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PHYSIOLOGICAL AND MORPHOLOGICAL EFFECTS OF SODIUM CHLORIDE, HIGH TEMPERATURE, LACK OF IRRIGATION AND FLOODING ON MAIZE AND COMMON BEAN PLANTLETS UNDER CONTROLLED CONDITIONS.

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RESUMEN. Adverse environmental conditions limit crop yield and better understanding of plant response to stress will assist the development of more tolerant cultivars. We are focused on maize and common bean performances under salinity, high temperature, drought and flooding conditions. The objective in this work was to investigate physiological and morphological mechanisms which could be useful for rapid identification of putative stress tolerant plants. The experiment consisted of five treatments with different concentrations of NaCl in the irrigation water: 0 (control), 200, 400, 600 and 800 mM. Heat stress treatments were applied by exposing the plantlets to 40ºC for 12 hours. Finally, to assess the effect of flooding the pots were immersed into 350 ml water for additional 10 days, and survival rates were determined every 24 hours during this period. Sap pH; plant fresh mass; stem weight, leaf weight and root weight ratios; and stoma characteristics were measured. Potential stress markers were identified.