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粘类小麦CMS育性基因分布区研究

Studies on Distribution of Fertility Genes for Male Sterile Lines with *Aegilops* Cytoplasm in Wheat

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中文关键词: 小麦 粘类CMS 育性基因 分布区

英文关键词: *Wheat* male sterile lines with *Aegilops* cytoplasm Fertility gene Distribution

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中文摘要:

为更有效地选育小麦不育系的高恢复系,以8个粘类小麦细胞质雄性不育系(Cytoplasmic male sterility, CMS)为测验种,对310份来自国内外不同地区的普通小麦品种及亲本材料对粘类小麦CMS系的育性恢保关系进行调查,并采用聚类分析法研究了粘类小麦CMS育性基因的地区分布。结果表明:(1)高恢复能力的品种在中国春麦区和南方冬麦区的分布比例均超过50%,具有保持性的品种在加拿大分布最多,我国北方冬麦区次之,春麦区分布最少。(2)不同地区品种恢复度存在差异。(3)将48个普通品种聚为3类:第1类品种对粘类CMS的平均恢复度均低于20%,属全不育和高不育类型;第2类品种的平均恢复度在20%~55%范围内,基本属于半不育类型;第3类品种的平均恢复度均大于55%,属高可育和全可育类型。(4)对不育系进行聚类:90 110核背景下,K型和V型聚为一类,Ven型和B型聚为一类,224核型下V型和B型聚为一类,再和K型聚为一类,与Ven型距离最远;相同细胞质背景下,90 110和224两种核型分别在一定水平上被分为2个类别。

英文摘要:

In order to breed or selection restorer lines with high restoring ability to male sterile line in wheat effectively, 8 male sterile lines in wheat with *Ae.kotschyi*, *Ae.variabilis*, *Ae.ventricosa* and *Ae.bicornis* cytoplasm were crossed to 310 wheat varieties from different regions, the restoring property of F₁ had been tested and the distribution of fertility genes were studied as well by using clustering methods. The results showed: (1)The restoring gene from every wheat ecological region varies in proportion. The high fertile varieties were beyond 50% in Chinese Spring Wheat Region and Southern Winter Wheat Region. And the varieties with maintenance ability were most in Canada and Northern Winter Wheat Region and were least in Spring Wheat Region. (2)The restoring abilities of different wheat varieties differed among regions. (3)Clustering results for the restoration ability of 48 wheat varieties showed that they were subdivided into 3 groups. In group I, all varieties were complete sterile or high sterile, and the average seed set were less than 20%. In group II, most varieties were half sterile, and the average seed set varied from 20% to 55%. In group III, the varieties were high fertile or complete fertile and the average seed set were more than 55%. (4)Clustering results for male sterile lines showed that K type and V type were included into the same group, while Ven type and B type into another group with 90 110 nucleus. V type and B type were clustered into the same group firstly, then K type and Ven type with 224 nucleus. Under the same cytoplasm, nucleus 90 110 and 224 were categorized into different groups.

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