III International Symposium on Horticulture in Europe

Growing Health and Life

Programme

& Book of Abstracts

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

specificity of the main and lateral shoots are used for the development of valuable hybrids. As a result of our investigation, F1 hybrids 'Sapsan' and 'Storage' (2010), 'Bubenchik' (2011), 'Tainik'(2012), 'Agenchik' (2013), 'Irma'(2014) were included in the State Registry of Cultivars, Trees and Shrubs Species of the Republic of Belarus.

T3-03

HIGH PERFORMING PHENOMICS OF BERRIES AROMA BY PTR-TOF-MS

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Aroma is one of main factors impacting fruit and vegetables quality and consumer appreciation. Since aroma involves the perception of a pletora of volatile organic compounds (VOCs), their assessment is crucial to guarantee the selection and marketability of high quality fruits. High priority should thus be given to replacing poor flavor cultivars with favorable ones, exploiting the variability already available in nature. However, the analysis of the aroma trait in a large number of samples, necessary to overcome the usually massive biological and genetic variability among samples, may be laborious and time consuming.

The application of Proton Transfer Reaction -Time of Flight- Mass Spectrometry (PTR-ToF-MS) has been recently described as a powerful high performing phenotyping tool for both genetic and quality related studies.

This contribute describes the application of PTR-ToF-MS for the study of the aroma variability present in the germplasm collection of the main berries species available at the Foundation E. Mach, with particular regard to strawberry (Fragaria x ananassa), raspberry (Rubus), and blueberry (Vaccinium).

The rapidity and the moderate cost of PTR-ToF-MS analysis, coupled with a multipurpose autosampler, allowed us to perform a detailed aroma characterization of each species with a peculiar attention to the VOC fold changes caused by ad hocstorage experiments tailored to simulate the "from farm to fork" chain. These results confirmed that PTR-ToF-MS can be easily implemented into the breeding phase as a tool to phenotype berries aroma

T3-04

STATUS OF RESEARCH, BREEDING AND PROTECTION OF CUCURBITS IN RELATION TO CUCURBIT DOWNY MILDEW: THEIR LIMITS AND PERSPECTIVES

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Knowledge of the recent distribution, host range, virulence, DNA profiles, and resistance to fungicides of Pseudoperonospora cubensis (Berk. & M.A. Curtis) Rostovzev, and sources of host resistance to this pathogen are reviewed. P. cubensis is widely distributed in all continents, with a high capacity to adapt to changing environmental conditions and new regions. Its host-plant range includes more than 60 species and 20 genera of Cucurbitaceae. P. cubensis exhibits clear host specialization, with shifts in host range and an increasing spectrum of new host species. Temporal shifts to higher virulence levels and more complex virulence patterning within pathogen populations has been recorded in the Czech Republic, Israel (in 2002), and the USA (in 2004). Pathotypes have been described, and a triple-tetrade code proposed for their denomination. A differential host set for racial determination and denomination is under development. Forty-five different reaction patterns were recorded from the interaction of 115 Cucumis melo accessions to 8 isolates of P. cubensis with different levels of virulence; most C. melo accessions were highly susceptible to all isolates; but PI 315410 (VIR 5682) was resistant to 5 isolates. ecause of race-specificity in host-pathogen interactions,