

巴西蕉2个ERF转录因子基因的克隆及功能研究

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摘要:【目的】筛选、克隆响应非生物胁迫的关键ERF转录因子基因,并研究其功能。【方法】综合运用转录组学、生物信息学、生物化学等技术手段,分析不同非生物逆境胁迫下AP2/ERF转录因子超家族基因的表达谱聚类变化,并从中筛选、克隆关键ERF转录因子,对其功能进行研究。【结果】不同非生物胁迫下,AP2/ERF超家族基因的表达模式不同,对低温胁迫的响应较其他胁迫敏感;筛选克隆的MaERF25和MaERF27基因是ERF家族基因,具备ERF家族基本特征,编码蛋白为核定位蛋白,C端具有转录激活活力,并参与了香蕉对非生物胁迫和激素的应答,在其中发挥着一定的作用。【结论】获得了2个巴西蕉ERF基因MaERF25和MaERF27,被定位在细胞核,具有转录激活活性,参与非生物逆境胁迫应答。

关键词: 香蕉; AP2/ERF; 基因克隆; 亚细胞定位; 转录激活; 实时荧光定量PCR

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Cloning and characterization of two ERF transcription factor genes in Brazil banana

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Abstract: 【Objective】Banana (*Musaceae*, *Musa*) is one of the most important food plants, widely distributing in tropical and subtropical countries. Banana is particularly sensitive to most of the abiotic stresses, such as freezing, drought and salt, which would cause heavy decrease of the yield and quality. Therefore, investigation the molecular mechanism of the response of banana to abiotic stresses is of prime importance for improving stress-resistant ability. Moreover, over the last decades APETALA2/Ethylene Responsive Factor (AP2/ERF) proteins have been found to be involved in a variety of biological processes. Based on the number of the structure domain, AP2/ERF superfamily was divided into four families as AP2/ERF, ERF, RAV and soloist. The proteins of ERF family only contained an AP2/ERF structure domain and were studied more deeply than others in all transcription factors family. The genes of ERF family played an important role in regulating plant response to abiotic stresses. The purpose of this study is to clone the key ERF transcription factors of banana and to identify their functions in response to abiotic stresses in order to provide a basis for improving stress-resistant ability. 【Methods】The relative transcriptome results of AP2/ERF superfamily genes of Brazilian banana involved in responding to abiotic stresses of leaves were obtained. The expression profile analysis on AP2/ERF super family genes of banana were conducted by us-

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