

Title The effect of phenylethyl alcohol on *PAL* mRNA and enzyme activity in strawberries
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Abstract

Phenylethyl alcohol (PEA), a major metabolite of *Pichia anomala* SKM-T fermentation, is known to have mild-warm and rose-honey-like flavor. This safe material is one of the most widely used of perfume and food products. In order to investigate the effect of PEA on pigment development in strawberries, the anthocyanin content, phenylalanine ammonia lyase (PAL) activity, and *PAL* mRNA transcript accumulation were determined in PEA-treated strawberries (*Fragaria ananassa* cv. Maehyang). The anthocyanin content of PEA-treated fruit was less than that of controls throughout the experimental period. It appeared that PEA was an irreversible competitive inhibitor (K_i 0.09 μM) of PAL. The activity of PAL in PEA-treated fruit was inhibited, and *PAL* mRNA accumulation was also lower on the 15th day of storage. When PEA was applied to immature (green) strawberries, PEA-treated fruit failed to develop red pigmentation and *PAL* mRNA transcript accumulation was inhibited.