

Thesis Title The Use of Burnt Rice Husk for Increasing the
 Efficiency of Activated Sludge Wastewater Treatment.

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ABSTRACT

This research was a study of the upgrading activated sludge process to increasing efficiency of COD and suspended solids removal by adding the burnt rice husk into the aeration tank. The sludge, burnt rice husk, and biomass are intimately mixed and it can be integrated into existing activated sludge system at nominal capital cost, and also allow the population of microorganisms to be grown easily this render a higher efficiency of the system.

The experiments were divided into 3 sets of activated sludge wastewater treatment models by addition burnt rice husk at level of 100 , 200 and 300 mg/l into the 1st, 2nd and 3rd models respectively. It divided into 3 sections with volumetric loading of 0.55, 1.16 and 1.76 KgCOD/m³d.

The experimental results showed that increasing burnt rice husk dosages resulted in lower effluent concentration. And increasing volumetric loading values resulted in higher effluent concentration. All three models (100, 200, 300 mg/l) at the different volumetric

loadings the results of COD and suspended solids removal efficiencies were obtained in consecutive, for the volumetric loading of $0.55 \text{ KgCOD/m}^3\text{d}$, the COD removal efficiency rates were 94.25, 95.71 and 96.40%, the suspended solids removal efficiency rates were 85.64, 87.98 and 90.53%, for the volumetric loading of $1.16 \text{ KgCOD/m}^3\text{d}$, the COD removal efficiency rates were 93.45, 94.62 and 95.83%, the suspended solids removal efficiency rates were 78.85, 82.60 and 86.72%, and for the volumetric loading of $1.76 \text{ KgCOD/m}^3\text{d}$, the COD removal efficiency rates were 65.39, 90.99 and 94.51%, the suspended solids removal efficiency rates were -16.57, 77.14 and 84.39%.

In summary, adding the burnt rice husk can improve the effluent quality even in the stage of over loading. (In the study the over loading were 1.16 and $1.76 \text{ KgCOD/m}^3\text{d}$.)