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Microbial Nanotechnology: Potential Tool for Environmental and Energy Sectors

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Nanotechnology deals with synthesis and application of nanosized materials exhibiting diverse structural features due to their high surface to volume ratio compared with the bulk materials. Many countries are striving to diversify their economies through sustainable development and apply new advanced technologies at nanoscale. Research advancements in nanotechnology have evinced an accelerated pace in chalcogenide quantum particle research by exploring microbial means for nanoparticles production and their applications in environmental/energy sectors. With regard to the environmental sector, nano catalysts are used for photocatalytic wastewater treatment as significant amounts of wastewater containing emerging pollutants are being discharged into the aquatic ecosystems, these catalysts serves as one of the potential tools to treat them. For energy applications, nanobiohybrids came into the picture where microbial cell factories are integrated with nanomaterials to utilize CO2 and sunlight. Due to the energy crisis, biofuel production has gained considerable attention among policy makers, industries, researchers and the public. In this scenario, the synergistic effects of these hybrids will pave the path for enhanced biofuels production from enhanced biofuel production from CO2 and sunlight

Keywords: Biofuel, Energy, Environmental, Nanotechnology, Photocatalysis, Wastewater

Biography:

Uddandarao Priyanka is a Postdoctoral researcher working in IETSBIO3 group at School of Natural Sciences, National University of Ireland, Galway, Republic of Ireland on the topic. She completed her Master's from Pondicherry Central University, Puducherry, India in the Department of Environmental Engineering and Management and her PhD from Chemical Engineering at the National Institute of Technology, Karnataka, India. During her Ph.D. she was awarded Water Advanced Research and Innovation (WARI) Internship award funded by Department of Science and Technology, Govt. of India (DST), University of Nebraska-Lincoln (UNL), Daugherty Water for Food Institute (DWFI) and Indo-U.S. Science and Technology Forum (IUSSTF). Further she was awarded International Travel Grant by Department of Science and Technology-Science and Engineering Research Board for the Summer Course Programme at The Russell Berrie Nanotechnology Institute and the faculty of Mechanical Engineering, Technion Israel Institute of Technology, Israel. She has publications in peer reviewed research journals and her research area of interests includes green synthesis of nanoparticles, nanohybrids and wastewater treatment.

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