



First report of *Phyllachora serjaniicola* causing tar-spot on *Cardiospermum grandiflorum*

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ABSTRACT

A stromatic tar-spot fungus, found associated with *Cardiospermum grandiflorum* from the Parque Nacional do Vale do Catimbau (Buíque PE), was collected and identified as *Phyllachora serjaniicola*. This represents the first report of this fungus on *C. grandiflorum*.

Key words: Phyllachoraceae, Ascomycota, Sapindaceae.

RESUMO

Primeiro relato de *Phyllachora serjaniicola* causando mancha-de-piche em *Cardiospermum grandiflorum*

Um fungo estromático causador de mancha-de-piche, associado a *Cardiospermum grandiflorum* no Parque Nacional do Vale do Catimbau (Buíque PE), foi coletado e identificado como *Phyllachora serjaniicola*. Este é o primeiro relato deste fungo em *C. grandiflorum*.

Palavras-chave: Phyllachoraceae, Ascomycota, Sapindaceae.

Species of *Cardiospermum* (Sapindaceae) occur naturally in tropical Africa, Asia and America. Some species in this genus have spread to most tropical and subtropical regions of the world, either as ornamentals or accidentally, becoming weeds (Kissman & Groth, 1995). *Cardiospermum grandiflorum* Sw. (balloon vine, heart seed; local name: ensacadinha) is considered a noxious weed in Australia (Carroll et al., 2005) and in South Africa (Olckers, 2004). It is also known to have some medicinal properties (Burkill, 2000). In South Africa there are reports of ongoing research on the rust fungus *Puccinia arechavaletae* as a potential biological control agent for *C. grandiflorum* (Olckers, 2004). No other fungal pathogen has been evaluated for that purpose and there is no published result of intensive surveys of fungi pathogenic to *C. grandiflorum*.

In April 2007, leaves of *C. grandiflorum* showing typical tar-spot symptoms and bearing amphigenous black stromata (Figures 1 and 2) were collected in an area of dry scrubland (Caatinga) in the Parque Nacional do Vale do Catimbau, municipality of Buíque, State of Pernambuco, Brazil (8°34'56"S and 37°14'26"W; 787m alt.).

The fungus associated with the disease had the following morphology: stromata black, carbonaceous, subcircular to irregular, amphigenous, slightly raised, subglobose stromata, 0.5–3 mm diam; perithecia black, immersed in the palisade layer, clypeate, ostiolate, 200–250 µm diam. (Figure 1); ostiole minute, flattened, periphysate; perithecial walls, 12–22 µm thick, two-three

layered of flattened brown cells; asci unitunicate, thin-walled, cylindrical-clavate, 8-spored, 60–70 x 11–17 µm; paraphyses colorless, filiform, branched, abundant, persistent; ascospores aseptate, smooth, uniseriate, ellipsoid, hyaline, 11–12 x 8–9 µm (Figure 2).

The fungus was identified as *Phyllachora serjaniicola* (Chardon, 1921). Other *Phyllachora* species reported in Brazil on plants belonging to the Sapindaceae differ from *P. serjaniicola* by the following characteristics: *P. alamoii* Chardon is associated with conspicuous large (> 1 cm diam) foliicolous and cauliicolous stromata (Chardon & Toro, 1934); the ascospores of *P. duplex* Rehm are significantly larger (16–20 x 9–10 µm) (Chardon, 1921); *P. galavisii* Chardon forms conspicuous stromata and has ascospores which are surrounded by a hyaline envelope (Chardon & Toro, 1934); *P. insueta* Syd. produces larger and narrower ascospores (13–17 x 5–7.5 µm) (Sydow, 1925) and forms pustule-like stromata (Chardon & Toro, 1934).

A representative specimen of *P. serjaniicola* from *C. grandiflorum* was deposited in the Herbarium Pe. Camille Torrend - URM (BRAZIL: Pernambuco, Buíque, Parque Nacional do Vale do Catimbau, 13.IV.2007, leg. Jad. Pereira, on living leaves of *Cardiospermum grandiflorum*; URM 78850).

This is the first report of *P. serjaniicola* on *C. grandiflorum* worldwide. This fungus also occurs on other Sapindaceae: *Serjania caracasana* Willd., *S. mexicana* Willd., *S. paniculata* HBK, *S. polyphylla* Poir. and

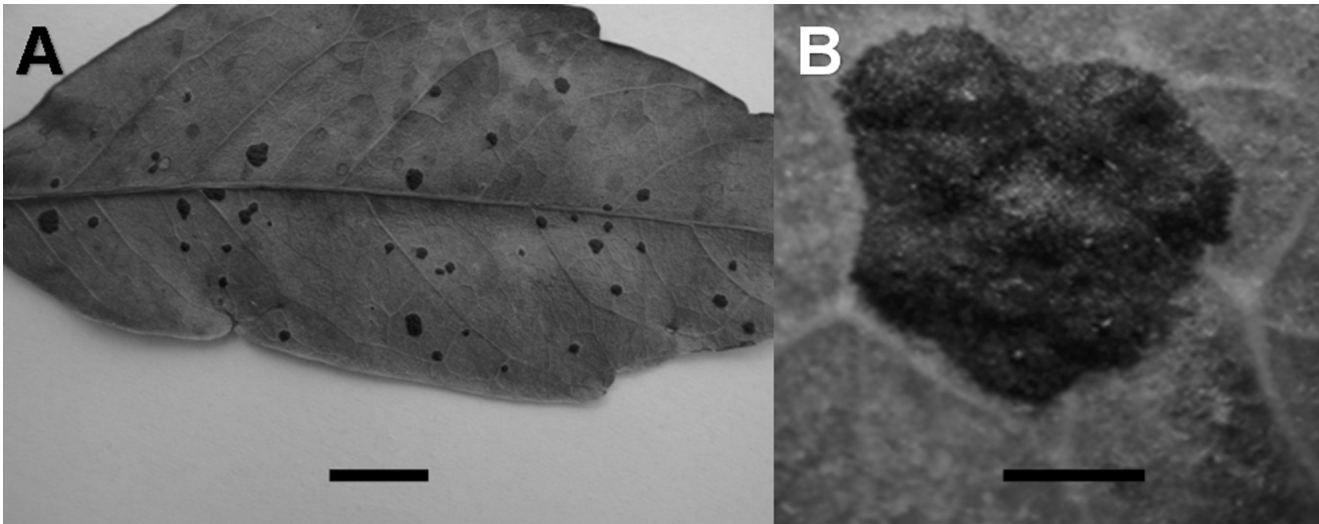


FIGURE 1 - *Cardiospermum grandiflorum* showing tar-spots. A. Stromata on adaxial leaf surface. B. Close view of a well developed stroma of *Phyllachora serjaniicola*. Scale bars: A = 5 mm; B = 100 μm .

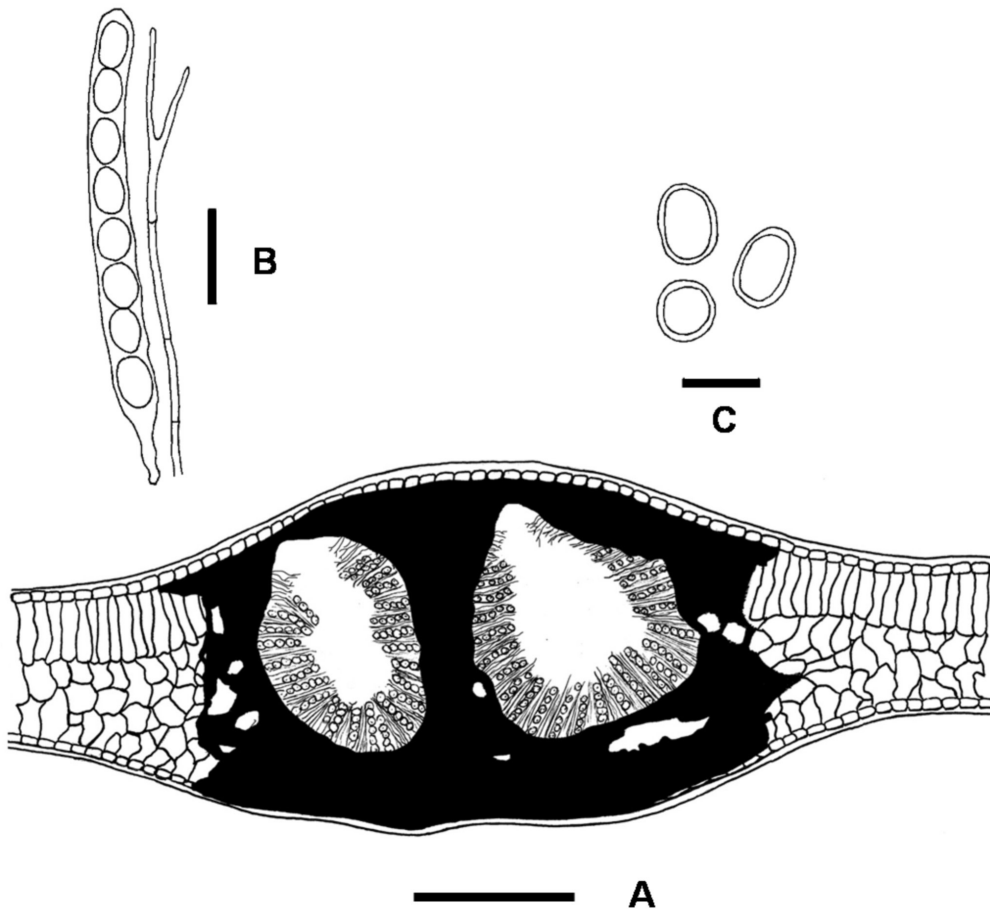


FIGURE 2 - Structures of *Phyllachora serjaniicola*. A. Section of perithecium. B. Ascus and paraphyses. C. Mature ascospores. Scale bars: A = 200 μm ; B = 20 μm ; C = 10 μm .

Serjania sp. (Seaver, 1924; Viégas, 1961). In Brazil, only *Meliola mullerii* Toro and *P. arechavaletae* have been previously reported on *C. grandiflorum* (Mendes et al., 1998). The limited damage caused by *P. serjaniicola* to *C. grandiflorum* observed in the field suggests that this fungus has limited potential to be used as a biocontrol agent in classical programs.

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