

Briania Gen. Nov. and *Briania fruticetum* Sp. Nov.¹

DON R. REYNOLDS²

ABSTRACT: The conidiogenous genus *Briania* is described as new with a single species, *Briania fruticetum*. Major characters of the Hawaiian fungus are erect, setiform, branched phialophores formed in mycothickets on the surface of living leaves. The associated teleomorphic genus is *Meliolina*.

Briania Reynolds gen. nov.

Colonia olivascens brunnea vel atra videtur. Mycelium superficiale partim submersum partim. Stroma deest. Seta deest. Hyphopodia desunt. Conidiophorum macronematosum, paniculatum, rectum, olivascens brunneum vel atrum, molle, cellis multiseptatis cum parietibus crassis complectum videtur. Conidiogenitrix cella uniphialiformis, terminalis, certa, ampuliformis, lageniformis vel subuliformis cum bene circumscripto verticillato colli tegmento. Conidium capitibus mucosis aggregatum, endogenum, simplex, rectum, oblongatum, rotundatum apud apicem cum truncata radice, achromaticum, molle, aseptato.

Colony olivaceous brown to black. Mycelium partly superficial, partly immersed. Stroma none. Seta absent. Hyphopodia absent. Conidiophore macronematous, branched, straight, septated, composed of olivaceous or brown to black, smooth, thick-walled cells. Conidiogenous cell monophialidic, terminal, determinate, ampuliform, lageniform to subulate, with well-defined collarette. Conidium cuneiform, aggregated in mucusoid heads, endogenous, simple, straight, oblong rounded at apical end with truncate base, colorless, smooth, 0-septate.

Type species: *Briania fruticetum* Reynolds

Briania fruticetum sp. nov.

Figures 1–2

GENERIS PROPRIETATES. Colonia abaxialis, mox evolvens in incarnatis eiuncidisque plagis

in frondium textibus. Conidiophorum sympodice paniculatum laxis vericillis usque ad altitudinem circiter 2 mm; propinquis spatiis vel intertextis. Singula conidiophori segmenta complectentia usque ad longitudinem 220 μ m. Conidiogenitricis cellae 30–40 μ m longitudine et 3–5 μ m latitudine ad septum radicale; colli tegmentum hyalinum, tubulosum vel in latitudinem paulatim laxans, 5–8 \times 5 μ m. Conidia 4–5 \times 2–3 μ m.

CHARACTERS OF THE GENUS. Colony abaxial, eventually developing over pink, etioliated areas in leaf tissue, up to height of 200 μ m. Conidiophore sympodially branched in loose whorls; closely spaced, becoming intermeshed. Individual conidiophore cells measure 10–40 \times 5 μ m, the whole structure measuring up to 220 μ m in length. Conidiogenous cells 30–40 μ m in length and 3–5 μ m in width at basal septum; collarette hyaline, tubular to slightly flared, 5–8 \times 5 μ m. Conidia 4–5 \times 2–3 μ m.

TELEOMORPH: *Meliolina sydowiana* Stevens.

HOLOTYPE: LAM 300350B. USA, Hawaii, Kauai, Wahiawai Bog. Collected by Don R. Reynolds, 23 May 1988. Host: *Meterosideros polymorpha* Gaudichaud-Beaupré.

ADDITIONAL SPECIMENS EXAMINED: The following specimens examined in the course of this study were from herbaria indicated by their Index Herbariorum (Holmgren et al. 1981) acronyms.

Meliolina sydowiana Stevens. USA. BISH 499954; Hawaii, Kilauea; 25 July 1921; F. L. Stevens 976. BISH 146043, 499952; Hawaii, Kilauea; 11 July 1921; F. L. Stevens 788. BISH 146042, BISH 499949, ILL 6516; Maui, Olinda Pipe Line; 5 September 1921; F. L. Stevens 1144. BISH 499930, BISH 146044, ILL 6518; Maui, Olinda Pipe Line; 5 September 1921; F.

¹ Manuscript accepted September 1988.

² Natural History Museum, 900 Exposition Boulevard, Los Angeles, California 90007.

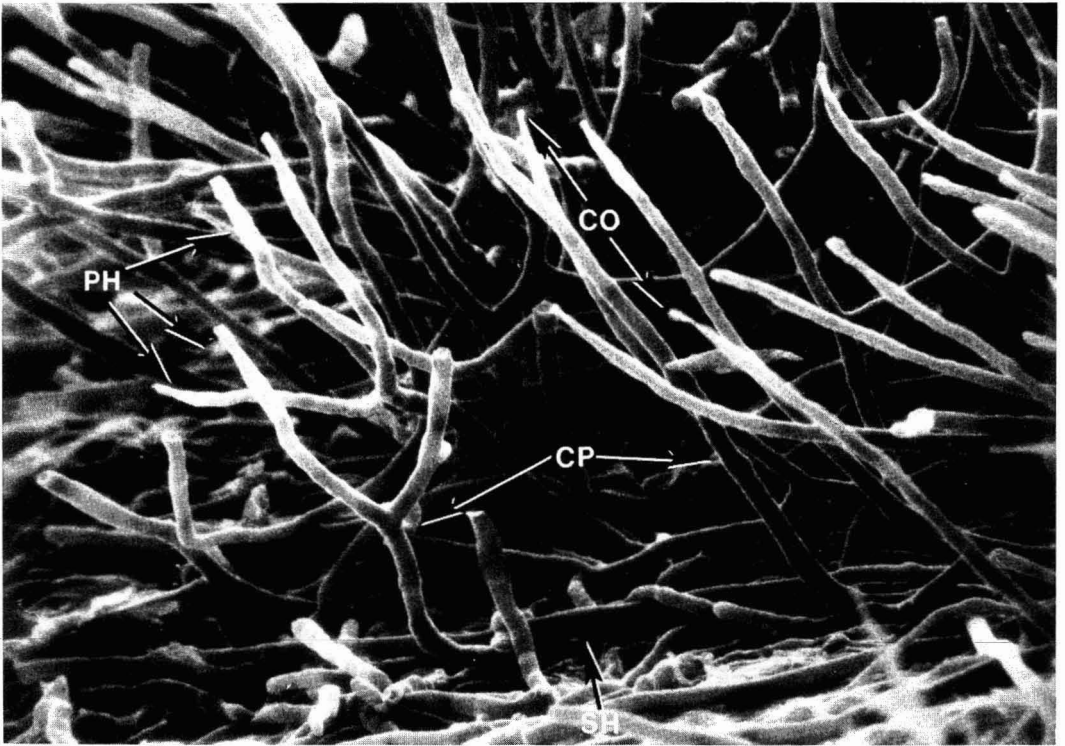


FIGURE 1. *Briania fruticetum* Reynolds: conidiophores formed on living leaf surface. CO, conidial masses at apex of phialides; CP, conidiophores; PH, phialides at apex of conidiophores; SH, surface hyphae, which gives rise to conidiophores. Approx. 165 \times .

L. Stevens 1145. BISH 146046, 499951; Oahu, Olympus; 24 June 1921; F. L. Stevens 721. BISH 499017 (holotype), BISH 499953, ILL 6517 (isotype); Oahu, Tantalus; 22 June 1921; F. L. Stevens 639.

Meliolina haplochaeta Sydow. USA. BISH 146040; Hawaii, Kealakekua; 23 July 1921; F. L. Stevens 965. BISH 146039; Hawaii, between Hilo and Kilauea; 10 July 1921; F. L. Stevens 775. BISH 499018 (holotype), ILL 6497 (isotype); Oahu, Nuuanu Pali; 1 December 1907; H. L. Lyon 1. BISH 146041, ILL 6498; Oahu, Kalihi Valley; 2 June 1921; Stevens 179.

Meliolina philippinensis Stevens. PHILIPPINES. ILL 6503, ex Bureau of Science 24720 (holotype); Samar, Catubig River; February–March 1916; M. Ramos; on *Cryptocarya* sp.

Meliola pulcherrima Sydow. PHILIPPINES. ILL 6508, ex Sydow Fungi exciti exsiccati 124 (holotype); October 1912; M.

Ramos; Luzon, Rizal, Antipolo; on *Lici benjaminiae*. ILL 6509, ex Bureau of Science 383; M. Ramos; Luzon, Bulacan, Angat; on *Eugenia jamboliana*.

Meliolina radians Sydow. PHILIPPINES. ILL 6510, ex Bureau of Science 17383 (holotype); Luzon, Rizal, Montalban; 23 February 1914; M. Ramos; on *Eugenia xanthiophylla*.

The erect, setiform conidiophore originates from an olivaceous-brown surface mycelium. The conidiophore initials are scattered on young hyphae of the colony. These young conidiophores are apparently what are illustrated by Stevens (1925, Figure 10) as "mycelium with vestigial haustoria." Mycothickets are formed from the closely spaced conidiophores of sympodially branches arranged in loose, interlocking whorls; they occur largely over the etiolated tissue in the older colonies. Conidiogenous cells are de-

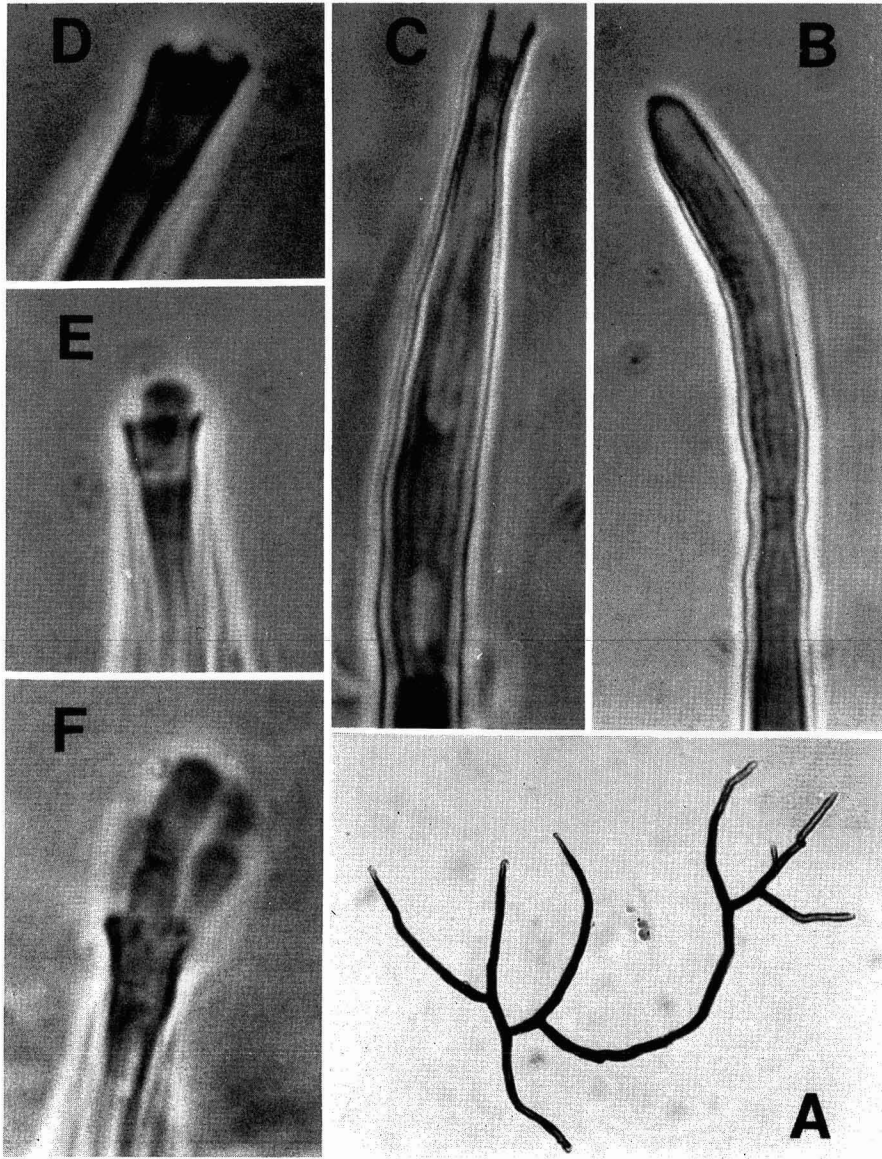


FIGURE 2. *Briana fruticetum* Reynolds: *A*, Conidiophore apparatus. The lower portion is the attachment at the surface mycelium. The branches terminate with phialides. Approx. 200 \times . *B*, Hyphal tip before differentiation into phialide. Approx. 1800 \times . *C*, Phialide with collarette at apex. Approx. 2100 \times . *D*, Phialide apex with uninucleated conidium formed within collarette. Approx. 3000 \times . *E*, Phialide apex with truncated conidium at early stage of separation. Approx. 2500 \times . *F*, Cluster of conidia at apex of phialide. Approx. 3000 \times .

limited at the termini of the ultimate conidiophore branches by the ultimate septum. A narrowing in width of the conidiogenous cell begins at the basal septum and continues up to

the site of conidium production just below the collarette. Conidiogeny commences with the disintegration of the slightly blown out, thinned, light brown wall of the apex cell. The

extruded conidia form short chains that are easily separated into the individual units. A small cluster of conidia is held together by an inconspicuous amount of mucus at the apex of the conidiogenous cell.

ETYMOLOGY: The genus is named for Brian J. Miller of Los Angeles, California, in appreciation for advice and thoughtful discussion at the time that this fungus was collected. The species epithet is derived from a Latin word for thicket; this descriptor was chosen because the grouped, highly branched conidiophores bearing the reproductive structures in the uppermost reaches resemble a microscopic thicket of sporulating shrubs or small trees.

The holotypic specimen is curated in Herbarium LAM, Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, California 90007. Isotypes will be distributed to herbarium BISH and syntypes to s and CMJ.

Briania is related to dematiaceous fungi that have phialides with a single basipetal sequence of conidia formed within a collarete (Gams and Holubová-Jechova 1976). The production of conidia in mucous heads as short catenulated conidia soon breaking into individual units is similar to the conidiogeny of *Phialophora* Medlar.

The conidial shape distinguished this new taxon from *Phialophora* section *Phialophora*. The taxon differs from that section as well as section *Catenulatae* W. Gams by the extensive, well-formed branching pattern of the darkly pigmented conidiophore. The sympodial growth of the dichotomously branched, but not penicillate, conidiophore and the color and morphology of the pycnidiospores distinguish *Briania* from *Craspedodidymum* Holubová-Jechova.

Berkeley and Broome (1875) noted a conidial state in their *Meliola mollis*. Spegazzini (1881) mistook phialides of *Meliola megalospora* (Spegazzini) Stevens for setae. The branched mycelial setae of other species in the *Meliolina cladotricha* (Léveillé) Sydow group, including *M. arborescens* Sydow & Sydow, *M. haplochaeta* Sydow & Sydow, *M. mollis* (Berkeley & Broome) Hansford, *M. pulcherrima* (Sydow & Sydow) Sydow &

Sydow, as well as *M. novae-zealandiae* Hansford, *M. octospora* (Cooke) Beeli, and *M. shepherdii* Hansford, could also bear phialides as well.

The Indian conidiogenous fungus described only as the conidial state of *Meliolina mollis* by Pirozynski (1974) and of *M. subramanianii* Hughes & Pirozynski, 1985 is similar to *Briania fruticetum*; no binomial was assigned to the species. Gams and Holubová-Jechova (1976) noted that the Indian fungus is similar to species in *Phialophora* section *Catenulatae* and is distinguished by conidiophore characters.

Briania was found in association with *Meliolina sydowiana* Stevens. However, several unresolved problems preclude a discussion of a specific teleomorphic connection at this time.

Pirozynski (1974) noted the unique holomorphic association of the phialidic fungus he studied with *M. mollis* when compared to the scarcity of proven association of this conidial form with unitunicates. This view was predicated on the interpretation of the ascus of *M. mollis* as bitunicate. The ascostromatic ascus of *M. sydowiana* studied here is not bitunicate (Reynolds 1989).

Additionally, the status of the name *M. sydowiana* is unclear. Stevens (1925) noted that two Philippine species, *M. radicans* Sydow and *M. pulcherrima* Sydow & Sydow, were closely related to *M. sydowiana*. He also noted that *M. sydowiana* was "pronounced by Sydow as distinct from these [two Philippine species]." Hansford (1946, 1954) considered *M. sydowiana* a synonym of *M. octospora* (Cooke) Höhnelt and then of *M. cladotricha*. My preliminary examination of available material indicated that *M. mollis* (Berkeley & Broome) Höhnelt studied by Pirozynski (1974) from India is likely to belong to the *M. cladotricha* complex as well.

ACKNOWLEDGMENTS

Acknowledgment is made to Nicole Bali, Los Angeles, California, for the English to Latin translation. Robert Gustafson, LAM Collections Manager, and the staff of the

Pacific Botanical Garden provided helpful logistical assistance.

LITERATURE CITED

- BERKELEY, J. M., and C. E. BROOME. 1875. Enumeration of the fungi of Ceylon. Part II. Containing the remainder of the Hymenomycetes, with the remaining established tribes of fungi. J. Linn. Soc. London 14: 29–140.
- GAMS, W., and V. HOLUBOVÁ-JECHOVA. 1976. *Chloridium* and some other dematiaceous hyphomycetes growing on decaying wood. Studies in mycology No. 13. Centraalbureau voor Schimmelcultures, Baarn.
- HANSFORD, C. G. 1946. Contributions towards the fungus flora of Uganda. VIII. New records. Proc. Linn. Soc. London 157: 138–212.
- . 1954. Australian fungi, II. Proc. Linn. Soc. N. S. W. 79: 97–141.
- HOLMGREN, P. K., W. KEUKEN, and E. K. SCHOFIELD. 1981. Index Herbariorum. Part 1: The herbaria of the world. Dr. W. Junk B. V. Publishers, The Hague.
- HUGHES, S. J., and K. A. PIROZYNSKI. 1985. *Meliolina subramanianii* sp. nov. Proc. Indian Acad. Sci. (Plant Sci.) 94: 347–354.
- PIROZYNSKI, K. A. 1974. *Meliolina mollis* and two hypersites in India. Kavaka 2: 33–41.
- REYNOLDS, D. R. 1989. The ascostromatic extenditunicate ascus. Crypto. Mycol. (in press).
- SPEGAZZINI, C. 1881. Fungi argentini additis nonnullis brasiliensibus montevidensibus-que. Pugillus quartus [Fungi Argent. pug. 4] An. Soc. Cient. Argent. 12: 97–113.
- STEVENS, F. L. 1925. Hawaiian fungi. Bernice P. Bishop Mus. Bull. 19. Honolulu.