

Title Effects of various packaging materials and precooling on the quality of mushroom (*Agaricus bisporus*)

Author Da-Uhm Lee¹, Min-Sun Chang¹, Sun-Duk Cho¹, Gun-Hee Kim¹, Chang-Sung Jhune²

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Abstract

Mushrooms have a short shelflife compared to most vegetables because of their very high respiration rates, sensitivity to enzymatic browning and susceptibility to microbial spoilage. This study investigated the effects of various packaging materials and pre-cooling on the quality of Mushroom (*Agaricus bisporus*). Mushrooms were pre-cooled at 4°C for 3 hours and packaged using various packaging materials; 1) polystyrene (PS) tray+polyvinyl chloride (PVC) wrapping, 2) polypropylene (PP) film bags of 0.3 mm thickness, 3) polyethylene (PE) film bags of 0.3 mm thickness. Physiological changes (weight loss, colour, firmness and sensory evaluation) associated with postharvest deterioration were monitored for 17 days at 10°C. The results show that the PP film bag was generally superior in terms of maintaining overall mushroom quality, especially PP film bags inhibited decrease firmness. These samples also exhibited smaller decreases in weight loss rate (0.57%) and Hunter L value (84.44) than PS tray+PVC wrapping (7.73%,82.19) and PE film bags (0.89%,82.96). During a storage sensory evaluation, the study showed little differences among the packaging materials until five days of storage. However, PE film bags and PS tray+PVC wrapping showed lower score of flavour, texture and colour compared to PP film bags after eight days of storage. This work suggested that PP film bag packaging effectively extends shelflife of mushrooms during storage.