Response of Bread Wheat to Abscisic Acid Under Water Stress

Abstract - Field experiments were carried out at the Field Crops Research Station of the Agricultural Research Office - Abu Ghraib, during Seasons of 2014-2015 and 2015-2016 to study the effect of four concentrations of abscisic acid (ABA) on some of the physiological characteristics of cultivar bread wheat (Booooth10) under water stress. The experiments were applied according to randomized complete block design (RCBD) by split plot arrangement with three replicates. Water treatments, which occupied the main plots, included four water irrigation quantities, which were irrigated when depletion 50%, 70% and 40% of available water, in addition to rainy treatment (germination irrigation + rainfed), while ABA seeds soaking concentration, which occupied the sub-plots, were 0, 0.25, 0.50 and 0.75 mg/Lt. The results showed superiority of 50% and 70% treatments in the grain yield character which gave 4.65, 4.82, 4.61 and 4.87 ton/ha for both seasons respectively, while rainy treatment has given higher of proline (5.13 and 7.39) micromole/g and peroxidase (45.77 and 49.14) absorption unit/g for both seasons respectively. Increasing of ABA concentration up to 0.75 mg/Lt lead to raise the relative water content (77.41 and 77.62%), ratio of soluble sugars (15.29 and 15.35)% and grain yield (3.61 and 3.92) ton/ha for both seasons respectively. We can conclude that there was a significant response for ABA concentrations under water stress to improve growth and yield wheat.

Keywords - *Triticum aestivum* L., tolerance, abiotic stress, ABA.