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Phenotypic plasticity of *Anacardium occidentale* L. seedlings to salt stress based on physiological indicators

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Abstract

The study of the response to salt stress from physiological indicators in genotypes of *A. occidentale*, contributes to the knowledge of the adaptive mechanisms of this species to stressful conditions. The objective of this research was to analyse the phenotypic plasticity and the variation in indicators related to photosynthesis in two genotypes (red and yellow) of *A. occidentale* during the seedling phase under controlled glasshouse conditions. The effect of five salinity levels (0.02 dS.m⁻¹, 5 dS.m⁻¹, 10 dS.m⁻¹, 15 dS.m⁻¹ and 20 dS.m⁻¹) on characters associated with the photosynthesis, gas exchange and the content and fluorescence of chlorophyll. The reaction norms was graphed and the phenotypic plasticity in response to salt stress of the evaluated indicators was calculated. The red variety showed the greatest effects due to saline stress in the indicators photosynthetic rate, transpiration, substomatal CO₂, Fm, Fv, Fv/Fm, Fv/fo and Pi abs. The reaction norms generally showed a sharp drop in the indicators compared to 5 dS.m⁻¹ and more stable in the rest of the salinity levels. The significant differences found in terms of phenotypic plasticity showed higher values in the red variety in most of the indicators evaluated. The negative effect of salinity in the seedling stage on indicators related to photosynthesis, gas exchange, content and fluorescence of chlorophyll was found, as well as the significant differences in terms of the indicators evaluated and the levels of phenotypic plasticity of the same between varieties. Photosynthesis, chlorophyll content and stomatal conductance were the indicators that showed the highest values of phenotypic plasticity.

Keywords: Cashew, plasticity, salinity