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TREATMENT OF COMPOST LEACHATE BY MEMBRANE PROCESSES

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Abstract

Composting has been attracting increased interest in the field of organic waste management. During composting, high-strength leachate is produced with a considerable amount of organic and inorganic pollutants. Lab-scale experiments were performed for the removal of chemical oxygen demand (COD) and chloride from compost leachate using a combined membrane system. The combined system consisted of microfiltration, ultrafiltration, and reverse osmosis (RO) membranes. The COD removal efficiencies of the two RO membranes (BW30 and SW30) membranes were almost identical at an elevated operation pressure. This membrane system was successfully used for the treatment of compost leachate. Microfiltration (MP005) and ultrafiltration (ZW-UF) membranes had relatively low COD and do not remove chlorides; however, a combination of MP005 and ZW-UF provided relatively high flux. The removal efficiencies of the RO membranes were dependent on the operation pressure; BW30 and SW30 had high COD and chloride removal efficiency, with BW30 allowing higher flux than SW30.

Key words: compost, composting leachate, flat sheet membrane, submerged membrane, wastewater

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