

Title Differences of mealiness incidence in early and late harvest season varieties of *Prunus persica* and cell wall modifications by postharvest treatments

Author Dayan Sanhueza, Maria Paz Covarrubias, Daniela Munoz, Bruno G. Defilippi, Ariel Orellana, Reinaldo CamposVargas

Citation Abstracts of 7th International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

Keywords peach; nectarine; mealiness

Abstract

Peaches and nectarines [*Prunus persica* (L.) Batsch] are important species of the genus *Prunus*. However these fruits are highly perishable at room temperature after harvest. The most used method to increase the postharvest life of peaches and nectarines is cold storage and transport at low temperature. However, prolonged cold storage could induce chilling injury (CI) where an important symptom is mealiness or woolliness, a dried flesh with a grainy sand-like texture when eaten. At present there are some treatments such as controlled atmosphere (CA) and conditioning that aim to reduce the CI, but the results are variety dependent. Genotype is a significant aspect determining the susceptibility to CI, in this respect studies have reported that mainly late harvest peach/nectarine cultivars develop CI as compared with early harvest varieties. Most of the information indicates that mealiness is related with an incorrect pectin depolymerization caused by cold storage, especially the esterification and the polymerization degree of galacturonic acid chains. In this context, we evaluated the mealiness incidence in four *P. persica* varieties harvested early (December) or late (January-February) and stored for 21 days at 4°C. In addition, the effects of controlled atmosphere (CA), conditioning and ethylene inhibition on CI incidence and overall fruit quality were studied. Our results showed that early varieties did not present CI despite of storage conditions prone to mealiness occurrence. On the other hand, late harvest varieties consistently showed CI, and only in specific cultivars the treatments of CA or conditioning helped to reduce the disorder severity. To look for differences in the cell wall composition between juicy and mealy peaches, we performed neutral sugars and polygalacturonanes analysis by HPLC; and immunohistochemistry using specific antibodies that are able to discriminate among galacturonic acid chains with different esterification degree. (Basal Project PFB-16, FONDAPE CRG 15090007; DS is recipient of a CONICYT doctoral fellowship).