

Effect of Ion Combination Variation on Physiological Characteristics in Two Genotypes of Canola (*Brassica napus L.*)

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Abstract

In order to study the effect of ion combination variation on physiological characteristics of two genotypes of canola (*Brassica napus L.*), a pot experiment was carried out. The experimental design was strip split plot in completely randomized design with three replications. The main factors included of three levels of salinity (control, 8 and 14 dS/m) and ion combination with two levels (NaCl & Na₂SO₄) and the second factor was genotype with two levels (Hayola 401 & RGS000). The measured parameters were fresh weight, LA, SPAD, stomata conductance, RWC and osmotic potential. Results showed that in genotype (Hayola 401 & RGS000), fresh weight, LA, stomata conductance, osmotic potential and RWC significantly decreased by increasing salinity. But by moving from the control level to 8 dS/m the SPAD value increased, while it decreased in 14 dS/m. In NaCl and Na₂SO₄ there was a significant effect to decrease fresh weight, LA and osmotic potential in both genotypes. Also the effect of ion combination on the SPAD value had no significant differences. The most significant effect to decrease the value of stomata conductance was showed by Na₂SO₄. The height fresh and the lowest fresh weight were 10.88 g/plant (in Hayola 401 in control treatment) and 3.60 g/plant (in 14 dS/m of NaCl treatment). The maximum leaf area showed in Hayola 401 (LA=41.2 cm²) in the control treatment and the minimum (LA=16 cm²) was in RGS000 genotype in 14 dS/m which was made by NaCl. Hayola 401 reached the highest stomata conductance (0.26 mol/m²/sec) in control treatment and RGS000 showed the minimum stomata conductance (0.06 mol/m²/sec) in 14 dS/m which was exposed by Na₂SO₄. Although leaf area, stomata conductance, osmotic potential and leaf relative water content were reduced in both genotypes by increasing salinity, this reduction was higher by NaCl.

Keywords: *Canola, Salinity Stress, Physiological Factors NaCl, Na₂SO₄*