

2nd International Conference on

MYCOLOGY & MUSHROOMS

September 25-26, 2017 Chicago, USA

Evidence that virulent *Cochliobolus lunatus* colonizes potato by down-regulating proteome at late stages of infection**Bengyella Louis, Pranab Roy and Naser Aliye Feto**
Vaal University of Technology, South Africa

It is confirmed that *Cochliobolus lunatus* adopt different but highly successful strategies on potato cultivars to incite brown-to-black leaf spot disease. *C. lunatus* abundantly produces four-celled conidia at high temperatures (>30°C) and under suitable conditions; the fungus colonizes potato (*Solanum tuberosum* L.) cultivars by adopting different invasion strategies at the microscopic level. Long-lasting defense during infection requires an upsurge in proteome changes particularly pathogenesis related proteins (PrPs) chiefly under the control of nonexpresser of pathogenesis related proteins. In order to gain molecular insights, we profiled the changes in proteome and potato nonexpresser of pathogenesis related proteins (*StNPR1*) during the infection process. It is found that *C. lunatus* significantly ($P<0.05$) suppressed the host functional proteome by 96 hours after infection (hai), principally, affecting the expression of ribulose biphosphate carboxylase enzyme, plastidic aldolase enzyme, alcohol dehydrogenase 2 and photosystem II protein prior to the formation of brown-to-black leaf spot disease. Strongest host-response was observed at 24 hai hallmarked by 307 differentially expressed peptide spots concurring with the active phase of production of penetrating hyphae. Additionally, *C. lunatus* differentially down-regulate *StNPR1* transcript by 8.19 fold by 24 hai. This study is the first to elucidate that *C. lunatus* transiently down-regulate the expression of *StNPR1* at the onset of infection, and as a whole, infection negatively affects the expression of proteome components involve in photosynthesis, carbon fixation and light assimilation. This study contributes towards better understanding of the mechanism underlining the invasion strategies of *C. lunatus*.

bengyellalouis@gmail.com

Notes: