

Abstract

Broccoli (*Brassica oleracea* L. var. *Italica*) heads were packaged using 3 types of polypropylene films: macro-perforated (Ma-P), micro-perforated (Mi-P) and non-perforated (No-P), and then stored at 1 °C for 28 days to study the effects of modified atmosphere packaging (MAP) on the maintenance of quality and functional properties by comparison with non-wrapped heads. Results revealed that deterioration occurred quickly in control broccoli, manifested mainly by weight loss, yellowing, chlorophyll degradation and stem hardening. Also, a rapid decrease in total antioxidant activity (TAA), ascorbic acid and total phenolic compound concentration was observed. Conversely, in those heads packaged under MAP, especially for Mi-P and No-P, all changes related with loss of quality were significantly reduced and delayed with time. Additionally, TAA, ascorbic acid and total phenolic compounds remained almost unchanged during the whole period. Thus, broccoli packaged with Mi-P and No-P films had prolonged storability up to 28 days with high quality attributes and health-promoting compounds, this period being only 5 days in unwrapped control broccoli.