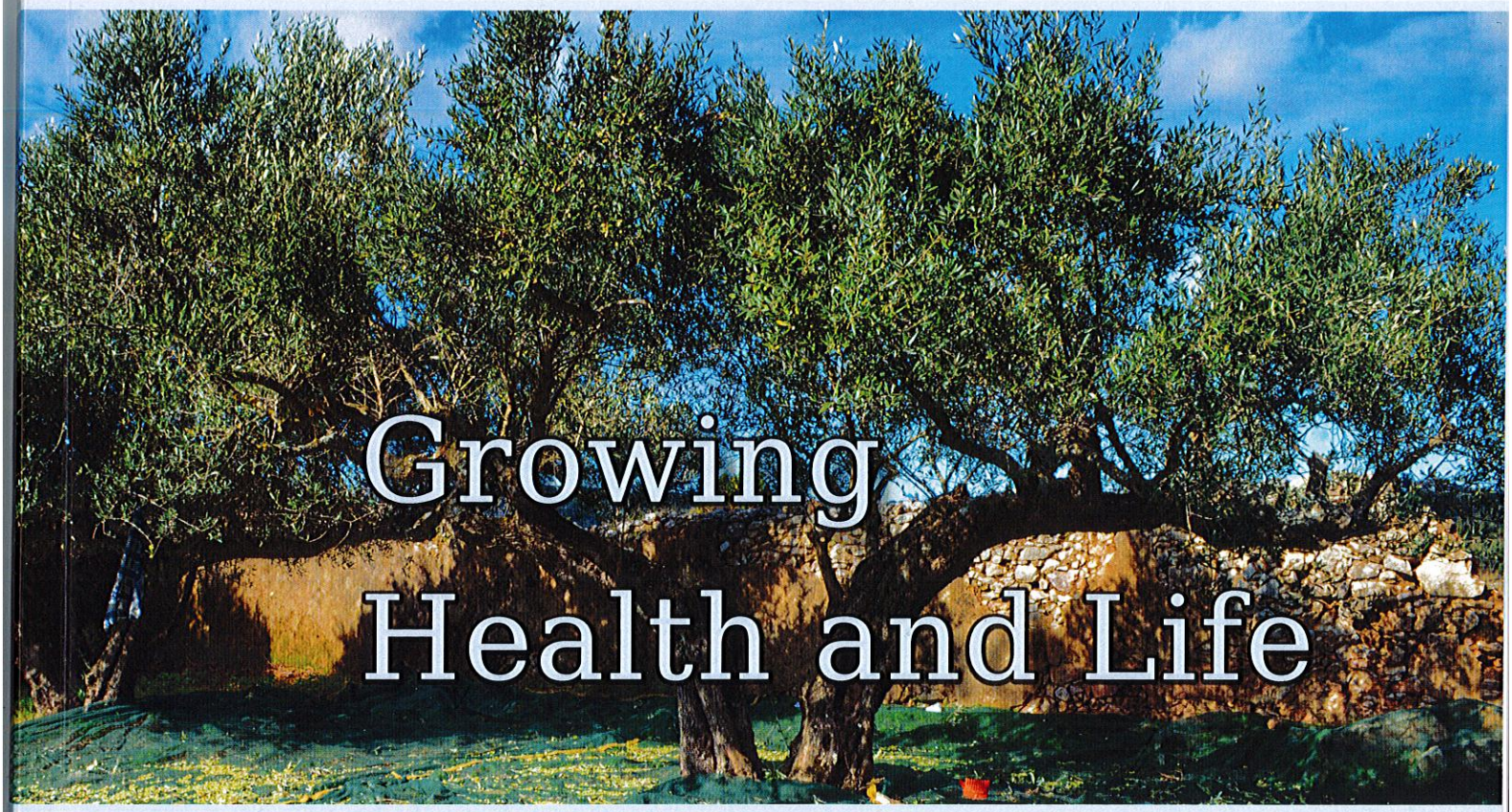
ISHS Conference

3RD SHE 2016
CHANIA - GREECE

III International Symposium on Horticulture in Europe



Growing Health and Life

Programme & Book of Abstracts

CHANIA, CRETE, GREECE, OCTOBER 17-21, 2016

weeks of storage at 20°C room temperature. The luster levels of yellow fruit dropped more dramatically from 200-410 (averaged 310) relative units to 175-210 (averaged 190) relative units after storage at room temperature. These changes in luster level were associated with a c. 2.5-3 fold increase in undulation; the average depth of fruit surface undulation increased from 0.45 mm with fresh to 1.4 mm in fruit stored at room temperature. Luster levels and 3D images of pomegranate fruit were recorded for the first time, the results may indicate that the luster sensor may be used to detect changes in surface appearance like glossiness and degree of shrivelling in yellow, but to a lesser extent in red pomegranate fruit; further research is required before a commercial application.

T4-P7

CHARACTERIZATION OF BLUEBERRY AROMA BY NOVEL FAST-GC COUPLED WITH PTR-TOF-MS

Brian Farneti, Iuliia Khomenko, Luca Cappellin, Marcella Grisenti, Paula Poncetta, Paolo Loretti, Matteo Ajelli, Franco Biasioli, Lara Giongo

Via Mach 1, 38010, San Michele all'Adige (TN), Italy;

The availability of rapid and accurate methods to assess fruit flavour is of utmost importance to support quality control especially in the breeding process. Breeders need more informative and analytical tools to facilitate the selection of complex multigenic traits such as flavour quality.

In this study, the volatiles emitted by 13 Vaccinium accessions (at full ripe stage) were analysed by two solvent-free headspace methods: Proton Transfer Reaction - Time-of-Flight - Mass Spectrometry (PTR-ToF-MS) direct injection and PTR-ToF-MS coupled to a novel Fast-GC system that allows a rapid (120 s) chromatographic separation of the sample. The combination of these two analytic strategies permits the contemporaneous unsupervised (direct injection) and supervised (FastGC) analysis of aroma compounds of blueberry in few minutes. Multivariate statistics (principal component analysis and cluster analysis) of the results allow an unambiguous separation between genotypes based on aroma fingerprinting.

These results show that PTR-ToF-MS coupled to a Fast-GC is suited to monitor at high sensitivity the emission of a large number of volatiles that describe the blueberry aroma profile. This technology can easily monitor and quantify compounds related to ripening and/or senescence so that it can be used to improve the breeding based on volatiles.

T4-P8

CHARACTERIZATION OF NITROGEN AND CARBON POOLS OF ORGANIC FERTILIZERS TO PREDICT THEIR NITROGEN RELEASE

Elke Meinken, Jakob Burmann1, Dieter Lohr

Am Staudengarten 14, 85354 Freising, Germany

During the last years customer demand for organically grown potted plants – not only herbs but also ornamentals – sharply increased. Due to fast growth and high optical requirements nitrogen fertilization is one of the greatest challenges for growers. Beside total amount of released nitrogen time course of mineralization is a crucial factor for the selection of the most suitable fertilizer. However, apart from elaborate incubation experiments there is a lack of methods for characterizing nitrogen release behaviour of organic fertilizers. Aim of the current research was the determination of various nitrogen and carbon fractions of organic fertilizers with different approaches as basis of a prediction model of nitrogen release.

In total 14 different organic fertilizers ranging from raw plant material as coarse meal of legumes, to products of animal origin as hoof and horn meal or pig bristles, to residues of industrial processes (e.g. from starch and sugar industries) were included. Nitrogen was analysed photometrically after hydrolysis with cold and hot water as well as with 0.005 M and 1 M HCl respectively. Organic carbon was measured after hydrolysis with 0.005 M and 1 M HCl by ICP-OES. Additionally, organic carbon was fractionated by stepwise