



**A NEW FUNGAL DISEASE CAUSED BY A *PSEUDOCERCOSPORA* SPECIES ON
PASSIFLORA SETACEA IN PLANALTINA-DF, BRAZIL**

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Introduction

Native *Passiflora* L. species are common in the Cerrado Biome, and also in other Brazilian Biomes (Cervi 1997, Nunes & Queiroz 2001, Vieira & Carneiro 2004). Among them *P. setaceae* DC deserves attention being now domesticated for fruit production. Crous & Brown (2003) published several updated descriptions of known cercosporoid fungi including those on *Passiflora* species. Among them, there were three *Pseudocercospora* species (*P. calospilea* (H. Sydow) Deighton, *P. passiflorae* U. Braun & Crous and *P. stahlii* (F. Stevens) Deighton)] (Chupp 1953, Deighton 1976, Ellis 1976, Crous & Brown 2003). However, the new fungus does not belong in the known *Pseudocercospora* species occurring on *Passifloraceae* (Chupp 1953, Deighton 1976, Braun et al. 1999, Crous & Braun 2003, Farr et al. 2008). The specimen studied revealed unique features enough to be accommodated in a new *Pseudocercospora* species here described.

Materials and methods

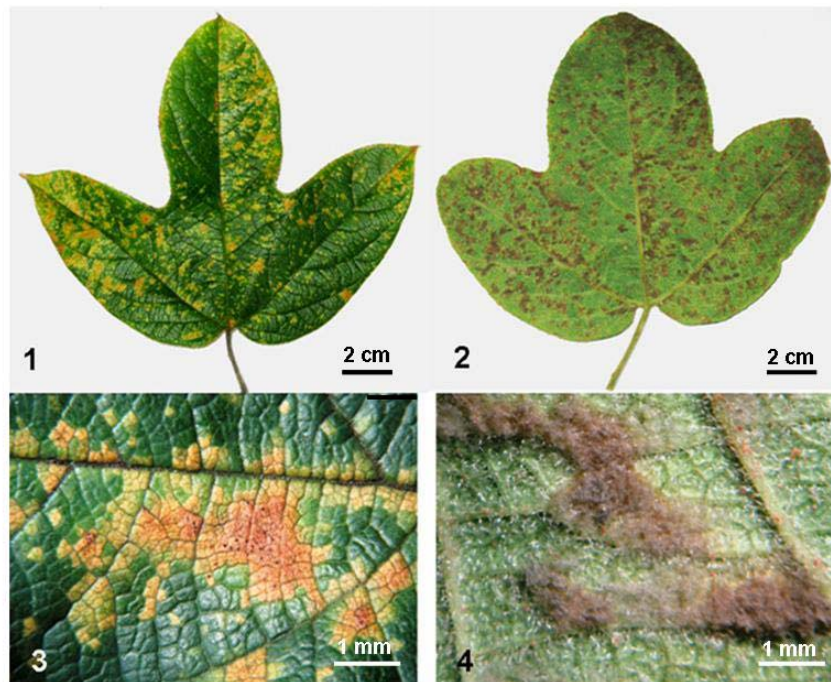
Leaves of *P. setaceae* showing strong yellow leaf spotting were collected from a passion-fruit nursery at Embrapa Cerrados in Brasília. The sample was dried, numbered and deposited in the Mycological Collection of the Herbarium of the University of Brasília (UB- Coll. Micol.). Studies under the stereomicroscope were followed by observations of squash preparations and sections made with a freezing microtome. The morphological features were described, measured, and documented using a Leica DM 2500 microscope coupled with a Leica DFC 490 digital camera connected to a microcomputer. Image capture, editing, and measurements were made with the help of Leica QWin V3 software. In some cases, the samples were stained with lacto-glycerol cotton blue and the slides sealed with nail polish, however most of the photographic work was done

without staining using Nomarski optics. A minimum of fifty replicates of spore and hyphal measurements were made.

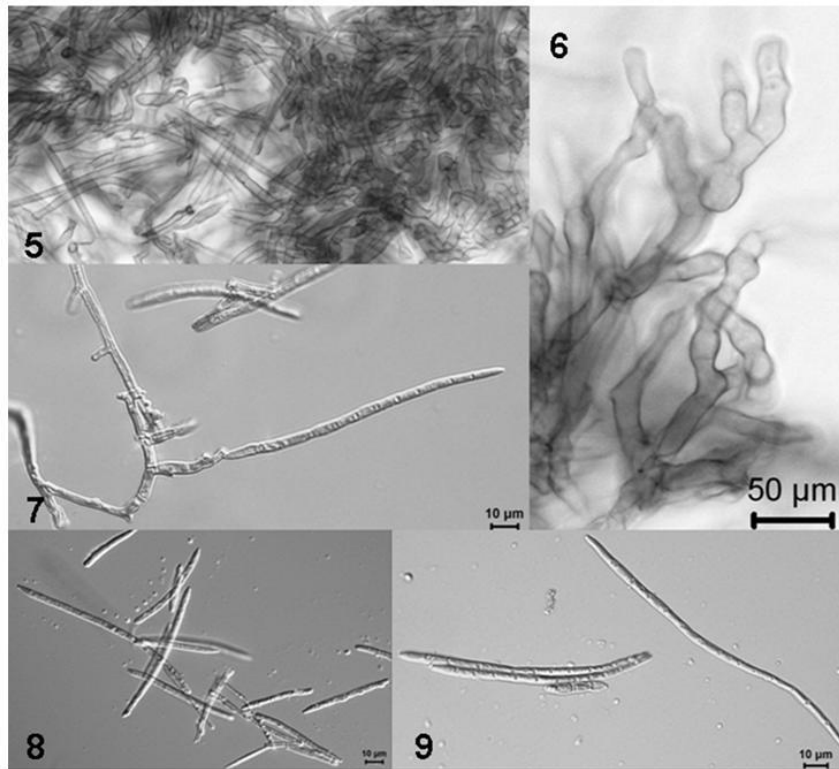
Taxonomy

Pseudocercospora passiflorae-setaceae A.C. Dianese, A.M. Costa & Dianese, **sp. nov.** (Figuras 1 – 11)

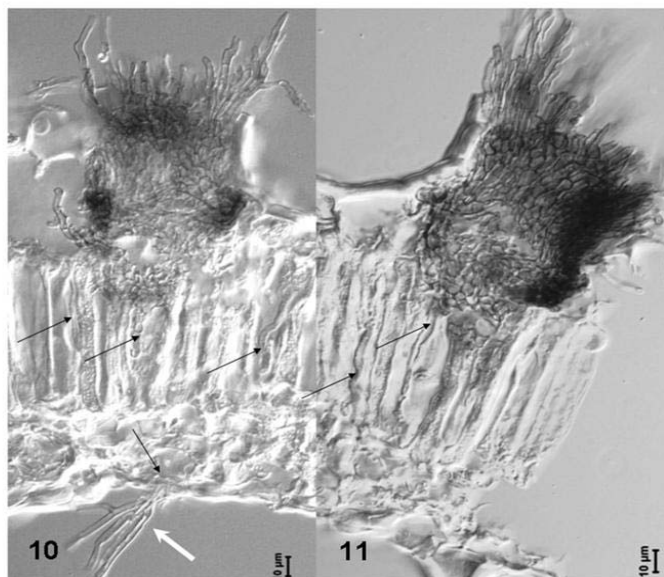
LESIONS: adaxial irregular widespread yellow solitary leaf spots coalescing into light brown necrotic areas with central black dots; grayish irregular downy spots on the abaxial face. IMMERSED MYCELIUM: septate light brown, transmesophyllic, forming epiphyllous stromata and originating abaxial superficial mycelium. STROMATA: (49-) 60-(102)-165 (-195) μm (diameter), epiphyllous, subglobose to globose, brown to dark brown, subepidermal, erumpent, textura angularis. SUPERFICIAL MYCELIUM: exclusively hypophyllous, highly branched, intricate, abundant, light grayish-brown to brown, giving rise to conidiophores and conidiogenous cells; hyphae 4-6 μm diam, subhyaline to light brown, septate. EPIPHYLLOUS CONIDIOPHORA: 7-(14)-21 (-31) x 2.5-(4)-5 μm , densely fasciculate, formed on stromata, geniculate, light brown, septate. HYPOPHYLLOUS CONIDIOPHORA: lateral or terminal conidiogenous cells on the superficial hyphae. CONIDIOGENOUS CELLS: 20-50 μm long, sympodial; scars flattened, inconspicuous. CONIDIA: 43-(86)-129 x 3-(3.5)-5.5 μm , 5-15-septate, solitary, sub-hyaline to light brown, base truncate.



Figs. 1-4. *Pseudocercospora passiflorae-setaceae* on leaves of *Passiflora setacea*. 1. Yellow irregular leaf spots on the adaxial face. 2. Gray irregular leaf spots on the abaxial face. 3. Adaxial lesion showing small dots (stromata) in the central portion of the adaxial side. 4. Abaxial velutinous lesions.



Figs. 5-9. *Pseudocercospora passiflorae-setaceae*. 5. Hypophyllous intricate superficial mycelium. 6. Branching of the superficial mycelium without terminal conidiogenous cells. 7. Geniculate conidiogenous cell bearing 10-septate conidium. 8 and 9. Conidia.



Figs. 10-11. *Pseudocercospora passiflorae-setaceae* on leaves of *Passiflora setacea*. Cross section of stomata with conidiophores on infected leaves showing the trans-mesophylllic mycelium (black arrows) and also the emerging hypophyllous superficial mycelium (white arrow).

Discussion

All three known *Pseudocercospora* species on *Passiflora* are easily segregated from the new species, first of all, because they all lack an external hypophyllous mycelium with conidiophores and conidia. Additionally, in *Pseudocercospora passiflorae* only epiphyllous conidiophores, and only up to 10-septate conidia are present (Crous & Braun 2003). The second species on *Passifloraceae*, *Pseudocercospora stahliae*, is different from *P. passiflorae-setaceae* because their representatives show caespitose conidiophores on stomata distributed amphigenously on the leaves (Crous & Braun 2003). Furthermore, their hypophyllous conidiophores occur on small stomata (20-40 µm), and not on an abundant intricate superficial mycelium as in the new species (Crous & Braun 2003). Furthermore, the mostly wide-clavate conidia in *P. stahliae* are shorter and wider with a maximum of seven septa (Crous & Braun 2003). Finally, *P. calospileae* is clearly different from the new species by showing smaller hypophyllous stomata (25-35 µm diam.), hyaline to subhyaline, cylindric-obclavate smaller conidia (20-60 x 2-4 µm) showing just 1-7 septa (Crous & Braun 2003).



Conclusion

The overall morphological differences between the new fungus and the known *Pseudocercospora* on *Passiflora* qualifies the former as member of a new species, here designated *P. passiflorae-setaceae*.

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