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Lead resistance in fungi isolated from ceramics industry muds and wastes

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One of the by-products of the industrial and technological revolutions that have occurred in the last couple of hundred years has been the increase of chemicals in the environment. Many of these chemicals are dangerous to human and animal health. There is one chemical, lead, which is being continually released into the environment and which is potentially more dangerous to humans than the total impact of pesticides. Studies on lead are showing that it is very toxic and is affecting many people especially in motorized, urban environments. Owing the importance of resistance of heavy metals by different organisms, fungus isolated from ceramics industry muds and wastes was first time investigated and bulk plaque method was used for isolation of microorganisms from the sample in solid medium. Five different fungi were isolated from ceramics industry muds (CM) and ceramics industry wastes (CW) on inoculated agar plates containing 0.5 mM of lead [Pb(NO₃)₂], copper [CuSO₄·5H₂O] and silver [AgNO₃]. 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 was investigated. Point planting were made with nutrient agar. After one-week incubation at 27°C, the zone diameter of the fungal colony was measured and compared with the control group and percent inhibition was calculated. All fungal isolates (CW_{1k}, CW_{2k}, CW_{3k}, CM_{1k}, CM_{2k}) were found to be resistant to the three metals tested. Increased lead concentration was found to increase the inhibition of fungal growth. Despite this, all the lead concentrations tested in the isolate showed improvement.

Biography

Gulderen Uysal Akkus has completed his 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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