

## Abstract

The causal organism responsible for the recent outbreak of almond and peach anthracnose in California was identified and characterized as *Colletotrichum acutatum*. Isolates of *C. acutatum* from almond were found to be similar to California strawberry isolates and South Carolina peach and apple isolates of *C. acutatum* based on conidial morphology, temperature relationships, fungicide sensitivity, and polymerase chain reaction (PCR) methods using DNA species-specific primers. On almond, blossoms and immature or mature fruit were affected by the disease, causing direct losses of crop. On peach, the disease was observed only on mature fruit. Pathogenicity of almond and peach isolates of *C. acutatum* was demonstrated on wound- and nonwound-inoculated almond or peach fruit by fulfilling Koch's postulates. Conidial morphology of isolates was variable, depending on the medium or substrate used to culture the isolates. Isolates of *C. acutatum* from strawberry, almond, and peach were grouped together based on a similar response to temperature, with an optimal growth rate at 25°C (generally less than 10 mm/day), whereas isolates of *C. gloeosporioides* from citrus and papaya had an optimal growth rate at 30°C (generally greater than 10 mm/day). In fungicide disk assays, isolates of *C. acutatum* from strawberry, peach, and apple, as well as almond and peach isolates from California, were less sensitive to benomyl at 300, 600, or 1,200 µg/ml. In contrast, *C. gloeosporioides* isolates from citrus and papaya were very sensitive to benomyl at all concentrations evaluated. All isolates of both species were sensitive to captan (300, 600, or 1,200 µg/ml). Oligonucleotide primers were synthesized for *C. acutatum*, *C. fragariae*, or *C. gloeosporioides* using published DNA sequences from the internal transcribed spacer 1 region of ribosomal DNA. Thirty-two *Colletotrichum* isolates from almond fruit produced DNA products with a *C. acutatum* primer (CaInt-2) that matched products and approximate molecular weight of known *C. acutatum* isolates. No PCR products were produced with primers for *C. gloeosporioides* or *C. fragariae*. Isolates from citrus and papaya produced DNA products only with primers from *C. gloeosporioides* or *C. fragariae*. Thus, worldwide, anthracnose of almonds may be caused by either *C. gloeosporioides*, as previously reported, or by *C. acutatum*, as indicated in this study.