Transgenic Expression of the Recombinant Phytase in Rice (Oryza sativa) [PDF]

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摘 要：In most of the cereal crop, phytic acid is the main storage form of phosphorus, which can decrease the bioavailability of phosphate. Transgenic expression of phytase is regarded as an efficient way to release phosphate from phytate in transgenic plants. In this study, a plant expression vector, containing the recombinant phytase gene driven by the maize ubiquitin (Ubi) promoter was constructed and introduced into an elite rice variety via Agrobacterium-mediated transformation. During the experiment, a total of 15 independent transgenic rice lines were regenerated. The results of PCR and Southern blot indicated that the target gene was integrated into the genome of transgenic rice plants. Moreover, the RT-PCR analysis of total RNAs extracted from the immature seeds of several transgenic lines showed that the recombinant phytase gene could be normally expressed. The inorganic phosphorus content, both in the mature seeds and the leaf was significantly higher in the transgenic plants than in the untransformed wild type.

关键词：transgenic rice; recombinant phytase; inorganic phosphorus content; nutritional quality
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