Genetic Diversity and Pathogenicity of an Invasive Fungus

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Historically, invasive species have been notorious for finding new niches to colonize. Pathogenic fungi are no exception. The aim of this project is to determine the genetic diversity of invasive fungal pathogen *Coleosporium plumeriae* (called Roya) found in different parts of Puerto Rico. As with many pathogenic fungi, it is unknown if this fungus reproduces sexually. We hypothesize that as an invasive species, if it was introduced to Puerto Rico only once and does not reproduce sexually, the fungus's genetic diversity should be minimal. However, if sexual reproduction occurs (or if there were multiple introductions) the genetic diversity should be greater. This genetic diversity could mean that the fungus could adapt to attack a larger variety of hosts. In order to determine the genetic diversity, we will collect infected tissues, extract DNA, amplify variable genes with PCR, sequence PCR products and do phylogenetic analysis. Although *C. plumeriae* is a plant pathogen, it can serve as a model system for genetic diversity and specificity of human and animal pathogens as well.