Chatchai Imkesonrungcharoen 2008: Preparation of Silkworm Pupa Adsorbent for Removal of Reactive Blue 19 and Reactive Red 3. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Miss Savaporn Supaphol, Ph.D. 104 pages.

This study was focused on the feasibility study of reactive dyes adsorption in standard solution and actual wastewater by silkworm pupa. The silkworm pupa powder adsorbent has amino acids those can form covalent bond with reactive dye structure. Two reactive dyes (reactive blue 19 and reactive red 3) were used. The experiment was conducted in order to figure out the optimum treatment condition in terms of pH, volume of adsorbents, shaking time, contact time, concentration of adsorbate in batch experiment. Furthermore, the adsorption through column and recovery of used adsorbent were investigated. The results demonstrated highest adsorption efficiency of reactive blue 19 in standard solution wastewater at 84.62 % under the condition pH 11, adsorbent volume 5 grams, shaking time 180 min, contact time 120 min and concentration of reactive blue 19 700 mg/l, whereas 81.56 % highest adsorption efficiency for reactive red 3 was obtained under the condition pH 11, adsorbent volume 6 grams, shaking time 240 min, contact time 120 min and concentration of reactive red 3 400 mg/l. When experimented through column, the highest adsorption at 89.62 % was obtained for reactive blue 19 with flow rate 0.71 ml/min, while 73.83 % highest adsorption was achieved for reactive red 3 with flow rate 0.91 ml/min. The recovery of used adsorbent for 3 times was shown to decrease the adsorption efficiency. For reactive blue 19, they were 80.21, 73.44 and 59.89 % after the 1st, 2^{ud} and 3rd regenerations. For reactive red 3, they were 76.51, 63.43 and 43.18 % after the 1st, 2^{ud} and 3rd regenerations. Moreover, the adsorption of both reactive blue 19 and reactive red 3 demonstrated the conformity according to the Freundlich Isotherm equation.

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