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籼稻栽培品种中淀粉合成相关基因的遗传变异和群体结构分析

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摘要:选用34个淀粉合成相关基因分子标记对87份来自不同国家的籼稻栽培品种进行遗传变异和群体结构分析。结果表明,34对引物共检测到80个等位变异,平均每个位点含2.35个等位基因,品种间等位基因变异范围2~6;Shannon's信息指数变幅为0.303~0.796,平均为0.539;多态信息含量(*PIC*)的变幅为0.084~0.658,平均0.295;遗传相似系数变幅为0.265~0.990,表明淀粉合成相关基因在品种间存在遗传差异,但不同品种间等位基因的变异频率不同。87份籼稻品种可以分成3个类群,类群内品种遗传背景比较相似,类群间品种遗传背景差异明显,其中,39.1%的籼稻品种遗传组分单一,而遗传背景复杂的籼稻品种达到60.9%。本研究可为水稻淀粉品质的遗传改良提供依据,为后续淀粉品质性状的关联分析奠定基础。

关键词: 籼稻; 淀粉合成相关基因; 遗传变异; 群体结构
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Analysis of genetic variation and population structure of starch synthesis related genes in *indica* rice cultivars

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Abstract: 34 molecular markers of starch synthesis related genes were used to evaluate the genetic variation and population structure of 87 *indica* rice cultivars from different countries. A total of 80 alleles were amplified using 34 primer pairs, with an average of 2.5 alleles per primer pair. Shannon index ranged from 0.303 to 0.796, with an average of 0.539. The polymorphism information content (*PIC*) value ranged from 0.084 to 0.658, with an average of 0.295. The genetic similarity ranged from 0.265 to 0.990, indicating the significant genetic differences of starch synthesis related genes in the varieties, even though the variation frequency of alleles varied in different varieties. Population structure analysis showed that 87 *indica* rice cultivars were classified into 3 groups. The genetic differ-

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