

**Title** Hot air treatment decreases chlorophyll catabolism during postharvest senescence of broccoli (*Brassica oleracea* L. var. italica) heads.

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#### **Abstract**

A hot air treatment was applied to broccoli (*Brassica oleracea* L. var. italica) florets and its effect on chlorophyll catabolism during postharvest senescence was analyzed. Florets were treated at 48DGC for 3 h and then placed in darkness at 20DGC. During storage, the yellowing of florets occurred simultaneously with a decrease in chlorophylls and an increase in pheophytins. Heat treatment delayed the appearance of yellowing by 2-3 days and a similar extension of shelf-life could be inferred. Also, the treatment delayed the onset of chlorophyll catabolism and slowed both the rate of chlorophyll a degradation and pheophytin accumulation. No effect on chlorophyll b degradation was found. Chlorophyllase and Mg-dechelataase activities increased from the first day of storage in untreated florets, whereas peroxidase-linked chlorophyll bleaching activity increased from day 3. In heat-treated florets, chlorophyllase activity did not increase until day 2 and then increased at lower rate than in controls. Mg-dechelataase and peroxidase-linked chlorophyll bleaching activities were similar in treated and control florets during the first 2 days of storage, but thereafter the activity of both enzymes was lower in heat-treated samples. In conclusion, a treatment at 48DGC for 3 h delayed chlorophyll a catabolism in broccoli during postharvest senescence and decreased the activities of chlorophyllase, Mg-dechelataase and peroxidase, three of the enzymes probably involved in chlorophyll degradation in plants.