

植物诱变育种 · 农业生物技术

热胁迫下丹参迷迭香酸代谢途径关键酶基因的表达研究

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摘要:

为探索热胁迫对丹参迷迭香酸途径关键酶基因表达的影响,采用定量RT-PCR法,以Actin与GAPDH作为内参基因,0~48h叶片cDNA作为模板,对迷迭香酸途径7个关键酶基因PAL、C4H、4CL、TAT、HPPD、HPPR和RAS的表达进行分析。通过试验结果构建出这7个关键酶基因0~48h代谢途径表达图谱。其中,PAL、C4H和RAS受热胁迫影响表达量下降;TAT、4CL和HPPD表达量呈先上升后下降趋势;HPPR表达量前期变化不大,后期呈下降趋势。结果表明热胁迫对迷迭香酸途径关键酶基因表达有极显著影响。该表达时序谱的建立为进一步研究热胁迫与酚酸类成分累积之间的关系奠定了基础。

关键词: 丹参 热胁迫 定量RT-PCR

RESEARCH OF ROSMARINIC ACID BIOSYNTHESIS PATHWAY KEY ENZYME GENE EXPRESSION DURING HEAT STRESS IN *Salvia miltiorrhiza* LEAVES

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Abstract:

The changes of key enzyme gene expression of rosmarinic acid biosynthesis pathway during heat stress in *Salvia miltiorrhiza* Bunge was studied by real-time quantitative PCR(qRT-PCR). Extract RNA from *Salvia miltiorrhiza* leaves on 0~48h during heat stress, and 2 genes, *Actin* and *GAPDH*, were used as reference genes for rosmarinic acid biosynthesis pathway key enzyme gene expressing. Build the *PAL*、*C4H*、*4CL*、*TAT*、*HPPD*、*HPPR* and *RAS* rosmarinic acid biosynthesis pathway key enzyme gene 0~48h expression profile. *PAL*、*C4H* and *RAS* were down-regulated; *TAT*、*4CL* and *HPPD* were up-regulated first and down-regulated later; and *HPPR* were no changed first and down-regulated later. Heat stress affected the rosmarinic acid biosynthesis pathway key enzyme gene expression. This work founded the basis for further study on heat stress and phenolic acid accumulation connection in chinese medicine species *Salvia miltiorrhiza*.

Keywords: *Salvia miltiorrhiza* heat stress qRT-PCR

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