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EVALUATION OF HEAVY METALS TOXICITY ON TWO MICROBIAL STRAINS ISOLATED FROM SOIL: *Azotobacter* sp. AND *Pichia* sp.

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Abstract

Chromium and cadmium are heavy metals that occur naturally in the environment and especially in soils. Their toxic effect is more pronounced at high concentrations and it depends on the oxidation states. While Cr (III) is considered an essential trace element for the metabolism of living organisms, Cr (VI) has a higher mobility and is easily soluble in soils and can be leached into surface water or groundwater, and taken up by plants. That leads to a toxic and carcinogenic effect to humans via inhalation for long exposures. The concentrations and the form of heavy metals in soils and the behavior of their free ions in soils solution are influenced by soil pH, organic matter (OM) content, cation exchange capacity (CEC), and clay mineralogy. This work presents the toxicity effect of two common heavy metals that can be found in soil (chromium and cadmium) on two microbial strains, which are also isolated from soil: *Azotobacter* sp. and *Pichia* sp. Batch tests were made using different concentrations of the selected heavy metals and culture medium: for *Azotobacter* sp. strain was used a Sabouraud medium and for *Pichia* sp. strain a YEPD medium (Yeast Extract, Pepton, Dextrose). The dry weights of the microbial culture were used to determine the microbial growing, calculated in percent inhibition of dry weight versus concentrations of metal ions.

Key words: toxicity, heavy metals, microorganisms, soil

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