reli[4], S. D'Angeli, M.M. Altamura, A.A. Fabbri[3], C. Fanelli[3]. *[1]UT-AGRINN, ENEA, Via Anguillarese 301, 00123 S.M. di Galeria (RM), Italy. [2]Istituto di Chimica Biomolecolare del CNR, Piazzale Aldo Moro 5, 00185 Roma, Italy. [3]Dipartimento di Biologia Vegetale, Università degli Studi "La Sapienza", Largo Cristina di Svezia 24, 00165 Roma, Italy. [4]CRA, Unità di Ricerca della Valorizzazione Qualitativa dei Cereali (CRA-QCE), Via Cassia 166, 00191 Roma, Italy. E-mail: chiara.nobili@enea.it*

To shorten the screening of wheat varieties tolerant to *Fusarium* head blight (FHB) and to deoxynivalenol (DON) synthesis the development of rapid and reliable assays is required. In this work, active but ungerminated seeds of two *Triticum aestivum* varieties, Blasco and Sagittario, respectively tolerant and susceptible to FHB, were inoculated with two *F. graminearum* strains (Fg126 and Fg8308), having a different toxigenic profile. Wheat seeds reacted to *F. graminearum* infection by early production of reactive oxygen species (ROS) and activating antioxidant enzymes. Whilst cv. Blasco showed an important antioxidant reaction which apparently lead to a marked decrease in ROS content, cv. Sagittario partly missed this counteraction. Compared to cv. Blasco, cv. Sagittario also produced more 9-hydroxyoctadecenoic acid (9-HODE), considered a susceptibility factor toward mycotoxigenic fungi. Moreover, some genes related to fungal aggressiveness were up-regulated in Fg126 when grown on susceptible wheat seeds and some plant defence genes advanced their expression into cv. Blasco as compared with cv. Sagittario. Finally, it turned out that DON production may trigger apoptosis, occurring very quickly after fungal inoculation and with the typical formation of pre-apoptotic vesicles into aleuronic cells. As a matter of fact, wheat seeds, irrespective of the variety, are able to partly (5-10%) convert DON in its less toxic glucosylated form (3-Glu-DON). Each of these parameters might be considered as a wheat tolerance marker and used for diagnostic purposes or, through a forward genetic approach, for selecting wheat varieties hampering DON biosynthesis.

ALARMING SPREAD OF *PLUM POX VIRUS* STRAIN M IN SOME AREAS OF SOUTHERN ITALY. F. Palmisano[1], M. Calderaro[2], D. Boscia[1]. *[1]Istituto di Virologia Vegetale del CNR, UOS Bari, Via Amendola 165/A, 70126 Bari, Italy. [2]Dipartimento di Protezione delle Piante e Microbiologia Applicata, Università degli Studi "Aldo Moro", Via Amendola 165/A, 70126 Bari, Italy. E-mail: d.boscia@ba.ivv.cnr.it*

Plum pox virus (PPV), the causal agent of Sharka, the most harmful virus disease of stone fruits, is characterised by a great variability represented by seven types or strains, among which "Marcus" (PPV-M) is considered the most dangerous, particularly for the peach industry. Sharka appeared in the south-eastern part of Italy (Basilicata and Apulia) in 1987 with few outbreaks of strain "Dideron" (PPV-D), and was maintained under control for long time, thanks to the timely eradication of all infection foci. The situation turned to worse in 2007, when PPV-M appeared for the first time in Basilicata, followed two years later by a couple of outbreaks of the same strain in northern Apulia. Although eradication actions were intensified by the local Plant Protection Services, during spring 2010 new outbreaks popped up in both regions. Object of this study was the characterization of PPV samples collected in different places, for identifying the viral strains involved and studying the level of variability among them. Isolates were first analysed by ELISA with strain-specific monoclonal antibodies. Serological characterization was followed by molecular characterization based on: (i) RT-PCR; (ii) sequencing of amplicons; (iii) multiple sequence alignments; (iv) phylogenetic analysis. Results showed that the majority of the outbreaks were caused by PPV-M, thus confirming the high rate of natural transmission of this strain and the need for enforcing eradication and, even more, for preventing the introduction in the region of infected nursery productions from elsewhere.

SUPPRESSIVE EFFECT OF AERATED COMPOST TEAS PRODUCED IN WATER AND IN WHEY ON PLANT FUNGAL PATHOGENS. C. Pane[1], G. Celano[2], D. Villecco[1], M. Zaccardelli[1]. *[1]CRA, Centro di Ricerca per l'Orticoltura di Pontecagnano, S.S. 18 n. 204, 84091 Battipaglia (SA), Italy. [2]Dipartimento Scienze dei Sistemi Colturali, Forestali e dell'Ambiente, Università degli Studi della Basilicata, Via Nazario Sauro 85, 85100 Potenza, Italy. E-mail: catello.pane@entecra.it*

Compost teas are fermented extracts of composted materials used for their ability to decrease plant diseases. A compost extractor in liquid phase, with a forced air-blowing system, assembled using farmer facilities, was used to produce "on farm" aerated compost teas (ACTs) from five types of compost, in a 14-day fermentation cycle. Solid feedstocks, representing one biowaste compost and four composted tomato residues, were separately extracted in water (waACTs) and whey (whACTs). The ten teas were tested for their ability to inhibit the *in vitro* growth of several soil-borne (*Fusarium solani*, *Verticillium dahliae*, *F. oxysporum* f. sp. *lycopersici*, *Rhizoctonia solani*, *Sclerotinia minor*, *Pyrenochaeta lycopersici* and *Sclerotium rolfsii*) and air-borne (*Alternaria solani*, *A. radicina*, *A. dauci*, *Botrytis cinerea*, and *Colletrichum lindemuthianum*) pathogens. Moreover, applications of ACTs were also used in greenhouse trials to assess their suppressive effect on gray mold (*B. cinerea*) on tomato plants. All ACTs significantly inhibited the mycelial growth of *A. dauci* (26-48%), *A. radicina* (27-66%), *B. cinerea* (13-30%), *F. solani* (34-24%), *A. solani* (45-17%), *P. lycopersici* (50-13%) and *C. lindemuthianum* (31-47%). The other pathogens were affected weakly. In the *in planta* assays, waACT consistently provided the highest suppression of gray mold, with >78% reduction, compared to the 50% reduction of lesion size due to waACTs applications. Generally, waACTs were evaluated as more effective than whACTs. Future prospectives consist in testing the best ACTs as potential alternatives to the use of synthetic chemical fungicides for disease control in the open field.

RESPONSE OF MICROBIAL COMMUNITIES TO COMPOST AMENDMENT OF SOIL AND EFFECT ON DISEASE SUPPRESSIVENESS. C. Pane, D. Villecco, M. Zaccardelli. *CRA, Centro di Ricerca per l'Orticoltura di Pontecagnano, S.S. 18 n. 204, 84091 Battipaglia (SA), Italy. E-mail: catello.pane@entecra.it*

Compost can be used to improve organic matter in cultivated soils, so as to reduce the use of mineral fertilizers, stimulate soil microbial activities, and improve suppressiveness of soil-borne pathogens. In this study, the response of the soil-borne microflora to soil waste compost amendment was evaluated at functional biodiversity (Biolog™ CLPPs) level and at global (CO_2 release, beta-glucosidase, FDA hydrolysis) level, in a short post-amendment period. *Rhizoctonia* damping-off suppressiveness was also measured in a laboratory experiments on the host *Lepidium sativum*. Soil chemical parameters such as electrical conductivity (EC) and pH were monitored at the same time. Other than compost-amended (CA) soils, mineral fertilized (MF) and non-treated (NT) soils were used as control. The addition of compost in-