

Title Effects of hot water treatment in combination with packaging on quality of organically grown Pak Choy (*Brassica rapa* var. *Chinensis*)

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Abstract

As extension of previous study which found that hot water treatment at 50°C for 3 minutes was effective in retarding leaf yellowing of organically grown pak choy, this present study is concerned on combination of the aforementioned treatment and packaging with low-density polyethylene bag. Samples were subjected to 4 combined treatments which comprising of T1 (Unheated and packed in perforated bag) as control; T2 (Unheated and packed in non-perforated bag); T3 (Heated and packed in perforated bag) and T4 (Heated and packed in non perforated bag). The samples were then stored at 5 °C for up to 3 weeks and subsequently held at 15°C for up to 4 days upon removal at twice weekly interval for quality evaluation. Regardless of packaging, hot water treatment was significantly retarded leaf yellowing of the samples during storage until holding time. However, they were found to be affected with heat injury which limit the storage life of T3 and T4 only up to <7 days and 11 days respectively. In comparison, samples without hot water treatment can be stored up to 14 days regardless of packaging. However slight leaf yellowing was observed on the samples during storage and became more severe during holding time. Samples treated with T3 recorded the lowest vitamin C retention. Whereby, T4 treated samples retained the chlorophyll content most, which might be attributed to the depletion of O₂ and building up of CO₂ inside the packaging. High ethylene accumulation was also recorded in T4, but it did not affect the leaf colour. These results suggest that application of modified atmosphere packaging which was represented by non-perforated packaging to supplement hot water treatment could retain green colour, chlorophyll and vitamin C content of organically grown pak choy, but it could not prevent heat injury incidence during prolonged storage.