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SESSION 5: DISEASE CONTROL AND FORECASTING MODELS

**Trichoderma gamsii 6085 as a tool for the biological control of FHB on wheat**

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*Fusarium* head blight (FHB) is a worldwide destructive disease of small cereals, particularly wheat. The disease is caused by a complex of *Fusarium* spp. with *Fusarium graminearum* and *Fusarium culmorum* as the most prevalent. Associated with yield reduction, contamination of grains by mycotoxins represents the most important consequence of FHB. Trichothecenes, as deoxynivalenol (DON), and its acetylated derivatives, and nivalenol (NIV) are the most dominant mycotoxins associated with FHB of wheat. Management of FHB and its mycotoxins is based on strategies such as host resistance, agricultural practices and fungicides, but none of these methods alone is able to significantly reduce the disease. In this scenario many efforts have been initiated to identify FHB antagonists such as beneficial fungi to be used in biocontrol strategies (Sarrocco et al. *Phytopathol. Med.* 2012).

In the last years our attention was directed towards *Trichoderma gamsii* 6085 as a beneficial isolate for the biocontrol of FHB. This isolate was selected for its ability to grow in presence of DON and the role of some PDR-ABC transporters in mycotoxin resistance was investigated.

Under laboratory conditions the antagonistic ability, as mycoparasite and competitor for natural substrates, of *T. gamsii* 6085 towards *F. graminearum* and *F. culmorum* mycotoxigenic isolates was assessed in addition to a reduction of DON production (Matarese et al. *Microbiology* 2012).

During two following growing seasons of wheat (2010/2011 and 2011/2012) *T. gamsii* 6085 was used as inoculant of soil before sowing and of spikes at anthesis both with interesting results. Particularly, when applied on spikes the isolate was able to colonize spikelets components, demonstrating an endophytic lifestyle and showed a reduction of both disease index and disease severity (Sarrocco et al. *J. Plant Pathol* 2013).

Results here reported are encouraging and since this is the first report of the use of *T. gamsii* as biocontrol agent of FHB, further researches are scheduled in order to deeply investigate this system.

Keywords: *Trichoderma gamsii*, FHB, biocontrol, mycotoxin