

Extended Abstract

Changes in Macro Elements Content in Plant Tissues Subjected to Clinostat

Raghad S. Mouhamad^{1*}, Ameerah H Atiyah¹, Amal FH AL-Temimi¹ and Ekhlas. AJ Elkaaby²

¹Soil and Water Resources Center,
Agricultural Research Directorate, Ministry
of Sciences and Technology, Baghdad,
Iraq

The seedling Fresh weight (Fwt) and Dry weight (Dwt) recorded to be higher under gravity stimulation at 40 rpm for 96 h clinostat rotation. The micro- and macro-nutrient were also enhanced under same set up. The seedlings exposed at clinostat rotation for 70 h at 90 rpm did not affect both minerals and growth parameters, which revealed that microgravity has variable and stimulatory effect on plant characteristics under specific conditions. Results revealed that gravity stimulation applied through clinostat rotation at low rotation has positive effect on biogenic elements as well as growth parameters in plant, which could be used practically to enhance growth.

Abstract

Plants regulate metabolism under the effect of gravity, which affects growth direction, morphogenesis and biochemistry by changing the metabolic pathways. In present study, the effect of microgravity stimulation on biogenic elements and growth profiles of rice, wheat, barley, and pea during early growth stages was investigated. Clinostat was used for gravity stimulation, which was applied at embryonic stage. Seeds were grown under laboratory conditions at $24 \pm 2^{\circ}\text{C}$ and 3 days-old seedlings were exposed to the microgravity generated by clinostat rotation at 40 rpm for 96 h and 90 rpm for 70 h. The biogenic elements and growth parameters were measured.