

农学—研究报告

块根淀粉磷差异木薯种质资源的RAPD遗传背景研究

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摘要:

通过RAPD遗传背景研究方法, 从分子水平对木薯块根淀粉磷差异种质资源进行分析, 为木薯块根淀粉高磷品种的选育打下基础。以国家木薯种质圃筛选出的30个块根淀粉磷差异木薯品种为材料, 采用改良CTAB法提取DNA, 通过18条RAPD引物对材料进行PCR扩增, 利用NTSYS软件对扩增结果进行了遗传关系分析。结果表明: 采用改良的CTAB法提取的DNA可以用于RAPD分析; 利用18条RAPD引物扩增共得出条带131条, 其中多态性条带126条, 多态性百分率为96.2%; 其中没有发现与磷含量相关的特异性条带, 块根淀粉磷含量相近的木薯品种间不能明显聚类; 30个品种间的遗传相似性系数GS大于0.71。通过对RAPD结果进行分析, 未发现块根淀粉磷含量差异的木薯品种间存在明显的遗传关系, 也未发现与磷元素差异相关的特异基因。

关键词: 遗传背景

The Genetic Background Research on RAPD of Cassava with Different Root Starch Phosphorylase Contents

Abstract:

To analyze cassava resource with different phosphorus contents in root starch by using the RAPD genetic background research method from the molecular level, which would lay foundation for the cassava breeding with high phosphorus in root starch. We chose 30 selected cassava varieties with different phosphorus in root starch as the material, which were from the cassava germplasm nursery in the Tropical Crops Genetic Resources Institute of Chinese Academy of Tropical Agriculture. The improved CTAB method was used to extract DNA, and then was for PCR amplification through 18 RAPD primers. The amplification products were conducting the genetic relationship analysis by NTSYS software. The results showed that DNA extracted by the improved CTAB method could be used to do RAPD analysis. Using 18 RAPD primers totally obtained 131 amplification bands, of which were 126 polymorphic bands and the percentage of polymorphism was 96.2%. It didn't find specific band related with phosphorus content. The cassava resources with similar phosphorus content in root starch can not significantly cluster. The genetic similarity coefficient (GS) between 30 resources was more than 0.71. The RAPD results demonstrated that there was no obvious genetic relationship between different phosphorus contents in cassava root starch and also found no specific genes associated with difference in phosphorus.

Keywords: genetic background

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