

研究论文

籼稻稻米直链淀粉含量的胚、胚乳、细胞质和母体遗传效应分析

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摘要 采用禾谷类作物种子数量性状遗传模型和统计分析方法, 分析了籼稻稻米直链淀粉含量的胚、胚乳、细胞质和母体植株遗传效应以及环境互作效应。结果发现稻米直链淀粉含量的表现主要受制于基因的遗传主效应, 环境互作效应对其影响较小。控制直链淀粉含量的遗传主效应以胚乳效应为主, 细胞质效应和母体效应对直链淀粉含量的表现也有明显影响。但在环境互作效应中, 胚环境互作效应起着主要作用, 说明二倍体胚基因可以控制稻米直链淀粉含量的表现, 但其基因的表达容易受到环境条件的影响。稻米直链淀粉含量的普通遗传率和互作遗传率分别为33.50%和16.16%, 表现为以普通遗传率为主。亲本遗传效应分析的结果表明选用26715或1391亲本有利于降低杂种后代的直链淀粉含量, 提高品质改良的效果。

关键词 [籼稻](#) [种子胚效应](#) [狭义遗传率](#) [遗传效应](#) [直链淀粉含量](#)

分类号

Analysis of Embryo, Endosperm, Cytoplasmic and Maternal Effects for Amylose Content Trait in Indica Rice

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Abstract Analysis of embryo, endosperm, cytoplasmic and maternal effects and environment interaction effects for amylose content (AC) trait in indica rice (*Oryza sativa* L.) was conducted by using a full genetic model for quantitative traits of seeds in cereal crops. It was indicated by the results that the genetic main effects for AC trait were more important than the environment interaction effects. The main effect was endosperm effect in genetic main effects, but the cytoplasmic and maternal effects could also significantly affect the performance of AC trait in indica rice. In the environment interaction effects, embryo genetic by environment interaction effect was more important. This result showed that embryo genes could affect the AC trait, but the expression of genes could be easily influenced by environments. The common narrow heritability and narrow interaction heritability of AC trait were 33.50% and 16.16%, respectively. Predicted genetic effects for parents indicated that 26715 and 1391 were better than other parents for improving the AC trait of rice.

Key words [Indica rice](#) [Seed embryo effect](#) [Narrow heritability](#) [Genetic effects](#) [Amylose content](#)

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