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Morphological characteristics and chemical properties of dominant geological clay deposits for agriculture in Egypt

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Abstract : The overlooking of the geological clay deposits distribution in Egypt gives us idea about their deposition locations which are mainly in oases and in deep and extensive depressions, cut down nearly to sea level. Successive sedimentary formation dipssteadily at a very small inclination. This makes it such that each type has a wide outcrop. The total area of these geological clay deposits exposed as surface outcrop is about ~ 41,484 km² which represent about 4% of the total area of Egypt. These deposits have relatively high capacity to retain water and nutrients and mainly located in the desert parts of the country. For these characteristics they considered as important land resources from agriculture point of view. The inventory of such land resources is rather essential to help the decision makers in propose planning. This inventory could be achieved throughout an integrated soil survey and classification plan. This plan should include field survey, chemical, physical, mineralogical and micromorphological analyses as well as, accurate mapping with suitable scale. The current study aims to identify the morphological and chemical characteristics of these deposits and differentiate between shales and mudstones of the studied geological clay deposits in Egypt. The study showsthat the same clay deposits are distributed in different locality in the country. They are named as Qarara, Beni Suef, Qasr El Sagha, Wadi Rayan, Maadi, Dakhla, Quseir, Esna, Maghagha, Pale grey, Dark grey and Wadi Abbad clay deposits. Qarara and Beni Suef clay deposits consider as shale deposits, while the rests are mudstones. The studied chemical parameters show that Dakhla, Maghagha and Wadi Abbad deposits are highly recommended for agriculture investments. While Quseir clay deposit is moderately; Wadi Rayan, Maadi, Esna, and Dark grey shale are low. Qasr El Sagha, and Qarara shale areas are very low suitable for agriculture. Beni Suef and pale grey shale areas are with extreme limitations for agriculture.
Keywords: geological clay deposits, names, morphology, chemical composition, Egypt.

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