

## RESEARCH REGARDING THE ENZYMOLOGICAL ACTIVITIES OF THE TECHNOGENIC SOIL FROM MARAMURES COUNTY

Alina Dora SAMUEL<sup>1</sup>

**Abstract.** *This paper summarizes our research work regarding the dynamics of vegetation growth of miscellaneous species of trees planted and monitored in the particular environment of the tailing pond in Bozanta Mare (Maramures County). The structure of soil bearing high content of heavy metals and cyanides considerably impacts the ecologic conditions of tailing ponds. Aspects related to soil characteristics (such as structure, size of particles, porosity, texture, chemical composition) are included. In the framework of our experiment we have planted seedlings belonging to four species of trees: *Quercus petraea*, *Populus tremula*, *Betula verrucosa*, *Salix caprea*. Our aim was to study the evolution of enzyme activities. Our contribution, based on the outcomes of our research, consists in the formulation of functional correlations spotted between cormophites and enzyme activities, between the species of trees and their environmental underlying conditions, with the overarching goal to optimize the activities undertaken in order to alleviate the tailing ponds inherent to mining activities.*

**Key words:** catalase, dehydrogenase, technogenic soils, recultivation

### 1. Introduction

Tailing ponds entail highly – complex environment issues (of a chemical, biological, technological and social nature) stemming from the high content of harmful components but particularly because of the impending dangers that such components inflict on environment and health. Only the joint work of experts in various fields, proposing innovative technologies and services, could enable for a solution to be reached, as the classic approaches considered up to now proved to be far from enough.

Research studies reveal that remedial and restoration of vegetation in areas polluted with heavy metals, areas to which tailing ponds belong, could be enabled by a clever selection of tolerant species of plants as well as by selecting tolerant mycorrhizic fungi.

Technogenic soils are soils that form during the technical and biological recultivation of overburdens, tailings and other spoils and wastes resulting from mining and other industrial activities. At the same time, all these wastes constitute

---

<sup>1</sup> Lecturer PhD, University of Oradea, Department of Plant Biology, Oradea, Romania email: [samuelalina@rdslink.ro](mailto:samuelalina@rdslink.ro)