, an industrial as well agricultural effluence on Gambusia affinis. 50% mortality was exposure to Monocrotophos on 0.4 ppm at 96 hrs. The impact of Monocrotophos on the gill of Gambusia affinis, gill filaments are twisted and primary axis is in filtered of Gambusia affinis. The gill exhibited a film of coagulated mucous over the gill surface.

Keywords: Mosquito fish, Monocrotophos, *Gambusia affinis,* histopathology, toxicity.

#**Ecological and Biogeographical Features of Khed Tahasil, Pune District, MS, India**#Ghadage M.K., Theurkar S.V. and Patil S.B.#33-37#7.ISCA-ISC-2013-3BS-32.pdf

Abstract

Western Ghats with unique habitat from origin of Gondwana land. Now days these Western Ghats are biodiversity hotspot and world heritage .The Khed Tahsil is also one of part of Northern Western Ghats, in this region the Bhimashankar wild life sanctuary, famous for Ratufa indica elphistoii, sub species of the Indian Giant squirrel which is endemic in status. Khed Tahsil is located in the Northern part of Pune District, at altitude 626.015 MSL in Western Ghats. The landscape of Khed Tahsil is distributed triangularly in Western Maharashtra at foot hills of the Sahyadri Mountains and divide into three part Ghatmatha, Mawal and Desh. Present study carried out for biogeographic and ecological features of study area.

**Keywords:** Biodiversity hotspot, Western Ghats, Indian Giant squirrel, endemic.

#**Isolation and Characterization of L-asparginase producing isolate from Lonar Lake, Buldhana District, MS, India**#Chande Ashish and Bhat Manish#38-41#8.ISCA-ISC-2013-3BS-39.pdf

Abstract

L-asparginase has emerged as one of the most important clinically used enzymes as it exhibits chemotherapeutic potential in treatment of acute lymphoblastic leukemia and lymphosarcoma. Increasing reports of Immunological responses limit the utilization of the enzyme and indicate the need of new L-asparginase with new characteristics. Besides its clinical application this enzyme is widely used in food industries to significantly reduce the formation of acrylamide – a potent carcinogen in baked and fried food products. Screening of L-asparginase producing isolate from the highly alkaline and saline Lonar Lake has not been reported yet and an attempt for the same is made in this study. Out of 1592 total colonies four isolates were identified as L-asparginase producers by rapid plate assay. Further, a single isolate with the highest enzyme activity of 16.746 IU/ml was selected and identified. The organisms of the red pigmented, sticky, circular colonies having gram negative cell wall and rod shaped morphology showed positive tests for nitrate reductase, catalase and oxidase. The partial 16S rRNA sequence of the isolate showed maximum similarity with Stenotrophomonas koreensis TR6-01 strain. The alkalitolerant and halotolerant characteristic of this strain was revealed when the growth was observed in the media of pH10 and salt concentration of 4%.

**Keywords:** L-asparginase, chemotherapeutic potential, acrylamide, *Stenotrophomonas koreensis* TR6-01, Lonar lake.

#**Comparative Study of Antioxidant Capacity of Raw Powder and Waste Black Tea by Frap Assay**#Patel Gayatri, Gauni Bhagwati, Mehta Kavit and Patel B.N.#42-44#9.ISCA-ISC-2013-3BS-53.pdf

Abstract

Since many centuries tea has been used as important bioactive compounds like folk medicine and it is also an important source of polyphenol as a powerful antioxidant which has used in anticancer activity and protects cell damages from free radicals. This study aimed to compare antioxidant capacity of raw tea powder and tea waste sample by FRAP assay. Antioxidant activity of methanolic (50%) and distilled water extract of raw tea powder and tea waste sample were analyzed by FRAP assay. Total phenolic content was determinedusing Folin-Ciocalteu reagent and calculated as gallic acid equivalent per gram dry weight. Total antioxidant activity was found to be 0.930 mmol FeII/g of dry weight (waste tea) and 0.995 mmol FeII/g of dry weight (raw powder). Total phenolic content was 0.232 g gallic acid/g of dry weight (waste tea) and 0.162 g gallic acid/g of dry weight (raw powder). A correlation between total antioxidant activity, total phenolic content and gallic acid was tested between two samples. Because of contribution of phenolic compounds these samples possess higher antioxidant activity. It is strong radical scavenger and can consider as a good source of natural antioxidant for medicine purposes.

**Keywords:** Poly phenolic, FRAP, Antioxidant activity, Phenolic, Radical scavengers.

#**ANFIS Based Tumor Detection in Thoracic Images**#Anandpushparaj J.#45-49#10.ISCA-ISC-2013-3BS-116.pdf

Abstract

Lung is an important organ in our body which performs its function in both respiratory system and circulatory system. For lung cancer staging, a regional lymph node is important, and an automated system is used to detect both types of abnormalities. A fully automatic differentiation method for Lung tumor and diseased lymph node from CT image of thoracic region is used to calculate the false positive. The performance of detection and differentiation done in three stages, initially detect all potential abnormalities in thoracic image, the lung tumor and diseased lymph nodes are differentiated. Finally Benign and Malignant tumors are classified. Fuzzy logic and Neural Network in MATLAB are used to perform the tasks and also to reduce false positive rate.

**Keywords:** Lung cancer, medical imaging techniques, computer tomography images, benign tumor, malignant tumors, fuzzy logic, neural network.

#**Molecular Imprinted Membranes as Synthetic Receptors for the Analysis of Progesterone in Human Urine**#Anju Augustine and Beena Mathew#50-55#11.ISCA-ISC-2013-4CS-88.pdf

Abstract

Progesterone imprinted copolymer membranes of acrylonitrile with acrylic acid, methacrylic acid and acrylamide were synthesised by phase inversion technique. The developed membranes were characterised by FT-IR and SEM techniques. Imprinted membranes showed specificity towards the template progesterone. Among the various copolymers, the acrylamide incorporated copolymer showed high binding towards the used template. Investigation of the selectivity characteristics revealed that the developed membranes showed selectivity toward the template progesterone than similar compounds. The bound template could be totally recovered and regenerated membranes maintain their recognition property after repeated use. On the basis of the results, the imprinted polymer can be applied for the direct extraction of progesterone in clinical analysis.

**Keywords:** Molecular imprinting, acrylic copolymers, membranes, progesterone, binding capacity, urine analysis.

#**Comparative Study of E-Learning and Classical Teaching Methods in Computer Applications**#Wagh D.M.#56-58#12.ISCA-ISC-2013-5CITS-07.pdf

Abstract

From the beginning, in branch of Information Technology for teaching theory and practical work with various streams of computer application and science classical teaching methods are used. The evolutionary trends in teaching context are influences by various factors like organizational, socio-culture, intra and interpersonal factors. The present study carried out effective influence of learning methods of computer application students. The interest of academic profession depends upon the personal decisions made by teaching practitioners, e-learning adaptation and classical teaching understanding.

**Keywords:** Information technology, e-learning, learning adaptations, computer application.

#**Studies on the Degradation of Textile Dye by *Pseudomonas Aeruginosa***#Prasad M.P.#59-62#13.ISCA-ISC-2013-8EVS-38.pdf

Abstract

Use of textile dyes is becoming extensively easy in the textile industry because of their wide variety and varied applications. A large quantity of commercially available dyes is known to be used in the textile industries today and 10 % of nearly a million tons of dyes that are produced are released in environment as dyestuff waste. These dyes when disposed into the environment causes pollution and serious irreversible damage to the ecosystem as they significantly affect the photosynthetic activity of aquatic plants and are also toxic to aquatic organisms which eventually get into the food chain. In the present study the bacteria were isolated from samples collected from various textile industry effluent samples and were assayed for its dye degradation ability. The bacterial isolates which were capable of complete degradation of the dye were identified by morphological and biochemical characterization. The activity of these bacteria on different dyes for maximum degradation was tested using different physical parameters like different pH, temp and Dye concentration. The test organism Pseudomonas aeruginosa showed maximum dye degradation on the 8th day of incubation at 40 mg/l of dye concentration. The test organism showed maximum degradation at 40 0C, and a optimal pH of 6.0 to 8.0. In the present investigation Pseudomonas aeruginosa was found to be capable of maximum degradation of all the dye samples. The present study reveals the practical application potential of using bacterial species in the bioremediation of dye effluents that can be used to reduce pollution caused by textile industries.

**Keywords:** Pseudomonas aeruginosa, bioremediation, pollution control, textile dyes, effluent degradation.

#**Growth and Spectroscopic Characterization of Cobalt Tartrate Crystals**#Ariponnammal S. and Srinivasan T.#63-66#14.ISCA-ISC-2013-11MatS-09.pdf

Abstract

Cobalt tartrate single crystals have been grown by gel growth method. The x-ray powder diffraction study has shown that the Cobalt tartrate has been crystallized in orthorhombic structure. The scanning electron microscope reveals the morphology of the crystal having nearly spherical particles embedded in coral reef structure. It resembles coral flower. The particle size is determined as 80.7.nm. The analysis of EDAX has shown the presence of Cobalt and oxygen. The FTIR study has shown the presence of O-H bond, C-H bond and metal –oxygen bond. The UV-Vis spectrum shows high absorption in the ultra-violet region at about 365.7nm which makes the material to be suitable for UV filters. The energy gap is determined as 1.33eV.

**Keywords:** Cobalt tartrate, gel growth, XRD, SEM, uv-viS, FTIR.

#**Preparation and Characterization of Ceramic Products Using Sugarcane Bagasse ash Waste**#Hariharan V., Shanmugam M., Amutha K. and Sivakumar G.#67-70#15.ISCA-ISC-2013-11-MatS-21.pdf

Abstract

Bagasse ash is a waste from the burning of bagasse for power generation in sugarcane industry. Ash has a high silica with smaller amount of aluminium, iron, alkali and alkaline earth oxides. In this study an attempt has been made to use this waste ash as a partial replacement of ceramic body (Clay, Feldspar, Quartz) by different weight percentage are used to produce ceramic specimen. The chemical composition of the samples was determined by using XRF. Each composition was milled in a ball mill to obtain a suitable homogenous powder for specimen preparation. The green specimen was sintered under controlled temperature. The manufactured specimen was tested for its quality assessment. The observed mechanical parameter and analytical results of the specimens were correlated with the reference. The investigation reveals that high quality ceramic specimens could be achieved from blended materials. Thus, sugarcane bagasse ash waste presents high potential for application in the manufacture of ceramic products.

**Keywords**: Bagasse ash, ceramic insulator, properties, microstructure.

#**Variation in Morphology and Crystallinity of ZTO Ceramics**#Divya N.K., Jaya T.P. and Pradyumnan P.P.#71-74#16.ISCA-ISC-2013-11MatS-33.pdf

Abstract

Higher electron mobility, interesting optical properties and their stability under extreme conditions made Zinc Stannate or zinc tin oxide (ZTO) a promising candidate for applications such as solar cells, gas sensing, photo catalysis etc. Among the different methods of synthesizing ZTO ceramics, the hydrothermal method is an attractive green process, carried out at relatively low temperatures. We report the characterisation of surfactant free hydrothermally prepared Zinc Stannate ceramics. The pH of the crystal growing medium is varied as 7, 8 and 10. The improvement of crystallinity of the samples with increase in basicity of the medium is clear from XRD (X-Ray Diffraction) results. Amorphous nature of the sample drastically changed and showed high crystalline nature while the pH of the medium increased to 10. The chemical composition of the samples was confirmed via EDS (Energy Dispersive Spectra). The pH variation has a prominent effect on the morphology of the sample. Perfect cubic shaped particles were observed for high pH sample in the SEM (Scanning Electron Microscopy) images. Diffuse reflectance spectra analysis showed that the UV absorption characteristic is also improved with the increase in basicity of the medium.

**Keywords:** Morphology, zinc stannate, crystallinity, basicity, hydrothermal.

#**Study of Photon Interaction with Plasticizers**#Anil Shantappa and S.M. Hanagodimath#75-81#17.ISCA-ISC-2013-15PhyS-15.pdf

Abstract

The effective atomic number and electron density is calculated for some selected Plasticizers like Diethylene glycol dinitrate (DEDGN), Triethylene glycol dinitrate (TEGDN), Butanetriol trinitrate (BTTN), Trimethylolethane trinitrate (TMETN), Diethyl phthalate (DEP) and Diisobutyl phthalate (DIBP) for gamma radiation for energy region 1 keV-100 MeV by using mass attenuation coefficient from WinXCom. It is observed that the values of Zeff and Nel changes with energy for different Plasticizers. The variation of effective atomic number with energy for total photon interaction shows the dominance of different interaction process in different energy regions.

**Keywords:** Mass attenuation coefficients, effective atomic number, effective electron density, plasticizers, energetic materials.

**The Relationship between Physico-chemical Characteristics and Fish Production of Mod sagar Reservoir of Jhabua District, MP, India**#Shinde Deepak and Ningwal Uday Singh#82-86#18.ISCA-ISC-2013-2AVFS-10.pdf

Abstract

The effect of physico-chemical parameters on fish production was investigated in Mod sagar reservoir of Jhabua District (M.P.) India. The physico-chemical parameters investigated were temperature=17.1-32°C, transparency=19 cm-62 cm, pH=7.6–8.8, DO=3.0-10.9 mg/1, BOD=0.66-48.34, Total alkalinity=168-290 mg/l, TDS=180-330 mg/I. hardness=162 mg/l to 222 mg/l. Calcium=18.0-33.2 mg/l, chloride=22-36 mg/l, phosphate = 0.25-1.26 mg/l and nitrate = 0.23 - 0.98 mg/l. The main aim of this study was to establish relationship between Physico-chemical Characteristics and fish production of the reservoir.

**Keywords:** Mod sagar, fish production, Jhabua, physico-chemical parameters.

**A Study on the Behaviour of Micro (Life) Insurance Policy Holders’ with Reference to Coimbatore, India**#D. Geetha and S. Vijayalakshmi#87-94#19.ISCA-ISC-2013-18CLMS-09.pdf

Abstract

Insurance Regulatory and Development Authority (IRDA) has created a special category of insurance policies called micro-insurance(MI) policies to promote insurance coverage among economically vulnerable sections of society. Micro insurance contributes significantly to alleviate poverty and to raise the living standard of the people of the country. Hence it is imperative to conduct a research study on the performance of MI and find out the relevant problems. The research study was conducted in Coimbatore during 2013 with a sample of 100 MI(life) Policy holders. The objectives are i. To identify socio-economic determinants of MI(life) demand in Coimbatore. ii. To ensure the level of satisfaction of MI(life) holders. iii. To identify specific problems relating to MI(life). To achieve these objectives a research methodology was framed. The research design is both descriptive and analytical. Both primary (questionnaire) and secondary data were used. The data collected was analyzed with relevant statistical tools like percentage, mean score, Kruskal Wallis H-Test, factor analysis and Likert scale technique. From the analyzed data results were derived. Findings were summarized and presented in the research study. The study shows the growing popularity of MI(life) policy and the awareness among the public. Micro Insurance can play a crucial role as a comprehensive tool to reduce poverty, inequality and vulnerability, particularly where public social protection measures are inadequate and unevenly distributed.

**Keywords:** Poverty, risk, social security, micro-insurance policy, policy holder behavior.

**----------------------03.04.14------------------**

**Effect of sewage on Peroxidase activity, Carbohydrate, Protein and Iron content of Seedlings of Trigonella foenumgraecum (Methi)**#Bafna Angurbala, Pathrol Manisha and Maheshwari Rameshwar#95-97#20.ISCA-ISC-2013-1AFS-010.pdf

Abstract

Undesirable changes in atmosphere, hydrosphere and lithospshere occuring continuouly due pollutants. Nowadays surface water bodies are getting polluted due to discharge of large amount of untreated sewage into them,a common practice of disposal. Farmers are using this sewage polluted water to irrigate their vegetable fields in city conurbations. Such irrigation practices are common to solve the problem of water shortage. The present research was done to study whether sewage water imposes raised oxidative stress condition and affects nutrients contents of crops. The study was done to observe effect of 75%, 50%, 25% diluted and 0% (undiluted) sewage of Krishnapura nallah Indore onPeroxidase Enzyme activity (marker of Stress) ,Carbohydrate, Protein and Iron content of Seedlings of Trigonella foenumgraecum (Methi). Significant reduction in peroxidase activity was observed at 50% and 75% dilution of sewage when compared with undiluted sewage i.e.0 % dilution. Reductions were also significant at all dilutions when compared with Tap water. Carbohydrate content was found to be significantly decreased at all dilutions of sewage when compared with tap water and also with undiluted sewage. Protein content was found to be significantly decreased at all dilutions of sewage when compared with tap water and also with undiluted sewage . Significant reduction in Iron content was found at 75% dilution of sewage when compared with undiluted sewage. Significant reduction in iron content was also observed with untreated sewage when compared with tap water but insignificant with 50 % and 25 % dilution of sawage. From the results of present study it is concluded that undiluted and diluted sewage were not imposing raised oxidative stress.Reduction in protein ,carbohydrate,and iron content might be due to higher amount of organic and inorganic material specially toxic heavy metals in sewage which are adversely affecting the enzymses of metabolic pathway.

**Keywords:** Trigonella foenumgraecum seedlings, conurbations, peroxidase activity Iron content.

**Paradigm on Genetically Modified Foods**#Lanka Suseela, Shaik Gousia, Pydipalli Muralidhar#98-109#21.ISCA-ISC-2013-1AFS-016.pdf

Abstract

GM foods (genetically modified foods) are produced by incorporating the desired gene into the genome of the host plant, there by introducing desirable changes in the host using techniques of genetic Engineering. Genetic Engineering is more advantageous compared to selective breeding in bringing about desirable changes in a much faster way. The world population is expected to reach 9 billion people by the year2050, requiring 70% more food than what is produced at present. Food security is needed for growing population which cannot be met by conventional breeding methods because of limited land resources and other environmental conditions. Since GM foods offer superior qualities, give higher yield and can be grown in a wide variety of environmental conditions compared to conventionally grown foods, they are the only way to meet the required food demand. Till now only a small percentage of total agricultural land was being used for the cultivation of GM crops. This is the situation all around the world which should be changed. So the government should take necessary measures to educate the farmers regarding the beneficial characters of GM crops and encourage them to cultivate the same. People around the globe are having many doubts and myths regarding the safety of GM foods. This could be due to lack of proper awareness regarding GM foods and added to this many companies are misleading the public by printing false and misleading labels on their products like - ‘GM free foods’, ‘Safe and GM free’ etc. In this context, the current study is undertaken to know the awareness, acceptability and myths’ regarding GM foods among Educated and Uneducated communities through a questionnaire supplied to them. The statistical significance of the data obtained was tested by using Fisher-exact test.

**Keywords**: GM foods, selective breeding, genome, genetic engineering, food security, fisher-exact test.

**GIS techniques for Mapping highly Fragmented ecosystems- A case study on the Myristica swamp forests of Southern Kerala, India**#Roby T.J., Nair P.V. and Joyce Jose#110-119#22.ISCA-ISC-2013-1AFS-70.pdf

Abstract

Myristica swamps are a highly fragmented, threatened and endangered freshwater swamp forest ecosystem of Western Ghats with distribution restricted to flat bottomed valleys with sluggish streams in altitudinal range of 100 – 200 m. In southern Kerala these swamps are present in Kulthupuzha, Anchal forest ranges and Shendurney WLS. The small size of swamp patches and thick forest canopy challenge the efficacy of usual mapping techniques such as Remote sensing and GPS survey. So a combination of conventional (compass survey) and latest survey technique (GPS survey) was used for the mapping. Conversion, plotting of spatial layers, map generation and analysis was done by using customized and Open Source GIS softwares. We mapped 60 Myristica swamp patches from the study area contributing 149.75 hectare (ha) (0.01348% of Kerala forest). The area of swamps ranges from 0.22 to 16 ha Kulathupuzha Forest Range has 31 swamps (78.73 ha), Shendurney WLS has 16 (37.35ha) and Anchal has 13 (33.67ha). GIS simulation studies reveals that 148.57 km2 area (1.34% of Kerala forest) in Kerala has potential for Myristica swamps, in which Thiruvanathapuram and Punalur forest division has maximum area to support Myristica swamps. Exact mapping proved a decisive tool for conservation and management efforts.

**Keywords:** Myristica swamps, wetlands, mapping, GIS techniques, GPS survey, swamp forests, ecosystem.

**Effect of Supplementation of Selected Plant Leaves as Growth Promoters of Tilapia Fish (Oreochromis Mossambicus)**#B. Karpagamand Krishnaveni N.#120-123#23.ISCA-ISC-2013-02AVFS-24.pdf

Abstract

An investigation was carried out to evaluate the effect of selected plants (Sesbania grandiflora, Moringa oleifera, Coleus aromaticus, Ocimum basilicum and Solanum verbascifolium) supplemented feed on the growth parameters such as length gain, weight gain and specific growth rate of Oreochromis mossambicus. Five experimental feeds were prepared by adding 5 grams of plant powder to the basal diet and one control feed without plant powder. The fishes were supplemented with these feeds for 45 days and the results were obtained for every 15 days once. The data were anaylzed usinh one way analysis of variance (ANOVA) and the means were separated using least significant differences. The fishes fed with Moringa oliefera supplemented feed showed maximum increase in weight (0.96%, 1.33%, 1.78%) and specific growth rate. The maximum increase in length was observed in the fishes that were fed Ocimum basilicum supplemented feed (1.2%, 1.6%, 2.0%). This study indicated that inclusion of plant ingredients in fish feed resulted in superior growth performance and the formulation of plant based diet for fish will provide new opportunities.

**Keywords:** Tilapia, plant supplemented feed, growth.

**Immunological Studies of Disease induced common carp Cyprinus Carpio fed with Neem extract added Feed**#Valsa Judit Anto A. and Balasubramanian V.#124-126#24.ISCA-ISC-2013-2AVFS-28.pdf

Abstract

Low concentration of plant extracts can act as an immunostimulant. It is biodegradable and environmental friendly. Azadirachta indica (neem) extract was used to prepare artificial feeds at the concentrations of 250, 500, 750 mg/kg of dry diet. The prepared diets were fed to experimental fishes common carp, Cyprinus carpio for 30 days and then injected with 0.1 ml of 105 CFU/ml of Aeromonas hydrophila and every seven days intervals the following immunological aspects, such as, antibody titre, phagocytic activity and hepatosomatic index were studied. The plant extract treated groups no mortality was seen. Low dose of plant extract (250 mg/kg) showed maximum antibody titre, phagocytic activity and hepatosomatic index than the control and other experimental groups. 250 mg/ kg feed was found to be more effective than the control and other groups of fish.

**Keywords:** Aeromonas hydrophila, Cyprinus carpio, Antibody titre, Phagocytic activity, Hepato Somatic Index (HSI), Neem extract.

**Growth efficacy and Feed utilization of fresh water Fishes Cirrhinus mrigala (Ham.) and Cyprinus carpio L. fed with Limonia acidissima L.**#Deivamarudachalam Teepica Priya Darsini, Vellingiri Maheshu, Ponnuraj Srinivasan, Jaganathan Dinesh Babu, J Castro and Jagathala Mahalingam Sasikumar#127-131#25.ISCA-ISC-2013-2AVFS-35.pdf

Abstract

The effect of dietary Limonia acidissima L. fruit (LF) on the growth and feed utilization was investigated in Cirrhinus mrigala and Cyprinus carpio. Mrigal fingerlings of about 5.30 ± 0.03 g and Carp fingerlings of about 3.50 ± 1.50 g were fed, diets supplemented with three concentrations (1.5 %, 3 %, and 6 %) of herbal diet for 30 and 60 days. Survival, specific growth rate, feed conversion rate, feed efficiency and relative growth rate parameters were significantly different (p < 0.05) and higher in experimental groups compared to control. The highest weight gain (17.75 ±0.19; 50.91 ±0.39) and feed conversion ratio (0.92 ±0.01; 0.64 ±0.03) of C. mrigala were observed at 30 and 60 days respectively in 3% herbal diet fed group and lowest in control. In addition, the highest weight gain (18.97 ±0.10; 51.53 ±0.20) and feed conversion ratio (0.56 ±0.007; 0.42 ±0.005) of C. carpio were observed in 3% herbal diet and lowest in control. Protein efficiency ratio and specific growth rate for C. mrigala and C. carpio respectively were higher in fishes fed with 3% herbal diet and lowest in control. The overall difference in parameters between C. mrigala and C. carpio were significant among experimental group than the control (p < 0.05). These results reveal that an underutilized fruit of medicinal plant Limonia acidissima L. enhance the growth and metabolic parameters of C. mrigala and C. carpio fingerlings.

**Keywords:** Feed utilization, Limonia acidissima L. fruit, growth performance, fresh water carps

**Isolation and Characterization of Biofilm Producing Bacteria from Arabian Sea**#Nisha.P and M. Thangavel#132-136#26.ISCA-ISC-2013-3BS-12.pdf

Abstract

Nowadays many studies have been carried out to investigate the occurrence of novel microbial bioactive compounds.Biofilms can produced by microbial species and having fascinating industrial applications. In this present study, water samples from ‘Arabian Sea', isolated organisms were screened for biofilm formation. Potent biofilm producer was identified as Halomonassp(MP) by morphological and biochemical characteristics based on Bergey’s manual of determinative bacteriology, and also by sequencing. Antibacterial activity of EPS from MP was done by disc diffusion method with some pathogenic organisms and characterized. The EPS produced in different environmental factors like incubation temperature 270C and 370C, pH 6 - 8 and in incubation time 24hr, 48hr, 72hr and 96 hr. Maximum EPS production was at pH 8, 270C and at 96 hrs of incubation time. EPS supernatant and Dry EPS produced in each parameters, quantified by total carbohydrate and total protein).

**Keywords:** EPS, Halomonas, Biofilm, antibacterial activity, bioactive compound.

**Indigenous uses of medicinal plants in North Garo Hills, Meghalaya, NE India**#Sharma M., Sharma C.L. and Marak P.N.#137-146#27.ISCA-ISC-2013-3BS-17.pdf

Abstract

The present study was conducted to highlight the indigenous uses of medicinal plants by Garo tribe in North Garo Hills, Meghalaya. Villagers and traditional healers (Ojhas) were consulted to gather information on medicinal plants. In the present study a total of 66 medicinal plants belonging to 61 genera and 40 families were documented and information on local names, scientific names, family, habit, plant parts used and medicinal uses of these plants were also given. Trees were the main sources of medicinal plants followed by shrubs, climbers and herbs. The recorded plant species were used for common ailments like headache, stomach problems, cold, cough and fever, jaundice, skin diseases, blood pressure and epilepsy etc. Bark and leaves were mostly used plant parts, followed by roots, fruits and seeds for curing diseases. The recorded plants were consumed orally in the form of juice or decoction. It was also observed that knowledge of medicinal plants was confined only to elder people and traditional healers (ojhas) and source of extraction of these valuable resources were nearby forests.

**Keywords:** Garo tribe, medicinal plants, indigenous uses, bark, trees.

**Study on Fructosyltransferase enzyme from Aspergillus sp. in Fructooligosaccharides production**#Arthee R. and Vijila K.#147-153#28.ISCA-ISC-2013-3BS-118.pdf

Abstract

The fructosyltransferase intra- and extra- cellular enzyme preparations obtained from Aspergillus sp. was used to produce fructooligosaccharides by enzymatic conversion of sucrose. The crude enzyme preparation of Aspergillus sp. exhibited fructosyltransferase activity of 5.0 U.mg-1 at 60 per cent sucrose concentration. The specific activity was recorded at its highest rate at the substrate concentration of 40 per cent (9.05 U.min-1.mg-1 of protein). The high performance liquid chromatography analysis of the end products of fructosyl enzyme activity on sucrose had shown the formation of, 1-kestose and nystose along with glucose, fructose and unhydrolyzed sucrose. The enzyme activity was stable at a temperature of 52°C and at a pH of 4.5. The activity of enzyme was enhanced by addition of 1 mM FeSO4 (7.1 U.min-1.mg-1 of protein) and also by addition of Fe2+ and its combination with Ca2+ (9.2 U.min-1.mg-1 of protein). Susceptibility to detergents was observed. The selectivity of conversion of sucrose to fructooligosaccharides obtained by the enzyme was approximately 70 per cent under optimized conditions. The partially purified fructosyltransferase preparation from Aspergillus sp. is found applicable for industrial production of fructooligosaccharides.

**Keywords:** 1-Kestose, Nystose, Fructosyltransferase, HPLC, Parameter optimization.

**Synthesis, Spectroscopic Characterisation and Biological Studies of Copper (Ii) Complex Derived from Salycyloyl Hydrazide with Furfuraldehyde**#Vidya V.G. and Mini S.#154-156#29.ISCA-ISC-2013-4CS-23.pdf

Abstract

A Cu(II) complex of a ligand [L] derived from salicyloyl hydrazide and furfuraldehyde has been prepared. The ligand and metal complex were characterised by elemental analysis, magnetic measurement, molar conductance, FTIR, UV-Vis spectra, ESR and mass spectral studies. Analytical data suggests the molecular formula of the complex as [CuL2]Cl2. The IR spectral data suggest that the [L] is acting as neutral bidentate ligand towards Cu(II) in its complex.IR, ESR and magnetic susceptibility of the sample taken in the solid state, electronic and mass spectra are taken in the ethanolic solution and the conductance is measured in the solution state. The electronic spectral data and magnetic moment value agrees to the tetrahedral geometry of the complex. The electrolytic nature is evidenced from the high conductance data. The biological screening activity of the ligand and its copper(II) complex against the bacteria Escherichia Coli, Vibreo Cholerae and fungi Aspergillus Niger, and Penicillium Crysogenum are also reported. The complex exhibit increased activity than the ligand.

**Keywords**: Furfuraldehyde, IR spectra, ESR, Cu(II).

**Synergic Effects of Anticancer Drugs to Bovine Serum Albumin: A Spectroscopic Investigation**#Jeena Abraham and Beena Mathew#157-162#30.ISCA-ISC-2013-4CS-82.pdf

Abstract

Anticancer drugs (i) 5-fluorouracil (5-FU), (ii) azacitidine (AZ) and (iii) cytarabine (CY) (pyramidine analogues) have the ability to quench bovine serum albumin (BSA).The synergic effect between the drugs and BSA were studied using fluorescence spectrophotometer and ultraviolet spectroscopic techniques under imitated physiological conditions. The results indicate that static quenching and non radiative energy transfer are the main reason of fluorescence quenching. The synergism results in both the reduction of the binding stability between drugs and BSA and an increase of the free drug concentration, which will increase the efficacy of drugs. The binding distances (r) between the drugs and BSA were obtained based on Försters theory of non-radiation energy transfer. The results indicated that the effect of synergism affected the conformation of BSA.

**Keywords**: BSA, anticancer drugs, spectroscopic investigation, FRET

**Tailoring of Sorbents for the Selective Recognition of Tyramine based on Molecular Imprinting Approach on Multiwalled Carbon Nanotubes**#Rohini Ashok and Beena Mathew#163-169#31.ISCA-ISC-2013-4CS-89.pdf

Abstract

Core-shell nano structured molecularly imprinted polymers (MIPs) for the selective separation of tyramine have been synthesized by free radical polymerization technique using vinyl functionalized multiwalled carbon nanotubes as support material and tyramine as template molecule. Functional monomer and crosslinker used for the polymerization process are methacrylic acid and ethylene glycol dimethacrylate respectively. Core–shell molecularly imprinted polymer overcomes the problems associated with the template transfer and increases the binding capacity. Porogen used is a mixture solution of acetonitrile and toluene. Morphology of the synthesized MWCNT- MIP composite was characterized by Fourier transform infrared spectroscopy (FT-IR), X-ray diffraction technique (XRD) and scanning electron microscopy (SEM) which confirmed homogeneous formation of MIP on the surface of multiwalled carbon nanotubes. Investigation of adsorption and kinetic characteristics revealed that the MWCNT-MIP composites contain homogeneous binding sites and have high binding capacity. Selectivity of the synthesized polymer was evaluated using dopamine as the structurally related compound which demonstrated that imprinted polymer has high selectivity towards tyramine.

**Keywords**: Molecular imprinting, core-shell MIP, MWCNT, tyramine, molecular recognition.

**Synthesis of water soluble Polyvinyl alcohol-based Terpolymer and Evaluation of corrosion inhibition property on Mild steel in hydrochloric acid**#R. Geethanjali, S.Subhashini#170-176#32.ISCA-ISC-2013-4CS-100.pdf

Abstract

A grafted terpolymer was synthesized using polyvinyl alcohol, sodium salt of vinyl sulphonic acid and acrylic acid. The synthesis was carried out in an aqueous medium containing 0.5:1:2 of monomer feed ratio comprising polyvinyl alcohol, acrylic acid and sodium salt of vinyl sulphonic acid respectively. The polymerization was monitored at different temperatures and time intervals for determining the optimum reaction conditions. The terpolymer was characterized using FTIR. The corrosion inhibition properties of the terpolymer were studied for mild steel in hydrochloric acid. The effect of change of vinyl sulphonic acid content in the terpolymer composition on the corrosion inhibition was also studied. The anticorrosive properties of the synthesized terpolymer were evaluated by gravimetric method and electrochemical method at room temperature.

**Keywords:** PVA, Terpolymer, Mild steel, Acid corrosion, polarization studies, impedance spectroscopy

**Histidine as Synergistic additive on Poly (N-Methyl Aniline) for mild Steel Corrosion in 0.5 M H2SO4**#R. Menaka, M. Nandhini and S. Subhashini#177-184#33.ISCA-ISC-2013-4CS-103.pdf

Abstract

An inhibitor system composed of Poly(N-Methyl Aniline) [PNMANI] and histidine has been evaluated for its synergistic corrosion inhibition performance for mild steel in 0.5M H2SO4. PNMANI was prepared by free radical polymerisation using ammonium peroxodisulphate as initiator. 100ppm PNMANI exhibited 70% inhibition efficiency. In order to enhance the inhibitive action of PNMANI, histidine was added as a synergistic additive. The influence of histidine on PNMANI has been evaluated by weight loss and electrochemical methods. As expected, the inhibition efficiency gradually increased with increase in histidine concentration. The maximum inhibition efficiency of 89% was achieved for the inhibitor system viz 100ppm of PNMANI-130ppm of histidine. The enhanced inhibition performance of the inhibitor system has been proven thermodynamically.

**Keywords**: PNMANI, histidine, mild steel, synergism

**Synthesis of Silver Nanoparticles by Microwave irradiation and investigation of their Catalytic activity**#Siby Joseph and Beena Mathew#185-191#34.ISCA-ISC-2013-4CS-108.pdf

Abstract

In this study, silver nanoparticles (AgNPs) have been synthesized in aqueous medium by a simple, efficient and economic microwave assisted synthetic route using hexamine as the reducing agent and the biopolymer pectin as stabilizer. The synthesized AgNPs were characterized by UV-vis. spectroscopy, Energy dispersive X-ray (EDX), X-ray diffraction (XRD) and Transmission electron microscopy (TEM) techniques. TEM images suggest that the nanoparticles are of spherical shape with an average diameter of 18.84 nm. The reduction of 4-nitrophenol to 4-aminophenol by NaBH4 in aqueous medium was selected as a model reaction to investigate the catalytic activity of AgNPs. The pectin stabilized silver nanoparticles (AgNP-pectin) were found to exhibit very good catalytic activity and the reaction followed pseudo-first order kinetics. The rate of reaction was found to increase with increasing temperature and the activation energy was found to be 47.3 kJ mol-1.

**Keywords:** Microwave, silver nanoparticle, pectin, 4-nitrophenol, catalysis.

**The Physico – Chemical Analysis of Ground Water in and around Dindigul Due to the Discharge of Sewage and Industrial Effluents**#Jesu A., Ignatius Navis Karthika and Dheenadayalan M.S.#192-197#35.ISCA-ISC-2013-4CS-110.pdf

Abstract

The present study is carried out pollution problem at Savariyar Palayam Pond in dindigul district. The aim to analyze the toxic effects of tannery effluents and sewage water nearby Savariyar Palayam in Madurai Road at Dindigul District. The 68 tanneries in dindigul, they are located within 2 km distance from the pond. The tanneries effluents are discharged in to ponds, thereby polluting the ground, water sources and cultivable land. The Pollution due to tannery effluent is caused by variety of chemicals is used in the tanning industries, including lime, sodium chloride, sodium carbonate, ammonium chloride, sulphuric acid, tannins and dyes. All tanneries need a large amount of water for processing leather and depend on groundwater sources for their daily requirements. The discharged- effluents from the processing units are stored in large lagoons Pollution occurs as the dissolved salts percolate into the surrounding water and soil.

**Keyword**: Industrials effluent, sewage water, ground water, TDS, PH, physicochemical.

**Structural Response of FRP Strengthened Post-Tensioned Concrete Beams**#Revathy J. and Sriraman M.#198-202#36.ISCA-ISC-2013-7EngS-Civil-06.pdf

Abstract

The paper presents the experimental results on the flexural behaviour of prestressed concrete (PSC) beams strengthened with externally bonded Fibre Reinforced Polymer (FRP) plates. The beam specimens used for this study were unbonded post-tensioned. The PSC beams were strengthened with Glass Fibre Reinforced Polymer (GFRP) plates with different configurations and thicknesses of 3 mm and 5 mm. The beams were tested under a static gradual loading up to failure to examine its flexural behaviour. The study parameters were ultimate load, ultimate deflection, ductility, failure mode and cracking pattern of the beams. The study showed that the UDCGFRP plates were found to be very effective in ultimate load carrying capacity, deflection and ductility when compared to other beams. The test results showed that the GFRP strengthened PSC beam increased its load carrying capacity by 89 % over the control beam. GFRP strengthened PSC beam showed an increase in ductility by 90% than the control beam. The PSC beam specimens failed either by crushing of concrete and by rupturing of FRP.

**Keywords:** Deflection, Ductility, GFRP, Strengthening, unbonded, post-tensioned beam.

**Biosulphidogenesis and Bioaccumulation of sulphate by moderately Thermophilic, Facultative anaerobic Bacteria Aeromonashydrophilaisolated from hot Water spring**#Patil S. Z., Unnitha. A. R. and Unnikrishnan G. #203-208#37.ISCA-ISC-2013-8EVS-13.pdf

Abstract

A unique, facultative anaerobic, moderately thermophilic Sulphate reducing prokaryote (TSRP) was isolated from Vajreshwari and Ganeshpuri hot Springs of Thane, Maharashtra. The optimum temperature, pH and NaCl concentration for growth of this strain was found to 41° C, 6.5, and 4.5% respectively. The strain Si showed 100% reduction ofstandardsulphatein 11hrs., with no production of sulfide. This result reflects the presence of assimilatory sulfate reduction pathway type I, which reduces sulfate to sulfite and finally to sulfide that is accumulated in the cellfor cysteine biosynthesis. The analysis of the effluent collected from colour and dye industry showed high concentration of sulphate (689ppm).These effluent wassubjected to sulphidogenesis by strain Si and there was complete reduction of sulphate in 12.30 hrs.with no production of sulphide. Phylogenetic analysis of 16s rRNA sequence placed strain Si in gamma subclass of proteobacter, showing highly similarity with other phylogenetic relatives. Thus this isolate is a member of genus Aeromonas and the type strain is hydrophila strain ZHYYZ-1. The result indicated that Aeromonashydrophila strain ZHYYZ-1 has high efficiency of sulphate reduction in much less time with no production of sulfide than previously studied anaerobic bacteria.

**Keywords:** Biosulphidogenesis, TSRP, Assimilatory Sulphate reduction pathway Type I, Bioaccumulation, 16s rRNA.

**Effects of Polyvinyl Chloride Addition on Swelling Resistance of Nitril Rubber**#Yasser Haider A., Al-Maamori Mohammed H. and Al-Mosawi Ali I.#209-211#38.ISCA-ISC-2013-11MatS-02.pdf

Abstract

A research aim to improving the swelling resistance of Nitril rubber NBR by insertion a various amounts of Polyvinyl chloride PVC,(30% ,50% and 70% ) respectively, at curing condition (temperature 170 ºC, pressure 90 bar during 20 min) that leads to create a new polymer morphology of polymer blend. Swelling resistance in the oil and distilled water exponentially improved with increasing PVC content in blend, weather resistance and thermal stability of NBR is also developed with PVC addition due to PVC have higher glass transition temperature which 87 ºC than NBR which is -15 ºC.

**Keywords:** Nitril rubber, Polyvinyl chloride, swelling resistance.

**Synthesis of mixed Oxides of Cerium-Iron Nanostructures for Effective Removal of Heavy Metals from Waste Water**#Vivekananthan.V, Selvapriya.A, Janani.D and Narendhar.C#212-217#39.ISCA-ISC-2013-11MatS-15.pdf

Abstract

Cerium-iron oxide, as a mixed form or as a multi ferrite composite can be a potent material to remove organic and inorganic contaminants through affinity based binding. Being semi conducting in nature they also exhibit elevated photo-catalysis at nanoscale. This effect of photo catalysis can be utilized for degradation of dyes. The cerium-iron core-shell nanostructures were formed by simple co-precipitation technique and analyzed for stability over a period of one week. The stable suspensions were subjected to particle size analysis and zeta potential measurement. Polystyrene is a rigid polymer which can be used to fabricate a simple matrix over with a layer of cerium-iron oxide composite can be coated. This matrix will be used as a column in a simulated reactor which can effectively permeate water and remove the organic and inorganic contaminants in a normal atmospheric and environmental condition. Having high affinity for the heavy metals like cadmium and arsenic iron nanoparticles serve as the chemical affinity provider and cerium acts as a photocatalyst. The waste water can be analyzed by UV Visible spectroscopy for the amount of contaminants present before and after the treatment process to measure the distribution of the heavy metals in the samples.

**Keywords:** X-Ray diffraction spectroscopy, UV–visible spectroscopy, photo-catalysis, polystyrene, iron-cerium oxide nanoparticles..

**In-vitro evaluation of Antimicrobial potency of commercially available drugs against Dentinal Caries microbes**#Arul A Sri Kennath J. and Palanivelu Peramachi#218-223#40.ISCA-ISC-2013-13MediS-13.pdf

Abstract

Bacterial infections are common in dental practice and use of antibiotics for their treat­ment is also frequent. But their rampant use leads to antimicrobial resistance; a global growing issue affecting both developed and developing countries. Determining the susceptibility profile of potential pathogens is therefore necessary. Efficacy of natural phyto-chemicals isolated from plants and oral hygiene products against Streptococcus mutans; the principal dental pathogen associated with dental caries and other cariogenic bacteria isolated using the method of pure culturing has been evaluated. However, the literature lacks studies evaluating the efficacy of antibiotics against the microflora responsible for dental caries. Therefore, commercially used drugs were screened for their in-vitro antimicrobial potency against the microbial community obtained from dentinal caries lesion using Kirby-Bauer disc diffusion method. The polymicrobial growth showed susceptibility towards all the tested antibiotics except in few samples where Ampicillin/Cloxacillin, Cefixime/Clavulanic acid, Cephalexin, Cefixime and Ampicillin/ Sulbactam showed no zone of inhibition; suggesting possible resistance to such antibiotics in these patients. The comprehensive data obtained may support the polymicrobial etiology of dental caries. Such study may further allow investigation on the spatial distribution of pathogenic, antibiotic resistant bacteria among patients suffering from dental caries.

**Keywords:** Dental caries, antibiotic susceptibility, Kirby-Bauer disc diffusion method.

**Evaluation of correlation between Salivary pH and prevalence of Dental Caries in subjects with and without Diabetes Mellitus**#Arul A Sri Kennath J., R Sanjay and Palanivelu Peramachi#224-226#41.ISCA-ISC-2013-13MediS-15.pdf

Abstract

The relationship between diabetes mellitus and dental caries, particularly among adults has received far less attention. However, a consistent relationship between diabetes mellitus, dental caries and salivary pH is lacking. Therefore, the correlation between salivary pH and caries prevalence in non-diabetics and diabetics was evaluated. Fasting blood glucose level and salivary pH for each subject were measured and caries index was recorded as DMFT index. The results show that a decreased salivary pH and an increased incidence of dental caries in subjects with uncontrolled diabetes as compared to control group and those with controlled diabetes. Decreased salivary pH and increased dental caries rate was observed in subjects with controlled diabetes as compared to control group. Thus, diabetes mellitus may have a direct effect on salivary pH, reducing it from normal levels irrespective of diet.

**Keywords:** Dental caries, diabetes mellitus, diet, DMFT, salivary pH

**Increasing Incidence of PCOS in Adolescence and its Relation with Mental Stress**#Bindu B.R.#227-230#42.ISCA-ISC-2013-13MediS-18.pdf

Abstract

Polycystic ovary syndrome (PCOS) is one of the most common endocrine/metabolic disorders found in women. It is seen that the incidence of PCOS is increasing in adolescent age group. The stress level of this age group is also heightened due to high competition, need for recognition and self esteem both from society and in person. Early diagnosis and treatment of PCOS in adolescents are essential in ensuring adulthood health and restoring self-esteem. This paper is based on a 10 year long clinical experience regarding the role of mental stress on PCOS. As teenagers are the future of a nation PCOS should be dealt at an early stage and corrected. A sample of 50 cases of PCOS are selected and tried to establish the relation of mental stress in those cases with the help of SSS-AZ English version booklet of National Psychological Corporation. An attempt is made to explain the role of mental stress in PCOS with the help of General Adaptation Syndrome. The diagnosis of PCOS is done as per Rotterdam 2003 criteria which says that any of the two out of three of the following is needed for the diagnosis of PCOS: oligo- and/or anovulation, clinical and/or biochemical signs of hyperandrogenism and polycystic ovaries [by ultrasound].This study is done to highlight the relevance of reducing mental stress in adolescent age group to avoid or reduce the incidence of systemic diseases with a sample study on PCOS.

**Keywords:** Poly cystic ovarian syndrome (PCOS), General Adaptation Syndrome (GAS), mental stress

**Study of Magnesium, Chloride, Lipidperoxidation, Lipidhydroperoxides, among Typeii Diabetic Patients with Elevated Fasting Sugar Level**#V.N.Janakarajan, A. Ambika, KK Thirunavukkarasu, Celestine rajManohar, M.Rajendran, Chandrabose, SirajFatima, Saravana balaji, M.Karunakaran and Karmarkar#231-237#43.ISCA-ISC-2013-13MediS-46.pdf

Abstract

We have compared the level of magnesium, chloride, lipid peroxidation, lipid hydroperoxides among typeII diabetic patients with two groups with low (FD1)154±6.0mg/dL fasting plasma glucose and high (FD2)273 ±10mg/dL fasting plasma glucose. One hundred known type II diabetic patients and one hundred known healhy subjects were compared. The lipid profile study was carried out using standard biochemical methods. We have found magnesium 0.80±0.20mg/dL,chloride52±4mmol/ L was significantly decreased but also there is a concomitant increase in lipid peroxidation 7.4±0.3µ moles/L and lipid hydroperoxide5±1.4µ moles/L among FD2 subject with increase in glucose. The total cholesterol, LDL cholesterol, triglycerides were found to be higher among NIDDM subjects

**Keywords:** NIDDM- Noninsulin dependent diabetes mellitus, LPO- Lipid peroxidation, LOH-Lipidhydroperoxide, HDL-Highdensity lipoprotein, LDL-Lowdensity lipoprotein, VLDL-Very lowdrnsity lipoprotein, Tgl-Triglyceride, TC-Totalcholesterol, Mg2+- Magnesium, Cl—Chloride.

**Green Synthesis of Glucose Capped ZnO: Fe Quantum Dots: A Study on Structural, Optical Properties and Application**#Vidhya K., Bhoopathi G., Devarajan V.P. and Saravanan M.#238-241#44.ISCA-ISC-2013-15PhyS-18.pdf

Abstract

In the present investigation, Fe doped and glucose capped zinc oxide (ZnO) quantum dots (QDs) were prepared by using simple green synthesis method under room temperature as it is an environmental friendly process. Then their structural and optical properties were examined by using X-ray diffraction (XRD), Transmission electron microscope (TEM), Ultraviolet (UV) and Photoluminescence (PL) techniques. During this study period, an interesting cubic-hexagonal crystal nature was confirmed through powder XRD technique and also a spherical shaped surface morphology was found from TEM images whose size is approximately 10 nm. The UV results have shown an enhanced absorption when compared with uncapped ZnO:Fe QDs. Further, an interesting strong blue emission was observed in the glucose capped ZnO:Fe QDs which was maximum at 465 nm because of formation of small size particles and broad emission band was also observed from violet to red region. This enhanced emission nature is highly suitable for all types of bio-applications. The results of the present study show the glucose capped ZnO:Fe QDs induced a better antibacterial activity when compare other QDs. In future, these QDs can be used for cancer cell targeting application.

**Keywords:** ZnO, glucose, green synthesis, structural and optical properties and antimicrobial activity.

**Analysis of water quality Parameters** **in Vembakottai water reservoir, Virudhunagar district, Tamil Nadu – A report**#Pulugandi C.#242-247#45.ISCA-ISC-2013-3BS-94.pdf

Abstract

Over the years plants have been used for the management and treatment of male infertility and it’s gradually gaining The Vembakottai dam is situated near Viudhunagar, Tamil Nadu. The present study deals with the change in physico-chemical parameters, such as air, water temperature, pH, dissolved solids, conductivity, alkalinity, hardness, Calcium, Magnesium, Ammonia, Nitrite, Chloride, Sulphate and Phosphate. These parameters were observed analysed from July 2012 to June 2013. The results suggest that water quality of the reservoir is within the desirable limits.

**Keywords**: Water reservoir, Physico - Chemical parameters, Electrical Conductivity, Seasonal variations.