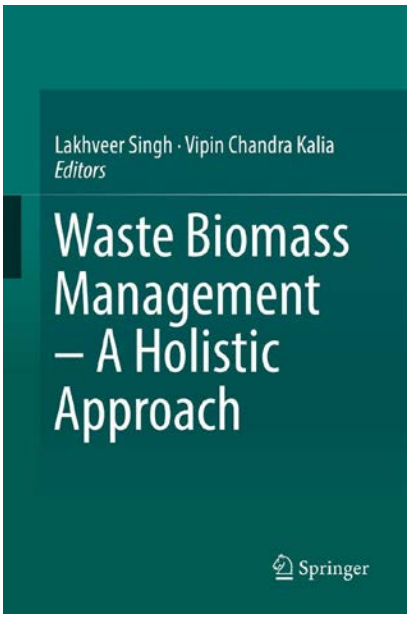

Waste Biomass Management – A Holistic Approach

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Treatment of Dye Wastewater for Water Reuse Using Membrane Bioreactor and Biofouling Control

Muhammad Faisal Siddiqui, Lakhveer Singh, and Zularisam Ab Wahid

Abstract Wastewater treatment for water reuse and membrane biofouling control is of significant value to sustainable performance of a membrane bioreactor system. Different treatment techniques have been employed to treat dye wastewater. In recent studies, membrane bioreactor was employed to treat dye wastewater; however, membrane bioreactors are facing biofouling problem. Biofouling (is a process of membrane surface colonization by microbial cells via adhesion and production of extracellular polymeric substances (EPSs)) is almost always a major hitch for membrane bioreactors (MBRs) and membrane systems. Biofouling of membrane reactors results in higher operational expenses and reduced stability and operational performance. In this chapter, biological treatment of membrane biofouling is demonstrated. Furthermore, major causes of biofouling and biological control strategies are discussed. Lastly, conclusions on wastewater treatment and membrane biofouling are presented.

Keywords Dye wastewater • Membrane biofouling • Extracellular polymeric substances • Biofouling control

List of Abbreviations

AHL	Acyl homoserine lactone
AIP	Autoinducer peptide
COD	Chemical oxygen demand
DNA	Deoxyribonucleic acid
eDNA	Extracellular deoxyribonucleic acid
EPS	Extracellular polymeric substance

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