

TITLE: HEAVY METAL REMOVE UTILIZING MICROORGANISMS: IS IT POSSIBLE?

AUTHORS: ROCCO, D. H. E; SOEIRO, V.S.; CASTANHO, N.R.C.M.; DE MARCO, N.; DOS SANTOS, G.L.; GROTTTO, D.; OLIVEIRA, Jr., J. M.; BALDO, D.A.; PICKLER, T.B.; JOZALA, A. F.

INSTITUTION: UNIVERSITY OF SOROCABA, SOROCABA, SP (RODOVIA RAPOSO TAVARES, 92,5, CEP 18023-000, SOROCABA – SP, BRAZIL)

ABSTRACT: The industrial increase in the last decades, heavy metals have been one of the main responsible for the contamination of waters and soils. This is because the incidence of accidents and carelessness in the handling of metals has also increased, as well as the incorrect disposal of these materials. The increasing in contamination by heavy metals in the ecosystems has been accompanied by the concern with the dissemination of these elements in concentrations that can compromise the quality of the ecosystems. The search for viable alternatives to contain pollution has been increasing, with major efforts being devoted to the development of cleaner technologies for waste treatment and remediation of contaminated environments. The objective of this study was to evaluate the ability of *Bacillus subtilis* to degrade heavy metals in water samples using bioremediation technology. The analyzes were done by culturing the microorganism in TSB standard synthetic medium. The experiments were conducted for periods up to 96 h in samples containing culture medium, Milli-Q water and lead acetate. The samples were agitated at 150 rpm and 35 ° C, then centrifuged and the supernatant was collected to weigh the mass for the growth curve. Samples were also filtered by Sterifil Filtration System using 0.22 µm membranes, which were previously weighed. The membranes were kept in an oven at 50 ° C for 20 minutes for drying and weighed again. Preliminary results showed that the *B. subtilis* is able to reproduce in medium with high concentration of lead acetate. This research aims to contribute to the development of products of microbial origin bioremediation, discovering environmentally safe and low cost bioremediation forms, as well as bringing knowledge in the areas of teaching and research.

Keywords: Biorremediação, microrganismo, metais pesados, produção.

Development Agency: Universidade de Sorocaba, UNISO.