

CATIONS (K⁺ AND Na⁺) EXCHANGE IN CADMIUM ACCUMULATION BY *Saccharomyces cerevisiae* CELLS

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Heavy metals represent major environmental hazard to human health, in particular cadmium is very toxic and carcinogenic at low concentrations. The toxicity of cadmium and several other metals can be attributed mainly to the multiplicity of coordination complexes and clusters that they can form. The primary site of interaction between many toxic metals and microbial cells is the plasma membrane. Plasma-membrane permeabilisation has been reported in a variety of microorganisms following cadmium exposure, and is considered one mechanism of cadmium toxicity in the yeast. In this work, using the yeast strains *Saccharomyces cerevisiae* W303-WT and *Saccharomyces cerevisiae* tps1, we have investigated the role of trehalose in relationships between Cd uptake and release of cellular metal ions (K⁺ and Na⁺). Trehalose is found in many organisms in which it accumulates significantly during adverse conditions. It seems that trehalose acts by stabilizing membranes and native proteins as well as by suppressing the aggregation of denatured proteins. In our research it was observed the change in morphology of the strains during the process of Cd accumulation. These alterations were observed by Transmission Electron Microscopy (TEM) and Scanning Electron Microscopy (SEM) during incorporation of cadmium.

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