



利用SSCP技术分析棉花纤维差异表达的基因

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Analysis of SSCP for Cotton Differentially Expressed Genes Related to Fiber Development

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摘要

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摘要 单链构象多态性(Single strand conformation polymorphism,SSCP)技术是一种简便、灵敏的多态性检测方法,可以检测出在非变性聚丙烯酰胺凝胶电泳中因构象差异而导致的单链DNA片段迁移率的不同。本研究根据棉花基因芯片筛选的纤维发育中差异表达基因设计了162对引物,利用SSCP技术在4个陆地棉品种、4个海岛棉品种中进行多态性检测。结果表明,在162对引物中,146对引物经PCR扩增后在1.5%的聚丙烯酰胺凝胶电泳中检测出现清晰、明亮的带。经过SSCP分析,54对引物在陆地棉之间产生多态性,共出现116个多态性位点;45对引物在海岛棉之间产生多态性,共出现111个多态性位点;79对引物在陆地棉和海岛棉之间产生多态性,共出现260个多态性位点;36对引物在陆地棉之间、海岛棉之间同时出现多态性。进一步聚类分析后表明,海岛棉和陆地棉分别聚在了一起。

关键词: 陆地棉 海岛棉 单链构象多态性(SSCP) 多态性 聚类分析

Abstract: Single-strand conformation polymorphism(SSCP) is an easy and sensitive technique that detects mobility shifts of single stranded DNA fragments due to conformational differences using non-denaturing polyacrylamide gel electrophoresis. A total of 162 primer pairs were designed for genes that were differentially expressed among cotton interspecific introgression lines for yield and fiber quality traits. Eight genotypes were selected from the cultivated tetraploid cotton including four genotypes of *G. hirsutum* and four of *G. barbadense*. A total of 146 primer pairs amplified a clear, strong and single band each from the genomic DNA when assayed by 1.5% agarose gels. Using the SSCP analysis, 54 primer pairs yielded 116 polymorphic loci among the four genotypes of *G. hirsutum*, while 45 pairs yielded 111 polymorphic loci among the four genotypes of *G. barbadense*. The SSCP polymorphism was much higher between the two species where a total of 79 pairs produced 260 polymorphic markers. Meanwhile, 36 pairs yielded polymorphism between *G. barbadense* and *G. hirsutum*. The polymorphic SSCP markers grouped the eight genotypes into two species groups(*G. barbadense* and *G. hirsutum*), as expected. The results showed that SSCP technique can detect high polymorphism in cultivated tetraploid cotton.

Keywords: *G. hirsutum* L. *G. barbadense* L. single strand conformation polymorphism(SSCP) polymorphism cluster analysis

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