

Title Postharvest technologies effects on the quality and functional properties of pomegranate (*Punica granatum* L)

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Citation Abstracts, 14th World Congress of Food Science & Technology, October 19-23 2008, Shanghai, China. 721 pages.

Keyword pomegranate; phenolic content; antioxidant

Abstract

Pomegranate is a fruit grown on some parts of Mexico and is used for some traditional dishes (chiles en nogada, poneche, syrups, wine) but its potential value as functional food is unknown. Until now, no information has been generated on this fruit from Mexico, although it has received a lot of attention due to their functional properties that impact health. Positively postharvest treatments were applied on whole pomegranates and arils in order to increase the shelf life and reduce the chilling injuries during the storage under low temperatures. The first treatment was modified atmosphere packaging. The pomegranates and the arils were packed on plastic films, sealed and stored at 4 and 8°C. The second treatment was a heat treatment at 33°C during 24 h before the storage at 2 and 5°C. Storage time was 14 weeks for whole pomegranates and 25 days for packed arils. pH, total soluble solids (TSS), total phenolic content (TPC), color and antioxidant activity of extracted juice from arils and whole pomegranates was measured. The pH value increased during storage (3.505-3.68), being the lowest value found on arils and the highest value for whole pomegranates (3.7-4.28). The TSS increased under MAP (12.5 a 14 °Brix) and no significance difference was found on fruit heat treated (12.5-12 °Brix). The antioxidant activity and TPC diminished during time for both cases. The highest value of TPC was 6048.1818 mg of garlic acid equiv/L pomegranate juice, while it was showed that MAP at 8°C was he best treatment because the TPC at the end of the treatment was 2280 mg of garlic acid equiv/L pomegranate juice. The antioxidant activity was higher than 140.09 ppm. The TPC and the antioxidant activities values for the pomegranate variety Wonder harvested in the region of Durango, México, were higher than values reported for Pomegranate from Spain, (2217 ± mg of garlic acid equiv/L pomegranate juice and 108.39 ± 5.28 of garlic acid equiv/L pomegranate juice).