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NATNAREE WONGWIKRAW : COLOR REMOVAL FROM TEXTILE
WASTEWATER USING FENTON'S REAGENT IN CONJUNCTION WITH
ANAEROBIC SEQUENCING BATCH REACTOR. THESIS ADVISORS:
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This research is conducted to investigate the efficiency of Fenton's reagent in conjunction with Anaerobic Sequencing Batch Reactor (AnA²/O² SBR) in the removal of COD, color, TKN and TP from textile wastewater. The experimental design was divided into three parts as textile wastewater was (1) treated solely with AnA²/O² SBR; (2) oxidized with Fenton's reagent prior to being treated with AnA²/O² SBR; and (3) treated with AnA²/O² SBR, followed by being oxidized with Fenton's reagent.

Results showed that the COD, color, TKN and TP removal efficiency in part (1) was 84.7%, 44.2%, 91.6% and 87.4%, respectively. In part (2), the removal efficiencies of those pollutants was 90.1%, 72.6%, 73.0% and 90.6%, respectively. For part (3), the removal efficiency was 85.4%, 1.9%, 91.4% and 89.7%, respectively. Comparison of efficiency among these three parts, showed that COD and color removal efficiency in part (2) was significantly higher than that of part (1) and (3) ($p < 0.05$), but the efficiency of TKN removal of part (2) was significantly lower than that of part (1) and (3) ($p < 0.05$). In addition, there was no significant difference in TP removal in all three parts.

In part (2), TP removal efficiency of 25, 50 and 75 mg/l of Fenton's reagent was significantly higher than that of 150, 225 and 300 mg/l ($p < 0.05$). However, there were no significant differences in COD and TKN removals in all doses. Further, there were no significant differences in color removal, treating with the Fenton's reagent at the dosages of 25, 50 and 75 mg/l as well as at the dosages of 150, 225 and 300 mg/l.

The effective amount of Fenton's reagent used to treat textile wastewater prior to being treated with AnA²/O² SBR was 25 mg/l, yielding the COD, color, TKN and TP removal efficiency of 90.1%, 72.6%, 73.0% and 90.6%, respectively.