



# *Cercospora unguis-cati*, the causal agent of the leaf spot of *Dolichandra unguis-cati*, reported from Paraguay

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Cat's claw (*Dolichandra unguis-cati*; Bignoniaceae) is a perennial climbing plant, native to the Neotropics which, when introduced as an ornamental to other countries, has become an invasive forest weed. The potential for biological control of *D. unguis-cati* is being evaluated, with attention being given to fungal agents in its native range (Silva *et al.*, 2012; Colmán, 2014) and a recently described cercosporoid fungus, *Cercospora dolichandrae*, in South Africa (RSA) has attracted attention (Crous *et al.*, 2014).

Silva *et al.* (2012) found leaf spots on *D. unguis-cati* in Brazil caused by *Pseudocercospora unguis-cati*. Lesions are subcircular, well delimited, dark brown surrounded by a purplish brown halo, 2-6 mm, coalescing, and infection leads to severe defoliation (Fig. 1). This was by far the most common disease of *D. unguis-cati* reported from surveys in Brazil and Paraguay (Silva *et al.*, 2012; Colmán, 2014). Dried specimens from these surveys were deposited in the herbarium of the Universidade Federal de Viçosa (UFV, Minas Gerais, Brazil). Disease symptoms on *D. unguis-cati* were recognised as similar to leaf spots caused by *C. dolichandrae* (Crous *et al.*, 2014), and questions emerged as to whether *P. unguis-cati* and *C. dolichandrae* are conspecific. A fresh specimen of the leaf spot was collected in June 2013 from General Higinio Morínigo (Caazapa Department, Paraguay) and deposited in the culture collection at UFV (Acc. No. COAD 3079). A pure culture was obtained by direct transfer of conidia from a sporulating lesion onto potato dextrose agar (PDA). The morphology was found to be identical to *P. unguis-cati* as described by Silva *et al.* (2012) (Figs. 2-3).

The identification was confirmed by molecular means. DNA was obtained from a single-spore pure culture grown on PDA with a Wizard Genomic DNA Purification Kit (Promega, USA). The ITS region was PCR amplified with the ITS1/ITS4 primer pair and the sequence was deposited in GenBank (Accession No. MW036753). A BLASTn search showed that the ITS sequence of the isolate from Paraguay had 99.8% identity (604/605 nt) to the type sequence of *C. dolichandrae* from RSA (NR156282.1; Crous *et al.*, 2014). *Cercospora unguis-cati*, originally collected on *D. unguis-cati* in Argentina and described by Spegazzini (1911), is morphologically identical to the fungal isolates from RSA, Brazil and Paraguay. The earlier name of *Cercospora unguis-cati* Speg. takes priority over *Pseudocercospora unguis-cati* (Speg.) U. Braun and *Cercospora dolichandrae* Crous & den Breejen, which are now considered synonyms.

The presence of *Cercospora unguis-cati* in RSA appears to be due to an accidental introduction, likely with its plant host, from the Neotropics

rather than an indigenous fungus having developed the ability to attack *D. unguis-cati*, as previously thought. It is now, fortuitously, acting as a classical biocontrol agent against *D. unguis-cati* in RSA (King, 2017).

The pathogenicity of *C. unguis-cati* against Australian biotypes of *D. unguis-cati* was demonstrated for isolate COAD 3079 and isolate IMI 507114 from RSA. Inoculation of *D. unguis-cati* leaves using mycelial plugs, taken from the actively growing margin of pure cultures of *C. unguis-cati* and subsequent incubation at 20°C and 100% RH for 48 hours resulted, after 28 days, in leaf spot symptoms identical to those originally observed. Colonies with typical morphology of *C. unguis-cati* were obtained from these lesions, thus fulfilling Koch's postulates (Fig. 4). Our results clarify the identity of the pathogen and represent its first record from Paraguay.

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Figure 1



Figure 2



Figure 3



Figure 4

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