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Role of Biotechnology Towards Achieving Zero Effluent Discharge in a Pulp and Paper Industry

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Industrial world today emphasizes on: recover-recycle-reuse, owing to increased awareness towards conservation of resources and controlling environment pollution. Stringent regulations and consumer awareness has led pulp and paper industry, the third largest polluter among various industries, to focus on reduced usage of fresh water and larger proportions of recycled fibres. The industry is, looking at a high degree of system closure of the process water or the use of biological waste water treatment plants. Various strategies (membrane filtration, the use of coagulating chemicals, aerobic or anaerobic biological treatments, etc), emphasizing on reduction of the amount of fresh water employed, can be adopted for the same. The increased water recycling in the industry causes the paper machine white water to become richer in nutrient

salts and degradable carbon, forming slime deposits. The microbial growth in a paper mill might cause loss of production due to breaks, reduction in quality due to appearance of slime spots, odors in product, corrosion, etc. An alternative technology, surface-active biofilm matrix blocker (SAM), was developed to control biofilms/deposits. Differential turbidity measurement (DTM) and automatic pressure drop (PD) measurement are useful to measure deposit formation on line in the side stream of a paper machine whitewater circuit. Biocides, like, Phenyl mercuric compounds can be used in the pulp and paper industry but they cause lake sediments. Thus, current studies focus on identification of microbes in pulp and paper industry and effective biocides to check their growth.

Biography

Shalini Singh has completed her Ph.D at the age of 28 years from IIT Roorkee, Roorkee, India. She is currently working as Assistant Professor, Department of Biotechnology, Lovely Professional University, Punjab, India. She has published 4 papers in reputed journals and serving as an editorial board member of reputed. She is an invited reviewer for international journals. She has successfully supervised 9 dissertation projects in 2009-2010 and currently supervising Mphil and Mtech thesis projects (2010-2011).

