REMEDIATION OF DYE CONTAMINATED WITH WASTEWATER USING CHITOSAN

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This Final Year Project Report entitled "**Remediation of Dye Contaminated With Wastewater Using Chitosan"** was submitted by Noorul Jasmin Binti Sultan Seavudeen, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

Chitosan is a natural resource biopolymer derived from crustacean shells has been the most abundant and low producing cost of biopolymers that able to remove dye in wastewater. This study was aimed to compare two type of chitosan using prawn shell to treat three types of dye contaminated wastewater. Wastewater treatments technologies that held tradisionally were not capable to degrade wastewater containing different types of dye since most of the dyes compounds are greatly resistant to chemical, physical and biological treatments. Based on the study, two form of chitosan were used to screen the best removal of azo dye containing wastewater. Then, batch adsorption treatments was conducted to observe the absorption of the chitosan towards three type of azodyes which were Congo red, Acid blue 9 and Sunset yellow FCF. In this study, the results showed that chitosan type powder form (60-90%) absorbed better than chitosan flake form (40-70%). This finding was approved by using T- test in SPSS version with the p- value of 0.03. Furthermore,dye absorbed by chitosan powder was Acid Blue 9 (93.63%) followed by Congo red (79.10%) and sunset yellow (61.39%) respectively. The ANOVA testing SPSS version show p-value of 0.07, hence it indicated that there were no significance different among the three dyes. As previously finding showed that adsorption of chitosan on dyes contaminated is due to chitosan structure, pore capacity of adsorbent, surface area, contact time and adsorbent dosage. As theconclusion, the type of chitosan powder has been proven to absorb dye in contaminated wastewaters.