

香蕉抗逆相关基因MaERF的克隆与表达分析

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Cloning and Expression Analysis of a New Stress-resistant ERF Gene from Banana

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摘要 根据已获得的AP2/ERF基因片段, 通过RACE方法获得一个香蕉ERF基因完整编码区序列, 命名为*MaERF*。该基因cDNA全长1 611 bp, 其中开放阅读框1 128 bp, 编码376个氨基酸, 包含一个保守的AP2/ERF结构域, 基因组序列全长2 881 bp, 含有一个内含子, 剪切位点符合“GT-AG”规则; 系统进化树表明该基因属于植物ERF转录因子家族的B2亚群。半定量RT-PCR分析表明, 该基因在香蕉各个器官中均有表达, 其中在根和叶中的表达量较低, 而在果实和花中的表达较高; 实时荧光定量Real-time PCR检测表明, 受尖孢镰刀菌侵染及低温胁迫后, 香蕉中该基因表达明显上调, 推测其在香蕉胁迫反应中可能发挥重要作用。

关键词: 香蕉 ERF基因 克隆 表达分析

Abstract: A full length cDNA named *MaERF* which was cloned from banana on the basis of a AP2/ERF fragment combined with RACE technology. The full cDNA of this gene was 1 611 bp, the open reading frame was 1 128 bp and coded a polypeptide of 376 amino acids. This gene had one typical AP2/ERF domain. The genome sequence full-length of this gene was 2 881 bp, and contained one intron splice site according to the rules of the “GT-AG”. The phylogenetic tree shows that the gene belongs to B2 subsets of ERF genes, and they are more involved in plant stress reactions. Semi-quantitative RT-PCR analysis showed that the gene was expressed in various organs of the banana, with lower the amount of expression in the roots and leaves, while high expression in fruit and flowers; Fluorescence quantitative real-time PCR detection showed this gene had high expression with *Fusarium oxysporum* and low temperature stress, so this gene may play an important role in bananas stress reaction.

Keywords: banana, ERF gene, clone, expression analysis

收稿日期: 2013-03-07;

引用本文:

.香蕉抗逆相关基因MaERF的克隆与表达分析[J] 园艺学报, 2013,V40(8): 1567-1573

.Cloning and Expression Analysis of a New Stress-resistant ERF Gene from Banana[J] ACTA HORTICULTURAE SINICA, 2013,V40(8): 1567-1573

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