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Effect of Salinity on Chlorophyll Fluorescence and Chlorophyll Content of the Desert Shrub *Calotropis procera*

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Abstract: The effect of salinity stress on the efficiency of the photosynthetic apparatus in the desert shrub *Calotropis procera* Aiton (family: Asclepiadaceae) was investigated using chlorophyll fluorescence technique. This technique allowed the determination of a number of chlorophyll fluorescence parameters such as initial fluorescence Fo, maximum fluorescence Fm and variable fluorescence Fv. Furthermore, the effect of salinity stress on other chlorophyll fluorescence parameters (Fv / Fo and Fv / Fm ratios) characterising the functional state of the photosystem PS II in dark-adapted leaves were also determined. No effect on any of the fluorescence parameters or ratios was observed indicating that *C. procera* plant species was highly tolerant to salinity stress. Chlorophyll content expressed as chlorophyll index was also determined showing an increase at high salinity level (300 mMol NaCl). The correlations between chlorophyll content and the different fluorescence parameters were discussed as well as the reliability of the use of chlorophyll fluorescence technique to study salinity stress in plants.

Keywords: *salinity stress, salinity tolerance, chlorophyll fluorescence, Chlorophyll Index, Photosystem PS II, Calotropis procera.*

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