BIOSORPTION OF ZINC AND CADMIUM BY GREEN ALGAE SPECIES:A COMPARATIVE STUDY

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ABSTRACT

In this paper, two green algae species (chlorella vulagaris, scenedesmus quadrilla), grown in laboratory under controlled conditions, were compared for their ability to accumulate zinc and cadmium. Toxicity and interaction among these heavy metals were also studied.

The results indicated two distinct phases for cadmium and zinc biosorption: a rapid phase lasting for about a few minutes, associated with metal adsorption on the cell wall and a slower phase associated with metal transport through the protective outer layer.

The sensibility of the algae cells to heavy metals differs according to species. (Awasthi, 2004; Miretzky, 2006; Pane, 2008).

The results obtained show that scenedesmus quadrilla were more resistant than chlorella vulagaris to zinc and cadmium. However, these heavy metals were more efficiently removed by scenedesmus quadrilla.

In the case of Chlorella vulgaris, the effect due to interaction of zinc and cadmium during biosorption caused higher removal percentage of cadmium when combined with zinc.

Keywords: Heavy metals; biosorption; algae; toxicity; interaction.