

## Genetics of *Beauveria bassiana* attacking CBB in Puerto Rico

Stephen A. Rehner, USDA-ARS, Systematic Mycology Laboratory, Beltsville, MD 20705

The generalist fungal entomopathogen *Beauveria bassiana* (Bb) is a conspicuous natural enemy of coffee berry borer (CBB). A key element in ongoing efforts to control CBB using the Bb mycoinsecticide Mycotrol® is to determine the relative importance of Mycotrol® and indigenous Bb in suppressing CBB populations. In particular, it is important to 1) determine the effectiveness of Mycotrol® to initiate and sustain CBB epizootics relative to that provided by native strains, 2) to determine the environmental persistence of Mycotrol® and 3) to assess its risk potential to non-target arthropods. In this talk I will describe molecular epidemiological tools used for phylogenetic and population genetic characterization of Bb isolated from CBB at coffee farms in Puerto Rico. In Puerto Rico, all Bb isolations (>200 isolates sampled) are members of a distinct cryptic species of Bb, designated A2, which was the predominant Bb pathogen of CBB in an earlier survey covering Central/South America and western equatorial Africa. Thus, A2 appears to have a special affinity for CBB. Despite prior applications of Mycotrol® at several farms 2 years previous to our sampling, this strain was rarely isolated, either indicating relatively weak persistence of Mycotrol® in this environment or perhaps the inability to compete on CBB against indigenous isolates. A multi-locus microsatellite genotyping system is developed that enable precise discrimination of the Mycotrol strain from indigenous A2 strains and the ability track the many A2 genotypes associated with the CBB epizootic in Puerto Rico.