12th World Congress on

Biotechnology and Microbiology

June 28-29, 2018 | Amsterdam, Netherlands

Determination of the heavy metal resistance of bacteria isolated from ceramic industry sludge and wastes

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Lead (Pb), one of the more persistent metals, was estimated to have a soil retention time of 150 to 5000 years. Pb is a Lcommon environmental contaminant found in soils. Unlike other metals, Pb has no biological role, and is potentially toxic to microorganisms. Heavy metals can be poisoned by adsorption, complexation or chemical reduction of metal ions by microorganisms or they develop various mechanisms to use them as terminal electron acceptors in anaerobic respiration. In this study, bulk plaque method was used for isolation of bacteria from the sample in solid medium. NA and PCA medium were allowed to incubate at 37°C for 48 hours for mesophilic microorganisms. 11 different bacteria isolated from ceramics muds (CM) and ceramics wastes (CW) inoculated agar plates containing 0.5 mM of lead $[Pb(NO_3)_2]$, copper $[CuSO_4.5H_2O]$ and silver $[AgNO_3]$. Different concentrations (10 mg/l, 5 mg/l, 2.5 mg/l, 2 mg/l, 1.5 mg/l, 1 mg/l, 0.5 mg/l and 0.0125 mg/l) of lead resistance were investigated. Five isolates were found to be silver, 10 isolates were found to be resistant and eight isolates were found to be resistant to the infection. Four isolates showed resistance against three metals.

Biography

Gulderen Uysal Akkus has completed her PhD from Selcuk University and Post-doctoral studies from Middle East Technical University School of Chemistry. She has published more than 30 papers in reputed journals. She is still an Academician at Afyon Kocatepe University.

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