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HMW GS分子标记多重PCR体系的建立及新疆春小麦的检测

Establishment of Multiplex PCR based on Molecular Markers for HMW GS and Identification of Xinjiang Spring Wheat

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中文关键词: 小麦 高分子量谷蛋白亚基 多重PCR

英文关键词: Wheat High molecular weight glutenin subunit Multiplex PCR

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中文摘要:

为给新疆优质春小麦品种选育提供参考依据，利用小麦优质高分子量谷蛋白亚基（HMW GS）基因的特异性标记，基于17份已知HMW GS组成的品种（系），构建了3套多重PCR，体系Ⅰ可用于同时检测*AxNull*和 *Dx5*基因，体系Ⅱ可同时检测 *Ax2**和 *By8*基因，体系Ⅲ可同时检测 *Bx14*和 *Dx5*基因；用3套多重PCR体系分别检测17份小麦品种，其结果与SDS PAGE检测结果完全一致，表明建立的3套多重PCR体系稳定可靠，可用于小麦品种优质HMW GS基因聚合育种。利用此体系对85份新疆春小麦品种进行分析表明，*AxNull*和*Ax1*的频率均为24.7%， *Ax2**为50.6%， *By8*为48.2%， *Bx14*（+ *By15*）为0%， *Dx5*（+Dy10）为34.1%。

英文摘要:

High molecular weight glutenin subunits (HMW GS) are highly correlated with the processing quality of common wheat, therefore, the establishment and use of their multiplex PCR systems are of great importance in selection of quality characteristic of wheat. According to the genes coding for good quality HMW GS, three types of multiplex PCR were established and validated on 17 Chinese wheat cultivars and advanced lines with known HMW GS composition. The first multiplex PCR was used to simultaneously detect genes *AxNull* and *Dx5*, the second one was to detect the genes *Ax2** and *By8*, and the third one was to detect *Bx14* and *Dx5*. Those multiplex PCR were used to detect HMW GS genes from Xinjiang spring wheat cultivars. The frequencies of genes *AxNull*, *Ax1*, *Ax2**, *By8* and *Dx5*（+*Dy10*）in 85 Xinjiang spring wheat cultivars were 24.7%, 24.7%, 50.6%, 48.2% and 34.1%, respectively. In addition, the gene *Bx14*（+ *By15*）was not detected in this study. The results are very important in understanding the genetic basis of HMW GS composition and promotion of high quality wheat cultivars in Xinjiang region.

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