

# Plant Pathology Seminar Series

## **“INVESTIGATION OF ERYSIPTACEOUS FUNGI, *PODOSPHAERA PRUNICOLA* AND *ERYSIPTHE NECATOR*, AS HOSTS OF FUNGAL VIRUSES AND EFFECT OF INOCULUM CONCENTRATION AND FRUIT DEVELOPMENT STAGE ON FRUIT INFECTION OF SWEET CHERRY BY *PODOSPHAERA PRUNICOLA*”**

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This study aimed to explore mycoviruses associated with the fungus *Podosphaera prunicola* and the fungus *Erysiphe necator* the causal agents of powdery mildew of sweet cherry and grapevines respectively. This study also aimed to understand the effect of inoculum concentration and fruit growth stage on the powdery mildew incidence and severity of cherry fruit.

To explore mycovirus associated with *P. prunicola* and *E. necator*, double-stranded RNAs extracted from the fungal tissues were analyzed by next generation sequencing and bioinformatics. The results showed the presence of eight distinct mycovirus-like sequences in *P. prunicola*. Five of these sequences constitute the genome of three putative new members of the genus *Alphapartitivirus* and two additional sequences constitute the genome of a putative new member of the genus *Betapartitivirus* of the family *Partitiviridae*. These novel mycoviruses were tentatively named as *Podosphaera prunicola Partitivirus 1, 2, 3* and *4*. A remaining eighth sequence which shared similarity to the members of family *Virgaviridae* was identified as a genomic component of a new virus species and named *Podosphaera prunicola tobamo-like virus*. Similarly, the results showed the presence of eight mycovirus-like sequences in *E. necator*. Five of these sequences represent three novel mycoviruses related to the genus *Alphapartitivirus* of the family *Partitiviridae* and remaining three sequences represent three novel mycoviruses related to the genus *Mitovirus* of the family *Narnaviridae*. Novel mycoviruses were tentatively named as *Erysiphe necator Partitivirus 1, 2, and 3* and *Erysiphe necator Mitovirus 1, 2 and 3* reflecting their *E. necator* origin and their respective phylogenetic affiliation.

To understand the effect of inoculum concentration and fruit growth stage on the powdery mildew incidence and severity on sweet cherry fruit, fruits of cv. Sweetheart were inoculated with different conidia concentrations in three different fruit development stages. The results showed that conidial concentration significantly influenced the disease development and fruits became increasingly susceptible to powdery mildew infection with maturity. Additionally, real-time quantitative PCR assay of *P. prunicola* conidia collected throughout the fruiting season showed variation in the airborne conidial concentrations

11:10 am | Wednesday, February 8, 2017 | Johnson Hall 343

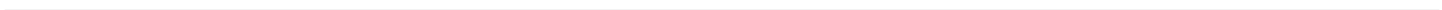
*PhD Exit Seminar*



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