Title of Article: Biosorption of heavy metals in industrial wastewater using micro-organisms (Pseudomonas aeruginosa)

Author(s): Olukanni, D. O., Agunwamba, J. C., Ugwu1, E. I.


Date: 2014

Abstract: Heavy metal ions are often present in industrial wastewater, and sometimes there is the need to reduce their concentrations to some certain minimum. Biosorption is one of the methods by which this reduction can be achieved. The purpose of this study is to explore the biosorption technique as an alternative to conventional methods such as reverse osmosis, electrodialysis, ultra filtration, ion-exchange and chemical precipitation in the removal of heavy metal ions from industrial wastewater. Biosorption of the heavy metals namely cadmium, zinc and silicate were conducted using Pseudomonas Aeruginosa. Samples of wastewater from an industrial source were collected in a 2L container and poured into six containers. Measured quantities of the biomass were then introduced into the samples. The concentrations of heavy metals in the samples were determined with an atomic absorption spectrometer. The results yielded a significant reduction in the heavy metal ion concentrations in the samples, with even the highest initial concentration greatly reduced. Biosorption technique can be a very good alternative to conventional methods in terms of availability of materials, cost-effectiveness and absence of precipitates and slurry.