

**Title** First report of *Colletotrichum capsici* causing postharvest anthracnose on papaya in South Florida

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### Abstract

Postharvest anthracnose of papaya, *Carica papaya*, is an important disease in most production areas worldwide (2). *Colletotrichum gloeosporioides* causes two types of anthracnose symptoms on papaya: (i) circular, sunken lesions with pink sporulation; and (ii) sharply defined, reddish brown and sunken lesions, described as ‘chocolate spot’ (2). *Colletotrichum* spp. were isolated from lesions of the first type on papaya fruit from the University of Florida Tropical Research and Education Center, Homestead in December 2007 and from fruit imported from Belize in March 2008 (4). Single-spore isolates were identified using colony morphology and internal transcribed spacer (ITS) and mating type (MAT1-2) sequences. Two taxa were identified in both locations: (i) *C. gloeosporioides* (MAT1-2; GenBank Nos. GQ925065 and GQ925066) with white-to-gray, fluffy colonies with orange sporulation and straight and cylindrical conidia; and (ii) *C. capsici* (ITS; GenBank Nos. GU045511 to GU045514) with sparse, fluffy, white colonies with setose acervuli and falcate conidia. In addition, in Florida, a *Glomerella* sp. (ITS; GenBank Nos. GU045518 and GU045520 to GU045522) was recovered with darkly pigmented colonies that produced fertile perithecia after 7 to 10 days on potato dextrose agar (PDA). In each of three experiments, mature fruit (cv. Caribbean Red) were wounded with a sterile needle and inoculated with a 15- $\mu$ l drop of 0.3% water agar that contained  $10^5$  conidia  $\text{ml}^{-1}$  of representative isolates of each taxon. The diameters of developing lesions were measured after 7 days of incubation in the dark at 25°C, and the presence of inoculated isolates was confirmed by their recovery from lesion margins on PDA. In all experiments, *C. capsici* and *C. gloeosporioides* produced lesions that were significantly larger than those that were caused by the water control and *Glomerella* sp. (respectively, approximately 12, 17, 0, and <1 mm in diameter). *C. gloeosporioides* produced sunken lesions with dark gray centers and pink/gray sporulation, which match those previously described for anthracnose on papaya (2). In contrast, *C. capsici* produced dark lesions due to copious setae of this pathogen; they resembled *C. capsici*-induced lesions on papaya that were reported previously from the Yucatan Peninsula (3). *C. capsici* has also

been reported to cause papaya anthracnose in Asia (4), but to our knowledge, this is the first time it has been reported to cause this disease in Florida. Since it was also recovered from fruit that were imported from Belize, it probably causes anthracnose of papaya in that country as well. Another falcate-spored species, *C. falcatum*, was recovered from rotted papaya fruit in Texas (1). The *Glomerella* sp. was recovered previously from other hosts as an endophyte and causes anthracnose lesions on passionfruit (4). However, its role as a pathogen on papaya is uncertain since it was not pathogenic in the current work; the isolates that were recovered from papaya lesions may have colonized lesions that were caused by *C. capsici* and *C. gloeosporioides*.