

Chromosome mapping of rDNA sites in "*Zygopetalum maculatum*" (Orchidaceae) polyploid complex

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Abstract/Resumo

The "*Zygopetalum maculatum*" complex (Orchidaceae) comprises species with similar morphological characters making difficult their taxonomic delimitation. Cytogenetic data has been widely used as an additional information to the taxonomy of several plant genus. *Zygopetalum* was recently described as a polyploid genus with $2n=48$; $2n=72$ and $2n=96$ chromosomes. Here, we investigated the karyotype of "*Z. maculatum*", which mainly occurs in "Campo ruspestre" and "Campos de altitude" environments. The objective was to contribute for the understanding of cytoevolutionary events and speciation mechanisms in the genus *Zygopetalum*, also contributing to the taxomomy of the group. We investigated individuals with 48 chromosomes from the Corico, Pico do Itambé, Pico do Garrafão and Cotia populations. The individuals with 72 chromosomes were collected at Pico do Itambé and Serra do Cipó. Individuals with 96 chromosomes, were sampled at Finas, Parque Estadual do Ibitipoca and Bocaina. Individuals with 48 chromosomes showed 5S rDNA sites in four chromosomes, being two signals at the subterminal position. The 45S rDNA sites were also identified on four chromosomes at the terminal positions. Individuals with $2n=72$ revealed six chromosomes labeled with 5S rDNA, being three of them subterminal. Six terminal 45S rDNA sites were identified on six chromosomes. Finally, in individuals with 96 chromosomes, four out of eight labeled chromosomes with 5S rDNA showed signal at subterminal regions. Considering 45S rDNA, eight sites were also detected, all of them at terminal regions. Taking all data, the number of 5S and 45S chromosome sites increased proportionally as the chromosome number increased, being exactly equal to the number of sites expected for each cytotype, considering $2n=48$ individuals as the reference. The results suggest that polyploidization events has to be considered to understand the diversification and speciation in the "*Zygopetalum maculatum*" complex, helping to explain the morphological pattern observed within the group.

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