

HABITAT.— On small, dead twigs with bark still present.
DISTRIBUTION.— Northern South America (Brazil, French Guiana, and Guyana)

HOLOTYPE.— FRENCH GUIANA. On bark, Leprieur, Crypt. Guyan. 517 (PC).

ADDITIONAL SPECIMENS EXAMINED.— BRAZIL. Amazonas, 0.3 km S of central portion of Serra Araca and 8 km E of Rio Javari, ca 1 h walk SE from camp, on twigs with bark, elev. 60 m, 00°49' N, 63°19' W, 6 Mar 1984, G.J. Samuels 84-256 (NY). FRENCH GUIANA. Remire, 15 km from Cayenne, trail to Vidal old farm, 52°18' W, 4°52' N, on dead twigs, 12 Feb. 1988, A. Rossman 3198, cult. G.J. Samuels 88-8 = CBS 101600 (BPI, CAY); St. Laurent, near Mana, along road to Jahoury, white sand forest, 53°51' W, 5°34' N, on dead wood, 18 Nov 1986, A. Rossman 4020, cult. G.J. Samuels 86-570 (BPI 745018, CAY).

NOTES.— Doi (1975a) described and illustrated a *Hypocrea* as *H. impressa* but, based on a comparison of his description with the type specimen of *H. impressa*, Doi's specimen is of *Hypocrea*, not *Stilbocrea*.

TRICHONECTRIA Kirschst., Verh. Bot. Vereins Prov. Brandenburg 47: 60, 1906 [1907].

Type: *T. aculeata* Kirschst., a synonym of *Trichonectria hirta* (Bloxam) Petch.

Ascomata solitary, superficial, without stroma; globose to subglobose, white, yellow, pale orange to pale reddish-brown, occasionally pink when fresh. KOH–, not collapsing when dry, wall less than 40 µm thick, of small, non-descript cells; with thick-walled, straight, solitary hairs, or glassy, hyaline appendages in *T. hyalocristata*, arising from the surface of the ascomatal wall. Asci clavate, broadly clavate or broadly cylindrical. Ascospores ellipsoid, fusiform, broadly to long fusiform or cylindrical, 1- to multiseptate, hyaline, smooth-walled. Anamorph, where known, *Acremonium*-like. On decaying algae, mosses, lichenized and non-lichenized fungi.

NOTES.— *Trichonectria* was described as being similar to *Calonectria* and *Ophionectria*, differentiated by the delicate, prosenchymatous ascomata covered with stiff hairs. The type specimen of the type species, *T. aculeata*, was apparently destroyed and Hawksworth (1978) neotypified that name with the type of *T. hirta*, thus assuring the synonymy of these two species. *Trichonectria* is characterized by a pallid, thin-walled ascomata having hyaline, thick-walled hairs and are often associated with lichens, bryophytes, and fungi.

Döbbeler (1978) described one additional species in *Trichonectria*, *T. pellucida*, from living leaves of a liverwort in Brazil, Samuels (1988) added four species, three of which are fungicolous, and Scheuer (1988, 1989) described a species having glassy, flattened, hyaline appendages around the ostiolar region that occurs on overwintered leaves of *Carex*. At present, seven

species are included in *Trichonectria*. Species of *Trichonectria* show affinities to species of *Nectriopsis* and *Paranectria* in having small, pallid, thin-walled ascomata and occurring primarily on algae, bryophytes, lichens or other fungi.

Trichonectria hirta (Bloxam) Petch, Naturalist (Hull) 1937: 282, 1937.

= *Nectria hirta* Bloxam, in Currey, Trans. Linn. Soc. London 24: 158, 1884.

= *Calonectria hirta* (Bloxam) Sacc., Michelia 1: 307, 1878.

= *Lasionectria hirta* (Bloxam) Cooke, Grevillea 12: 112, 1884.

= *Calonectria vermisporea* Masee & Crossland, Naturalist (Hull) 1904: 4, 1904.

= *Dialonectria vermisporea* (Masee & Crossland) Masee & Crossland, Fungus Flora Yorkshire p. 214, 1905.

= *Trichonectria aculeata* Kirschst., Verh. Bot. Vereins Prov. Brandenburg 47: 60, 1906 [1907].

= *Calonectria aculeata* (Kirschst.) Weese, Centralbl. Bakteriologie, Abth. 2, 42: 595, 1914.

= *Trichonectria rosella* Höhn., Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl., Abt. 1, 127: 624, 1918.

Ascomata solitary or sparsely aggregated, superficial on the substratum, without a stroma or with a sparse hyphal subiculum radiating from the base of the ascomata, hyphae hyaline, thin-walled, 1.5–2 µm wide. Ascomata globose to subglobose, 230–300 µm high × 240–300 µm diam, laterally pinched or not collapsing when dry, white to pale yellow or pale saffron, KOH–, without papilla, with numerous, long, straight, solitary hairs projecting from the upper part of the ascomata, hairs 43–100 µm long × 10–12 µm wide at the base, with 1.5–3 µm thick walls, unthickened toward the apex. Ascomatal wall 25–40 µm thick, of two regions: outer region 20–35 µm thick, of hyaline, thin-walled, elongate cells, 6–12 × 3–4 µm; inner region 3–7 µm thick of hyaline, thin-walled, elongate cells. Asci broadly cylindrical, 60–100 × 11–15 µm, apex simple, 8-spored, ascospores pluriseriate. Ascospores long fusiform to cylindrical, vermiform or sigmoid, 45–85 × 5–8 µm, 11–21-septate, forming cuboid to subcuboid cells, hyaline, smooth.

HABITAT.— On very rotten, decorticated wood, often associated with granular lichen thalli.

DISTRIBUTION.— Austria, Belgium, Denmark (T. Læsøe, pers. comm.), England, and Germany.

HOLOTYPE.— England, Twycross, Leicestershire, on decaying rails, associated with *Lecidiea uliginosa* (K).

Additional specimens examined as cited in Rossman (1983).

ILLUSTRATIONS.— Dennis (1978, Pl. 31G); Döbbeler (1978, Fig. 21, as *T. rosella*); Hawksworth (1978, Fig. 7); Petch (1938, Fig. 26); Rossman (1983, Fig. 46).

KEY TO THE SPECIES OF *TRICHONECTRIA*

1. Ascomata with glassy, flattened, hyaline appendages around the ostiolar region; ascospores fusiform, $9.5\text{--}12.5 \times 2\text{--}2.5 \mu\text{m}$; on overwintered leaves of *Carex*; Austria and Great Britain *T. hyalocristata*
1. Ascomata with straight hairs, not on overwintered leaves of *Carex* 2
2. Ascospores more than $25 \mu\text{m}$ long 3
2. Ascospores less than $25 \mu\text{m}$ long 4
3. Ascospores long fusiform to cylindrical, with broadly rounded ends, $45\text{--}85 \times 5\text{--}8 \mu\text{m}$, on old wood associated with granular lichen thalli; Europe *T. hirta*
3. Ascospores broadly fusiform, tapering to the narrowly rounded ends, $70\text{--}94 \times 12.5\text{--}16 \mu\text{m}$; on liverworts; Brazil *T. pellucida*
4. On leaves of *Erythroxylum*; ascomatal hairs $25\text{--}35 \mu\text{m}$ long; ascospores fusiform ($12.5\text{--}13.5\text{--}16.5(-17) \times (2.5\text{--}3\text{--}3.5(-4) \mu\text{m}$; Brazil *T. erythroxylifolii*
4. Fungicolous, on pyrenomycetes or inoperculate discomycetes 5
5. On hymenium of inoperculate discomycetes; hairs $30\text{--}60 \mu\text{m}$ long; ascospores narrowly ellipsoid to fusiform, $(10\text{--})11.5\text{--}13.5(-14.5) \times 2\text{--}3 \mu\text{m}$; Venezuela *T. albidopilosa*
5. On pyrenomycetes; hairs generally longer than $60 \mu\text{m}$ 6
6. Hairs $75\text{--}150 \mu\text{m}$ long; ascospores fusiform, $(12\text{--})14.5\text{--}18.5(-24.5) \times (2.5\text{--})3\text{--}4 \mu\text{m}$; on stromata of *Diatrype stigma*; North America *T. rectipila*
6. Hairs $50\text{--}80 \mu\text{m}$ long; ascospores fusiform to ellipsoid, $(13\text{--})13.5\text{--}16(-18) \times (3\text{--})3.5\text{--}4.5(-5) \mu\text{m}$; on a sphaeriaceous pyrenomycete; New Zealand *T. horrida*

ADDITIONAL SPECIES OF *TRICHONECTRIA*:

Trichonectria albidopilosa (Rogerson & Samuels) Samuels, Mem. New York Bot. Gard. 48: 11. 1988.
This species was described and illustrated in Rogerson & Samuels (1985, as *Nectria albidopilosa*).

Trichonectria erythroxylifolii Samuels, Mem. New York Bot. Gard. 48: 11. 1988.
This species was described and illustrated in Samuels (1988).

Trichonectria horrida Samuels, Mem. New York Bot. Gard. 48: 11. 1988.
This species was described and illustrated in Samuels (1988).

Trichonectria hyalocristata Scheuer, Mycol Res. 93: 117. 1989.
This species was described and illustrated in Scheuer (1988, 1989).

Trichonectria pellucida Döbbeler, Mitt. Bot. Staatssamml. München 14: 119. 1978.
This species was described from living leaves of a liverwort in Brazil by Döbbeler (1978).

Trichonectria rectipila Samuels, Rogerson & M.E. Barr, Mem. New York Bot. Gard. 48: 11. 1988.
This species was described and illustrated in Samuels (1988) and is known from the eastern United States,

VALSONECTRIA Speg., Anales Soc. Ci. Argent. 12: 211. 1881.

Type: *V. pulchella* Speg.

= *Endocreas* Samuels & Rogerson, Stud. Mycol. 31: 145. 1989. — Type: *E. lasiacidis* Samuels & Rogerson, recognized as *V. lasiacidis* (Samuels & Rogerson) Samuels & Rossman.

Stroma immersed in the substratum, becoming partially erumpent, pale yellow, pseudoparenchymatous. Ascospores immersed in the stroma, globose to subglobose, yellow, KOH-, ostiolate. Asci clavate to cylindrical. Ascospores narrowly ellipsoid, ellipsoid to fusiform, equally 1-septate, hyaline or yellow-brown, smooth or coarsely striate. Anamorph, where known, *Acremonium*-like. On living and dead woody substrata and bamboo-like grasses.

NOTES.— Spegazzini (1881) established *Valsonectria* for a species having *Nectria*-like ascomata immersed in