

ULTRASTRUCTURAL CHARACTERIZATION OF KRANZ SYNDROME IN TWO *GOMPHRENA* SPECIES (AMARANTHACEAE)

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Caryophyllales comprises nine families where C₄ photosynthesis occurs, what means that it is the principal C₄ group among Eudicotyledons. Caryophyllales exhibits a wide variety of C₄ syndromes as a result of different combinations among structure, ultrastructure and biochemical characters. It is known that the structure of mesophyll and Kranz sheath chloroplasts can provide information about C₄ photosynthesis type. In this work, Kranz syndrome of *Gomphrena arborescens* L.f. and *G. scapigera* Mart. (Amaranthaceae) is characterized at the ultrastructural level. Samples of mature leaves, collected in Diamantina (Minas Gerais, Brazil), were fixed in Karnovsky solution in phosphate buffer, and post-fixed in OsO₄ in the same buffer. Dehydration was carried out with acetone series, before embedding in Spurr resin. Ultra-thin sections were obtained using an ultramicrotome. They were contrasted with aqueous uranyl acetate and lead citrate, and analyzed by transmission electron microscopy. In both species bundle sheath chloroplasts lack well developed grana, and mesophyll chloroplasts have well developed ones. This chloroplast dimorphism suggests NADP-ME C₄ photosynthesis which agrees with the results obtained by biochemical analysis in *G. celosioides* Mart. and *G. globosa* L., the only *Gomphrena* L. species from which C₄ photosynthesis has been studied at the biochemical level.