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Relationship between cation exchange capacity and the saline phase of Cheliff sol

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ABSTRACT

T Measurements of the cation exchange capacity (CEC) show significant soil properties, in particular its ability to retain the cations because of their mobility in the soil. Thirteen soil samples rich in electrolytes of the Cheliff plain (Algeria) were analyzed in order to measure their CEC and to draw up the existing relationship between texture, organic matter content and pH. In calcareous soils, the CE_{ce} values are always higher than those measured at pH 7. Regression equations using the percentages of organic carbon and clay as independent variables would make it possible to estimate 90% of the variability of the CEC measured in the ammonium acetate buffered at pH 7 and 89% of the variability for that measured at the pH of the soil. These percentages are particularly useful due to the fact that they make it possible to estimate the CEC of the soil according to the pH only starting from the organic matter and texture. The correlations between the salinity indices, the parameters of the saline phase and the physical properties, show that the cobalt-hexamine method makes it possible to characterize the soil of this plain with more precision than the Metson method. It constitutes a means for following-up the chemical quality of the soil. The Metson method makes it possible to approach the reactivity of the soil in relation with the geometry of the components. The measurement of the CEC at pH 7 makes it possible to envisage the water content at the permanent wilting point of the plants. Finally, it is noticed that a sodisation of the adsorbing compound, which consequently generates a reduction in the structural stability and a reduction in the infiltration always leads to the salinity in these soil types.

KEYWORDS

 CEC_{Metson}; CE_{ce}; Salinity Index; Salinity; Sodicity; Physical Properties

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