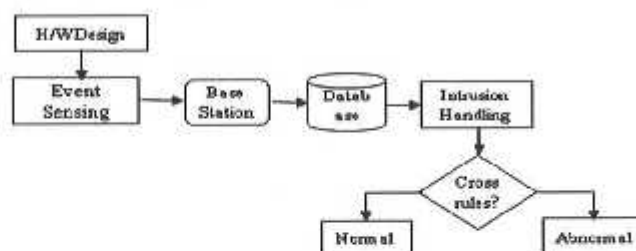


CONTENTS

Management & Information Technology

213 **Cross-Layer Intrusion Detection System for Wireless Sensor Networks**

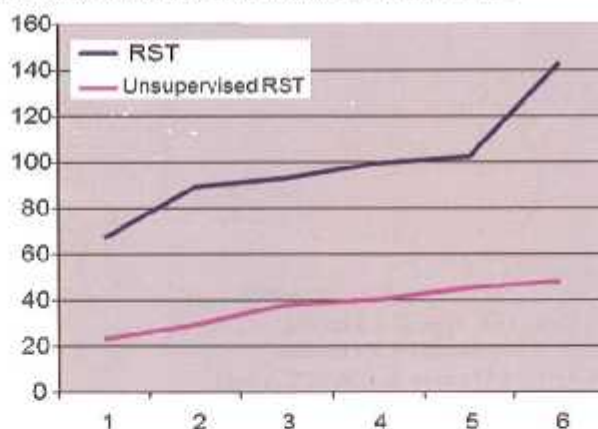
In Wireless Sensor Network, the sensor nodes monitor any abnormal events occurring around the business environment to report the emergency alert whenever it detects any abnormality in an environment or report the monitored data continuously or periodically to the base station. These emergency alerts can be stolen or modified by the attackers or in some cases, the sensor nodes can be physically compromised by the attackers, which lead to an unsafe environment.



D Sathya & K Krishneswari

221 **An Efficient Feature Selection Technique of Unsupervised Learning Approach for Analyzing Web Opinions**

Examination of developing Web opinions is probably valuable for realize enduring topics of public like crime and terrorist attack detection. Some participants or users are using the web forum to publicize their thought about particular incident in the world such as committing crime. How the topics are progressed together with the social interaction between contributors and recognize important and influence of participants discussions of various topics through social media. Participants are usually considering opinions to be articulated through adjectives, and make wide use of moreover general dictionaries or specialist to provide the appropriate adjectives

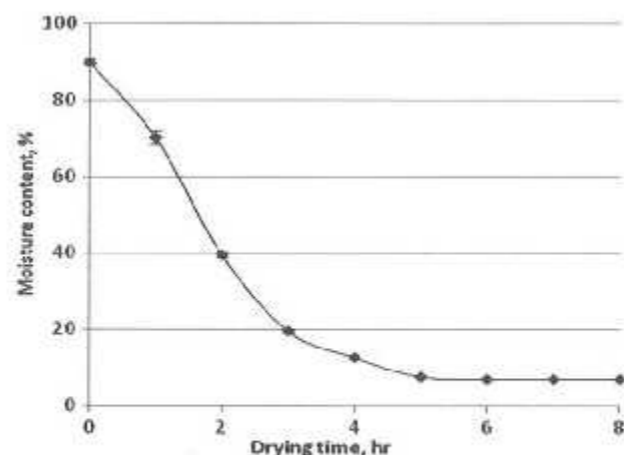


M S Valli & G T Arasu

S & T and Industrial Research

- 225 **Physico-Chemical and Antioxidant Properties of Foam Mat Dried Muskmelon (*Cucumis Melo*) and Application in Dairy Products**

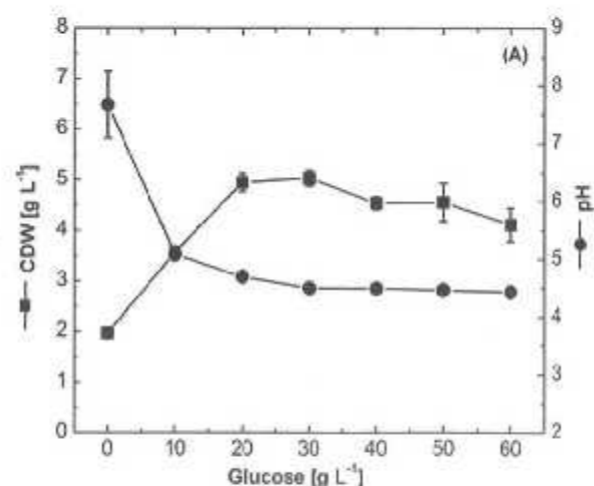
Foam mat dried muskmelon (FMDM) powder was prepared from a seasonal elongated variety and analysed for its physico-chemical composition and antioxidant activity. Application of FMDM in dairy products was evaluated. FMDM was found to be a rich source of total polyphenol content, vitamin C content and exhibited good antioxidant properties. Microstructure analysis of FMDM by scanning electron microscope showed the presence of numerous void spaces indicating its highly porous structure with lower density.



K Balaswamy, P G P Rao, G N Rao & A Satyanarayana

- 231 **Comparison between Classical and Statistical Medium Optimization Approaches for High Cell Mass Production of *Azotobacter Vinelandii***

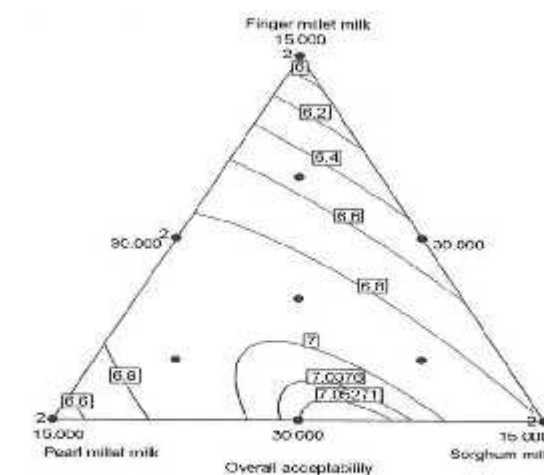
Azotobacter vinelandii is a model free-living diazotroph, which converts atmospheric nitrogen into ammonia in the presence of atmospheric oxygen. During the last decades, extensive work has been carried out to study the genetic and metabolic properties of free living nitrogen fixing bacteria. However, there is still little information regarding biomass production of these types of microorganisms for fertilizer applications. The present work aims to develop an optimum medium for cell mass production of *A. vinelandii*. At first, several medium formulations, surveyed from previous published literature, were tested for their potency to support cell growth. The highest cell mass concentration obtained in shake flask cultures was only 3.94 g L^{-1} .



C Then, O K Wai, F A Elsayed, W Z W Mustapha, N Z Othman, R Aziz, M Waduan & H A El Eushway

- 239 **Development of Fermented Millet Sprout Milk Beverage Based on Physicochemical Property Studies and Consumer Acceptability Data**

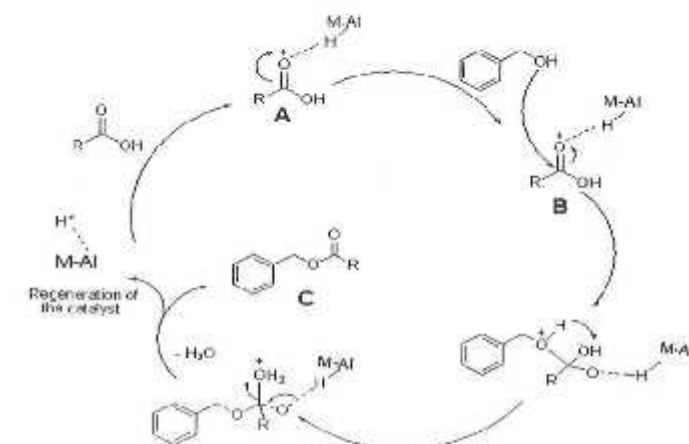
Millets play an important role in the food and nutritional security of the poor in arid and semiarid regions of the world. The present study focused on the use of underexploited millets for production of fermented millet based milk beverage. The beverage was prepared using skimmed milk along with three different millets (finger millet, pearl millet and sorghum). The techniques used for processing millets are soaking, sprouting and extraction of milk from millets. The ratio of millet milk blending with skimmed milk was optimized using Mixture Design based on physicochemical properties viz., sediment, viscosity, wheying off, acidity and sensory responses.



A Sudha, K S Priyanka Devi, V Sangeetha & A Sangeetha

- 244 **Catalytic Activity Studies of Modified Alumina in the Esterification of Benzyl Alcohol with Different Aliphatic Acids**

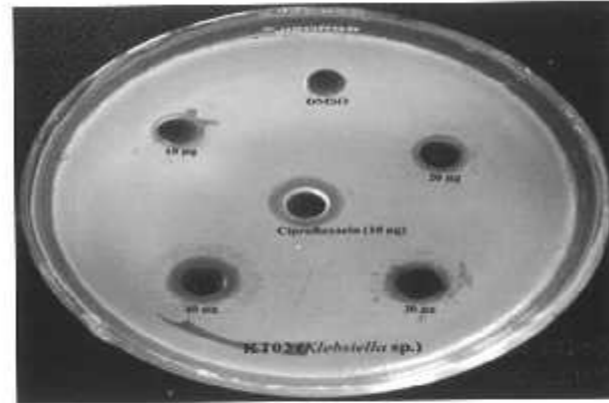
A varied percentage of Fe, Co and Fe-Co mixtures were deposited on alumina support by dry impregnation method. The prepared materials were analyzed for their crystallinity, surface functional groups, morphology and elemental composition by P-XRD, FT-IR, and SEM-EDS techniques. Specific surface area of the catalytic materials was determined by BET technique using nitrogen as adsorbant. Further, surface acidity was estimated by TPD-NH₃ and *n*-butylamine back titration method. The catalytic performances of these materials were checked in the esterification of benzyl alcohol with various aliphatic acids. The catalytic activity of Fe-Co/Al₂O₃ with 15% metal loading was found to be superior to other catalysts.



U K Minchitha, N H Hareesh, N Nagaraju & H Kathyayini

253 **Antibacterial Property of Halobacterial Carotenoids against Human Bacterial Pathogens**

The present study was aimed to find out the antibacterial potential of carotenoids from halobacteria isolated from saltpan sediments against antibiotic resistant pathogens (*Klebsiella* sp., *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Streptococcus pneumoniae* and *Streptococcus epidermis*) and ophthalmic pathogens (*E.coli*, *Staphylococcus aureus*, *Streptococcus pyogenes*, *Proteus* sp. and *Acinetobacter* sp). Different concentrations of the carotenoids were analyzed by MIC and MBC techniques. The isolates were identified by 16S rRNA gene sequencing and the relationship between the isolates was identified by phylogenetic tree analysis. Among the isolates, KT-02 showed maximum (14±0.65 mm dia.) sensitivity against *Klebsiella* sp. followed by 13±0.65 mm dia. against *E.coli*.

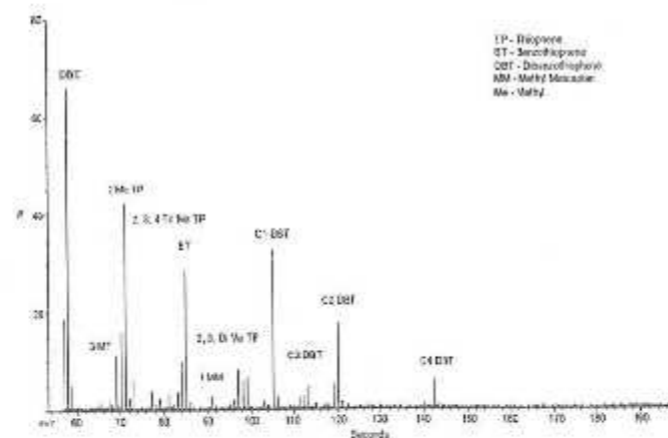


S Ravikumar, G Uma & R Gokulakrishnan

Energy and Environment

258 **Enhanced Removal of Sulfur from Diesel Fuel using Non-Hydrodesulfurization Technique coupled with Ultrasound Technique**

Sulfur compounds are one of the most important impurities present in various petroleum fractions that cause serious devastating to earth's environment. Predictions and scenarios developed by scientists for the removal of sulfur in diesel fuel indicate that situation is volatile. Integrating of Non Hydrodesulfurization Process with Hydrodesulfurization process can bring benefits to produce ultra-low sulfur diesel fuels. Using the hydrotreated Tatipaka diesel fuel as a feedstock, oxidation process during Non-Hydrodesulfurization process has been studied using Persulfate reagent with ultrasound for effective removal of sulfur. This technique without extraction and adsorption has resulted in 75.6% removal of sulfur.



M A Abdullah & T Sekar

262 **Effect of Injection Timing on Heat Release Rate and Emissions in a Biodiesel Fuelled & Nano Powder Coated CI Engine**

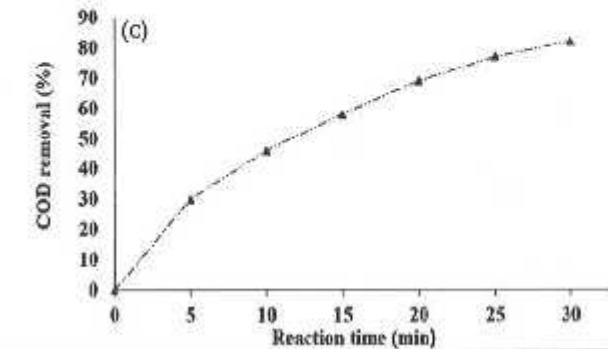
The injection timing variation has a robust effect on emission formation in direct combustion diesel engine with thermal barrier coating. The piston head and cylinder were coated with Zirconium at 40 micron thickness. Low Heat Rejection (LHR) engine has high heat with standing capacity inside the combustion chamber, so the in-cylinder temperature is very high in part load and full load condition, which leads to increase the NO_x emission. In the present investigation neat Jatropha oil methyl ester (JME) as well as the blends of varying proportions of Jatropha methyl ester and diesel were used to run a LHR-CI engine with standard injection timing and retarded injection timing. Significant improvements in engine performance and emission characteristics were observed for JME fuel.

T Nithyanadam, P Senthilkumar & R Selvakumar

Waste Utilization

267 **Oxidation of Phenol from Synthetic Wastewater by a Novel Advance Oxidation Process: Microwave-Assisted Periodate**

In this study, microwave (MW) was used to activate periodate as a novel advance oxidation process. The effects of a combined process of sodium Periodate and MW was studied in phenol removal from synthetic wastewater. Experiments were performed in a batch process, and the effect of parameters including pH, contact time, initial phenol concentration, MW radiation and Periodate concentration were examined. The maximum phenol removal equal to 98.8% was obtained at pH = 11, initial phenol concentration = 100 mg/L, contact time = 30 min, MW = 500 W and Periodate concentration = 0.2 mol/L. The maximum phenol removal was only 11.5% at the same conditions but without the influence of MW radiation. The results revealed that as Periodate concentration, MW radiation and contact time increased, the phenol removal efficiency increased as well.



A M Seid mohammadi, G Asgari, A Poormohammadi & M Ahmadian

Author-Reader Platform

274 **Instructions to contributors**