

Effects of postharvest application of methyl jasmonate on physicochemical characteristics and antioxidant system of the blueberry fruit

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Abstract

The effects of postharvest methyl jasmonate (MeJA) treatment on quality, antioxidant system, and H_2O_2 content in blueberry fruit were investigated. Results indicated that 50 and 100 $\mu\text{mol/L}$ MeJA treatment could reduce the increase in weight loss, maintain sensory and nutritional qualities, and prolong the shelf-life of blueberry. Meanwhile, MeJA significantly increased the antioxidant capacity by increasing the content of non-enzymatic antioxidants, namely, phenolics, flavonoids, anthocyanin, ascorbic acid, reduced glutathione, and the activity of enzymatic antioxidants, namely, superoxide dismutase, catalase and ascorbate peroxidase. However, increased H_2O_2 generation was detected in MeJA-treated fruits during the initial period, which occurred before peaks in antioxidant levels. This result suggests that H_2O_2 was induced by MeJA, which may act as a signaling molecule involved in the regulation of antioxidant system of blueberry during storage. In summary, MeJA treatment could increase the antioxidant capacity of postharvest blueberry by activating the generation of H_2O_2 .