Biosorption of Nickel by Yeasts in an Osmotically Unsuitable Environment

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The tolerance, sorption of nickel(II) ions, and changes in the production and composition of exopolymers of eight yeast strains grown under nickel presence with/without NaCl were studied. Strains of *Pichia anomala* and *Candida maltosa* known as the most resistant yeasts against nickel tolerated up to 3 mM Ni^{2+}. NaCl addition decreased both the resistance of the yeast strains toward nickel ions and the sorption of metal ions into cells. All yeasts absorbed nickel predominantly into exopolymers (glycoproteins) and on the surface of cells. However, while the amount of polysaccharide moieties of exoglycoproteins of most of the resistant yeasts was induced by stress conditions, the ratio polysaccharide/protein in the exopolymers remained unchanged in the sensitive species *Cystofilobasidium*. The exopolymer composition might play a key role in yeast adaptation to stress conditions caused by heavy metal ions.

Key words: Salt Stress, Nickel Stress, Exopolymers, Yeasts