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陈亮,张娜,胡银岗.小麦光周期基因 *Ppd D1* 的单核苷酸多态性[J].麦类作物学报,2011,31(1):15-20

小麦光周期基因 *Ppd D1* 的单核苷酸多态性 Ecotilling Detection of SNP in Photoperiod Related Gene *Ppd D1* of Wheat

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英文关键词: [Wheat](#) [Photoperiod related gene](#) [Ppd D1](#) [Single nucleotide polymorphism\(SNP\)](#)

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中文摘要:

为了解小麦光周期基因 *Ppd D1* 编码区单核苷酸多态性 (Single Nucleotide Polymorphism, SNP), 采用琼脂糖凝胶电泳Ecotilling技术, 对108份小麦品种中光周期基因 *Ppd D1* 的核心编码区进行了SNP检测。结果表明, 红芒麦、宁春27和红芒麦2具有相同的酶切带型, 其目的序列与对照相比存在两处单碱基突变(C/T; G/A); 坝农1号、定西35、QW6285等7份材料具有相同的酶切带型, 其序列与对照相比含有一个5 bp的缺失。初步分析表明, 这三处SNP与小麦光周期敏感性没有直接的对应关系, 但它们对小麦光周期敏感性产生了强度上的影响, 加强了材料对光照长度的敏感性, 一定程度上延迟了抽穗。本研究结果也说明琼脂糖凝胶电泳Ecotilling技术在小麦 *Ppd D1* 基因SNP检测中具有良好的可行性。

英文摘要:

In order to find the SNP(Single Nucleotide Polymorphism) in the coding region of photoperiod gene *Ppd D1* of wheat, and to optimize the Ecotilling system based on agarose gel detection, the SNPs in the key coding region of photoperiod gene *Ppd D1* of 108 wheat varieties were screened with the established agarose gel Ecotilling technique. The results showed that the same digestion patterns were observed in varieties of Hongmangmai, Hongmangmai2 and Ningchun27, and two SNPs (C/T; G/A) in the target region were then confirmed by compare with the control. The same digestion patterns were also observed in varieties of Banong1, Dingxi35, QW6285 and other four materials, sequencing analysis confirmed there was a 5bp deletion in their target region while compared with the control. Further analysis showed there was no direct correlation between the SNPs in *Ppd D1* revealed here with the photoperiod response of wheat, but some variation on the heading date and enhanced the sensitive of daylight were observed.

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