

Anaerobic digestion of paper mill wastewater

Abstract

In general, paper mill wastewater contains complex organic substances which could not be treated completely using conventional treatment processes, e.g. aerobic processes. As a result, anaerobic technology is a promising alternative for paper mill wastewater treatment due to its ability to degrade hard organic compounds. In the present study, treatment of paper mill wastewater using a stage anaerobic reactor was investigated. The more specific objectives of this study were to confirm whether paper mill wastewater can be tolerated by methanogenic sludge and to assess the stability of reactor for measured parameters (e.g. COD removal, and methane composition). Results showed up to 98% COD removal efficiency in the anaerobic reactor when the reactor was operated at an OLR of 1.560 kg COD/m³ .d. Anaerobic digestion can provide high treatment efficiency for recalcitrant substrates, which generates robust microorganism (acidogenesis and methanogenesis), for the degradation of recalcitrant compounds such as in the paper mill wastewater.