

Title Qualitative and physiological response of minimally processed rocket (*Eruca sativa* Mill.) to package filling and shelf-life temperature

Author Silvana Nicola, Emanuela Fontana, Giorgio Tibaldi and Lijuan Zhan

Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey. 256 pages.

Keyword Rocket; fresh-cut; minimally

Abstract

Rocket (*Eruca sativa* Mill.) is a leafy vegetable commonly used for the Mediterranean fresh-cut sector, sold either alone or in mix salads. The aim was to study the effect of package filling (50g and 100 g) and storage temperature (4°C, 12°C) on the physiology and quality of minimally processed rocket during 10 days of shelf-life. The experiment was performed on October 2007. Rocket was grown in 60-cell styrofoam trays using a soilless culture system (ebb-and-flow irrigation system) in greenhouse. After harvest, samples were packaged in polypropylene film bags. Pigments content (chlorophyll and carotenoids), phenylalanine ammonia lyase (PAL), polyphenol oxidase (PPO) and peroxidase (POD) activity, ascorbic acid (AA) and dehydroascorbic acid (DHA), total phenolics (TP) content, and antioxidant capacity (AC) were analyzed both at harvest and during shelf-life (at 1, 3, 5, 10 days after packaging). Fresh weight (FW) loss was daily measured during shelf-life. Pigments content decreased over time mainly at 12°C. The total chlorophyll and carotenoids content decreased by 53% and 59%, respectively with 100 and 50 g of filling in the package. PAL, PPO and POD activity, which are tissue browning responsible, increased during shelf-life; however, the enzyme activity values were very low, probably because being rocket packaged and stored as whole canopy the only possible wounding at the canopy level is the cutting for harvest. Thus, the reduced cut surface could limit the risk of tissue browning. After 10 days, AA decrease was greater at 12°C than at 4 °C (47% vs 32%) reaching 9.39 mg 100 g⁻¹ FW, as it was converted to DHA that increased fivefold the initial value reaching 32.12 mg 100 g⁻¹ FW. TP and AP decreased over time at 12°C, while they did not change at 4°C. Even though the inherent quality of the rocket decreased during shelf-life, after 10 days the leaf turgor was not compromised since the fresh weight loss was less than 1 %.