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THE EFFECT OF WETTING AND DRYING CYCLES, TEMPERATURE AND EXTRACTION SOLUTIONSONMEASURED POTASSIUMFIXATION ON SOILS FROM NORTH OF AL - JAZIRAREGION IN IRAQ

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ABSTRACT

Seven soil surfaces A horizons from Rabiah area were used to study the effect of amount of potassium added, wetting and drying cycles, temperature and extracting solutions on K fixation. Five levels of K (equivalents to 0, 30, 120, 360 and 720 mg Kkg^{-1} soil) were added and the soil samples were subjected to 4 cycles of W - D. The numbers W - D cycles were 1,5,10 and 20 cycles and the drying temperatures used were 25,50,70 and 100 C .0.2 *M* $CaCl_2$ were used for K extraction and the measured amount of K fixed increased with increasing number of W - D cycles when high quantities of K were added. The drying temperature caused release of K when no K (K0) or small amounts of K (K1) were added. The measured K fixation decreased with increasing drying temperature from 50 to 100^0 Cregardless of extracting solution when the calculation fixation was based on the initial extractable K rather than quantity extracted from zero treatment after W-D. Five extracting salts (0.2 and 0.5 *M* $CaCl_2$, NH_4Cl, NH_4OAc and $BaCl_2$) were used to extract K^+ .At any given temperature, there were significant differences in K fixation existed between extracting solution. The highest amount of K extracted was by$BaCl_2$ solution but the lowest amount of K^+ extracted was by 0.2 *M*$CaCl_2$ solutions.

KEYWORDS: Potassium Fixation, Wetting and Drying, $Cacl_2$, Bacl, NH_4Cl Extractions