



**Global Research &
Development Services**

CONFERENCE PROCEEDINGS

**24th International Conference on Researches in Science and Technology
(ICRST), 10-11 Nov 2017, Singapore**

10-11 Nov 2017

Conference Venue

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**24th International Conference on Researches in Science and Technology (ICRST), 10-11 Nov 2017,
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KEYNOTE SPEAKER



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Dr Sandeep Narayan Kundu
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<p>Wenjing Wang GICICRST1716051</p>	<p style="text-align: center;">Novel amine impregnated graphene/SBA-15 composite with good stability for CO₂ capture</p> <p style="text-align: center;">Wenjing Wang The University of Queensland, Australia</p> <p style="text-align: center;">Abstract</p> <p>Carbon dioxide (CO₂) is the major greenhouse gas that makes the largest contribution to global warming. Worldwide research activities have focused on developing different types of physical and chemical adsorbents for CO₂ capture. Amine functionalized mesoporous silica combining the merits of physisorption and chemisorption is one of the most promising materials for CO₂ capture. However, due to the low thermal conductivity of mesoporous silica coupled with high adsorption heat of chemisorption, the thermal stability and cycle stability are severe issues that should be considered for practical CO₂ capture. The introduction of graphene with superior properties, large theoretical specific surface area of 2630 m² g⁻¹ and excellent thermal conductivities, could be an effective way to solve the problem of stability. SBA-15 is a mesoporous silica, which has well-ordered hexagonal mesopore structure. However, to the best of our knowledge, the feasibility of graphene introduction to SBA-15 for CO₂ capture need further explore. In this work, novel nanocomposites of graphene(G) /SBA-15/hyperbranched polymer(HBP) were synthesized and tested as CO₂ adsorbent. A capacity of up to 1.50 mmol g⁻¹ was obtained by G/SBA-15/HBP (50), indicating the presence of graphene within the system increased the capacity of conventional SBA-15/HBP to adsorb CO₂ by 51.51%. SEM images and N₂ sorption analyse indicate the introduction of graphene reduced the agglomeration and HBP could disperse more evenly into G/SBA-15. What's more, G/SBA-15/HBP (50) was relatively stable for 10 thermal cycles. The presence of graphene in the nanocomposite efficiently stabilize HBP, improving cycle stability and adsorbent longevity.</p> <p>Keywords: CO₂ capture, mesoporous silica, graphene, amine functionalization</p>
<p>Arunkumar Arulappan GICICRST1716052</p>	<p style="text-align: center;">Efficient VNF Service Chaining in Data Center Networks</p> <p style="text-align: center;">Arunkumar Arulappan Computer Technology, Anna University, Chennai, India</p> <p style="text-align: center;">Abstract</p> <p>Network Function Virtualization (NFV) moves network functions from network appliances to virtual machines. Whereas, users can customize their own services by setting ordered traffic paths through Network Function Virtual Machines (NFVM) they want. The east-west traffic has been generated due to setting up of ordered traffic paths. In cloud Infrastructure the enterprises deploy their middle box services for easy management, flexible scalability and economic savings. However, existing elastic virtual network function(VNF) placement strategy often leads to an unpredictable placing location due to the ever-changing workload, which may waste much precious bandwidth resource and bring a lot of VM operation overhead(e.g. VM launch, termination and migration). Moreover, the placement of the VNF significantly affects the load on switches and the efficiency of bandwidth utilization. Suboptimal placement of VNFs in service chains increases the flow rules in the switches and the ping-pong traffic among the VNFs. In NFV, standard IT virtualization evolves to consolidate network functions onto high volume servers, switches and storage that can be located anywhere in the network. Services are built by chaining a set of Virtual Network Functions (VNFs) deployed on commodity hardware.</p> <p>Keywords: NFV, Datacenter, VNF placement, Network service chain, ping-pong traffic</p>

 <p style="text-align: center;">Dachollom Sambo GICICRST1716053</p>	<p style="text-align: center;">Numerical Hybrid Method For The Solution Of Ordinary Differential Equations</p> <p style="text-align: center;">Dachollom Sambo Mathematis/Statistics Department, Akanu Ibiam Federal Polytechnic, Unwana Pmb 1007 Afikpo Ebonyi State, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>In this paper a new class of high order Two and Three-Step hybrid methods for the solution of first order initial value problems of ordinary differential equations has been developed using the new High Order Hybrid K-step algorithm developed by Shokri (2014). The new two-step and three-step methods were shown to be of very high order (that is order 8). Simpson's block methods were used to generate starting values for the implementation of the new methods. The new methods where proven to be consistent and zero stable, hence convergent. Sample numerical problems to test the efficiency of the methods were experimented and results compared to the exact solutions reveals that the methods are efficient.</p>
 <p style="text-align: center;">Oko Lia GICICRST1716054</p>	<p style="text-align: center;">Ray Theoretical Approaches to Modeling Seismic Wave Propagation</p> <p style="text-align: center;">Oko Lia Department of Mathematics/Statistics Akanu Ibiam Federal Polytechnic, Unwana, Akanu Ibiam Federal Polytechnic, Unwana P.M.B 1007, Afikpo, Ebonyi State, Nigeria</p> <p style="text-align: center;">Sambo, Dachollom Department of Mathematics/Statistics, Akanu Ibiam Federal Polytechnic, Unwana, Afikpo, Ebonyi State, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>In this paper, the hyperbolic equation for 3-dimensional wave propagation is reviewed. Starting with the 3-dimensionnal wave equation in a single layered isotropic, homogenous, symmetric earth model over a half space, we were able to interpret and transform the exponential phase solution in terms of seismic wave front via Eikonal equation. The ray equations generated where express in terms of slowness factor and velocity of the medium. Fermat's principle of least time was applied to obtain expressions for the computation of rays travel-time and offset distance from seismic sources to surface seismometer. The ray theoretical approach established in this paper can be of guide to actual field survey of seismic data acquisition and solving inverse problem of sub-surface.</p> <p>Key Words: Eikonal equation, Seismic wave front, Travel-times and Isotropic.</p>
<p>Dr Ibrahim M. Magami GICICRST1716055</p>	<p style="text-align: center;">Survey of Waste Disposal and Its Perception Among Residents of Sokoto Metropolis, North-Western Nigeria</p> <p style="text-align: center;">Magami, I.M., Department of Biological Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria</p> <p style="text-align: center;">Maishanu, H.M Department of Biological Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria</p> <p style="text-align: center;">Shamaki, S.B. Dept. of Forestry and Environment Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>Sokoto metropolis is located at extreme Northern Nigeria with a population of 4,244,399 people. This survey was conducted to evaluate the pattern of waste disposal and regularity of sanitation. Waste samples from the five LGAs that makeup the</p>

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	<p>metropolis was collected for analysis and questionnaire was distributed to residents around the collected waste dumpsites. Biodegradables waste dominated the categories of waste collected. There was lack of waste collecting centres in the metropolis. Majority of the residents disposed off waste at any available space or inside drainages around their houses. Respondents were also aware of diseases associated with waste disposed around their residential area. The government of the State is aware of this environmental problem and willing to take corrective measures. There is need for proper enlightenment on the efficient waste disposal and management system. Keywords: Biodegradable, Disposal, Metropolis, Residents, Sokoto, Waste</p>
<p>Arunkumar Arulappan GICICRST1716056</p>	<p style="text-align: center;">Efficient VNF Service Chaining in Datacenter Networks</p> <p style="text-align: center;">ArunKumar Arulappan Research Scholar, Department of Computer Technology, Anna University, Chennai, India</p> <p style="text-align: center;">Gunasekaran Raja Associate Professor, Department of Computer Technology, Anna University, Chennai, India</p> <p style="text-align: center;">Abstract</p> <p>Network Function Virtualization (NFV) usually moves the network functions from physical hardware appliances to virtual machines. Customization of own services led by users through Network Functions Virtual Machines (NFVM) by setting ordered traffic paths. The extra load on switches has a transitional uplift in bandwidth utilization and also efficiency gets affected due to the significant placement of Virtualized Network Functions (VNF). Flow rules in switches and ping pong traffic among VNFs get increased rapidly due to the suboptimal placing of VNFs in service chains. In cloud Infrastructure, the enterprises deploy their middle box services for easy management, flexible scalability and economic savings. However, existing elastic virtual network function(VNF) placement strategy often leads to an unpredictable placing location due to the ever-changing workload, which may waste much precious bandwidth resource and bring a lot of VM operation overhead(e.g. VM launch, termination and migration). VNF instance scaling happens due to the ever-changing workload in datacenter, which brings considerable VM operation overhead [16]. In contrast to prior solutions, we propose Accurate VNF (AVNF) placement where tenants specify various multiple bandwidth requirements between VNFs in their service chains for different periods [14]. Thereby we guarantee the required bandwidth and allocation of VNF instances into datacenter based on the AVNF placement [23]. By proposing this algorithm, we can solve both the VNF instance placement and scaling problems which saves much network resource. As of the placement principle, we have used an on-line heuristic algorithm to allocate various VNF instances effectively which resulted in achieving minimum overall bandwidth occupancy, VM usage and migration overhead [22]. To achieve the optimal placement we provide an off-line programming based algorithm where scaling of resources happens in a unified way. Keywords: NFV, Datacenters, VNF-SC, ping-pong traffic</p>
<p>Wachda Nyuwito Kirono GICICRST1716057</p>	<p style="text-align: center;">The Carotenoid Content of Arthrospira maxima (Setchell & Gardner) Culture in Tofu Liquid Waste</p> <p style="text-align: center;">Wachda Nyuwito Kirono Faculty of Biology, University of Gadjah Mada, Yogyakarta, Indonesia</p> <p style="text-align: center;">N. U Sofiah Laboratory of Biotechnology, Faculty of Biology, Universitas Gadjah Mada</p> <p style="text-align: center;">E.A Suyono</p>

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	<p style="text-align: center;">Associate Professor in Laboratory of Biotechnology, Faculty of Biology, Universitas Gadjah Mada</p> <p style="text-align: center;">Abstract</p> <p>Free radical damage that lead to cancer is most urgent problem in Indonesia as tropical country. Antioxidant is required, it can be obtained from carotenoid that is derived from microalgae <i>Arthrospira maxima</i>. Tofu Liquid waste contain N, P, K and Mg so it has high potency for microalgae culture growth medium for increasing carotenoid content and as waste management because there are 5.7942x10¹⁶ kg waste production per year. This paper aimed to study the effectivity concentration to increase carotenoid content of <i>A.maxima</i>. <i>A.maxima</i> was cultivated concentration of 5%, 10%, 15% tofu liquid waste and Bold Basal Medium as control for 7 days. The parameters measured are the number of cells by total count method, biomass used dry weight method, and carotenoid was measured by spectrophotometry method. The result showed the highest total carotenoid content was 15% at day 7 accounted for 45.82 mg/ml. The highest carotenoid content of each cell was 15% at day 7 accounted for 103.11 mg/cell. The highest carotenoid content per dry weight 5% day 0 accounted for 6.45 x 10⁴ mg/ml. Suggestion for this research is how to decrease bubble formed to enlarge variations concentration of medium. This research was developed from Johari in 1999.</p> <p>Keywords: <i>Arthrospira maxima</i>, Carotenoid, Tofu Liquid waste, Antioxidant</p>
<p>Hafiz Akinyele GICICRST1716058</p>	<p style="text-align: center;">Purification and Characterisation of Thermostable Cellulase from Species of <i>Anoxybacillus rupiensis</i> and <i>Roseomonas</i> sp. Isolated from Sawdust</p> <p style="text-align: center;">Hafiz Akinyele Department of Microbiology, Faculty of Science, Federal University Oye-Ekiti, Ekiti State, Nigeria</p> <p style="text-align: center;">Abiodun A. Onilude Department of Microbiology, University of Ibadan, Ibadan, Nigeria</p> <p style="text-align: center;">Sherifat M. Wakil</p> <p style="text-align: center;">Abstract</p> <p>Extracellular cellulase produced by species of <i>Anoxybaacillus rupiensis</i> and <i>Roseomonas</i> sp. was purified using ammonium sulphate precipitation, dialysis and affinity chromatography to 1.9, 1.67 and 1.21 folds for A1, E1 and 5H respectively and 60, 60.45 and 70 yields for A1, E1 and 5H respectively. The optimum pH and temperature of the enzymes activity were 7.0 and 700C for <i>Roseomonas</i> sp. and 650C for the <i>Anoxybacillus rupiensis</i> The enzymes were stable at pH range 7-9 while their stabilities for temperature was up to 600C for <i>Roseomonas</i> sp A1 and <i>Anoxybaacillus rupiensis</i> E1 and was up to 650C for <i>Anoxybaacillus rupiensis</i> 5H. Km values of <i>Roseomonas</i> sp. A1, <i>Anoxybacillus rupiensis</i> E1 and <i>Anoxybacillus rupiensis</i> 5H cellulase on CMC were found to be 12.5mg/ml, 9.3mg/ml and 5.9 respectively while the Vmax values of 1.5U/mg, 0.65U/mg and 0.82U/mg were obtained for <i>Roseomonas</i> sp. A1, <i>Anoxybacillus rupiensis</i> E1 and <i>Anoxybacillus rupiensis</i> 5H respectively. Hg²⁺, Zn²⁺ and EDTA are inhibitory to enzymes A1 and 5H while Hg²⁺, Zn²⁺ urea and SDS are inhibitory to enzyme from E1.</p> <p>Key words: <i>Anoxybacillus rupiensis</i>, <i>Roseomonas</i> sp. Cellulase, Electrophoresis Purification</p>



Dr.P.Gomathi Priya
GICICRST1716059

Preparation and characterization of hydroxyapatite and its antimicrobial activity

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Sadhana.S

ABSTRACT

Hydroxyapatite (HAp) is effectively used as a bio-implant material because it closely resembles bone apatite and exhibits good biocompatibility. This work describes the synthesis technique of HAp powder by wet chemical precipitation method from both natural (egg shell) and inorganic source (calcium and phosphate groups). The synthesized materials were characterized using several techniques where X-ray diffraction studies showed that the synthesised hydroxyapatite was fully crystalline with hexagonal structure. The crystallographic phases of the synthesised HAP powders were identified by using X-ray diffraction. These particles were distorted fibres and sphere shaped as determined from scanning electron microscopy (SEM) studies. Hydroxyapatite was present as dense aggregates and its particles showed different shapes as short and long distorted fibres According to Fourier transforms infrared spectroscopy (FTIR) analysis, chemical compounds present corresponds to hydroxyapatite. These synthesised compounds were tested for their antimicrobial activities against four different bacterial strains. Gram negative bacterial strains like E.coli, Pseudomonas putida and gram positive bacterial strains like Lactobacillus, Bacillus subtilis by well diffusion technique.

Keywords: Biocompatibility, Precipitation, Inorganic, crystalline, antimicrobial activities.

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GICICRST1716095

Extraction Of Carotenoids From Musk Melon And Water Melon Shell

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Abstract

Cantaloupe (Muskmelon and Watermelon) contains biologically active molecules such as carotenoids which are natural pigments used as food colorants and desirable health benefits. Organic lipophilic solvents such as acetone, methanol and hexane are usually used for extraction of carotenoids. β -carotene is the major source of carotenoids present in muskmelon and watermelon shell. Carotenoids are extracted by using Microwave assisted extraction (MAE) and Ultrasound assisted extraction (UAE). Extraction conditions are feed-solvent ratio (1:10 to 1:40), microwave power (100W, 150W, 200W and 300W), ultrasound frequency (40 KHz), temperature (30, 40,50 and 60°C), solvent (Hexane and Ethanol) and particle size (0.6mm and 0.5mm). The extracted carotenoids were analyzed using UV-Visible Spectrophotometry and High performance liquid chromatography (HPLC). In MAE, the yield of carotenoids was found to be 590.85 μ g/g for muskmelon and 474.72 μ g/g for watermelon. In UAE, the yield of carotenoids was found to be 775.25 μ g/g for muskmelon and 639.54 μ g/g for watermelon. The study concluded that, UAE gives the higher yield of carotenoids than MAE and also muskmelon had the highest yield of carotenoids when ethanol used as a solvent for 0.5mm particle size. The extraction temperature, microwave power and F-S ratio are found to be most important parameters affecting the extraction efficiency of carotenoids from muskmelon and watermelon shell.

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<p style="text-align: center;">Rido Fauzi GICICRST1716061</p>	<p>Keywords: Carotenoids, Extraction, Muskmelon shell, Watermelon shell</p> <p>Liquefaction Susceptibility Zonation Based On Correlation Of Water Table With The Liquefactions Occurrence Cause By September 2009 Earthquake In Padang City, West Sumatera</p> <p style="text-align: center;">Rido Fauzi1 Faculty of Geological Engineering, University of Padjadjaran, Bandung, Indonesia</p> <p style="text-align: center;">Farha Yussriah Fauzi Faculty of Geological Engineering, University of Padjadjaran, Bandung, Indonesia</p> <p style="text-align: center;">M. Sapari Dwi Hadian Faculty of Geological Engineering, University of Padjadjaran, Bandung, Indonesia</p> <p style="text-align: center;">Abstract</p> <p>7.6 magnitude earthquake on the Richter scale occurred in the desert on September 30, 2009, as damage to infrastructure, buildings, causing casualties and resulted in the liquefaction process. The process of liquefaction is an event of the loss of soil strength due to vibrations in the ground where an increase in pore water pressure. factors that cause liquefaction include lithology and piezometric level. Therefore, this study was conducted in Padang city, West Sumatra with geological conditions consisting of tertiary volcanic rock lithology, Plio-Pleistocene volcanic rocks and alluvial deposits quarter. This study aims to delineate the areas that have the potential of liquefaction in the study area. Data piezometric level as the primary data in a data correlated with previous observations regarding the liquefaction that occurred after the earthquake and resulting zoning map of potential areas of liquefaction occurrence. Data collection was performed by using a tape measure to measure the piezometric level in as many as 95 wells spread across 11 districts in Padang city. From these datas, areas with shallow ground water depth with the position of the occurrence of liquefaction had a high correlation. The average of piezometric level of liquefaction is 1.56 m. There are three categories of potential regional levels liquefaction occurrence is high, medium, low. And much of the research area indicate a high potential for liquefaction occurs.</p> <p>Keywords: Padang city, Liquefaction potential, Piezometric Level, Lithology</p>
 <p style="text-align: center;">Rajib Majumder GICICRST1716063</p>	<p>Depletion Of Cr (VI) By Functionalized Biomass Of A Newly Isolated Mushroom: A Mechanistic Approach</p> <p style="text-align: center;">Rajib Majumder Structural Biology And Bioinformatics Division, CSIR-Indian Institute Of Chemical Biology, Kolkata, India</p> <p style="text-align: center;">Lubna Sheikh Structural Biology And Bioinformatics Division, CSIR-Indian Institute Of Chemical Biology, Kolkata, India</p> <p style="text-align: center;">Animesh Naskar Department of Food Technology and Biochemical Engineering, Jadavpur University, Kolkata-700032, India</p> <p style="text-align: center;">Vineeta Verma Structural Biology And Bioinformatics Division, CSIR-Indian Institute Of Chemical Biology, Kolkata, India</p> <p style="text-align: center;">Manabendra Mukherjee Surface Physics and Material Science Division, Saha Institute of Nuclear Physics, Kolkata-700064, India</p>

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Abstract

Background: The contamination of heavy metals in ground water is a significant socio-environmental issue. These non-biodegradable, non-thermodegradable metals readily accumulate into living organism that associates with serious health hazards. **Objective:** Various existing processes for metal removal are expensive. But adsorption has become one of the most versatile methods for its low-cost and operational flexibility. **Methodology:** The mode of interactions between Cr (VI) ions and fungal biomass were investigated by several methods like Fourier Transform-Infrared Spectroscopy (FT-IR), X-ray Diffraction (XRD), Energy-Dispersive X-ray spectroscopy (EDX), X-ray Photoelectron Spectroscopy (XPS), Atomic Force Microscopy (AFM), Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM). **Results:** For the first time, the heat dried biomass of a newly isolated fungus *Arthrimum malaysianum* was studied for the toxic Cr (VI) adsorption, involving more than one mechanism like physisorption, chemisorption, oxidation-reduction and chelation. The process was best explained by the Redlich-Peterson isotherm and pseudo-second order kinetic model with maximum predicted biosorption capacity (Q_m) of 100.69 mg g⁻¹. Film-diffusion was the rate-controlling step and the adsorption was spontaneous, endothermic and entropy-driven. X-ray Photoelectron Spectroscopy (XPS) studies confirmed significant reduction of Cr (VI) into non-toxic Cr (III) species. Further, a modified methodology of Atomic Force Microscopy was successfully attempted to visualize the mycelial ultra-structure change after chromium adsorption. The influence of pH, biomass dose and contact time on Cr (VI) depletion were evaluated by Response Surface Model (RSM). Additionally, FESEM-EDX analysis exhibited arsenic (As) and lead (Pb) peaks on fungus surface upon treating with synthetic solutions of NaAsO₂ and Pb(NO₃)₂ respectively. The biomass could also remove chromium from industrial effluents significantly. **Future scope:** The research suggested a cleaner and greener approach for the fungal biomass to be a promising adsorbent for toxic metals removal from waste water.

Keywords: *Arthrimum malaysianum*; Chromium; Biotransformation; XPS-XRD-FTIR analysis; AFM imaging



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Acute And Sub Chronic Toxicity Studies Of Palmyra Palm (*Borassus Aethiopum*)
Shoots Obtained From Sokoto State, Nigeria

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Abstract

The study examined the effect of feeding albino rats with 25%, 50%, and 75% Palmyrah Palm (*Borassus aethiopum*) shoots with respect to their body weight, liver and kidney function indices. No mortality was observed in the LD50 test throughout the period of 48 hours. Rats fed with 25%, and 50% *Borassus aethiopum* shoots showed a gradual increase in the body weight throughout the period of treatment, but those fed with 75% of the shoots experienced a significant ($p > 0.05$) decrease in body weight at the 3rd and 4th week of treatment compared to the control group. The results also

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	<p>showed changes in the Serum total protein, albumin, globulin, glucose and bilirubin but were not significantly different ($p>0.05$) compared to the control group. The serum enzymes activities i.e aspartate aminotransferase (AST), alanine aminotransferase (ALT), and alkaline phosphatase (ALP) were significantly ($p>0.05$) elevated compared to the control group which suggested toxicity induced by some of the phytocompounds present in the feed. Serum creatinine, urea, uric acid, and electrolytes (Na^+, K^+) of rats fed with 75% <i>Borassus aethiopum</i> shoots showed significant ($p>0.05$) changes compared to the control group. The results showed that <i>Borassus aethiopum</i> shoots have a relatively low or no toxicity.</p> <p>Key Words: <i>Borassus aethiopum</i>, Albino rats, Liver function, Kidney function</p>
 <p>Mustapha Gani GICICRST1716066</p>	<p style="text-align: center;">Rapid Classification of Paracetamol Suspension (OTC) Using FTIR-ATR and Chemometrics</p> <p style="text-align: center;">Mustapha Gani Department of Microbiology, Sokoto State University, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>Paracetamol is mostly part of the prescription giving to patient suffering from diseases such as Malaria, Fever, and Headache. It is also among the rampant counterfeit drugs in developing countries. Therefore, fast classification of paracetamol suspension will ensure the safety of consumers and to differentiate the original from counterfeits. The aim of this study is to develop the application of a rapid technique base on FTIR-ATR and Chemometrics to classify different brands of paediatric paracetamol suspension. 6-different paracetamol products were purchased and subjected to ATR-FTIR spectroscopy coupled with Chemometrics. Mid-infrared spectroscopy between 4000 – 720cm^{-1} at 4cm^{-1} resolution set was used. The chemical information was extracted using both hierarchical cluster analysis (HCA) and principal component analysis (PCA). Three spectral windows were modelled using HCA and PCA. In HCA, two distinctive clusters were recognised. The resulted model showed a clear classification for the six different brands of paracetamol suspensions. In the PCA, the first principal component (PC1) in all the three windows explained the highest per cent of variance followed by PC2 and PC3. The correlation analysis (R^2) of the data generated shows there is high relationship between Pinewood and Vintage paracetamol with R^2 value of 0.998 compared with Desprol and Rosemont which showed R^2 value of 0.896. The results showed that Pinewood and Vintage brands shared common formulation parameters and thus have a positive correlation. The resulting clustering in both HCA and PCA demonstrated that the FTIR-ATR set-up can provide a fast and effective way of grouping such paediatric suspensions into similarities and so provide a quick way of identifying counterfeit or adulterated formulations.</p> <p>Keywords: Fourier transform infrared (FTIR), Attenuated total reflectance (ATR), Hierarchical cluster analysis (HCA), Principal component analysis (PCA), Chemometrics</p>
 <p>Aminu Umar Imam GICICRST1716067</p>	<p style="text-align: center;">Evaluation Of Urinary Iodine Status Of Senior Secondary Schools Girls In Sokoto State, Nigeria</p> <p style="text-align: center;">Umar, Ai. Department Of Biochemistry, Sokoto State University, Sokoto</p> <p style="text-align: center;">Umar, Ra., Department Of Biochemistry, Usmanu Danfodiyo University, Sokoto</p> <p style="text-align: center;">Wasagu, Rsu Department Of Biochemistry, Usmanu Danfodiyo University, Sokoto</p> <p style="text-align: center;">Oche, Mo. Department Of Community Health, Usmanu Danfodiyo University Teaching Hospital,</p>

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	<p style="text-align: center;">Sokoto</p> <p style="text-align: center;">Abstract</p> <p>Studies on urinary iodine excretion level in school girl of Sokoto State Nigeria are scanty or absent. This cross sectional study was design to determined current iodine status in 247 school girls in three zones of Sokoto state aged from 14- 17. Urinary iodine level was measured using the standard method of ammonium persulphate reaction. Thyroid Stimulating Hormones (TSH), Triiodothyronine (T3) and thyroxine (T4) were measured using Competitive Enzyme linked Immunoassay method. Validated questionnaires were used to test the knowledge of iodine nutrition. World Health Organization (WHO) and International Council for the Control of Iodine Deficiency Disorders (ICCIDD) recommendations were used to classify the urinary iodine levels. The results showed that of the 247school girls studied, 15% of the subjects had moderate iodine deficiency, 20% of the subjects had mild iodine deficiency, 63% with adequate status and 2% subjects had above normal urinary iodine excretion level. These findings suggest that one third (35%) of study subjects were iodine deficient</p> <p>Key words: Evaluation, Iodine, Iodine deficiency, Thyroid Stimulating Hormones and thyroxine</p>
 <p>Anas Tukur Balarabe GICICRST1716068</p>	<p style="text-align: center;">An Investigation Into The Ber And Ser Performances Of M-Ary Qam And M-Ary Psk</p> <p style="text-align: center;">Anas Tukur Balarabe Department of Computer Science, Sokoto State University, Sokoto, Sokoto, Nigeria</p> <p style="text-align: center;">Shehu Malami S/Tudu Sokoto State University, Sokoto, Sokoto, Nigeria</p> <p style="text-align: center;">Zahriya Lawal Hassan Sokoto State University, Sokoto, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>In the last few decades data communication has recorded massive improvements. These improvements were brought about by advancement in digital circuitry, its availability and constant reduction in cost. Before the advancement of digital communication technology, analog communication was the dominant means of transmitting data. As the global population expands, the need to transfer data over long distances increases, but the major problem with analog communication is that the quality of signals is lost with distance. In addition, it has minimal security and does not support data integration. Digital communications provided alternative to analog communication. Today, digital modulations have become part and parcel of the present and future communication technologies. In view of their importance as the foundation for digital communication, it is imperative to study and understand the characteristics of these schemes. Despite the advantages of these schemes, the traditional channel impairments, such as noise can affect their performance. Moreover, data transmission is mostly done over wireless channel, which is very unpredictable, and is characterized by multipath fading effects. This research presented a study of digital modulation schemes using MATLAB/Simulink. Bit error rate (BER) performance of the selected schemes were measured and compared in MATLAB/Simulink Symbol error rate (SER) performance of the schemes was also measured and compared in using MATLAB/Simulink. The result revealed that QAM has best BER and SER performance.</p> <p>Keywords: BER, SER, QAM, PSK, QPSK, AWGN, SNR, EbNo.</p>
<p>Anas Shehu GICICRST1716069</p>	<p style="text-align: center;">Improving the Sensitivity of Thermoluminescence Dosimetry by the use of Silica Optical Fibres</p> <p style="text-align: center;">Anas Shehu</p>

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	<p style="text-align: center;">Faculty of Science, Department of Physics, Sokoto State University, Sokoto, Nigeria</p> <p style="text-align: center;">Abdulaziz Alanazi Department of Physics, University of Surrey, Guildford, Surrey GU2 7XH, UK</p> <p style="text-align: center;">Usman Abubakar Department of Physics, Sokoto State University, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>In this particular research, this paper is trying to describe how to improve the sensitivity of thermoluminescence dosimetry by using commercially doped silica optical fibre to Ge neutron radiation. the consideration of dosimeter herein is based on the need for dosimetry of biological tissues. The Ge and doped-fibre were irradiated with 62MeV proton beam which lead to the achievement of how proton loses distinguished energy through the penetrating depth.</p>
<p style="text-align: center;">Iliyasu Usman GICICRST1716070</p>	<p style="text-align: center;">Measurement of Radioactivity in Soil Sample</p> <p style="text-align: center;">Iliyasu Usman Faculty of Science, Department of Physics, Sokoto State University, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>The distributions of naturally occurring radionuclides ²²⁶Ra, ²³²Th and ⁴⁰K were determined in the river surface soil collected from Butuku and Baja of Bodinga Local Government Sokoto have been taken in this study using a hyper pure Germanium (HPGe) detector in a low background configuration. The activity concentrations of ⁴⁰K ²²⁶Ra, and ²³²Th were determined. The specific activity of ²²⁶Ra, ²³²Th and ⁴⁰K were found to be 36.12 ± 0.18 Bqkg⁻¹, 27.96 ± 0.37 Bqkg⁻¹ and 378.72 ± 12.26 Bqkg⁻¹ respectively. The radiological hazard of natural radioactivity of the Butuku and Baja of Bodinga Local Government are lower than their maximum recommended limits indicating that the use of the sediments as building materials do not constitute any excessive radiological hazards.</p>
<p style="text-align: center;">Usman Abubakar GICICRST1716073</p>	<p style="text-align: center;">Characterisation of Neutron Detectors (He-3, BF-3 Proportional Counters)</p> <p style="text-align: center;">Usman Abubakar Science, Physics, Sokoto State University, Nigeria</p> <p style="text-align: center;">Anas Shehu Department of Physics, Sokoto State University, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>This research describes the characterization of He-3 filled proportional counters which are very useful detectors for detecting thermal and low energy neutron detection. Been that He-3 has a very large neutron cross-sectional area; it is also considered to be a detector for thermal neutron detection which is relatively insensitive to gamma-rays. High voltage was set to 1.1 kV and shaping time was also set at 12 microseconds. Pulse height spectrum of the detectors was taken by Maestro MCA for 3600 seconds. The high voltage was gently increased in steps of 0.1 kV and the output spectrum was taken for 3600 seconds. The highest response obtained indicated that a counter can be used for the thermal neutron detection.</p>
<p style="text-align: center;">Yusuf Afolabi GICICRST1716074</p>	<p style="text-align: center;">Coefficient Estimates for a New Subclass of Bi-Univalent Functions</p> <p style="text-align: center;">Afolabi Yusuf Olawale Department of Mathematics, Faculty of Science, Sokoto State University, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p>

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	<p>In this paper, we make use of the principle of subordination between analytic functions to define a new subclass of bi-univalent functions. The bounds on the initial coefficients of functions belonging to this class are investigated. Index Terms: Analytic function. Bi-univalent function, Fekete-Szego functional, Salagean differential operator, Univalent function.</p>
<p>Ademola Akande GICICRST1716075</p>	<p style="text-align: center;">Thin Film Technology And Its Application</p> <p style="text-align: center;">Akande Ademola Department of Physics, The Polytechnic, Ibadan</p> <p style="text-align: center;">Adesina-Adebayo Fatimat Department of Physics, The Polytechnic, Ibadan</p> <p style="text-align: center;">Olayiwola.O.G Department of Physics, The Polytechnic, Ibadan</p> <p style="text-align: center;">Adeniji Aderogba Department of Physics, The Polytechnic, Ibadan</p> <p style="text-align: center;">Abstract</p> <p>The thin film strategic programme (or thin films SRP) was officially launched in April 2001 to keep the pace with the technological advancement in thin film related application areas. These areas include substrate patterning, thin film filters and coating for fibre optic Telecommunication systems. Thin Film Technology process contains these four stages, source, transport, deposition and analysis. Thin film deposition Techniques can be either physical vapour deposition or chemical deposition. The electrical conduction of thin films due to transport charge carriers present in the bulk of the polymer and from a number of different processes taking place simultaneously depending upon the experiment conditions. Thin films are very useful in various field like Engineering, Op-to Electronics e.t.c</p>
<p>Lauwali Barau GICICRST1716076</p>	<p style="text-align: center;">The Impact Of Isa-Bafarawa Road On The Economic Growth Of Isa Local Government</p> <p style="text-align: center;">Lauwali Barau Geography, Department Of Mathematics/Sokoto State University, Sokoto, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>Economic growth is the increase in the value of goods and services produced. It can be measured as the percentage rate of increase real Gross Domestic Products (GDP). Road is a critical factor as far as economic growth of an area is concerned, these indicated that, inadequate road network and poor condition remain as important factors that hinder economic growth and development in many rural areas in Nigeria in general and Sokoto state in particular for example, Isa to Bafarawa road which link many villages likes; Modachi, Gazau, Lugu, Tozai, Kamarawa, ‘Yanfako and even some villages of Niger Republic. The current condition of the road is very bad, problems that includes; high number of pot-holes, lack of access bridges across the river, erosion and land slide etc are on the increase. It is the light of the above this paper is intended to examine the impact of Isa-Bafarawa road on economic growth of Isa Local Government. Thus, recommends if the road is repaired, drainage systems and bridges are constructed by the government these will improve economic growth and development of the Local, State as well as Nation in general.</p>
<p>Keita Kato GICICRST1716078</p>	<p style="text-align: center;">Effect of boron-doped silicon quantum dots in inorganic-organic solar cells</p> <p style="text-align: center;">Keita Kato Electrical and electronics engineering, Tokyo Denki University, Tokyo, Japan</p>

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Electrical and electronics engineering, Tokyo Denki University, Tokyo, Japan

Kenji Hirakuri

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Abstract

Solar cells are attracting attention as the flagship of renewable energy. Due to the increasing subsidy system and environmental consciousness around the world, it is rapidly spreading to houses, shops, factories, and large scale power plants. In various types of solar cell, development on inorganic-organic solar cells, which can realize cell production at low cost, has been conducted. The inorganic-organic solar cells consist of combination of organic polymer material and silicon (Si) substrate. The use of organic polymers leads to a reduction in material cost. In addition to reduce the introduction cost, improvement of conversion efficiency is also one of the necessary factor. Therefore, we focused on silicon quantum dots (SiQDs) in order to increase carrier generation efficiency. SiQDs are silicon particles on the order of nanometers, and by incorporating them in solar cells, it is possible to promote light absorption by quantum size effect. However, intrinsic SiQDs interrupt the transport of generated carriers due to their low electrical conductivity. In this research, we have investigated p-type SiQDs with boron (B) added as a solution to that problem. We report herein its effect in inorganic-organic solar cells. The p-type SiQDs were prepared by high-temperature annealing (1100°C) and wet etching with hydrofluoric acid and nitric acid. The B doped QDs having particle size of about 3.4 nm exhibited an electric conductivity of about 109 times that of intrinsic SiQDs. Furthermore, the conversion efficiency was improved by use of B doped Si QDs into the inorganic-organic solar cell (Fig.1).

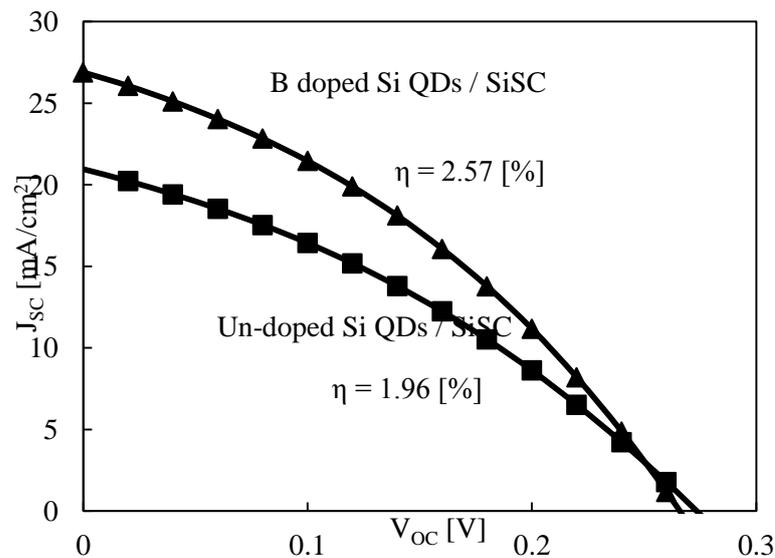


Fig.1 I-V property of B-doped SiQDs and Undoped SiQDs SiSC.

Keyword: silicon, solar cells, boron, quantum dots, doping

Echefu Emeka Francis
GICICRST1716081

Advanced Applications Of Computation As A Scientific Paradigm Shift

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Abstract

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	<p>The era in computation application development in scientific paradigm has created new opportunities for researchers to achieve high relevance, impact amid changes and transformations in how we study basic science phenomena. With the emergence of scientific paradigm collection technologies, advanced data mining and analytics support, there seems to be fundamental changes that are occurring with the research questions we can ask, and the research methods we can apply. The contexts include social networks and blogs, political discourse, corporate announcements, digital journalism, mobile telephony, home entertainment, online gaming, financial services, online shopping, social advertising, and social commerce. Computing is an evolving technological paradigm that facilitates conveniently, on-demand network access to a shared pool of configurable computing resources like network, servers, storage, applications and services etc that can be presented as a service and released with minimal management effort. The model promotes availability of resources and creates powerful distributed computing system with global reach and super computing capabilities. Computing is enriching and will widen the horizon of human knowledge, empower human capital for sustainable scientific development as well as educational development of nations. This paper tries to explore the vast and immense benefits of computation development in scientific paradigm shift and its applications in e-library services in Africa today. This will allow business analysts and researchers to achieve frequent, controlled and meaningful observations of real-world phenomena. I discussed how the philosophy of science should be changing in step with the times, and illustrate our perspective with comparisons between earlier and current research inquiry in scientific paradigm.</p> <p>Keywords: development, computational basic science, dominant paradigm, alternative paradigm, paradigm shift.</p>
<p>Afshan Shafi GICICRST1716082</p>	<p>Development of Functional Dairy Product by Replacing Dairy Fat with Melon Seed Oil</p> <p style="text-align: center;">Afshan Shafi Department of Food Science & Technology, Muhammad Nawaz Shareef University of Agriculture, Multan, Pakistan</p> <p style="text-align: center;">Umar Farooq Department of Food Science & Technology, Muhammad Nawaz Shareef University of Agriculture, Multan, Pakistan</p> <p style="text-align: center;">Kashif Akram Institute of Food Science & Nutrition, Bahauddin Zakariya University, Multan, Pakistan</p> <p style="text-align: center;">Abstract</p> <p>The purpose of this study is to develop functional dairy product (yoghurt) to meet the requirement of healthy diet for cholesterol conscious people. In the study two different oil extraction techniques (solvent extraction and cold press) were employed to obtain the oil from melon (<i>Cucumis melo</i>) seeds. These oils were characterized for different physico-chemical characters, fatty acid profile and total phenolic contents. Then functional dairy products were prepared form by substituting dairy fat with melon seed oil in various concentrations (0, 25%, 50%, 75% and 100%). Then this final product was physico-chemically and organoleptically analysed for the estimation of its suitability and acceptability in the market. Results obtained showed that melon seeds contain substantial amount of oil yield (20-27.33%) with comparable physico-chemical characters, high polyunsaturated fatty acid profile (70-75%) and significant amount of total phenolic content (2.8-3 GAE/mg). Physico-chemical and organoleptical analysis of final product showed significant suitability and acceptability by the consumer. It is concluded from the results that sweet melon seed give significant quantity of edible oil with high nutritional profile and could be utilized by food industries for various purposes like as edible oil, functional edible oil and for development of functional food</p>

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<p>Chinnasamy Asokan GICICRST1716083</p>	<p>products. Keywords: Functional dairy product, melon seed oil, nutritional profile</p> <p>Development of Protein Free Medium with Iron Salts for Human Anti-D Hybridoma Cell line.</p> <p style="text-align: center;">Asokan C Department of Biochemistry, Sokoto State University, Sokoto. Sokoto State. Nigeria</p> <p style="text-align: center;">Shagari AB Department of Biochemistry, Sokoto State University, Sokoto. Sokoto State. Nigeria</p> <p style="text-align: center;">Abstract</p> <p>Iron is vital for living organisms because it is essential for multiple metabolic processes to include oxygen transport, DNA synthesis, and electron transport. However, iron must be bound to proteins to prevent tissue damage from free radical formation. The effect of addition of Ferric Citrate to the media as additives is investigated in this study. Hybridoma cell line was developed to secret monoclonal antibody against blood group antigen D of the human RBC and cultured in IMDM without Fetal Bovine Serum. The importance of the Serum free media for cell growth and propagation of Hybridoma cells to produce monoclonal antibodies (mAbs). The additives were added to the medium for the enhance cell growth and to increase the monoclonal antibody secretion. Ferric citrate added as additive at different concentration of 250µM, 500µM to find out secretion level of mAb. The effects of additive Ferric Citrate was studied the cell growth, monoclonal antibody secretion, cell metabolism pattern, avidity and specificity of the antibodies which was secreted at the end of the death phase. The avidity was observed by Agglutination test and antibody titer analysis. The cell growth, mAb secretion and specificity was significantly increased compare to control Hybrid cell line.</p> <p>Key words: Hybridoma cell line, Monoclonal Antibodies, Ferric Citrate, RBC and IMDM.</p>
 <p>Iklil Sulaiman GICICRST1716086</p>	<p style="text-align: center;">Educative Based Painting with the Application of Water Resource Conservation Pressing for Severe Physical and Quality of Watershed</p> <p style="text-align: center;">Iklil Sulaiman Public Health Faculty, Jember University, Jember, Indonesia</p> <p style="text-align: center;">Abstract</p> <p>Watershed management is an attempt to manage the interrelationships between natural resources, especially vegetation, soil and water with human resources in the watershed, and all its activities to get an economic benefits and environmental services for the sake of development and preservation of the watershed ecosystem. Its principally land use regulation or optimization of land use for various purposes rationally and other practices that are environmentally friendly so it can be assessed by key indicators (ultimate indicator) the quantity, quality and continuity of the flow of the river at the point of spending (outlet) basin. So one of the characteristics of a watershed is the biophysical linkages between upstream and downstream areas through the hydrological cycle. Due to the the increasing problems of the watershed to be solved in an integrated manner with the involvement of various sectors and areas of government administration as well as requests from various stakeholders, the strategies to achieve the goal of watershed management in general is to improve the organization of watershed management by all interested parties both at the government, local government, private and community sectors. The strategy is made in a form of innovation of educational-based paint where innovation is made with attention to aspects of management that are raw are the main aspects (planning, establishment or organization, implementation, control, monitoring and evaluation), which will be the development by the method of painting in order to avoid, watershed</p>

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	<p>damage and can be used for watershed maintenance strategy as Natural Resources sustainable. Keywords: Watershed management, educative, river, painting.</p>
 <p style="text-align: center;">Shamli C S GICICRST1716089</p>	<p style="text-align: center;">The Effect Of Duty Cycle In Electrochemical Micromachining Of Nimonic 75 Alloy</p> <p style="text-align: center;">Shamli.C.S Assistant professor, Department of Mechanical Engineering, Chennai institute of technology, Kundrathur, Tamil Nadu, India</p> <p style="text-align: center;">Dr.Hariharan.P Professor, Department of Manufacturing Engineering, College of Engineering Guindy, Anna University, Tamil Nadu, India</p> <p style="text-align: center;">Rajkeerthi.E Research Scholar Department of Manufacturing Engineering, College of Engineering Guindy Anna University, Tamil Nadu, India</p> <p style="text-align: center;">Yuvaraj. N Research Scholar, Department of Mechanical Engineering, College of engineering Guindy, Anna University, Tamil Nadu, India</p> <p style="text-align: center;">Abstract</p> <p>Electrochemical micromachining is a technique developed for creating micro features in hard to machine materials. Nimonic 75 alloy is one such material which finds application in aero engine turbine parts. Laser beam and electro discharge machining are the processes used for machining Nimonic 75 alloy, owing to their drawbacks like heat affected zone and stresses, an attempt has been made to machine Nimonic 75 alloy of thickness 500 μm using electrochemical micromachining. In this investigation, employing solid tungsten carbide of diameter 500 μm as the tool, micro profiles were created in Nimonic 75 alloy sheets. The variable input parameters considered here are pulse on time, pulse off time, duty cycle and their influence on performance characteristics such as MRR, overcut, and conicity were studied. Experimental results have shown that lower value of duty cycle have produced appreciable MRR, lower overcut and conicity.</p> <p>Key words: Electrochemical micromachining, Duty cycle, Nimonic 75 alloy</p>
<p style="text-align: center;">Kulmani Mehar GICICRST1716094</p>	<p style="text-align: center;">Dynamic Response Of The Functionally Graded Carbon Nanotube Reinforced Sandwich Plate</p> <p style="text-align: center;">Kulmani Mehar Mechanical Engineering, National Institute of Technology Rourkela, Rourkela, India</p> <p style="text-align: center;">Subrata Kumar Panda Mechanical Engineering, National Institute of Technology Rourkela, Rourkela, India</p> <p style="text-align: center;">Abstract</p> <p>In this article, the dynamic response of the sandwich composite plate reinforced by functionally graded carbon nanotube has been computed using finite element method based on the first-order shear deformation theory. The face sheets of the sandwich composite plate are made by carbon nanotube reinforced composite with four different grading patterns and core phase is made by isotropic material. The effective material properties of the face sheets are computed by extended rule of mixture. The geometrical model of sandwich plate is formulated using the suitable shell element from the ANSYS library and the dynamic responses are computed using a parametric design language (APDL) code in ANSYS environment through Newmark algorithm. The finite element model of sandwich plate is established by the convergence study for</p>

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	<p>different mess sizes and time steps. Further, reliability of the sandwich model is checked by the comparison study with previously published results. Finally, some numerical examples has been solved to study the effect different design parameters such as carbon nanotube distribution pattern in fact sheets, core to face thickness ratio, volume fraction of the carbon nanotube, length to thickness ratio, aspect ratio and end edge support conditions of plate.</p>
 <p>Brinda Lakshmi A GICICRST1716095</p>	<p style="text-align: center;">Extraction Of Carotenoids From Musk Melon And Water Melon Shell</p> <p style="text-align: center;">Brinda Lakshmi A Assistant Professor (Sr.Gr.), Department Of Chemical Engineering, Ac Tech, Anna University, Chennai-600 025. India</p> <p style="text-align: center;">J.Lakshmi Priya Ionic Liquid Research Laboratory, Department Of Chemical Engineering, Ac Tech, Anna University, Chennai-600 025, India</p> <p style="text-align: center;">Abstract</p> <p>Cantaloupe (Muskmelon and Watermelon) contains biologically active molecules such as carotenoids which are natural pigments used as food colorants and desirable health benefits. Organic lipophilic solvents such as acetone, methanol and hexane are usually used for extraction of carotenoids. β-carotene is the major source of carotenoids present in muskmelon and watermelon shell. Carotenoids are extracted by using Microwave assisted extraction (MAE) and Ultrasound assisted extraction (UAE). Extraction conditions are feed-solvent ratio (1:10 to 1:40), microwave power (100W, 150W, 200W and 300W), ultrasound frequency (40 KHz), temperature (30, 40,50 and 60°C), solvent (Hexane and Ethanol) and particle size (0.6mm and 0.5mm). The extracted carotenoids were analyzed using UV-Visible Spectrophotometry and High performance liquid chromatography (HPLC). In MAE, the yield of carotenoids was found to be 590.85μg/g for muskmelon and 474.72μg/g for watermelon. In UAE, the yield of carotenoids was found to be 775.25μg/g for muskmelon and 639.54μg/g for watermelon. The study concluded that, UAE gives the higher yield of carotenoids than MAE and also muskmelon had the highest yield of carotenoids when ethanol used as a solvent for 0.5mm particle size. The extraction temperature, microwave power and F-S ratio are found to be most important parameters affecting the extraction efficiency of carotenoids from muskmelon and watermelon shell.</p> <p>Keywords: Carotenoids, Extraction, Muskmelon shell, Watermelon shell</p>
<p>Md Jalal Uddin GICICRST1716100</p>	<p style="text-align: center;">E Waste Management</p> <p style="text-align: center;">Md Jalal Uddin Civil Engineering Dept, Jpnce /JNTU, India</p> <p style="text-align: center;">Abstract</p> <p>Nowadays, human apply all of its potentiality to consume more. The result of this high consumption is nothing unless reducing the initial resources and increasing the landfill. In recent times, human from the one hand is always seeking broader sources with lower price and from the other hand is following the way to get rid of the wastes. The waste today can be produced wherever humans footprints be existed, and remind him that they have not chosen the appropriate method for exploitation of the nature. This paper introduces the development and low cost housing in India. At the present time, the possibility of utilizing the renewable resources such as solar, geothermal has been provided for us more than before, and development of the renewable and alternative energies is making progress. Plastic have become an essential part of our day to day life since their introduction over hundred years ago. The only way to reduce the hazards of plastic is reduce and reuse.</p>
<p>Abdullah ALTIN GICICRST1716102</p>	<p style="text-align: center;">Optimum Machining Parameters of Cobalt Based Super Alloys</p>

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	<p style="text-align: center;">Abdullah ALTIN Van Vocational School of Higher Education, Yuzuncu Yil University, 65100 Van, Turkey</p> <p style="text-align: center;">Abstract</p> <p>In this study, The effects of turning parameters on both average surface roughness and cutting forces using ceramic cutting tools KYON 4300, KYS 25 and KYS 30 were determined. In this study, Taguchi experimental design L18 orthogonal array and S/N (signal/noise) ratios with "smaller is better" approach by calculating variance analysis (ANOVA). optimum cutting conditions were determined by calculating the machining parameters of Incoloy 901 nickel-based superalloys with different ceramic cutting tools. Fz cutting force was taken as the criterion for the main cutting force and the lowest main cutting force were obtained with KYS25 and the lowest average surface roughness were obtained with the KYS30 ceramic cutting tool depending on the cutting tool material. In the experiments, the effect of the feed rate on the cutting force measurements was more significant, while the effect of the cutting speed was more pronounced in the surface roughness tests. Keywords: Incoloy 901, Surface roughness, Cutting forces, Machinability, Optimized by Taguchi design of experiments,</p>
<p>Subhan Ramdlani GICICRST1716103</p>	<p style="text-align: center;">Toward Sustainable Cities And Communities, Through Revitalization of Thematic Urban Kampongs In Malang City.</p> <p style="text-align: center;">Subhan Ramdlani Architecture Department, Engineering Faculty of University of Brawijaya, INDONESIA</p> <p style="text-align: center;">Abstract</p> <p>One of the Sustainable Development Goals (SDG'S), Sustainable Cities and Communities, can be achieved by making cities and communities inclusive, safe, resilient and sustainable. (http://sdgsindonesia.or.id). The efforts undertaken is ensuring access to all decent communities, safe and affordable basic services, and slum area management. One of the methods to strengthen and improve performance is the revitalization process of urban kampongs. Malang City, has 17 urban kampongs with different potentials, both natural potency and its human resources. The urban kampongs is a form of settlements in the usual areas with features such as: the population still carries the nature and behavior of life that is interwoven in close family ties and has distinctive regional characteristics. Decreased environmental quality, high density and limited economic access of citizens, became the basis for the selection of regional revitalization measures. Thematic means determining the direction of arrangement based on the potential of different kampong between villages. The methods begins with identification and understanding of economic-based as a vital factor for generators. The kampong of pottery vessel farmers is one of the villages with hereditary potential that began to decline its image. Its found spots with the potential space and craftsmanship expertise scattered in the kampong. Analysis of infrastructure potential that includes accessibility, green space, and economic potential analysis can validate the direction of revitalization. This revitalization is also city-based to enhance heritage tourism in the city center as the results. With this revitalization, pottery vessel settlements will be better prepared to welcome sustainable development, through achieving sustainable urban and residential environments. Keywords: sustainable development, urban kampong, pottery craftsmen.</p>
<p>Djay Louis Obediencia GICICRST1716105</p>	<p style="text-align: center;">Market Acceptability of an Application-Based Basic Education Tutorial Booking System in Tacloban City</p> <p style="text-align: center;">Djay Louis Obediencia University of the Philippines Visayas Tacloban College, Tacloban City,Philippines</p>

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	<p style="text-align: center;">Abstract</p> <p>This study determined the acceptability of an Application-Based Basic Education Tutorial Booking System in Tacloban City. By utilizing mobile technology, the researcher's end goal is to create an application which acts as a medium that allows the tutees to communicate with a tutor and "book" a tutorial session. The tutors will consist of college students from the University of the Philippines Visayas Tacloban College (UPVTC). On the other hand, the tutees will be composed of elementary and senior high school students in Tacloban City. Lessons taught in the tutorial are subjects from the K to 12 Basic Education Program; mainly, English, Science, Mathematics, and Reading Comprehension. Since this application is not yet existing in the market, the researcher conducted a market study on the acceptability of this application in Tacloban City. The participants of this study are elementary, senior high school and UPVTC students. By using a structured interview schedule, the researcher interviewed its participants to determine the acceptability of the application. This paper discusses the implications of the methods used and the results of the study.</p> <p>Keywords: Mobile application, Tutorial Booking System, tutor, tutee</p>
<p>Jenny Ernawati1 GICICRST1716108</p>	<p style="text-align: center;">Dimensions Underlying Place Identity for Sustainable Urban Development</p> <p style="text-align: center;">Jenny Ernawati1 1Human Settlement and Urban Design Laboratory, Department of Architecture, Faculty of Engineering, The University of Brawijaya, Malang, Indonesia</p> <p style="text-align: center;">Abstract</p> <p>In the last thirty years, the identity of a place (place identity) has become an important issue in urban planning and design. In line with the global movement to protect sites which have a significant cultural heritage, then concerns about the loss of individuality and distinctiveness between one place and another as the impact of globalization increased. This paper, therefore, meant to present the results of research intended to explore dimensions underpinning people's evaluations of place identity. This study used a quantitative approach by applying the survey research method. The town of Malang was chosen as the locus of the study. The instrument used to collect the data is a self-administered questionnaire using Likert-scale. A total of 240 respondents were selected randomly from the list of residents of Malang phone book. The concept of place identity is evaluated based on five aspects: continuity, familiarity, attachment, commitment, and external evaluation. Factor analysis was applied to reveal the dimensions that underlying place identity, which is based on community's assessments. Results of this study show there are three dimensions underlying community's evaluations of place identity, i.e., Personal Relationship Factor, Physical Environment Factor, and Commitment Factor.</p> <p>Keywords: Place identity; Urban design; Sustainable development; Malang-Indonesia</p>
<p>Anjan Babu G GICICRST1716109</p>	<p style="text-align: center;">Dynamic Node Auto-Configuration with Quality of Service in MANETs</p> <p style="text-align: center;">Anjan Babu G Affiliation: Computer Science, Sri Venkateswara University, India</p> <p style="text-align: center;">Abstract</p> <p>Dynamic data transmission is an impressive concept in present days to reduce all the operations in mobile ad hoc network configurations. For that traditionally propose Light weight protocol for node auto configuration in real time ad hoc network simulation between nodes with data transmission. This protocol configures mobile ad hoc nodes based on a distributed address database stored in filters that reduces the control load and makes the proposal robust to packet losses and network partitions. A various leveled approach demonstrate i.e. Dynamic Node Configuration Routing (DNCR) is utilized to catch clients and chairmen's larger amount objectives into system level destinations. Given arrangements of system destinations and requirements, approaches are amassed at runtime. The new approach gives more</p>

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	<p>adaptability to clients and applications to powerfully change their Quality of Service (QoS) necessities while keeping up a smooth conveyance of QoS through system screens input. Our experimental simulation results achieves dynamic and auto node configuration in reliable data presentation.</p> <p style="text-align: center;">Index Terms: MANET, AODV, TTL FA, Entrance Finding, Internet, Redirecting Methods, Position Opportunistic Routing Protocol.</p>
<p>Eko Siswoyo GICICRST1716111</p>	<p style="text-align: center;">The Influence Of Coconut Shell Carbon On Crystals Size Of Electrodes Deposition</p> <p style="text-align: center;">Eko Siswoyo Chemistry Department, Faculty of Science and Mathematics, Diponegoro University Indonesia</p> <p style="text-align: center;">Wini Fitriana Chemistry Department, Faculty of Science and Mathematics, Diponegoro University Indonesia</p> <p style="text-align: center;">Fonysiah Marspianko Habibah Chemistry Department, Faculty of Science and Mathematics, Diponegoro University Indonesia</p> <p style="text-align: center;">Yoyon Wahyono Physics Department, Faculty of Science and Mathematics, Diponegoro University Indonesia</p> <p style="text-align: center;">Gunawan Chemistry Department, Faculty of Science and Mathematics, Diponegoro University Indonesia</p> <p style="text-align: center;">Abstract</p> <p>Carbon synthesis research from coconut shell with HCl activation as electrode layer has been done. Carbon from coconut shell is a type of activated carbon that has a relatively small pore size or in the nanometer scale. This study aims to determine the effect of carbon activation with HCl on the size of crystals in the process of making electrodes. The method used is doctor blade. Making electrode by way of pellet or doctor blade with surface area on copper foil 2 x 5 cm, then dried with temperature 150oC for 1 hour. After that, the electrodes were characterized by SEM to show the surface morphology of the carbon with magnification of 3000x and 5000x. The sample was not yet nanometer-sized and still in micron scale the size range of 5 micrometers. From EDX analysis there are elemental content CK 89.59%, OK 4.54%, SiK 3.05%, KK 0.73%, AlK 0.64%, CuK 0.58%, ZnK 0.35%, NaK 0.34% and ClK 0.15%. The XRD characterization shows the amorphous diffraction peak with the smallest crystal size ratio on the carbon pure electrode and activation carbon is 106.60 nm and 15.46 nm.</p> <p>Keywords Carbon Coconut Shell, HCl, Doctor Blade and Electrode</p>
<p>Razieh Motiee GICICRST1716112</p>	<p style="text-align: center;">"Fashion & clothes center design" in Esfahan based on the naturalism Architecture</p> <p style="text-align: center;">Razieh Motiee Student Of Azad Islamic University Of Esfahan</p> <p style="text-align: center;">Morteza Salavati Master Of Azad Islamic University Of Esfahan</p> <p style="text-align: center;">Abstract</p> <p>An architectural work containing the spirit and culture of a territory in its physical manifestation, is the messenger of many hidden environmental factors of the society. In</p>

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	<p>other words, it can be stated that an architectural work transmits the history, identity, and originality of a society. Inclusion of cultural and artistic factors in the design of a building gives an identity to volumes and makes the incorporated materials as a base for reflection and thinking, an effect which is hidden in every elements of Iranian history, culture, and taste. Hence, it has been attempted to design this space in a way that it can become a place for creation of an architectural work while respecting the history of this country. The issue of apparel and clothing has been a matter of great importance throughout the human history, from primitive human to the twenty-first century human; and so far, we have we have witnessed its transformation and ascending evolution when examining its historical process particularly in the contemporary eras when this issue has gone beyond the boundaries of mere “apparel and clothing”, and become a concern for general public so that an art called “clothing design” was formed. In the meantime, fashion, which is originated from modern and then postmodern eras in Europe, became widespread and subsequently spread to different societies of the world, including Iran. However, this country has itself a rich history of clothes, and the local costumes of different Iranian ethnic groups have valuable concepts and are consistent with their environment and climate. This can in turn become a source of inspiration for the modern Iranian people.</p> <p>The paper seeks to create a flexible and ideal showcase through modeling geometric patterns used in many traditional buildings in Isfahan city for harmonious and appropriate transmission of light into the interior spaces of the building, and also to plan a way to promote the fashion-related issues that while having interaction with the world, it would strengthen the society’s culture and be a good representative of our country’s history and culture to other nations.</p>
<p>Utkarsh Raj GICICRST1716113</p>	<p style="text-align: center;">CEMDB: a manually curated Cancer Epigenetic Marker Database</p> <p style="text-align: center;">Utkarsh Raj Dept. of Bioinformatics & Applied Sciences, Indian Institute of Information Technology-Allahabad, Allahabad, India</p> <p style="text-align: center;">Pritish Kumar Varadwaj Dept. of Bioinformatics & Applied Sciences, Indian Institute of Information Technology-Allahabad, Allahabad, India</p> <p style="text-align: center;">Abstract</p> <p>CEMDB is a freely available e-database for facilitating exploration of cancer epigenetic proteins & their modulators. The contents of this database ranges from protein families of cancer epigenetic, to their structural data and inhibitors, pharmacokinetic properties, information related to their toxicology and cheminformatics. Protein family names can be used for accessing relevant ligand names, ligand structures and substructures. Overall, this database will be useful for designing new drugs and therapies for disease like cancer. The principal purpose of developing the database is to provide an information platform for researchers interested in the field of cancer epigenetics. We believe that the information & tools presented in CEMDB will welcome aspiring researchers to start drug designing outline and bring about an improvement in the field of cancer epigenetics. This knowledgebase would be helpful to cancer biology researchers, especially those interested in epigenetic regulation.</p> <p>Keywords CEMDB, cancer, epigenetics, database, proteins.</p>



**Dr. Hidayatul Aini
 Binti Zakaria
 GICICRST1716062**

Development Of Water Treatment Sachets From The Seeds Of Moringa Oleifera And Activated Carbon

**Dr. Hidayatul Aini Binti Zakaria
 School of Ocean Engineering, Universiti Malaysia Terengganu, Malaysia**

Abstract

Water is a common chemical substance that is essential to all known forms of life. Purified water is essential for living a healthy life as such everyone should have access to it. Pollution of water bodies is a major health issue in many fast growing cities where population growth far exceeds the rate of development of wastewater collection and treatment infrastructure. This research is focused on the development of water treatment sachets from the seeds of moringa oleifera and activated carbon. Characterization of the water treatment sachets was made by utilizing Brunauer, Emmett and Teller (BET), X-Ray Diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR), Turbidity Meter and UV-Vis spectroscopy. From BET's result, isotherm linear graph showed that the Activated Carbon have larger surface area, pore size and volume compared to seeds of Moringa Oleifera, this finding correlates well with existing literatures. This indicates that the level of adsorption in activated carbon is higher and more capable of removing impurities in water compared to Moringa Oleifera, From XRD results, it is verified that both samples, Activated Carbon and seeds of Moringa Oleifera are amorphous in structure. FTIR analysis indicate that the functional group in both samples of Activated Carbon and seeds of Moringa Oleifera are similar with literatures. For UV-Vis analysis, it shows that the adsorption depends on the initial concentration of methylene blue used. As the ratio of seeds of Moringa Oleifera increases, the removal become faster since it depends on the initial concentration. Turbidity Meter analysis showed that higher volume of Moringa Oleifera will increase the percentage of impurities removal. This study had proved that the combination of Moringa Oleifera and activated carbon is suitable for high turbidity water treatment and further study should be conducted before these water treatment sachets are available for public use.

**Shih-Hsuan Hu
 GICICRST1716065**

Design and Manufacture of WTG Operation Simulation Platform

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 Taichung, Taiwan**

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 Taichung, Taiwan**

Abstract

As wind energy assumes greater importance in remote and offshore locations, effective and reliable condition monitoring (CM) techniques are necessary. Conventional CM methods used in the power generation industry have been applied to wind turbine generators (WTGs) commercially. However, the operating environment for a WTG is much different to that for a power plant. Moreover, current CM techniques require the deployment of a variety of sensors and computationally intensive analysis techniques. For the development of WTG CMS, a WTG simulation platform design is proposed in this work. The structure of the proposed WTG platform is designed according to a regular large WTG. However, some modifications, such as a motor to replace the wind flow and blades, have been applied. This simulation platform is employed to develop CMS and test its performance to avoid an unstable CMS being applied to WTGs practically.

Keywords: Wind Turbine, CMS, Simulation Platform

Zhi-Bin Wu

Design and Analysis of Axial Magnetic Bearing for Milling Applications

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<p>GICICRST1716071</p>	<p style="text-align: center;">Zhi-Bin Wu Department of Mechanical engineering, National Chin-Yi University of Technology, Taichung, Taiwan</p> <p style="text-align: center;">You-Hong Lin Department of Mechanical engineering, National Chin-Yi University of Technology, Taichung, Taiwan</p> <p style="text-align: center;">Kai-Cheng Fan Department of Mechanical engineering, National Chin-Yi University of Technology, Taichung, Taiwan</p> <p style="text-align: center;">Rong-Mao Lee Department of Mechanical engineering, National Chin-Yi University of Technology, Taichung, Taiwan</p> <p style="text-align: center;">Abstract Magnetic technology has been gradually developed and applied to industrials, e.g., magnetic bearing and maglev transportation system. This work is devoted to the development of 5-axis magnetic milling spindle for high-speed machining. The design and analysis of axial bearing for the 5-axis active magnetic spindle is reported in this paper. Since axial magnetic bearing of the spindle has to support the weight of rotary components, the design of axial magnetic bearing is more complex than that of radial magnetic bearing. The structure of axial magnetic bearing is built by Solidworks and the following analysis is accomplished with the aid of Ansoft. The magnetic flux density and the magnetic flux loop of the axial magnetic bearing have been studied in this work for practical milling applications. Keywords: Active Magnetic Bearing, Axial Bearing, Magnetic loop</p>
<p>Yi-Hsing Yu GICICRST1716072</p>	<p style="text-align: center;">Fast Chatter Detection In Milling With Acoustic Emission Milling Chatter Detection By Acoustic Signal Analysis</p> <p style="text-align: center;">Yi-Hsing, Yu Mechanical Engineering, National Chin-Yi University Of Technology ,Technology, Taichung ,Taichung, Taiwan</p> <p style="text-align: center;">Rong-Mao, Lee Institute Mechanical Engineering, National Chin-Yi University Of Technology Technology University, Taichung Taichung City, Country, Taiwan</p> <p style="text-align: center;">Abstract Many indexes for chatter detection have been proposed. However, current methods are focused on the time moment after the chatter fully developed. Since the unqualified surface has been already finished due to the chattering vibration, current detection methods are hard to be applied to practical millings. An audible signal based method has been proposed in this work for the detection of early stage chatter. The variations of chatter signal properties during milling tests have been addressed and the potential frequency range for chatter detection by audible signals was investigated. Keywords: Milling, Chatter, Acoustic signal</p>



Lee Jieun
GICICRST1716085

A Study On The Characteristics Of Boiling Heat Transfer With Cu Nano-Coating Thickness

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Namjin Kim

Abstract

Many researches have been carried out to improve the efficiency of heat transfer system such as atomic power, large-scale power plants, industrial and household heat exchangers, miniaturized large capacity and highly integrated electronic components, evaporators of refrigerating etc.

Especially, boiling heat transfer has been used to various types of heat transfer systems in various industries. And the R&D is consistently performing to improve the critical heat flux to enhance the performance of the boiling heat transfer system in present. When the heat flux on the heating surface following changing heat condition in the boiling heat transfer system exceeds critical heat flux, the critical heat flux phenomenon is going over to immediately the film boiling area and then it is occurred the physical destruction phenomenon of various heat transfer systems. Therefore, In order to maximize the safe operation and performance of the heat transfer system, it is essential to improve the critical heat flux of the system and accurately predict the critical heat flux of the working fluid. Furthermore, coating of nanoparticles on the heat transfer surface can improve the critical heat flux of the heat transfer system, and various research results have been reported depending on the type of nanoparticle, material, method of surface coating, time and form. In this view, this work is aimed to improve the efficiency and safety of the system. so we are performed to comparative analysis for the influence of the critical heat flux during the nanoparticle coating through measurement of the contact angle and roughness using the high thermal conductivity copper & spray vacuum evaporation method. Further, we have analysis the effect of improving critical heat flux and characteristics of heat transfer following the nanoparticle coating thickness. As the results, copper nano coating time are increased to CHF, and in case of nano-coatings are increased spray-deposited coating times more than in the pure water; copper nanopowder is increased up to 6.40%. The boiling heat transfer coefficients of the pure water are increased up to 5.79% respectively. Also, the contact angle are decreased and surface roughness are increased when flow velocity and nano-coating time are increasingly going up.

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Qianying Yang
GICICRST1716088

Transcriptome Comparison Reveals the Adaptive Evolution of Two Contrasting Ecotypes of Zn/Cd Hyperaccumulator Sedum alfredii Hance

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	<p style="text-align: center;">Ying Feng Ministry of Education Key Laboratory of Environmental Remediation and Ecosystem Health, College of Environmental and Resources Science, Zhejiang University, Hangzhou, 310058, People's Republic of China</p> <p style="text-align: center;">Zhenli He Institute of Food and Agricultural Sciences, Indian River Research and Education Center, University of Florida, Fort Pierce, Florida, 34945, United States</p> <p style="text-align: center;">Xiaoe Yang Ministry of Education Key Laboratory of Environmental Remediation and Ecosystem Health, College of Environmental and Resources Science, Zhejiang University, Hangzhou, 310058, People's Republic of China</p> <p style="text-align: center;">Abstract Hyperaccumulating ecotype (HE) and non-hyperaccumulating ecotype (NHE) of <i>Sedum alfredii</i> Hance belong to the same species but exhibit contrasting characteristics regarding hyperaccumulation and hypertolerance to cadmium and zinc. The Illumina HiSeq 2500 platform was employed to sequence HE and NHE to study the genetic evolution of this contrasting trait. Greater than 90 million clean reads were obtained and 118,479/228,051 unigenes of HE/NHE were annotated based on seven existing databases. We identified 149,668/319,830 single nucleotide polymorphisms (SNPs) and 12,691/14,428 simple sequence repeats (SSRs) of HE/NHE. We used a branch-site model to identify 18 divergent orthologous genes and 57 conserved orthologous genes of <i>S. alfredii</i> Hance. The divergent orthologous genes were mainly involved in the transcription and translation processes, protein metabolism process, calcium (Ca²⁺) pathway, stress response process and signal transduction process. To the best of our knowledge, this is the first study to use RNA-seq to compare the genetic evolution of hyperaccumulating and non-hyperaccumulating plants from the same species. In addition, this study made the sole concrete for further studies on molecular markers and divergent orthologous genes to depict the evolution process and formation of the hyperaccumulation and hypertolerance traits in <i>S. alfredii</i> Hance. Keywords: comparative transcriptome, SSRs, SNPs, divergent orthologous genes, <i>Sedum alfredii</i> Hance, hyperaccumulator, zinc, cadmium</p>
<p>Mina Medic GICICRST1716091</p>	<p style="text-align: center;">Synthesis and characterization of structure and luminescence of Dy³⁺ doped Na_{0.25}K_{0.25}Bi_{0.5}TiO₃</p> <p style="text-align: center;">Mina Medić University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Ljubica Dačanić University of Novi Sad, Faculty of Sciences, Department of Physics, Novi Sad, Serbia</p> <p style="text-align: center;">Jelena Papan University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Vesna Đorđević University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Miroslav D. Dramićanin University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Abstract This study presents activation of luminescence in one of the most promising lead-free piezoelectric material, sodium potassium bismuth titanate powder ((Na_{0.5}K_{0.5})_{0.5}Bi_{0.5}TiO₃; NKBT). When introduced in this structure, Dy³⁺ ions</p>

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	<p>provide the new phosphor material with potentially interesting combination of piezoelectric and luminescence properties. Here, we demonstrate the preparation of Dy doped $\text{Na}_{0.25}\text{K}_{0.25}\text{Bi}_{0.48}\text{Dy}_{0.02}\text{TiO}_3$ powder by solid-state reaction using TiO_2, Bi_2O_3, Na_2CO_3, K_2CO_3 and Dy_2O_3 as precursor materials. Starting powders were ball milled in ethanol in for 12 h, then dried and calcined at 850°C for 2 h. Subsequently, obtained powder were additionally milled in ethanol for additional 12 h, and finally sintered at 850°C for 4 h. X-ray diffraction measurement revealed that NKBT samples exhibited a tetragonal perovskite structure, belonging to the $P4_{bm}$ space group, without impurities. Optical characterization included measurements of photoluminescence excitation and emission spectra, and diffuse reflection measurements. Emission spectra showed characteristic bands of Dy^{3+} ions with pronounced emissions originating from f-f electronic transitions. A dominant band in the blue region with maximum at around 477 nm originates from magnetic-dipole $4F_{9/2} \rightarrow 6H_{15/2}$ transition, and another in the yellow region with maximum at around 574 nm originates from electric-dipole $4F_{9/2} \rightarrow 6H_{13/2}$ transition. A small intensity high-energy band centered at around 457 nm originates from $4I_{15/2} \rightarrow 6H_{15/2}$ transition provides the possibility to use this type of emitting material as temperature sensor in the luminescence thermometry.</p> <p>Keywords: piezoelectric, perovskite structure, $(\text{Na}_{0.5}\text{K}_{0.5})_{0.5}\text{Bi}_{0.5}\text{TiO}_3$, dysprosium</p>
<p>Miroslav Dramicanin GICICRST1716092</p>	<p style="text-align: center;">Binary Luminescence Thermometry Probe Based on Mn^{4+} and Ho^{3+} Activated Phosphors</p> <p style="text-align: center;">Miroslav Dramicanin Vinca Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia</p> <p style="text-align: center;">Milica Sekulic University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Sanja Kuzman University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Katarina Vukovic, Mina Medic University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Vesna Dordevic University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Abstract</p> <p>Temperature is by far the most commonly measured physical quantity; sensors of temperature account for 80% of all sensors worldwide with market of USD 5.13 Billion in 2016. Temperature sensors are used across a broad spectrum of human activities, such as in medicine, home appliances, meteorology, agriculture, and industrial and military contexts, to mention some of the most significant areas. Among emerging optical thermometry methods, luminescence thermometry has gain the most attention because of the sensitivity of luminescence on temperature and the ease with which luminescence can be detected in comparison to other optical signals. Here, we aimed to develop the high-sensitivity luminescence thermometry probe which can utilize the ratio of two spectrally distinct emissions from two luminescence centers, one center whose emission intensity rapidly quenches with temperature (Mn^{4+}) and one whose luminescence is insensitive to temperature changes (Ho^{3+}) over the temperature range of interest ($10 - 80^\circ\text{C}$). To achieve this goal, we have prepared $\text{Mg}_2\text{TiO}_4:1\%\text{Mn}^{4+}$ and $\text{Y}_2\text{O}_3:1.5\%\text{Ho}^{3+}$ by Pechini and Polymer complex solution methods, respectively. Luminescence emissions were measured by 465nm excitation from 450W Xenon lamp on Fluorolog-3 Model FL3-221 spectrofluorometer system (Horiba Jobin-Yvon), and the luminescence ratio is calculated to obtain the calibration curve. To test thermographic performance of the newly developed probe, an uncertainty analyses is</p>

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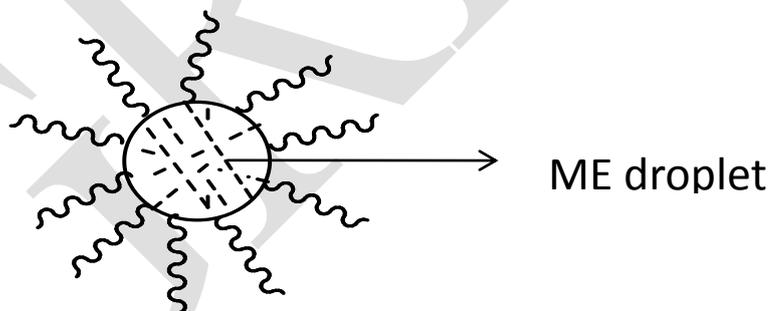
 <p>Vesna Dordevic GICICRST1716093</p>	<p>conducted and repeatability measurements were performed. Keywords: sensors, temperature probes, luminescence thermometry</p> <p style="text-align: center;">Structural, Morphological and Optical Properties of Rare Earth Doped Anatase Nanocrystalline Powders</p> <p style="text-align: center;">Vesna Dordevic University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Bojana Milicevic University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Sanja Kuzman University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Miroslav D. Dramicanin University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade Serbia</p> <p style="text-align: center;">Abstract</p> <p>Titanium dioxide (TiO₂) is a wide band gap semiconductor which is used in many applications for decades. Its technical application highly depends on its crystalline structure and morphology. Because of its high photocatalytic activity, anatase is preferred TiO₂ form in many applications such as photocatalyst for air and water splitting and purification. TiO₂ is also considered as a good host candidate for doping with optically active rare earth ions (RE) for potential application in phosphor materials since it has wide band gap and good thermal and mechanical properties. RE(III)-Ti(IV) ion mismatch highly affect crystallinity of powders which impact structural, morphological and optical properties. It is of interest to investigate how doping with various RE(III) ions influence crystallographic, morphological and optical properties of sol-gel synthesized nanocrystalline anatase TiO₂. Fixed content of RE was kept trough all samples, where RE= Pr, Nd, Sm, Eu, Dy, Tb, Ho, Er and Tm. X-ray diffraction measurements showed decrease of crystallite size from 150 Å for the undoped sample to 70 Å for Nd doped sample, while BET measurements showed an increase of specific area from 10 to 100 m²/g for Nd doped sample. Transmission electron microscopy showed densely aggregated crystalline nanoparticles of irregular shapes, dimensions of about 10-20 nm in size. Diffuse reflectance measurements revealed small difference in optical absorption thresholds due to modifications of materials density of states after incorporation of trivalent rare earth ions. Efficient photoluminescence emission was achieved in the case of following RE(III) ions: Nd, Sm, Eu, Dy, Ho, and Er, while luminescence of low intensity is detected for: Pr, Tb, and Tm. Basic assessment on photocatalytic activity based on MO degradation was performed and when compared to the undoped sample, photocatalytic performance of nanopowder improves with addition of RE in small concentrations except for Pr and Tb ions.</p> <p>Keywords: rare earth ions, anatase, photoluminescence, photocatalysis</p>
<p>Kritika Nayak GICICRST1716096</p>	<p style="text-align: center;">Dexamethasone loaded microemulsion for enhanced ocular bioavailability via topical route</p> <p style="text-align: center;">Kritika Nayak National Institute of Pharmaceutical Education and Research, Opposite Airforce Station, Palaj Basan Road, Village Palaj, Gandhinagar, Gujarat, India</p> <p style="text-align: center;">Dr. Manju Misra National Institute of Pharmaceutical Education and Research, Opposite Airforce Station, Palaj Basan Road, Village Palaj, Gandhinagar, Gujarat, India</p> <p style="text-align: center;">Abstract</p>

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Dexamethasone is the most common drug to be utilized in ocular inflammatory diseases. The problem associated with drug is its low bioavailability owing its highly lipophilic nature and ocular barriers causing rapid elimination via blood aqueous barrier and blood retinal barrier.

Dexamethasone loaded microemulsion was developed by water titration method. Solubility of dexamethasone was evaluated in different oils and surfactants. Oil, surfactant and cosurfactant were selected on the basis of solubility and emulsification capacity. The ratio of surfactant and cosurfactant (Smix) and oil:Smix were evaluated from pseudoternary phase diagram. As dose required is 1mg/ml, appropriate amount of matrix (oil + Smix) was titrated against water to obtain homogenous microemulsion. The developed formulation was evaluated for stability for 3 month at different temperature range (working area temperature; 25°C, 4°C, and 37°C), isotonicity, rheological property, in vitro release pattern with dialysis bag method and ex vivo corneal permeation on excised goat cornea. The developed formulation was homogenous, transparent and stable. The matrix system involves Capmul MCM as oil, Cremophore RH 40 as surfactant and Transcutol as cosurfactant. The optimized formulation consisted of surfactant and cosurfactant in ratio of 4:1 and 2:1 while for the oil and Smix, the ratios were 1:4 and 1:9. Finally 2:1 surfactant and co surfactant ratio and 1:4 oil: Smix ratio was selected in order to keep levels of surfactant at lowest. The size range of developed microemulsion was 11-15nm. It demonstrated sustained release of dexamethasone over 24 hour and good ex vivo permeability across corneal membrane. The developed microemulsion was transparent, homogenous and showed no loss in drug content throughout its storage period at different temperature range. It proved to be good nanocarrier for delivering the drug to ocular barriers and can be utilized in place of conventional eye drop solution for better ocular bioavailability and compliance.

Figure 1 Microemulsion (ME) droplet



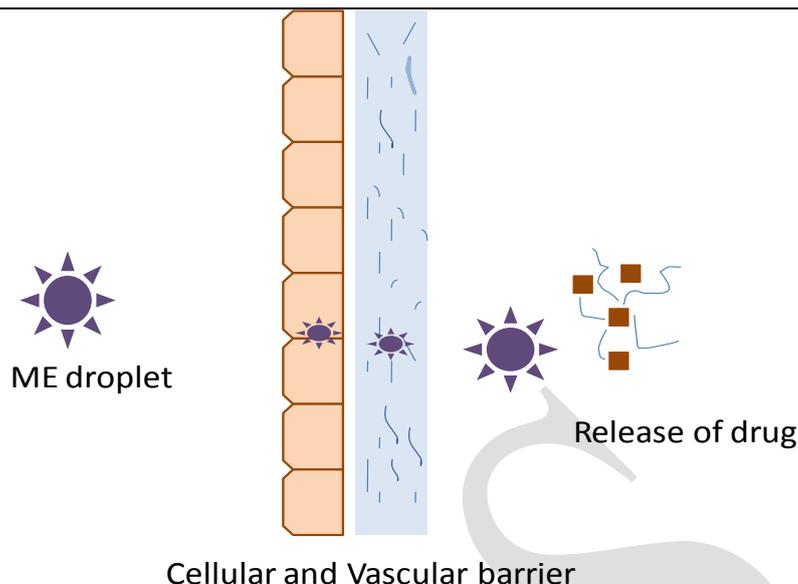


Figure 2 Permeation of ME droplet through ocular cellular and vascular barrier and release of drug



Nattakarn
Sransupphasirigul
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Relationship Between Distributions Of Lichen Pyxine Coccoes (Sw.) Nyl. And Quantity Of Atranorin In Thallus, In Chiang Mai, Thailand

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Abstract

Air pollution problem is found in northern Thailand where developed areas are still being extended from the center of urban areas in Chiang Mai province. High level of air pollution can affect to lichens also as environmental factors. Lichens are used as indicators to monitoring air quality in northern Thailand by using their diversity. Furthermore, the study on correlation between the amount of lichen secondary metabolites and lichen distribution was done for the first time. The relation between frequencies of Pyxine Coccoes (Sw.) Nyl. and atranorin concentration was investigated in this study. Atranorin is one of secondary metabolites that produce in a cortex layer that means it can be affected from air pollution directly. High Performance Layer Chromatography (HPLC) was used to determine the concentration of atranorin in lichen thallus. Distribution of P. cocoes was investigated in eight directions from Chiang Mai city and the lichen sampling was done in 22 sub-study sites. P. cocoes was selected because it widely distributed in all areas with less frequency in the Chiang Mai city. This study found significant correlation between frequency of P. cocoes and quantity of atranorin. The lowest average concentration of atranorin, which

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was 5.09 ppm, was found in the city areas which related to less distribution of P. cocus. High traffic level and high human activities occurred in these areas. The highest level (113.56 ppm) was found in samples which was collected from a site located 10 km from the city in the North. This study site was far from main road and surrounded with paddy field and trees. Low pollution and less human activities may cause high level of atranorin. Besides pollution and anthropogenic activities, microhabitat also can have influence on level of atranorin in lichen thallus and their distribution.

Keywords: Lichens Distribution, Secondary Metabolite, Atranorin, High Performance Liquid Chromatography



**Chitsupang
Kheawsalab
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Quantitative Variation Of Atranorin In Lichen *Dirinaria Picta* (Sw.) Clem. & Schear. Thallus

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Abstract

Acid deposition is a complex chemical and atmospheric phenomenon that occurs when fossil fuel emissions such as sulfur and nitrogen compounds and other substances are transformed by chemical processes and deposited on earth. Epiphytic lichens are widely used to monitor air quality because they are sensitive to air quality changed. Lichen secondary metabolites help lichens to survive in various environmental, predators and parasite. Atranorin is common lichen secondary metabolite in depsides groups. In this study, High- Performance Liquid Chromatography was used to determine concentrations of atranorin in lichen *Dirinaria picta* (Sw.) Clem. & Schear.. The aim of the study was focused on the impact of different climatic conditions on atranorin concentration. Concentration of atranorin in *D. picta* were investigated in two main study sites in Lampang province, Northern Thailand. Lichen sampling was done in six sub-study sites around Mae-Moh lignite power plant and 14 sub-study sites in Lampang district. The highest average concentration of atranorin, which was 178 ppm, was found in North-East direction with 5 kilometers far from Lampang city (NE5). This site was small suburban area with low traffic. Lowest average concentration of 53.21 ppm was found in center of Lampang city (C) where high human activities and high traffic occurred. Pollutants in areas with high human activities may damage upper surface of *D. picta* thallus and disturbed chemical processes, causing atranorin leaked. However, correlation between atranorin concentration and some parameters such as altitude, bark pH, light intensity and humidity was not found in this study.

Keywords: Acid deposition, Atranorin, HPLC, Lichen, Power plant



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GICICRST1716101

Inhibitory Effects Of Fermented Laminaria Japonica On Adipocyte Differentiation And Inflammation

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Abstract

Obesity is characterized by mild chronic inflammatory conditions and is known to cause metabolic diseases such as hypertension, type 2 diabetes, and cardiovascular disease. Laminaria japonica is one of the brown algae commonly consumed by Koreans and is known to have anti-cancer, antioxidant, antimutagenic and antimicrobial activity. L. japonica fermented with Lactobacillus brevis BJ-20 (Fermented L. japonica, FLJ) was purchased from Marine Bioprocess Co., Ltd. This study was carried out to investigate the effect of FLJ on adipocyte differentiation and inflammation in 3T3-L1 preadipocyte, RAW264.7 macrophage cell line and RAW-Blue™ cells. Oil red O staining and Triglyceride assay showed that FLJ inhibits adipocyte differentiation and triglyceride accumulation in the 3T3-L1 mouse preadipocyte. Protein and gene levels of CCAAT-enhancer-binding protein α (C/EBP α) and peroxisome proliferator-activated receptor- γ (PPAR γ), which are lipogenic transcription factors, were significantly decreased by real-time PCR and western blotting, indicating that they had anti-obesity effect. FLJ reduced nitric oxide (NO) production induced by inducible NO synthase (iNOS) in transcription and translation of levels in RAW264.7 cells activated by lipopolysaccharide (LPS). However, FLJ did not affect LPS-induced phosphorylation of STAT1, STAT3, p38, and JNK and degradation of I κ B- α . On the other hand, FLJ inhibited the activity-regulating ability of NF- κ B transcription factor up to 70% in RAW-Blue™ cells. Thus, reduction in NO seems to be associated with inhibition of NF- κ B transcription factor. These results suggest that FLJ inhibits adipocyte differentiation and triglyceride accumulation and significantly reduces the protein and gene levels of adipogenic factors and thus has an anti-obesity effect. In addition, FLJ has anti-inflammatory effects by reducing the production of NO induced by iNOS in macrophages activated with LPS.

Key words: Fermented Laminaria japonica, Anti-obesity, Anti-inflammation

Immunostimulatory Effects on Polycan in Human Monocyte

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<p>Shamli.C.S1 GICICRST1716089</p>	<p>The Effect Of Duty Cycle In Electrochemical Micromachining Of Nimonic 75 Alloy</p> <p>Shamli.C.S1 Assistant professor Department of Mechanical Engineering Chennai institute of technology Kandrathur, Tamil Nadu, India</p> <p>Dr.Hariharan.P Department of Manufacturing Engineering College of Engineering Guindy Anna University, Tamil Nadu, India</p> <p>Rajkeerthi. Research Scholar Department of Manufacturing Engineering College of Engineering Guindy Anna University, Tamil Nadu, India</p> <p>Yuvaraj.N Research Scholar Department of Mechanical Engineering College of engineering Guindy Anna University, Tamil Nadu, India</p> <p>Abstract Electrochemical micromachining is a technique developed for creating micro features in hard to machine materials. Nimonic 75 alloy is one such material which finds application in aero engine turbine parts. Laser beam and electro discharge machining are the processes used for machining Nimonic 75 alloy, owing to their drawbacks like heat affected zone and stresses, an attempt has been made to machine Nimonic 75 alloy of thickness 500 μm using electrochemical micromachining. In this investigation, employing solid tungsten carbide of diameter 500 μm as the tool, micro profiles were created in Nimonic 75 alloy sheets. The variable input parameters considered here are pulse on time, pulse off time, duty cycle and their influence on performance</p>

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	<p>characteristics such as MRR, overcut, and conicity were studied. Experimental results have shown that lower value of duty cycle have produced appreciable MRR, lower overcut and conicity</p>
<p>Misriyani GICICRST1716107</p>	<p style="text-align: center;">Synthesis And Characterization Of Tio2 Nanotube Based Free Standing Membrane</p> <p style="text-align: center;">Misriyani Medical Education, Faculty of Medicine, University of Alkhairaat, Jl. Diponegoro Palu 94221, Central Sulawesi-Indonesia Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Gadjah Mada, Sekip Utara PO BOX BLS 21 Yogyakarta 55281, Indonesia</p> <p style="text-align: center;">Abstract</p> <p>The TiO₂ semiconductor materials with nanotube morphology have wide application potentials in a variety of chemical processes due to their high effectiveness in responding to light on the surface as well as having wide band gap energies. Related studies of TiO₂ nanotubes were developed based on previous studies that have examined and tested the effectiveness of photoelectrocatalytic TiO₂ nanotube films grown on titanium plate substrate for Stainless steel anti-corrosion applications (Misriyani et al., 2015). However, the presence of titanium plate substrate on TiO₂ nanotubes precludes light absorption because it is opaque. This affects the activity of TiO₂ in responding to light. The development of TiO₂ nanotube films through the manufacture of membrane-based film free standing becomes very important to do. Transparent film coatings in addition to improving light absorption on the surface of TiO₂ also make it easy to integrate with other substrates. This paper reports the extensive study of the preparation technologies as well as the optimum conditions of synthesis of free standing TiO₂ nanotubes. In addition, the effect of synthesis parameters on characteristics of TiO₂ nanotubes based free standing membrane was also studied.</p> <p>Keywords: TiO₂ Nanotube, Free standing membrane, Synthesis, Characterization</p>
<p>Jenny Ernawati GICICRST1716113</p>	<p style="text-align: center;">Dimensions Underlying Place Identity for Sustainable Urban Development</p> <p style="text-align: center;">Jenny Ernawati 1Human Settlement and Urban Design Laboratory, Department of Architecture, Faculty of Engineering, The University of Brawijaya, Malang, Indonesia</p> <p style="text-align: center;">Abstract</p> <p>In the last thirty years, the identity of a place (place identity) has become an important issue in urban planning and design. In line with the global movement to protect sites which have a significant cultural heritage, then concerns about the loss of individuality and distinctiveness between one place and another as the impact of globalization increased. This paper, therefore, meant to present the results of research intended to explore dimensions underpinning people's evaluations of place identity. This study used a quantitative approach by applying the survey research method. The town of Malang was chosen as the locus of the study. The instrument used to collect the data is a self-administered questionnaire using Likert-scale. A total of 240 respondents were selected randomly from the list of residents of Malang phone book. The concept of place identity is evaluated based on five aspects: continuity, familiarity, attachment, commitment, and external evaluation. Factor analysis was applied to reveal the dimensions that underlying place identity, which is based on community's assessments. Results of this study show there are three dimensions underlying community's evaluations of place identity, i.e., Personal Relationship Factor, Physical Environment Factor, and Commitment Factor.</p> <p>Keywords: Place identity; Urban design; Sustainable development; Malang-Indonesia</p>



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YRSICRST1716051

A Comparative Study Of Morpho-Anatomy, The Content Of Chlorophyll And Ascorbic Acid On Ardisia Humilis Thunberg In The Area With Different Light Intensity At The Nature Preserve Of Pananjung Pangandaran, West Java

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Abstract

This Study Was Conducted In Order To Seek Out Different Morpho-Anatomy Responses, The Content Of Chlorophyll And Ascorbic Acid In Ardisia Humilis Thunberg In The Area Of Different Light Intensity In The Nature Preserve Of Pangandaran. The Determination Of The Location Was Based On The Existence Of Ardisia Humilis Thunberg In The Area Both With Direct Exposure Of Sun Light And Not. The Location To Obtain The Open Area-Sample Was Located Behind The Office Of Conservation Of Natural Resources (Bksda) With The Light Intensity Of 922.000 Lux. The Light Intensity Of The Area Without Direct Sun Light Exposure Was 7906.6 Lux And The Location Was In Ciborok. Three Leaves Of Three Different Plants Were Obtained As The Samples. The Observed Parameter Was The Width And Thickness Of The Leaves, The Density Of Stomatal, The Thickness Of Palisade, The Content Of Chlorophyll And Ascorbic Acid. Ascorbic Acid Test Used The Method Of Iodometric Titration. The Result Of The Study Showed That The Average Of The Leaf Thickness, Leaf Area, Stomatal Density, Palisade Thickness, Chlorophyll Content, And Ascorbic Acid On Sun Leaves Were 0.25 Mm, 46.032 Cm², 132.48 Sel/Mm², 54.89 µm, 10.88 Cci, Dan 0.0077 Mg/G, Respectively; While, For Shade Leaves Were 0.23 Mm, 57.159 Cm², 116.63 Sel/Mm², 47.66 µm, 32.41 Cci, Dan 0.0107 Mg/G, Respectively.

Keywords: Light Intensity, Morpho-Anatomy, Chlorophyll, Ascorbic Acid, Ardisia Humilis

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