

Annual Conference on

# MICROBIAL PATHOGENESIS, INFECTIOUS DISEASE, ANTIMICROBIALS AND DRUG RESISTANCE

August 23-24, 2017 | Toronto, Canada

## Proteomics insight into temperature-dependent pathogenicity of *Cochliobolus lunatus* during invasion of potato

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It is established that *Cochliobolus lunatus* secretes a myriad of proteins to break plant primary defense (i.e. cuticle and cell walls) and degrade complex carbohydrates for nutrients acquisition. Many larger secreted proteins with potential roles in pathogenicity include predicted cutinases, peptidases, glucanases, fungal transporters belonging to the major facilitator super-family (MFS), and ATP-binding cassette (ABC) group proteins, and carbohydrates active enzymes. But major physiological pathways affected in potato during *C. lunatus* colonization are unknown during incitement of brown-to-black leaf spot disease. Using proteomics approach, it is shown that *C. lunatus* significantly ( $P < 0.05$ ) suppressed the host functional proteome at 96 hours after infection, predominantly affecting the expression of ribulose biphosphate carboxylase enzyme, plastid aldolase enzyme, alcohol dehydrogenase 2 and photosystem II protein prior to the formation of brown-to-black leaf spot disease. Robust host-response was observed at 24 hours after infection associated by 307 differentially expressed peptide spots concurring with the active phase of production of infectious

hyphae. Importantly, *C. lunatus* differentially down-regulate *StNPR1* transcript by 8.19-fold by 24 hours after infection. We also observed that *C. lunatus* transiently down-regulate the expression of *StNPR1* at the onset of infection. Put together, the infection negatively affects the expression of proteome modules involved in photosynthesis, carbon fixation and light assimilation. This study contributes towards better understanding of the mechanism underlining the invasion strategies of *C. lunatus*.


### Speaker Biography

Louis Bengyella has expertise in fungal-plant, virus-plant and insect-plant interactions and he is interested in plant health and increased crop production. He has completed his PhD at the University of Burdwan, India and Post-doctoral studies from the University of the Witwatersrand School of Cell and Molecular Biology and Department of Biotechnology in Vaal University of Technology, South Africa. He has published more than 30 papers in reputed journals and has been serving as an Editorial Board Member for Springer, Elsevier, Science alert and Academic publishers.

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Interaction dynamics of *Cochliobolus-lunatus* with potato leaves depicting invasions strategies and differential expressed proteome.

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