

## Shale Deposits of El-Farafra Depression (Egypt) as Soil Conditioner for Sandy Soils

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*El-Farafra depression is a huge sandy landscape interlayered with gray and red shale deposits of (lay texture (clay content 72% for gray shale and 56% for red shale), suggesting their possible suitability as soil conditioners. Mineral assemblages of the clay fraction of both shales included interstratified minerals, smectite, kaolinite, quartz, and feldspars. Both quartz and feldspars constituted a very low portion of the mineralogical composition. Gray shale was dominated by smectite, followed by kaolinite, while red shale was dominated by kaolinite, followed by smectite. The physical and chemical properties of the gray shale revealed higher clay content, cation exchange capacity, salinity, and exchangeable sodium percentage than the red shale. Mixing these shales with sand in different ratios (15%, 17.5%, 20%, and 22.5% of the total weight) showed that better physical properties were obtained with gray shale than with red. The optimum mixing ratio of gray shale to sand (15%) must be considered in view of costs and outputs.*

Keywords shale deposits, sandy soils