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DNA芯片技术用于贝母的基因分型和种类鉴别

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摘要:

目的通过对贝母几个种遗传多态性的研究来开发在分子水平上用于鉴别贝母基因型及不同种类的DNA芯片技术。方 ▶把本文推荐给朋友 法用PCR扩增法和DNA直接测序法确定核苷酸多态性,用DNA芯片进行基因检测。结果首先提取来自多种贝母根茎 的基因组DNA,对26S rDNA基因D2与D3区的多态性片段进行扩增和测序,然后将不同种属多态性片段的特异性寡核 苷探针点置于经多聚赖氨酸处理包被的芯片。用来自不同种贝母的荧光素标记的PCR产物与DNA芯片进行杂交,可 在芯片特定位置检测到不同种贝母的荧光信号。结论本研究显示DNA芯片技术可为植物种属的验证与质量控制提供 一种快速、高通量的检测工具。

关键词: DNA芯片 基因型检测 贝母 种类鉴别

Acta Pharmaceutica Sinica 2003,38(3):185-190Genotyping and species identification of Fritillaria by DNA chips

TSOI Pui-yan; WOO Hok-sin; WONG Man-sau; CHEN Shi-lin; FONG Wan-fung; XIAO PeigenYANG Meng-su

Abstract:

AimTo investigate the genetic polymorphism of several species of Fritillaria and to develop a DNA chip for the genotyping and identification of the origin of various species of Fritillaria at molecular level. MethodsGenomic DNA from bulbs of several Fritillaria species was extracted and the polymorphisms of the D2 and D3 regions inside the 26S rDNA gene were identified by direct sequencing. Oligonucleotide probes specific for these polymorphisms were designed and printed on the poly-lysine coated slides to prepare the DNA chip. PCR products from the Fritillaria species were labeled with fluorescence by incorporation of dye-labeled dideoxyribonucleotides and hybridized to the immobilized probes on the chip. ResultsThe polymorphisms were used as markers for discrimination among various species. Specific oligonucleotide probes were designed and immobilized on a DNA chip. Differentiation of the various Fritillaria species was accomplished based on hybridization of fluorescent labeled PCR products with the DNA chip. ConclusionThe results demonstrated the reliability of using DNA chips to identify different species of Fritillaria, and the DNA chip technology can provide a rapid, high throughput tool for genotyping and quality assurance of the plant species verification.

Keywords: genotyping Fritillaria species identification DNA chip

收稿日期 2002-03-22 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者: XIAO Pei-gen, YANG Meng-su

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