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THE EFFECT OF BIODEGRADABLE MATERIAL ADDITION, MOLASSES, ON THE REMOVAL OF PHENOL IN ANAEROBIC CONDITIONS

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Abstract

The link between the concentration of biodegradable organic matter and the rate of phenol removal in anaerobic conditions was examined in this work. This study was undertaken using a laboratory scale anaerobic stabilization pond and five closed reactors at two retention times, 2 and 5 days. The initial concentration of phenol and soluble COD decreased in the anaerobic pond effluent and the reactors with increasing hydraulic retention time; 98.6 % phenol removal was observed in reactors after 50 days and in the presence of 1000 mg/l COD, while 98.8 % removal was obtained after 5 days in the anaerobic stabilization pond system in the presence of 500 mg/l COD. Two-way ANOVA test with sheffe post-hoc confirmed that phenol removal was optimal for 1000-2000 mg/l biodegradable COD and 50 days retention time in the reactors and with 500 mg/l biodegradable COD and 5 days retention time in the anaerobic pond.

Key words: anaerobic reactor, anaerobic stabilization pond, biodegradable organic matter, phenol removal

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