

研究论文

导入反义Wx基因改良杂交籼稻保持系直链淀粉含量

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摘要 水稻胚乳中的直链淀粉含量是影响稻米蒸煮和食味品质的重要性状。试验了适合水稻冈46B和II-32B品种进行遗传转化的外植体、培养基及光温条件, 采用遗传转化技术将反义Wx基因导入生产上大面积应用的籼稻保持系冈46B和II-32B, 获得了转基因植株。PCR检测证明外源基因已整合进水稻的基因组。分析结果表明, 纯合转基因水稻植株成熟种子直链淀粉含量发生了不同程度的变异。

关键词 [反义Wx基因](#) [转基因水稻](#) [籼稻](#) [保持系](#) [直链淀粉含量](#)

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Antisense Waxy Gene Insertion into Maintainer Lines of Indica Hybrid Rice Results in Amylose Content Reducing

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Abstract Amylose content of endosperm is a key determinant for eating and cooking quality in rice. And the Waxy gene of rice encodes a granule-bound starch synthase (GBSS) that plays a key role in the synthesis of amylose in endosperm. With help of *Agrobacterium tumefaciens* EHA105 containing p13W4, the antisense Waxy gene was transferred into mature embryo or calli from indica maintainer lines Gang 46B and II-32B. The suitable explants, medium, light and temperature for tissue culture were studied. PCR analysis verified that antisense Waxy gene was transferred into the genome of the receptor varieties (Fig 2). Furthermore, varying degrees of reduction in amylose content were found in mature seeds of transgenic lines. Compared with 26.5% of the original variety, in the transgenic lines of II-32B, the average and the lowest amylose content were 19.8% and 8.5% respectively (Table 5). Similarly, the amylose content in the transgenic lines of G46B were 1.7%–10.9% lower than that of the control (Table 4). These results indicated that genetic manipulation of amylose content in rice is possible using antisense technique.

Key words [Antisense waxy gene](#); [Transgenic rice](#) [Indica](#) [Maintainer line](#) [Amylose content](#)

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