

Kittipong Kawin 2012: Adsorption of Sulfide in Phetchaburi Municipal Wastewater by Rubberwood and Rubberwood Charcoal. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Nipon Tungkananuruk, Ph.D. 94 pages.

Rubberwood and rubberwood charcoal can be used as low cost and available bio adsorbent for the removal of sulfide from wastewater. The remained sulfide after adsorption can be determined by silver sulfide selective electrode. Batch experiments were carried out for studying adsorption condition and isotherm. Operating variables studies were pH, mixing speed, shaking time, contact time, concentration of sulfide and adsorbent dose. The optimal conditions were found at pH 6.5, 50 rpm of mixing speed, 60 min of shaking time for rubberwood and 90 min for rubberwood charcoal, 30 min of contact time in 600 mg/L of sulfide. Under these conditions, 62.09 % and 83.24 % of sulfide were adsorbed by rubberwood and rubberwood charcoal, respectively. The adsorption in batch process of rubberwood and rubberwood charcoal were conformed to Freundlich behaviors. From this condition, rubberwood and rubberwood charcoal can remove sulfide in Phetchaburi Municipal Wastewater at 62.91% and 85.48 %, respectively. Field experiments show that sulfide was removed from the wastewater at 59.43 % and 80.29 % by rubberwood and rubberwood charcoal, respectively. It was also found that turbidity, sulfate, COD, electro conductivity, total dissolved solids, total suspended solid, total solid and fat oil and grease can be removed.

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