

***Thapsia rods* as a low-cost biosorbent for efficient removal of dyes from aqueous solutions**

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Textile industries generate a considerable amount of colored wastewaters. Further, the discharge of these highly colored wastewaters into the ecosystem involves environmental problems like aesthetic pollution and perturbation of aquatic life. From an environmental point of view, the removal of synthetic dyes is of great concern. Among the most used wastewater treatment processes, adsorption is a significant method. In order to improve the efficiency of the adsorption process, it is necessary to develop cheaper and easily available adsorbents with high adsorption capacities. In this context, the use of natural biosorbents is a promising alternative in terms of their relative abundance, availability, high efficiency and regeneration.

The main objective of this study was to investigate the potential use of *Thapsia rods* as biosorbent for the removal of cationic methyl violet and methylene blue dyes from aqueous solution. The biosorbent was previously characterized by FTIR analysis, SEM et EDX. Batch biosorption studies were conducted in order to evaluate the influence of pH, temperature, biomass dosage, initial dye concentration and the contact time. The experimental results indicate that, the biosorption yield increases with an increase in the biosorbent dosage and the initial concentration in the solution. The overall results showed that the biosorption kinetics of this dye onto *thapsia rods* is well described by the pseudo-second order kinetic model. The biosorption isotherms are described satisfactorily by the mathematical model of Langmuir. The thermodynamic parameters were also evaluated.

Keywords: Textile dyes; Thapsia rods; Biosorption, Equilibrium.