

**Title** Changes in polyamine titers and transcription levels of polyamine biosynthetic genes during peach fruit development

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### **Abstract**

Polyamines, putrescine (Put), spermidine (Spd) and spermine (Spm), are widely present in living organisms. In the present research changes in polyamine titers, enzyme activities and steady-state polyamine biosynthetic gene expression were investigated during peach fruit development. Free polyamines were at the highest level during the first stage of fruit development, followed by progressive decrease until harvest. During postharvest storage polyamines were at peak values in the harvest day, which decreased until 6 days after harvest, which ethylene presented an opposite pattern. Activities of ADC, ODC and SAMDC were at the highest, which decreased until the end of the second stage and could not be detected in the late stage of fruit development and during postharvest storage. Homologous fragments of five polyamine biosynthetic genes were isolated via RT-PCR, which showed high identity to same genes of other plants. Their expression patterns did not parallel the free polyamines and enzyme activities. The present work showed that: 1) free polyamines were tightly involved in fruit development, but they were predominantly biosynthesized at early stage of fruit development; 2) polyamines and ethylene were antagonistic against each other with reference to fruit development; 3) polyamine titers, enzyme activities and gene expression did not always correlate with each other.