

Effect of Mecoprop (*RS*)-MCPD on The Biological Treatment of Synthetic Wastewater in an Anaerobic Membrane Bioreactor

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ABSTRACT

The effects of Mecoprop (*RS*)-MCPD were investigated in an anaerobic membrane bioreactor (AnMBR) fed with synthetic wastewater containing stepwise increases in Mecoprop concentration, 5–200 mg/L over 240 days. Effects were observed in terms of soluble chemical oxygen demand (COD) removal efficiency, volatile fatty acid (VFA) production, and methane yield. Soluble COD removal efficiency was stable at Mecoprop concentrations below 200 (± 3) mg/L, with an average of 98 (± 0.7)% removal. However, at 200 (± 3) mg/L Mecoprop, the COD removal efficiency decreased gradually to 94 (± 1.5)%. At 5 mg/L Mecoprop, acetic and propionic acid concentrations increased by 60% and 160%, respectively. In contrast, when Mecoprop was increased to 200 (± 3) mg/L, the formation and degradation of acetate was unaffected by the higher Mecoprop concentration, acetate remaining below 35 mg/L. Increases in the Mecoprop specific utilization rate were observed as Mecoprop was increased stepwise between 5 and 200 mg/L.