

Elymus与普通小麦属间杂种的细胞遗传学研究

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摘要 本研究以Elymus pendulinus (Nevski) Tzvelev (2n=4x=28, SSYY)、E. shandongensis B. Salomon (2n=4x=28, SSYY)与普通小麦(Triticum aestivum L.; 2n=6x=42, AABBDD)进行了属间远缘杂交。通过对杂种胚的离体培养,两个组合均产生了杂种F1植株。杂种F1为多年生,植株生长旺盛;形态上介于亲本种之间而兼具双亲的某些特征;穗状花序发育正常,但均完全不育。两个组合的根尖和花粉母细胞染色体数目为2n=5x=35。通过对杂种减数分裂染色体配对行为的分析,发现其MI染色体的配对水平很低,二价体均为棒状,每细胞的平均染色体交叉数在0.25—0.31之间。这表明E. pendulinus和E. shandongensis所含的SY染色体组与普通小麦的ABD染色体组之间的同源程度很低。由于在E. shandongensis及其它具SY染色体组的Elymus单倍体中,SY染色体组之间的部份同源染色体配对数均明显高于该杂种中的配对数,这表明存在于普通小麦中的Ph基因及其它具类似作用的基因系统能抑制SY染色体组之间的部份同源染色体配对。

关键词 [属间杂交](#),[Elymus pendulinus](#),[E. shandongensis](#),[普通小麦](#),[染色体组](#),[减数分裂](#)

分类号

Cytogenetic Studies of Intergeneric Hybrids Between Elymus and Triticum aestivum L.

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Abstract

Intergeneric hybridizations were performed between Elymus pendulinus (Nevski) Tzvelerr (2n=4x=28, SSYY), E. shandongensis B. Salomon (2n=4x=28, SSYY) and Triticum aestivum L. (2n=6x=42, AABBDD) with the help of embryo culture technique. The yield of hybrid embryos and recovery of hybrid plants were comparatively low. The intergeneric hybrid plants were perennial, vegetatively vigorous and orphologically intermediate between their parental species. Chromosome number were invariably 2n=5x=35 in both root tip and pollen mother cells. Meiotic pairing at metaphase-I was extremely low with, only rod bivalents, and an average of 0.25--0.31 chiasmata per cell in addition to a few loose end-to-end and side-by-side associations in the two combinations. The hybrids were completely sterile. The result indicates that the SY-genomes of E. pendulinus and E. shandongensis are not closely related to the ABD-genomes of T. aestivum.

Key words [Intergeneric hybridization](#) [Elymus pendulinus](#) [E. shandongensis](#) [Triticum aestivum](#) [Genome](#) [Meiosis](#)

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