

EFFECT OF TRIVALENT IRON OXIDE NANOPARTICLES ON THE ACTIVITY OF ASCORBATE PEROXIDASE IN DURUM AND SOFT WHEAT SEEDLINGS

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The content of reactive oxygen species (ROS) in plant cells increases under stressful influences, therefore, the intensity of free radical oxidative processes should also increase. In response to an increase of ROS content, as a rule, the components of the plant antioxidant protection system (APS) are activated. In this regard, the paper considers the changes in the activity of ascorbate peroxidase, as one of the high molecular weight components of the plant antioxidant protection system, under the influence of trivalent iron oxide nanoparticles (NP) using two-week old seedlings of durum and soft wheat varieties. In the seedlings of the durum wheat under the influence of iron oxide NPs, slight (Gyrmyzy bugda) or sharp (Garagylchyg-2) increases, as well as decrease (Yagut), or no changes (Garabag) in the ascorbate peroxidase activity were observed. In the case of soft wheat varieties, under the influence of iron oxide NPs, an increase in the enzyme activity was observed in seedlings of Dagdash and Gobustan varieties, while a decrease in the ascorbate peroxidase activity occurred in seedlings of Sheki-1 and Mirbashir-128 varieties. The obtained results can serve as a basis for the selection of wheat varieties in order to create varieties more resistant to abiotic stressors.

Key words: antioxidants, ascorbate peroxidase, iron oxide nanoparticles, duru and soft wheat varieties.