

Jutarat Kuandee 2013: The Utilization of Chitosan from Shrimp Shell and Commercial Chitosan to Remove Dyes in Textile Wastewater from Doi Tung Development Project. Master of Science (Environmental Science), Major Field: Environmental Science, Department of Environmental Science. Thesis Advisor: Associate Professor Kanita Tungkananuruk, M.Sc. 95 pages.

The objective of this research was to study the optimal conditions and efficiency of chitosan from shrimp shell and commercial chitosan to remove dyes in textile synthetic wastewater and real wastewater from Doi Tung development project by batch experiments and real work application. The nine types of reactive dyes were 2% Yellow LS-R-01, 2% Yellow LS-4G, 2% Orange LS-BR, 2% Red LS-B, 2% Blue LS-3R, 6% Super Black G, 4% Navy LS-G, 2% Turquoise H-GN and 2% Br.Blue LS-G. Batch experiments were carried out for finding the dyes removal optimum condition. The studied factors were chitosan dose (0.5-3.0 g.), pH (5-9), shaking speed (0-200 rpm.), shaking time (0-120 min.), removal time (0-120 min.) and the concentration of synthetic wastewater (0-50 mg/L). The results show that, chitosan from shrimp shell and commercial chitosan gave the average efficiency of the removal of nine dyes at 99.22% and 96.48% respectively under the optimal condition, which were chitosan dose 2 g., pH 7, shaking speed 150 rpm., shaking time 60 min., removal time 60 min and the concentration of synthetic wastewater 10 mg/L. Both adsorbents of dyes removal were conformed to the Freundlich isotherm. For real work application experiment, the removal performance of dyes in textile wastewater from Doi Tung Development Project with chitosan from shrimp shell and commercial chitosan 73.93% and 68.69% respectively. In addition, the conductivity, turbidity, total solids, total suspended soild, total dissolved solids, fat oil and grease, DO, BOD and COD can be removed and decreased pH in wastewater from 9.3 to 8.5 by two types of chitosans.

---

Student's signature

---

Thesis Advisor's signature