

IMPROVING SHELF-LIFE BY SHRINK WRAPPING AND CONTROLLED ATMOSPHERIC STORAGE OF GREENHOUSE VEGETABLES; BROCCOLI, CAULIFLOWER AND ICEBERG LETTUCE

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Broccoli (*Brassica olearacea* var. *botrytis*), cauliflower (*Brassica olearacea* var. *italica*) and iceberg lettuce (*Lactuca sativa* L. var. *sativa*) are some of the high-value salad vegetables which are grown intensively through protected culture in Sri Lanka. Extending shelf-life of these vegetables while maintaining quality, through value chain development, is necessary to cater to the growing local demand. The positive effects of shrink wrapping and controlled atmospheric (CA) storage in this regard have been well documented for several perishables in previous studies. Therefore, this research was conducted in Nuwara Eliya (up country wet zone) to test the effects of shrink wrapping and CA storage on extending the shelf-life of these selected salad vegetables.

Four treatments were employed in separate replicated trials (for each salad vegetable) for testing the above hypothesis with and without shrink wrapping in combination with two storage conditions. The temperature and relative humidity of CA storage was maintained within 12 - 14 °C and 80 %, respectively while the same were within 29 – 30 °C and 75 - 90 %, respectively under ambient storage (AS) conditions. The treatment effects were assessed in terms of qualitative and quantitative parameters through appropriate statistical procedures.

Results revealed that the shelf-life of all three head-type salad vegetables could be extended by three days (with an overall shelf-life of five to six days) without significant post-harvest losses when shrink wrapped and kept in CA storage, well matching with the market perspectives. Further improvements in storage conditions, harvesting maturity and type of wrapping films *etc.* can be suggested for better results.