

Karyotype and pollen features on the endemic species *Calydorea crocoides* Ravenna (Iridaceae)

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Abstract/Resumo

Calydorea crocoides is distributed predominantly in Southern Brazil, occurring in a restricted area at altitudes ranging from 800 to 1500 m. The species is in the red list of threatened species of the International Union for Conservation of Nature (IUCN), however conservation measures specifically are unknown. Although cytogenetic data provide useful information for species characterization in Iridaceae, scarce cytological data are available for this species. In the present work, populations of *C. crocoides* from Southern Brazil were characterized from the point of view of chromosome number and morphology, number and position of heterochromatic CMA/DAPI bands, as well as of pollen morphology and viability. Mitotic analyses were performed with plants from five populations. All accessions have basic chromosome number $x = 7$. Although polyploid species are known for the genus, only diploid individuals ($2n = 2x = 14$) were found for all populations. The karyotype is reasonably bimodal in which two pairs of chromosomes are large and five are progressively smaller. The haploid karyotype formula is $5m (1sat) + 2sm$. *Calydorea crocoides* is rather low asymmetric (Stebbins' category 2A) contrasting with other species of Tigridieae. Heteromorphism was observed in the chromosome pair I with a significant difference of total length between homologues. CMA/DAPI chromosome banding of *C. crocoides* was evaluated for the first time. All pairs of chromosomes presented pericentromeric regions with AT-rich DNA (CMA⁰/DAPI⁺). CMA⁺ bands were on the short arm of both chromosomes of pair VII. One population presented heterozygosity in this pair, indicating a pericentric inversion. Regarding the pollen grains stainability, all populations showed values above 90%, indicating regular meiotic behavior. Two types of pollen grains were found: prolate spheroidal and oblate spheroidal. Our cytological data showed that *C. crocoides* is a diploid species and, differently of most species of its tribe, did not experienced polyploidy or dysploidy events. We emphasize here the high viability pollen grains in *C. crocoides* indicating a potential sexual reproduction that could help its maintenance in natural fields. This data coupled to genetic variability study ongoing by our team may provide important information for conservation measures of this species.

Keyword/Palavras-chave: Chromosome measures; CMA/DAPI banding; Pollen viability

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