

Reinstating *Oswaldina icarahyensis* as the name of the anamorph of *Apiosphaeria guaranitica*

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Studies of conidial ontogeny showed that the correct name of the anamorph of *Apiosphaeria guaranitica* is *Oswaldina icarahyensis* and that it cannot be accommodated in *Rhodosticta* or in *Polystigmina* as previously suggested. *Tabebuia ochracea* is reported as a new host for *A. guaranitica*.

Keywords: *Tabebuia ochracea* (Bignoniaceae), brown crust.

Apiosphaeria guaranitica (Speg.) von Höhnel (= *Munkiella guaranitica* Speg., *Oswaldina icarahyensis* Rangel, *Gnomonia ospinae* Chardon, *Anisochora tabebuiae* Stev.) is commonly found on leaves of *Tabebuia* species in South America causing a disease called brown crust (Viégas, 1943; Dennis, 1970). On host leaves the fungus produces a light brown stroma becoming deep brown to black as it ages, immersed and containing both the teleomorphic and anamorphic states (Fig. 1).

Among the host species listed, *Tabebuia araliaceae* (DC.) Morong & Britton, *T. longiflora* Greenm., *T. serratifolia* Nichols, *T. chryzotricha* Mart. ex DC., and *Zeiheria tuberculosa* Bur. ex Verlot were found in Brasil (Rangel, 1921; Bitancourt, 1934; Viégas, 1961; Ferreira, 1989); *T. chrysantha* Nichols in Venezuela (Sydow, 1930); and *T. spectabilis* in Trinidad, Colombia, and Panama (Dennis, 1970).

The ascogenous phase of the fungus was originally described by Spegazzini (1883) as *Munkiella guaranitica* Speg. and later transferred by von Höhnel (1909) to *Apiosphaeria guaranitica* (Speg.) von Höhnel. At that time the anamorph of *A. guaranitica* was not known. Rangel (1921) described the holomorph and named its teleomorph *Oswaldina icarahyensis* Rangel. He also provided the first acceptable illustrated description of the anamorph, which he designated as *Oswaldina icarahyensis* Rangel. Later Sydow (1930, 1935) probably considering *Oswaldina* as belonging in the *Polystigmina* state of *Rhodosticta* also described the anamorph of *A. guaranitica* and



Fig. 1. – Extent of the stromata (arrows) of *Apiosphaeria guaranitica* on leaves of *Tabebuia ochracea* containing the teleomorph and the anamorph (*Oswaldina icarahyensis*). Bar = 2.2 cm.

suggested *Rhodosticta* as a proper genus to accommodate the fungus. Sydow (1930, 1935) simply mentioned the binomial *O. icarahyensis* without considering the Latin description provided by Rangel (1921). Clements and Shear (1931), on the other hand, considered *Oswaldina* Rangel as a synonym of *Hemidothis* Sydow (Sydow, 1916). Recently, Ferreira (1989) suggested that the anamorph of *A. guaranitica* should be placed in *Polystigma*, but he did not look at the conidial ontogeny of the fungus.

The main aim of the present work was to study the conidial development and morphology of the anamorph of *A. guaranitica* to solve the controversy surrounding its name. A new host among the native *Tabebuia* (Bignoniaceae) species of the cerrado vegetation of Central Brasil is also reported.

Results and discussion

Freshly collected leaves of *Tabebuia ochracea* Cham. bearing typical brown stromatic crusts were taken to the laboratory for sectioning and light microscopy study.

The teleomorph occurring on leaves of *T. ochracea* was identified as *Apiosphaeria guaranitica* (Viégas, 1943; Dennis, 1970; Müller & von Arx, 1973). This extends the report of the parasitic range of this fungus among the Bignoniaceae (Spegazzini, 1883; Rangel, 1921; Sydow, 1930; Viégas, 1943; Dennis, 1970; Ferreira, 1989). The name of

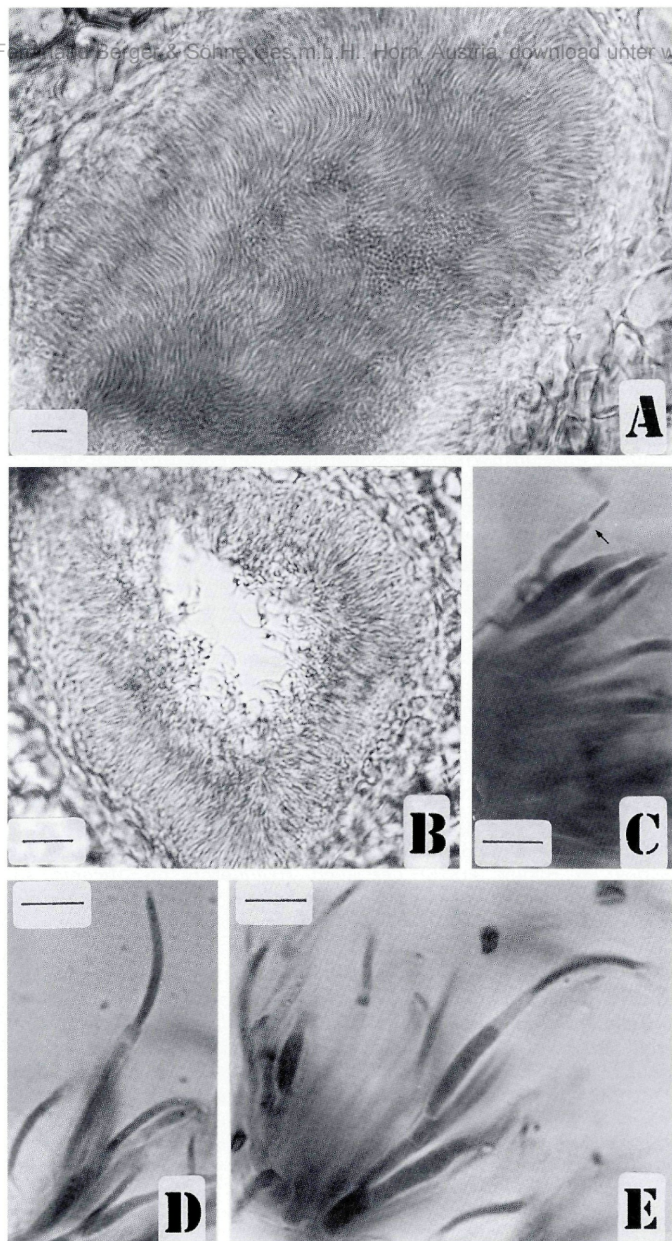


Fig. 2. *Oswaldina icarahyensis*. - A. View of the conidioma showing a compact mass of conidia. Bar = 10 μm . - B. Conidioma with some free conidia. Bar = 20 μm . - C. Conidiogenous cell with small collarette (arrow). Bar = 5 μm . - D-E. Details of the conidiogenous cells and branching of the septate conidiophores. Bars = 5 μm .

the anamorph was considered after studying the ontogeny and morphology of conidia and morphology of the conidiophores of the fungus on leaves of *T. ochracea* (Fig. 1). The filiform, curved to falcate conidia were produced in large masses in the stromatic conidioma (Figs. 2 A-B) and were formed on cylindrical to lageniform conidiogenous cells (Figs. 2 C-D) supported by septate conidiophores (Fig. 1 E). The conidiogenesis is phialidic *sensu* Sutton (1980) (Figs. 1 C-E) and thus the possibility of a suggested holoblastic (Ferreira, 1989) or an annellidic conidial ontogeny are completely dismissed.

This anamorph cannot be accommodated in *Rhodosticta* Woronichin as suggested by Sydow (1930, 1935), because Sutton (1980) stated that *Rhodosticta caraganae* Woronichin apud Tranzchel & Serebrianikow, the type species, "...was described as the conidial state of *Physalosporina caraganae* Woronin. Höhnelt (1917) has reduced *Physalosporina* to a synonymy with *Polystigma* DC. ex Fr. and referred *P. caraganae* to the genus. The macroconidial state of *Polystigma* is *Polystigmina* Sacc, therefore *Rhodosticta* probably represents the microconidial state".

Rhodosticta caraganae has conidia 4-6 x 2 μm formed on branched, short, almost doliiform conidiogenous cells supported by short septate conidiophores (10-17 x 3.5-6 μm) (Sutton, 1980). However, the anamorph of *A. guaranitica* has conidia 13-20 x 1 μm formed on septate, branched conidiophores measuring 20-35 x 2-4 μm with mostly lageniform to cylindrical conidiogenous cells (8-24 x 1-3 μm). These characteristics match precisely the description of the type species of *Oswaldina*, *O. icarahyensis*, by Rangel (1921). This earlier name was referred to, and wrongly discarded, by Sydow (1930, 1935) who suggested *Rhodosticta* (but he did not name or properly describe the species) as a generic name for the anamorph of *A. guaranitica*. The statement that *Oswaldina* is a synonym of *Hemidothis* (Clements & Shear, 1931; Sutton, 1977) is not correct, since Sydow & Sydow (1916) described *Hemidothis* on *Miconia* sp. (Melastomataceae) as having papillate and very short conidiophores, and Sutton (1980) mentioned *Hemidothis* among Coelomycetes with annellidic conidiogenous cells.

For priority reasons and considering also that a typical phialidic anamorph is not likely to be found in the polyblastic *Polystigmina* or in *Hemidothis*, and also because of the clear morphological separation from *Rhodosticta*, we conclude that *O. icarahyensis*, a validly published species (Rangel, 1921) of the genus *Oswaldina*, must be reinstated as the name of the anamorph of *A. guaranitica*.

Specimens examined. - On leaves of *Tabebuia ochracea*: BRASIL: Brasília, DF, Península Norte, 12. XII. 1991, leg. J. C. Dianese (UB-402, UB); Divinópolis, Cerrado Feira Agropecuária, 31. XII. 1991, leg. J. C. Dianese (UB-593,

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