Hydrolytic acidification via rumen microorganisms and aerobic MBR to reduce contaminants in pulping midcourse wastewater

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ABSTRACT

Experiments on microbial degradation with hydrolytic acidification–aerobic (membrane bio-reactor) MBR process were conducted to treat the pulping midcourse wastewater (PMW) with chemical oxygen demand (COD) concentration of 1,182 mg/L, chromaticity of 327 PCU, and TSS concentration of 153 mg/L. Rumen micro-organisms (RM) were used in the hydrolytic acidification process. The experimental results demonstrated that the hydrolytic–aerobic process could raise the biodegradability of the PMW, the VFA concentration could reach 200 mg/L, and the acidification rate was 24%; the effluent COD could reach 96 mg/L, the chromaticity 80 PCU, and the TSS 15 mg/L. These results suggested that hydrolytic acidification via RM and aerobic MBR could be a promising way for effective disposal of pulping midcourse wastewater.

Keywords: Pulping midcourse wastewater; Hydrolytic acidification; Reduce contaminants; Rumen micro-organisms; Aerobic MBR