

空间诱变水稻大粒型突变体的遗传育种研究 Studies of Inheritance and Application in Rice Breeding of the Large Grain Mutant Induced in Space Environment

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摘要 对粳稻农垦58经空间诱变产生的大粒型突变体进行大粒型性状的遗传分析和育种应用研究。结果表明,大粒型突变体的籽粒大小(以籽粒体积表示)表现为受多基因控制的数量性状。大粒型突变体谷粒细长,具馨香味,外观品质优,对粳稻的亲亲和性好,是一个罕见的优质米资源。以大粒型突变体为供体,高产、外观米质差的晚粳推广品种为受体,采用不饱和回交结合分离世代糙米外观品质鉴定的方法,将大粒型突变体的优质性状导入晚粳背景,选育出外观米质优的晚粳新品系。对采用不饱和回交方法改良数量性状进行了讨论。

Abstract:The inheritance and utilization of a stable large-grain mutant, selected from the induced generation derived from japonica Nongkeng 58 after space treatment carried by recoverable satellite, were analyzed. The results indicated that the grain volume of the large-grain mutant was quantitative trait controlled by multiple genes. The large-grain mutant had characteristics of slender grain, favorable scent, high apparent grain quality and good compatibility with japonica, and can be used as a valuable resource for improving grain quality. When high yield japonica variety with bad looking quality was used as a recurrent parent to cross with the mutant and a procedure of a limited backcross combined with identification of brown rice quality in segregation generations was applied, some japonica lines with good looking quality were developed. The utility of the limited backcross method for improvement of quantitative traits was discussed.

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