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Repetitive DNA families are shared between a and B chromosomes in *Cestrum*

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Abstract/Resumo

Plant genomes are variable in the accumulation and distribution of repetitive DNA families. Species of *Cestrum* show large diversity of repetitive DNA families, and B chromosomes have been described in seven species. Different DNA families have been identified in *Cestrum*, such as AT-rich SSR, 45S and 5S rDNA, C-Giemsa and C-CMA/DAPI bands and retrotransposons. To understand the relationships between B and A chromosomes of *Cestrum*, the B of *C. strigilatum* was microdissected, amplified, and fragments were used to produce a small library. Sequences showed the occurrence of stretches of SSR, minisats and LTR-RTs. The probe of B was hybridized *in situ* against chromosomes of eight *Cestrum* species. FISH signals were observed in the Bs of *C. strigilatum* and *C. intermedium*, besides stretches of A chromosomes of all species tested. Species showed hybridization signals in different positions, such as: i) signals adjacent to C-DAPI bands, ii) lightly dispersed signals throughout the chromosomes, and iii) an intense hybridization signals associated with 5S rDNA sites, in the proximal region of long arm of pair 8. Due to the strong FISH signal associated with 5S rDNA region of A chromosomes of all species, we search for 5S rDNA stretches in the microdissected B chromosome using PCR and Sanger sequencing. Data showed a possible degradation of 5S rDNA in the evolutionary pathways of the Bs. Although A and B chromosomes displayed redundancy in the repetitive DNA families in different species, the Bs of both *C. strigilatum* and *C. intermedium* seemed to differ from those of other species by the loss of rDNA fractions. These data indicate a common origin of Bs in *Cestrum*.

Keyword/Palavras-chave: FISH; Karyotypes; Microdissection; rDNA; Solanaceae; Supernumerary chromosomes

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