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## **FEASIBILITY STUDY OF SEVERAL CYCLIC ANAEROBIC/AEROBIC CONDITIONS IN SBR SYSTEM FOR TREATING OF SIMULATED DYE (REACTIVE BLUE19) WASTEWATER**

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### **Abstract**

The objective of this study was to investigate the feasibility of several different cyclic anaerobic/aerobic (An/A) conditions in sequencing batch reactor (SBR) system for treating of simulated dye (reactive blue19) wastewater. To achieve this goal, five identical SBR (SBR 1 to SBR 5) were used. The SBR1 was fully aerobic whole reaction time whereas the reaction time was divided into 1, 2, 3 and 4 An/A cycles in SBR2, SBR3, SBR4 and SBR5, respectively. Initial COD and dye concentrations were selected to be 1500 and 100 mg/L for all reactors. During the last 15 days of operation, the dye removal efficiency approximately reached stable level of 50, 64.5, 74.8, 77 and 70.2 % in SBR1, SBR2, SBR3, SBR4 and SBR5, respectively. According to the obtained results, the COD removal efficiencies were in the range of 94-96 percent in all SBRs and no significant influence on COD removal was observed with altering operation conditions in SBRs. Average effluent TSS of reactors decreased by increasing number of An/A cycles. Average effluent turbidity of reactors increased with altering operation type from fully aerobic in SBR1 to An/A in SBR2-SBR5 as well. On the other hand, average MLSS in all reactors were in the range of 2760-2990 mg/L and did not experience significant change during the operation time.

*Key words:* anaerobic/aerobic (An/A), bioaccumulation, biodegradation, Reactive Blue 19 (RB19), sequencing batch reactor (SBR)

*Received: September, 2011; Revised final: February, 2012; Accepted: March, 2012*

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