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Biodecolorization of dyes and exploration of plant growth promoting potential of bacteria from textile dye industry

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Biodecolorization of dyes and exploration of plant growth promoting potential of bacteria from textile dye industry. Four autochthonous bacteria isolated from textile dye industry were characterized for their ability to decolorize the four disperse dyes (Brown 3BS, Brown 3REL, Golden Yellow GB and Yellow 5RX). They were identified as Pseudomonas for strains T4 and U5; Bacillus for strain S5 and Escherichia for strain U2, as revealed by biochemical and molecular (16S rRNA gene sequence) analysis. The decolorizing ability of strain T4 was maximal (~95%) for Yellow 5RX, followed by (~87%) Brown 3REL, after 90 h. Maximum decolorization of Brown 3BS (~47%) was occurred by strain U5. Other strain U2, which exhibited ~60% decolorization of Golden Yellow GB, also has the potential of IAA production and phosphate solubilization, which can promote plant growth that could be helpful in agricultural field, which is contaminated with disperse dyes. Thus, exploring and evaluating the biodegradation capabilities of the isolated bacterial strains suggested their suitability for decolorization and treatment of textile wastewaters and soil.

Biography

Meenakshi Kashyap and Zeeshanur Rahman have completed their M.Phil. under the guidance of Prof. Ved Pal Singh from Department of Botany, University of Delhi. Prof. Ved Pal Singh has published more than 50 research papers in national and international journals. He has received numbers of international awards, fellowships and honours and has served as expert of various national and international academic bodies.