Entoloma in South America. II. *)

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Abstract. — 15 new species of *Claudopus* (1) and *Entoloma* (14) are described from tropical South America (northern Argentine, Brazil). A key and illustrations are presented to these taxa. In addition new localities of already described South American species are recorded.

Introduction

After the publication of several contributions to South American entolomatoid taxa (Horak, 1975; 1976; 1978) numerous collections of pink-spored agarics have been received for identification. Unfortunately the bulk of material gathered by E. J. H. Corner (Cambridge, England) and R. Singer (Chicago, USA) had to be neglected for publication due to the simple reason(s): lack of complete macroscopic data and/or bad preservation of the exsiccata. In 1980 I had the opportunity to carry out field work in northern Argentine (Misiones). Several collections from there belonging to *Pouzaromyces* and *Entoloma* (sect. Callidermi) are already published elsewhere (Horak, 1982) and the remainder of the Entolomataceae is found in the present paper.

Unless otherwise stated, the magnifications of the figures are: carpophores (nat. size), spores (×2000), basidia and cystidia (×1000), pileipellis (×500).

Key to species of *Claudopus* (1) and *Entoloma* (2—15)

1. Stipe absent or eccentric-rudimentary; pileus —25 mm, conchiform, white; spores 6—7.5×5—6 µm, 5—6-angled; hyphae of pileipellis with capitate terminal cells; on rotten wood. Brazil ..... 1. *Claudopus tympanifer*

1*. Stipe well developed, central 2

2. Pileus conical, papillate or campanulate; lamellae free, subfree to adnexed 3

2*. Pileus depressed to umbilicate; lamellae adnate, emarginate to subdecurrent 10

3. Spores suboid to quadrate 4

3*. Spores pentagonal 7

*) *Entoloma* in South America. I. — Sydowia 30: 40—111 (1977).

4. Spores quadrate (rarely cuboid or pentagonal), 6—8(9) µm; pileus —35 mm, fuscous turning fawn, disc subvillous; stipe —60×—4 mm, white, yellowish to ochre (rarely pale fuscous); context and latex white turning ochre; cheilocystidia and pleuorcystidia fusoid; on soil in forest. Brazil ..... 5. *E. flavotinctum*

4*. Spores distinctly cuboid 5

5. Pileus and stipe (tomato) red; pileus —15 mm, glabrous, flat in aged specimens; lamellae concolorous with pileus or yellow; stipe —30×—1.5 mm; spores 6—10 µm; cheilocystidia clavate to cylindrical; on rotten wood and soil. Brazil ..... 2. *E. lycopersicum*

5*. Pileus and stipe blue-green or orange to pale brown 6

6. Pileus and stipe blue-green; pileus —45 mm, smooth, dry; lamellae blue fading to green; stipe —80×—7 mm, fibrillose; spores 5—8.5 µm; cheilocystidia clavate; on soil. Brazil ..... 3. *E. azureoviride*

6*. Pileus and stipe orange to pale brown; pileus —22 mm, viscid when wet; lamellae pale orange; stipe —30×—2 mm, smooth; spores 6—12.5 µm; cheilocystidia cylindrical to clavate; on soil among litter. Brazil ..... 4. *E. viscaurantium*

7. Pileus grey, —15 mm, smooth; lamellae free; stipe —25×—2 mm, white, cylindrical, smooth; spores 6.5—7.5×5.5—6 µm; cheilocystidia and pleurocystidia fusoid with tapering neck; on rotten wood. Brazil ..... 6. *E. murinoalbum*

7*. Pileus brown, olive-brown or olive 8

8. Pileus and stipe brown; pileus —40 mm, distinctly papillate; stipe —65×—5 mm, smooth; spores 10—11×5—6 µm; pseudocystidia present; on rotten wood. Brazil ..... 7. *E. spineum*

8*. Pileus (and stipe) olive-green to olive-brown 9

9. Pileus and stipe olive to olive with silvery tinge; pileus —10 mm fibrillose-squamulose; lamellae emarginate; stipe —40×—1 mm, slender pruinose; odour subfarinaceous; spores 8.5—10×7.5—9 µm; cheilocystidia none; on soil. Argentine . 8. *E. olivaesimile*

9*. Pileus brown with olive tinge, —65 mm, glabrous; stipe —90×—7 mm, whitish to pale brown; spores 7.5—9×5—6.5 µm; cheilocystidia and pleurocystidia conspicuous, 50—170×15—40 µm, fusoid; on soil in forest. Brazil ..... 9. *E. sparsicystis*

10(2*). Pileus —25 mm, lilac to lilac-brown, minutely squamulose; stipe —35×—3 mm, white; spores 5.5—7 µm, isodiametrical; pileipellis with distinct fusoid terminal cells; on rotten wood. Brazil ..... 10. *E. obtusisporum*

10*. Pileus red-brown, brown, brown-olive or white 11

11. Pileus —55 mm, red-brown to purple-brown (garnet brown), tomentose, surface cracking; stipe —60×—10 mm, white;

spores 10—12×6—7.5 μm; pseudocystidia scattered; pileipellis palisadic; on soil in forest. Brazil ..... 11. *E. cutifractum*

11*. Pileus brown, olive-brown or white; stipe white, grey or pale brown; conspicuous cheilocystidia and/or pleurocystidia present 12

12. Pileus and stipe white; pileus —50 mm, smooth; stipe —65× —6 mm, glabrous; spores 8.5—10×6.5—8 μm; cheilocystidia cylindrical, articulate; on soil among litter. Brazil .... 12. *E. clitocyboides*

12*. Pileus (grey) brown to olive-brown; spores distinctly pentagonal 13

13. Pileus —50 mm, pruinose, concentrically cracking; stipe —45×—4 mm, white, glabrous; spores 7.5—10×6—9 μm. cheilocystidia articulate; pileipellis palisadic; on soil in forest; Brazil ..... 13. *E. pruinatocutis*

13*. Pileus distinctly fibrillose, centre occasionally squamulose; cystidia abundant 14

14. Pileus —60 mm, grey-brown; stipe —70×—8 mm; spores 7.5—9×6—8 μm; cheilocystidia articulate, rarely with brown plasmatic pigment; pleurocystidia absent; on soil and on rotten wood. Brazil ..... 14. *E. spadiceum*

14*. Pileus —90 mm, dark brown with distinct olive tinge; stipe —90×—10 mm; spores 7.5—10×6.5—8 μm; cheilocystidia and caulocystidia cylindrical to clavate; pleurocystidia 50—130× 10—20 μm, fusoid; on soil among litter. Brazil .... 15. *E. conspicuocystidiosum*

Description of new taxa

1. *Claudopus tympanifer* HORAK, sp. n. — Fig. 1, A—C

Pileus —25 mm, plano-convexus, albus. Lamellae incarnatae. Stipes deest vel excentricus. Sporae 6—7.5×5—6 μm, angulatae. Fibulae nullae. Ad lignum putridum. Brasilia. ZT 700 (Typus).

Pileus —25 mm, hemispherical to convex, becoming expanded and flat; white; tomentose, dry, margin not striate. Lamellae adnexed to free, ± distant; white turning pink, finally with reddish brown tinge, edges even, concolorous. Stipe absent or rudimentary-eccentric; white. Context white. Odour and taste not distinctive.

Spores 6—7.5×5—6 μm, 5—6-angled, pink. Basidia 25—30× 7—8 μm, 4-spored. Cheilocystidia and pleurocystidia absent. Pileipellis a cutis or trichoderm consisting of cylindrical hyphae (5—8 μm diam.), terminal cells with clavate to globular tip, with hyaline to pale brown encrusting pigment, oleiferous vessels numerous. Clamp connections absent.

Habitat and distribution. — On rotten dicotyledonous wood in forest. — Brazil.

Material. — Brazil: Curitiba, Cambuí, 18. XII. 1979, in herb. Horak, ZT 700 (holotype).

2. *Entoloma lycopersicum* Horak & Singer, sp. n. — Fig. 2, A—F

Pileus — 15 mm, conicus dein applanatus, ruber, sulcatus, siccus. Lamellae adnatae, pileo concolores, acie flava instructae. Stipes —30 × —1.5 mm, cylindricus, ruber. Sporae 6—10 µm, cuboideae. Cheilocystidia clavata. Ad terram vel lignum putridum. Brasilia. INPA 81188 (Typus).

Pileus —15 mm, conical at first, becoming expanded to flat with age, margin often sulcate; orange red to tomato red (M & P: 3 G 12 — 3 I 12), colour fading in aged specimens and on drying; hygrophanous, dry, glabrous. Lamellae adnate to adnexed, distant;

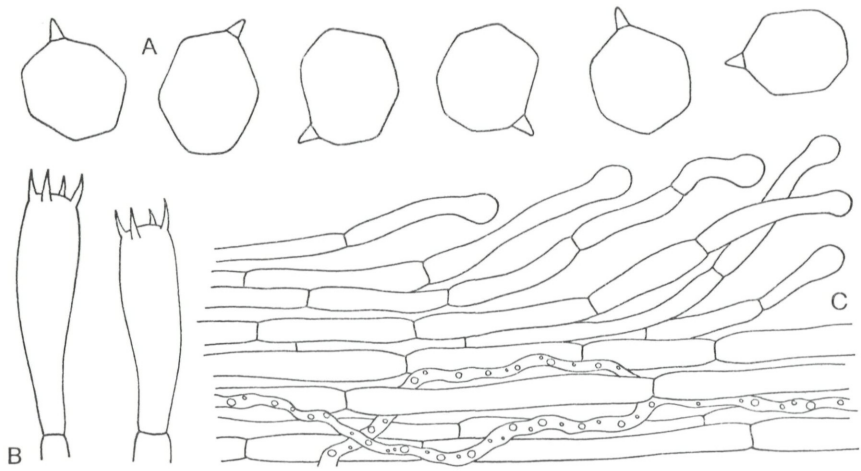

Fig. 1. *Claudopus tympanifer* Hk. (type): A. spores. — B. basidia. — C. pileipellis

concolorous with pileus, edges yellow; broad-ventricose, edges entire, sometimes exuding resinous drops. Stipe —30 × —1.5 mm, cylindrical, slender, equal; concolorous with pileus, fading with age, basal mycelium whitish; dry, smooth, solid, single. Context thin, reddish. Odour and taste not distinctive.

Spores 6—10 µm, distinctly cuboid. Basidia 50—65 × 9—12 µm, 4-spored. Cheilocystidia 35—90 × 10—22 µm, clavate to subfusoid, thin-walled, hyaline, occasionally with yellow (KOH) plasmatic pigment. Pleurocystidia absent. Pileipellis a cutis of cylindrical hyphae (6—10 µm diam.), terminal cells not differentiated, yellow plasmatic and intercellular pigment present, oleiferous vessels numerous. Clamp connections present.

Habitat and distribution. — On rotting wood and leaves, occasionally also on soil, in "Campinarana" forest. — Brazil.

Material. — Brazil: Manaus, Res. Ducke (25 km N of Manaus), 28. VI. 1978, leg. Freire, comm. Singer, Inpa 81188 (holotype; ZT 80/158, isotype). — Manaus-Caracaraí (km 45), 11. VI. 1977, leg. Singer (B 10051), ZT 78/26. — Manaus-Caracaraí (km 45), 25. IV.

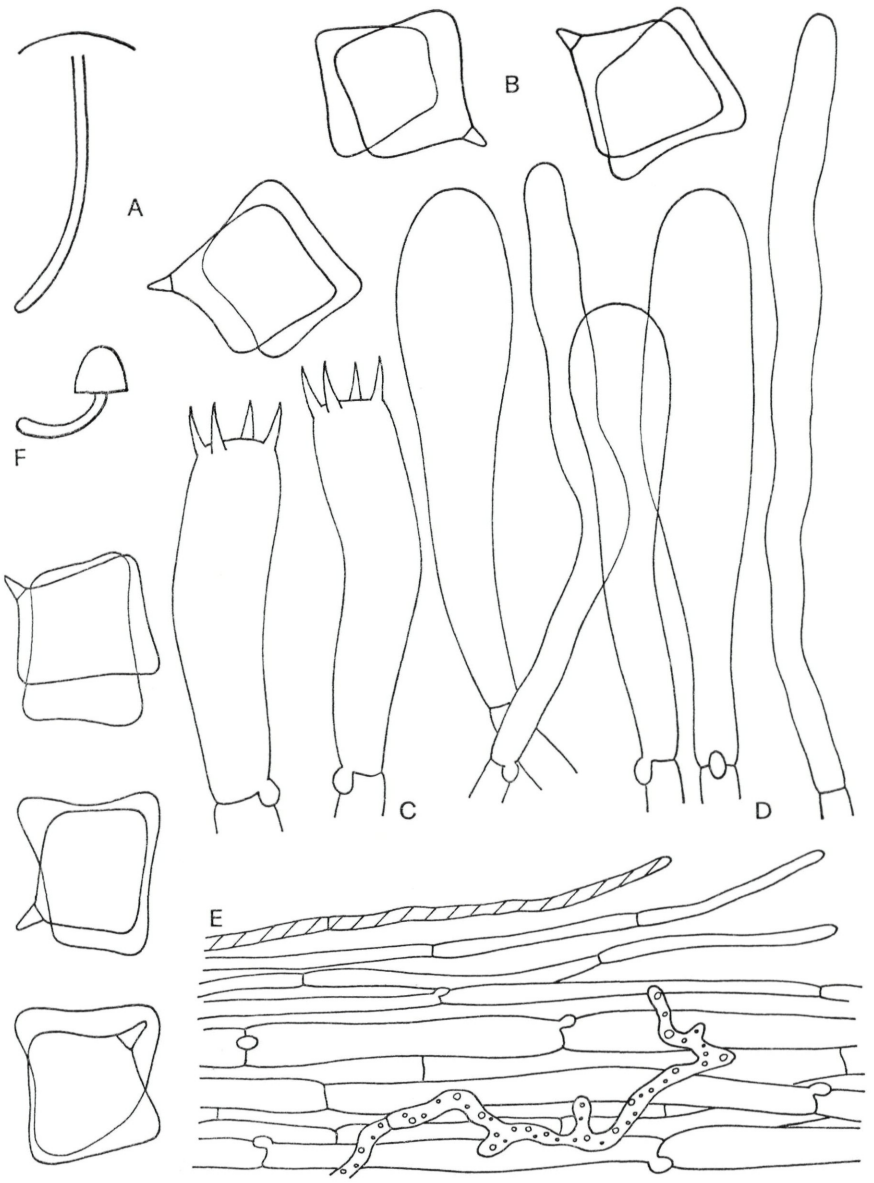

Fig. 2. *Entoloma lycopersicum* Hk. & Sing. (type): A. carpophore. — B. spores. — C. basidia. — D. cheilocystidia. — E. pileipellis. — F. (B 12125): carpophore

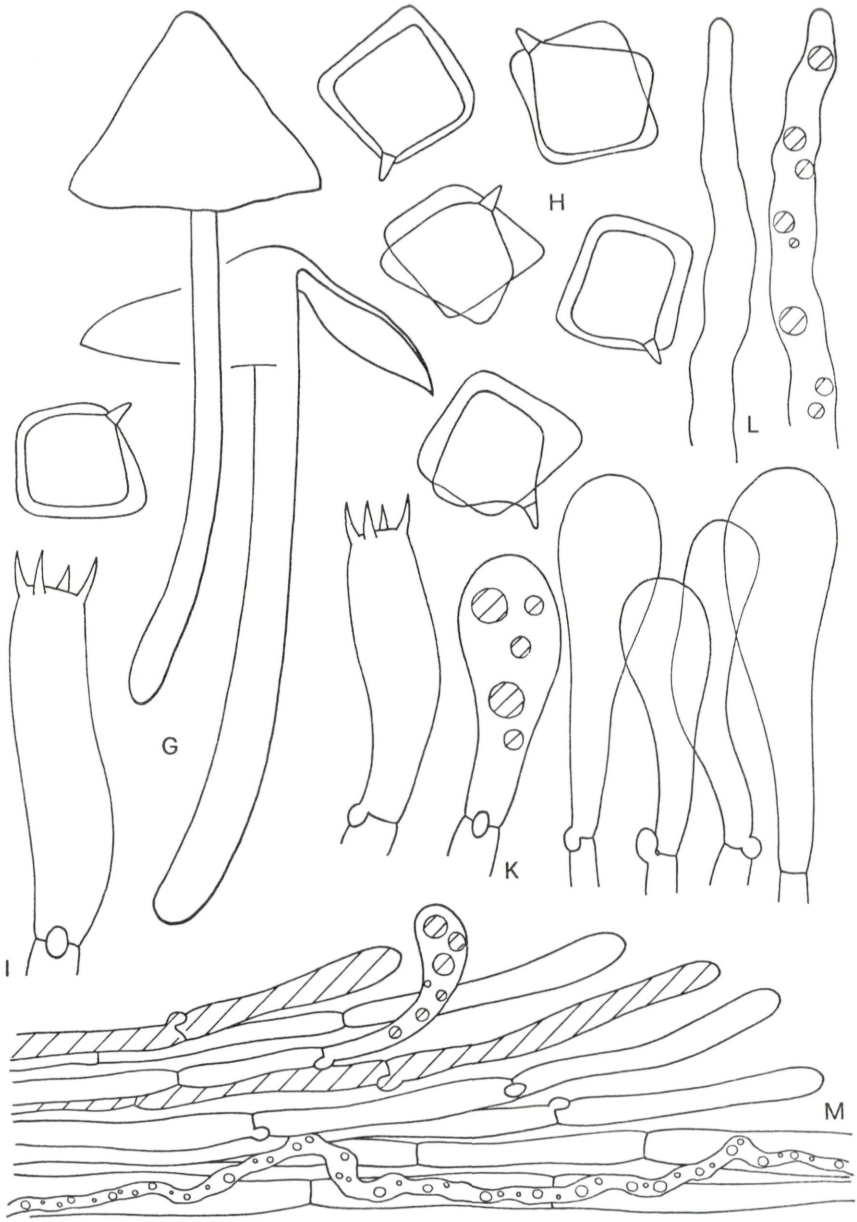

Fig. 3. *Entoloma azureoviride* Hk. & Sing. (type): G. carpophore. — H. spores. — I. basidia. — K. cheilocystidia. — L. pleurocystidia. — M. pileipellis

1980, leg. SINGER (B 12125), INPA 92902. — Manaus-Caracaraí (km 45), 25. IV. 1980, leg. SINGER (B 12148), INPA 92903.

3. *Entoloma azureoviride* HORAK & SINGER, sp. n. — Fig. 3, G—M

Pileus — 45 mm, conicus dein campanulatus, azureoviridis, glaber. Lamellae adnexae, pileo concolores. Stipes —80 × —7 mm, cylindricus, pileo concolor, fibrillosus. Sporae 5—8.5 µm, cuboideae. cheilocystidia clavata. Ad terram in silvis. Brasilia. ZT 78/31 (Typus).

Pileus —45 mm, distinctly conical becoming umbonate-convex or campanulate, margin crenulate; blue (M & P: 36 J 8), fading to green (M & P: 20 D 2) or ochre-green (M & P: 13 L 7); smooth, hygrophanous, opaque, dry. Lamellae adnexed, close to crowded broad; blue like pileus, edges concolorous, wavy. Stipe —80 × —7 mm, cylindrical, equal to subclavate towards base; concolorous with pileus, also fading to green, basal mycelium blue; longitudinally fibrillose, dry, fistulose, single. Context blue-green in fresh specimens, turning black on drying. Odour and taste not distinctive.

Spores 5—8.5 µm, cuboid to quadrate. Basidia 35—55 × 8—13 µm, 4-spored. Cheilocystidia 20—50 × 9—12 µm, clavate, hyaline, scattered, with pale brown (KOH) plasmatic pigment. Pleurocystidia absent. Pileipellis a cutis of cylindrical hyphae (5—15 µm diam.), terminal cells often subclavate, oleiferous vessels frequent. Clamp connections present.

Habitat and distribution. — On soil in "Terra firme" forest. — Brazil.

Material. — BRAZIL: Manaus, 30 km N of Manaus, 14. VI. 1977, leg. SINGER (B 9971), ZT 78/31 (holotype). — Manaus-Caracaraí (km 60), comm. SINGER (B 12165), INPA, 92905.

4. *Entoloma viscaurantium* HORAK & SINGER, sp. n. — Fig. 4, N—T

Pileus — 22 mm, conicus vel campanulatus, aurantiobrunneus, viscidus. Lamellae adnatae, pallide aurantiaceae vel roseobrunneae. Stipes —30 × —2 mm, cylindricus, pileo concolor. Sporae 6—12.5 µm, cuboideae. Cheilocystidia cylindricoclavatae. Ad terram in silvis. Brasilia. INPA 81197 (Typus).

Pileus —22 mm, distinctly conical or papillate, later becoming campanulate or umbonate-convex; brown to brown-orange (M & P: 14 L 12) at centre, cinnamon-orange or pink-orange (M & P: 11 B 8) towards margin; viscid, glabrous, crenate at margin, transparently striate. Lamellae adnate, subdistant; orange-pink (M & P: 11 B/C 9) to pale orange-brown; edges fimbriate, concolorous. Stipe —30 × —2 mm, cylindrical, equal; concolorous with pileus or orange; smooth, not viscid, solid, single. Context pale orange-brown. Odour and taste not distinctive.

Spores 6—12.5 µm, distinctly cuboid, contorted. Basidia 30—45 × 10—14 µm, 4-spored. Cheilocystidia 30—100 × 6—12 µm, cylindrical to subclavate, hyaline, sometimes with pale brown (KOH)

plasmatic pigment. Pleurocystidia absent. Pileipellis a cutis of cylindrical, slightly gelatinised hyphae (4—10 μm diam.), yellow (KOH) pigment present, oleiferous vessels numerous. Clamp connections on septa.

Fig. 4. *Entoloma viscaurantium* Hk. & Sing. (type): N. carpophore. — O. spores. — P. basidia. — R. cheilocystidia. — S. pileipellis. T. (78/19): carpophore

Habitat and distribution. — On soil or among rotting leaves in forests (primary forest, "Igapó" vegetation). — Brazil.

Material. — Brazil: Amazonia, Ponta Negra (Rio Negro), 24. XII. 1978, leg. Singer (B 11442), Inpa 81197 (holotype; ZT 80/147, isotype). — Manaus-Caracaraí (km 45), 11. VI. 1977, leg. Singer (B 10051), ZT 78/8. — Manaus, 30 km N or Manaus, 10. I. 1978, leg. Singer (B 10482), ZT 78/19.

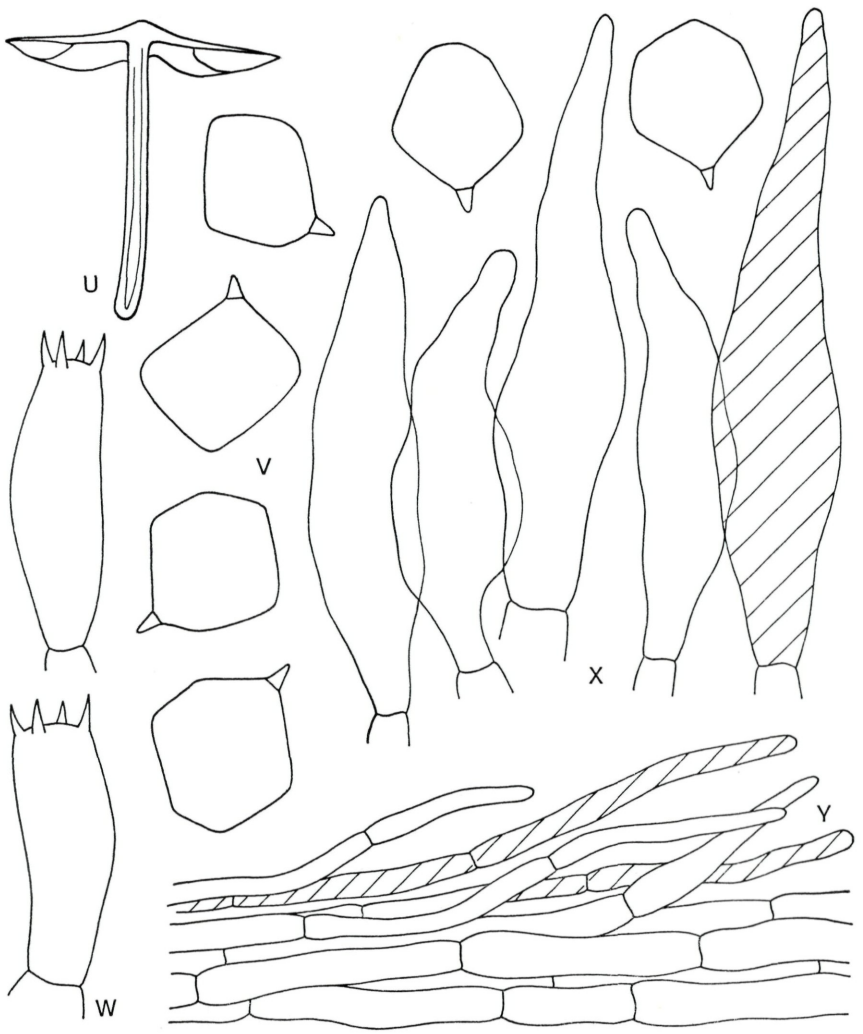

Fig. 5. *Entoloma flavotinctum* Hk. & Corn. (type): U. carpophore. — V. spores. — W. basidia. — X. cheilocystidia and pleurocystidia. — Y. pileipellis

5. *Entoloma flavotinctum* Horak & Corner, sp. n. — Fig. 5, U—Y

Pileus — 35 mm, conicus vel acutoumbonatus, fuscus dein flavidus. Lamellae adnexae, albae bein incarnatae. Stipes — 60 × —4 mm, subcylindricus, albus, flavidofuscescens. Sporae 6—8(9) µm, quadratae (vel cuboideae). Cheilo- et pleurocystidia clavata vel fusoidea. Ad terram in silvis. Brasilia. ZT 79/214 (Typus).

Pileus —35 mm, conical at first, becoming convex to plane with acute umbo; fuscous, subochraceous towards margin, fading to fawn or yellowish; dry, hygrophanous, opaque, villous to pruinose over centre, smooth towards margin. Lamellae (L 8—14, 3—4) adnexed to almost free, subdistant, ventricose; white becoming pink, edges concolorous, subfimbriate; with conspicuous rust brown spots in dried material. Stipe —60 × —4 mm, cylindrical, equal to attenuated towards apex; white turning yellowish or greenish ochraceous, often with fuscous tinge; dry, pruinose at apex, towards base with fuscous fibrils or smooth, firm, hollow, single.

Context white, turning yellowish on cutting or bruising. Odour and taste not distinctive.

Spores 6—8(9) µm, quadrate to cuboid, occasionally pentagonal.

Basidia 30—40 × 8—12 µm, 4-spored. Cheilocystidia and pleurocystidia 40—90 × 10—22 µm, clavate or fusoid, with yellow-brown to brown (KOH), plasmatic pigment, membrane thin-walled. Pileipellis a cutis of cylindrical hyphae (5—12 µm diam.), terminal cells not differentiated, with yellow-brown plasmatic and vacuolar pigment, oleiferous vessels numerous. Clamp connections absent.

Habitat and distribution. — On soil in forests. — Brazil.

Material. — Brazil: Rio de Janeiro: Corcovado, 300 m, 20. III. 1948, leg. Corner, ZT 79/214 (holotype. — Corcovado, 500 m, 20. XI. 1948, leg. Corner, ZT 79/215. — Corcovado, 500 m, 5. XII. 1948, leg. Corner, ZT 79/226. — Manaus, 17. X. 1948, leg. Corner, ZT 79/193.

6. *Entoloma murinoalbum* Horak & Singer, sp. n. — Fig. 6, A—E

Pileus — 15 mm, conicocampanulatus, murinus. Lamellae subliberae. incarnatae. Stipes —25 × —2 mm, cylindricus, albus. Sporae 6.5—7.5 × 5.5—6 µm, 5—6-angulatae. Cheilocystidia et pleurocystidia conspicua, fusoidea. Ad lignum putridum. Brasilia. INPA 81187 (Typus).

Pileus —15 mm, distinctly conical at first, becoming campanulate to acutely umbonate-expanded; mouse grey; dry, hygrophanous, margin striate, smooth. Lamellae almost free to adnexed, ventricose, subdistant; pale brown with pink tinge, edges concolorous, subfimbriate. Stipe —25 × —2 mm, cylindrical, sometimes base slightly swollen, curved; white; dry, glabrous, solid, single.

Context thin, whitish. Odour and taste not distinctive.

Spores 6.5—7.5×5.5—6 μm, 5—6-angled. Basidia 20—25×7—8 μm, 4-spored. Cheilocystidia and pleurocystidia 50—75×8—15 μm, fusoid, with tapering to acute neck, hyaline or yellow-brown (KOH) by plasmatic pigment. Pileipellis a cutis of cylindrical hyphae (5—12 μm diam.), terminal cells not differentiated, membrane hyaline, not gelatinized, with brownish plasmatic pigment, oleiferous vessels present. Clamp connections absent.

Habitat and distribution. — On rotten, dicotyledonous wood in forest. — Brazil.

Material. — Brazil: Amazonia, Porto Seguro, 14. VI. 1978, leg. Singer (B 11198), INPA 81187 (holotype; ZT 80/149, isotype).

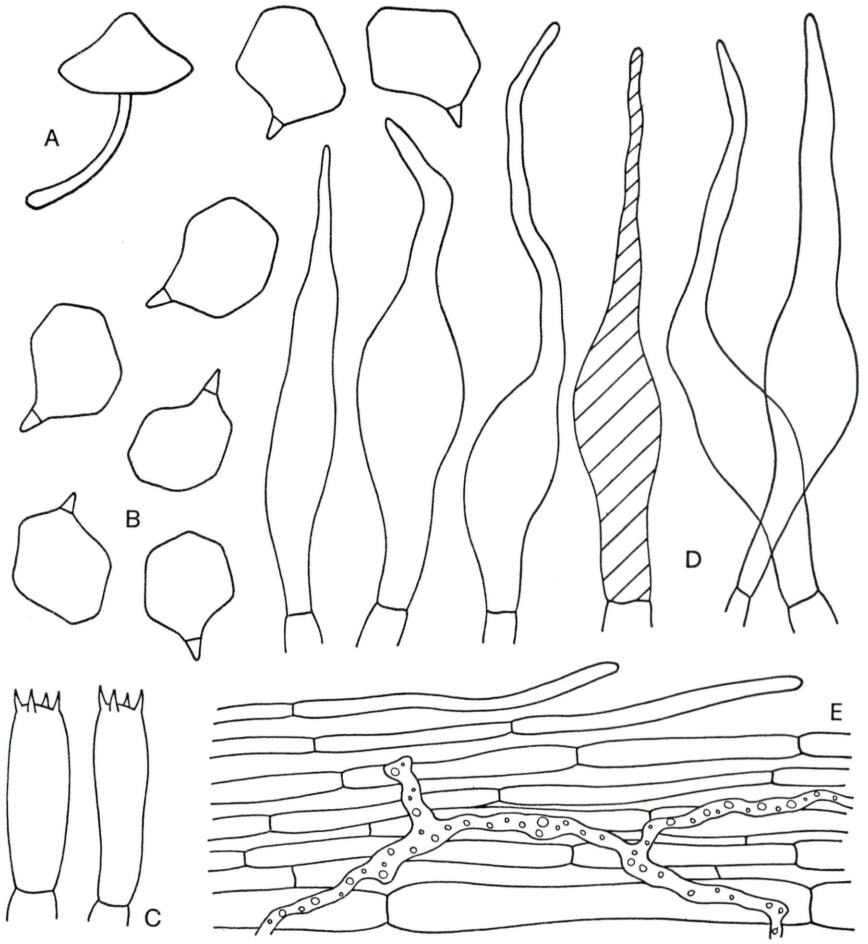

Fig. 6. *Entoloma murinoalbum* Hk. & Sing. (type): A. carpophore. — B. spores. — C. basidia. — D. cheilocystidia and pleurocystidia. — E. pileipellis

7. *Entoloma spineum* Horak & Singer, sp. n. — Fig. 7, K—P

Pileus — 40 mm, conspicue papillatus, e conico subdepressus, brunneus. Lamellae adnatae, avellanae. Stipes —65× —5 mm, subclavatus, pileo concolor. Sporae 10—11×5—6 µm, 5—7-angulatae. Pseudocystidia conspicua. Ad lignum putridum in silvis. Brasilia. INPA 81192 (Typus).

Pileus —40 mm, convex to expanded, always with distinct conical small papilla, centre depressed in aged specimens; brown (M & P: 6 A 11; 14 A 10—14 B 11) when moist, pale argillaceous on drying; dry, strongly hygrophanous, translucidly striate towards margin. Lamellae adnate, subdistant, ventricose, wide; concolorous with pileus or paler, edges even, concolorous. Stipe —65×—5 mm, subclavate; concolorous with pileus, with pale basal mycelium; dry, glabrous, hollow, single. Context pale brown. Odour and taste not distinctive.

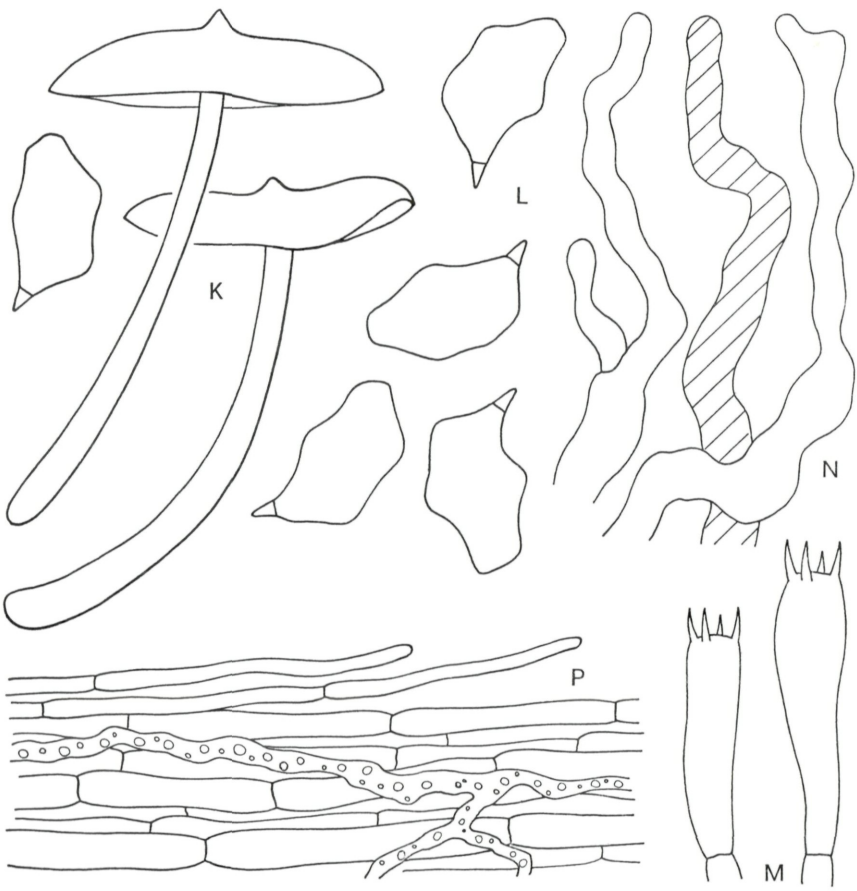

Fig. 7. *Entoloma spineum* Hk. & Sing. (type): K. carpophores. — L. spores. — M. basidia. — N. pleurocystidia. — P. pileipellis

Spores 10—11×5—6 μm, 5—7-angled, slender. Basidia 25—35×5—8 μm, 4-spored. Pseudocystidia scattered on gills edge, with brown (KOH) plasmatic pigment. Pileipellis a cutis of cylindrical hyphae (3—7 μm diam.), terminal cells not differentiated, oleiferous vessels conspicuous, with brown-yellow (KOH) plasmatic pigment. Clamp connections absent.

Habitat and distribution. On rotten dicotyledonous wood in forest. — Brazil.

Material. — Brazil: Manaus-Caracaraí (km 45), 3. VIII. 1978, leg. Singer (B 11349), INPA 81192 (holotype; ZT 80/152, isotype).

8. *Entoloma olivaesimile* Horak, sp. n. — Fig. 8, F—I

Pileus — 10 mm, convexus vel subcampanulatus, olivaceus, fibrillosus. Lamellae emarginatae, ex olivaceo argillaceae. Stipes — 40 × — 1 mm, cylindricus, fragilis, pileo concolor, apicem versus floccosus. Odor subfarinaceus. Sporae 8.5—10×7.5—9 μm, 5—6-angulatae. Ad terram in silvis. Argentina. ZT 204 (Typus).

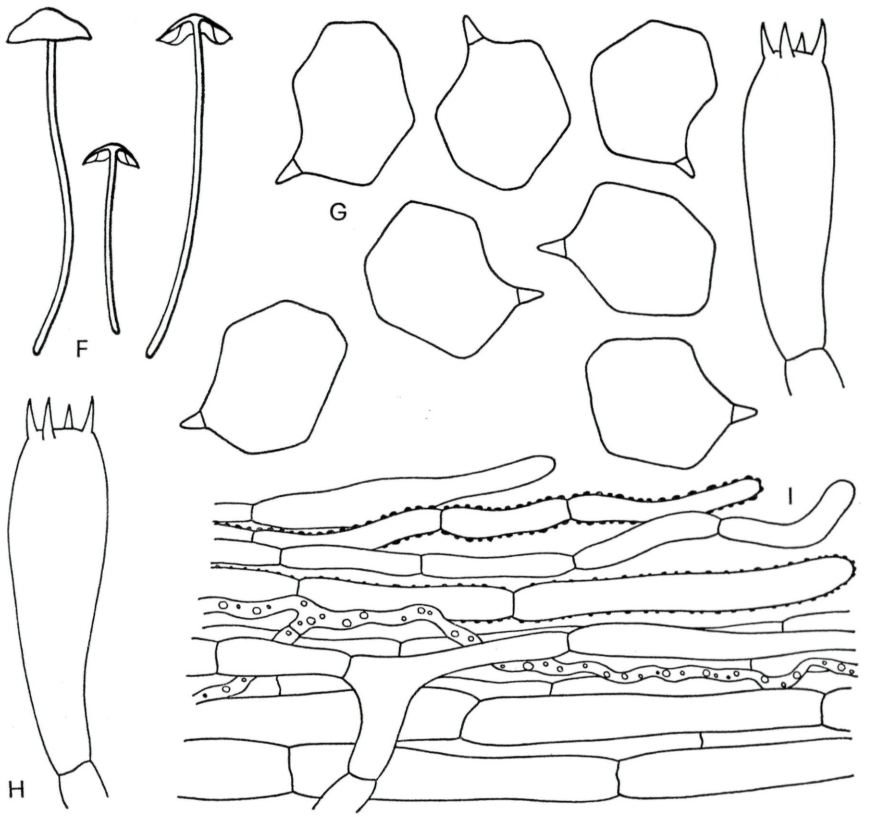

Fig. 8. *Entoloma olivaesimile* Hk. (type): F. carpophores. — G. spores. — H. basidia. — I. pileipellis

Pileus —10 mm, convex to expanded with low conical or obtuse umbo, campanulate; pale olive, with silvery tinge; minutely squamulose at centre, radially fibrillose towards margin; dry, fragile, margin not striate, subhygrophanous. Lamellae (L 6—10, —3) emarginate, ventricose; olive becoming pale brown, edges concolorous, even. Stipe —40×—1 mm, cylindrical, slender, equal; olive, with white basal mycelium; apex floccose to pruinose, otherwise glabrous, dry, hollow, fragile, single. Context thin, pale olive. Odour and taste subfarinaceous.

Spores 8.5—10×7.5—9 μm, 5—6-angled, with prominent apiculus. Basidia 35—40×11—13 μm, 4-spored. Cheilocystidia and pleurocystidia absent. Pileipellis a trichoderm of cylindrical hyphae (5—12 μm diam.), terminal cells not differentiated, encrusted with pale brown (KOH) pigment, oleiferous hyphae present. Clamp connections lacking.

Habitat and distribution. — On soil among rotting litter in forest. — Argentine.

Material. — Argentine: Misiones: Iguazu, 3. III. 1981, leg. Horak, ZT 204 (holotype).

9. *Entoloma sparsicystis* Horak & Singer, sp. n. — Fig. 9, A—E

Pileus — 65 mm, convexus dein campanulatus vel umbonato-planus, olivaceobrunneus, striatus. Lamellae adnexae vel subliberae, argillaceae. Stipes —90×—7 mm, cylindricus vel subclavatus, albogriseus usque ad pallide brunneus. Sporae 7.5—9×5—6.5 μm, 5—6-angulatae. Cheilocystidia et pleurocystidia gigantea, hyalina, ± fusoidea. Ad terram in silvis. Brasilia. ZT 78/5 (Typus).

Pileus —65 mm, convex to expanded-plane, with distinct broad obtuse umbo, campanulate; olive-brown (M & P: 14 H 6 to 15 H 6—10) at centre, pale orange brown (M & P: 12 H 6, 13 G 6—13 I 7, 15 L 9) towards strongly striate margin; dry, hygrophanous, glabrous, often with radial streaks on drying, margin occasionally subsulcate. Lamellae adnexed to almost free, crowded, ventricose, narrow; pale argillaceous with pink tinge, edges fimbriate, concolorous or with whitish seam. Stipe —90×—7 mm, cylindrical or subclavate; whitish, grey or pale argillaceous, darker at base; dry, glabrous or longitudinally striate, occasionally twisted, hollow, single. Context pale olive-brown in pileus, pallid in stipe. Odour and taste not distinctive.

Spores 7.5—9×5—6.5 μm, 5—6-angled, rather small. Basidia 25—40×8—12 μm, 4-spored. Cheilocystidia and pleurocystidia 50—170×15—40 μm, fusoid, scattered, membrane hyaline, pigment none. Pileipellis a cutis of repent, hyaline hyphae (4—10 μm diam.), hyphae in subcutis oval to subfusoid, up to 20 μm diam., terminal cells not differentiated, oleiferous vessels numerous,

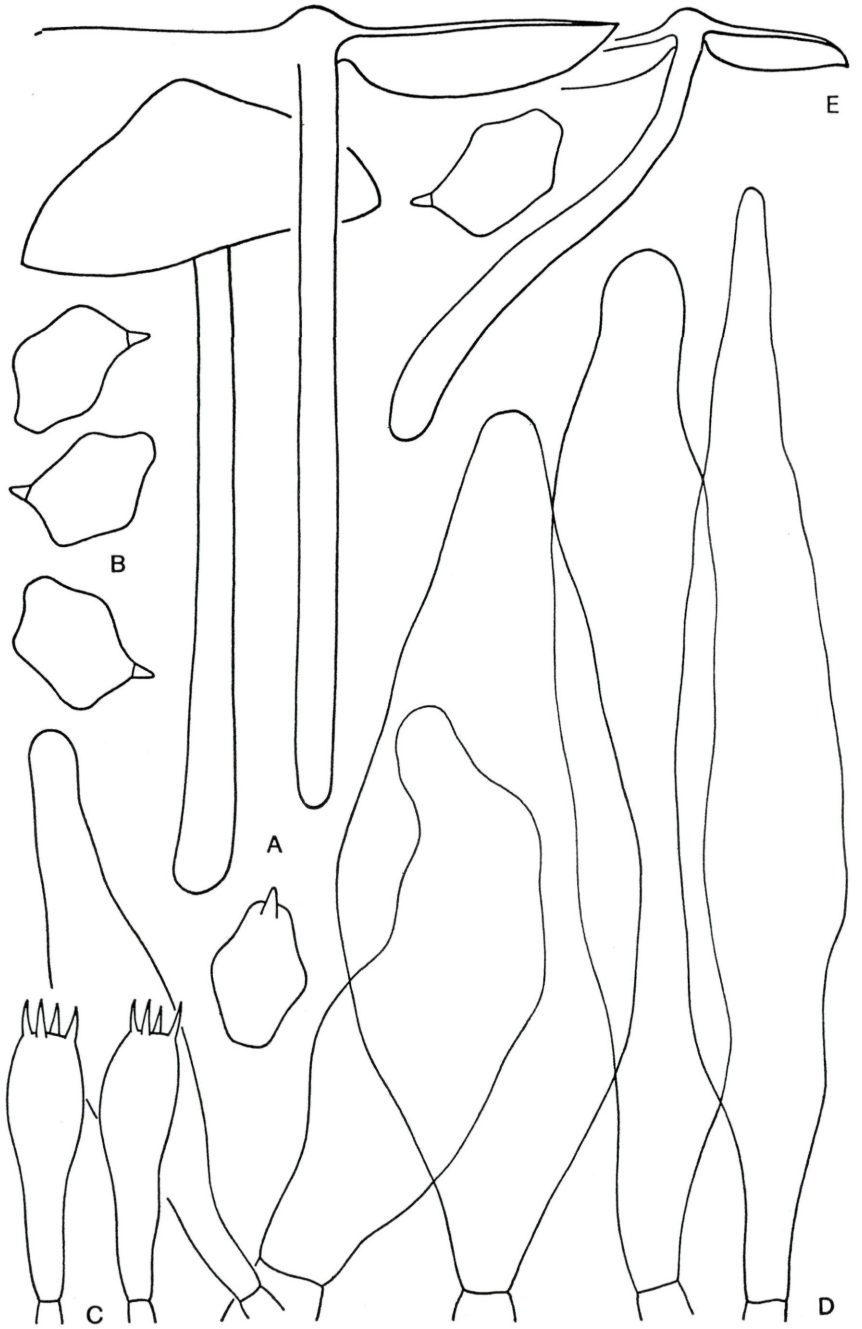

Fig. 9. *Entoloma sparsicystis* Hk. & Sing. (type): A. carpophores. — B. spores. — C. basidia. — D. cheilocystidia and pleurocystidia. — E. (78/23): carpophore

with brown (KOH) plasmatic and vacuolar pigment. Clamp connections absent.

Habitat and distribution. — On soil among rotting detritus in forests ("Terra firme" forest, secondary forest). — Brazil.

Material. — Brazil: Manaus-Caracaraí (km 45), 11. VI. 1977, leg. Singer (B 10051), ZT 78/5 (holotype). — Manaus, 17. V. 1977, leg. Singer (B 9884), ZT 78/23. — Manaus, 29. V. 1977, leg. Singer (B 9899), ZT 78/24. — Manaus, 29. V. 1977, leg. Singer (B 9898), ZT 78/9.

10. *Entoloma obtusisporum* Horak, sp. n. — Fig. 10, A—D

Pileus — 25 mm, convexus, brunneoviolaceus, squamulosus. Lamellae adnato-emarginatae, incarnatae. Stipes —35 × —3 mm, cylindricus, albus. Sporae 5.5—7 µm, isodiamtericae. Ad lignum putridum. Brasilia. ZT 699 (Typus).

Pileus —25 mm, convex to expanded, flat; brown with distinct lilac-violet tinge; centre minutely squamulose, glabrous towards

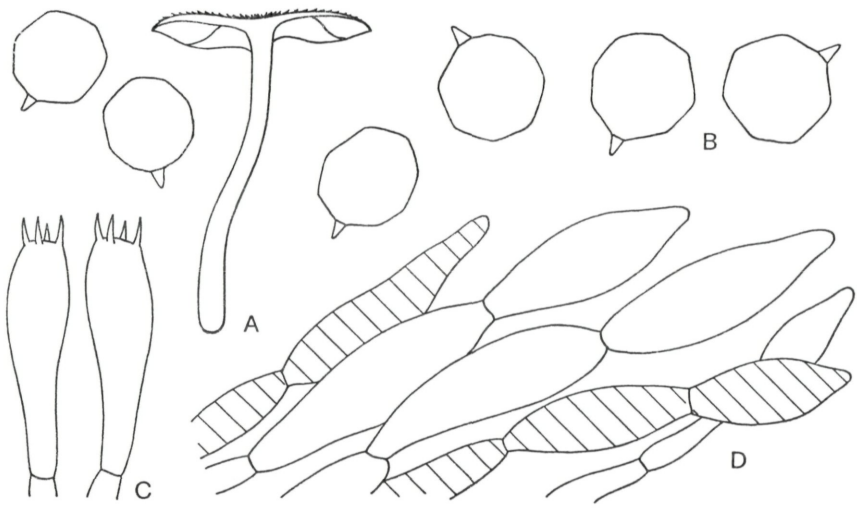

Fig. 10. *Entoloma obtusisporum* Hk. (type): A. carpophores. — B. spores. — C. basidia. — D. pileipellis

margin, dry, neither hygrophanous nor striated. Lamellae broadly adnate to emarginate, subdistant, ventricose; pink, edges entire, concolorous. Stipe —35 × —3 mm, cylindrical, slightly swollen at base; white, with well developed basal mycelium; dry, smooth, fistulose, single. Context white, turning purple at base of stipe (and basal mycelium) on cutting or bruising. Odour and taste not distinctive.

Spores 5.5—7 μm, isodiametrical, angles very obtuse. Basidia 25—30×8—9 μm, 4-spored. Cheilocystidia and pleurocystidia absent. Pileipellis a trichoderm of erect hyphae (12—20 μm diam.), terminal cells conspicuously fusoid, 30—70 μm long, with brown (KOH) plasmatic pigment, oleiferous vessels none. Clamp connections not observed.

Habitat and distribution. — On rotten wood in forest. — Brazil.

Material. — Brazil: Curitiba, Cambuí, 11. V. 1980, in herb. Horak, ZT 699 (holotype).

11. *Entoloma cutifractum* Horak & Singer, sp. n. — Fig. 11, E—K

Pileus — 55 mm, convexus dein applanatus vel depressus, brunneo-purpureus, tomentosus. Lamellae adnatae, argillaceoincarnatae. Stipes —60× —10 mm, albidus. Sporae 10—12×6—7.5 μm, 6—7-angulatae. Pileocutis ex hyphis erectis palisadam formantibus. Ad terram in silvis. Brasilia. ZT 78/29 (Typus).

Pileus —55 mm, convex becoming applanate with flat or depressed centre, margin incurved; centre umber brown (M & P: 7 J 11) to purple-brown (M & P: 7 H 6, 10; 7 L 9), pink-orange (M & P: 4 F 10, 11; 5 F 9, 11) towards margin; dry, tomentose, cuticle cracking (especialle around centre), not hyrophanous, striation absent. Lamellae adnate, crowded, ventricose; pale argillaceous with pink tinge, edges concolorous, often crenulate. Stipe —60×—10 mm, cylindrical, equal or slightly clavate towards base; whitish; dry, glabrous, with white basal mycelium, solid, single. Context white. Odour and taste not distinctive. Chemical reactions on pileus: KOH and H_2SO_4 — negative.

Spores 10—12×6—7.5 μm, 6—7-angled. Basidia 40—60× 10—12 μm, 4-spored. Occasionally with cylindrical, hyaline pseudocystidia (4—10 μm diam.) on gill edge, other cystidia absent. Pileipellis a palisade of erect hyphae (8—15 μm diam.), terminal cells not differentiated, with brown (KOH) plasmatic pigment, oleiferous vessels present. Clamp connections none.

Habitat and distribution. — On soil among litter of broad-leaved trees ("Campinas"-vegetation). — Brazil.

Material. — Brazil: Manaus-Caracaraí (km 45), 18. VII. 1977, leg. Singer (B 10110), ZT 78/29 (holotype).

12. *Entoloma clitocyboides* Horak & Singer, sp. n. — Fig. 12, L—R

Pileus — 50 mm, albus, umbilicatus, siccus. Lamellae adnatae vel arcuatae, albae dein incarnatae. Stipes —65×—6 mm, cylindricus, albus, fistulosus. Sporae 8.5—10×6.5—8 μm, 5—6-angulatae. Cheilocystidia articulata, ramificata. Ad terram in silvis. Brasilia. ZT 78/3 (Typus).

Pileus —50 mm, convex when young, centre soon becoming depressed, finally umbilicate, margin strongly incurved; white; dry to

subviscid, glabrous or silky, hygrophanous, margin lobed to sulcate, without striation. Lamellae broadly adnate, decurrent or arcuate, crowded; white turning pale pink-cream, edges concolorous, subfimbriate. Stipe —65×—6 mm, cylindrical, equal, occasionally eccentric; white, with white basal mycelium; dry, glabrous, fistulose to hollow, single. Context white. Odour and taste not distinctive.

Spores 8.5—10×6.5—8 μm, 5—6-angled. Basidia 30—50×

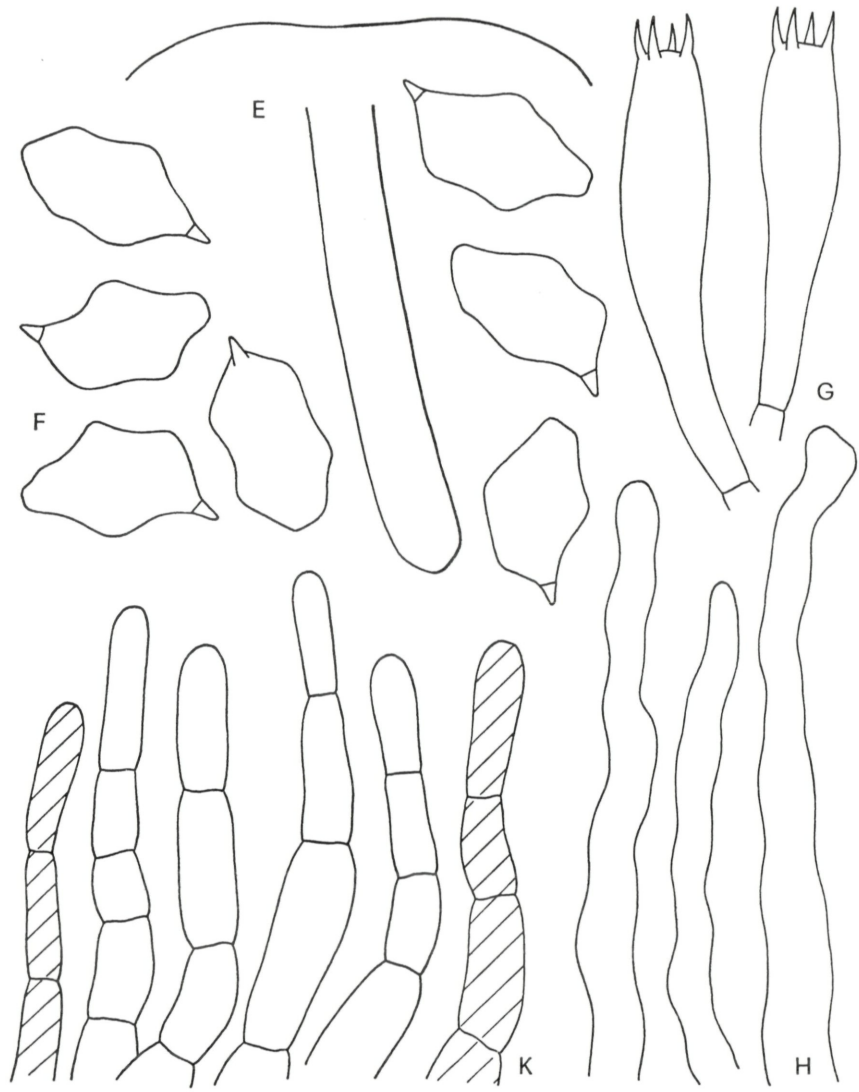

Fig. 11. *Entoloma cutifractum* Hk. & Sing. (type): E. carpophore. — F. spores. — G. basidia. — H. pseudocystidia. — K. pileipellis

7—10 μm, 4-spored. Cheilocystidia 5—7 μm diam., cylindrical or branched, articulate, often with false clamps, membrane thin-walled, hyaline, forming dense seam on edge. Pleurocystidia none. Pileipellis a cutis of cylindrical hyphae (2—5 μm diam.), membrane sometimes slightly gelatininsed, hyaline, oleiferous hyphae present. Clamp connections absent.

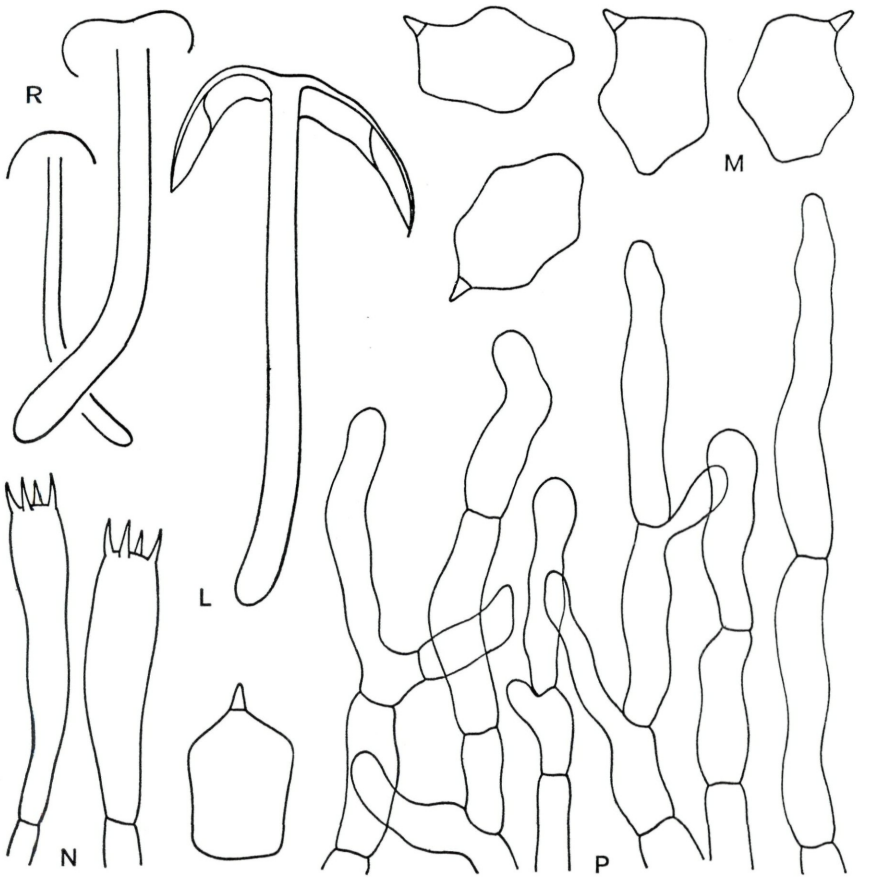

Fig. 12. *Entoloma clitocyboides* Hk. & Sing. (type): L. caropohores. — M. spores. — N. basidia. — P. cheilocystidia. — R. (78/27): carpophores

Habitat and distribution. — On soil among litter (in secondary forest and open vegetation). — Brasilia.

Material. — Brazil: Manaus, 19. V. 1977, leg. Singer (B 9678), ZT 78/3 (holotype). — Manaus, 23. IV. 1977, leg. Singer (B 9802), ZT 78/27. — Manaus, 12. VI. 1977, leg. Singer (B 9935), ZT 78/30. — Manaus, no date, leg. Singer (B 10352), ZT 78/18.

13. *Entoloma pruinatocutis* Horak, sp. n. — Fig. 13, A—F

Pileus — 50 mm, convexus dein applanatus, brunneus, tomentosus. Lamellae emarginatae, subdecurrentes, albae dein incarnatae. Stipes —45× —4 mm, cylindricus, albidus. Sporae 7.5—10×6—9 µm, 5—7-angulatae. Cheilocystidia cylindrica, ramificata. Pileocutis ex cellulis clavato-fusoideis palisadam formantibus. Ad terram. Brasilia. ZT 698 (Typus).

Pileus —50 mm, convex later becoming applanate or subdepressed at centre; brown in centre, paler towards margin; dry, smooth

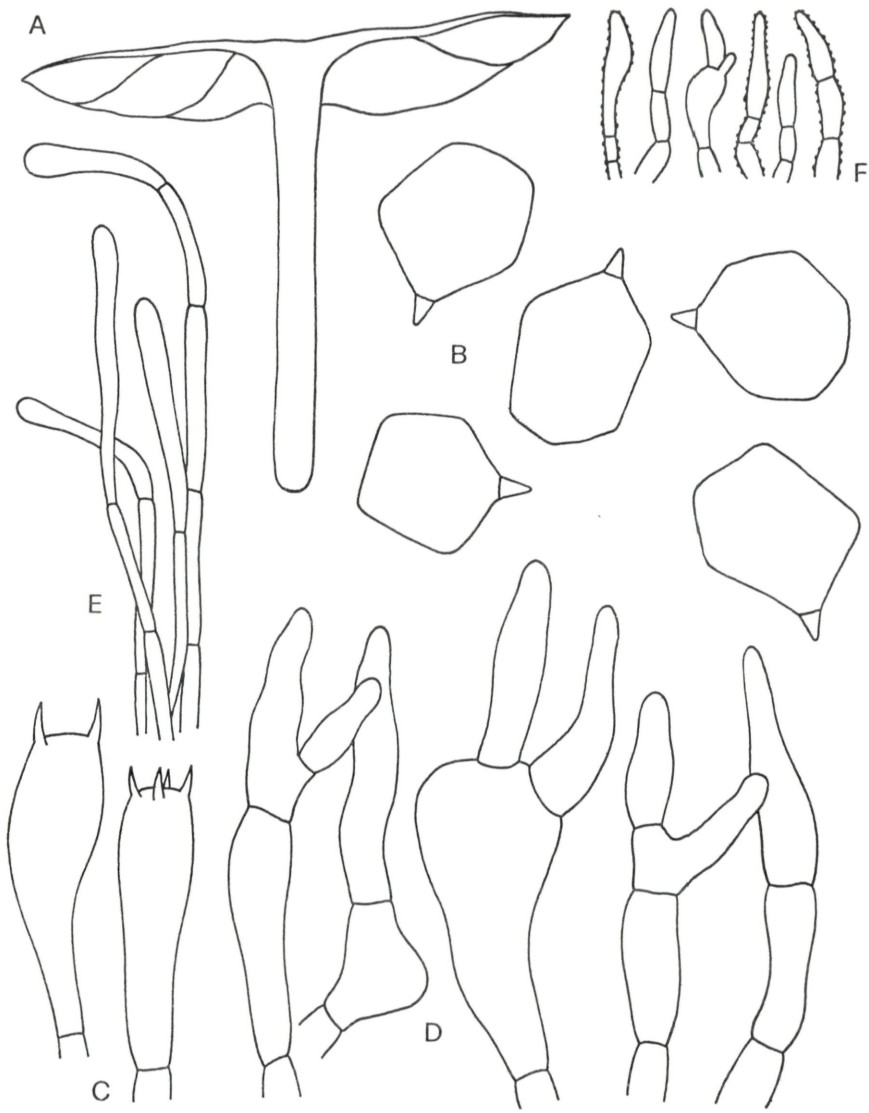

Fig. 13. *Entoloma pruinatocutis* Hk. (type): A. carpophore. — B. spores. — C. basidia. — D. cheilocystidia. — E. caulocystidia (×500). — F. pileipellis

to minutely tomentose-pruinose, cracking in aged specimens, no striation at margin. Lamellae broadly adnate to emarginate-subdecurrent, up to 9 mm wide, ventricose, subcrowded; white with pale pink tinge, edges concolorous, subfimbriate. Stipe —45× —4 mm, cylindrical, equal; whitish; dry, glabrous or minutely fibrillose, solid, single. Context pale brown in pileus, white in stipe. Odour and taste pleasant, like yeast.

Spores 7.5—10×6—9 µm, 5—7-angled. Basidia 25—35× 9—12 µm, 4-spored. Cheilocystidia 4—10 µm diam., cylindrical, often irregularely branched, membrane hyaline, pigment absent, forming dense seam on edge. Pleurocystidia absent. Caulocystidia numerous, 3—8 µm diam., cylindrical to clavate. Pileipellis a palisade of erect fusoid or clavate cells, 20—60×4—8 µm, subcutis composed of ovoid cells encrusted with yellow-brown (KOH) pigment. Oleiferous vessels none. Clamp connections absent.

Habitat and distribution. — On soil outside forest. — Brazil.

Material. — Brazil: Curitiba, Cambuí, 1. IV. 1980, in herb. Horak, ZT 698 (holotype).

14. *Entoloma spadiceum* Horak & Singer, sp. n. — Fig. 14, N—S

Pileus — 60 mm, convexus dein subumbilicatus, pallide griseobrunneus. fibrillososcabrosus. Lamellae adnatae, albae dein incarnatae. Stipes —70× —8 mm, cylindricus, albogriseus. Sporae 7.5—9×6—8 µm, 5—6-angulatae. Cheilocystidia cylindrica vel clavata. Ad terram vel ad lignum putridum. Brasilia. INPA 92907 (Typus).

Pileus —60 mm, convex or obtusely campanulate when young becoming applanate to depressed at centre, margin incurved; grey to greybrown with pale olive tinge (M & P: 15 E 8); dry, not hygrophanous, minutely squamulose over disc, fibrillose towards margin. Lamellae adnate, rather wide, ventricose, subdistant; white turning pale pink, edges concolorous, fimbriate. Stipe —70× —8 mm, cylindrical, equal or subclavate at base; grey to concolorous with pileus, white basal mycelium which occasionally turns reddish; dry, glabrous, fistulose, single. Context white. Odour and taste not distinctive.

Spores 7.5—9×6—8 µm, 5—6-angled. Basidia 30—40× 8—10 µm, 4-spored, membrane sometimes thick-walled (sclerobasidia). Cheilocystidia —15 µm diam., cylindrical or clavate, multiseptate, hyaline or with pale brown (KOH) plasmatic pigment. Pleurocystidia and caulocystidia absent. Pileipellis a trichoderm or cutis of cylindrical hyphae (3—10 µm diam.), with dark brown (KOH) plasmatic or vacuolar pigment, oleiferous hyphae present. Clamp connections none.

Habitat and distribution. — On rotten wood or on soil (in "Varzea"-forest or "Igapó"-vegetation). — Brazil.

Material. — Brazil: Amazonia: Solimões, 23. V. 1980, leg. Singer (B 12175), INPA 92907 (holotype; ZT 14, isotype). — Igarapé do Tarumãzinho, 12. III. 1980, leg. Chapin, Araujo & Singer (B 12028), ZT 17.

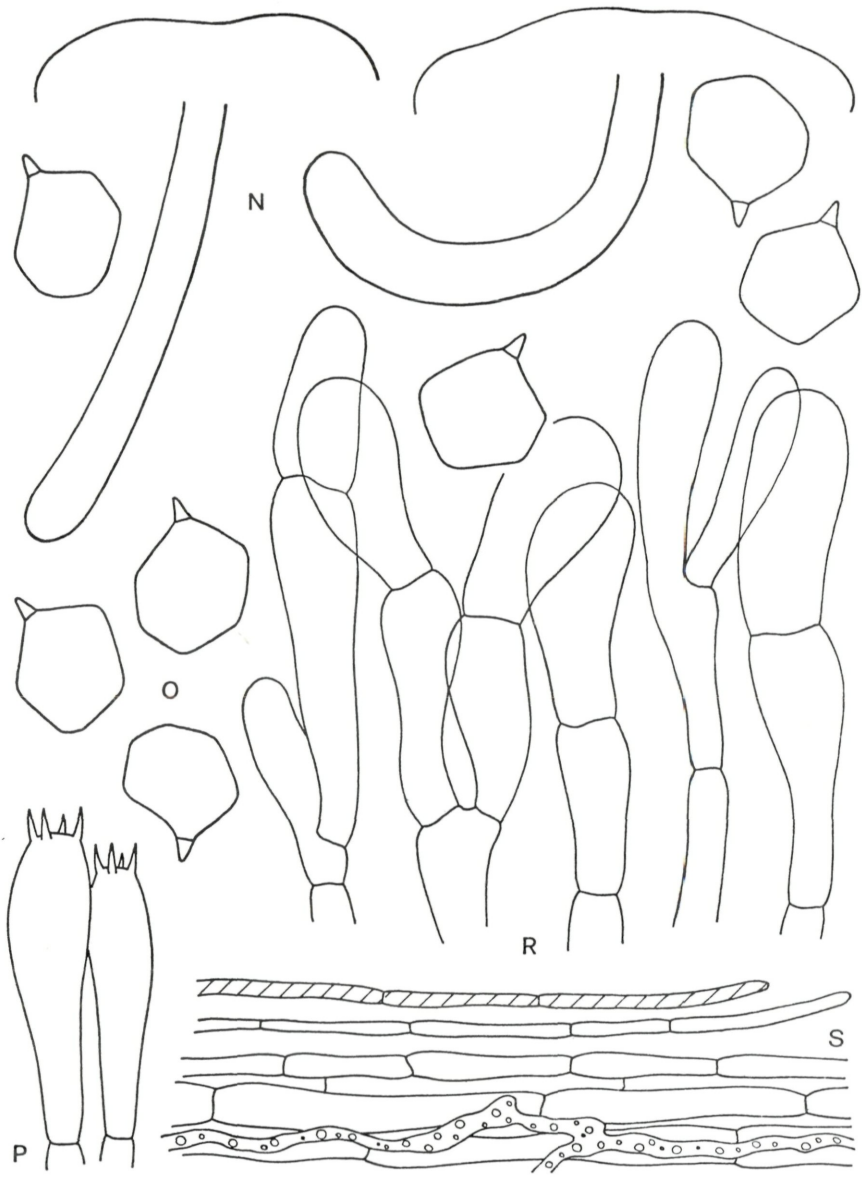

Fig. 14. *Entoloma spadiceum* Hk. & Sing. (type): N. carpophores. — O. spores. — P. basidia. — R. cheilocystidia. — S. pileipellis

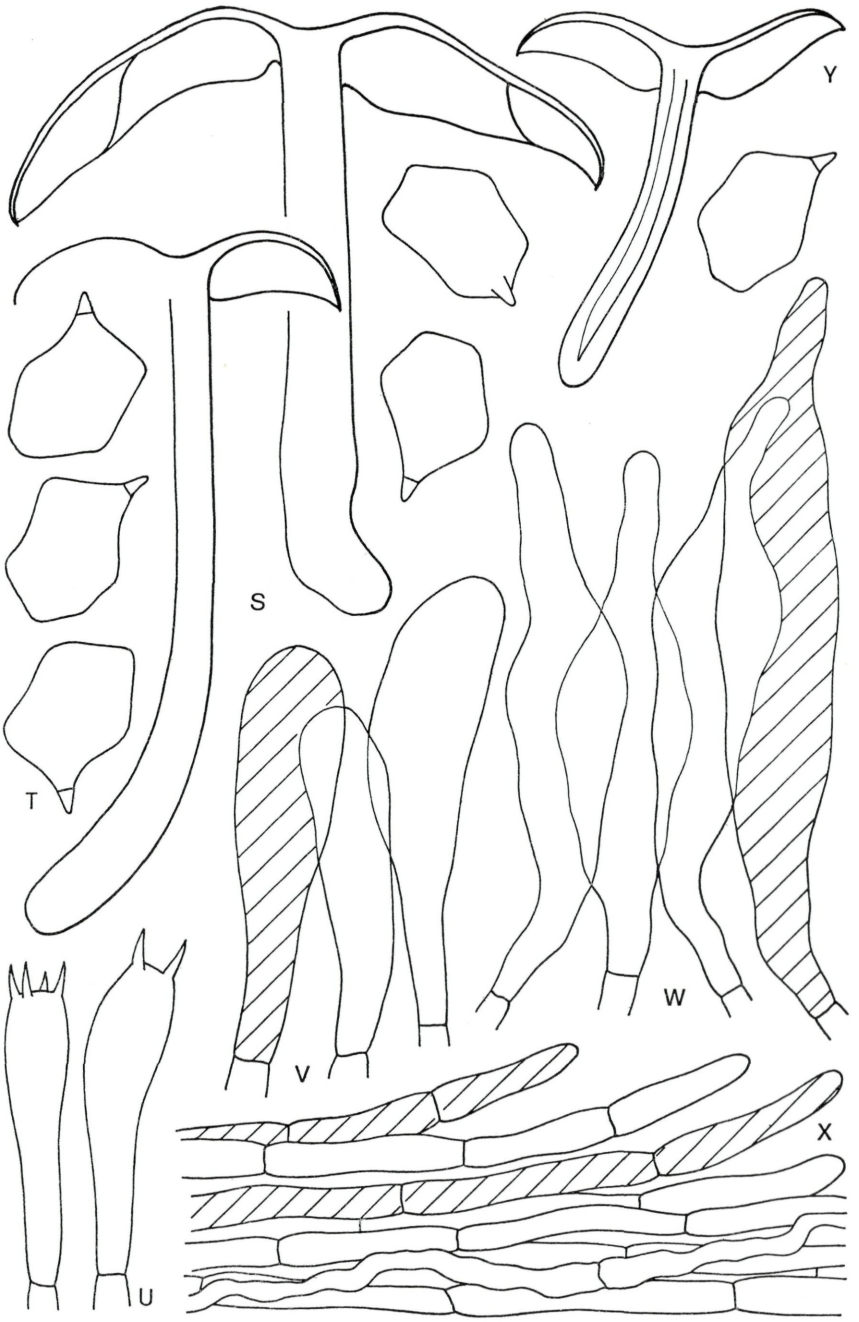

Fig. 15. *Entoloma conspicuocystidiosum* Hk. & Sing. (type): S. carpophores. — T. spores. — U. basidia. — V. cheilocystidia. — W. pleurocystidia. — X. pileipellis. — Y. (14): carpophore

15. *Entoloma conspicuocystidiosum* Horak & Singer, sp. n. — Fig. 15, S—Y

Pileus — 90 mm, convexus dein umbilicatus, olivaceobrunneus, fibrillosus, Lamellae adnatae, albae dein incarnatae. Stipes —90 × —10 mm, cylindricus vel subclavatus, albus vel griseus, glabrus. Sporae 7.5—10 × 6.5—8 µm, 5—6-angulatae. Cheilocystidia clavata. Pleurocystidia fusoidea. Ad terram in silvis. Brasilia. ZT 78/17 (Typus).

Pileus —90 mm, convex when young becoming applanate, finally despressed to umbilicate, margin incurved; brown to dark brown with distinct olive tinge (M & P: 15 C 8; 15 H 7; 15 J 10; 14 J 8), paler towards margin, fading with age; dry, hygrophanous; margin not striated, radially fibrillose, centre sometimes subsquamulose. Lamellae adnexed to adnate, ventricose; whitish to grey turning pale brown to pink, edges concolorous, entire or subfimbriate. Stipe —90 × —10 mm, cylindrical, equal or subclavate, occasionally eccentric; white to grey, with white basal mycelium; dry, glabrous, solid to hollow, single. Context white in stipe, reddening on exposure. Odour and taste not distinctive.

Spores 7.5—10 × 6.5—8 µm, 5—6-angled. Basidia 25—40 × 8—11 µm, 4-spored (rarely 2-spored). Cheilocystidia 35—60 × 5—25 µm, subcylindrical to clavate, hyaline or with brown (KOH) plasmatic pigment. Pleurocystidia 35—100 × 8—20 µm, fusoid, with brown (KOH) plasmatic and/or vacuolar pigment, membrane thin-walled. Pileipellis a cutis (or trichoderm) of cylindrical hyphae (4—12 µm diam.), with brown (KOH) plasmatic and/or vacuolar pigment, oleiferous vessels present. Clamp connections none.

Habitat and distribution. — On soil among litter in (secondary and "Igapo") forest. — Brazil.

Material. — Brazil: Manaus, 19. XII. 1977, leg. Singer (B 10358 A), ZT 78/17 (holotype). — Manaus, 29. V. 1977, leg. Singer (B 9904), ZT 78/32. — Manaus, 6. VI. 1977, leg. Singer (B 9932), ZT 78/13. — Manaus, 11. I. 1978, leg. Singer (B 10485), ZT 78/16. — Manaus, 12. IV. 1978, leg. Souza, comm. Singer (B 10965), Inpa 81184, ZT 80/148. — Igarapé do Tarumãzinho, 7. V. 1980, leg. Singer (B 12153), Inpa 92904, Zt 9.

New records

1. *Entoloma cyathiforme* Dennis 1953: Bull. Soc. Myc. France 69: 163

Habitat and distribution. — On soil in litter. — Trinidad (type); Brazil.

Additional material. — Brazil: Bahia, Porto Seguro, 14. VI. 1978, leg. Singer (B 11190), Inpa 81186, ZT 80/161.

2. *Entoloma dragonosporum* (Singer) Horak 1976: Sydowia 29: 292

Habitat and distribution. — On soil and on rotten dicotyledonous wood in forests ("Igapó"-vegetation). — Bolivia (type); Brazil.

Additional material. — Brazil: Amazonia: Manaus, Res. Ducke (25 km N of Manaus), 6. X. 1978, leg. Freire, comm. Singer (B 11401), Inpa 81195, ZT 80/153. — Igarapé do Tarumãzinho, 26. III. 1980, leg. Singer (B 12082), Inpa 92901.

3. *Entoloma lowyi* (Singer) Horak 1977: Sydowia 30: 87

Habitat and distribution. — On rotten wood and on soil. — Brazil.

Additional material. — Brazil: Amazonia: Manaus, 23. V. 1977, leg. Singer (B 9695), ZT 78/15.

4. *Entoloma obscurum* Dennis 1953: Bull. Soc. Myc. France 69: 167

Habitat and distribution. — On soil among litter. — Trinidad (type), Bolivia.

Additional material. — Bolivia: Yungas Valley, 3000 m, 21. I. 1948, leg. Corner (30/48), ZT 79/196.

5. *Entoloma tucuchense* Dennis 1952: Bull. Soc. Myc. France 69: 161

Habitat and distribution. — On soil in forest. — Trinidad (type), Brazil.

Additional material. — Brazil: Amazonia; Manaus, Res. Ducke (25 km N of Manaus), 7. I. 1979, leg. Singer (B 11474), Inpa 81198, ZT 80/160.

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