

Title Precooling characteristics of the fig fruits 'Roxo de Valinhos' packed in wooden box
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Abstract

The fig 'Roxo de Valinhos' are currently cooled in a cold room at a temperature between 1 to 3°C, and it is unknown how long it takes to cool the fruits to that temperature. This work was based on the need to determine the parameters of forced air precooling of the fig 'Roxo de Valinhos' packed in wooden box used in the commercialization in the CEASA/Campinas-SP. The fruits were harvested at the rami stage (3/4 of maturity) and size type 8 corresponding to 8 fruits per box, making up a total of 24 fruits per package. The wooden box refers to a box without cover with external dimensions: length 39 cm, width 29 cm and height 10 cm and opening area of 36 cm². There were 48 packages utilized, 24 at each side to form the californian type tunnel. The air flow was of 2.8 L/s per kilogram of product, with an average air velocity of 1.5 m/s. The initial temperature of the fruits was of 19°C and the final temperature of 1°C, which is a suitable temperature for fig storage. The internal temperature of the fruits was measured with thermocouples of T type (AWG #24) and the evolution of the temperature was registered by a Linx acquisition data system (AQDADOS). Based in the experimental data, it was determined that the cooling curve and an exponential analytical model to predict the cooling time. The cooling time was of 100 minutes, the cooling coefficient of 0.0289 min⁻¹, the Biot number of 1.0 and the convective heat transfer coefficient of 18.8 W/m²°C.