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Challenges of green chemistry for value added products

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Fruit juices and lipases are important applications for the preparation of important value added products such as terpen esters, cosmetics and drug intermediates. Lipases (E.C.3.1.1.3) which are highly stereoselective catalysts are used for the resolution of DL menthol by esterification in organic solvent and synthesis of anti-inflammatory drugs in enantiomerically pure form. Glycerol is the by-product of soap industry and has little commercial value which has used for synthesis of 4-methoxy cinnamoyl glycerol (Ultraviolet protecting cream) by lipase in an optimum condition. *Cocos nucifera L.* and *Borassus flabellifer L.* juices act as bio catalytic system for the reduction of aromatic aldehydes to alcohols and selective decarboxylation of substituted cinnamic acid to styrene and substituted benzoic acid to polyphenolic compound. We have developed a new greener protocol for biotransformation of aromatic aldehydes and acids by fruit juices. The two juices act as solvent, reactant, catalyst and selective to substrate. The purification process of final products is very easy. In this method, protection and deprotection of the phenolic groups are avoided. The reaction system does not use hazardous chemicals. Cucumber juice (CSJ), which acts as a greener solvent system, performing a substrate-selective reaction. Additionally, the hydrolysis of the acetyl as well as the benzoyl group of aromatic compounds has been carried out to afford excellent yield by CSJ. Caffeic acid extracted from potato peel was used for synthesis of caffeic acid amide which has shown antioxidant, clinical drug resistance bacteria and antidiabetic properties.



Biography

Ahindra Nag is currently working as an Associate Professor in Department of Chemistry at Indian Institute of Technology Kharagpur, India. He completed his PhD from Jadavpur University, India. He has 30 years of teaching and research experience in chemistry. He is currently working on natural product isolation and characterization, Bioorganic and Medicinal chemistry. He has published his work in various journals(80) and text books(8). He has guided ten Ph. D students and visited different International universities as a Visiting Professor.

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