

**Title** Pre-storage salicylic acid treatment affects functional properties and chilling resistance of pomegranate during cold storage

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#### **Abstract**

Salicylic acid (SAL) is a group of phenolics compounds which affect growth and development and protect the plants against environmental stresses, although no information is available about its effect on functional properties in pomegranate at cold storage, which was the objective of this research. Thus, pomegranate (*Punica granatum* L.) fruits were dipped in 2 mM solution of SAL and stored at 2°C for 90 days. Every month, samples were taken and further stored 3 days at 20°C for shelf life study. Treated and chilled fruits were compared with chilled and un-chilled fruits (stored at 2 and 10°C, respectively). Arils from treated fruits exhibited higher antioxidant activity (both in hydrophilic and lipophilic fractions) than chilled and un-chilled fruits, which was correlated to high levels of total phenolics and antocyanin contents. Additionally, the chilling index, ion leakage and respiration rate of treated fruits was lower than chilled fruits but higher than un-chilled fruits. As the SAL is a natural compound without any disadvantage effects, with this simple treatment, the functional properties of fruits could be greater than recently harvested fruits, thus providing a high content in health-beneficial compound to consumers and low fruit chilling injury symptoms.