



## **Adsorption of Victoria Blue by Acid-Treated Maize Tassels**

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**Abstract:**The increasing environmental pollution by industrial effluent is now a matter of concern. Biosorption is one of the cheaper ways to fight environmental pollution. In the present study biosorption of victoria blue using sulphuric acid treated maize tassels was studied. The effect of pH, initial concentration, adsorbent dose, contact time and temperature on the adsorption process was investigated. The feasibility of adsorption process was evaluated in the pH range of 2 to 10; concentration range of 50 to 100 ppm, temperature was varied from 25°C to 100°C, variation of contact time from 5 minutes to 30 minutes and dose of the adsorbent from 0.2 g to 1.0 g. The results suggested a high adsorbent dose is required for high adsorption capacity. A pH of 5 was effective with temperature set at 25°C and contact time of 30 minutes. The maximum adsorption capacity obtained was 99.60%. The Freundlich and Langmuir isotherm equations were applied to the experimental data and values of parameters of these isotherm equations were calculated. The data fitted well into Langmuir isotherm. The adsorbent surface functional groups were studied with Fourier Transform Infrared (FTIR) spectroscopy and the results indicated that the adsorbent is a lignocellulosic material. The results suggest that sulphuric acid treated maize tassels can be employed as low-cost biosorbent for the removal of victoria blue dye from aqueous solution.

**Keywords:**Victoria blue, adsorption, maize tassel, Langmuir Isotherm, Freundlich Isotherm.