Environmental Engineering and Management Journal

May 2013, Vol.12, No. 5, 1079-1084
http://omicron.ch.tuiasi.ro/EEMJ/

"Gheorghe Asachi" Technical University of Iasi, Romania

Spirulina platensis AS BIOSORBENT OF ZINC IN WATER

Inga Zinicovscaia[1,3]*, Gheorghe Duca[1], Valeriu Rudic[2], Liliana Cepoi[2], Tatiana Chiriac[2]
Marina V. Frontasyeva[3], Sergey S. Pavlov[3], Svetlana F. Gundorina[3]

[1]The Institute of Chemistry of the Academy of Sciences of Moldova, 3 Academiei Street, 2028 Chisinau, R. Moldova
[2]Institute of Microbiology and Biotechnology of the Academy of Science of Moldova, 1 Academiei Street, 2028 Chisinau, R. Moldova
[3]Joint Institute for Nuclear Research, 6 Joliot-Curie Street, 1419890 Dubna, Russia

Abstract

Zinc is an important metal for humans and the environment. Its intensive application in industry has led to water and soil contamination. A lot of microorganisms both unicellular and multicellular can be applied for removal of metals from the environment. The process of zinc adsorption by cyanobacteria *Spirulina platensis* biomass was investigated. The concentrations of 0.34 mM and 3.4 mM of $ZnSO_4 \cdot 7H_2O$ were used. The process of biosorption of zinc was studied during 1-hour experiment. To determine the elemental content of the samples, neutron activation analysis was applied. The maximum sorption capacity for Zn was determined to be 9000 μg/g at the initial concentration of $ZnSO_4 \cdot 7H_2O$ of 3.4 mM. At the lowest initial concentration of zinc salt almost all Zn was removed from solutions.

Key words: biosorption, neutron activation analysis, *Spirulina platensis*, zinc

Received: January 2013; Revised final: May, 2013; Accepted: May, 2013

* Author to whom all correspondence should be addressed: E-mail: zinikovskaia@mail.ru