Development of sugarcane genotypes in water stress and under the influence of diazotrophic endophytic bacteria

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The aim of this study was to evaluate the physiological responses of genotypes (IAC) of sugarcane under water stress, and the involvement of diazotrophic endophytic bacteria in these responses and recovery to this stress. It was used IACSP 97-7065 and IACSP 94-2094, both of micropropagated origin, grown in a greenhouse. Half the plants received bacteria inoculum. The plants were divided into three treatments: control (sterile medium Dygs), inoculums I and II, each of them containing five isolated bacteria. After an acclimation period, 100 day plants were submitted to drought and subsequent recovery was performed with rehydration plants. Therefore, there were 12 treatments with 2 genotypes, 3 bacterial conditions and 2 water conditions (with and without water stress). It was measured height, water potential, stomatal conductance, photosynthesis, chlorophyll content, leaf area and dry matter. In acclimation, the plants showed similar results in all parameters measured. On maximum day of stress, the statistical differences were due to water treatment and not to the effect of bacterial treatment. Only the IACSP 94-2094 plants treated with inoculums II under water stress conditions had a larger area. In recovery, there was no statistical difference between treatments for any of the bacterial parameters. Considering experimental conditions in this study, the bacteria used did not influence development of sugarcane, and also did not help in the recovery of water stress.

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