



# Chemical analysis and environmental impact of heavy metals in soil of wadi Jazan area, Southwest of Saudi Arabia

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## Abstract:

A few investigations have been done on characterizing heavy metals at Jazan district, mostly done as analyses of heavy metals associated with water, sediments and shrimps. The current study was carried out mainly to evaluate and characterize heavy metals concentrations in soils of the main Wadi Jazan and its tributaries in order to determine its environmental impacts. The heavy metals were measured by using ICP-MS. Results indicate that soil of Wadi Jazan area has different concentrations of heavy metals; some of them have economic importance such as Au, Ag and U, some other considered useful for the environment (Such as Cu, Se and Zn) and others are harmful for the environment (Such as Cd, Pb, and others). The most extremely soil pollution at Wadi Jazan is by Cd, where all analyzed samples have higher concentration than the maximum permissible concentration by the World Health Organization. Heavy metals concentrations along Wadi Jazan indicate that the most polluted area is located around Abu Arish City. The current investigation conclude that there are a direct effect of the harmful heavy metals on plants, terrestrial animals, fishes and marine organisms and human; due to the ability of these heavy metals to reach and entered the food chain, and hence causes different types of harmful effects and diseases. Present study refers also to the suitability of some recent techniques for soil remediation at Wadi Jazan, such as engineering remediation (Replacement of contaminated soil, soil removal, soil isolation and adsorption) and bioremediation (Phytoremediation).

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