POTASSIUM FORMS STATUS AND EFFECT OF CULTIVATION IN SOME DESERT TORRIFLUVENTS SOIL

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ABSTRACT

This work was conducted to study potassium status and forms in some desert Torrifluvents soil, from south of Libya and to clarify the effect of cultivation on its forms. Composite soil samples were collected from surface soils (0-30 cm) of some cultivated fields and from larva regions besides these fields. Various forms of potassium were determined i.e.; soluble-K, NH_4OAC extractable-K, reserve-K, sulphuric acid-K, boiling nitric acid-K to determine primary step-K and total step-K, and total K. Obtained results indicate that all soils have high content of soluble and exchangeable potassium. Their contents were within the range of arid and semi–arid soils. Reserve-K was ranged between 0.359 – 3.422 cmol kg^{-1} with average of 1.702 and 2.637 cmol kg^{-1} in cultivated and larva soils respectively. All soils had low content of primary step which ranged between 0.214-1.294 cmol kg^{-1} with average of 0.522 and 0.926 cmol kg^{-1} in cultivated and larva soils respectively. Total step potassium was ranged between 0.982 –5.995 cmol kg^{-1} with average of 2.480 and 3.765 cmol kg^{-1} for cultivated and larva soils respectively. Total potassium concentration was between 15.16–36.71 and 23.53-30.06 cmol kg^{-1} with average of 24.52 and 26.38 in cultivated and larva soils respectively. All forms of potassium were decreased as a result of cultivation. Apart from K-HCl and total K, the rest forms of potassium were significantly correlated with each other's.