

Thesis Title	Study of the Efficiency of Granular Activated Carbon - Sequencing Batch Reactor (GAC-SBR) for Treating Slaughterhouse Wastewater
Thesis Credits	6
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### Abstract

This work aimed to study the efficiency of Granular Activated Carbon – Sequencing Batch Reactor (GAC-SBR) for treating slaughterhouse wastewater that contained COD concentration of 1,000 mg/l. The experiments were concerned in chemical adsorption ability of GAC in jar test system and SBR system. The effects of HRT on the removal efficiency of GAC-SBR and SBR systems were also investigated with expect to COD, BOD<sub>5</sub>, TKN, Grease and Oil, TP and SS

The results showed that the maximal COD and TKN adsorption capacities of GAC were 922.00 mg/gGAC and 48.00 mg/gGAC, respectively. When the used GAC was determined, it was found that the COD and TKN adsorption capacities of used GAC that collected from GAC-SBR system was almost stable. The COD and TKN adsorption capacities of used GAC were reduced only 0.84 and 13.07%, respectively when it was compared with raw GAC. Whereas those of COD and TKN removal efficiencies of GAC by the aeration in SBR system was increased by 65.41 and 75.01% sequentially, when it was compared with mixing without aeration system. In addition, the adsorption capacities of GAC was highest at the GAC concentration of 1,000 mg/l. The results were also showed that at HRT of 2, 4, 6 and 8 days the COD and TKN concentration in effluent of GAC-SBR system were 48, 79, 47 and 38 mg/l, and 16, 20, 20 and 17 mg/l, respectively. In the case of SBR system, the COD and TKN concentration of effluent were 59, 95, 58, 55 mg/l, and 18, 25, 27 and 22 mg/l, respectively.

It was concluded that the GAC-SBR system had the efficiency of eliminating COD and TKN greater than 90 and 75%, respectively. Then, the GAC-SBR system might be one of the suitable wastewater treatment system for treating the slaughterhouse wastewater due to the increasing of removal efficiency.

Keywords : Sequencing Batch Reactor (SBR) / Granular Activated Carbon (GAC) / Granular Activated Carbon-Sequencing Batch Reactor (GAC-SBR) / Slaughterhouse wastewater / Adsorption