

EPIDEMIOLOGY AND MANAGEMENT OF POSTBLOOM FRUIT DROP OF CITRUS IN NEW PLANTING AREAS IN SÃO PAULO STATE

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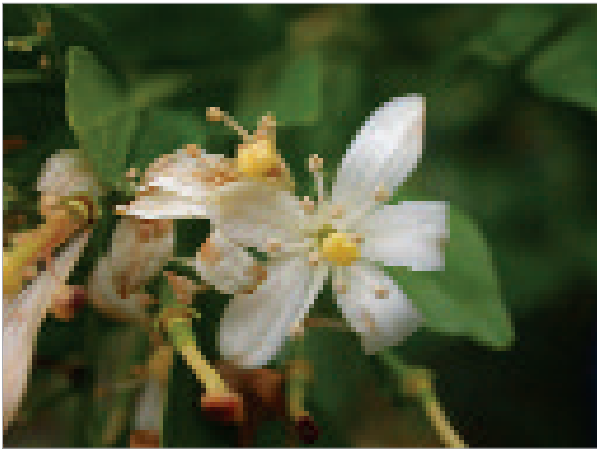


Figure 1. Flowers of *Murraya paniculata* with typical lesions, caused by *Colletotrichum acutatum* isolated from orange flowers (Spósito, M.B et al., unpublished)

Citrus crop in São Paulo State is migrating from North and Central regions to new areas in the Southeast. The main reasons for the migration are lower values of land in Southeast region, compared to traditional planting areas, and lower costs of production. Weather in this region is favorable to the occurrence of post bloom fruit drop, caused by *Colletotrichum acutatum*. This disease can cause the drop of up to 100% of young fruit. For this reason, its control is absolutely necessary in orchards where it occurs frequently. Control of post bloom fruit drop is made by preventive fungicide spraying during bloom. Costs of chemical treatment to disease control are estimated in US\$ 553/ha. Preventive control of the disease exclusively based on the phenological host stage commonly causes excessive fungicide spraying with adverse effects to the environment. The continuous application of the same fungicide in an orchard frequently selects resistant pathogen strains. In this case, the fungicide becomes inoperative. In order to improve disease management and to reduce the cost of fungicide spraying, epidemiological behavior of the pathosystem must be known. There is very few information available on the epidemiology of post bloom citrus fruit drop. It is still unknown the way and the period of inoculum survival between blooming, the environmental conditions favorable to infection and the inoculum variability inside the orchards. It has not been determined as well, the pattern and distances of inoculum dispersal, influence of weather variables in the space-temporal disease progress. Considering the lack of information, it is not surprising that forecast systems developed in Florida, to control this disease, have not been adopted by São Paulo citrus growers. The main objectives of this project are: (i) to characterize the spatial distribution of the inoculum and the disease progress in the orchards in the Southeast of São Paulo State; (ii) to understand different phases of disease cycle, particularly the mechanisms of inoculum survival, infection and colonization; (iii) to test different alternatives to the chemical control and to validate/develop disease forecast systems to São Paulo growers.

SUMMARY OF RESULTS TO DATE AND PERSPECTIVES

The most important results in the first year of this project are the description of a new host for the pathogen and a different *Colletotrichum* species causing the disease in citrus. According to our results, *Colletotrichum acutatum* can cause blossom blight (Figure 1) and fruit drop (Figure 2) in orange jasmine (*Murraya paniculata*), an evergreen, herbaceous perennial that belongs to Rutaceae family, as well as *Citrus* spp, which is commonly used as fencing in citrus groves in São Paulo State (Lima, W.G *et al.*, unpublished). In addition, 24 *Colletotrichum* isolates, from a population of 139 isolates from São Paulo State were identified as *C. gloeosporioides*. These isolates were mainly found in limes (*Citrus latifolia*) but when inoculated on orange flowers, they showed the same symptoms (blossom blight and post-bloom fruit drop) as *C. acutatum*. In addition, preliminary results indicate that the pathogen does not survive in soil orchards, but some weeds can play a role in its survival.



Figure 2. Calix of *Murraya paniculata* alter postbloom fruit drop caused by *Colletotrichum acutatum* (Spósito, M.B *et al.*, unpublished)

MAIN PUBLICATIONS

Lima WG, Spósito MB, Amorim L. 2009. First report of *Murraya paniculata* as host of *Colletotrichum acutatum*. *Journal of Plant Pathology*. **91**: S4.111.

Silva Jr. GJ, Spósito MB, Marin DR, Amorim L. 2010. Spatial and temporal dynamics of postbloom fruit drop in sweet orange orchards in São Paulo State, Brazil. *Phytopathology*. **100**: S119.

Lima WG, Spósito MB, Amorim L, Câmara MPS, Romão AS, Melo-Filho PA. 2010. Pathogenic, genetic and cultural description of *Colletotrichum gloeosporioides*, a new causal agent of postbloom fruit drop. *Proceedings of the 9th International Mycological Congress*, Edinburgh. P2.214.

Ciampi MB, Souza AP, Spósito MB, Amorim L. 2010. Remarkable low clonality levels in *Colletotrichum acutatum*, the causal agent of citrus postbloom fruit drop, accessed by microsatellite loci in Brazil. *Proceedings of the 9th International Mycological Congress*, Edinburgh. P2.200.

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