IMPACT OF ABIOTIC STRESS FACTORS ON THE PERFORMANCE OF VIABILITY AND INITIAL DEVELOPMENT OF SOYBEAN (*GLYCINE SOYA* L.MERR) SEEDS

Kiet Huynh Anh, Ákos Tarnawa, Katalin M. Kassai, Zoltán Kende, Márton Jolánkai

Agronomy Institute, MATE Hungarian University of Agriculture and Life Sciences, Gödöllő

Abiotic stress factors may have adverse impact on the growth and development of crop plants. In a crop physiology experiment at the MATE University, Gödöllő, Hungary soybean seeds were exposed to various levels of temperature, salinity and water supply. Viability, initial growth of plumule and radicle were evaluated. The results obtained suggest that:Viability and early development of soybean plants depends on the optimum level of abiotic external factors like temperature, salinity and water availability.Soybean germination was proved to be best at 20 °C. Higher temperatures have obstructed germination processes. The lowest level of germination rate was observed at 30 °C temperature. Also, the higher the temperature the longer the germination period was observed.NaCl concentrations had diverse impact on viability, growth, and development. The elevation of salt concentration resulted in delay of germination as well as reduction in germination rate. 1 % NaCl solution applications were 24 h slower in germination in comparison with that of the 0 control. 1,5 % concentrations have never reached the level of the control and the germination rate remained on a significantly low level only.The most characteristic impacts were observed in the case of various water availability treatments. The three water supply treatments applied had similar germination rate records during the first two days, but in later stages the higher water doses resulted in lower germination rate compared to the smaller ones. The results suggest that water logging may deteriorate soybean germination activities and reduce the number of germinated seeds.