

### **New species and populations in *Fusarium*: examples from the tropics**

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The genus *Fusarium* is a polyphyletic aggregate of important plant pathogens, toxin producers, endophytes and saprotrophs. The species concept used in the last decades, based mainly on morphological characters, do not reflect the real diversity of species and populations of this group. Especially the *formae speciales* concept, used to delimitate populations within species aggregates of *Fusarium oxysporum* and *Fusarium solani*, does not stand when reliable phytosanitary measures and PCR-based detection protocols are required. The development of consistent biological and phylogenetic species concepts allowed more accurate species delimitations in groups of fungi with insufficient distinctive morphological characters. There is strong evidence that in tropical and subtropical regions of Brazil and other countries a considerable number of new species may exist. The situation will be illustrated by examples of pathogens on plants of tropical distribution. Fruit crops like mango, pineapple, passion fruit, among others, suffer from important diseases caused by *Fusarium* species and new species and populations were recently detected. In soybeans, sudden death syndrome SDS is a widespread disease caused by several *Fusarium* species described during the last decade. In Brazil, information about etiology of SDS is still limited. Fusariosis is the most important fungal disease on black pepper, and the putative etiological agent, known as *Fusarium solani* f.sp. *piperis*, may represent a different species. Our research activities are supported by CML - Coleção Micológica de Lavras, a research collection dedicated to the preservation of reference material of plant pathogens, with emphasis on *Fusarium*. CML contains about 2000 strains, including endophytes and soil fungi from tropical habitats.

**Key words:** Ascomycota, *Gibberella*, *Haematonectria*, mating populations, tropical fruit crops, plant disease.