

Thesis Title	The Response of Polyphosphate Accumulating Bacteria with Respect of Acetate and Phosphorus Concentrations.
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Abstract

The purpose of this study was to study the response of Polyphosphate Accumulating Bacteria to the change of acetate and phosphorus concentrations. The ratios of COD to phosphorus were 20/1, 40/1 and 80/1. Each experiment was conducted in anaerobic - aerobic SBR with 4 hours of anaerobic time and 3.25 hours of aerobic period. The solid residence time (SRT) was 10 days and the cycle period in each operation was 8 hours.

Under steady state it was found that at constant influent phosphorus concentration, decreasing COD until COD limit (COD/P of 20/1) results to the increase of effluent soluble phosphorus to the range of 4.12 - 6.16 mg/l. At COD/P ratios of 40/1 and 80/1, effluent soluble phosphorus were in the range of 1.23 - 1.71 mg/l which were lower than those from COD/P ratio 20/1. In the condition of COD/P ratio 20/1, however, the phosphorus content in sludge of this ratio was higher up to 7% (on MLSS basis) while the phosphorus content in sludge of the other two COD/P ratios of 40/1 and 80/1 were approximate 4% and 2%, respectively. In transient state, the results show that soluble phosphorus in the cycle responded to the change of COD/P ratio immediately if COD/P was changed from optimum ratio to the one of limited COD or phosphorus. Vice versa, phosphorus concentration was not significantly effected in the first cycle by changing COD/P ratio from improper ratios to the optimum one.

Keywords : Polyphosphate Accumulating Bacteria / anaerobic - aerobic SBR / COD limit / phosphorus limit