

A MARASMIOID AGARIC WITH BILATERAL TRAMA

(NEW GENERA OF FUNGI *. XI)

BY ROLF SINGER

RESUMEN

Se describe *Cyptotrama macrobasidium* Sing. nov. gen., nov. spec. notable por su apariencia marasmioide y sus afinidades con *Marasmius*, *Gloiocephala* y géneros vecinos pero que difiere de todos por la estructura bilateral de la trama himenoforal. A pesar de este último carácter anatómico, no pertenece a las familias caracterizadas principalmente por su trama bilateral sino, como *Marasmius* y *Gloiocephala*, a la familia *Trichotomataceae*.

CYPTOTRAMA n. gen.

Pileo corticato et dermatocystidiophoro; lamellis adnato-subdecurrentibus; tramate hymenophorali laterali; sporis subglobosis, levibus, tenuitunicatis, hyalinis, inamyloidiis; basidiis subvoluminosis, tetrasporis; cystidiis in acie lateribusque lamellarum praesentibus, tenuitunicatis; dermatocystidiis in stipite centrali tubuloso crassitunicatis numerosis; hyphis carnis plus minusve tenacis in pileo tenui—, in stipite crassitunicatis, omnibus inamyloideis fibulatisque. Ad lignum, Coroico, provinciae Nor-Yungas, Boliviae.

Species typica (et unica): C. macrobasidium Sing.

(*) Previous contributions under this title have appeared in: I. *Mycologia* 36: 358-368. 1944. — II. *Lloydia* 8: 139-144. 1945. — III. *Mycologia* 39: 77-89. 1947. — IV. *Mycologia* 40: 262-264. 1948. — V. *Mycologia* 43: 598-604. 1951. — VI. *Lilloa* 23: 255-258. 1950 (1951). — VII. *Mycologia* 48: 719-727. 1956. — VIII. *Mycologia* 50: 103-110. 1958. — IX. *Lloydia* 21: 45-47. 1958. — X. *Sydowia* 11: 320-322. 1957.

Cyptotrama macrobasidium n. sp.

Characteribus generis. Pileo carneo-ochraceo, glabro vel subglabro, convexo, centro depresso, usque ad 2 cm fere lato; lamellis distantibus vel subdistantibus, plus minusve intervenosis, bene evolutis latisque, integris, albis; stipite pruinoso, albo, usque ad 23 mm longo et 1.8 mm lato, ad basim bulboso; carne alba inodora. Sporis subglobose, $8.2-9 \times 7-7.5 \mu$; basidiis $37-44 \times 8.2-10 \mu$; cystidiis sparsis, projicientibus, hyalinis, $65-70 \times 10-13 \mu$. Epicute ex elementis brevibus palisadice dispositis, dermatocystidiis crassitunicatis interruptis efformata; stipitis superficie e dermatocystidiis numerosis nec palisadice dispositis fusioideis efformata; hyphis haud (vel minime) gelatinascente. Ad lignum. — Typus in Bolivia, La Paz, prov. Nor-Yungas, prope urbem Coroico collectus est, leg. R. Singer n° B 577, estate (27 I 1956), in Herbario Lilloano (LIL) conservatus est.

Pileus ochraceous with a slight flesh tinge (11-G-10), pallescent to "capucine buff" or 9-F-6 (light ochraceous, colours according to Maerz & Paul, 1st edition), glabrous or subglabrous, smooth, but in final stage of development short sulcate at margin, convex, soon with narrowly depressed centre 15-19 mm broad.

Lamellae white, with entire non-fringed edge, at first didymous, later tridymous, at first not intervenose and simple or somewhat forked, later more or less intervenose and with occasional forked ones, broad, distant or subdistant, squarely adnate, in dried condition appearing decurrent; spore print not obtained on paper, apparently white.

Stipe white, strongly pruinose, in dried condition whitish-tan, with bulbous base, otherwise equal or slightly tapering upwards, hollow, tubulose, central, up to 23×1.8 mm, the bulb up to 4 mm in diameter; veil none; basal mycelium poorly developed.

Context white excepting the narrow zone immediately underneath the cuticle proper which is concolorous with the surface of the pileus, unchanging, rather toughish in the pileus, tough in the stipe; odour none.

Spores $8.2-9 \times (6) 7-7.5 \mu$, subglobose, without suprahilar depression, continuous on distal end (no germ pore etc.), with thin wall, smooth, with amorphous oily contents in many, completely hyaline in KOH and NH_4OH , not amyloid nor visibly pseudoamyloid although in accumulations indistinctly reddish brownish at times.

Hymenium: Basidia $37-44 \times 8.2-10 \mu$, clavate, thin-walled, hyaline, 4-spored. Cystidia apparently leptocystidia, rather scattered, strongly

(12-25 μ) projecting beyond the hymenium, 65-70 \times 9,5-13 μ , ventricose-subampullaceous, with moderately narrowed apex which is at times subcapitate, thin-walled, without contents or with scattered contents (like basidia), occurring both on edges and sides; cheilocystidia not differentiated.

Hyphae: All hyphae with clamp connections, inamyloid, those of the stipe parallel, thick-walled, hyaline; those of the pileus thin-walled to moderately thick-walled, hyaline to (especially in a zone underneath the cuticle proper) more or less melleous, not densely packed but also not (or perhaps only very slightly, in places) gelatinous, rather irregu-

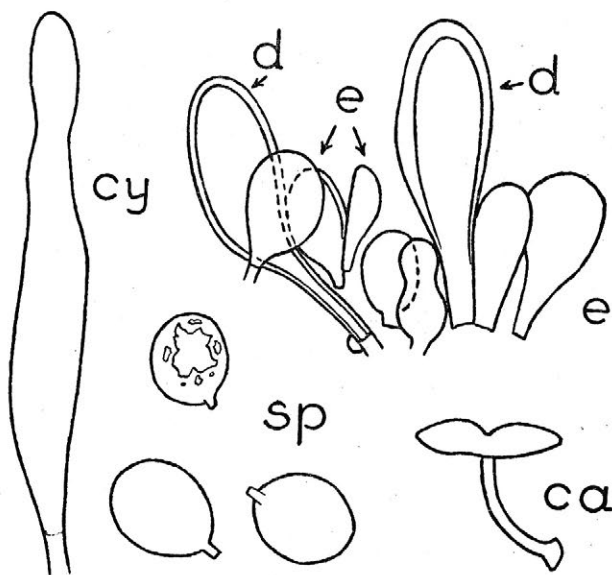


Fig. 1. — Anatomical details and habit of the carpophores of *Cryptotrampa macrobasidium*. cy = cystidium; sp = spores; e = elements of the epicutis of the pileus; d = dermatocystidia of the pileus; ca = carpophore. Carpophore \times 1, spores \times 1600; other details \times 1000.

lar in the central core of the pileus with more radially arranged layers near cuticle and lamellae; hymenophoral trama consisting of thin filamentous hyaline hyphae which are slightly irregular in the mediostatum and distinctly arcuate divergent in the lateral stratum; subhymenium very poorly developed; hymenopodium not differentiated.

Surface layers: Epicutis of pileus a palisade consisting of short rounded elements and dermatocystidia, the former hyaline to melleous

and thin-to moderately thick-walled (to 1.3μ), $11-24 \times (4) 7.5-11 \mu$, at times centrally constricted, all smooth; the dermatocystidia of the pileus projecting (to 24μ) beyond the other elements of the epicutis, or deeper-rooting, always melleous to melleous-succineous, clavate, thick-walled (wall $1.5-2.8 \mu$ thick). Surface layer of stipe not palisadic but surface hyphae of context beset with numerous erect or rarely repent dermatocystidia which are either hyaline or pale melleous, thick-walled, especially in their middle portion (to 3μ), ventricose, in shape and aspect much like the metuloids of *Inocybe*, numerous, $40-75 \times 5-14 \mu$.

On wood and woody forest litter gregarious in tropical montane zone along fields in shady places. Only the type collection has been studied thus far.

The fresh fungus has the aspect of a *Marasmius* of the *Globulares* or *Alliati* but it differs in the strictly bilateral trama of the lamellae. Bilateral trama occurs sporadically in the *Hygrophoraceae*, *Tricholomataceae*, more consistently in the *Paxillaceae*, and consistently in the *Gomphidiaceae*, *Boletaceae*, *Strobilomycetaceae* and in the *Amanitaceae*. The fungus described above, with its typically marasmioid habit and characters can, in spite of the relatively voluminous basidia, hardly be looked for in the *Hygrophoraceae*. It is likewise not paxillaceous, especially in view of the characters of the surface layers, the spores, and particularly the toughness of the trama with its thick-walled elements. In the *Boletaceae* and *Strobilomycetaceae* a species with completely hyaline spores seems out of place, not to speak of the other characters such as the thick-walled dermatocystidia and the relatively tough trama, especially in the stipe. The same reasons exclude this species from the *Strobilomycetaceae*. In the *Amanitaceae*, species with squarely adnate distant lamellae appear to be misplaced, aside from that the lamellae seem too thick, and the habit too unusual for a comparison with the genera of the tribus *Amaniteae* (there being no *tertium comparationis* as far as *Pluteaceae* are concerned). This leaves the family *Tricholomataceae*.

In this latter family, the genus *Armillariella* shows in some of its species a definitely bilateral arrangement of the tramal hyphae in the lamellae; what is more important is the fact that this arrangement is much more comparable with that of the genus here described than the type of bilaterality generally found in the "boletineous" families or *Amaniteae*. Furthermore, bilateral trama is known to exist in *Armillaria* and *Catathelasma*.

There can probably be no question about the necessity of generic separation of *Cyptotrampa* from the tricholomataceous genera mentioned

above. If *Cyptotrama* is compared with other genera—regardless of the structure of the lamellae—it becomes obvious that the nearest genera are *Xerula*, *Pseudohiatula*, *Marasmius*, and *Gloiocephala*. A comparison with *Gloiocephala* shows, in particular, a large number of common characters, and it is felt that *Cyptotrama* and *Gloiocephala* are actually related. A comparison of the structure of the hymenophoral trama is impossible since *Gloiocephala* forms—if ever—such incomplete and narrow lamellae that the structure of their trama cannot be studied, at least not in the manner possible in *Cyptotrama*. There is a species with complete and normal lamellae, but otherwise the characters of *Gloiocephala*, viz. *Marasmius albocapitatus* Petch. This species was at first treated as a *Marasmius*, then transferred to *Crinipellis* (in a wider sense) by Dennis while Singer (1958) suggested *Pseudohiatula*. Unfortunately, a detailed study of the tramal structure of *M. albocapitatus*, particularly young stages, has not been carried out thus far, but it may be anticipated that this species might have a tramal structure comparable to that of *Cyptotrama*. In that case, *M. albocapitatus* would have to be transferred to *Cyptotrama* ⁽¹⁾ as a second species.

(1) The generic name is an allusion to the arcuate bilaterality of the hyphae of the lateral stratum (kyphos = curvatura).