Removal of Pollutants from Wastewater Effluent using Activated Rice Husks

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Wastewater effluent from local wastewater treatment center contained relatively high concentrations of carboxylic derivatives, proteins, grease, oil, phosphate, and humic acids causing and forming color problems in the Mississippi River. In 2007, United States Environmental Protection Agency fined the city of Memphis $645,000 for the improper treatment of wastewater. The city will spend an estimated $200 million to improve its sewer systems. Conjuncture to this improvement effort, a three year study was conducted for the removal of pollutants using activated rice husks. The rice husks were activated at 40°C, 200°C, and 400°C. The wastewater was spiked to acidic (pH 2.5), neutral (pH 6.5), and basic (pH 10.5) ranges. It was predicted that activated rice husks at 200°C in acidic condition would remove the most pollutants. The results indicated that the 400°C activated rice husks at acidic condition can remove about 90% color, 70% grease and oil, and 65% phosphorus.

Awards Won:

Fourth Award of $500