

Titirat Piyapanuwat 2012: Comparision of Dyes Removal from Textile Wastewater from Doi Tung Development Project between Moringa Seed Powder and Commercial Granular Activated Bituminous Coal Based Carbon and The Application of Moringa Seed Powder on Coagulation. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Kanita Tungkananuruk, M.Sc. 147 pages.

The purpose of this research was the comparison in ability of wastewater treatment of nine dyes (6% Super Black G, 2% Turquoise H-GN, 2% Yellow LS-4G, 2% Yellow LS-R-01, 2% Orange LS-BR, 4% Navy LS-G, 2% Red LS-B, 2% Blue LS-3R and 2% Br.Blue LS-G). In textile wastewater from Doi Tung Development Project with the ingredient of Moringa seed powder and commercial granular activated bituminous coal based carbon by studying adsorption factors such as pH (4.0 – 8.0), shaking speed (0–200 rpm), shaking time (15–120 minutes), contact time (0–120 minutes), concentration of mixed standard dyes solution (50 mg/l) and adsorbent weight (1-7 g). The results demonstrated that the average highest efficiency of nine dyes in the mixture standard solution by at 94.74% under conditions pH 7, shaking speed 100 rpm, shaking time 30 minutes, and concentration of mixed standard dyes solution 30 mg/l and adsorbent weight 1 g, whereas at 73.99% adsorption by using commercial granular activated bituminous coal based carbon under conditions pH 7, shaking speed 50 rpm, shaking time 120 minutes, contact time 30 minutes and concentration of mixed standard dyes solution 30 mg/l and adsorbent weight 7 g. The adsorption mechanism of both adsorbents was conformed to the Langmuir isotherm equation. The removal performance of nine dyes in textile wastewater from Doi Tung by Moringa seed powder and commercial granular activated bituminous coal based carbon were 46.49% and 61.03%, respectively.

The coagulation process studies by using Moringa seed powder 2 g. and 5 g. for mixed stand dyes solution and textile wastewater from Doi Tung Development Project, respectively. The adsorption efficiency were 97.12% and 56.51 % respectively. In addition, in each of 20 L of mixed stand dyes solution and textile wastewater from Doi Tung Development Project have been removed 80.47% and 23.53% of dyes by using 20 g. and 70 g. of Moringa seed powder, respectively

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Thesis Advisor's signature