

研究报告

45S rDNA和5S rDNA在南瓜、丝瓜和冬瓜染色体上的比较定位

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摘要

首次利用荧光原位杂交和双色荧光原位杂交技术对45S和5S rDNA在南瓜 (*Cucurbita moschata* Duch)、丝瓜 (*Luffa cylindrica* Roem)、冬瓜 (*Benincasa hispida* Cogn) 的有丝分裂中期染色体上进行了物理定位分析。南瓜有5对45S rDNA位点, 2对5S rDNA位点; 丝瓜具有5对45S rDNA位点, 1对5S rDNA位点; 冬瓜具有2对45S rDNA位点, 1对5S rDNA位点, 5S rDNA位点与其中一对45S rDNA位点都位于7号染色体短臂上, 并在物理位置上紧密相邻。45S rDNA在这3种作物染色体上数目变化较大, 但在染色体上都倾向分布在短臂末端, 其分布模式较为一致。5S rDNA在这3种作物染色体上数目相对保守, 但在染色体上分布的位置变化较大。文中讨论了45S rDNA和5S rDNA在植物基因组中不同的进化趋势。

关键词 [葫芦科](#) [荧光原位杂交](#) [rDNA](#) [核型进化](#)

分类号

Comparative analysis of rDNA distribution in metaphase chromosomes of Cucurbitaceae species

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Abstract

<P>Fluorescence in situ hybridization (FISH) and double FISH experiments were carried out to ascertain the chromosomal distribution patterns of the 45S and 5S ribosomal DNAs in the three species of Cucurbitaceae. Five pairs of 45S rDNA loci and two pairs of 5S rDNA signals were detected on chromosomes of *Cucurbita moschata* Duch. *Luffa cylindrical* Roem. contained five pairs of 45S rDNA loci and one pair of 5S rDNA loci. In *Benincasa hispida* Cogn., two pairs of 45S rDNA sites and one pair of 5S rDNA site were detected. In this species, 5S rDNA and one pair of the 45S loci were collocated closely in chromosome 7S. 45S rDNA chromosomal distribution patterns were highly conserved among the three species, although their number varied markedly. The 5S rDNA sites on chromosomes among the three species were highly polymorphic. We further discussed differentially evolutionary processes of 45S and 5S rDNA in plant genomes.</P>

Key words [Cucurbitaceae](#) [fluorescence in situ hybridization](#) [rDNA](#) [karyotype evolution](#)

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