

A Characteristic C-4 Kranz Type in *Portulaca* Species

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Foliage shapes and sizes of *Portulaca* showed clear distinction of species in groups A and B. Broad obovate leaves were confined to only group A and linear to lanceolate leaves were in group B. Typical C-4 Kranz type was found in species of group A. All veins were completely surrounded by two concentric chlorenchymatous layers, bundle sheath and mesophyll cells. On the other hand, species in group B showed modified C-4 Kranz type having mesophyll cells only in the subepidermal areas. The central bundle in leaves of group B were not associated with either of the above cell type but only with the large water cells. In group A, most of the large water cells were located between the epidermis and the vascular bundles, whereas in group B they were mostly internal to the peripheral bundles. These water storage cells were proposed as a possible site for internally released CO₂ fixation at night in these *Portulaca*, possibly implying they might perform a facultative Crassulacean acid metabolism. The organization of bundle sheath and mesophyll cells around minor veins were mainly studied with emphasis upon various cellular features. Structural dimorphism was found in broad leaved group, but only size differences were noticed in lanceolated group. This will be further discussed with other structural features such as seed testa and pollen morphology among taxa.