

普通小麦与冰草间杂种的细胞遗传学及其自交可育性

李立会, 董玉琛, 周荣华, 李秀全, 李培

中国农业科学院作物品种资源研究所; 北京 100081

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摘要 为了进一步研究冰草属 (*Agropyron Gaertn.*) 的P染色体组与小麦染色体组间的遗传关系和评价P染色体组在属间杂种自交可育性上的遗传效应, 获得了普通小麦品种Fukuho(*Triticum aestivum cv. Fukuho*, 2n=42; AAB BDD) 与3个不同来源的四倍体冰草 (*A. cristatum Gaertn.*, 2n=28; PPPP) 间的杂种 (2n=35; ABDPP)。结果表明: (1) 不同组合的杂种间在遗传基础上差异明显, 同一组合不同杂种间亦有差异; (2) 冰草Z559可能不存在抑制小麦ph基因效应的遗传系统, 但与小麦染色体组间可能存在部分同源性; (3) 生长正常的 Fukuho×冰草Z559的杂种具部分自交可育性和明显的异花授粉结实特性, 而且这些可育性很可能是由p染色体组中控制染色体在减数分裂后期分离的特殊遗传因子决定的; (4) 冰草属的多倍体并非严格的同源多倍体。本实验还证实了通过幼穗培养产生再生植株, 可以使属间杂种的育性显著提高。

关键词 [普通小麦](#) [冰草](#) [属间杂种](#) [染色体配对](#) [自交可育性](#) [再生植株](#)

分类号

Cytogenetics and Self-fertility of Hybrids Between *Triticum aestivum* L. and *Agropyron cristatum*(L.)Gaertn

Li Lihui, Dong Yuchen, Zhou Ronghua, Li Xiouquan, Li Pei

(Institute of Crop Germplasm Resources, CAAS Beijing 100081)

Abstract

To further investigate genomic relationships between *Agropyron* and *Triticum*, and to evaluate genetic effects of the P genome on self-fertility in intergeneric hybrids, the hybrids of *T. aestivum cv. Fukuho* (2n=6x=42; AABBDD) with three accessions of tetraploid *A. cristatum*(L.) Gaertn. (2n=4x=28; PPPP) were obtained. Results indicated that: (1) Genetic basis differed markedly among hybrids from the various combinations, so did relatively among hybrids in the same combination; (2) *A. cristatum* Z559 used in this experiment could not contain a genetic system to switch off Ph suppressor of wheat, but homoeology may exist between the P genome and the wheat genomes; (3) The hybrids growing normally of Fukuho×*A. cristatum* Z559 were partially self-fertile, with a character of crossing reproduction. The fertility was possibly determined by a special genetic factor controlling chromosome segregation at meiotic anaphase in the P genome; (4) The type of polyploid in *Agropyron* was not strictly autopolyploid. It was further verified that fertility of the intergeneric hybrids could be increased greatly through plants regenerated from immature in florescence cultures.

Key words [Triticum aestivum L.](#) [Agropyron cristatum\(L.\)Gaertn.](#) [Intergeneric hybrids](#) [Chromosome pairing](#) [Self-fertility](#) [Regenerated plants](#)

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