

BEHAVIOR OF PLANTS AND MICROORGANISMS IN THE PRESENCE OF INORGANIC POLLUTANTS

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Abstract. *Rapid industrialization along with the use of modern practices in agriculture led to the discharge into the environment of various pollutants from which metals and metalloids are the most identified. The presence of metals in soil affects soil fertility, the growth and development of plants, and finally causing different negative effects on human health such respiratory problems, damage to endocrine and nervous systems and other dysfunction. Over time, various techniques have been used to remove pollutants from contaminated media, but most of these techniques are expensive, produce secondary contaminants and modify the structure and fertility of the soil. Thus, in recent years considerable attention has been accorded to biological methods. Plants and microorganisms may exhibit different behavior and degree of tolerance in the presence of metals.*

Keywords: ecotoxicological tests, metals and metalloid, indicators of toxicity, phytotoxicity tests, tolerance

1. Introduction

Soil contamination with potentially toxic elements (PTEs) (metals or non-metals) represent a global concern because their presence is endangering both the environment and human health [1]. The group of metals includes both essential elements for normal metabolic processes named micronutrients (Fe, Mn, Cu, Zn, Ni, Mo), which in excessive amounts are more harmful to plants compared to animals, and non-essential elements (As, Hg, Pb, or Cd) which are very harmful to humans and animals affecting the growth and development of plants even at low concentrations [2, 3].

According to the U.S. Environmental Protection Agency (USEPA), Hg, Cr, Pb, Ar, Co, Cd, Co, Zn, Ni, Be, Mn and Sn are the most toxic metals [4]. The

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