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Entitled

THE EFFECT OF NATURAL ELICITORS AND COLD STORAGE PERIOD ON QUALITY IMPROVEMENT OF
UAE DATE PALM FRUIT (Phoenix dactylifera L. CV. KHESAB)

by

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Abstract

Date palm (*Phoenix dactylifera* L.) is one of the most important fruit trees grown in arid and semi-arid regions. Despite the immense capabilities of the date palm, maintaining the fruit's quality, marketability, and shelf life is still a challenge. This study aimed to assess the synergistic effect of a preharvest spray application of natural elicitor chitosan, (Ch) 1% alone and in combination with salicylic acid (SA) 2 mM and calcium chloride (Ca) 3%; (Ch, SA, Ca, Ch+Ca, Ch+SA, Ch+SA+Ca), on the quality parameters, storage life, and bioactive compounds content of date fruit from 'Khasab' cultivar during cold storage for 60 days. The results revealed that all treatments significantly retard senescence/decay of the fruit compared to the control. Ch+SA treated fruit followed by Ch, and Ch+SA+Ca had the lowest weight loss, colour change, and the least decay after 60 days of storage. Ch+Ca, SA, Ca treated fruit had significantly lower levels of total soluble solids and highest total phenolic, tannins, and flavonoids contents compared to the control fruit. Antioxidant activities were found in all treatments, with significantly higher effect in Ch+SA+Ca and Ch+SA compared to the control. Our results provide evidence for a synergistic effect of elicitors combination to extend the shelf life of date fruit during cold storage by preserving its quality and decreasing senescence/decay and recommend it as a promising strategy.

Keywords: date fruit; shelf-life; salicylic acid; chitosan; quality