



Effect of different potassium levels and spraying humic acid on some physiological parameters and yield of rapeseed (*Brassica napus* L.)

Rawafid H. Al-Obaidi, Sundus K. Jahar*, Lamiaa M. Al-Freeli*, Hawraa T. A. Altobhani*

*Department of Field Crop, College of Agriculture, University of Basrah, Iraq

Abstract:

A field experiment was carried out at the Agricultural Research Station, College of Agriculture, University of Basrah, Karma Ali site, Iraq, during the winter agricultural season of 2022 – 2023. This study was designed to find out how rapeseed (Pactol-var) responded to different levels of potassium fertilization (0, 30, 60 and 90 kg ha⁻¹), which are represented by the symbol K₀, K₁, K₂ and K₃, respectively and was added when planting and spraying with three concentrations of humic acid (0, 4 and 8 g l⁻¹) which symbol H₀, H₁ and H₂, respectively, and added at elongation and branching stages. Experiment was applied according to randomized complete block design (R.C.B.D.) using split plot with three replications. Different concentration of humic acid were placed in main plot, while K levels was in secondary plots. The following characteristics were measured: plant height (PH), leaf area index (LAI), crop growth rate (CGR), net assimilation rate (NAR), and grain yield (Gy). The results obtained were as follows: The H₂ concentration was superior in terms of PH (193.5 cm), LAI (5.75), CGR (4.93 gm m⁻¹ day⁻¹), and GY (2.21 ton ha⁻¹), while the comparison treatment excelled and recorded the highest NAR, which amounted to 0.96 gm m⁻¹ day⁻¹. The concentration exceeded K₃ recording the highest PH=196.2cm, LAI=6.16, CGR=5.22 gm m⁻¹ day⁻¹, NAR=1.22 gm m⁻¹ day⁻¹, and Gy=2.19-ton ha⁻¹. The interaction between studied factors had a significant effect on all studied traits, and the combination of K₁ × H₂ and K₃ × H₁ recorded the largest GY, which was 2.517- and 2.520-ton ha⁻¹, respectively without a significant difference between them.

Keywords: Crop growth rate, Humic acid, Leaf area index, Net assimilation rate, Potassium.