

7<sup>th</sup> Global Summit on

# Agriculture & Horticulture

October 17-19, 2016 Kuala Lumpur, Malaysia

## Opportunistic role of *Trichoderma harzianum* in sustainable crop protection

Laila Naher<sup>1</sup>, Tan Soon Guan<sup>2</sup>, Chai Ling Ho<sup>2</sup>, Faridah Abdullah<sup>3</sup> and Umi Kalsom Yusuf<sup>2</sup><sup>1</sup>Universiti Malaysia Kelantan, Malaysia<sup>2</sup>Universiti Putra Malaysia, Malaysia

**Statement of the Problems:** *Ganoderma boninense* Pat caused basal stem rot (BSR) disease in oil palm and the disease resulted in great losses in palm oil production. Another fungus *Fusarium oxysporum* cubense is the most versatile pathogen for wilt disease in several plants while *Fusarium* wilt in banana has great impact for losses in commercial banana production.

**Methodology:** Both causal pathogens of *G. boninense* and *F. oxysporum* have been tested with *Trichoderma harzianum* to determine the biocontrol mode of *T. harzianum* against the pathogens.

**Findings:** *T. harzianum* showed the biocontrol activity with the inhibition rate more than 60% against both *G. boninense* and *F. oxysporum*. The mode of biocontrol activity as process of mycoparasitism action is also observed under the scanning electronic microscope. The coiling of *Trichoderma* on the pathogens or shrinkage mycelium of the pathogen has proven *Trichoderma*'s biocontrol ability. At molecular level only for studies on *Ganoderma*-oil palm or *Ganoderma*-oil palm- *Trichoderma* interactions showed that *Trichoderma* induced chitinase genes or enzyme in oil palm leaves or roots tissues as well as plant growth was also enhanced in the presence of *Trichoderma*.

**Conclusion & Significance:** The data from this study showed that *T. harzianum* successfully manage the interaction between plant-pathogen and pathogen only as well as enhance the defence responses in plant which indicates *Trichoderma* has good impact for sustainable crop protection.

### Biography

Laila Naher, obtained her PhD in the field of Mycology and Plant Pathology from Faculty of Science, Universiti Putra Malaysia in 2011. Then, she continued as Post-Doctoral fellow at the same University. She joined as a Senior Lecture at Faculty of Agro- Based Industry, Universiti Malaysia Kelantan in 2014. She teaches the subjects- Postharvest Technology, Plant Disease Management, Molecular Biology, and Crop Protection. Besides teaching, her research field focuses on fundamental aspects of fungal isolation and identification as well as identification of biocontrol agent for management of plant disease and besides that, she works on understanding the gene that involved either as plant defence response or biocontrol process against the pathogen in interactions between plant-pathogen-biocontrol agent and pathogen-biocontrol agent. She has published more than 20 papers in refereed journal, 7 proceedings papers in conference book, including award as best paper, UMK research and innovation 2016, currently, two book chapter under review process.

lailanaher@umk.edu.my

### Notes: