

Title Developing optimum MAP conditions for mixed baby vegetables
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Abstract

The objective of the present study was to find the optimum conditions for modified atmosphere packing (MAP) of mixed baby vegetables. The investigated crops were 9 cultivars; romaine green (*Lactuca sativa* cv. Romaine Green), oak leaf green (*L. sativa* cv. Oak Leaf Green), lollo rosa (*L. sativa* cv. Lollo Rosa), italiana (*Cichorium intybus* cv. Italiana), beet (*Beta vulgaris* var. crunata), spinach (*Spinacia oleracea*). Tat soi (*Brassica campestris* var. narinosa), mizuna (*B. rapa* ssp. *Nipposinica* var. *laciniata*), Chinese mustard red (*B. juncea*). Plants were cultured using a non-woven fabric mat system and supplied with Yamazaki plant nutrient solution for lettuce that was changed every week. All crops were sown on 128 cell plug trays and harvested 30 days after sowing. Harvested baby vegetables were mixed and packed in MAP salad bags that were 25 or 50 mm low-density polyethylene film, ceramic film, hole film (200 hole 1m^{-2}), and in a polyethylene box. Fresh weight was maintained well in air tight films and at low temperatures but lost rapidly with increased deterioration rate in hole-film bags and in polyethylene boxes. A carbon dioxide concentration in 50 mm film resulted in injury. Vitamin C content, and visual quality were maintained best, chlorosis rate was lowest in ceramic 25 mm film at 2°C. Therefore it was considered that the most appropriate film bag for marketing of mixed baby vegetable salads is ceramic 25 mm stored at an optimum temperature of 2°C.*