

Life-History Studies of Brazilian Ascomycetes 2¹⁾

A new species of *Thaxteriella* and its helicosporous anamorph

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Thaxteriella roraimensis SAMUELS & E. MÜLLER, sp. nov. Figs. 1, 2.

Ascomata ex apicibus longarum, nigrarum, non ramosarum hypharum prodeuntia, dense gregaria, nigra, turbinata vel globosa, (175—) 200—220 (—285) μm alta, (200—) 235—265 (—300) μm lata. Asci bitunicati, clavati vel late cylindracei, 77—100 (—112) \times (9—) 10—12 (—17) μm , octospori. Ascosporae filiformes, extremitatibus subacutis, (24—) 26—36 (—43) \times 3.5—4.5 (—6.5) μm , (2—) 4—7 (—10) — septatae, brunneolae vel hyalinae. Paraphyses ramificantes atque anastomosantes. In ligno putrido. Status conidialis: *Helicoma* sp.

Holotypus: DUMONT-BR 651. Isotypus: INPA, PDD, ZT.

ANAMORPH: *Helicoma* sp.

TELEOMORPH: Mycelium forming a dense, velvety layer over surface of decorticated wood, often several cm in extent and 1—5 mm deep; consisting of stiff, erect, unbranched or rarely branched, black hyphae with tips straight and acute or subacute. Ascomata perithecioid; densely gregarious, often arranged in a continuous layer; forming at tips of hyphae; black, turbinate to globose; with a short, acute papilla in the middle of each ascomatal top, (175—) 200—220 (—285) μm high \times 235—265 (—300) μm wide; wall smooth, shining; becoming deeply collabent when dry; a very pale brown pigment soluble in 3% KOH, not changing color in 3% KOH, no color reaction or soluble pigment in 100% lactic acid. Ascomatal wall 25—40 (—50) μm wide at the widest point; surface of the wall with a very thin covering of amorphous material. Longitudinal section: outer region 10—15 μm wide, comprised of elliptic to nearly square or circular cells 7—10 (—15) \times 3.5—5 μm ; walls 0.5—1 μm thick, cells at surface darkly pigmented; inner region crescent shaped in section, 15—25 μm wide, cells only loosely attached to each other and to the inner and outer regions of the ascomatal wall; cells nearly circular to elliptic in outline, 4—7 μm across, thin-walled, pale brown, floating

¹⁾ Part 1 in Sydowia 31. Supported in part by Projecto Flora Amazonica—The New York Botanical Garden (NSF INT—77—17704) and by a grant from the American Philosophical Society to the senior author. Dr. O. PETRINI, ETH Zürich, prepared the Latin diagnosis.

free in crushed microscopic preparations of whole ascomata; inner region 10–15 μm wide, cells flattened, $7-10 \times 2.5-3.5 \mu\text{m}$, walls 1.5–2 μm thick, pale brown. Outer and inner regions meeting above and below to form a continuous region of elliptic cells measuring

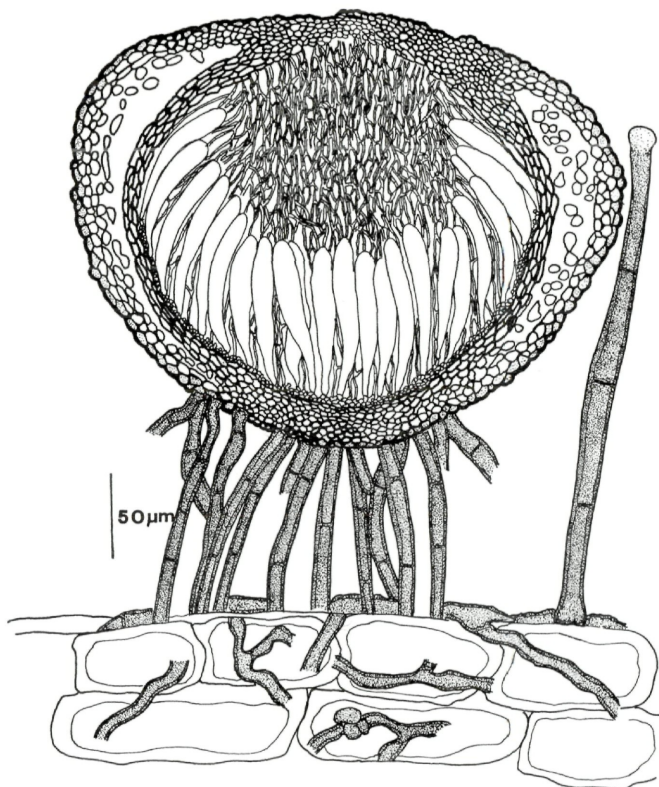


Fig. 1. *Thaxteriella roraimensis* (DUMONT-BR 745): longitudinal section of ascoma

$7-10 \times \text{ca. } 3.5 \mu\text{m}$, thin-walled, pigmented light brown above and darker brown below. Ostiolar region comprised of nearly circular, thin-walled, subhyaline cells measuring ca. $3-5 \mu\text{m}$ diam; ostiolar opening apparently forming by disintegration of these cells; non-peri-physate.

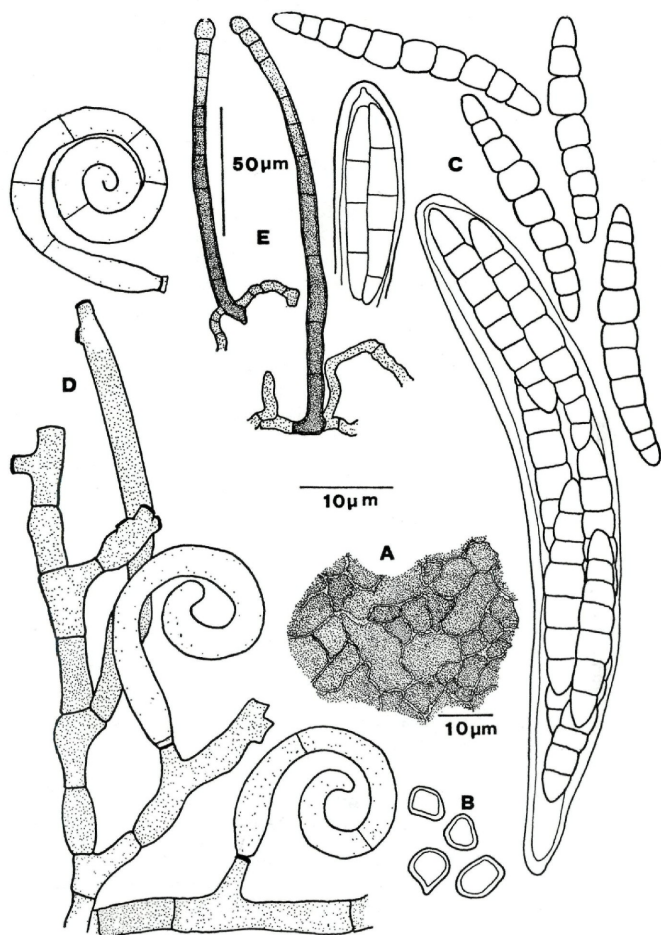


Fig. 2. *Thaxteriella roraimensis*. A. Amorphous covering of ascomatal wall (DUMONT-BR 745). B. Cells of middle wall region floating free in crush-mount (DUMONT-BR 752). C. Asci and ascospores (DUMONT-BR 745). D. Conidiogenous cells and conidia (DUMONT-BR 621). E. Sterile hairs from culture (DUMONT-BR 621)

Asci bitunicate, clavate to broadly cylindrical, 77–100 (–112 ×) (9–) 10–12 (–17) μm , 8-spored; apices broadly rounded, thickened, young asci with a pronounced “nasse apicale”; bases broadly rounded, to pedicellate; ascospores biserial, forming throughout the entire length of each ascus; forming in a hymenium over the lower $\frac{2}{3}$ of the ascomatal wall. Ascospores fusiform with subacute ends, (24–) 26–36 (–43) × 3.5–4.5 (–6.5) μm , (2–) 4–7 (–10)-septate, usually the cell above the median septum largest in diam; constricted first at the median septum then at other septa, eventually cells rounding-off and separating; pale yellow brown to hyaline, smooth; producing from 2–5, terminal and lateral, 45–60 μm long, unbranched germ-tubes from each spore within 12 hrs. Interascal filaments 1.5–2 μm diam, hyaline, branching and anastomosing, attached to hymenium and to ascomatal wall above.

Characteristics in culture: Colony characteristics: Colonies on Weak ME, PDA and OA, in 3 weeks, 1 cm diam, aerial mycelium lacking to scant; surface of colony dark olivaceous, lighter in color where conidial formation is abundant. Conidiophores barely differentiated from vegetative hyphae, indeterminate in length; appearing as more or less dense tufts of branched, septate, brown, 4–5 μm wide hyphae. Conidiogenous cells polyblastic or monoblastic, intercalary or terminal, sympodial or determinate, cylindrical, denticulate; denticles cylindrical, tips ca. 2.5 μm diam, with a thickened, cicatrized scar remaining after conidial dehiscence. Conidia solitary, dry; helically coiled 2–3 times in one plane, remaining 0–2-septate for a long time but up to 10 septa forming eventually; coils 16–25 μm diam laterally and 20–30 μm from the top of the coil to the point of dehiscence, conidial filament 3–4 μm wide; point of dehiscence ca. 2.5 μm wide, often with a very fine basal frill visible; very pale brown in mass. Sterile hairs scattered throughout colony, associated or not with conidiophores; unbranched; septate with a pore in each septum; walls ca. 1.5 μm thick; very small, widely spaced pores in the wall; tips rounded and sometimes growing out as hyphae; dark brown basally, lighter apically.

Habitat: Decorticated, well rotted, dicotyledonous wood.

Holotype: Brazil: Territorio de Roraima, along the Manaus-Boa Vista Rd at a point ca. 512 km from the intersection of the Manaus-Itacoatiara Rd; on decorticated wood; DUMONT, HOSFORD, SAMUELS, BUCK, ARAUJO, SOUZA, BERNARDI; 21 Nov 1977 (DUMONT-BR 651, NY; Isotypes: INPA, PDD, ZT).

Additional specimens examined: Brazil: Territorio de Roraima, data as holotype, DUMONT-BR 621 (INPA, NY, PDD, ZT), DUMONT-BR 662 (INPA, NY); 204 km N of Boa Vista on the Boa Vista-Sta. Elena, Venezuela Rd; on decorticated wood; DUMONT,

HOSFORD, SAMUELS, BUCK, ARAUJO, SOUZA, BERNARDI, 29 Nov 1977 (DUMONT-BR 745, 752; INPA, NY, PDD, ZT).

Notes: *Thaxteriella* PETRAK is a genus of four species [*T. pezizula* (BERKELEY & CURTIS) PETRAK, *T. lignicola* TENG, *T. indica* DHARNE & E. MÜLLER]. *Thaxteriella roraimensis* differs from the other species in its peculiar ascomatal wall structure. Although, in section, the middle layer of the ascomatal wall seems to be devoid of cells, this may be a consequence of sectioning. It is possible that the outer wall, whose cells have thinner walls relative to those of the inner wall, expands more rapidly than the inner wall during ascomatal development. The cells of the middle region may be pulled apart from each other during such unequal growth.

The anamorph of only one other species of *Thaxteriella*, the type species *T. pezizula*, is known and it is a species of *Helicoma* CORDA (PIROZYNSKI 1972). We have referred the anamorph of *T. roraimensis* to *Helicoma* more from consistency than from a belief that there is a difference between *Helicoma* and *Helicosporium* NEES ex FRIES. As PIROZYNSKI (1972) has already stated, adequate generic distinctions in the helicosporous fungi imperfecti can be made only after more detailed studies of conidiogenesis, relationship to alternative conidial forms and relationships to telemorphs are made.

Thaxteriella can be confused with those species of *Herpotrichia* FÜCKEL having phragmosporous ascospores. The only known anamorphs for *Herpotrichia* are *Pyrenochaeta*-like.

References

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Sydowia](#)

Jahr/Year: 1978/1979

Band/Volume: [31](#)

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Artikel/Article: [Life-History Studies of Brazilian Ascomycestes 2. 137-141](#)