

Title Controlling the weight loss of fresh produce during postharvest storage under a nano-size mist environment

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Abstract

Weight loss and chilling injury often occur during the refrigerated storage of fresh produce, leading to significant economic costs to horticultural industries. The postharvest quality of three types of horticultural produce, eggplant fruit (*Solanum melongena*), mizuna (*Brassica rapa*) and fig fruit (*Ficus carica*), was investigated under storage environments of two kinds of fine mists producing relative humidity as high as 95% at 5.5 and 7 °C for 10, 6 and 8 days, respectively. Mists generated by nanomist humidifiers (nanomists) had average particle diameters less than 100 nm, while ultrasonic humidifiers (ultrasonic mists) generated average particle diameters of 216 nm. The results show that the weight loss rates of the samples stored under nanomist humidifiers were 3.7%, 5.3% and 8.8% for mizuna, eggplant and fig, respectively, while those stored under ultrasonic mist were 7.3%, 8.5% and 14.7%, respectively. The eggplant fruits stored in the nanomist chamber had a lower index of chilling injury than those stored in the ultrasonic mist. The stomatal pores of the samples exposed to the nanomists closed by 34.7 and 51.5 μm^2 for mizuna and fig, respectively, compared with their initial openings, while in the ultrasonic mists, they closed by 15.8 and 25.5 μm^2 , respectively. The color of mizuna stored in the nanomist was greener than those placed in the ultrasonic mist during the postharvest storage period.