

ISHS Conference



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## Growing Health and Life

## Programme & Book of Abstracts

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T4-P52

**THE EFFECT OF MODIFIED ATMOSPHERE PACKAGING ON POSTHARVEST PERFORMANCE OF TWO LOQUAT CULTIVARS**

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Loquat (*Eriobotrya japonica* (Thunb.) Lindl) is the only tree fruit crop in the Mediterranean zone with ripening period during the early spring time, particularly when specific preharvest practices are applied, i.e. cultivation under plastic cover. Such fruit are highly appreciated by the consumers for its taste; thus early harvested fruit enjoy appreciably high prices. However, loquat fruit is characterized by relatively short storage potential, also due to incidence of chilling related disorders. Thus, the purpose of the current study was the evaluation of Xtend® packaging as a means of Modified Atmosphere packaging (MAP) on postharvest performance of fruits from the main loquat cultivars grown in Cyprus, namely 'Karantoki' and 'Morphitiki'. Fruit were subjected to cold storage at conventional refrigerator (4°C) for 3 weeks and subsequently allowed at room temperature for 0, 2, 4 and 7 days, respectively. For each treatment, 30 fruits were used to determine weight loss, skin colour differentiations (CIEL\*, a\*, b\*), flesh firmness (Texture analyser, Stablemicrosystems), soluble solids content (SSC) and titratable acidity (TA). 'Morphitiki' fruits presented better phenotypic appearance compared to 'Karantoki' fruits after extended storage, mainly due to reduced weight loss. Application of MAP significantly reduced weight loss after removal from cold storage (0.69-0.73% with MAP treatment, 3.52-3.63% with control) for both varieties. However, prolonged retention at room temperature (4 and 7 days) significantly deteriorated the performance of both cultivars. As a technological perspective of the current study, data suggests that 'Morphitiki' fruits that are subjected to MAP can be cold stored up to 3 weeks. Provided that they will be consumed within two days after subsequent maintenance at room temperature.

T4-P53

**UNRAVEL THE COMPLEXITY OF APPLE AROMA BY DYNAMIC VOCs FINGERPRINTING**

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The great impact of the aroma on fruit consumer acceptability stimulates the need to step forward in the understanding of this quality trait. In particular, a better and more deep knowledge about the mode of release of volatile organic compound (VOC) is essential. Proton Transfer Reaction Time-of-Flight Mass Spectrometry (PTR-ToF-MS) resulted a valid alternative to a gas chromatography-mass spectrometry (GS-MS) apparatus and a valuable analytical technique to incorporate VOC measurement into plant breeding.

Apples were collected from 162 varieties identified within the germplasm collection of the Fondazione Edmund Mach (Trento, Italy). Fruit were harvested from the second half of July till the first half of October based on the optimal commercial ripening stage assessed by external color and IAD (index of absorption difference) changes. The apple aroma profile was investigated, after two months of cold storage, on the headspace produced during the artificial processing of the fruit operated with a device imitating the human consumption. The system, composed by a "chewing device" coupled with a PTR-ToF-MS, allowed an accurate dynamic VOC fingerprinting suitable to simulate the volatile released during fruit consumption.

The obtained results demonstrate the complementarity between the dynamic VOC assessment during "mastication" and the generally used static headspace analysis. The great advantage of such analytical approach was the possibility to study the kinetics of the volatiles released during eating and the possibility to consider their concentration similar to in vivo condition resulting to an improved characterization of the



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Moreover, differences in textural properties of apple flesh, assessed with a TAXTplus texture analyzer, revealed a possible direct role of the cell wall architectural structure in the regulation of VOC consumption. Firm and crispy apple resulted in fact to be characterized by a less intense

### T4-P54

#### **NEFICIAL MICROORGANISMS TO IMPROVE ROOTING SUCCESS RATE IN CYPRIPARIS SP. CUTTINGS AND FUSARIUM RESILIENCE IN CYCLAMEN**

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Plants are in constant interaction with soil microorganisms and often plants benefit from their better adapt to their environment. For example, certain soil microorganisms (e.g. AMF) are enhance plant nutrition, and facilitate plants in coping with abiotic and biotic stress. In a project called AQUABIOS, the interest of microorganism use in horticultural substrates was the experiment addressed microorganism use in young plant production in plug trays of 2 Chamaecyparis. Different commercially available products containing microorganisms irregularis or a mix of Glomus sp., Trichoderma harzianum T22, Trichoderma atroviride applied separately or in combination. Compost was also mixed in several treatments (15 vol %). Basal and rhizospheric fungi were directly incorporated in the soil or applied as drench, at cuttings. The results suggest that microorganisms improve rooting success rate in Chamaecyparis (between 10 and 30 % of improvement). We also identified two factors that may impact an efficacy: the presence of compost mixed in the substrate and plant genetics. In the 2nd the same microbial products were evaluated in potted Cyclamen productions with the objective of resilience of cyclamen against Fusarium oxysporum fsp. cyclaminis, an important soil-borne pathogen difficult to contain. The results show that commercially available microorganisms tested the incidence and severity, but only when parasitic disease pressure remains low. The presence of readily available microbial in horticulture substrates may offer growers confronted with moderate risks an interesting and innovative plant protection strategy.

### T4-P55

#### **USE OF COMPOST DIGESTATE IN GREENHOUSE TOMATO CROPS**

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