



The Biodiversity Seminar Series is pleased to announce

Dr. Rafiq Ahad

from the Centre for Biodiversity Genomics, presenting the talk

Taxonomic complexity, temporal dynamics and roles of microorganisms in the improvement of soil health and plant protection

Abstract:

I intend to briefly introduce my M.Sc. thesis research that aimed to elucidate the taxonomic complexity and pathogenicity of *Phoma lingam* fungal population from Saskatchewan crop fields. Comparisons of phenotypic characteristics, and DNA fingerprinting analyses revealed the existence of highly heterogeneous *P. lingam* population in Saskatchewan. Phylogenetic analysis of ITS-rRNA sequences indicated that *P. lingam* isolated from a brassica weed showed a trend of migration from non-pathogenic to pathogenic state over a decade of period. This suggests the adverse impacts of climate changes on this fungal population. Next, the key results of my PhD thesis will be presented. This study aimed to obtain and use microbial genes for protecting corn plants and their derived foods from Fusarium pathogen and their toxins (vomitoxin/DON), respectively. Use of multistep enrichment procedure facilitated to achieve a novel soil bacterium capable of detoxifying 11 food contaminating toxins. Application of comparative genomics techniques aided to predict bacterial genes encoding DON detoxifying enzymes. The genes were expressed in corn plants to determine their ability to *in planta* DON detoxification and Fusarium suppression. The presentation will be ended up by presenting some of my industrial post PhD research. The talk includes identifying a high yielding corn field in southern Ontario, developing and employing TRFLP as a molecular tool for measuring taxonomic composition and diversity of microbiomes in the environmental samples. The effect of particular cropping practices on the improvement of soil health, and how microbial spatiotemporal dynamics benefits differentially corn plants at different developmental stages will be discussed.

Brief Bio:

Dr. Rafiq Ahad completed his PhD in 2012 on a NSERC scholarship from the Department of Plant Agriculture at University of Guelph researching on the development of a novel enzymatic method for protecting plants from fungal pathogens and their toxins that often contaminate foods. He completed his bachelor's degree in agriculture sciences in Bangladesh, and obtained a master degree in plant protection in 2004 from University of Goettingen, Germany. Prior to joining BIO he worked over three years as a Research Scientist at A&L Biologicals, London, ON where he efficiently managed different complex research projects. He has published more than 10 research articles.

When: Thursday June 2nd 2016 at 12:00 pm

Where: Visualization Theatre, Room 1009
Biodiversity Institute of Ontario

For scheduling and more information on the seminars, please visit:

<http://biodiversitygenomics.net/resources/seminar-series/>