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Polymer Supported Rhodium Species as Hydrogenation Catalyst for Reduction of Organonitro Compounds and Schiff Bases

N.M. NanjeGowda, E.G. Leelamani and R. Mary Magdalene

Abstract

Styrene-DVB beads containing 8% DVB functionalized with benzimidazole groups was used to prepare the catalyst PSBz1H-Rh(III). It was characterized by chemical analysis, IR and TGA. Sodiumborohydride was used to produce active species of the catalyst. The catalytic activity of the anchored catalyst was studied for the reduction of nitrophenols, nitrobenzoic acids, nitroanilines and Schiff bases: benzylidene aniline, p-chlorobenzylidene aniline, benzylidene p-chloroaniline, p-nitrobenzylidene aniline, benzilidene p-nitroaniline in methanol at room temperature and at 1 atm. Hydrogen. The influence of nature of solvent, concentration of the catalyst and substrate and temperature on the reaction rate was investigated. The recycling efficiency of the catalyst was found to be good. A probable mechanism for the catalytic reaction has been suggested.

Keywords: Polymer supported catalyst, Rhodium species, Hydrogenation of nitromatics, Reduction of Sciff bases.

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Scenario of Agricultural Soils Contaminated with Polluted Vrishabhavathi River Water

S. R. Ambika and G. Smitha

Abstract

Utilization of wastewater for irrigation of agricultural lands adds organic matter, plant nutrients and metallic ions to the soil. This study was to assess the nutrients status of the soil, level of contamination of water and toxia metal content of the plants grown in the agricultural lands with the history of irrigation with contaminated water from the Vrishabhavathi river. Several farmers use bore well water to grow their crops in this areas a precautionary measure. Our study proved that the bore well water were rich in carbon, bicarbonate, phosphorous, potassium and heavy metals like Zn, Cu, Mn and Cr. The plants grown in this area accumulated heavy metals much beyond the permissible levels and this warrants attention.

Keywords: Vrishabhavathi river, Bore well water, Contamination, Heavy metals, Soil, Plants.

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Desalination of Pre-treated Tannery Effluent using Bio-adsorption

S. R. Murali, M.R. Rajan and E.S. Arulraj Emmanuel

Abstract

This paper deals with the desalination of pre-treated tannery effluent by using Bio-adsorbents. More than fifteen bio-adsorbents such as bark, seed, leaf and root of plants were screened. Among the fifteen adsorbents used, stems of *Embilica officinalis* and seeds of *Cuminum* were found to be more efficient for the desalination followed by the seeds of *Strychos potatorium* and *Psidium guagava*.

Keywords: Plant materials, Bioadsorption, Desalination, *Strychos potatorium*, *Psidium guagava, Cuminum, Embilica officinalis*.

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Changes in Internal Cell Activity in the Gobiid Fish-*Glossogobius Giuris,* in Response to Salinity

M. Dhanalaksmi and P.S. Murthy

Abstract

Histological and histochemical changes in interrenal cell activity of *Glossogobius giuris* were studied in response to salinity (10 & 20%) stress. Histological analysis revealed that the interrenal cells got hypotrophied and degranulated in 10% saline water for 7 & 14 days. The disintegration of cell wall and pycnosis of the nucleus was also observed. These alterations are more significant in 20% concentration of salinity and 96 hrs of exposure. Highly degenerative changes were observed in haemopoietic tissues which include necrosis and swelling of kidney tubules. Histochemically, the interrenal cells showed positive reaction to protein, glycogen and lipid. The intensity of reaction is varied in relation to the concentration of salinity and time of exposure.

Keywords: Interrenal cells, Salinity, *Glossogobius giuris,* Haemopoietic tissues.

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Ex situ Conservation Strategies for Plant Resources of Western Ghats: Challenges and Prospects

P.E. Rajasekharan

Abstract

Western Ghats of India, one of the eight hottest hot spots of the world is known for its rich biodiversity; have high endemism, and are under constant threat. Its biodiversity especially in flowering plants made it a biological capital of the country, which is of immense value to mankind. Western Ghats harbor about 4000 flowering plants of which only few are utilized to some extent for their economic values. Western Ghats abounds in food, fodder, medicinal and ornamental plant species, and a number of timber, fruit, gum, resin and starch yielding plants. A number of species in Western Ghats are threatened. There is a need to conserve these species *in situ* and *ex situ* conditions. Efforts are on to conserve *in situ* conditions through protected areas and biosphere reserves. *Ex situ* conservation is also equally important because the material will be readily available for the end users. In this paper *ex situ* strategies available for conservation of plant genetic resources are discussed.

Keywords: Western Ghats, hot spot, *ex situ* conservation.

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A Molecular View on Drought Resistance and its Use in Transgenics

E.S.Arulraj Emmanuel and V.M.Shanmugam

Abstract

Drought is a complex meteorological event that causes various morphological, biochemical, molecular and genetic changes in plants. Several resistance plants protect themselvesby producing some osmoregulators and some may undergo signal-transducing mechanisms to express the drought tolerance genes. These are generally studied under Group I and II. By knowing the baseline knowledge about these group members, we can go for transgenic methods and can produce drought resistance plants. Commonly two approaches are done for the drought resistance plant production like targeted approach and shot gun approach along with some advanced techniques like RELP, RAPD and QTL etc. These further dissect the molecular mechanisms and make easy for the transgenic to produce drought resistance in plants.

Keywords: Drought, Drought resistance, group I and II targeted approach, shot gun approach, TPS, $_p$5CS, DREB.

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Gender and Nation: Draupadi and Other Stories

Etienne Rassendren

Abstract

This article is aimed at tracking the cultural iconography that is represented in the Draupadi and Sakuntala tales as it travels through the cultural imaginary of the nation of "India" both at home and abroad. Through the article, I wish to explore the nature of narrative reconstructions of these women-figures in terms of their specific lineages and their deployments for the construction of the nation. Though not diachronic in its formulation, the article attempts to interrogate the cultural underpinnings of gender as the ideological basis for national-culture. At the end, the exploration also attempts to raise questions on historiography as it governs the re-telling of these stories. The article itself is in three parts; the first concerns Draupadi tales; the second, the Sakuntala narratives and the third brings together some concluding comments on gender and the nationalist question.

Keywords: Gender and Nation

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Enticing Foreign Direct Investment into India

- An analysis

Cynthia Menezes Prabhu

Abstract

Despite the virtually boundless possibilities in the country for overseas businesses, India has until recently and even now, failed to get the kind of eager consideration in the generation of FDI as instigated by other developing countries. India is deficient in some of the critical features—red-tapism, complicated licensing procedures, flaws in the set economic reforms, geo-political tussles—deciding FDI flows, mainly infrastructure, labour reforms, and the quality of governance. The Indian Government has taken drastic steps to improve its prudish attitude towards economic reforms in recent years. There are undoubtedly clear signs of improvement seen on the FDI front. Yet, it is important to remember that after the entry strategies are done with, it is the operational difficulties faced that may put off foreign investors into the country. This paper analyses some of the basic operational problems of conducting business in our country and proposes that these factors need to be improved for better country competitiveness as regards FDI.

Key words: Foreign Direct Investment, Multinational Corporations (MNC), Economic reforms, Competitiveness.

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