

2<sup>nd</sup> International Conference & Expo on  
**Green Energy, Recycling &  
Environmental Microbiology**

November 28-30, 2016 Atlanta, USA

**Comparative study of the biosorption potential of *Pseudomonas aeruginosa* and *Micrococcus lutes* on lead and chromium**

Ikhumetse A A and Abioye O P

Federal University of Technology, Nigeria

The study was conducted to examine the metal biosorbing ability of lead and chromium-resistant bacteria isolated from water samples collected from Shikira community, Rafi Local Government Area, Niger State, Nigeria. Bacterial isolates were screened for heavy metal tolerance by cultivating on nutrient broth supplemented with 5.50 mg/L lead concentration and 3.0 mg/L chromium concentration. Based on the result of heavy metal screening, *Pseudomonas aeruginosa* and *Micrococcus luteus* were then selected and inoculated to determine their potential for biosorption of lead and chromium from two different water sources viz. borehole and hand-dug well. Biosorption study was conducted for a period of 28 days, after which the bacterial cells were separated from solutions by centrifugation and the supernatants were analyzed for residual metals in solution using atomic absorption spectrophotometer (AAS). The effect of pH on the biosorption potential of the bacterial isolates was also determined. The optimum removal efficiency of *Pseudomonas aeruginosa* was 99.73% for lead and 95.84% for chromium at pH 2.8, while the optimum removal efficiency of *Micrococcus luteus* was 98.21% for lead at pH 4.2, and 90.13% for chromium at pH 4.7. The present study indicates that *Pseudomonas aeruginosa* and *Micrococcus luteus* removes lead and chromium efficiently from heavy metal-contaminated water, and therefore can be exploited for further research with reference to treatment of water contaminated with heavy metals.

**Biography**

Ikhumetse A A is a Master's student in Environmental Microbiology, working under the supervision of Dr. O P Abioye, at the Department of Microbiology, Federal University of Technology, Minna, Nigeria. Her research interests include bioremediation, public health, occupational safety and molecular biology. She received her Bachelor's degree in Microbiology from the University of Benin, Nigeria. She also currently works for ESMCS-ETISALAT, Nigeria, as a Customer Relation Officer. Her current work focuses on the use of microorganisms in the remediation of polluted water samples.

agathaikhumetse@yahoo.com

**Notes:**