

# Postharvest quality retention of apricots by using a novel sepiolite-loaded potassium permanganate ethylene scavenger

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## Abstract

A new potassium permanganate-based ethylene ( $C_2H_4$ ) scavenger was developed using sepiolite as support material. The effects of the scavenger on the main quality attributes of 'Mirlo naranja' apricots were evaluated in combination with modified atmosphere packaging (MAP) at 2 °C and under air packaging conditions at 15 °C. In-package gas composition, physicochemical traits (weight loss, fruit firmness, skin colour, pH, titratable acidity (TA), soluble solid content (SSC) and SSC/TA ratio, fungal incidence and sensory analysis), were monitored throughout storage. Results were compared with those obtained by using a commercial scavenger. As control, no scavengers were used. The results showed that both scavengers could achieve undetectable  $C_2H_4$  concentrations within MAP packages at 2 °C. Overall,  $C_2H_4$  removal resulted in a significant decrease in fruit weight loss, delayed TA decrease and led to lower SSC/TA ratio increase, while no effect was observed on fruit softening. In addition, the 15 °C-stored apricots also exhibited a lower pH increase, a decrease in  $C^*$  colour parameter and less fungal incidence as a consequence of a  $C_2H_4$ -free environment. Furthermore, the developed scavenger reduced SSC changes of 15 °C-stored fruit, delayed fungal incidence at 2 °C, and maintained higher sensory quality during storage, maintaining good quality up to 36 d at 2 °C or 14 d at 15 °C. Accordingly, the developed  $C_2H_4$  scavenger could be a good mean to delay ripening process of fresh apricots, and probably other  $C_2H_4$  sensitive fruit, prolonging their postharvest storability and improving consumer acceptability.