



First report of *Neopyricularia commelinicola* causing leaf spots on *Commelina diffusa* in Brazil

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Spreading dayflower (*Commelina diffusa*) is a perennial, monocotyledonous herbaceous plant that occurs worldwide. It has become a major agriculture weed, due to its invasiveness and impact on productivity of many important crops and because of its resistance or tolerance to chemical herbicides (Santos *et al.*, 2004; Isaac *et al.*, 2007). Little is known about diseases affecting spreading dayflower. Such pathogens may have potential for use in biological control.

A leaf spot disease was detected infecting spreading dayflower in the state of Minas Gerais, Brazil, and a moniliaceous fungus was found regularly associated with necrotic tissues. Leaf spots were circular to subcircular, 3-10 mm diameter, pale brownish to greyish with a dark brown margin and a yellow halo, coalescing and leading to severe leaf blight (Fig. 1). Samples were collected at two localities in the municipalities of Viçosa and Antonio Carlos (Minas Gerais). The samples were examined, dried in a plant press and deposited in the local herbarium (Accession Nos. VIC 47334 and VIC 47335). Single conidial cultures were obtained on potato dextrose-agar (PDA). One isolate from each locality was deposited in the local culture collection (Accession Nos. COAD 3080 and COAD 3081). Colonies of each isolate were obtained on PDA plates grown at 25°C under a 12 hr light /12 hr dark daily regime for culture description and inoculum production.

Fungal structures were scrapped from infected tissues with a scalpel, mounted in lactoglycerol and observed under a light microscope (Olympus BX 53) connected to an Olympus Q-Color 3™ camera. The fungus had: conidiophores mostly hypophyllous, isolate, flexuous, subcylindrical, inflated at the base, tapering towards the sympodial fertile apex, 112-315 × 3-5 µm, 2-3 septate, hyaline (Fig. 2); conidiogenous cells, strongly sympodial, denticulate, hyaline; and conidia, pyriform to obclavate, 28-40 × 10-15 µm, 2-septate, hilum short-stalked, hyaline, smooth (Fig. 3). This morphology is typical of members of *Neopyricularia* (Klaubauf *et al.*, 2014).

DNA was extracted and ITS, LSU and RPB1 gene regions were PCR amplified as described in Pinho *et al.* (2012) using ITS1/ITS4, LSU1/LR5 and RPB1F/RPB1R primer pairs (Vilgalys & Hester, 1990; White *et al.*, 1990; Klaubauf *et al.*, 2014) and the sequences were deposited in GenBank (Accession Nos. MT902146-47, MT902333-34, and MT904205-06). A BLASTn search showed that the sequences had a high identity with those of *Neopyricularia commelinicola* (isolate CBS 128303), i.e. 99.20% for ITS (KM009163.1), 100% for LSU (KM009151.1) and 99.48% for RPB1 (KM485084.1). Morphological and molecular information identified the fungus on spreading dayflower as *N. commelinicola*.

Koch's postulates were completed by inoculating three healthy young spreading dayflower plants with a conidial suspension (1×10^6 conidia/ml) obtained from sporulating cultures on PDA. Three healthy plants sprayed

with sterile distilled water served as controls. Plants were kept in a dew chamber at 26 ±3°C for two days, and then transferred to the greenhouse and observed daily for the emergence of disease symptoms. Typical leaf spots appeared 10 days after inoculation, but not on controls. The fungus was successfully re-isolated from infected leaves.

This is the first record of *N. commelinicola* as a pathogen of *C. diffusa* in Brazil and worldwide. This fungus was previously known only from South Korea on *Commelina communis* (Klaubauf *et al.*, 2014).

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Figure 1



Figure 2

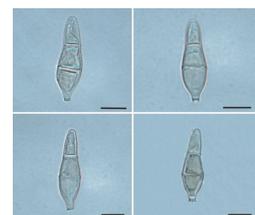


Figure 3

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