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Microbiology technology for environmental sustenance

Two of the major environmental concerns challenging the human civilization include minimizing pollution due to anthropogenic activity and reducing use of fresh water for non-potable application. More than 80% of the fresh water is used for non-potable application, when the recent report of UN predicts water stress for 40% of the world population. We have been working on developing tailor made microbial consortium for waste water treatment with sequestration of essential resources or byproduct generation. Two such processes developed by us include sequestration of nitrate and phosphate from water of raw sewage canal/agriculture runoff for reuse of the treated water for irrigation and conversion of dairy effluent into biofertilizer. In both the cases, during treatment the essential nutrients (nitrate and phosphate) are sequestered or converted into a form suitable for sustaining plant growth. The bacterial isolates used to develop the consortium were carefully chosen after detailed identification. Both the systems of water purification were faster than the existing technology in the market. While value addition of dairy effluent takes 16 hours, nutrient sequestration from agricultural system taken just two hours. Hence through a careful selection of microbes, tailor made consortium can be developed with the objective of waste water treatment and reuse with little dead biomass formation. This could convert waste to wealth while sustaining environment.

Biography

Shaon Ray Chaudhuri has completed her Undergraduate studies from University of Calcutta, India, Physiology with specialization in Endocrinology and Reproductive Physiology. She has completed her PhD in Molecular Biology from the same university in 2001 and was the recipient of the Young Scientist Award in 2001. She has completed her Postdoctoral Training in Technical University of Munich and Humboldt University, Berlin and continued working as a University faculty from 2004 onwards. She is currently an Associate Professor and Head, Department of Microbiology, Tripura University, India. Her group works are in microbial technology for health and environment. She has 47 papers, 12 book chapters and 7 students graduated with PhD from her laboratory. She has 11 patents filed and 5 technologies transferred to the industry.

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