Establishing pathogenicity of *Colletotrichum gloeosporioides* in California strawberry

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Anthracnose, caused by *Colletotrichum* spp., is a disease that can cause whole plant collapse and localized lesions on a wide variety of hosts. Historically, the main causal agent of anthracnose in California strawberry has been the *C. acutatum* species complex. The *C. gloeosporioides* species complex is the main causal agent in the southeastern United States and was previously undocumented in California. In 2024, the Cal Poly Strawberry Center's Disease Diagnostic Service began receiving samples testing positive for *C. gloeosporioides*. The objectives of this project, including a greenhouse trial and detached leaf and fruit assays, are to establish pathogenicity of *C. gloeosporioides* complex isolates in common strawberry cultivars and to compare severity to the established *C. acutatum* complex isolates.

Greenhouse trial

The experiment consisted of a greenhouse trial examining cultivar susceptibility to *C. gloeosporioides* and *C. acutatum*. The trial included cultivars Monterey and Albion inoculated with four *C. gloeosporioides* complex isolates and one *C. acutatum* complex isolate compared against an uninoculated control group. Plants were observed weekly and sampled at mortality. Diseased plant tissue was plated onto ½ strength potato dextrose agar, and disease incidence for both species complexes was evaluated.

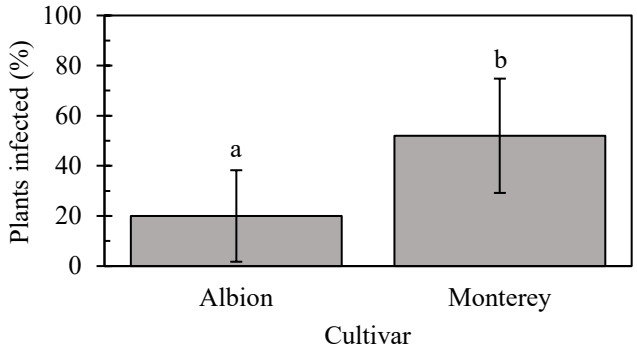


Figure 1. Percentage of plants infected with a *Colletotrichum* spp. by cultivar. Data without connecting letters were statistically significant ($P < 0.05$). Error bars represent standard error (n = 5).

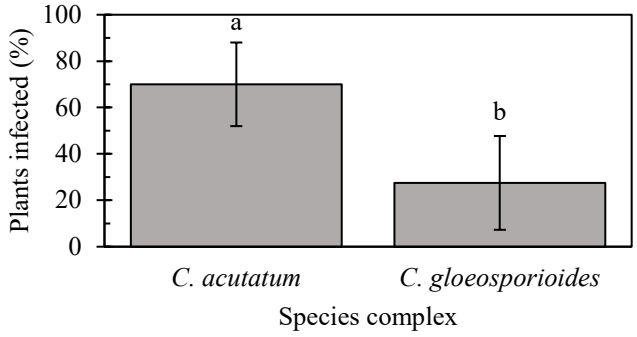


Figure 2. Percentage of plants infected with a Colletotrichum spp. by species complex. Data without connecting letters were statistically significant ($P < 0.05$). Error bars represent standard error (n = 5).

Leaf and fruit assays

The experiments consisted of two detached leaf and fruit assays examining cultivar susceptibility to *C. gloeosporioides* and *C. acutatum*. The trials included cultivars Monterey, Monarch, and San Andreas inoculated with two *C. gloeosporioides* complex isolates and two *C. acutatum* complex isolates compared against an uninoculated control group. Fruit and leaves were incubated for six days, after which lesion diameter was measured.

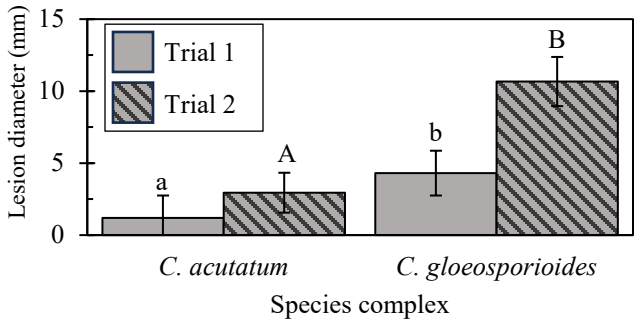


Figure 3. Mean lesion diameter on strawberry leaves after six days of incubation. Data without connecting letters were statistically significant ($P < 0.05$). Error bars represent standard error (n = 3).

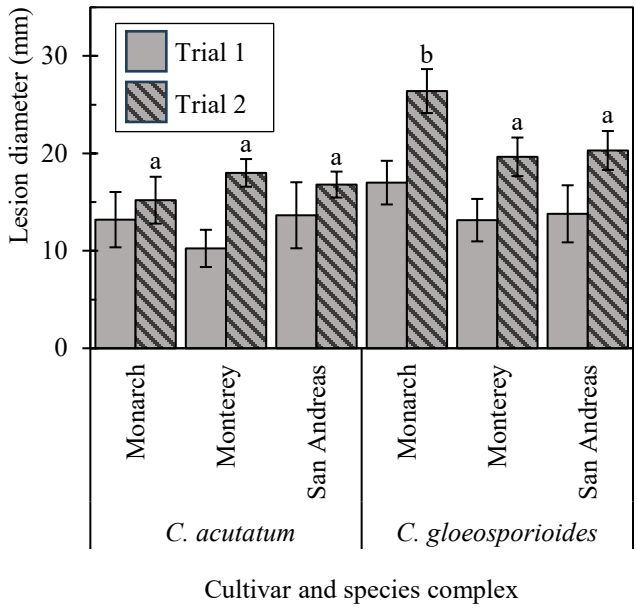


Figure 4. Mean lesion diameter on strawberry fruit after six days of incubation by species complex and cultivar. Data without connecting letters were statistically significant ($P < 0.05$). Error bars represent standard error (n = 5).