

Sorghum is a traditional crop, which has been grown especially in the countries of Africa and Asia. It is used as a food, fodder, source of fiber and energy. Because of its tolerance to various abiotic stresses, especially drought, sorghum is often called „the camel of crops“, and there are a lot of studies trying to clarify the basis of this tolerance. Nowadays, suitable sorghum genotypes are considered as an alternative in other parts of the world (North and Middle America, Europe) or to widen the planting areas. The first part of this thesis summarizes results of current studies aimed on sorghum physiological responses to drought, high salinity, extreme temperatures, aluminium toxicity and the combination of these stresses. The second part explains the ways how to alleviate effect of stresses on the plant. It includes the application of various compounds and genetic modifications.