

生物技术—研究报告

拟南芥植物型PEPC基因人工小RNA表达载体的构建与遗传转化

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摘要:

磷酸烯醇式丙酮酸羧化酶 (PEPC) 是植物中具有多种生理功能的酶。为探索拟南芥中植物型PEPC基因对模式植物拟南芥脂肪酸含量以及抗逆性等方面的影响, 本文构建了同时敲除拟南芥Atppc1、Atppc2和Atppc3基因的人工小RNA (amiRNA) 植物表达载体pFGC-amiAtppc123, 经根瘤农杆菌EHA105介导, 用花序浸染法转化拟南芥, 成功获得转基因植株。RT-PCR半定量分析表明人工小RNA在转化植株中成功进行了超量表达。该试验为分析拟南芥脂肪酸含量以及抗逆性方面提供了基础材料。

关键词: 花序浸染

Construction of Plant-type Phosphoenolpyruvate Carboxylase (PEPC) Gene Artificial miRNA Expression Vector and Transformation in Arabidopsis thaliana

Abstract:

To investigate the functions of PEPCase in lipid content, fatty acid composition and the response to environmental stress in C3 plants, Arabidopsis thaliana plant-type PEPCase genes (referred to as Atppc1, Atppc2 and Atppc3) were silenced by the artificial miRNA (amiRNA) technique. We constructed the plant expression vector named pFGC-amiAtppc123 and transformed it into Arabidopsis thaliana via floral dip method. Transgenic plants were confirmed by PCR. The amiRNA transcript levels were detected by semi-quantitative RT-PCR. The results showed that amiRNA expression was drastically increased in transgenic plant compared with non-transgenic plants.

Keywords: in floral dip

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