

## Effect of Storage Methods on the Postharvest Quality of *Amaranthus tricolor* ('Thampala') Leaves

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*Amaranthus tricolor* ('Thampala') is widely cultivated and consumed as a green leafy vegetable in many tropical countries including Sri Lanka. Short postharvest shelf life due to leaf wilting is one of the major problems associated with this crop. Their shelf life depends on conditions of storage. The aim of this study was to evaluate postharvest keeping quality of four new genotypes of *A. tricolor* named 'Red', 'DOA green', 'Pure green' and 'Diyapalagoda', introduced by the Horticultural Crops Research and Development Institute (HORDI) at Gannoruwa, Sri Lanka.

*Amaranthus tricolor* was cultivated in research fields at HORDI according to Department of Agriculture recommendations. The crop was harvested 40-45 days after sowing, before onset of flowering. A 250 g bundle of leaves (including stems) from each genotype was considered as one replicate. Treatments (storage conditions) were: cut stem ends dipped in water and stored under room temperature ( $27 \pm 2^\circ\text{C}$ ) and relative humidity 60% (RH), leaves sprayed with 200 mL tap water daily [T1 (control)], packaged in Low Density Polyethylene bags (LDPE 150  $\mu\text{m}$  gauge film) and stored under room temperature and relative humidity (T2) and packaged in LDPE 150  $\mu\text{m}$  gauge film bags and stored under  $10^\circ\text{C}$  and 90% RH (T3). Each sample was weighed daily and the percentage weight loss was calculated. The visual quality was assessed using a self-prepared scale based on leaf wilting, yellowing and defoliation. Shelf life was determined as time (in days) taken to show moderate wilting (for samples not packed in poly-film) or moderate defoliation (for poly-film packed samples). The experiment was laid out according to complete randomized design, with six replicates per treatment. Data was analysed using SAS package by ANOVA and means were separated using LSD.

The shelf life of *A. tricolor* leaves varied significantly ( $p < 0.05$ ) among treatments and also among genotypes. 'Red' genotype exhibited the longest shelf life under all three storage conditions. Leaf samples stored without LDPE packaging had the shortest shelf life and their quality deterioration was mainly due to wilting, resulting from rapid water loss. Polyethylene film-packaging significantly ( $p < 0.05$ ) extended the shelf life of leaves both at room temperature and  $10^\circ\text{C}$ . This could be attributed mainly to reduced water loss inside the package. In all four *A. tricolor* genotypes, polyethylene film-packed samples, stored at  $10^\circ\text{C}$  (T3) showed the best postharvest longevity. Under T3, 5-fold, 6-fold, 6-fold and 8-fold extension of shelf life was observed with genotypes 'Red', 'DOA green', 'Pure green' and 'Diyapalagoda', respectively, against their corresponding controls (T1). The packed samples did not show any sign of wilting during storage but some defoliation was evident. Polyethylene film-packaging, combined with low temperature storage could be recommended as an appropriate method for extending the postharvest quality of *A. tricolor* leaves.