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Cashew Apple Juice Preservation – An Integrated Approach for Shelf life Enhancement

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The present work describes the biosorption of Cu+2 on green algae *Ulva fasciata*, biomass investigated in the batch mode. The effect of various parameters like solution pH (4-6), initial metal concentration (60- 140 mg/L), biomass weight (0.08-0.40 g/L) and temperature (20-40°C) on adsorption efficiencies were studied using two level four factor (24) full factorial centralcomposite design with Statistica 6.0. The predicted results thus obtained were found to be good agreement (R2 = 0.965) withthe results obtained by performing experiments. Optimum Cu^{+2} adsorption %77.89 was achieved at initial copper ionconcentration of 80 mg/L, *U. fasciata* biomass weight of 5.28 g/L and 35°C temperature with pH 5.245. tudies indicate theinvolvement of –CO, -OH and N-H functional groups present on the biomass surface in the sorption of Cu^{+2} ions. The approximate pore size of biosorbent was 4-10 µm and multilayered inner walls were readily involved in biosorption of Cu^{2+}ions. XRD pattern revealed the change of biomass structure due to biosorption of Cu^{2+} ions on *U. fasciata*. The maximum monolayer biosorption capacity of *U. fasciata* for Cu^{+2} was found to be 35.81mg g–1. The equilibrium biosorption data wereevaluated by Langmuir, Freundlich, Langmuir-Freundlich (L-R) and Reddlich-Peterson isotherm models. *U. Fasciata* biomass appears to be a promising material for the removal of heavy metal ions from industrial wastewaters