

# Functional characterisation of lenticels, micro-cracks, wax patterns, peel tissue fractions and water loss of pomegranate fruit (cv. Wonderful) during storage

Robert Lufu, Alemayehu Ambaw and Umezuruike Linus Opara

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## Abstract

Pomegranate fruit is prone to moisture loss irrespective of its thick rind and tough leathery outer skin, resulting in compromised visual appearance and financial loss. The aim of this study was to identify and characterise structural changes in lenticels, micro-cracks, wax patterns and peel tissue fractions to aid the understanding of water loss trends in pomegranate fruit during storage. Fruit were stored at 7 °C and 90 % RH for 42 d and thereafter transferred to shelf conditions (23 °C and 58 % RH) for 8 d. Peel samples were obtained from the calyx-end, equatorial-region and stem-end of randomly selected fruit. Lenticels, micro-cracks, thickness of waxy cuticle and wax layer patterns were examined under scanning microscopes. The trends of water loss with respect to peel tissues and location on fruit were examined by monitoring changes in tissue thickness. Increased fragmentation of waxy cuticle and widening of micro-cracks were observed during fruit storage. Higher count of lenticels, larger lenticel size and generally low peel thickness were observed at the calyx-end and equatorial-region as compared to the stem-end of the fruit. A noticeable water loss trend was detectable with respect to region on the fruit, the calyx-end being more susceptible compared to the equatorial-region and stem-end.