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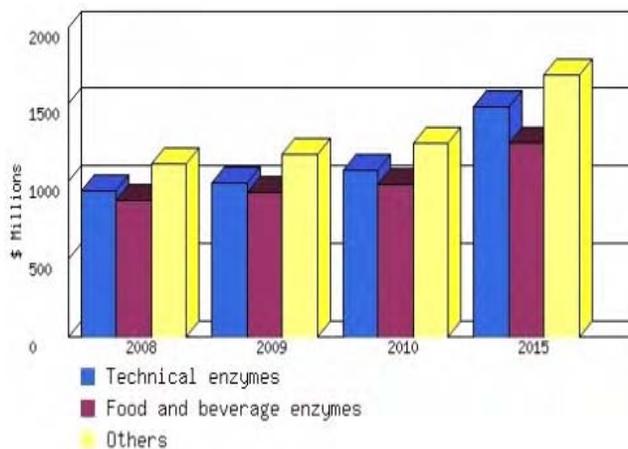
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CONTENTS

Review Article

271 Industrial Enzymes Present status and future perspectives for India

Enzyme technology is a well established branch of the biochemical science which is going through a phase of maturation as well as evolution. The maturation is shown by the development of the theory, their function and through the formation and configuration of their three-dimension structure, in this era of global industrialization. A better understanding enzymes and their functional significance suggests many novel applications for these catalytic activities and for continual discovery with novel properties by R&D. They are being used on an industrial and research scale for the variety of reactions catalyzed with environmental conditions. This is just the start of the industrial enzyme era which is preparing itself to put known enzymes to novel uses and novel enzymes, discovered or tailored, to catalyze unexploited reactions. As the demand is for cleaner and greener technology to preserve our mother earth for our descendant, the use of enzymes that can replace harmful chemical reactions are extremely importance and most of the current R&D on enzymes is directed towards this issue. Similarly use of enzymes in extreme harsh conditions such as high and low temperatures and pH are also more prevalent. Hence the evaluation of present R&D directions on industrial enzymes seems to be important and this paper assesses the status of industrial enzyme research globally as well as in Indian context with use in various industries, it application, the present status of R&D and commercialization. Since enzymes are now widely used in biotransformation and considering the importance of enzymes in the synthesis of chiral molecules of pharmaceutical importance, a separate section on enzymes involved in biotransformation are also reviewed in detail. This study is based on the search from scientific databases such as SciVerse Scopus, Google, other web sources, etc.

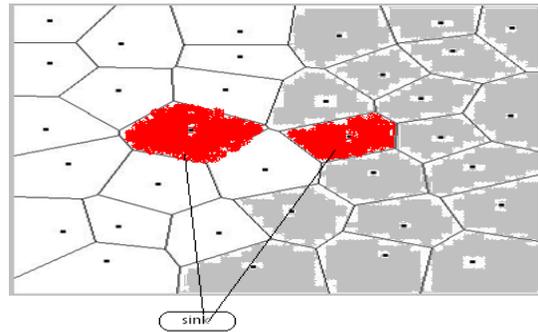


Parameswaran Binod, Piyush Palkhiwala, Raghavendra Gaikawaiari, K Madhavan Nampoothiri, Arvind Duggal, Kakali Dey & Ashok Pandey

Management and information sciences

287 An approach to data Aggregation in wireless sensor network using Voronoi fuzzy clustering algorithm

Data collected through any sensor are needed to be processed for gaining some useful information. Wireless Sensor Network (WSN) is a subclass of sensor node which is evolving as an astonishing technique in wireless communication technology for monitoring large application domains such as weather forecasting, military surveillance, medical diagnosis, fire detection alarming systems, etc. Each sensor will not be able to process itself due to the primary issue of energy (battery power) curb in WSN. Still many investigators desire to find a solution to improve the lifespan of WSN. The best way is to select an optimum head node for data aggregation to reduce the energy of data transmission for the reason that energy required for computing is more than for data transmission. This prototype shifts the attention from the outmoded address-centric approaches to data-centric approach. Simulation result reveals that this method achieves agreeable performance in extending the network lifetime compared to the existing ones.



S.Nithyakalyani & S.Suresh Kumar

S & T and Industrial Research

294 Study on Privacy Aware Location based Service

The recent technology drive in communications, positioning and geographical systems opens novel location based applications on current Smart phones. Smart phone users have to disclose their identity to Content Providers to accesses these location based services. In spite of tremendous benefits offered by these apps, User Privacy is compromised. In this survey, we identify a logical structure of grouping the concepts of location privacy. It has been examined the location based services from a broad perspective involving definitions, characteristics, devices, applications and an overview of modeling regarding privacy preserving techniques and privacy metrics. It is concluded that the user privacy is addressed in existing applications and analyzed the factors that assess the efficiency of these privacy techniques under real-world conditions. It further helps researchers to identify open issues in the field of location privacy in LBS.



K.B. Priya Iyer & V. Shanthi

S & T and Industrial Research

300 Computational and Experimental analysis of a Counter-Rotating Wind Turbine system

Wind power is a sustainable and clean source of energy. Single rotor wind turbines (SRWT) of horizontal in nature are the conventional wind turbines, which are used to extract the power from wind. In the past two decades, research have been carried out on Counter Rotating Wind Turbine (CRWT) system and reported that the power extracted is relatively more for a given swept area than that of a SRWT. In the present study, a CRWT, having primary (upwind) and secondary (downwind) rotors with different diameters, which has been reported in a literature is considered and analyzed for its turbine characteristics (power, torque) using commercial software Fluent 6.2 and wind tunnel testing. The flow around the SRWT and CRWT was simulated by using finite volume method coupled with Moving Reference Frame (MRF) technique to solve the governing equations. In this present study the Standard $k-\omega$ shear stress transport turbulence model was considered. A parametric study on axial distance between two rotors have also been investigated by CFD and it is observed that for $0.65d$ (d is diameter of primary rotor) the power increase is about 10% for a wind velocity of 10 m/s. Further, a scaled model of CRWT is fabricated using Rapid Prototyping-FDM technique for optimum axial distance of $0.65d$ with the accuracy of 0.1mm and wind tunnel testing was done with the prony brake-strain gauge assembly for various velocities and it is predicted that there is a power increase for CRWT comparing SRWT.

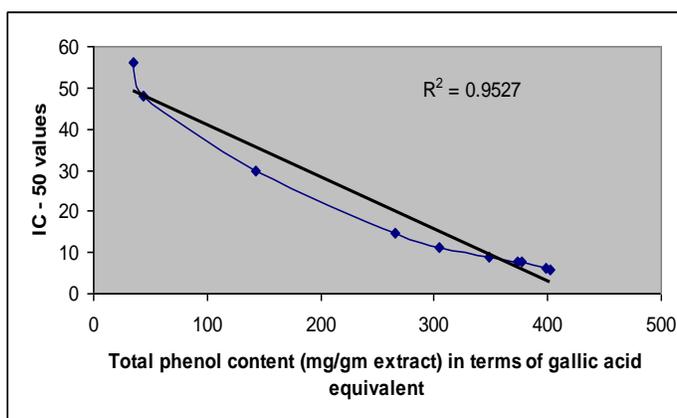


P. Santhana Kumar, A. Abraham, R. Joseph Bensingh and S. Ilangovan

S & T and Industrial Research

307 Bioactivity guided extraction of seabuckthorn (*hippophae rhamnoides* l. Ssp. *Turkestanica*) leaves

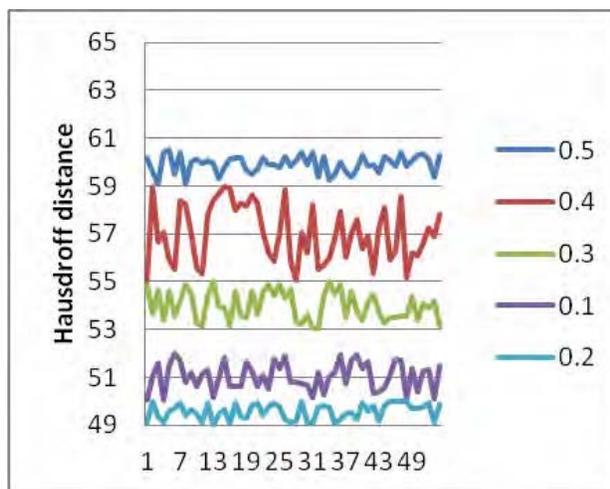
This study represents antioxidant (DPPH scavenging) activity guided extraction of Seabuckthorn (SBT) leaves and its correlation with total phenol content. 75% ethanolic and acetone extracts showed significantly higher antioxidant activity and total phenol content in comparison with other solvent extracts. Phenol contents correlated well ($R^2 = 0.9527$) with the antioxidant activities. It suggests that these phenolic compounds are responsible, at least in part, for the antioxidant activities observed. HPLC analysis also appears to support the correlation of total phenol content and antioxidant activity.



Singh Amrit Kumar, Attrey Dharam Paul & Naved Tanveer

312 Efficient feature point detection in CT images using Discrete Curvelet Transform

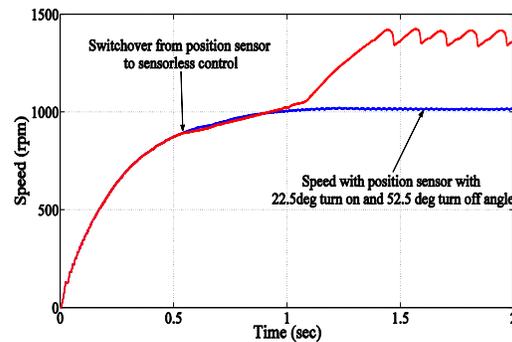
In this work, a multi-scale feature point detection algorithm in CT slices based on discrete curvelet transform is presented. Discrete curvelet transformation is applied to input CT slices and the behavior of curvelet coefficients in all the scales are examined. The information in the fine and detail levels which contains the edge and singularity details are processed to extract the feature points. Performance comparison is made against wavelet and canny edge detectors based on SSIM index.



R Menaka, C Chellamuthu & R Karthik

S & T and Industrial Research

- 316 Design and development of Open loop CGSM for SR Motor** This paper presents development and implementation of open-loop current gradient sensorless method (CGSM) for low frequency PWM controlled switched reluctance motor. Prototype SRM drive is developed with split DC converter and low frequency PWM controller. New open loop CGSM is analyzed for constant speed drive. Performance analysis of proposed CGSM with low frequency open-loop and closed-loop PWM control is discussed. Proposed method eliminates the need of phase-lock-loop (PLL) and speed feedback in CGSM which reduce the cost and complexity of the drive. Both simulation and experimental results are presented for validation. Opal's RT-Lab is used as hardware-in-loop controller for easy and flexible implementation of controller and sensorless scheme



Jignesh A. Makwana, Pramod Agarwal, and
S.P. Srivastava

Author-Reader Platform

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