

PRODROMUS FUNGI LUDOVICIANAE

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The ten species of Homobasidiomycetes described below were collected by the writer mostly in lower Louisiana over the past year. All of these species are resupinate and are presently classed within the Thelephoraceae. The reader will note the emphasis on microscopic characters. Recent work by Corner (1950), Cunningham (1946), Pinto-Lopes (1952), Rogers (1943, 1944), and many others has demonstrated the necessity for an analysis of such characters to show true relationships. Pursuant upon this thesis, the Prodromi will be concerned with comments upon the microscopic characters of such noteworthy Louisiana fungi as come to hand.

1. *Tomentella Galzini* Bourd. (Fig. 1 A).

Fructification resupinate, inconspicuous, composed of separate tufts giving a granular appearance, granules often closely gregarious and appearing poroid, floccose, brown with faint reddish tints; border indeterminate, not well-developed, or absent; hymenial surface not continuous.

Subicular hyphae thin-walled, 3-4 μ diam., with clamp-connections, branching freely, H-connections present, walls light golden-brown, concolorous with the spores or lighter; subhymenial hyphae similar except with generally shorter cells and colorless walls.

Basidia 32-44 x 6-8 μ , subtended by proliferating clamps, tapering toward the base, with 4 fleshy, divergent, arcuate-subulate sterigmata, (4-)5 μ in length; long, tapering, sterile, hyphal structures (cystidioles) projecting above the hymenial surface, up to 4 μ diam. at the widest part, often with clamp-connections, or aseptate, sometimes bifurcate; spores irregularly spherical, spinulose with short, tapering spines, golden, yellow-brown, 6.4-8 μ , hyaline, mucron present, usually with one large guttule.

Collected once in Jefferson Parish on frondose wood (AWL 160). There does not seem to be any other report of this species from North America. It has been reported from France.

2. *Tomentella spongiosa* (Schw.) Bourd. et Galz. var. *spinifera* (Burt) Bourd. et Galz. (Fig. 1B)

Fructification relatively thick, forming a distinct layer, floccose-spongy where well-developed, soft, adherent except in small pieces, brown-bister; border floccose with conspicuous brown or purple-brown hyphal threads running through it.

Subicular hyphae subsolid, provided with clamp-connections, branching, with spiny walls, 6-7 μ diam., arising from hyphae similar to those of the subhymenium by becoming thickened and spiny, as these structures develop, deeper brown to brown-black pigmentation also develops; subhymenial hyphae with clamp-connections, branching freely, hyaline to subhyaline, without spiny walls or thickenings, 3-5 μ diam.

Basidia 25-32 X 6-7 μ , sometimes becoming secondarily septate after spore discharge, each with 4 thick, fleshy, arcuate-subulate, divergent sterigmata, (4-)5 μ long; spores densely and conspicuously spinulose, spherical to subspherical, subhyaline or darker to blackish-brown, often with an inconspicuous, hyaline mucron, a single, large guttule often present, or absent, or replaced by several smaller ones, 6-8 μ diam., spines 1.6-2 μ or less in length.

Collected once at Indian Camp near the Pearl River, on pine, St. Tammany Parish (AWL 168). The southernmost distribution given by Burt (1916) is North Carolina and the Bahama Islands.

3. *Tomentella botryoides* (Schw.) Bourd. et Galz. (Fig. 1 C).

Fructification resupinate, fibrillose-arachnoid, soft, rust-red, separable from the substrate; margin arachnoid with numerous rust-yellow rhizomorphic strands; hymenium gray-black, not continuous but developing in tufts which may become continuous giving a granular appearance to the hymenium; turning dark blue-green with KOH.

Subicular hyphae bearing clamp-connections, hyphal walls hyaline to brown, branching, walls slightly thickened, some, near the substrate, aggregated into rhizomorphic strands; subhymenial hyphae similar but without thickened or pigmented walls; subhymenial hyphae, spores, and the hymenium becoming blue-green in KOH.

Basidia cylindrical-clavate with expanded apex, 30-43 X 6-7 μ , becoming secondarily septate after spore discharge, tapering to base where basidioles form through proliferating clamps, bearing 4 thick, arcuate-subulate, divergent, fleshy sterigmata, (4-)5 μ long; spores light golden-brown, mucronate, irregularly subglobose to blunt triangular, asperulate, (4-)5-6 μ diam.

One collection, growing on conifer wood, made in St. Tammany Parish (AWL 231) at Indian Camp. Burt reports this species from Alabama, North and South Carolina.

4. *Peniophora byssoidea* (Pers. ex Fr.) Bres. subsp. *tomentella* (Bres.) Bourd. et Galz. (Fig. 1 D).

Fructification resupinate, soft, flocculent, easily separable from the substrate, relatively thick, buff-yellow, fading through cream to white at the determinate, fimbriate-byssoid margin,

minutely setulose under the lens, often minutely cracked or fissured in some parts.

Subicular hyphae loosely organized, branching, rough-walled, hyaline to yellowish, bearing clamp-connections, 3-4 μ diam.; subhymenial hyphae similar but not roughened.

Basidia 14-18 X (4-)5 μ , cylindrical-clavate, subtended by non-proliferating clamps, with 4 straight, subulate sterigmata, 2.4-3.2 μ long; rough walled basal hyphae projecting through the hymenial surface forming long, yellowish or hyaline, aseptate or clamped hyphal structures often bearing resinous granules on the walls, ends tapering or obtuse, up to 89 X (4-)5 μ ; spores smooth, hyaline, none to 1-guttulate, 4 X (2-)3 μ .

This species seems to be the same as that reported by Malencon (1956) from the Atlas Mountains. Malencon has a very good drawing (Fig. 5) of the distinct tramal hyphae and the unusual, projecting, sterile hyphae. Bourdot and Galzin (1927) suggest that *Peniophora arachnoidea* Burt may be a synonym of this species, but Rogers and Jackson (1943) have shown *P. arachnoidea* to be synonymous with *P. crema* (Bres.) Sacc. et Syd., a species reported by Burt (1925) from Louisiana but not as yet collected by me.

The Louisiana collections have been compared with Bourdot No. 5337 from the New York Botanical Garden and are essentially the same. All collections (AWL 7,44,386,387) are from St. Tammany Parish, growing on conifer wood.

5. *Peniophora calothrix* (Pat.) Rogers et Jacks.

A very common, distinctive, and inconspicuous species. It has been collected in St. Tammany and Washington Parishes abundantly (AWL 16,86,89,91). Rogers and Jackson (1943) report it from the east and west coasts, and as far south as Tennessee. An excellent description of *P. calothrix* and its related species in the section Tubuliferae of *Peniophora* may be found in Weresub (1953).

6. *Peniophora sanguinea* (Fr.) Hohn. et Litsch. (Fig. 1 F).

Fructification resupinate, loosely adherent; hymenial surface with characteristic fissures, developing into a thin membrane, stretched tightly over the loose, cottony subiculum, reddish tints present in addition to an overall buff-yellow, which gives a brown cast to the surface, certain areas showing the pink color more strongly, no blood red color present; margin byssoid, with pink or brownish-pink rhizomorphs.

Subicular hyphae hyaline, 4-5 μ diam., branching, clamp-connections absent, walls slightly thickened; subhymenial hyphae 3(-4) μ diam., hyaline, without clamp-connections, and branching.

Basidia 20-23 X 4-5 μ , cylindrical-clavate, with 4 straight, thin sterigmata; thin-walled cystidioles arising from subhymenial

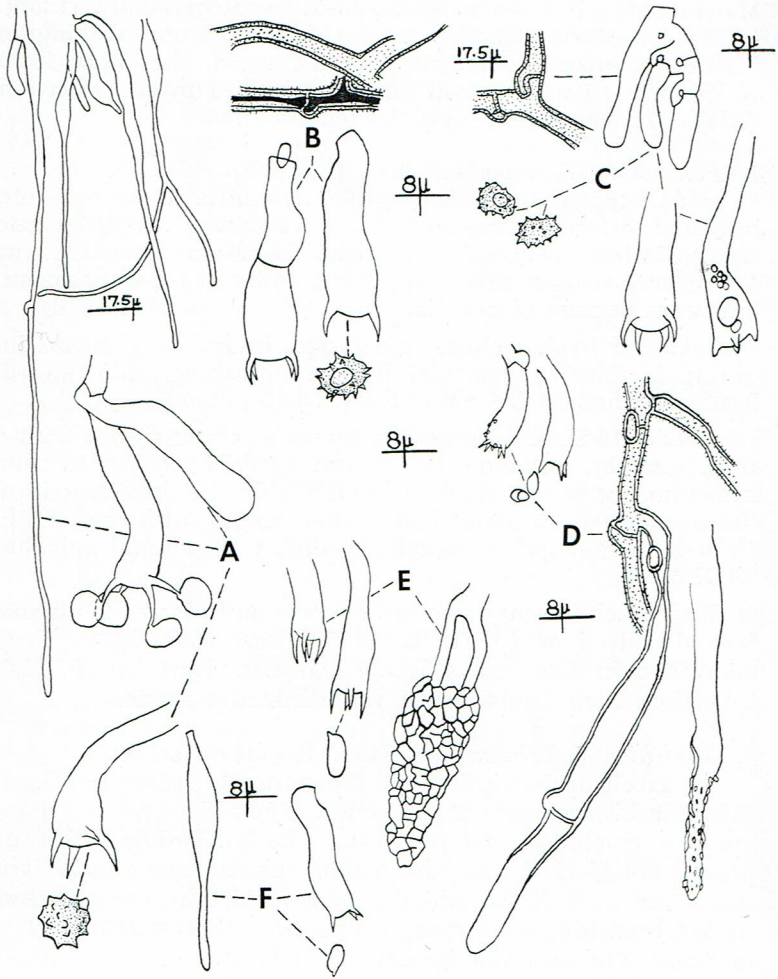


Fig. 1. *Tomentella Galzini*, basidia, spores, and cystidioles, A; *Tomentella spongiosa* var. *spinifera*, subicular hyphae, basidia, and spore, B; *Tomentella botryoides*, portion of young hymenium, subicular hypha, basidia, and spores, C; *Peniophora byssoidea* subsp. *tomentella*, basidia, spores, subicular hyphae showing origin of a sterile, projecting hypha, portion of the same, D; *Peniophora Roumeguerii*, basidia, spore, incrusting cystidium, E; *Peniophora sanguinea*, basidium, spore, cystidiole, F.

hyphae, 40-56 X 3-5 μ , tapering to blunt tips, projecting up to 24-30 μ beyond the hymenial surface; spores hyaline, smooth, 4.5 X 2-4 μ .

The complete synonymy of this species is given by Rogers and Jackson (1943). Burt reports two collections from St.

Martinville [as *P. miniata* (Berk.) Burt, *vide* Rogers and Jackson]. I have made two collections, one (AWL 25) from Washington Parish on what is probably frondose wood, the other from St. Tammany Parish also on frondose wood. This last collection (AWL 175) completely lacks the reddish tints.

7. *Peniophora Roumeguerii* Bres. (Fig. 1 E).

Fructification resupinate, generally thick, ceraceous - soft, hymenial surface setulose and usually with many, small, separate cracks, Saffron Yellow, 7/3*, Light Cadmium 17 (Ridgeway equivalent); margin closely appressed, white in some specimens, pubescent because of cystidia.

Subicular hyphae closely compacted, individual elements indistinguishable; subhymenial hyphae branching, thin-walled, hyaline, without clamp-connections, 2.4-3.2 μ diam.

Basidia 16-21 X 3-5 μ , usually found in clusters, each with 4 thin, straight, subulate sterigmata; cystidia arising in subhymenium or below, often in layers within the thick fructifications, encrusted for about half of their length, with thick walls, 40-50 X 11-12 μ ; spores smooth, hyaline, with a small apiculus, 6.4 X 3.2 μ .

This species seems to be rather common in lower Louisiana. Several collections (AWL 92,349,350) were made in St. Tammany and in East Baton Rouge Parishes. Burt lists 9 other collections from Louisiana. A very distinctive species.

8. *Treichispora Brinkmanni* (Bres.) Rogers et Jackson

An excellent description and illustration are given by Rogers (1944) in his treatment of this genus. The collections at Tulane are thin, arachnoid, and yellowish. The few basidia which are present are 14-15 X 5-6 μ with 6 thin, subulate sterigmata. The spores are (4-)5 X 2 μ , and the subhymenial hyphae are thin-walled, branching, with clamp-connections, short-celled and 3-4 μ in diam. The subicular hyphae are collapsed.

In addition to one numbered collection (AWL 12) several others have been made and the species is relatively common in lower Louisiana.

9. *Pellicularia subcoronatum* (Hohn. et Litsch.) Rogers

Described and figured by Rogers (1943) who lists the distribution from Germany, eastern and western Canada, eastern United States, Missouri, Idaho, and Oregon. Our collection (AWL 388) is from St. Tammany Parish. A widely distributed species.

*Horticultural Colour Chart issued by the British Colour Council in collaboration with the Royal Horticultural Society. London. 1938.

10. *Pellicularia vaga* (Berk. et Curt.) Rogers et Linder

Both Burt (1926) and Rogers have described and figured this species. It is widely distributed in North and Central America, Europe, Ceylon, and Japan. Its imperfect stage (*Rhizoctonia*) causes several serious diseases in vascular plants. To my knowledge its perfect stage has not been hitherto reported from Louisiana, but its occurrence is not unexpected since it has been found in Alabama. Our collection (AWL 1) was found in St. Tammany Parish.

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LITERATURE CITED

- Burt, E. A. 1916. The Thelephoraceae of North America. VI. *Hypochnus*. Ann. Mo. Bot. Gard. 3:203-241.
- . 1925. The Thelephoraceae of North America. XIV. *Peniophora*. Ann. Mo. Bot. Gard. 12:213-357.
- . 1926. The Thelephoraceae of North America. XV. *Corticium*. Ann. Mo. Bot. Gard. 13:173-354.
- Bourdot, H. et A. Galzin. 1927. Hymenomycetes de France. Paris.
- Corner, E. J. H. 1950. A monograph of *Clavaria* and allied genera. Ann Bot. Memoirs No. 1. London.
- Cunningham, G. H. 1946. Notes on the classification of the Polyporaceae. New Zealand Jour. Sci. and Technol. 28 (A): 238-251. *et seq.*
- Malencon, M. G. 1956. Prodrome d'une flore Mycologique du Moyen-Atlas. 2° Contribution. Bull. Soc. Myc. Fr. 68:297-326.
- Pinto-Lopes, J. 1952. "Polyporaceae" Contribuicao para a sua biotaxonomia. Memorias da Sociedade Broteriana. Volume VIII. Alcobaca.
- Rogers, D. P. 1943. The genus *Pellicularia* (Thelephoraceae). Farlowia 1:95-118.
- . 1944. The genera *Treichispora* and *Galzinia* (Thelephoraceae) Mycologia 34:70-103.
- and H. S. Jackson. 1943. Notes on the synonymy of some North American Thelephoraceae and other resupinates. Farlowia 1:263-328.
- Weresub, L. K. 1953. Studies of Canadian Thelephoraceae. X. Some species of *Peniophora*, section *Tubuliferae*. Canadian Jour. Bot. 31:760-778.