

EFFECT OF NaCl ON PHYSIOLOGICAL CHARACTERISTICS OF WHEAT AND MAIZE GENOTYPES

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Salinity is one of the abiotic stress factors decreasing plant productivity. The salinization of soils over time is particularly dangerous. The limitation of agricultural and fertile lands is an obstacle to meeting the food requirements of the population. The purpose of the research was to study the effect of sodium chloride on the physiological and biochemical characteristics of wheat and maize genotypes, to identify varieties tolerant to salinity. The objects of the study were parental and hybrid wheat forms grown under normal and salinity (0,98% NaCl) conditions. The objects of the study were the genotypes of wheat Gobustan, Mirbashir-128, Barakatli-95, Garabagh, Gyrmyzygul, Sharg and their generation hybrids Garabagh×Gobustan, Gobustan×Barakatli-95, Gobustan×Gyrmyzygul, Barakatli-95×Gobustan, Gobustan×Garabagh, Garabagh×Mirbashir, Garabagh×Sharg. The object of research was also the genotypes of maize Zagatala-420, Zagatala-514, Zagatala-68, Gurur and first generation F₁ hybrid Zagatala-68×Gurur. To develop new, pure lines, salt tolerance of hybrids and parental forms was assessed based on physiological indices in the grain filling stage of the vegetation. When studying salt-tolerance of hybrids and parental forms, differences were detected in the relative amounts of chlorophyll (*a+b*), carotenoids, RWC, as well as the photochemical activity of chloroplasts. The effect of salt on the amount of chlorophyll *a*, chlorophyll *b*, and carotenoids, which are the main physiological indicators, is manifested in different ways in both hybrids and parental forms. Based on the changes in the amount of pigments under salinity, the parental forms Garabagh, Gobustan, and Sharg were more tolerant. One of the most useful indicators of wheat is grain yield. High salt concentrations contributed to a decrease in grain yield. Among the genotypes, according to this indicator, the most salt tolerant were the hybrids Barakatli-95×Gobustan and Garabagh×Mirbashir-128. At a salt concentration of 150 mM, the content of pigments and the activity of chloroplasts in the Zagatala-420 and Zagatala-514 genotypes decreased, while in the Gurur and Zagatala-68 varieties they remained at the control level. At a salt concentration of 200 mM, the activity of photosystem II of the Zagatala-420 and Zagatala-514 genotypes decreases to a greater extent than in the Gurur and Zagatala-68 varieties. The Gurur and Zagatala-68 varieties and the Gurur×Zagatala-68 hybrid were found to be resistant to a salt concentration of 200 mM.