

similar in both storage rooms, whereas in wounded fruit the infection was inversely proportional to the ozone exposure time. Results showed that disease severity was lesser when ozone was used, although the incidence was high. The fungistatic effect was higher when fruit was in direct contact with the gas.

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Keywords: lemon; ozone; *P. digitatum*.

S3-53

THE RELATIONSHIP BETWEEN MASTICATION AND LIGNIN METABOLISM OF NANFENG TANGERINE

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Nanfeng tangerine (*Citrus reticulata* Blanco) is an important citrus cultivar occurred originally in China, but the fruits have become inferior mastication in recent years. Here, Nanfeng tangerine 97-2 (NT97-2) with inferior mastication and Shatangju (*C. reticulata* Blanco, STJ) with superior mastication were used as materials. Contents of lignin and its monolignol and activities of phenylalanine ammonia-lyase (PAL), polyphenol oxidase (PPO), 4-coumarate acid coenzyme A ligase (4CL), cinnamyl-alcohol dehydrogenase (CAD) and peroxidase (POD) that involved in lignin synthesis were measured during fruit development. The results indicated that the fiber strength, ductility and tenacity of the segment membrane were significantly higher in NT97-2 than those in STJ. NT97-2 also had higher lignin content both in segment membrane and juice sac when compared with STJ at all development stages except the ripening stage. The content of lignin monolignol including sinapyl alcohol and coniferyl alcohol were always higher in NT97-2 than those in STJ. In addition, activities of all the tested enzymes were usually higher in NT97-2 than that in STJ at all development stages. The results demonstrated that mastication of Nanfeng tangerine would be related to the accumulation of lignin monolignol especially the sinapyl alcohol and the enzymes play important roles in this process.

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Keywords: Nanfeng tangerine; lignin metabolism; mastication.

S3-102

INVOLVEMENT OF CAROTENOIDS IN THE RESPONSE OF MANDARIN HYBRIDS TO POSTHARVEST COLD STORAGE

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Fruits of many species and varieties of Citrus are prone to develop chilling injury (CI) symptoms during postharvest

storage at low temperature. Sensitivity to CI is highly influenced by genetic, environmental and postharvest factors, among others. External color of the fruit has been classically claimed as a feature influencing the tolerance to CI although the basis of such effect is not well known. In order to investigate the potential role of carotenoids in the sensitivity to CI, we have evaluated the postharvest performance of mandarin fruits displaying contrasting peel coloration during storage at 2 °C for up to 8 weeks. Three phenotypes (a light- and a dark-yellow and an orange) were selected from segregating population of the cross between Kiyomi tangor (*C. reticulata* x *C. sinensis*) x Murcott tangor (*C. reticulata* x *C. sinensis*), developed in the IVIA genetic breeding program. A higher severity and proportion of CI, manifested as peel pitting and staining, were detected in fruit of the dark-yellow mandarin than in that of orange and light-yellow mandarins after 3 weeks of storage. Higher incidence of CI was also associated with a substantial increase in ethylene production during both cold storage and after simulation of shelf-life at 20 °C, indicating that the stimulation of ethylene biosynthesis is a response to the cold-induced damage. Results suggest that the carotenoid complement and content may influence the susceptibility of mandarin fruits to the development of chilling damage during postharvest cold storage.

Financial support: MINECO and Generalitat Valenciana (Spain).

Keywords: carotenoids; chilling injury; postharvest.

S3-115

QUALITY IN ORTANIQUE TANGOR FRUITS TREATED WITH RESISTANCE INDUCERS AND SUBJECTED TO COLD STORAGE IN THE SOUTH OF BRAZIL

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This study aimed to evaluate changes in the fruit composition quality of Tangor Ortanique (*Citrus sinensis* x *C. reticulata*) after treatment with inducers of resistance in pre-harvest and cold storage. The pre-harvest treatments were: control (T1), selenium (T2), silica (T3), Acibenzolar-S-methyl (T4), methyl jasmonate (T5), tiamectoxam (T6) and imidachoprid (T7). The storage temperature was at 5±1 °C with a relative humidity of 90±5%, with subsequent shelf life simulation of 7 days at 22±2 °C, in the following periods, in days, of 0 (P1), 15 (P2), 30 (P3), 45 (P4) and 60 (P5). The evaluations were: color (L* and Hue angle); pH; titratable acidity (TA); soluble solids (SS); ratio; and ascorbic acid (AA). By observing the L* data, all treatments were superior than control. In the Hue angle, the fruits of T5 and T6 kept better characteristics. For pH and ratio variables there was no significant difference between treatments; while for AT and SS, T3, T4 and T5 showed lower levels. As for AA, T3 and T4 fruits showed lower levels. Regarding to the storage time, all the evaluated values decreased over time, but the