

Postharvest Physiology and Technology of Fresh Culinary Herbs

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Fresh green herbs are prone to accelerated senescence due to a high rate of metabolism which is further increased following harvesting and handling procedures. Most of the herbs keep better at low temperatures, as close as possible to 0°C, except for sweet basil, whose optimal storage temperature was found to be 12°C. Prevention of water loss in the harvested herbs and storage at their optimal temperature are prime factors in the maintenance of their culinary quality. Excessive water loss can be eliminated by keeping the produce at high humidity. Most fresh herbs of the Labiatae family keep well when packed in cartons lined with folded perforated polyethylene (PE), in which water loss, leaf abscission and decay are minimal. Perforation of the PE liner reduces the undesirable accumulation of ethylene and CO₂. Nevertheless, the perforated film is not effective enough to delay the senescence of yellowing-susceptible herbs such as coriander, dill, chervil, sorrel, parsley, lovage, chives, watercress and tarragon.

Packing these species in cartons with non-perforated PE liners results in the creation of a moderate modified atmosphere (MA) capable of retarding yellowing and decay. Elevated concentrations of CO₂ inhibited the senescence-inductive effect of accumulated ethylene in the package, especially when combined with a decreased level of O₂. Packing these herbs in sealed PE-lined cartons led to more marked changes in the respiratory gases, especially oxygen. Extreme temperature fluctuations during shipment may result in anaerobic respiration within a sealed film; this can be eliminated by using microperforated (MP) film. Spraying of yellowing-susceptible herbs (except for watercress and tarragon) with gibberellic acid (GA₃), immediately prior to harvest, retarded senescence and decay. Optimal results were achieved when the GA₃-treated herbs were packed in PE film with MA.

Key words: Modified atmosphere, film packaging, gibberellic acid, cold storage.

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