

Title Effect of hexanal treatment on postharvest quality of 'Darselect' strawberry (*Fragaria ×ananassa* Duch.) Fruit

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Keyword strawberry fruit; hexanal; postharvest quality; phospholipase D; lipoxygenase

Abstract

Strawberry (*Fragaria ×ananassa* Duch.) is one of the highly valuable and important fruit in the world. Strawberry fruits are highly perishable and vulnerable to tissue damage during postharvest storage. Besides, strawberry fruits can be easily infected with *Botrytis cinerea* during storage. Loss of strawberry fruit quality is mainly due to the onset of rots, which is often caused by *Botrytis cinerea*. While as a natural volatile, hexanal (C6 aldehydes) acts as residueless antifungal agent in fruits and vegetables. Therefore, the effect of hexanal treatment on physiological and biochemical responses in strawberry fruit (*Fragaria ×ananassa* Duch. 'Darselect') was studied during storage at 4°C. Fruits treated with hexanal showed lower fungal decay and better overall quality than control confirming the reports about hexanal on its antifungal activity. Hexanal treatment did not change the soluble solid contents of strawberry fruits with the relatively higher titratable acidity content than control. Lowered respiration rate and reduced superoxide radical production were observed in both 0.05% and 0.1% hexanal treatments as compared with the control. Moreover, 0.1% hexanal treatment could effectively reduce lipoxygenase activity during storage. However, hexanal treatment increased phospholipase D activity of strawberry fruits. According to the results we got, we might suggest that hexanal treatment effectively maintains postharvest quality of strawberry fruit by controlling fruit fungal decay and decreasing respiration rate with less direct impact on the membrane deterioration process.