



Effect of Injecting Soils with Lime and Gypsum by Sawdust Extract and the Wetting and Drying Cycles on Physical Properties and Phosphorous Behavior in the Soil

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Abstract: A laboratory study was conducted on undisturbed soil samples taken from a depth of 0-12 cm, collected from different desert areas in lime and gypsum percentages, devoid of agricultural use in the western Anbar Governorate. The organic extract of sawdust (EOM) was added at 10% of the extract equivalent to the percentage of dry organic matter from the dry soil weight for all samples of the study soil. Nine wetting and drying cycles were performed with a 3-day incubation of samples after each wetting and drying cycle. There was significant increase in the mean weighted diameter (MWD) at fast wetting (flood) by increasing the percentage of gypsum. The significant increase in gypsum soil was by 8.02% compared to calcareous soil, and the presence of a significant increase in the mean weighted diameter at slow wetting by increasing the lime percentage. Further significant increase in calcareous soil by 15.20 and 10.77%, respectively, compared to soils with a close percentage of lime and gypsum and gypsum soil. The wetting cycles as well as the succession of wetting and drying cycles had a significant effect on decreasing the dispersion ratio, as the highest decrease ratio was 45.88% in the ninth cycle compared to the first cycle. Moreover there was no significant effect of lime and gypsum on the amount of available phosphorus by adding 10% of sawdust extract.

Keywords: Available phosphorus, Calcareous soil, Gypsum soil, Soil structure
