



invitation

**Tuesday,
25 September 2012
20:00 - 21:00 pm**

Amphitheater
Pefkios Georgiades
Andreas Themistocleous Bldg.
CUT, Lemesos

The Department of Agricultural Sciences, Biotechnology and Food Science of the Cyprus University of Technology organises a lecture on:

“Transcriptional regulation of drupe ripening: from transcriptomics to functional genomics”

Main Speakers:

- Part I. 20:00-20:30 Claudio Bonghi,
Department of Agronomy, Food, Natural resources,
Animals & Environment, University of Padova
*“Introduction to transcriptomic approaches in
fruit physiology”*
- Part II. 20:30-21:00 Livio Trainotti,
Department of Biology, University of Padova
“From transcriptomics to functional genomics”

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"Abstract"

Most drupes are climacteric and ethylene plays a critical role during ripening. The dramatic increase in ethylene production that leads to drupe ripening and softening hardly affects the possibility of long storage periods. Several post-harvest diseases affect peach fruit that underwent post-harvest treatments such as cold thus limiting its fresh consumption during the production season and its distant shipping (mainly from the south to the north hemisphere). Moreover, the use of chemical compounds, mostly the ethylene receptor inhibitor 1-methylcyclopropene (1-MCP), widely used to control ripening in several climacteric fruit, is difficult to apply for the contrasting effects it has on drupes of different species. Transcriptome wide approaches have been used to investigate drupe ripening and post-harvest physiology in several *Prunus* species, revealing similarities and uniqueness with other model systems as tomato and apple.

Transcriptomics is the main gate to functional genomics as it opens the possibility to identify new molecular targets useful for improving drupe storability and quality. The functional characterization of some of those targets shed light on the tight synchronization between the activation of the auxin and ethylene pathways, the cross-talk between the two and the existence of genes uniquely modulated by one of the two hormones. These findings, shedding light on the uniqueness of the activation of climacteric ethylene production in peach and other drupes, such as apricot, highlight new possible targets for genetic improvement and new possibilities to chemically regulate drupe ripening.



Claudio Bonghi

Claudio Bonghi is senior researcher in the Faculty of Agriculture at the Department of Environmental Agronomy and Crop Science of the University of Padova. In 1992, he was awarded his PhD degree in the field of 'Crop Physiology' from the University of Padova. He was visiting scientist at the Department of Horticultural Science, Texas A & M University and at Plant, Soil & Nutrition Laboratory of Cornell University (Ithaca, NY). His scientific activity is mainly focused on biochemical and molecular aspects of growth, maturation and postharvest ripening of an array of fruit species (peach, kiwifruit, apple, grape). His recent research interests include the identification of genes involved in the ripening process of tomato, peach, apple and grape by means of microarray technique. He is member of ESTree consortium, an Italian network that produces tools for genetic and genomic studies on Rosaceae species. This consortium developed the first available microarray for peach and other stone fruits. He has published over 110 papers, including original papers on scientific journals (42), lectures, communications and posters presented at congresses (49), and book chapters (4).



Livio Trainotti

Livio Trainotti is Associate Professor of Botany, Faculty of Agriculture, University of Padova. He has a PhD in the field of 'Evolutionary Biology' from University of Padova (1997). During the period December 1998-September 2006 he worked as Research scientist of Plant Physiology at the University of Padova. Research in his laboratory aims to establish the genetic and physiological mechanisms regulating fleshy fruit development and ripening. Particular emphasis has been placed on the development of genomics tool aimed to understanding the regulation of ripening. Gene regulatory networks are going to be explored in order to identify candidate genes to be used in Marker Assisted Selection programmes carried out by breeders. His model systems are peach (*Prunus persica*), strawberry (*Fragaria x ananassa*) and tomato (*Solanum lycopersicum*). His publication record includes over 30 research papers in highly-esteemed journals (Journal of Experimental Botany, Physiologia Plantarum, BMC Plant Biology, Plant Science, Postharvest Physiology & Technology).