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同位素示踪·资源环境·动植物生理

生长调节剂PCPA和2,4-D对番茄果实果糖激酶活性及基因表达的影响

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摘要:

研究了花期施用PCPA和2,4-D对发育过程中番茄果实糖含量、蔗糖代谢相关酶和果糖激酶活性及果糖激酶基因表达的影响。结果表明,随着番茄果实的发育,果糖激酶的活性及其基因表达均先上升后下降,成熟时达到最低,但 *FRK1* 基因表达量较高;果糖和葡萄糖含量呈递增的趋势,成熟时含量达到最高。PCPA和2,4-D处理后降低了成熟番茄果实果糖激酶活性,提高了酸性转化酶活性,促进了 *FRK1* 基因表达,提高了成熟番茄果实中果糖和葡萄糖的含量。

关键词: 番茄 生长调节剂 果糖激酶 基因表达

EFFECTS OF EXOGENOUS PCPA AND 2,4-D ON ACTIVITY OF FRUCTOKINASE AND GENE EXPRESSION IN TOMATO FRUITS

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Abstract:

Sugar contents, enzyme activities related to sucrose metabolism and fructokinase(FRK), fructokinase gene expression were studied during tomato fruit development after PCPA and 2,4-D treatment, respectively. Results showed that activity and gene expression of fructokinase increased at first then decreased during fruit development in control. Fructokinase activity reached the lowest level, but *FRK1* gene expression showed a higher level during fruit ripening stage. However, the contents of fructose and glucose in fruit reached the peak value at the maturity stage. The fructokinase activity declined, while the activity of acid invertase was increased went up. At the same time gene expression of fructokinase was enhanced during fruit maturing stage after treated with PCPA and 2,4-D, which made the contents of fructose and glucose increased.

Keywords: *Solanum lycopersicum* growth regulator fructokinase gene expression

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