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Estimate of Cd, Pb and Physico-Chemical Properties in Soils of Kani-qrzhala Dumpsite in Erbil, Kurdistan Region of Iraq

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Abstract

The present study was designed for the estimation pollution status by two heavy metals cadmium, lead and the variation in physicochemical characteristics of the soil samples taken from an open dumpsite in Kani-Qrzhala - Erbil. (Latitude 36˚13' N, longitude 43˚58' E). Soil samples selected at different depths (0-10, 10-20 and 20-30 cm) were collected randomly at the dumpsite field with one sample as a control. The soil samples were analyzed for physico-chemical parameters and contaminated metals by cadmium and lead. The samples of dumpsite had higher silt and lower sand contents in comparison with the control site. The soil pH varied between 7.2 - 7.7 in the dump. The highest f organic matter was (25 mg kg^{-1} in dump soils. The levels of Pb, Cr, Cd and Ni ranged from 90.11-140.08, 1.05- 1.24, 0.95 -2.98 and 9.63 -11.8 mg kg^{-1} in the dump and 12.08-28.83, 0.084-0.100, 0.10-0.73 and 7.61-8.00 mg kg^{-1} in the control. All values of the heavy metals obtained in the study area were below the maximum allowable limit of soils used for farming purpose. Results of the simple geoaccumulation index (I_{geo}) for Pb, Cr, Cd and Ni indicated that the soil qualities were generally are under the class (1) uncontaminated status, but limited sampling sites fell in class 5, highly polluted index.

Author Keywords

Heavy metals, Dumpsite soils, Physicochemical Properties, Lgeo

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