ABSTRACT - PLANT PHYSIOLOGY

MORPHOLOGICAL DEVELOPMENT OF BRS CAATINGUEIRO MAIZE SEEDLINGS IRRIGATED WITH BRACKISH GROUNDWATER

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The Brazilian semiarid region is characterized by high temperatures and low rainfall depths, which promote the occurrence of water deficit and hinder agricultural activities in the region. An alternative to overcome this water shortage is the use of groundwater combined with the growth of short-cycle crops. Thus, the objective of this work was to evaluate the morphological development of maize seedlings of the variety BRS Caatingueiro grown under irrigation with brackish groundwater. The experiment was conducted under controlled environmental conditions, in a completely randomized design, with 7 treatments, consisting of irrigation solutions with different electrical conductivity (EC) levels (T1=0.00 - control; T2=2.00; T3=4.00; T4 =6.00; T5=8.00; T6=10.00; and T7=12.00 dS m-1), using four replications per treatment. The planting was carried out using one seed per 200-mL container, and 30 seeds

per replication, totaling 840 seeds. The plants were evaluated for number of leaves per plant; stem diameter; stem length; leaf, stem, and root fresh weights; leaf, stem, and root dry weights; root volume; and chlorophylls a and b. The general analysis showed that plants under EC up to 2.0 dS m-1 expressed the best results for leaf, stem, and root fresh weights, stem length, and number of leaves per plant. The control treatment resulted in better stem diameter than the other treatments. The regression analysis showed significant decreases in leaf, stem, and root dry weights as the EC was increased. Chlorophylls a and b presented the lowest values for plants under EC levels of 10 and 12 dS m-1. The maize seeds presented high resistance to salinity when starting the germination process, however, toxic effects on the morphological formation of seedlings were observed after emergence.