

Effects of packaging designs with multiple pieces of function films on the quality of figs stored at ambient temperature

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Abstract

To extend the shelf life of figs (*Ficus carica*, ‘Blanrick’) stored at ambient temperature (25 °C), we designed two new types of modified atmosphere packaging (MAP), namely, DMAP and TMAP. DMAP comprised of O film and W film with an area ratio of 1:1. TMAP comprised of B film, W film and M film with an area ratio of 1:2:1. O and B film primarily supplies O₂. W film is mainly responsible for discharging water vapor. M film is a piece of 1-methylcyclopropene (1-MCP) releasing film. Gas composition in the head space of the packaging, water loss, firmness, rate of decay, total soluble solids (TSS) content, titratable acidity (TA) content, vitamin C content, and sensory quality of figs were monitored during storage for 6 days at 25 °C to evaluate the efficacy of this design. Results corroborate that DMAP and TMAP can prolong the shelf life of figs from 2 days to 4 days and up to 6 days at 25 °C. Compared with the control group, figs packed in DMAP and TMAP maintained a lower loss of water, firmness, rate of decay, TA content, vitamin C content, and high sensory quality during storage. The change in the content of fig’s TSS of TMAP and DMAP was smaller than that of the control group. TMAP had the best preservation effect on figs.