Abstract

The overall quality, anthocyanin content and antioxidant activity of minimally fresh processed arils of the sweet 'Mollar of Elche' pomegranate cv. (*Punica granatum*, Punicaceae), harvested at two different dates, and stored under modified atmosphere packaging (MAP) at 5 °C was assessed. Hand extracted, chlorine disinfected, rinsed and dried pomegranate arils were exposed to 0.56, 1.13, 2.27, 4.54, 9.08 or 13.62 kJ/m^2 UV-C radiation doses. Minimally fresh processed arils were packed in polypropylene baskets (125 g each), sealed on the top with bioriented polypropylene to generate a passive MAP, and stored up to 13 or 15 days at 5 °C. The respiration rate of fresh processed arils was higher in the late harvested than in earlier harvested fruit. The UV-C radiation did not significantly affect the respiration rate of fresh processed arils. Unclear results were obtained on the effect of the UV-C radiation on the microbial growth of minimally processed arils. Some of the applied UV-C treatments reduced mesophilic, psychrotrophic, lactic acid and *Enterobacteriaceae* counts. However, microbial counts were not systematically reduced throughout the shelf life. In addition, UV-C treated arils showed higher bacterial counts in a few cases. Yeasts and moulds were unaffected by the UV-C treatments. The limit of visual quality acceptance to consumers was reached after 14 days in arils from earlier harvested fruit and after 10 days in late harvested. In this latter case, the end of the shelf life according to sensory quality was coincident with the end of the shelf life according to the Spanish microbial legal limit. The harvest date of the pomegranates will affect several quality parameters for minimally fresh processed arils at the end of their shelf life.