

## EFFECT OF IRRIGATION WATER QUALITY AND MOISTURE LEVEL ON POTASSIUM SUPPLY POWER AT UNDERCOVERED AGRICULTURE CONDITIONS.

Ebtisam M. Rasheed

Eman A. AL-Janabai

Ali M. Saadallah

\*Dept. Soil Sciences and Water Resources- College of Agriculture - University of Baghdad

### ABSTRACT

Trial was conducted at plastic house in College of Agriculture –University of Baghdad at winter season of 2009-2010. The trial included two treatments: -the first was irrigation water quality (river water, drainage water and mixed water -50% river water + 50% drainage water) and the second was water moisture levels (irrigation at 40, 60, 80 % of available water). Tomato transplants were planted in the plastic house using drip system to apply irrigation water. Laboratory experiments were conducted on the soil before, during and after growth season to investigate the thermodynamic behavior of potassium using quantity- intensity relationship. Results showed that the lowest values of labile K were found at early yield stage comparing with values at flowering stage and the end of the season stages which indicate the role of the crop in depletion of soil K. To control K supply, the nutrient should be added before early yield stage. Releasing K was higher from soil irrigated with river comparing with mixed and drainage water. Moisture level of 40% available water give higher values of LK. Results showed that values of potassium activity ratio at equilibrium  $ARK_0$  were reduced during plant growth comparing with the values before planting which reflect the role of biological factor on K uptake by plant.  $ARK_0$  values were higher for river water treatment comparing with mixed and drainage water.

**Key words:** Labile potassium, potassium buffering capacity, moisture depletion.