

THOZETELLA SPECIES (ANAMORPHIC FUNGI – HYPHOMYCETES) FROM SEMI-ARID OF BAHIA STATE, BRAZIL

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(*Thozetella* species (anamorphic fungi – Hyphomycetes) from Semi-Arid of Bahia State, Brazil) – This paper deals with the occurrence of three species of the genus *Thozetella* Kuntze found on decaying leaves in the semi-arid region of Bahia State, Brazil: *T. cristata* Piroz. & Hodges, *T. cubensis* R.F. Castañeda & G.R.W. Arnold, and *T. havanensis* R.F. Castañeda. Description and illustrations are provided for *T. havanensis*, a new register for Bahia State. A taxonomic key with all species of *Thozetella* collected in Brazil is added.

Key words: Taxonomy, biodiversity, microfungi.

(Espécies de *Thozetella* (fungos anamórficos – Hyphomycetes) do semi-árido do Estado da Bahia, Brasil) – Este artigo aborda a ocorrência de três espécies do gênero *Thozetella* Kuntze encontradas associadas a folhas em decomposição de plantas nativas da região semi-árida do Estado da Bahia, Brasil: *T. cristata* Piroz. & Hodges, *T. cubensis* R.F. Castañeda & G.R.W. Arnold e *T. havanensis* R.F. Castañeda. Descrição e ilustrações são fornecidas para *T. havanensis*, nova ocorrência para a Bahia. É adicionada uma chave taxonômica contendo todas as espécies de *Thozetella* mencionadas para o Brasil.

Palavras-chave: Taxonomia, biodiversidade, microfungos.

INTRODUCTION

Thozetella Kuntze is a *nomen novum* for *Thozetia* F. Berk. & F. Mueller, which was antedated by *Thozetia* F. Mueller ex Benth, a member of the family Asclepiadaceae (PAULUS *et al.*, 2004). The genus is characterized by aseptate, hyaline, curved conidia, each end with an unbranched setula, phialidic conidiogenesis and integrated conidiogenous cells (ALLEGRUCCI *et al.*, 2004).

Up to now, the genus *Thozetella* has fourteen species: *T. nivea* (Berk.) Kuntze (type-species); *T. cristata* Piroz. & Hodges; *T. radicata* Piroz. & Hodges; *T. tocklaiensis* (Agnihotr.) Piroz. & Hodges (PIROZYNSKI & HODGES, 1973); *T. canadensis* Nag Raj (NAG RAJ, 1976); *T. effusa* B. Sutton & G.T. Cole (SUTTON & COLE, 1983); *T. havanensis* R.F. Castañeda (CASTAÑEDA-RUIZ, 1984); *T. cubensis* R.F. Castañeda & G.R.W. Arnold (CASTAÑEDA-RUIZ & ARNOLD, 1985); *T. acerosa* B.C. Paulus, Gadek & K.D. Hyde; *T. boonjiensis* B.C. Paulus, Gadek & K.D. Hyde; *T. falcata* B.C. Paulus, Gadek & K.D. Hyde; *T. gigantea* B.C. Paulus, Gadek & K.D. Hyde; *T. queenslandica* B.C. Paulus, Gadek & K.D. Hyde (PAULUS *et al.*, 2004); and *T. buxifolia* Alleg. Cazau, Cabello & Aramb. (ALLEGRUCCI *et al.*, 2004).

Thozetella species are saprobes of decaying plant material (YANNA *et al.*, 2002), submerged wood (SIVICHAIS *et al.*, 2002) and root endophyte (WAIPARA *et al.*, 1996).

In Brazil, species of the genus were collected associated with leaf litter of *Alchornea triplinervia* (Spreng.) Müll. Arg. (GRANDI & ATTILLI, 1996; GRANDI, 1998), *Euterpe edulis* Mart. (GRANDI, 1999), *Miconia cabussu* Hoehne

(GUSMÃO *et al.*, 2001), and *Tibouchina pulchra* Cogn. (GRANDI & GUSMÃO, 2002) in São Paulo State; *Cedrela fissilis* Vell. in Paraná State (GUSMÃO & GRANDI, 1997); *Camptosema coriaceum* (Nees & Mart.) Benth., *Chamaecrista descauxii* (Collad.) Kilip, *Cupania paniculata* Cambess., *Gomydesia* sp., and *Senna macranthera* (Collad.) in Bahia State (GUSMÃO, 2003), and pasture soil in Pará State (PFENNING, 1997). *Thozetella cristata*, *T. cubensis*, *T. havanensis* and *T. tocklaiensis* are, at the moment, the species recorded for Brazil.

The differences among collecting areas and different hosts reveal the plasticity of this genus in colonizing leaf litter and it is probable more representative in other ecosystems, because the Brazilian mycobiota is poorly known when compared the extension and phytophysionomic diversity of the territory.

The aim of this paper is to describe and to illustrate *T. havanensis*, a species recorded for the first time from Bahia State, thus contributing to the knowledge of the mycota of the semi-arid region.

MATERIAL AND METHODS

Dead leaves were collected in November/1999, January and April/2000 and July/2002, and used as substrate for the isolation of the anamorphic fungi. The washing technique with 20 serial changes of sterile distilled water was applied to the leaves (HARLEY & WAID, 1955). Leaf fragments were transferred to moist chambers at room temperature for development of reproductive structures,

conidioma and conidia. Identification was made based on slide mountings prepared with PVL resin (alcohol polyvinyllic and lactophenol) and cotton-blue (TRAPPE & SCHENCK, 1982). Details of fungal characteristics were studied, measured, described and illustrated. Permanent slides were deposited in the "Herbário da Universidade Estadual de Feira de Santana" (HUEFS).

Thozetella havanensis, which is recorded for the first time for Bahia State, has been described and illustrated. For other species, *T. cristata* and *T. cubensis*, was indicated the descriptions, illustrations and geographical distribution published.

Thozetella cristata Piroz. & Hodges, Canadian Journal of Botany 51: 168. 1973.

Descriptions and illustrations: PIROZYNSKI & HODGES (1973), GRANDI & ATTILI (1996), GUSMÃO & GRANDI (1997), and GRANDI (1998).

Material examined: BRAZIL, Bahia: Santa Teresinha, Serra da Jibóia, on unidentified dead leaves, 13.Nov.1999, L.F.P.Gusmão s.n. (HUEFS 42755); Feira de Santana, Campus da Universidade Estadual de Feira de Santana, on dead leaves of *Mangifera indica* L., 05.Jan.2000, L.F.P.Gusmão s.n. (HUEFS 42757); Rui Barbosa, Serra do Orobó, on unidentified dead leaves of Fabaceae, 16.Abr.2000, L.F.P.Gusmão s.n. (HUEFS 42758).

Known distribution: Australia (TAYLOR & HYDE, 2003), Brazil (GUSMÃO & GRANDI, 1997), Italy (LUNGHINI & QUADRACCIA, 1990), Japan (TUBAKI, 1975), Mexico (HEREDIA-ABARCA, 1999), United States of America (PIROZYNSKI & HODGES, 1973), and Venezuela (CASTAÑEDA-RUIZ *et al.*, 2003).

Thozetella cubensis R.F. Castañeda & G.R.W. Arnold, Revista del Jardín Botánico Nacional, La Habana, Cuba 6(1): 51. 1985.

Descriptions and illustrations: CASTAÑEDA-RUIZ & ARNOLD (1985), GUSMÃO & GRANDI (1997), and MERCADO-SIERRA *et al.* (1997).

Material examined: BRAZIL, Bahia: Macajuba, on dead leaves of Caesalpineaceae 15.Abr.2000, L.F.P.Gusmão s.n. (HUEFS 42760).

Known distribution: Brazil (GUSMÃO & GRANDI, 1997; GUSMÃO *et al.*, 2001), Cuba (CASTAÑEDA-RUIZ & ARNOLD, 1985), and Mexico (HEREDIA-ABARCA, 1999).

Thozetella havanensis R.F. Castañeda, Revista del Jardín Botánico Nacional, La Habana, Cuba 5(1): 69. 1984.

Fig. 1 A-B.

Conidioma synnematos, straight; **microawns** allantoid, sigmoid or unciform, solitary, with a smooth base up to the middle and verruculose apex, hyaline, 23-29 x 2.6-3.4µm; **conidia** lunate, aseptate, smooth, hyaline, 12.7-15.9 x 2.5-3.2µm with filiform setula at each end, 5.8-7.9µm.

RESULTS AND DISCUSSION

Thozetella cristata, *T. cubensis* and *T. havanensis* were recorded during the survey, and they were cited in the inventory of microfungi in different environments (GRANDI, 1998, 1999, 2004; GRANDI & ATTILI, 1996; GRANDI & GUSMÃO, 2002; GUSMÃO *et al.*, 2001; GUSMÃO, 2003), being the majority of the specimens collected from the Atlantic Rain Forest. *T. havanensis* is a new record from Bahia State. *T. tocklaiensis* also was found in Brazil (PFENNING, 1997) and, therefore, was included in the taxonomic key.

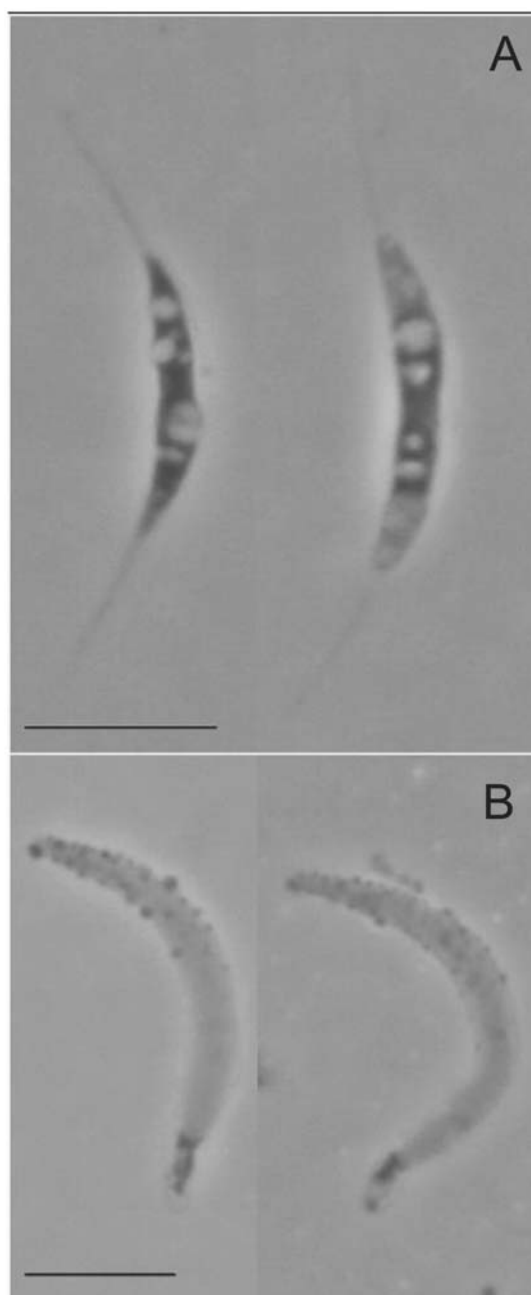


Fig. 1. *Thozetella havanensis*: A. Conidia; B. Microawns. Bars = 10 µm.

Material examined: BRAZIL, Bahia: Gentio do Ouro, on dead leaves of *Hymenaea martiana* Hayne (Caesalpiniaceae), 16.Jul.2002, L.F.P.Gusmão s.n. (HUEFS 56738); Xique-xique, on dead leaves of *Aspidosperma pyrifolium* Mart. (Apocynaceae), 17.Jul. 2002, L.F.P.Gusmão s.n. (HUEFS 56737).

Known distribution: Brazil (GRANDI *et al.*, 1995; STALPERS, 2003), Cuba (CASTAÑEDA-RUIZ, 1984; MERCADO-SIERRA *et al.*, 1997), Nigeria (CALDUCH *et al.*, 2002).

Thozetella havanensis was found initially decomposing fruits of *Calophyllum antillanum* Britton in Cuba (CASTAÑEDA-RUIZ, 1984). The species is morphologically similar to *T. buxifolia* Allegr., Cazau, Cabello & Aramb., *T. canadensis* Nag Raj and *T. cristata* Piroz & Hodges. However, *T. buxifolia* does not present microawns and

conidia in mucoid mass (ALLEGRUCCI *et al.*, 2004); *T. canadensis* has truncate conidia at the base and verruculose microawns in one of its end; *T. cristata* presents smooth microawns (CASTAÑEDA-RUIZ, 1984).

The examined specimen presented conidia wider than what was observed by GRANDI *et al.* (1995). However, other characteristics are similar to the referred ones in consulted descriptions (CASTAÑEDA-RUIZ, 1984; GRANDI *et al.*, 1995). In Brazil the species was found in São Paulo State on leaf litter of *Cedrela fissilis* Vell. (GRANDI *et al.*, 1995).

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Key to species of *Thozetella* collected in Brazil

- | | |
|----------------------------------------------------------|------------------------|
| 1. Microawns ornamented | 2 |
| Microawns not ornamented..... | 3 |
| 2. Microawns ornamented in the apex and base smooth..... | <i>T. havanensis</i> |
| Microawns ornamented in the base and apex smooth | <i>T. tocklaiensis</i> |
| 3. Microawns sigmoid, falcate..... | <i>T. cristata</i> |
| Microawns lightly sigmoid or L-shaped, apex acerose..... | <i>T. cubensis</i> |

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