How Temperature and Relative Humidity Affect the Number of Spores Produced by the Fungus Responsible for Citrus Black Spot

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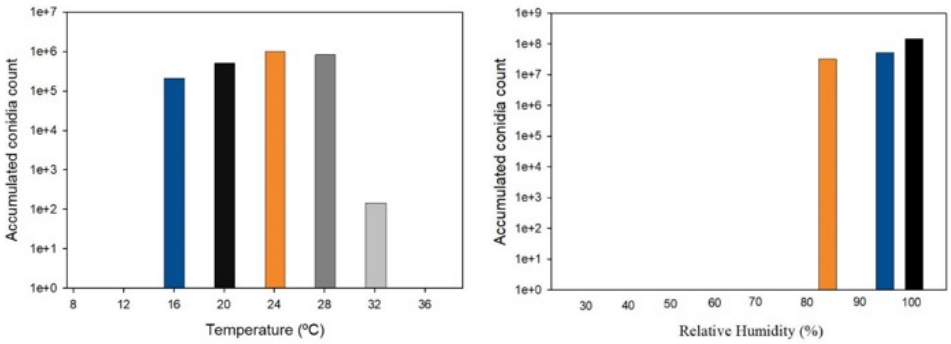

Phyllosticta citricarpa conidia produced at different temperature (left) and relative humidity (right) levels on dead twigs.

Citrus Black Spot (CBS), a disease caused by the fungus *Phyllosticta citricarpa*, causes yield loss and reduces fresh fruit marketability. Somewhat unusually, the population of *P. citricarpa* in Florida can only form asexual spores. These spores are mainly formed in leaf litter, dead twigs and symptomatic fruit on the tree. Little is known about the environmental conditions that allow *P. citricarpa* colonization and spore formation on those plant materials. We did know that the fungus requires moist conditions to thrive, but there were few other details known. Therefore, we conducted a controlled study to look at how temperature and relative humidity affected how many spores were formed by *P. citricarpa* on dead twigs to see how much inoculum could potentially be formed in a canopy. Temperature for measurable spore production ranged from 16 (61°F) to 32°C (90°F) at relative humidity greater than 82%. We were unable to measure spore production from 43 to 72% relative humidity with an apparent threshold between 72 and 82%. Overall, the optimal conditions for spore production were between 20 (68°F) and 28°C (82°F) at relative humidity above 94%. While high numbers of spores could be produced in a range of temperatures and high relative humidity, these conditions do not occur continuously in the grove. When we sampled in the grove for spores from dead twigs, we found far fewer spores than we expected. We hope to explore why fewer spores were found in the grove compared to what was observed in the lab so we can better understand inoculum production for this fungus and recommend better control measures.

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