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Effect of different packaging systems on the shelf life of soft-seeded pomegranate arils

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A new soft-seeded pomegranate cultivar, Kingdom[®], suitable for ready-to-eat arils, was selected to study the shelf life during storage at 5°C. Kingdom is a late variety with a sour touch flavour and excellent red colour of arils. Kingdom[®] fruit were randomly harvested from trees grown under biological practices in the commercial orchard owned by Comercial Gallo. Fruits were picked up at commercial ripening stage with depth-red skin and arils and then processed for aril extraction. Arils were stored in three different packages: Micro-perforated polymeric film, semipermeable film and semipermeable film with an adsorbent material[®] (Aldomar). The arils were stored for 21 days at 5°C, 90±2% RH and sampled at different times during cold storage. The main physico-chemical properties were evaluated to investigate the shelf life of soft-seeded Kingdom[®] arils. Furthermore, malondialdehyde content and the enzymatic activity of lipoxygenase were determined. The water status of arils was monitored directly on the intact fruit measuring the relaxation times (T_1 and T_2) by means of a low resolution NMR spectrometer. Three components were observed and recognized as water in the vacuole, cytoplasm and cell wall in T_2 spectra of fresh pomegranate arils. The main results showed that the semipermeable film with and without adsorbent preserves the weight loss of samples, maintains membrane integrity by delaying lipoxygenase activity and reduces malondialdehyde accumulation. These results are well correlated with the observed changes in T_2 relaxation time.

Biography

Giuseppina Adiletta has completed her PhD with scholarship in Food Technology from Mediterranean University of Reggio Calabria, Italy, associated with University of Salerno, Italy. She is a Postdoctoral Research Fellow in the Department of Industrial Engineering at University of Salerno, Italy and she is working on food preservation and innovative food process technologies. She has published more than 20 papers in reputed journals on different food technology topics and she has been serving as Reviewer of several reputed journals.

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