Bengyella Louis, Virol Mycol 2016, 5:2(Suppl)
http://dx.doi.org/10.4172/2161-0517.C1.011

Temperature dependent-virulence and evidence that Cochliobolus lunatus colonizes potato by adopting different invasion strategies on cultivars

Bengyella Louis
University of Health and Allied Sciences, Ghana

Extreme temperature fluctuations affect the interaction dynamics of *Cochliobolus lunatus* through temperature-dependent virulence, virulence differentiation and induced-virulence which poses a major threat to global food security. The relationship between higher temperature and pathogenicity of *C. lunatus* on reported hosts are poorly understood. In this study temperature stress was applied on *C. lunatus* to investigate the correlation among the different types of conidia. Additionally, a comparatively dissection of the invasion process, infection structures and conidial germination pattern on four different Solanum tuberosum L. (potato) cultivars were performed. Based on microscopic and secretome examination, it was found that *C. lunatus* adopt different hyphae morphology and septation pattern at different temperature regimes and produce different types of conidia and proteins during invasion. The study showed that four-celled conidia are overproduced at elevated temperature (>30 ºC) than one, two, three and five-celled conidia. Our finding revealed that *C. lunatus* conidia exhibit bipolar germination (>14.67%, P<0.05), unipolar germination (>35.33%, P<0.05), penetrate subcutaneously via epidermal anticlinal cell wall (>0.33%, P<0.05) and differentially form appressoria-like structures during colonization of four different potato cultivars. Importantly it is shown that unipolar germination and bipolar germination in *C. lunatus* are independent occurring phenomenon irrespective of the host. It is confirmed that *C. lunatus* adopt different but highly successful strategies on four different potato cultivars to incite brown-to-black leaf spot disease. Altogether our data showed that increase temperature enhances *C. lunatus* virulence on different potato cultivars irrespective of their inherent thermotolerant traits.

Biography

Bengyella Louis has completed his PhD from the University of Burdwan, India and Postdoctoral studies from the University of the Witwatersrand School of Cell and Molecular Biology. He is a Lecturer in the University of Health and Allied Sciences, Ghana. He has published 30 papers in reputed journals and has been serving as an Editorial Board Member for Springer, Elsevier, Sciencealert and Academic publishers.

bengyellalouis@gmail.com

Notes: