Potential of Red Algae *Gracilaria* for Biosorption of Cadmium: Isotherm, Kinetic and Response Surface Methodology Study

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**Abstract**

The objective of the present work was to investigate the removal of cadmium by red algae *Gracilaria* as biomass. The effect of independent variables on biosorption of cadmium ion by the red algae *Gracilaria* as biomass was evaluated. The experimental data were analyzed via two custom isotherm models, i.e., Langmuir and Freundlich. The experimental design was developed for evaluating the interactions of pH, contact time, temperature, biomass dosage and initial metal concentration. The Box-Behnken model in response surface modeling was used for the optimization of the experimental data in Minitab 18 software. The five parameters were fitted into second order polynomial equation and a mathematical function was developed. The modified equation can be used for the prediction of biosorption in any conditions.

**Keywords:** Biosorption, Red algae Gracilaria, Response surface methodology, Isotherm model.