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Assessment and Spatial Distribution of Cadmium, Nickel and Lead within Soils of Sinnours, Fayoum, Egypt. Egypt. J. Soil. Sci.(2020) Vol. 60, No. 3, pp. 247-261

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## Abstract

Geographical distribution of soil salinity, alkalinity, calcicity, soil texture, and organic matter (grid system-log distance of 2 km) has been evaluated and mapped in the study area (about 770 km<sup>2</sup>) using GIS-ILWIS format. It is found that in the soils of Tamia District, ECe ranged between 1.22 and 22.4 dS m<sup>-1</sup> and 1.03 and 97.1 dS  $m^{-1}$  in Fayoum District soils within the top layer. Results show 91.5% of Tamia soils and 56.5% of Fayoum District soils present ECe > 4 dS  $m^{-1}$ , indicating that saltaffected soils are distributed throughout the study area. About 94.5% of Tamia soils and 30% of Fayoum soils are calcareous (>10% CaCO<sub>3</sub> eq), due to the nature of parent material from which these soils are evolved. Soil pH of more than 8.00 was found in about 3.25% of Tamia soils and 73% of Fayoum District soils, whereas the soils with pH >8.5 are 3.96% in Tamia and 9.53% in Fayoum District. The organic matter contents seldom exceeded 1% in Tamia soils and did not exceed 1.5% for Fayoum soils. Soil texture in both districts is found as clay, sandy clay, sandy clay loam, sandy loam, and sandy. The maps generated through GIS are useful for decision makers for land use planning, conservation, and uses, as well as interest to researchers and soil science students to use the information for further investigations.

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