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Biomass for Bionanomaterials

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Abstract

Presently, nanomaterials obtained from the polymeric constituents of biomass are receiving huge appreciations for their significance as bio-polymers due to ease-free synthesis process and less environmental impact. With respect to that, the carbohydrates including cellulose and hemicellulose and lignin of lignocellulosic biomass are exhaustively utilized for the production of various particles in nano-ranges. The present discussion is focused on the recent advancement in the greener routes utilized for the synthesis of several nano-based polymeric constituents of lignocellulosic biomass. Further, an in-depth summarization on the characterization for the ultra-structural morphology of the bionanomaterials is discussed. Moreover, the importance of structural modifications is highlighted to exploit the overall functionalities of the polymeric nanomaterials. Finally, the potential of nano-based biomaterials obtained from cellulose and lignins are described to exhibit their sustainable applications in the sectors like biomedical, environmental and so on so for. Therefore, the present discussion will be highly beneficial to the audiences to gather a cumulative and scientific knowledge on nanobiomaterials of biomass origin for future research works.

Biography

Dr. Dibyajyoti Haldar is an Assistant Professor in the Department of Biotechnology at Karunya Institute of Technology and Sciences (Deemed to be University), Coimbatore, India. He is a former Post-Doctoral Fellow at the Centre for the Environment, Indian Institute of Technology Guwahati (IITG), India. He obtained his Ph.D in Chemical Engineering from the National Institute of Technology Agartala (NITA), India, and his M.Tech in Environmental Science and Technology from the National Institute of Technology Durgapur (NITDGP), India. His research work includes conversion of lignocellulosic biomass into fermentable sugars, enzymatic hydrolysis, biofuels, formation of value-added products derived from agricultural wastes and processes kinetics and modeling.

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