研究论文

SSR荧光标记和银染技术的比较分析

郝晨阳,王兰芬,贾继增,董玉琛,张学勇

中国农业科学院作物品种资源研究所，农业部作物品种资源与生物技术重点实验室，北京 100081

摘要　　应用多重PCR简单重复序列（SSR）荧光标记分析技术和常规的SSR银染技术，对北方冬麦区451份材料（中国小麦初选核心种质的一部分）进行分析，用相同材料和引物，对这两种方法的检测效果进行评价。用24对引物扩增，银染法共检测出235个等位变异，每个位点检测到的等位变异为3～20，平均为9.8个，多态性信息指数PIC为0.22～0.93，平均0.74；而荧光标记可检测到312个等位变异，每个位点检测到的等位变异为4～24，平均为13.0个，PIC为0.32～0.97，平均0.75。荧光技术较银染方法在每个位点上多检测到3个等位变异，检测效果更为理想，更适于进行遗传多样性分析和研究；对两种方法的费用和工作效率做了初步分析，表明完成5 000×78个反应在费用基本持平的情况下，微卫星荧光标记技术的检测效率显著高于银染法（7.8倍）。同时对微卫星荧光标记技术中低成本、高通量多重PCR体系的建立及Genescan 3.7、Genotyper 3.7软件数据分析中出现的一些具体问题进行了探讨。

关键词　　小麦　微卫星标记　荧光PCR　微卫星　基因组扫描

分类号　S512，Q78

Comparison of Fluorescence and Silver-staining Detection Systems of Microsatellite Markers

HAO Chen-Yang,WANG Lan-Fen,JIA Ji-Zeng,DONG Yu-Shen,ZHANG Xue-Yong

Key Laboratory of Crop Germplasm and Biotechnology, Ministry of Agriculture, Institute of Crop Germplasm Resources, Chinese Academy of Agricultural Sciences, Beijing 100081

Abstract Four-hundred and fifty-one wheat cultivars from Northern Winter Wheat Region were analyzed by fluorescence based genescan with multiple PCR microsatellite markers and SSR marker technology based on silver staining. In the same cultivars and the same set of SSR primers, the detection efficiency of the two systems was compared. At 24 loci among 451 accessions, total 235 alleles were obtained and average 9.8 alleles (from 3 to 20) were detected for every pairs of primers with silver staining system. However, average 13.0 alleles were detected by fluorescent system. Three more alleles were detected averagely by fluorescent system than silver-staining at one locus. With almost equal cost, the efficiency of fluorescent system was 7.8 times of silver staining system without consideration of instrument investment. Some other strategies, such as building low-cost and high-throughout multiple PCR system and data analysis using Genescan and Genotyper procedure were also discussed.

Key words　Wheat　Microsatellite　Fluorescence-PCR　Genome scan

DOI:

通讯作者　张学勇 xueyongz@mail.caas.net.cn

扩展功能

本文信息
- Supporting info
- PDF(208KB)
- [HTML全文](0KB)
- 参考文献

服务与反馈
- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 复制索引
- Email Alert
- 文章反馈
- 浏览反馈信息

相关信息
- 本刊中 包含"小麦"的 相关文章

本文作者相关文章
- 郝晨阳
- 王兰芬
- 贾继增
- 董玉琛
- 张学勇