

Effects of salicylic acid and ultrasound treatments on chilling injury control and quality preservation in banana fruit during cold storage

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Scientia Horticulturae 249: 334-339. (2019)

Abstract

In this research, in order to reduce the chilling injury and preserve the quality of bananas during the cold storage, the fruits were treated with ultrasound (US; 40 kHz) and Salicylic acid (SA; 1 mM) separately or in combination as well as water in control and then, they were stored at 5 °C and 90% RH for 10 days. After storage and shelf-life period, fruits were analyzed. Results indicated that the samples treated with US, SA and combination treatments were of less chilling injury severity, electrolyte leakage and thiobarbituric acid reactive substances as compared to the control. Also, US, SA and combination treatments, in comparison to the control, led to better preservation of firmness, phenol content, antioxidant capacity, more weight loss control, and inhibition of polyphenol oxidase enzyme activity in banana fruits. No significant differences were observed among the SA, US and combination treatments in the experiment. Therefore, using US and SA treatments might control the chilling in the bananas and preserve their quality effectively during the cold storage.