

## *Entoloma* in South America. I.

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To avoid duplication of descriptions and drawings this survey on *Entoloma* (FR.) KUMMER (= *Rhodophyllus* QUELET) in South America should be used in combination with other studies recently published (HORAK 1977, 1978a, 1978b). Furthermore much information is packed into the following key and thus many data are not repeated again in the text going with the enumeration of the species.

To our opinion the 84 species treated here represent just a fraction of the total number of taxa which can be expected to occur between Trinidad in the North and Tierra del Fuego in the South of South America. Illustrating this assumption we emphasize the fact that RICK reports about 50 species alone from his collecting grounds in the next neighborhood of Porto Alegre, Brazil.

Based on our observations species of *Entoloma* can at certain times of the year outnumber (in species at least) all other agarics present in plots under virgin forest. This in particular applies to anectotrophic forest types which cover vast areas in the tropical and subtropical parts of South America. Also in ectotrophic *Nothofagus* and *Alnus* associations, rather defined to the temperate regions of the subalpine zone of the Andes or in Patagonia, species of *Entoloma* are common as well. But *Entoloma* is not restricted to the forests. Several species grow in open country like grassland, swamps, river banks or other biotopes.

Except the *Nothofagus* woods, however, the majority of other plant associations in South America still wait thorough mycological investigation. As soon as such work commences the occurrence of many more taxa can be safely predicted.

During the last few years local *Entoloma* monographies were published in countries next to South America (North America: HESLER, MAZZER, LARGENT. — Africa and Madagascar: ROMAGNESI. — New Zealand: STEVENSON, HORAK).

In South America proper several studies dealt with members of this genus (SPAGAZZINI, RICK, DENNIS, SINGER, HORAK). However, most of these publications lack instructive drawings of the microscopical characters. Mycologists familiar with *Entoloma* will agree that the mere verbal description of the spore-shape is no great help at

all in identifying a species. The complex morphology observed on spores can with great difficulty only be translated into words or be expressed in index-numbers. Under these circumstances the aim of this publication is 1) to collect as much data as possible on *Entoloma* in South America and 2) to present accurate drawings of spores and other important microscopical and macroscopical characters seen on the type material or authentic collections. While working at the Instituto de Botanica "SPEGAZZINI" in La Plata (LPS) some unpublished sketches were unearthed and the reproduction of these drawings are included here. The critical reader will quickly realize that many reports on taxa are based upon the type collection only. It does not wonder therefore that our knowledge about ecology and distribution of the majority of species is close to nil. Much more field work has to be carried out trying to close these wide-open gaps. This paper is intended to introduce and to help along resident taxonomists working in that fascinating group of agarics in South America.

Institutions (CNIST, Argentina; Universidad Austral, Valdivia, Chile) and people supported me both during field work in South America and at home by sending material. Thanks are due to the curators in LPS, BAFC, LIL, SGO, NY, F, E and K. W. LAZO (Santiago, Chile) put some of his collections at my disposal. R. SINGER (now Manaus, Brazil), I. GAMUNDI (La Plata) and J. WRIGHT (B. Aires) never got tired in tracking down information scattered about in libraries and herbaria. It is always a pleasure to recall the many excursions on which at times I was accompanied and assisted by my wife, I. GAMUNDI, A. GIAIOTTI, J. DIEM, R. SINGER and E. OEHRENS. Once again I owe to acknowledge their help.

Unless otherwise stated the magnification of the figures on the plates are: carpophores (nat. size), spores (2000×), basidia and cystidia (1000×) and vertical section of pileocutis (500×).

### Key to Species of *Entoloma* in South America

- Abbreviations: S smell  
 PP pigment plasmatic  
 PE pigment encrusting  
 CC clamp connections

- A. Carpophores gastroid . . . . .  
 . . . . *Rhodogaster chilensis* HORAK 1964, Sydowia 17: 190—192  
 A\*. Carpophores agaricoid . . . . . 1  
 1. Pileus cuspidate, umbonate-papillate, or convex . . . . . 2  
 1\*. Pileus depressed at centre or umbilicate (mature carpophores) . . . . . 48  
 2. Spores (seen in profile) with 2—4 distinct constrictions, cheilocystidia absent, hyphae of epicutis often thick-walled

- and encrusted with brown pigment. — CC. Pileus and stipe brown, hairy. Lamellae adnate. — S. . . . . 3
- 2\*. Spores different . . . . . 4
3. Spores 13—17/8—10  $\mu$ , pileus —15 mm. On rotten wood of *Myrceugenella*. Argentina . . . . . 1. *E. dysthales* ss. SINGER
- 3\*. Spores 10—13.5/6—7.5  $\mu$ , pileus —12 mm. On soil. Venezuela . . . . . 2. *E. dunstervillei*
4. Spores cuboid or quadrate. . . . . 5
- 4\*. Spores different . . . . . 12
5. Carpophores white to grey (see also *E. spadix*) . . . . . 6
- 5\*. Carpophores yellow or brown . . . . . 7
6. Pileus —15 mm, cuspidate to conical, lamellae adnexed, spores 8,5—13  $\mu$ , cheilocystidia 15—60/5—14  $\mu$ , articulate, with coralloid tips, + CC, PP, ? S. On soil. Venezuela . . . . . 3. *E. alboconicum*
- 6\*. Pileus —12 mm, convex, lamellae emarginate, spores 6—8  $\mu$ , cheilocystidia absent, + CC, PE, —S. On soil. Argentina, (New Zealand) . . . . . 4. *E. minutoalbum*
7. Pileus (and stipe) yellow, —50 mm, conicoconvex, lamellae adnexed, spores 5,5—7  $\mu$ , cheilocystidia 15—50/5—9  $\mu$ , articulated, + CC, PP, ? S. On soil. Trinidad . . . . . 5. *E. dennisii*
- 7\*. Pileus (and often stipe also)  $\pm$  brown . . . . . 8
8. Pileus cuspidate to conical . . . . . 9
- 8\*. Pileus convex to umbonate . . . . . 10
9. Pileus —6 mm, stipe —110/—2 mm, lamellae adnate, spores 13—25 (30)  $\mu$ , cuboid with long conical projections at the corners, cheilocystidia none, + CC, ? pigment, ? S. On soil. Bolivia, Brazil . . . . . 6. *E. dragonosporum*
- 9\*. Pileus —10 mm, stipe —20/—1 mm, yellowish, spores 8—10  $\mu$ , cheilocystidia 90—120/6—13  $\mu$ , cylindrical, + CC, PP, ? S. On mossy bark. Venezuela . . . . . 7. *E. avilanum*
10. Pileus —17 mm, grey-brown, stipe —40/—1,5 mm, lamellae adnate, spores 8—10,5  $\mu$ , cheilocystidia none, + CC, PP, — S. On soil. Brazil, (USA) . . . . . 8. *E. spadix*
- 10\*. Carpophores larger . . . . . 11
11. Pileus —60 mm, stipe —180/—10 mm, lamellae adnexed, spores 10—13  $\mu$ , cheilocystidia 90—130/8—12  $\mu$ , cylindrical, + CC, PP, ? S. On soil. Trinidad, (Madagascar) . . . . . 9. *E. pinnum*
- 11\*. Pileus —45 mm, stipe —100/—5 mm, pruinose at apex, lamellae adnexed, spores 8—11  $\mu$ , cheilocystidia none, + CC, PP, S like cucumber. On soil. Chile . . . . . 10. *E. brunneum* var. *chilense*
12. Spores isodiametrical to subglobose with blunt angles . . . . . 13
- 12\*. Spores irregular-pentagonal or angular . . . . . 22



13. Carpophores white to grey. Pileus —30 mm, umbonate, grey in mature specimens, lamellae sinuato-adnexed, spores 6,5—8,5 (10)  $\mu$ , cheilocystidia absent, + CC, PE, — S. On soil. Argentina . . . . . 11. *E. pampeanum*
- 13\*. Carpophores blue or brown . . . . . 14
14. Blue colours on pileus and/or stipe . . . . . 15
- 14\*. Brown colours only . . . . . 16
15. Pileus (—30 mm) and stipe deep blue, stipe fusoid, lamellae sinuato-adnate, spores 6—8  $\mu$ , cheilocystidia none, —CC, PP, — S. On soil. Argentina, Chile, (New Zealand) . . . . . 12. *E. haastii*
- 15\*. Pileus —120, dark brown with lilac tints, viscid, stipe cylindrical, pale blue-lilac, lamellae emarginate, spores 7—8,5  $\mu$ , cheilocystidia absent, — CC, PP, — S. On soil. Chile . . . . . 13. *E. lilacipes*
- 16 (14\*). Carpophores robust, pileus convexo-campanulate, stipe white, larger 7 mm diam. . . . . 17
- 16\*. Carpophores rather fragile, stipe less 3,5 mm diam. . . . . 18
17. Pileus —60 mm, dark brown, radially fibrillose-squamulose, lamellae emarginate-adnexed, edge even, ? brown, spores 7—8,5  $\mu$ , cheilo- and pleurocystidia 40—80/ 14—20  $\mu$ , fusoid, — CC, PP, ? S. On soil. Venezuela . . . . . 14. *E. cystidiophorum*
- 17\*. Pileus —42 mm, black-brown, minutely fibrillose, lamellae sinuato-adnexed, edge crenulate, concolorous, spores 6—8  $\mu$ , cheilocystidia cylindrical with irregular excrescences, — CC, PP, — S. On soil. Colombia . . . . . 15. *E. lyophylliforme*
18. Clavate to ventricose-fusoid cheilo- and pleurocystidia present, pileus —20 mm, conical, lamellae adnexed, spores 6,5—8  $\mu$ , — CC, PP, — S. On soil. Colombia . . . . . 16. *E. ferrugineogranulatum*
- 18\*. Cheilo- and pleurocystidia absent . . . . . 19
19. Spores larger 7  $\mu$  . . . . . 20
- 19\*. Spores smaller 7  $\mu$  . . . . . 21
20. Pileus —20 mm, lamellae adnexed to subfree, stipe pruinose, spores 7,5—9  $\mu$ , cheilocystidia none, caulocystidia cylindrical, apex subcapitate, — CC, PP, — S. On rotten wood. Argentina . . . . . 17. *E. pruinosisipes*
- 20\*. Pileus —25 (40) mm, lamellae adnexed, stipe glabrous, spores 8—10  $\mu$ , cheilocystidia none, caulocystidia absent, — CC, PE, — S. On soil, Chile, Argentina . . . . . 18. *E. permutatum*
21. Pileus —16 mm, campanulate, stipe yellowish, lamellae arcuate-decurrent, spores 6—7  $\mu$ , cheilocystidia absent, + CC, PE, S pleasant. On soil, Brazil . . . . . 19. *E. cantharellutoides*



- 21\*. Pileus —35 mm, papillate-umbonate, stipe brownish, lamellae emarginate, spores 6—7  $\mu$ , cheilocystidia absent, — CC, PE, — S. On soil. Argentina . . . . . 20. *E. elaboratum*
- 22 (12\*). Carpophores white, whitish or yellow . . . . . 23
- 22\*. Carpophores with other colours . . . . . 27
23. Carpophores white to whitish (at least when young) . . . . . 24
- 23\*. Carpophores with distinct yellow tints . . . . . 26
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- 25\*. Pileus —20 mm, lamellae adnate, spores 9—11/7—8  $\mu$ , cheilocystidia 50—160/5—15  $\mu$ , cylindrical to clavate, + CC, ? pigment, — S. On rotten wood. Trinidad . . . . . 23. *E. aripoanum*
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- 26\*. Pileus —15 mm, with conical papilla, lamellae adnate, spores 10—12,5/7,5—9,5  $\mu$ , cheilocystidia absent, ? CC, ? pigment, ? S. On soil. Trinidad . . . . . 25. *E. stylophorum*
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- 28\*. Pileus —45 mm, conical, olive-brown, lamellae adnexed, spores 10—12/7,5—10  $\mu$ , cheilocystidia (and pleuro-) 35—90/7—18  $\mu$ , fusoid, — CC, PP, ? S. On soil. Trinidad . . . . . 27. *E. siparianum*
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- 31\*. Pileus —55 mm, convex to umbonate, soot-brown (with olive tints), lamellae emarginate, stipe blue to greenish blue, spores 9—10,5/6—8  $\mu$ , cheilocystidia 50—110/7—14  $\mu$ , cylindrical to subfusoid, in KOH pigment stains deep purple to eosin-red, — CC, PP, — S. On soil. Argentina, Chile.... 29. *E. cryptochroum*
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- 34\*. Pileus fibrillose, stipe grey, glabrous, lamellae adnexed, spores 8—11/6—7  $\mu$  (according to DENNIS), + CC, PP, — S. On soil. Trinidad ..... 33. *E. coeruleo-capitatum*
- 35 (29\*). Cheilocystidia present (see also *E. atripes*)..... 36
- 35\*. Cheilocystidia absent ..... 39
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- 37\*. Pileus —15 mm, glabrous, pale brown, lamellae emarginate, stipe pruinose at apex, spores 7—8/5—6  $\mu$ , cheilo- (and caulocystidia) 45—85/9—18  $\mu$ , fusoid, cuticle hyphous, + CC, PP, S. farinaceous. On soil. Chile ..... 35. *E. ripartitoides*
38. Pileus —30 mm, covered with appressed squamules, lamellae adnexed, stipe white, spores 8—9,5/7—8  $\mu$ , mostly pentagonal, cheilocystidia 50—85/15—30  $\mu$ , broadly fusoid, — CC, PP, ? S. On soil. Trinidad ..... 36. *E. inocephalum* ss. DENNIS
- 38\*. Pileus —15 mm, glabrous, stipe concolorous with pileus, lamellae adnate, spores 10—12/6,5—8  $\mu$ , cheilocystidia 45—85/9—22  $\mu$ , fusoid, — CC, PP, — S. Among mosses on soil. Chile ..... 37. *E. taedium*
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40*	Carpophores more robust, pileus larger 15 mm diam., conspicuously striate, lamellae subfree to adnexed .....	41
41.	Spores less 10 m $\mu$ long .....	42
41*	Spores larger 10 m $\mu$ .....	43
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43.	Pileus —20 mm, spores 8,5—10/6,5—7 m $\mu$ , — CC, ? pigment, — S. On soil. Trinidad, Chile.....	41. <i>E. papillatum</i> ss. DENNIS
43*	Pileus —35 mm, spores 8,5—10,5/7—8 m $\mu$ , + CC (— CC in var. <i>aporpus</i> SINGER), PE, — S. On soil. Argentina .....	42. <i>E. dissimile</i>
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- 51\*. Pileus and stipe not white..... 52
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- 53\*. Lamellae emarginate-adnexed..... 55
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- 57\*. Spores 6—7/5—6  $\mu$ , pileus —20 mm, + CC, PP, — S. On soil in swamps. Argentina..... 57. *E. garibaldi*
- 58 (50\*). Carpophores grey to white, mature specimens turn often pink, lamellae adnate to decurrent..... 59
- 58\*. Carpophores of different colour..... 62
59. Pileus (—24 mm) and stipe grey, spores 10—12,5/6—7,5  $\mu$ , constricted, cheilocystidia absent, — CC, PP, — S. On rotten wood. Brazil..... 58. *E. lowyi*

- 65 mm long, concolorous with pileus, spores 8,5—10/  
6—7,5  $\mu$ , cheilocystidia 50—75/12—24  $\mu$ , clavate-vesi-  
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- 78 (73\*). Pileus dark brown to brown, stipe white to grey..... 79
- 78\*. Pileus and stipe dark brown to pale brown ..... 81
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- 79\*. Spores not constricted, pileus minutely squamulose..... 80
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- 80\*. Spores 7,5—9/5,5—7  $\mu$ , pileus —15 mm, lamellae emar-  
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- 82\*. Pileus and stipe equally dark brown to pale brown,  
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conical terminal cells, + CC, PP, — S. On soil. Chile.....  
..... 83. *E. tenebricosum*
- 83\*. Pileus (—40 mm) and stipe pale brown, glabrous, stipe  
glabrous, spores 9—11/6,5—8  $\mu$ , caulocystidia absent,  
cuticle with cylindrical to subclavate terminal cells, — CC,  
PP, — S. On soil or on rotten wood. Argentina, Chile.....  
..... 84. *E. impeditum*

1. *Entoloma dysthales* (PECK) ss. SINGER 1969: Mycofl. Australis, 344

Illustrations: Pl. 1, fig. 1a.

Habitat: On soil under *Myrceugenella* (Myrtaceae). Argentina.

Material: Argentina: "Neuquén, Quétrinué, 25. IV. 1965, leg. SINGER" (BAFC, M 5129).

2. *Entoloma dunstervillei* (DENNIS) c. n.

Bas. *Nolanea dunstervillei* DENNIS 1961: Kew Bull. 15: 152.

Illustrations: DENNIS (1961, 1970). Pl. 1, fig. 2a.

Habitat: On soil. Venezuela.

Material: Venezuela: "Caracas, Botanical Garden, 9. VI. 1958, leg. DENNIS" (K, 1067, holotype).

Observations: Due to the particular spores (see fig. 1 and 2) *E. dysthales* and *E. dunstervillei* belong to a well defined group of *Entoloma* species which nevertheless still wait to be disentangled (MOSER 1973).

3. *Entoloma alboconicum* DENNIS 1961: Kew Bull. 15: 146

Illustrations: DENNIS (1961), HORAK (1978a).

Habitat: On soil. Venezuela.

Material: Venezuela: "Caracas, Botanical Garden, 20. VIII. 1958, leg. DENNIS" (K, 2537, holotype).

Observations: The type material of this species was restudied and the data found are redescribed in HORAK (1978a). The fungus is well characterized by its white colour, cuboid spores and coralloid cheilocystidia.

4. *Entoloma minutoalbum* HORAK 1978b: Fl. Criptog. Tierra del Fuego 13 (in press)

Syn. *Entoloma sordidulum* HORAK (1973: 12) nec. KUEHNER & ROMAGNESI (1955: 10).

Illustrations: HORAK (1973, 1978).

Habitat: On soil among plant debris, also on rotten wood of *Nothofagus* sp. Argentina, New Zealand.

Material: Argentina, Tierra del Fuego: "Rancho Hambre, 3. III. 1974, leg. HORAK" (ZT, 74/134). — "Tierra Mayor, 13. III. 1975, leg. HORAK" (ZT, 75/80).

Observations: This inconspicuous fungus is fully described in HORAK (1973, 1978). In mature specimens the white colour of the fruitingbody changes to pink. It appears that *E. minutoalbum* belongs to the *Nothofagus* mycoflora since it is also known to occur in New Zealand in similar forest associations.

5. *Entoloma dennisii* HORAK 1977: Sydowia 28: 183

Syn. *Entoloma murraini* (B. & C.) ss. BAKER & DALE (1951: 86), ss. DENNIS (1953: 159), nec BERKELEY & CURTIS (1859).

Illustrations: BAKER & DALE (1951), DENNIS (1953, 1970), HORAK (1977).

Habitat: On soil in bamboo plantations. Trinidad.



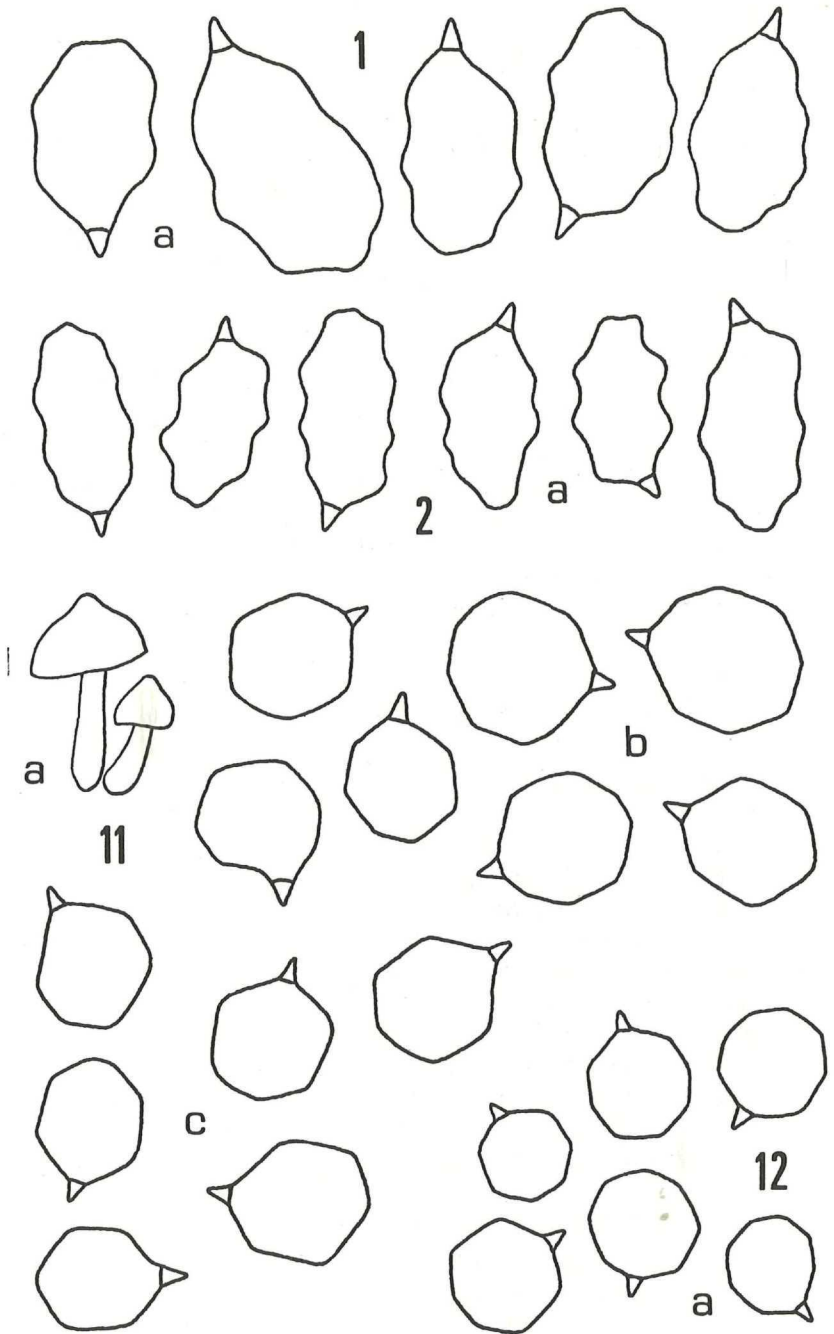


Fig. 1. 1: *E. dysthales* (M 5129) a. spores. — 2: *E. dunstervillei* (1067, type): a. spores. — 11: *E. pampeanum* (38539, type): a. carpophores  $\frac{1}{2}$ . b. spores; *E. mesites* (3534, type): c. spores. — 12: *E. haasti* (75/3): a. spores.

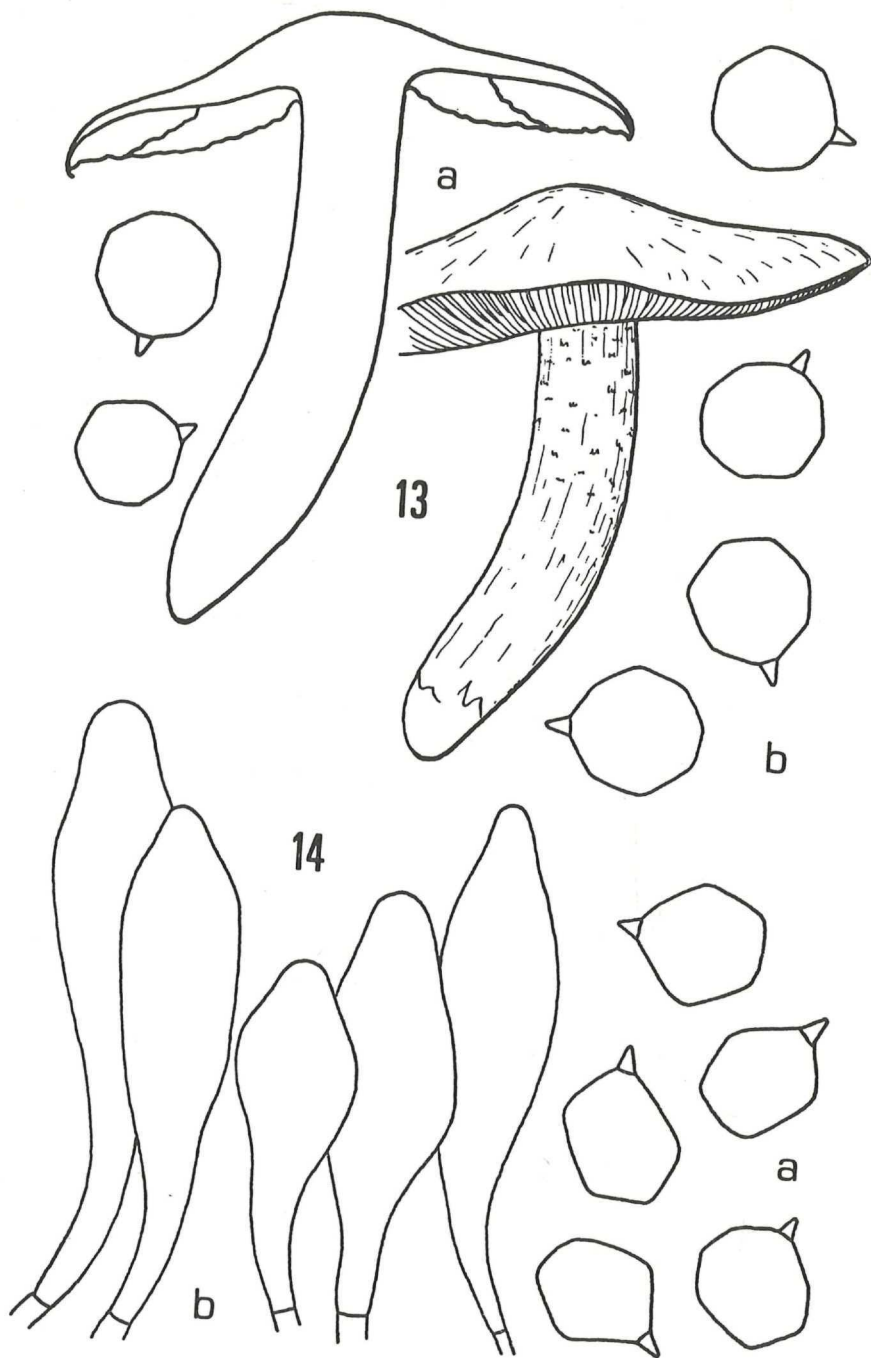


Fig. 2. 13: *E. lilacipes* (75/405, type): a. carpophores; b. spores. — 14: *E. cystidiophorum* (1057, type): a. spores; b. cheilo- and pleurocystidia.

**Material:** Trinidad: "St. Joseph, 10. X. 1947, leg. BAKER" (K, 1714, holotype).

**Observations:** The yellow colour of the carpophores, the rather small cuboid spores and the less conical pileus are characters which separate well this species from *E. murrayi* (ss. B. & C.).

6. *Entoloma dragonosporum* (SINGER) HORAK 1978a : Sydowia 29: 292

Bas. *Rhodophyllus dragonosporus* SINGER 1965: Atas Inst. Mic. 2: 45.

Illustrations: SINGER (1965), HORAK (1978a).

Habitat: On soil in forests. Bolivia.

**Material:** Bolivia: "Beni, Vaca Diez, Guayaramerín, 17. III. 1956, leg. SINGER" (BAFC, B 2106, holotype).

**Observations:** Among the South American species of *Entoloma* this fungus is by far the most spectacular. The rather stout basidia bear cuboid spores whose corner are prolonged into long finger-like projections (HORAK 1977).

7. *Entoloma avilanum* (DENNIS) HORAK 1977: Sydowia 28: 186

Bas. *Nolanea avilana* DENNIS 1961: Kew Bull. 15: 151.

Illustrations: DENNIS (1961, 1970), HORAK (1977).

Habitat: In deep moss on trunk, 2000 m. Venezuela, USA.

**Material:** Venezuela: "El Avila, 17. VIII. 1958" (K, 1816, holotype).

**Observations:** The yellow stipe is a distinctive macroscopical character of this small conical *Entoloma*. The microscopical data are given in HORAK (1977).

8. *Entoloma spadix* HESLER 1967, Beih. Nova Hedwigia 23: 24

Syn. *Rhodophyllus fraternus* SINGER 1973: Sydowia Beih. 7: 97.

Illustrations: HESLER (1967), HORAK (1977).

Habitat: On soil in forests. Brazil, USA.

**Material:** Brazil: „Pernambuco, Dois Irmaos, 5. VII. 1960, leg. SINGER (BAFC, B 3074, holotype of *Rh. fraternus*).

**Observations:** Discussion see HORAK (1977).

9. *Entoloma pinnum* (ROMAGNESI) DENNIS 1953: Bull. Soc. Myc. Fr. 69: 160

Bas. *Rhodophyllus pinnus* ROMAGNESI 1941: Rhodophylles Madagascar, p. 63.

Illustrations: ROMAGNESI (1941), DENNIS (1953, 1970), HORAK (1977).

Habitat: On soil. Trinidad. Madagascar.



Material: Trinidad: "N of Arima, Northern Range, 25. IX. 1949, leg. DENNIS" (K, 46).

Observations: Large carpophores and rather large spores define well this fungus which occurs both in Madagascar (type) and Trinidad.

10. *Entoloma brunneum* var. *chilense* HORAK 1977: Sydowia 28: 210

Habitat: On soil in coastal rain-forest. Chile.

Illustrations: HORAK (1977).

Material: Chile: „Prov. Osorno, Pucatrihue, 22. IV. 1963, leg. HORAK" (ZT, 62/145, holotype).

Observations: The original description is based upon one collection. The possibility is not excluded that additional material will yield the information necessary to lift the fungus to species-rank. The shape of the caulocystidia and terminal cells of the cuticular hyphae do not coincide with those of typical *E. brunneum* whose area of distribution stretches (as hitherto known) from USA to Madagascar (HORAK 1977).

11. *Entoloma pampeanum* SPEGAZZINI 1899: An. Mus. Nac. B. Aires 6: 119

Syn. *Rhodophyllus mesites* SINGER 1969: Mycofl. Australis, p. 342.

*Rhodophyllus fuscifolius* (PECK) ss. SINGER 1969, Mycofl. Australis, p. 340.

Illustrations: HORAK (1978 "*Ent. mesites*"). Pl. 1, 11a—c.

Habitat: On soil and on rotten wood in *Nothofagus* forests. Argentina.

Material: Argentina: "La Plata, 14. III. 1888, leg. SPEGAZZINI. (LPS, 38539, holotype). — "Neuquén, Rincon, 13. III. 1963, leg. SINGER" (BAFC, M 3534, holotype of *Rh. mesites*). — "Neuquén Puerto Manzano, 8. IV. 1963, leg. SINGER (BAFC, M 3333, "*Rh. fuscifolius* ss. SINGER"). — "Tierra del Fuego, Tierra Mayor, 18. III. 1974, leg. HORAK" (ZT, 74/215).

Observations: *E. pampeanum* is characterized by: umbonate pileus, grey lamellae and stipe, isodiametrical spores, encrusting pigment and presence of clamp connections. In fig. 11a the copy of the original sketch is reproduced found among SPEGAZZINI's notes kept in LPS. Apparently this species has not only a wide area of distribution but occupies also localities of rather different ecology.

12. *Entoloma haastii* STEVENSON 1962: Kew Bull. 16: 229

Illustrations: STEVENSON (1962), HORAK (1973). Pl. 1, 12a.

Habitat: On soil among litter in forests (often dominated by *Nothofagus*). Chile, New Zealand.

Material: Chile: "Prov. Osorno, Antillanca, 1000 m, 14. IV. 1963,

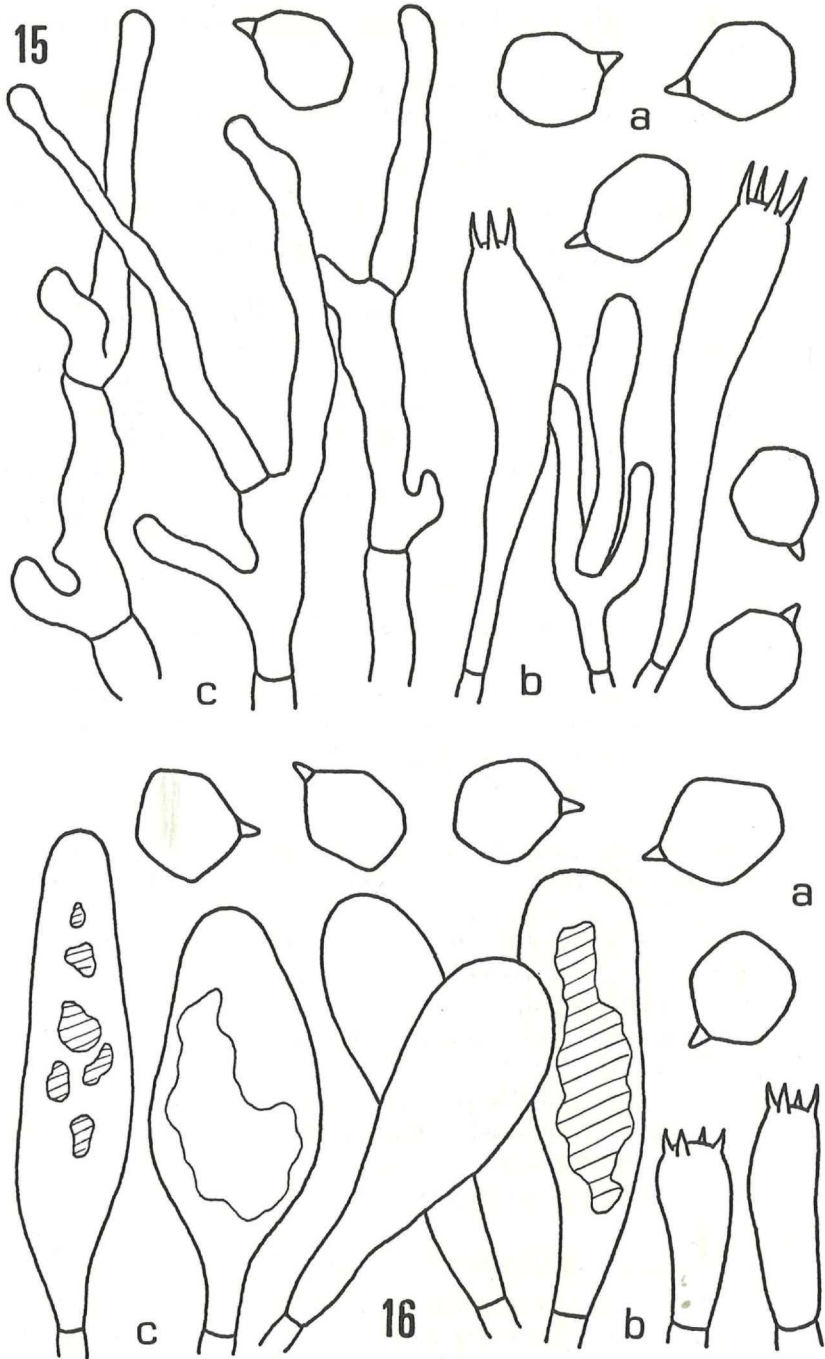


Fig. 3. 15: *E. lyophylliforme* (B 6275, type): a. spores; b. basidia; c. cheilocystidia. — 16: *E. ferrugineogranulatum* (B 6325): a. spores; b. basidia; c. cheilo- and pleurocystidia.

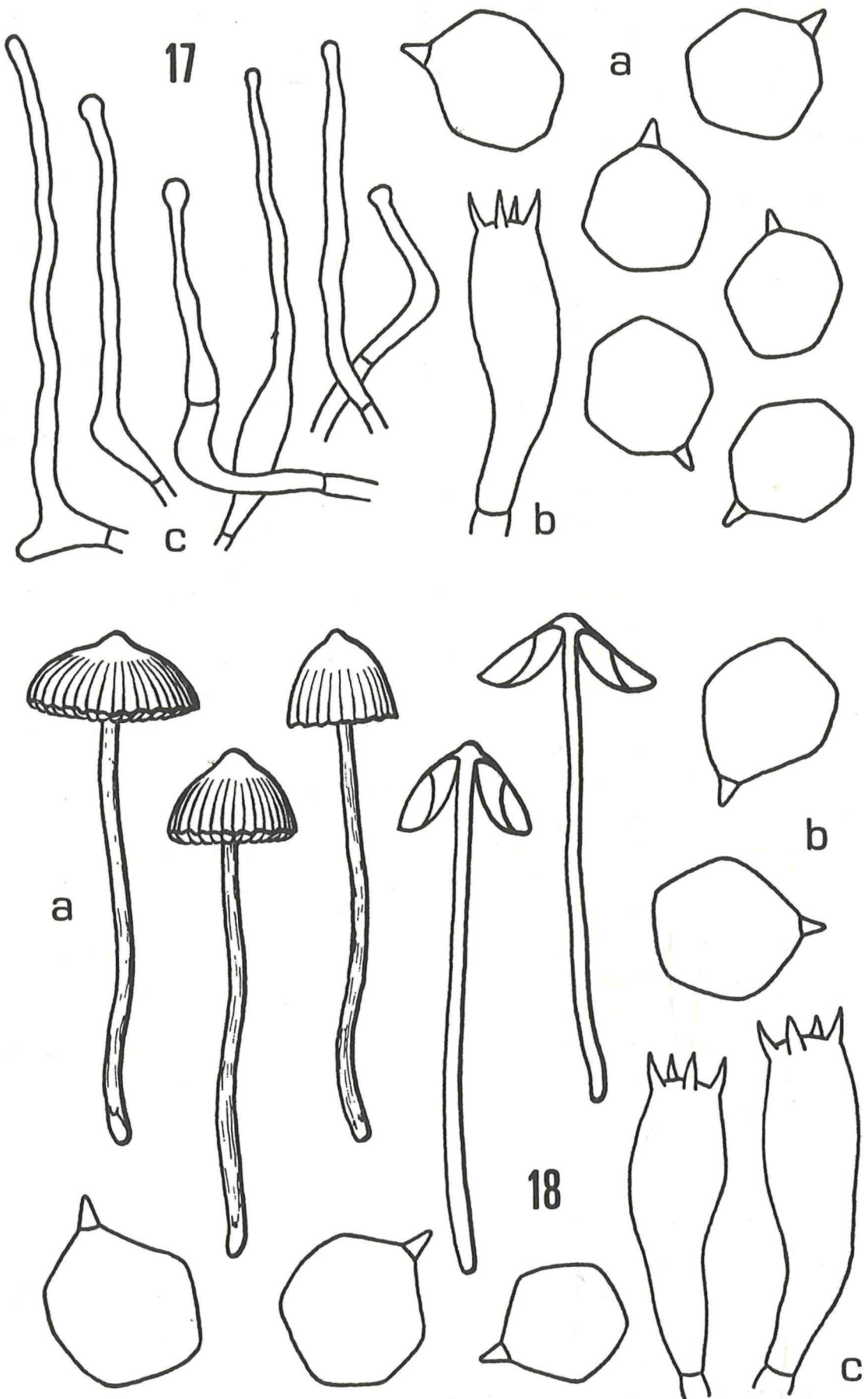


Fig. 4. 17: *E. pruinosisipes* (M 3272, type): a. spores; b. basidia; c. caulocystidia.—  
18: *E. permutatum* (62/138): a. carpophores; b. spores; c. basidia.



leg. HORAK" (ZT, 62/144). — "Magellanes, P. Arenas, Puerto Hambre, 7. III. 1975, leg. HORAK" (ZT, 75/3).

Observations: This conspicuous species is closely related with *E. nitidum* (QUELET) occurring in various ecological sites in the Northern Hemisphere. It must be emphasized that *E. haastii* belongs also to the small group of agarics which are found in New Zealand and South America as well.

### 13. *Entoloma lilacipes* HORAK sp. n.

Pileo — 80 mm lato, umbonato-convexo, fusco-umbrino, violaceo tinctu, viscido. Lamellis emarginato-adnexis, griseis dein pallide griseo-brunneis, crenatis. Stipite — 75/— 16 mm, basim versus attenuato, pallide lilacino-azureo, fibrilloso. Caro inodora. Sporis 7—8,5  $\mu$ , isodiametricis. Cystidiis nullis. Hyphis defibulatis. Habitatio ad terram in silvis nothofagineis. Chile. Holotypus ZT, 75/405.

Pileus — 80 mm (—120) diam., broadly campanulate to umbonate-expanded, margin inrolled, dark brown to fuscous with distinct violet tint, estriate, viscid, cartilagineous, robust. Lamellae emarginate-adnexed to adnexed, crowded, grey when young turning to pale grey-brown in mature specimens, edge paler and crenulate. Stipe 45—75/8—16 mm, cylindrical, tapering towards base, pale blue-lilac, but whitish-yellowish at base, dry, coarsely fibrillose to subsquamulose, solid, single. Context white, brown beneath cuticle, yellowish in base. Odour and taste not distinctive.

Spores 7—8,5  $\mu$ , isodiametrical, up to 8 blunt angles. Basidia 40—46/10—12  $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of gelatinized hyphae (2—3  $\mu$  diam.), cells of subcutis 8—15  $\mu$  diam., with brown plasmatic pigment. Clamp connections none.

Illustrations: Pl. 2, fig. 13a, b.

Habitat: On soil among litter of *Nothofagus procera*. Chile.

Material: Chile: "Cord. Pelada, Chiveria, 19. IV. 1975, leg. HORAK" (ZT, 75/405, holotype).

Observations: This new species strongly reminds of *E. madidum* (FRIES), a rather rare species in Europe. The Chilean fungus, however, is separated by its dark brown colour of the pileus, grey lamellae and lack of odour.

### 14. *Entoloma cystidiophorum* DENNIS 1961, Kew Bull. 15: 148

Illustrations: DENNIS (1961). Pl. 2, fig. 14a, b.

Habitat: On soil in forests. Venezuela.

Material: Venezuela: "El Avila, 17. VI. 1958, leg. DENNIS" (K 1057, holotype).

Observations: The spores measure (in contrast to DENNIS l. c.) 7—8,5  $\mu$ . Cheilo- and pleurocystidia numerous, lageniform, 40—80/

14—20  $\mu$ , often with brown coloured cell sap. Hyphae of cuticle 4—12  $\mu$  diam., with brown plasmatic pigment. Clamp connections absent.

15. *Entoloma lyophylliforme* (SINGER) c. n.

Bas. *Rhodophyllus lyophylliformis* SINGER 1973, Sydowia Beih. 7: 98.

Illustrations: Pl. 3, fig. 15a—c.

Habitat: On soil in tropical rain forest. Colombia.

Material: Colombia: "Buenaventura, San Joaquín, 180 m, 22. IV. 1968, leg. SINGER" (F, B 6275, holotype).

Observations: The conspicuous odd-shaped cheilocystidia are the most distinctive character of this grey-brown fungus. The cuticle consists of short-celled hyphae, 4—10  $\mu$  diam. forming a cutis. Pigment plasmatic or vacuolar. Clamp connections absent.

16. *Entoloma ferrugineoconulatum* (SINGER) c. n.

Bas. *Rhodophyllus ferrugineoconulatus* SINGER 1973, Sydowia Beih. 7: 96.

Illustrations: Pl. 3, fig. 16a—c.

Habitat: On rotten wood in rain forest. Colombia.

Material: Colombia: "Buenaventura, between Cisneros and Cordoba, Quinta La Flora, 23. IV. 1968, leg. SINGER" (F, B 6325, holotype).

Observations: Spores 6,5—8  $\mu$ , 5—6-angled. Cheilo- and pleurocystidia 40—70/10—23  $\mu$ , clavate to lageniform, thin-walled, with yellow-brown plasmatic or vacuolar pigment. Cuticle a cutis with suberect cylindrical or clavate terminal cells, 5—12  $\mu$  diam., with brown plasmatic or vacuolar pigment. Clamp connections absent.

The microscopical characters of this dark brown *Entoloma* are similar to the ones found in *E. cystidiophorum* (14). Size and shape of the carpophores, however, are distinguishing the two taxa.

17. *Entoloma pruinosipes* (SINGER) c. n.

Bas. *Rhodophyllus pruinosipes* SINGER 1969, Nova Hedwigia, Beih. 29: 340.

Illustrations: Pl. 4, fig. 17 a—c.

Habitat: On soil or rotten wood in *Austrocedrus-Notofagus* forest. Argentina.

Material: Argentina: "Neuquén, Puerto Manzano, 5. IV. 1963, leg. SINGER" (BAFC, M 3272, holotype).

Observations: The examinations of the type material revealed that the brown pigment in the cuticular hyphae is plasmatic and there are no clamp connections on the septae of the hyphae including basidia.

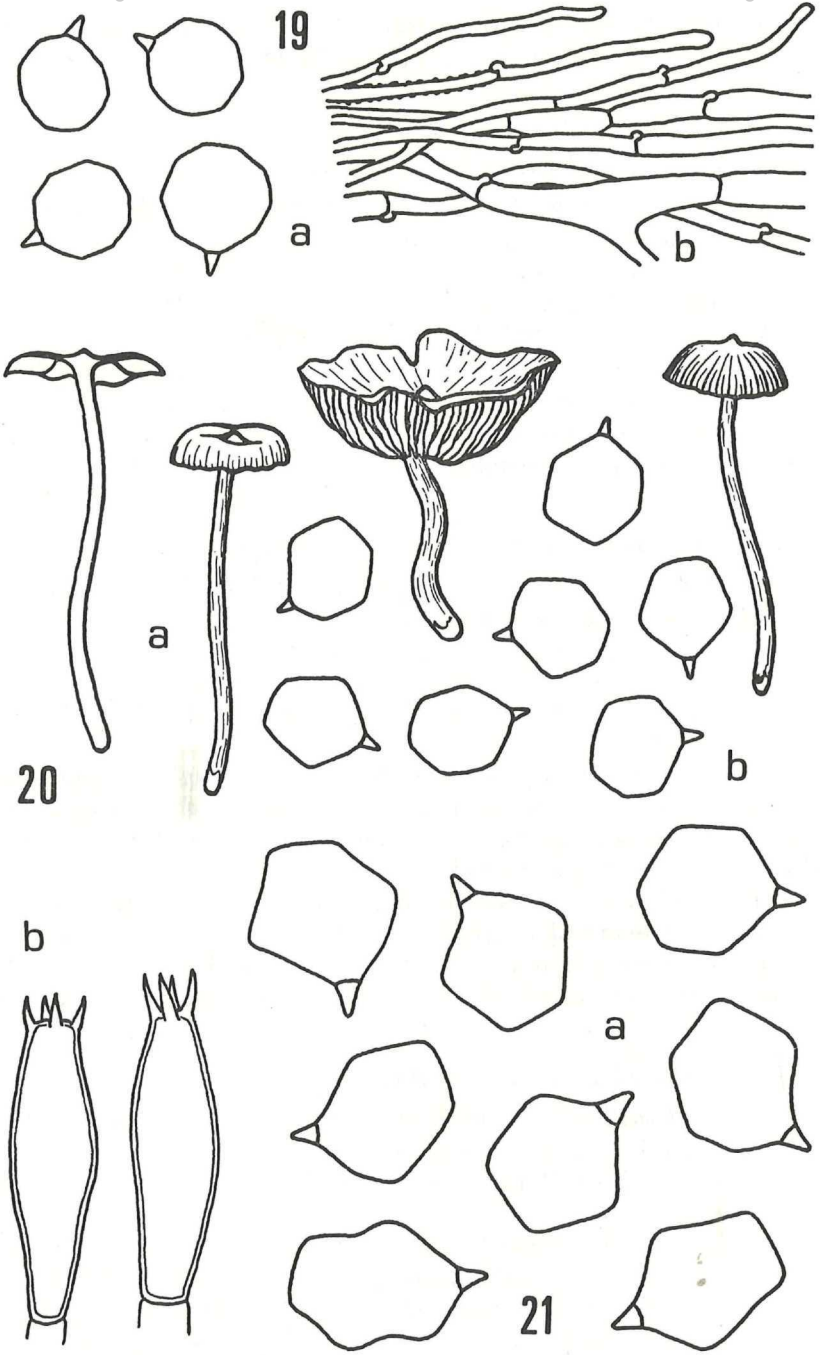


Fig. 5. 19: *E. cantharelluloides* (B 3360, type): a. spores; b. cuticle. — 20: *E. elaboratum* (62/119, type): a. carpophores; b. spores. — 21: *E. depluens* var. *macrosporum* (2508, type): a. spores; b. basidia.



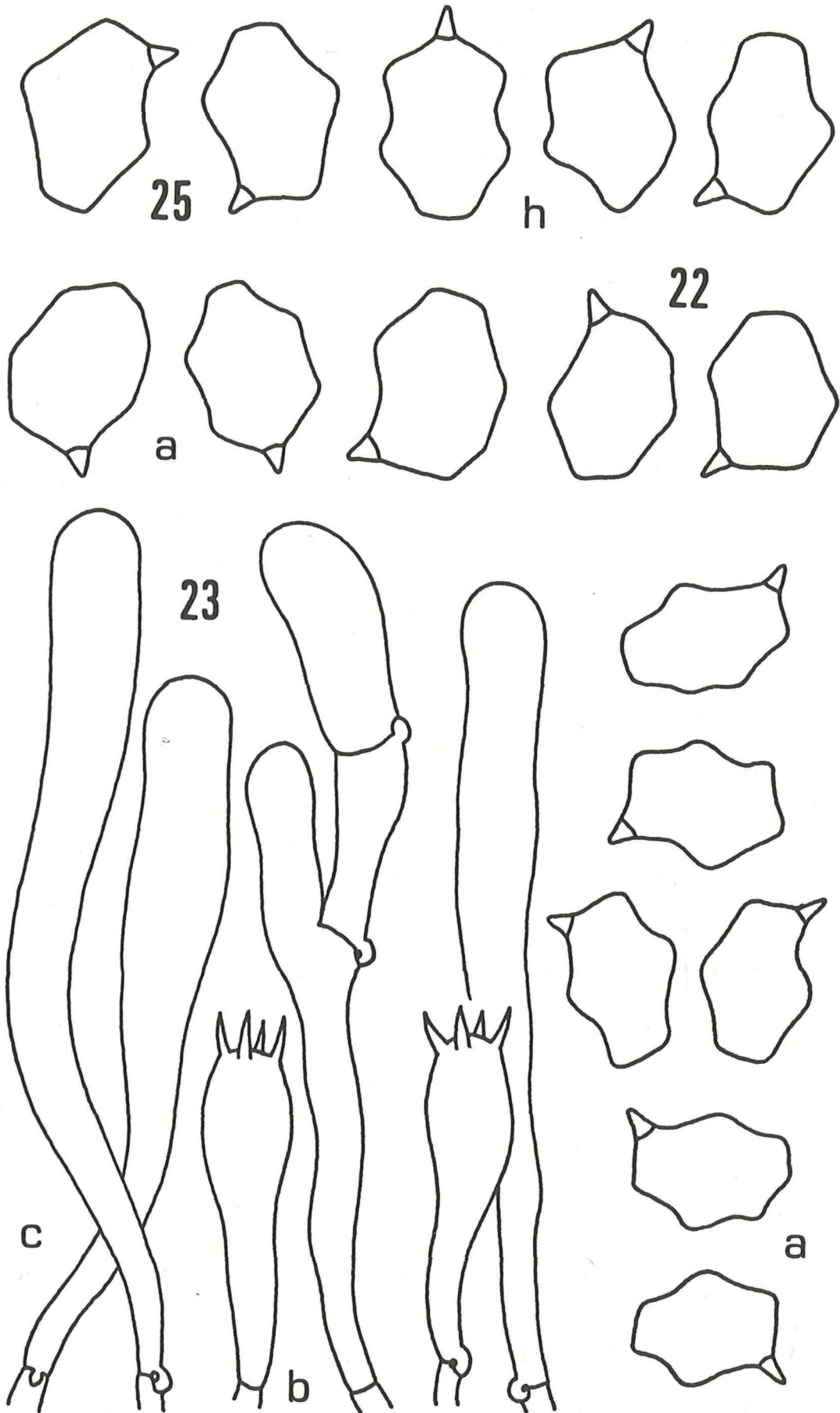


Fig. 6. 22: *E. bakeri* (316, type): a. spores. — 23: *E. aripoanum* (172, type): a. spores; b. basidia; c. cheilocystidia. — 25: *E. stylophorum* (81): a. spores.

18. *Entoloma permutatum* HORAK sp. n.

Pileo — 25 mm lato, subconico vel campanulato, pallide brunneo, subrugoso, siccio, striato. Lamellis ex adnexo-subliberis, roseolis. Stipite — 65/—2,5 mm, cylindrico, pileo concolori, glabro. Odore ingrato. Sporis 8—10  $m\mu$ , 5—6-angulatis. Cystidiis nullis. Hyphis pilei cutem formantibus, pigmento incrustatis. Fibulis nullis. Habitatio in silvis nothofagineis. Chile. Holotypus (ZT, 62/138).

Pileus 10—25 mm diam., conical or hemispherical with conical papilla later becoming campanulate, pale brown, pale pink-brown drying, at apex with minute wrinkles or subsquamulose, dry, membranaceous, striate. Lamellae adnexed to free, ventricose, L 10—20, 1—3, pink, edge concolorous, even. Stipe 40—65/1,5—2,5 mm, cylindrical, terete, concolorous with pileus or paler, base covered with white mycelium, glabrous, dry, hollow, fragile, single in groups. Context pale brown. Odour and taste unpleasant, like burnt horn.

Sporis 8—10  $m\mu$ , 5—6-angled. Basidia 30—40/9—13  $m\mu$ , (2-) and 4-spored. Cystidia absent. Cuticle a cutis of cylindrical hyphae (5—18  $m\mu$  diam.), encrusted with yellowish-brownish pigment. Clamp connections very rare, generally absent.

Illustrations: Pl. 4, fig. 18a—c.

Habitat: On soil under *Nothofagus* spp. Chile, ? Argentina.

Material: Chile: "Prov. Osorno, Valle Gol-Gol, Puyehue, 400 m, 1. IV. 1963, leg. HORAK" (ZT, 62/138, holotype). — "Prov. Osorno, Antillanca, 1050 m, 11. IV. 1963, leg. HORAK" (ZT, 62/143). — "Cord. Pelada, Chiveria, 10. V. 1965, leg. SINGER" (BAFC, M 5725, sub "*Rh. nitens* (VEL.)").

Observations: Probably this is a wide-spread species in the *Nothofagus* forests of Chile and Argentina. In the field it could be taken as *E. papillatum* (BRESADOLA) which grows also in similar habitats.

19. *Entoloma cantharelluloides* (SINGER) c. n.

Bas. *Rhodophyllus cantharelluloides* SINGER 1965: Atas Inst. Mic. 2: 45.

Illustrations: Pl. 5, fig. 19a, b.

Habitat: On soil in rain forest, Brazil.

Material: Brazil: "Paraiba, João Pessoa, 11. VII. 1960, leg. SINGER" (BAFC, B 3360, holotype).

20. *Entoloma elaboratum* HORAK sp. n.

Pileo — 35 mm lato, convexo-papillato dein concavo-papillato, ex umbrino fuligineo, siccio. Lamellis emarginatis, brunneoroseis. Stipite — 50/—4 mm, cylindrico, pileo concolori vel pallidiori, glabro. Odore nullo. Sporis 6—7  $m\mu$ , 5—6-angulatis. Cystidiis nullis. Cute ex hyphis cylindricis pigmento brunneo incrustatis. Fibulis nullis. Ad terram in silvis. Argentina. Holotypus (ZT, 62/119).

Pileus 12—35 mm diam., hemispherical or convex with distinct conical papilla, becoming concave with conspicuous conical or umbonate

capilla, dark brown to fuliginous, dry, striate, glabrous, membranaceous. Lamellae emarginate-adnate to subdecurrent with short tooth, L 10—20, l 3—7, crowded, pale brown when young turning brown-pink, edge concolorous, even to crenulate in aged specimens. Stipe 30—50/2—4 mm, cylindrical, concolorous with pileus or paler, base with white tomentum, dry, smooth to subfibrillose towards base, hollow, fragile. Context pale brown. Odour and taste not distinctive.

Spores 6—7  $\mu$ , 5—7-angled. Cystidia absent. Basidia 22—25/7—8  $\mu$ , 4-spored. Cuticle a cutis of cylindrical hyphae (5—12  $\mu$  diam.), encrusted with brown pigment. Clamp connections none.

Illustrations: Pl. 5, fig. 20a, b.

Habitat: On soil in tropical forest, 1100 m. Argentina.

Material: Argentina: "Prov. Tucuman, Sierra San Javier, near Ciudad Universitaria, l. III. 1962, leg. HORAK" (ZT, 62/119, holotype).

Observations: This species is well characterized by the papillate pileus, fuliginous colours and small 5—7-angled spores.

21. *Entoloma depluens* var. *macrosporum* (DENNIS) c. n.

Bas. *Claudopus depluens* var. *macrosporus* DENNIS 1961, Kew Bull. 15: 154.

Illustrations: DENNIS (1961). Pl. 5, fig. 21a, b.

Habitat: On *Espeletia* sp., 3550 m. Venezuela.

Material: Venezuela: "Sierra de Santo Domingo, Laguna Mucubaji, 23. VII. 1958, leg. DENNIS & BUZA" (K, 2508, holotype).

Observations: The type material is in fragmentary condition. Hence it was impossible to study the cuticle and to check for cystidia and clamp connections. As in other Venezuelan *Entoloma*-species the basidia are thick-walled.

22. *Entoloma bakeri* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 162

Illustrations: DENNIS (1953). Pl. 6, fig. 22a.

Habitat: On soil in bamboo plantation. Trinidad.

Material: Trinidad: "St. Joseph, 10. XI. 1949, leg. DENNIS" (K, 316, holotype).

Observations: On the type material the cylindrical cheilocystidia (DENNIS, 1953) have not been observed. It remains doubtful if true cheilocystidia line the edge of the lamellae. The septae of the hyphae have no clamp connections.

23. *Entoloma aripoanum* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 163

Illustrations: DENNIS (1953). Pl. 6, fig. 23a—c.

Habitat: On rotten wood. Trinidad.

Material: Trinidad: "Aripo Valley, L'Orange, 13. X. 1949, leg. DENNIS" (K, 172, holotype).



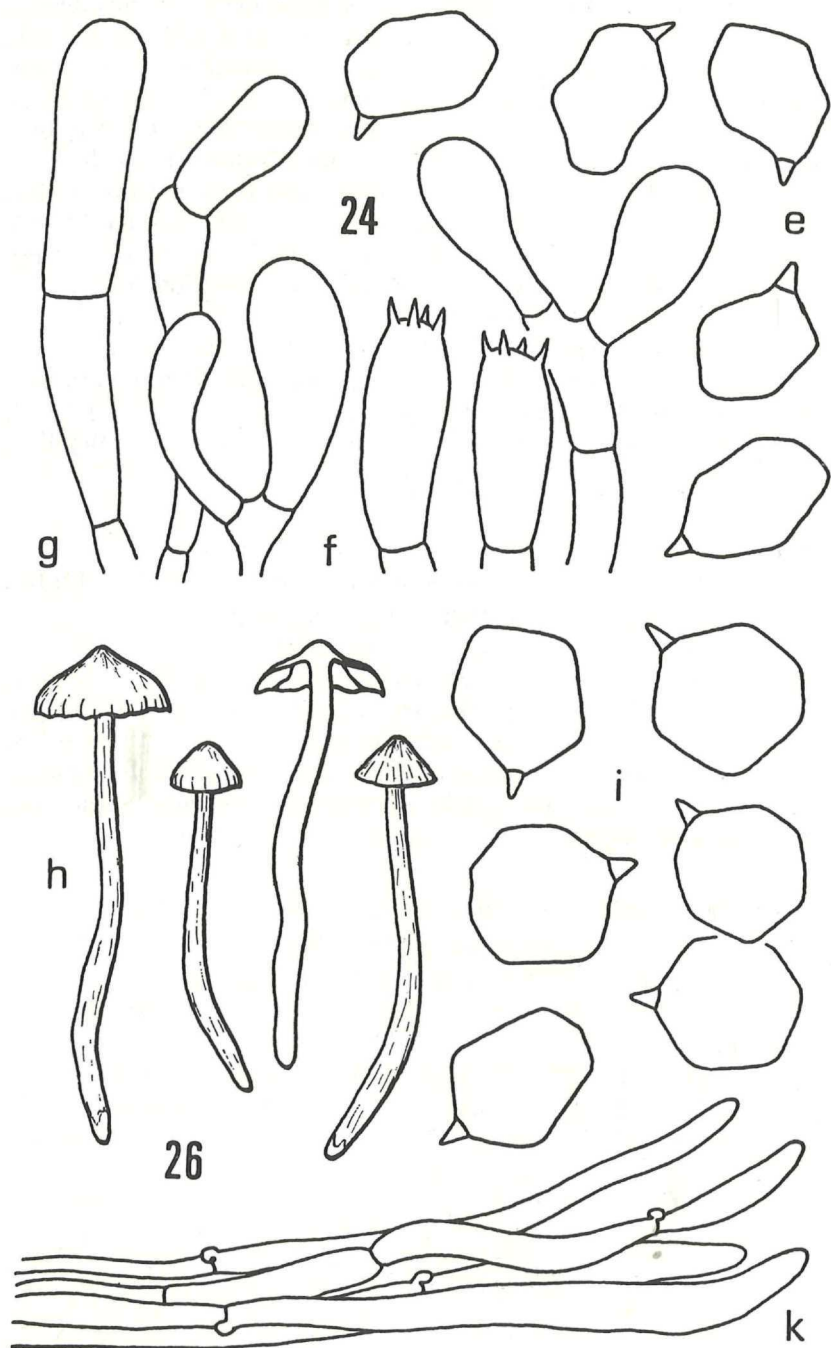


Fig. 7. 24: *E. vitellinum* (B 3135, type): e. spores; f. basidia; g. cheilocystidia. — 26: *E. antillancae* (62/142, type): h. carpophores; i. spores; k. cuticle.

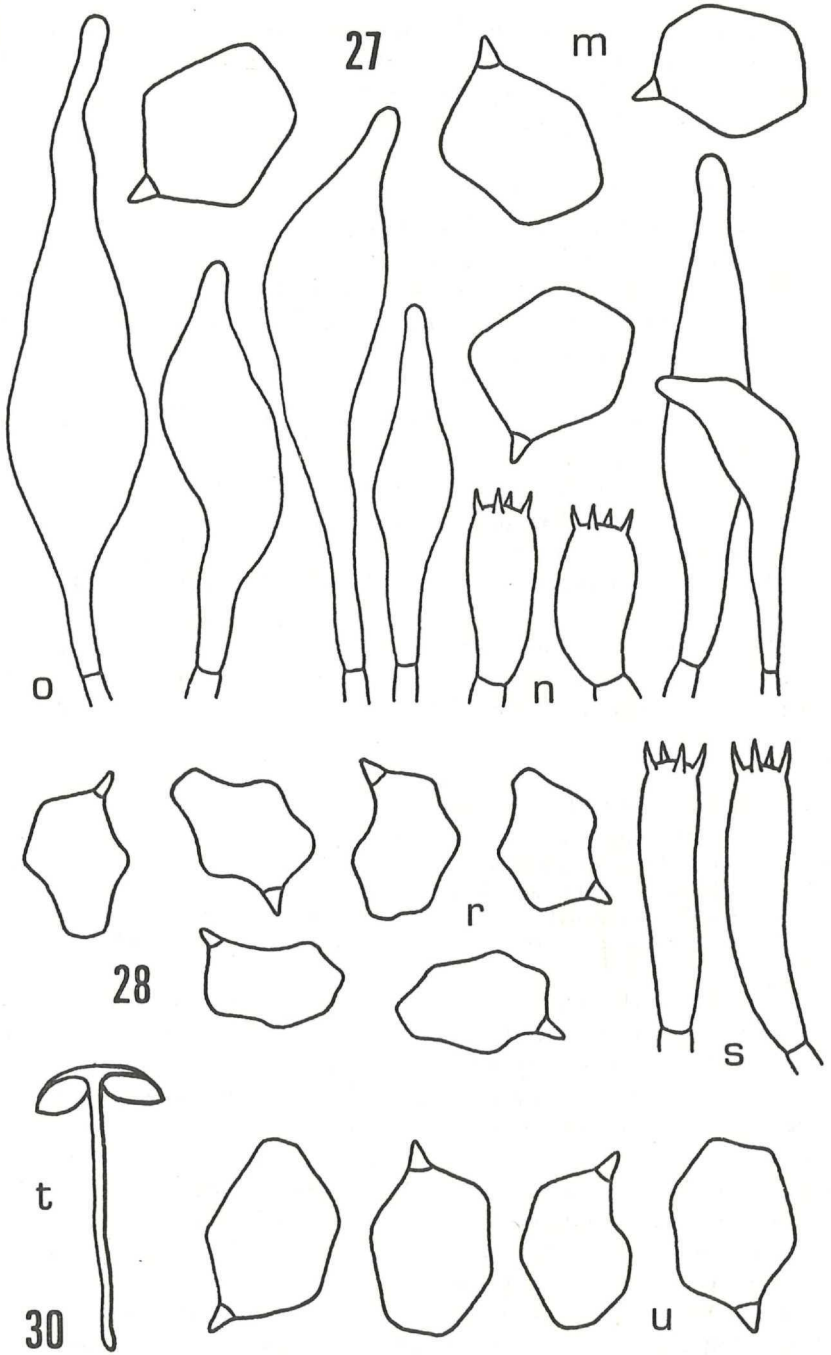


Fig. 8. 27: *E. siparianum* (296, type): m. spores; n. basidia; o. cheilocystidia. — 28: *E. venezuelanum* (1301, type): r. spores; s. basidia. — 30: *E. subgoniosporum* (16125, type): t. carpophore. u. spores.

**Observations:** In Trinidad occur two species of *Entoloma* with white colour and convex pileus. *E. aripoanum* is distinguished by its smaller spores, long cheilocystidia and numerous clamp connections on the septae of the hyphae.

24. *Entoloma vitellinum* (SINGER) c. n.

Bas. *Rhodophyllus vitellinus* SINGER (in print).

Illustrations: Pl. 7, fig. 24e—g.

Habitat: On rotten wood and on soil. Brazil.

Material: Brazil: "Camarogibe, 6. VII. 1960, leg. SINGER"  
(BAFC, B 3135, holotype).

25. *Entoloma stylophorum* (BERKELEY & BROOME) SACCARDO 1887,

Syll. Fung. 5: 687

Illustrations: ROMAGNESI (1941), DENNIS (1970). Pl. 6, fig. 25 h.

Habitat: On soil in bamboo-plantation. Trinidad, Madagascar, Ceylon, Papua New Guinea.

Material: Trinidad: "St. Joseph, 27. IX. 1949, leg. DENNIS"  
(K, 81).

**Observations:** This species has probably a wide distribution in the tropical-subtropical belt. *E. stylophorum* is characterized by the conspicuous sharp conical papilla, small size and whitish-yellowish colour.

26. *Entoloma antillancae* HORAK sp. n.

Pileo —20 mm lato, e convexo-campanulato, luteolo virescente, subfibrilloso, sicco. Lamellis adnato-emarginatis, albis dein subroseis. Stipite —75/—4 mm, subfusoido, pileo concolori, sicco, glabro. Odore ingrato. Sporis 9—10/8,5—10 m $\mu$ , 5—7 angulatis. Cystidiis nullis. Cute ex hyphis cylindraceutis. Fibulis praesentibus. Ad terram in silvis nothofagineis. Chile. Holotypus (ZT, 62/142).

Pileus 8—20 mm diam., conico-convex becoming umbonate to campanulate, margin not upturned, yellowish with green to olive tint, turning pale grey when dry, glabrous in young specimens, subfibrillose in mature carpophores, indistinctly striate, hygrophanous. Lamellae broadly adnate to emarginate, sometimes decurrent with short tooth, L 8—12, l 1 (3), pallid turning to pinkish, edge even, concolorous. Stipe 35—75/3—4 mm, subfusoid, tapering towards base, pallid to yellowish, occasionally with olive hue, fragile, smooth to striate, white tomentum at base, hollow, single. Context pallid. Odour and taste unpleasant, like raw potatoes.

Spores 9—10/8,5—10 m $\mu$ , 5—7-angled. Basidia 40—46/10—13 m $\mu$ , 4-spored. Cystidia none. Cuticle a cutis of repent to suberect cylindrical hyphae, terminal cells rounded (8—12 m $\mu$  diam.), pigment ? plasmatic. Clamp connections numerous.



Illustrations: Pl. 7, fig. 26h, i, k.

Habitat: On soil among litter in *Nothofagus* forest. Chile.

Material: Chile: "Prov. Osorno, Antillanca, 1000 m, 10. IV. 1963, leg. HORAK" (ZT, 62/142, holotype).

27. *Entoloma siparianum* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 160

Illustrations: DENNIS (1953, 1970). Pl. 8, fig. 27 m, n, o.

Habitat: On soil. Trinidad.

Material: Trinidad: "Siparia Forest Reserve, 5. XI. 1949, leg. DENNIS" (K, 296, holotype).

Observations: The following characters are typical for *E. siparianum*: olive-brown pileus, large spores (10–12/7,5–10  $\mu\text{m}$ ), small basidia (20–24/10  $\text{m}\mu$ ), conspicuous (pleuro- and) cheilocystidia (35–90/7–18  $\text{m}\mu$ ) and absence of clamp connections.

28. *Entoloma venezuelanum* (DENNIS) c. n.

Bas. *Leptonia venezuelana* DENNIS 1961: Kew Bull. 15: 151.

Syn. *Rhodophyllus venezuelanus* (DENNIS) SINGER (1969: 346).

Illustrations: DENNIS (1961). Pl. 8, fig. 28r, s.

Habitat: On soil in forest. Venezuela.

Material: Venezuela: "El Junquito, 10. VI. 1958, leg. DENNIS" (K, 1031, holotype).

Observations: Cheilocystidia as reported by DENNIS (1961) have not been found on the rather poor type material. To our opinion there are none on the gill edge of this fungus.

29. *Entoloma cryptochroum* (SINGER) c. n.

Bas. *Rhodophyllus cryptochrous* SINGER 1969: Nova Hedwigia Beih. 29: 338.

Illustrations: Pl. 9, fig. 29 v, w, x, z.

Habitat: On soil and on rotten wood in forests. Argentina, Chile.

Material: Argentina: "Neuquén, Villa Angostura, 29. IV. 1964, leg. SINGER" (BAFC, M 3646, holotype). — "Rio Negro, Lago Nahuel Huapi, Sta. Maria, 19. IV. 1965, leg. SINGER" (BAFC, M 5074, "*Rh. lazulinus*"). — Chile: "Prov. Osorno, Pucatrihue, 24. IV. 1963, leg. HORAK" (ZT, 62/150).

Observations: In addition to SINGER's diagnosis the following characters are distinctive for this extraordinary species: colour of pileus fuliginous with distinct olive tint, cheilocystidia — 110/—14  $\text{m}\mu$ , with brownish plasmatic pigment, clamp connections absent. If mounted in KOH the pigment in the "lactiferous hyphae" of the subcutis stain purple, wine-red or eosin-red. This species is common in the anectotrophic rain forests along the Chilean Pacific coast.

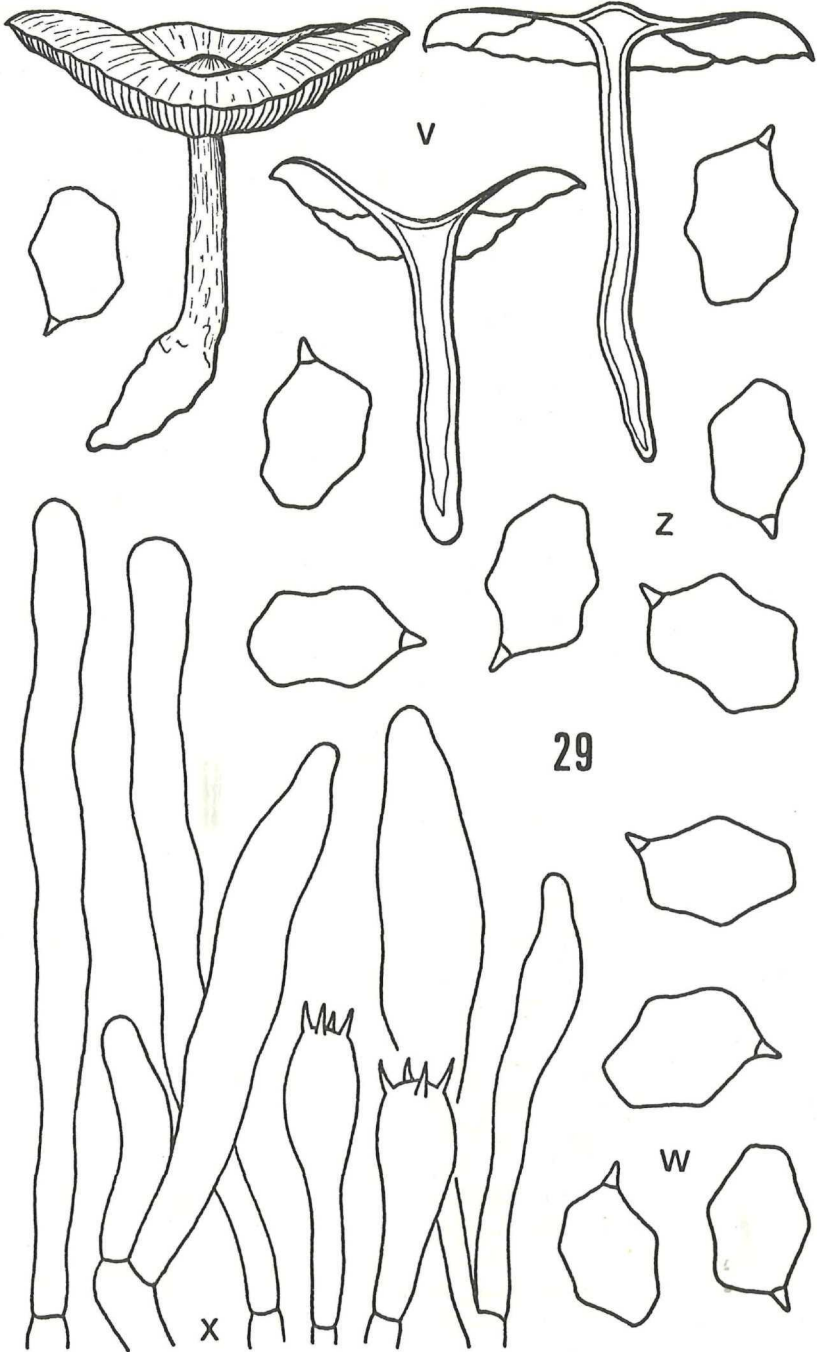


Fig. 9. 29: *E. cryptochroum* (3646, type): w. spores; (62/150): v. carpophores; z. spores; x. basidia and cheilocystidia.

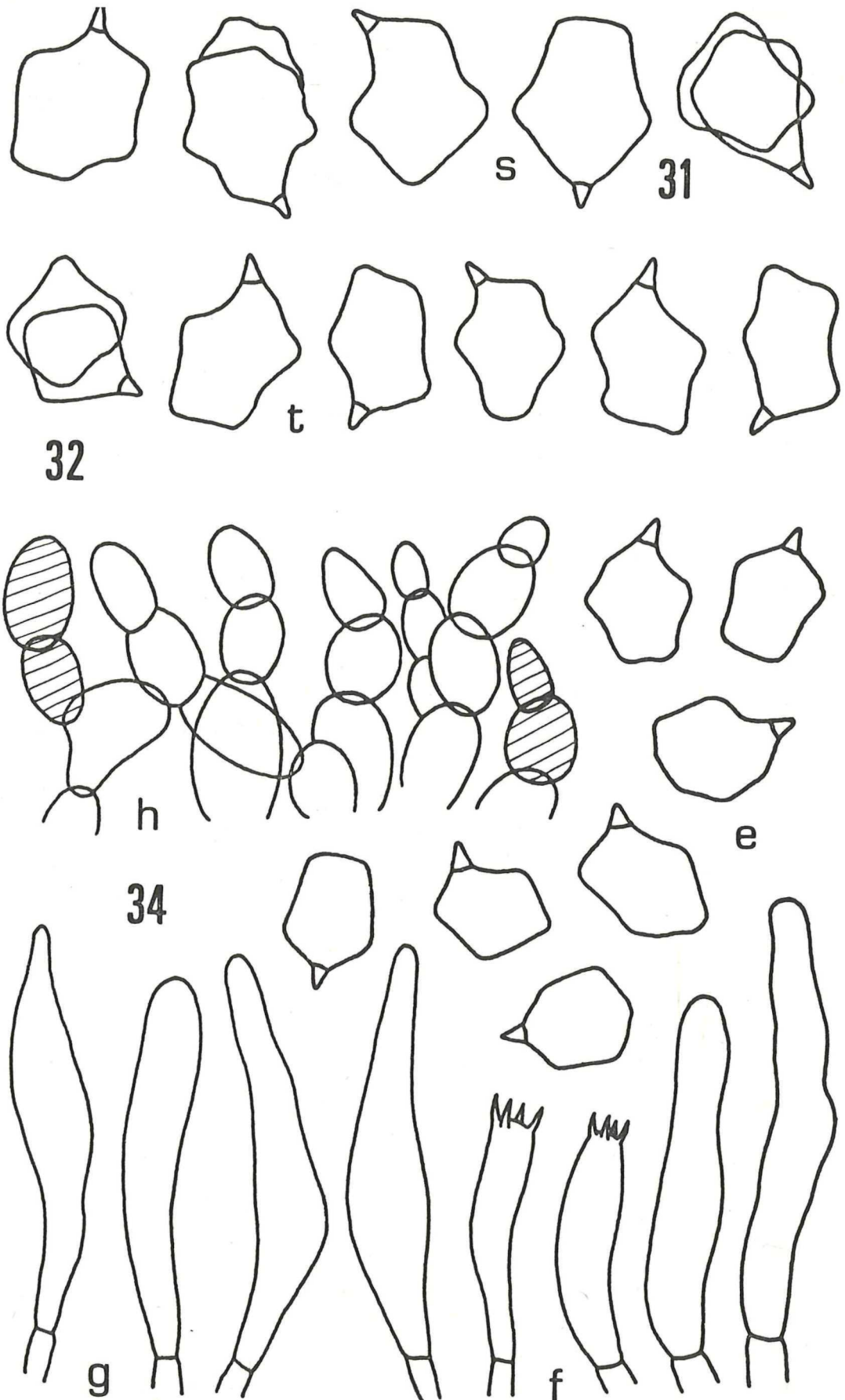


Fig. 10. 31: *E. pumanquense* (PU-131, type): s. spores. — 32: *E. howellii* (1851): t. spores. — 34: *E. foldatsii* (1005, type): e. spores; f. basidia; g. cheilocystidia; h. cuticle.



30. *Entoloma subgoniosporum* (SPEGAZZINI) c. n.

Bas. *Collybia subgoniospora* SPEGAZZINI 1929: Bol. Acad. Nac. Cienc. Cordoba 29: 117.

Syn. *Rhodophyllus subgoniosporus* (SPEGAZZINI) SINGER 1950: Lilloa 23: 229.

Illustrations: Pl. 8, fig. 30t, u.

Habitat: On soil in forest. Argentina.

Material: Argentina: "Cordoba, Alta Gracia, 4. II. 1925, leg. BRUCH" (LPS, 16125, holotype).

Observations: Unfortunately the type collection is in poor condition therefore size and shape of the spores only were observed. In plate 8, fig. 30 the reproduction of a drawing from SPEGAZZINI's hand is given found on the envelope where the type material is wrapped up. According to SPEGAZZINI (1929) there are no cheilocystidia and the gill edge has the same colour as the lamellae.

31. *Entoloma pumanquense* (SINGER) c. n.

Bas. *Rhodophyllus pumanquensis* SINGER 1969: Nova Hedwigia Beih. 29: 338.

Illustrations: Pl. 10, 31 s.

Habitat: On soil among mosses. Chile.

Material: Chile: "Colchaqua, Pumanque, La Viñita, 7. VIII. 1967, leg. LAZO" (NY, PU-131, holotype).

Observations: Spores 9—10,5/7—8,5  $\mu$ , 5—6-angled. Basidia 30—40/10  $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of repent cylindrical hyphae (6—16  $\mu$  diam.) with brownish (KOH) plasmatic pigment. Occasionally clamp connections on septae of hyphae.

32. *Entoloma howellii* (PECK) DENNIS 1953, Bull. Soc. Myc. Fr. 69: 159 ss. BAKER & DALE (1951).

Bas. *Nolanea howellii* PECK 1911: Bull. N. Y. State Mus. 150: 59.

Illustrations: BAKER & DALE (1951), DENNIS (1953, 1970). Pl. 10, 32 t.

Habitat: On soil under bamboo. Trinidad, ? USA.

Material: Trinidad: "St. Joseph, 10. XII. 1947, leg. BAKER" (K, 1851).

Observations: The spores measure 9—10/5,5—7  $\mu$  (not 10—12/6—8  $\mu$ , see BAKER & DALE 1951: 91), i. e. considerably smaller as observed on the type material (LARGENT 1977). Cystidia absent. The authentic material does not allow a thorough examination of several microscopical characters and therefore the identification remains doubtful.

33. *Entoloma coeruleo-capitatum* DENNIS 1970: Fungus flora of Venezuela, 467

Illustrations: DENNIS (1970).

Habitat: Among rotten wood. Trinidad.

Material: Type material lost (DENNIS, pers. comm.).

Observations: There is only scant information about this blue coloured species. Fresh material is needed to verify macroscopical and microscopical characters.

34. *Entoloma foldatsii* (DENNIS) c. n.

Bas. *Nolanea foldatsii* DENNIS 1961: Kew Bull. 15: 152.

Illustrations: DENNIS (1961, 1970). Pl. 10, fig. 34e, f, g, h,

Habitat: On soil in forests. Venezuela.

Material: Venezuela: "Miranda, Los Guayabitos, 1300 m, 8. VI. 1958, leg. DENNIS" (K, 1005, holotype).

Observations: Due to the particular and in *Entoloma* rarely encountered type of cuticle (composed of oval to subglobose cells with plasmatic pigment) this taxon is very well characterized and as far as known has no close relative among other South American species of that genus.

35. *Entoloma ripartitoides* HORAK sp. n.

Pileo —15 mm lato, ex convexo-appanato, subumbonato, brunneo fibrillis albis instricto, siccio. Lamellis emarginatis, griseis dein pallide brunneoroseis. Stipite —30/—2 mm, cylindraco, basim versus inflato, ex griseo brunneo, apicaliter pruinoso. Odore saporeque farinaceo. Sporis 7—8/5—6 m $\mu$ , 5—6-angulatis. Cheilo- et caulocystidiis 45—85/9—18 m $\mu$ , fusoides, tenui tunicatis, hyalinis. Cuticula ex hyphis cylindracois pigmento plasmatico instructis. Septis fibuligeris. Ad terram in silvis virgineis. Chile. Holotypus (ZT, 62/79).

Pileus 6—15 mm diam., hemispherical or convex becoming expanded, occasionally with low umbonate papilla, uniformly brown, densely covered with silvery-white fibrils, membranaceous, estriate, not hygrophanous, dry. Lamellae broadly adnate to emarginate and subdecurrent with short tooth, L 8—12, l 3, pale grey when young later turning pale brown-pink, edge concolorous, fimbriate. Stipe 20—30/1,5—2 mm, cylindrical, attenuated towards apex, base occasionally clavate, pale grey when young changing to brown, apex distinctly pruinose, fibrillose towards base which is covered with white tomentum, dry, solid, single in groups. Context pale brown. Odour and taste farinaceous.

Spores 7—8/5—6 m $\mu$ , 5—6-angled. Basidia 32—38/9—10 m $\mu$ , 4-spored. Cheilo- and caulocystidia 45—85/9—18 m $\mu$ , fusoid, thin-walled, hyaline, numerous. Pleurocystidia absent. Cuticle a cutis of

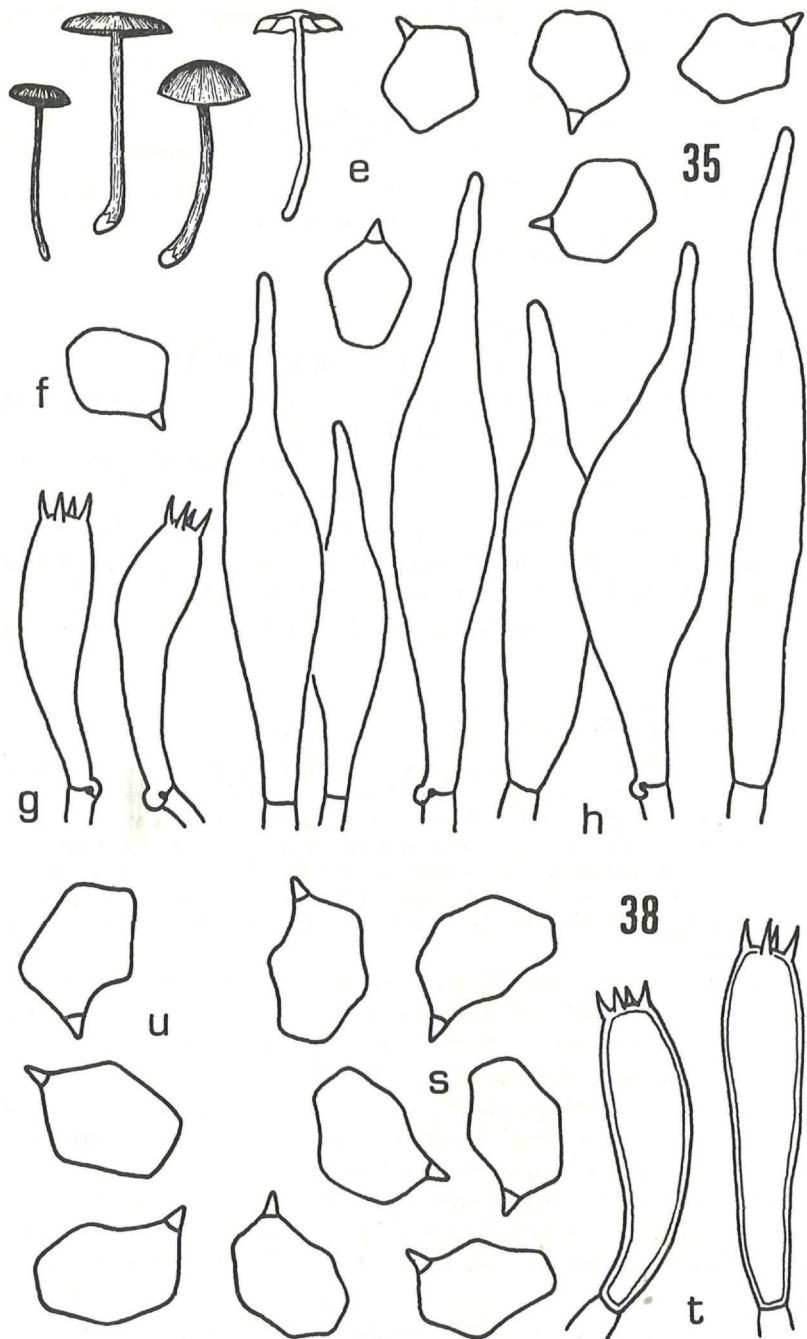


Fig. 11. 35: *E. ripartitoides* (62/79, type): e. carpophores; f. spores; g. basidia; h. cheilo- and caulocystidia. — 38: *E. atripes* (1133, type): s. spores; t. basidia; (1012, type of *N. mammosa* var. *venezuelana*): u. spores.



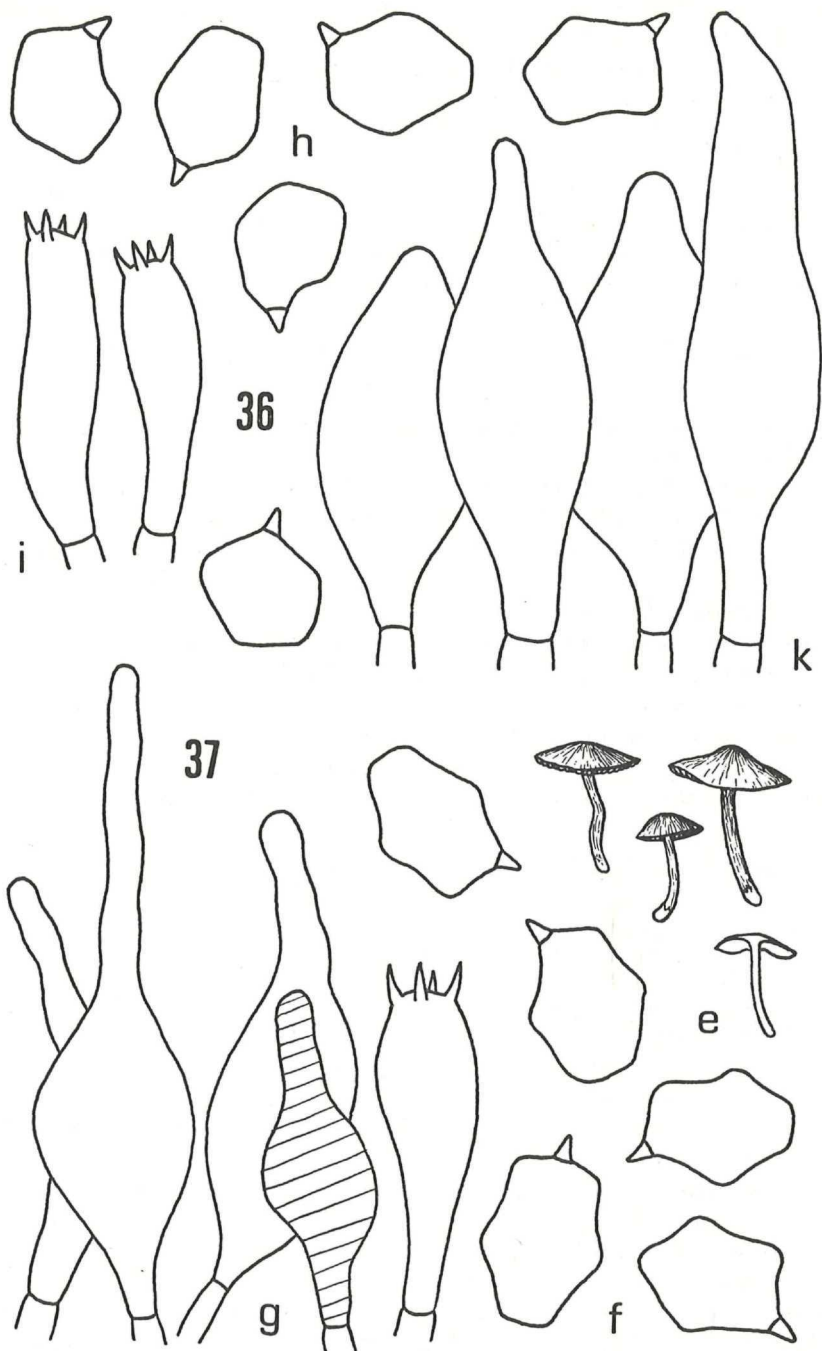


Fig. 12. 36: *E. inocephalum* (244): h. spores; k. cheilocystidia; i. basidia. — 37: *E. taedium* (62/151, type): e. carpophores; f. spores; g. cheilocystidia.

cylindrical hyphae (4–8  $m\mu$  diam.), with brown plasmatic pigment. Clamp connections present.

Illustrations: Pl. 11, fig. 35e f, g, h.

Habitat: On soil in rain forest. Chile.

Material: Chile: "Prov. Osorno, Pucatrihue, 27. IV. 1963, leg. HORAK" (ZT, 62/79, holotype).

Observations: In the field this fungus was identified as *Ripartites*. However, *E. ripartitoides* represents a fine species of *Entoloma* characterized best by its small spores, conspicuous cheilo- and pleurocystidia and farinaceous smell.

36. *Entoloma inocephalum* (ROMAGNESI) DENNIS 1953: Bull. Soc. Myc. Fr. 69: 160 ss. DENNIS, ROMAGNESI.

Bas. *Rhodophyllus inocephalus* ROMAGNESI 1951: Rhodophylles de Madagascar, 100.

Illustrations: DENNIS (1970). Pl. 12, fig. 36h, i, k.

Habitat: On sandy soil. Trinidad?, Madagascar.

Material: Trinidad: "Maqueripe, 27. X. 1949, leg. DENNIS" (K, 244).

Observations: The results of our examination do not confirm with ROMAGNESI's identification. The cheilocystidia are ventricose-fusoid to lageniform, 50–85/15–30  $m\mu$ , hyaline with broadly rounded neck. Spores 8–9,5/7–8  $m\mu$ . Basidia 30–40/9–11  $m\mu$ , 4-spored. Cuticle a cutis or trichoderm of cylindrical hyphae (8–17  $m\mu$  diam.) with brown plasmatic pigment. Clamp connections absent. Based on these data the occurrence of *E. inocephalum* in Trinidad is questioned.

37. *Entoloma taedium* HORAK sp. n.

Pileo – 15 mm, e conico-convexo, pallide fuligineo, siccio, striato. Lamellis adnatis, roseis. Stipite – 20/–2 mm, cylindrico, pileo concolori, glabro. Odore nullo. Sporis 10–12/6,5–8  $m\mu$ , 5–6-angulatis. Cheilocystidiis 45–85/9–22  $m\mu$ , fusoideo-elongatis. Cuticula ex hyphis cylindraceutem formantibus pigmento plasmatico instructis. Fibulis nullis. Ad terram in silvis virgineis. Chile. Holotypus (ZT, 62/151).

Pileus 6–15 mm diam., hemispherical to conico-convex, fuliginous, pale soot brown towards the striate margin, dry, glabrous, membranaceous, hygrophaneous. Lamellae adnate (to emarginate), L 8–10, l 3, distant, ventricose, pallid when young, later turning pink, edge concolorous, fimbriate. Stipe 10–20/1,5–2 mm, cylindrical, concolorous with pileus, basal tomentum absent, solid, fragile, glabrous, single. Context pale brown. Odour and taste not distinctive.

Spores 10–12/6,5–8  $m\mu$ , 5–6-angled. Basidia 34–42/15  $m\mu$ , 4-spored. Cheilocystidia 45–85/9–22  $m\mu$ , ventricose-fusoid with elongate cylindrical neck, thin-walled, with brownish plasmatic pigment. Pleurocystidia absent. Cuticle a cutis of repent cylindrical

hyphae (4—15 mm diam.), with plasmatic brownish pigment. Clamp connections absent.

Illustrations: Pl. 12, fig. 37e, f, g.

Habitat: On soil among mosses in rain forests. Chile.

Material: Chile: "Prov. Osorno, Pucatrihue, 25. IV. 1963, leg. HORAK" (ZT, 62/151, holotype).

38. *Entoloma atripes* (DENNIS) c. n.

Bas. *Nolanea atripes* DENNIS 1961: Kew Bull. 15: 151.

Syn. *Nolanea mammosa* var. *venezuelana* DENNIS 1961: Kew Bull. 15: 153 (= *Rh. venezuelanus* SINGER 1969; Nova Hedwigia Beih. 29: 346, nec. *E. venezuelanum* (DENNIS)).

Illustrations: DENNIS (1961, 1970). Pl. 11, fig. 38s, t, u.

Habitat: On soil in forests. Venezuela.

Material: Venezuela: "Caracas, Botanical Garden, 3. VII. 1958, leg. DENNIS" (K, 1133, holotype). — "Miranda, Los Guayabitos, 1300 m, 8. VI. 1958, leg. DENNIS & FOLDATS" (K, 1012, holotype of *N. mammosa* var. *venezuelana*).

Observations: Despite minor differences concerning the shape of the spores we consider *N. mammosa* var. *venezuelana* as a synonym of *E. atripes*. Both taxa share thick-walled basidia. Macroscopically there are no characters which do convincingly separate the two slender and brown fungi, with spores measuring 8,5—10/6—7,5  $\mu$ .

39. *Entoloma papillatum* (BRESADOLA) DENNIS 1953: Bull. Soc. Myc. Fr. 69: 162

Bas. *Nolanea papillata* BRESADOLA 1881: Fungi Trid. 1: 75.

Illustrations: BRESADOLA (1881). Pl. 13, fig. 39 x, y, z.

Habitat: On soil in wet localities (swamps) under *Nothofagus* spp. Argentina, Chile.

Material: Argentina: "Rio Negro, Paso P. Rosales, Cerro Rigi, 1400 m, 14. IV. 1962, leg. HORAK" (ZT, 62/125). — "Tierra del Fuego, Ushuaia, 150 m, 28. II. 1963, leg. HORAK" (ZT, 62/127). — "Tierra del Fuego, N of Ushuaia, 600 m, 12. III. 1963, leg. HORAK" (ZT, 62/131). — "Tierra del Fuego, Tierra Mayor, 5. III. 1974, leg. HORAK" (ZT, 74/152). — "Tierra del Fuego, Valle Rio Triste, 10. III. 1974, leg. HORAK" (ZT, 74/175). — Chile: "Magellanes, Puerto Natales, Monte Alto, 26. III. 1963, leg. HORAK" (ZT, 62/135).

Observation: This species is fully described in HORAK (1978b). Compare No. 41.

40. *Entoloma conoideum* (SPEGAZZINI) c. n.

Bas. *Nolanea conoidea* SPEGAZZINI 1889: Bol. Acad. Nac. Cienc. Cordoba 11: 32.

Illustrations: Pl. 13, fig. 40 n.



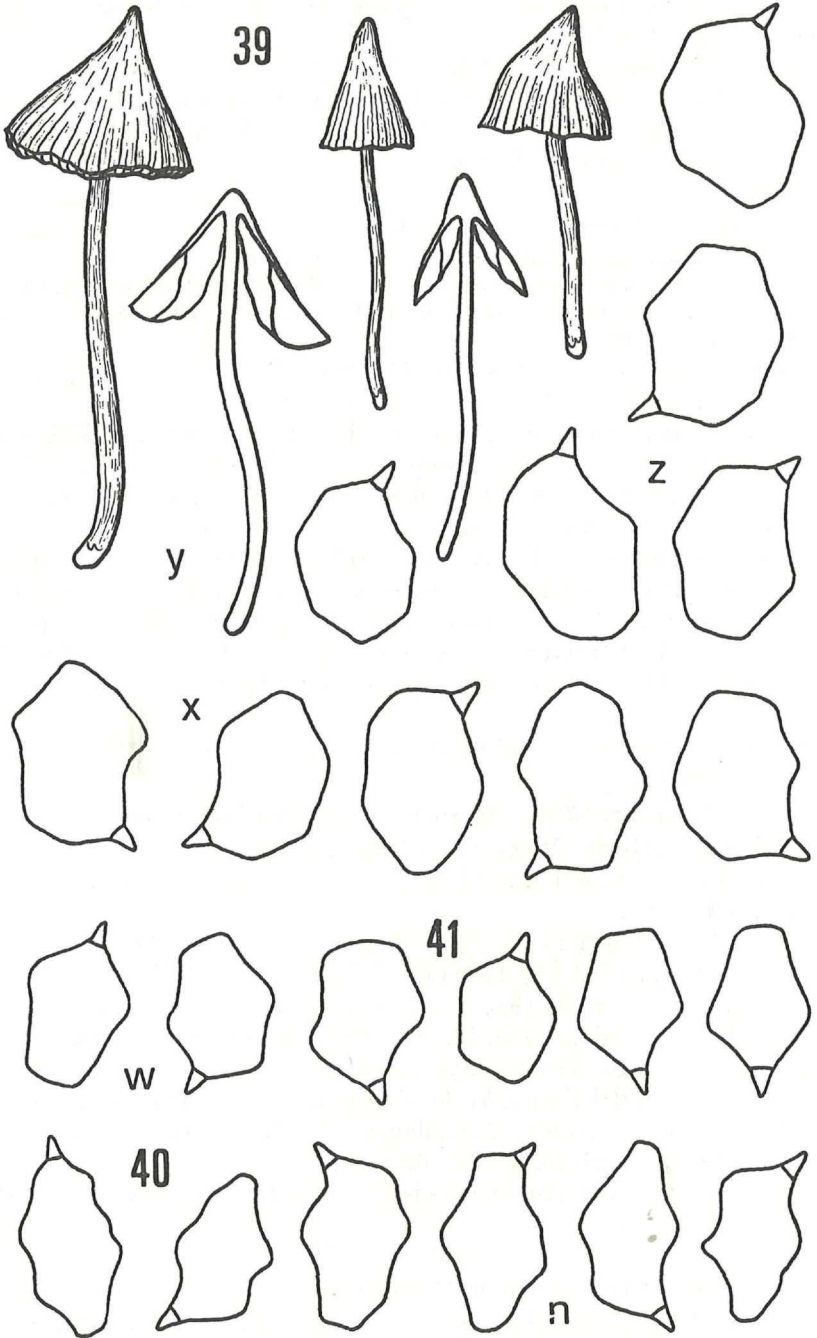


Fig. 13. 39: *E. papillatum* (62/131): y. carpophores; z. spores; (62/125): x. spores. — 40: *E. conoideum* (38541, type): n. spores. — 41: *E. papillatum* ss. DENNIS (20. X. 1949): w. spores.

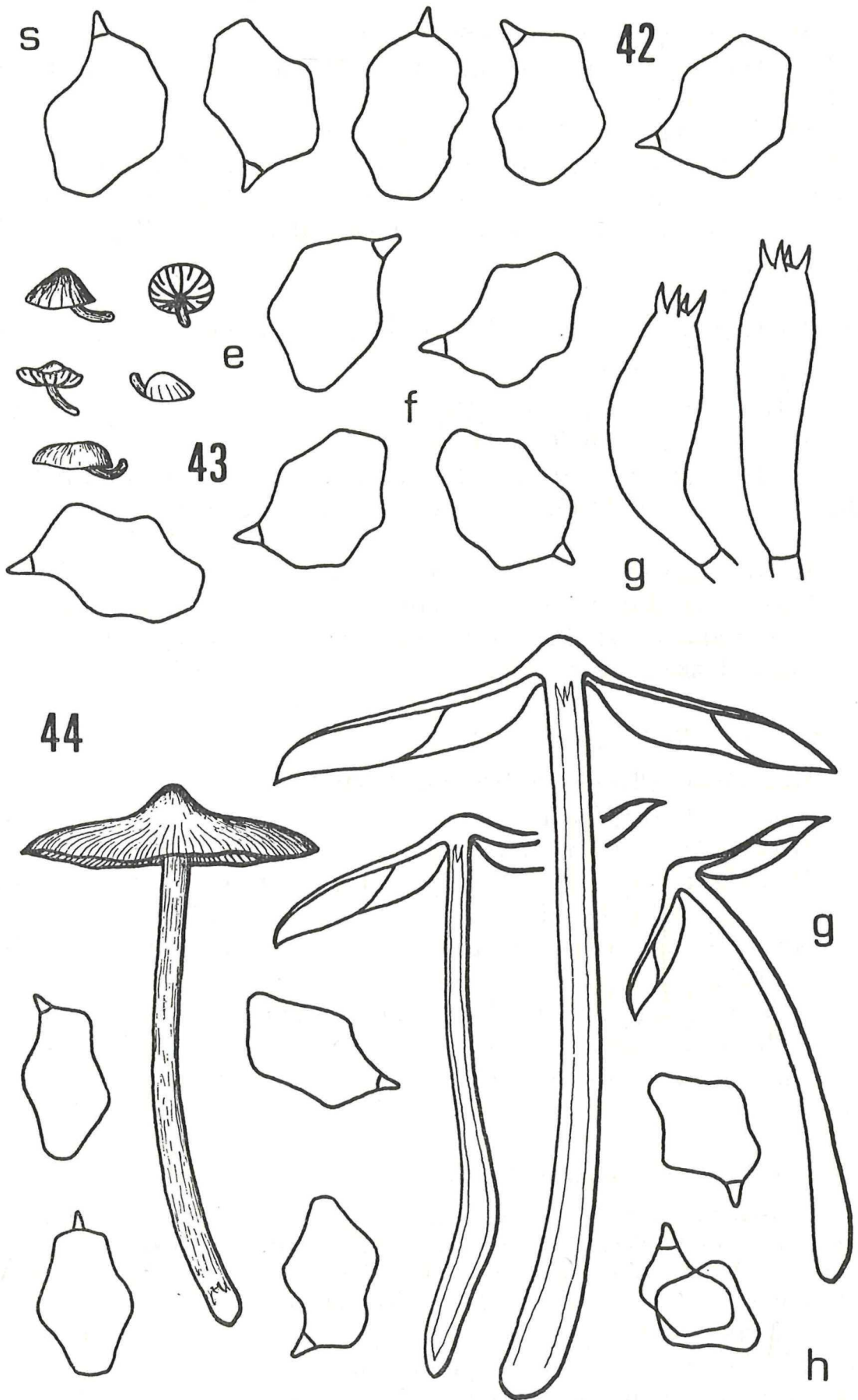


Fig. 14. 42: *E. dissimile* (M 3487, type): s. spores. — 43: *E. reductum* (62/141, type): e. carpophores; f. spores; g. basidia. — 44: *E. novum* (75/313): g. carpophores; h. spores.

Habitat: On soil in forests. Brazil.

Material: Brazil: "Apiahy, IV. 1888, leg. SPEGAZZINI" (LPS, 38541, holotype).

Observations: The type material is in very poor condition. According to the spores (10—12/6—7 m $\mu$ ) *E. conoidea* represents a good species which maybe closely related to *E. guatopoanum* (DENNIS). The morphology of the cuticle, basidia and cystidia (if present) is unknown.

41. *Entoloma papillatum* (BRESADOLA) ss. DENNIS 1953, Bull. Soc.

Myc. Fr. 69: 162

Illustrations: DENNIS (1953, 1970). Pl. 13, fig. 41 w.

Habitat: On soil. Trinidad, Chile.

Material: Trinidad: „St. Joseph, 20. X. 1949, leg. DENNIS“ (K, 207). — Chile: „Valdivia, Futrono, 11. IV. 1975, leg. HORAK“ (ZT, 75/292).

Observations: This fungus is not conspecific with *E. papillatum* ss. BRESADOLA (1881) since the spores are much smaller (see Pl. 13, fig. 39 x, z and 41 w). The spores have the same size and shape as in *E. atripes* (DENNIS), i. e. 8,5—10/6,5—7 m $\mu$ , 5—6-angled.

42. *Entoloma dissimile* (SINGER) c. n.

Bas. *Rhodophyllus dissimilis* SINGER 1969: Nova Hedwigia Beih. 29: 342.

Illustrations: Pl. 14, fig. 42 s.

Habitat: On soil in *Nothofagus* forests. Argentina.

Material: Argentina: "Neuquén, Lago Correntoso, 25. IV. 1964, leg. SINGER" (BAFC, M 3487, holotype). — "Rio Negro, Cerro Cathedral, 29. IV. 1965, leg. SINGER" (BAFC, M 5349, "*Rh. canosericeus* LGE.").

Observations: Spores 8,5—10,5/7—8 m $\mu$ , 5—7-angled. Basidia 28—30/9—11 m $\mu$ . Cystidia none. Cuticle a cutis of cylindrical hyphae (4—8 m $\mu$  diam.), encrusted with brown pigment. Clamp connections absent.

43. *Entoloma reductum* HORAK sp. n.

Pileo —10 mm lato, convexo, pallide fuliginoso, sicco, minute fibrilloso. Lamellis adnexis, distantibus, roseis. Stipite 3—6/1 mm, excentrico, pileo concolori. Odore nullo. Sporis 8,5—11/6—7,5 m $\mu$ , 5—7-angulatis. Cystidiis nullis. Ad quisquilias. Chile. Holotypus (ZT, 62/141).

Pileus 4—10 mm diam., hemispherical to convex, becoming expanded or even slightly depressed in aged carpophores, margin inrolled, pale fuliginous, strongly striate, radially appressed fibrillose, dry, membranaceous. Lamellae adnexed to subfree, distant, L 4—6, l 0—1, pink, gill edge concolorous, even or crenulate. Stipe 3—6/1 mm,



cylindrical, excentrically inserted, curved, concolorous with pileus, pruinose at apex, fibrillose towards base, solid, fragile, single in groups. Context pale brown. Odour and taste not distinctive.

Spores 8,5–11/6–7,5  $\mu$ , 5–7-angled. Basidia 30–36/10–11  $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of cylindrical hyphae (5–10  $\mu$  diam.), encrusted with brown pigment. Clamp connections none.

Illustrations: Pl. 14, fig. 43 e, f, g.

Habitat: On rotten leaves and twigs in forests. Chile.

Material: Chile: "Prov. Osorno, Valle Gol-Gol, Anticura, 3. IV. 1963, leg. HORAK" (ZT, 62/141, holotype).

#### 44. *Entoloma novum* HORAK sp. n.

Pileo –75 mm lato, ex umbonato-campanulato, brunneo, siceo. Lamellis adnexo-subliberis, albidis dein pallide roseis. Stipite –100/–8 mm, cylindraceo, albido, fibrilloso. Odore nullo. Sporis 9–10/5–6  $\mu$ , 5–6-angulatis. Cystidiis nullis. Ad terram in silvis. Chile. Holotypus (ZT, 75/313).

Pileus 30–100 mm diam., conico-convex, broadly umbonate-expanded or campanulate, umbo always distinct and present, dark (grey) brown, paler towards the strongly margin, dry, radially fibrillose, membranaceous, hygrophaneous. Lamellae adnexed to subfree, crowded, whitish when young becoming pale grey-pink, edge concolorous, even. Stipe 50–100/3–8 mm, cylindrical, occasionally subclavate at base, whitish, dry, strongly fibrillose, hollow, fragile, single in groups. Context whitish, brown beneath cuticle. Odour and taste not distinctive.

Spores 9–10/5–6  $\mu$ , 5–6-angled, slender. Basidia 30–40/9–11  $\mu$ , 4-spored. Cystidia none. Cuticle a cutis of repent cylindrical hyphae (3–20  $\mu$  diam.), encrusted with brownish pigment. Clamp connections absent.

Illustrations: Pl. 14, fig. 44 g, h.

Habitat: On soil under *Nothofagus* and *Fitzroya*. Chile.

Material: Chile: "Cord. Pelada, summit, 15. IV. 1975, leg. HORAK" (ZT, 75/313, holotype).

Observations: This species resembles *E. substrictior* in habit and colour of the carpophores. However, the spores are much smaller.

#### 45. *Entoloma substrictior* (SINGER) c. n.

Bas. *Rhodophyllus substrictior* SINGER ap. SINGER & MOSER 1965: Mycopath. & Mycol. Appl. 26: 184.

Illustrations: SINGER (1965). Pl. 15, fig. 45 g, h.

Habitat: On soil among mosses in forests, often in swampy localities. Argentina, Chile.

Material: Argentina: "Rio Negro, Los Cantaros, 20. XI. 1964, leg. SINGER" (BAFC, M 4058, holotype). — "Tierra del Fuego, between Ushuaia and Lapataia, 13. III. 1963, leg. HORAK" (ZT, 62/133). —

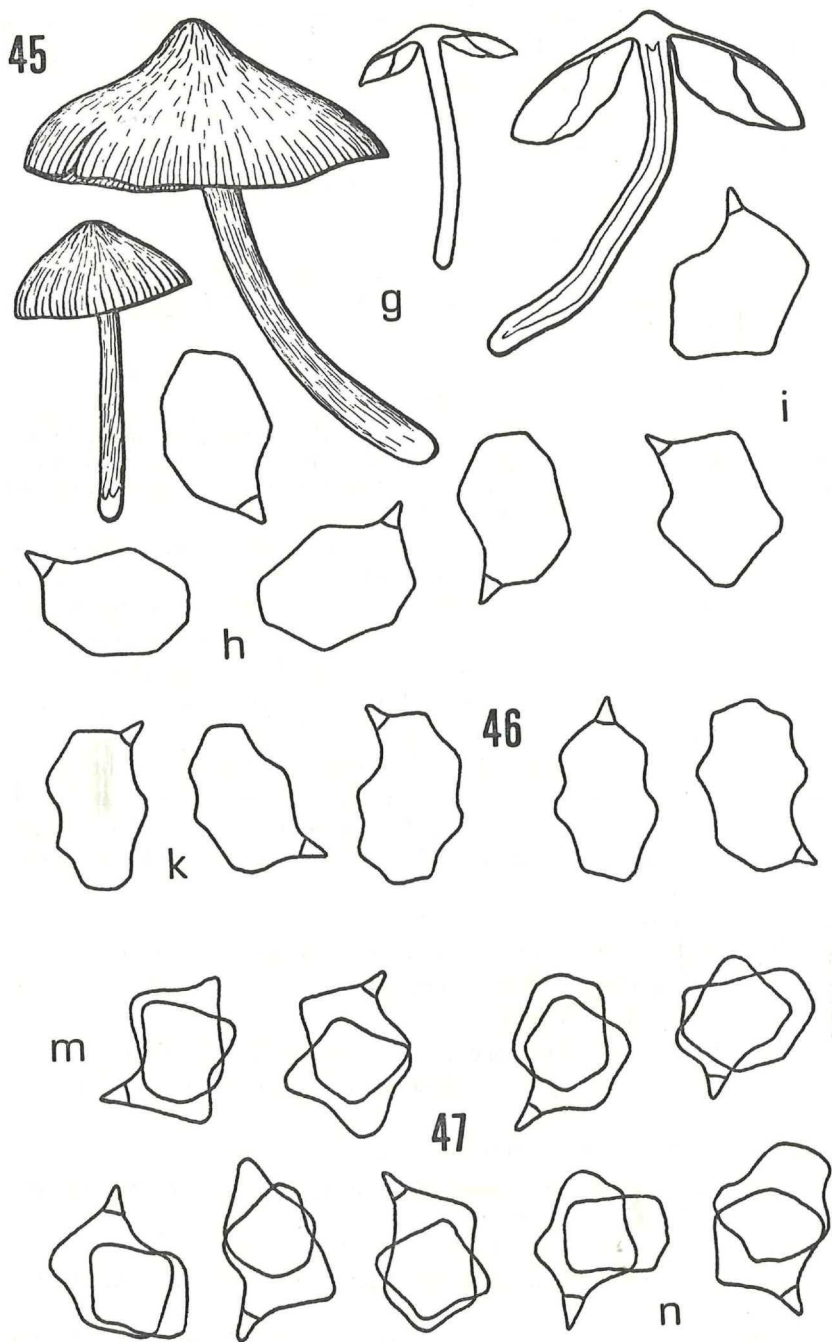


Fig. 15. 45: *E. substrictior* (M 4058, type): i. spores; (74/62): g. carpophores; h. spores. — 46: *E. guatopoanum* (1118, type): k. spores. — 47: *E. cucurbita* (75/227): m. spores; (75/4): n. spores.

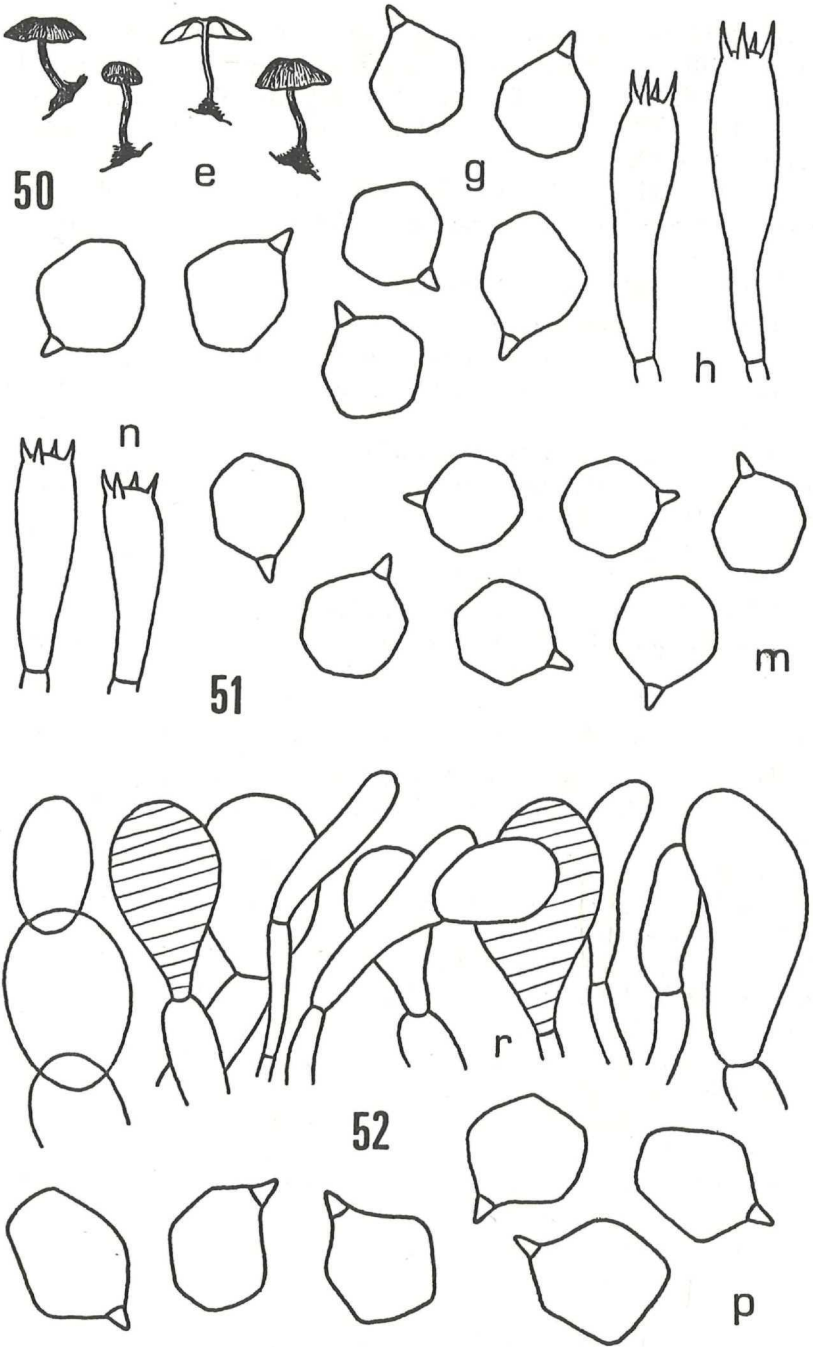


Fig. 16. 50: *E. myceliosum* (66/186, type): e. carpophores; g. spores; h. basidia. — 51: *E. perbrevisporum* (B 4217, type): m. spores; n. basidia. — 52: *E. tucuchense* (107, type): p. spores.; r. cuticle.



“Tierra del Fuego, Valle del Glaciar Martial, 16. III. 1963, leg. HORAK” (ZT, 69/376). — “Tierra del Fuego, Tierra Mayor, 23. II. 1974, leg. HORAK” (ZT, 74/62). — “Tierra del Fuego, Tierra Mayor, 23. III. 1974, leg. HORAK” (ZT, 74/234). — Chile: “Cordillera Pelada, leg. SINGER” (BAFC, M 3220).

Observations: *E. substrictior* is a common but polymorphic species. For full description and illustration see HORAK (1978 b).

46. *Entoloma guatopoanum* (DENNIS) c. n.

Bas. *Leptonia guatopoana* DENNIS 1961: Kew Bull. 15: 148.

Illustrations: DENNIS (1961, 1970). Pl. 15, fig. 46 k.

Habitat: On rotten wood and on soil in forests, —2400 m. Venezuela.

Material: Venezuela: “Miranda, Guatapo, 27. VI. 1958, leg. DENNIS” (K, 1118, holotype). — “Maracay, Rancho Grande, 20. XI. 1949, leg. DENNIS” (K, V 55: “*Ent. metale* (ROMAGNESI) ss. DENNIS 1953).

Observations: Spores 9—11/6—8  $\mu$ , 5—7-angled. Basidia 27—32/8—10  $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of repent cylindrical hyphae (5—11  $\mu$  diam.) with brownish plasmatic and/or vacuolar pigment. Clamp connections absent.

47. *Entoloma cucurbita* HORAK 1973: Nova Hedwigia Beih. 43: 47

Illustrations: HORAK (1973, 1978). Pl. 15, fig. 47 n.

Habitat: On soil in forests or in open grassland. Argentina, Chile, New Zealand.

Material: Argentina, Tierra del Fuego: “Valle del Glaciar Martial, 16. III. 1963, leg. HORAK” (ZT, 62/132). — “Valle Glaciar Martial, 27. III. 1975, leg. HORAK” (ZT, 75/222). — “Paso Garibaldi, 28. III. 1975, leg. HORAK” (ZT, 75/227). — Chile, Cord. Pelada: „Mirador, 6. V. 1965, leg. SINGER” (BAFC, M 5548, “*Rh. substrictior* SINGER”). — “Chiveria, 7. V. 1965, leg. SINGER” (BAFC, M 5470, “*Rh. substrictior* SINGER?”). — Prov. Osorno, Valle Gol-Gcl, Anticura, 2. IV. 1963, leg. HORAK” (ZT, 62/139. — “Llanquihue, Frutillar, 5. V. 1968, leg. LAZO” (FRU-7). — “Magellanes, P. Arenas, Puerto Hambre, 7. III. 1975, leg. HORAK” (ZT, 75/4).

Observations: In the field it is difficult to distinguish *E. novum* and *E. substrictior* from *E. cucurbita* since macroscopically all three taxa are very much alike. By means of the spores-shape they are, however, easily separated (see fig. 44, 45, 47).

48. *Entoloma mesospermum* HORAK 1977: Sydowia 28: 231

Illustrations: HORAK (1977).

Habitat: On soil in rain forest. Chile.

**Material:** Chile: "Prov. Osorno, Pucatrihue, 29. IV. 1963, leg. HORAK" (ZT, 62/155, holotype).

49. *Entoloma brunneostriatum* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 166

Syn. *Eccilia cubensis* (MURRILL) ss. DENNIS (1953).

Illustrations: DENNIS (1953, 1970), HORAK (1977).

Habitat: On soil under bamboo. Trinidad.

**Material:** Trinidad: "St. Joseph, 20. X. 1949, leg. DENNIS" (K, 204, holotype). — "St. Joseph, 10. XI. 1949, leg. DENNIS" (K, 318, "*Eccilia cubensis* MURILL").

50. *Entoloma myceliosum* HORAK sp. n.

Pileo —12 mm lato, albo, ex convexo subumbilicato, sicco, fibrilloso. Lamellis adnatis, albidis. Stipite —15/—1 mm, cylindrico, albo, mycelio albo denso ad basim instructo. Odore nullo. Sporis 7—8/6—7 m $\mu$ , subsodiamtericis. Cystidiis nullis. Ad lignum putridum. Chile. Holotypus (ZT, 66/186).

Pileus 5—12 mm diam., convex or hemispherical at first later centre depressed or subumbilicate, margin inrolled and waved, white, densely covered with white fibrils, dry, estriate, not hygrophanous. Lamellae broadly adnate, L 8—10/l 1—3), distant, pallid to whitish, edge concolorous and even. Stipe 10—15/—1 mm, cylindrical, with, indistinctly pruinose at apex, base densely covered with white fibrils or mats of mycelium, dry, solid, single in groups. Context white. Odour and taste not distinctive.

Spores 7—8/6—7 m $\mu$ , subsodiametrical with 5—7 blunt angles. Basidia 32—40/8—9 m $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of cylindrical repent hyphae (6—16 m $\mu$  diam.), with plasmatic pigment. Clamp connections none.

Illustrations: Pl. 16, fig. 50 e, g, h.

Habitat: On rotten wood in *Nothofagus* forest. Chile.

**Material:** Chile: "Prov. Osorno, Antillanca, 1100 m, 10. IV. 1963, leg. HORAK" (ZT, 66/186, holotype).

Observations: This species reminds of *E. minutoalbum*. The spores, however, are not cuboid and the carpophores do not turn pink in aged specimens.

51. *Entoloma perbrevisporum* (SINGER) c. n.

Bas. *Rhodophyllus perbrevisporus* SINGER 1973: Sydowia Beih. 7: 99.

Illustrations: Pl. 16, fig. 51 m, n.

Habitat: On soil in rain forest. Brazil.

**Material:** Brazil: "Para, Estancia Pirelli, 7. VI. 1966, leg. SINGER" (F, B 4217, holotype).

Observations: Spores 6—7,5 m $\mu$ , subsodiamterical. Basidia 24—30/7—8 m $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of repent cylindrical hyphae, with plasmatic pigment. Clamp connections absent.

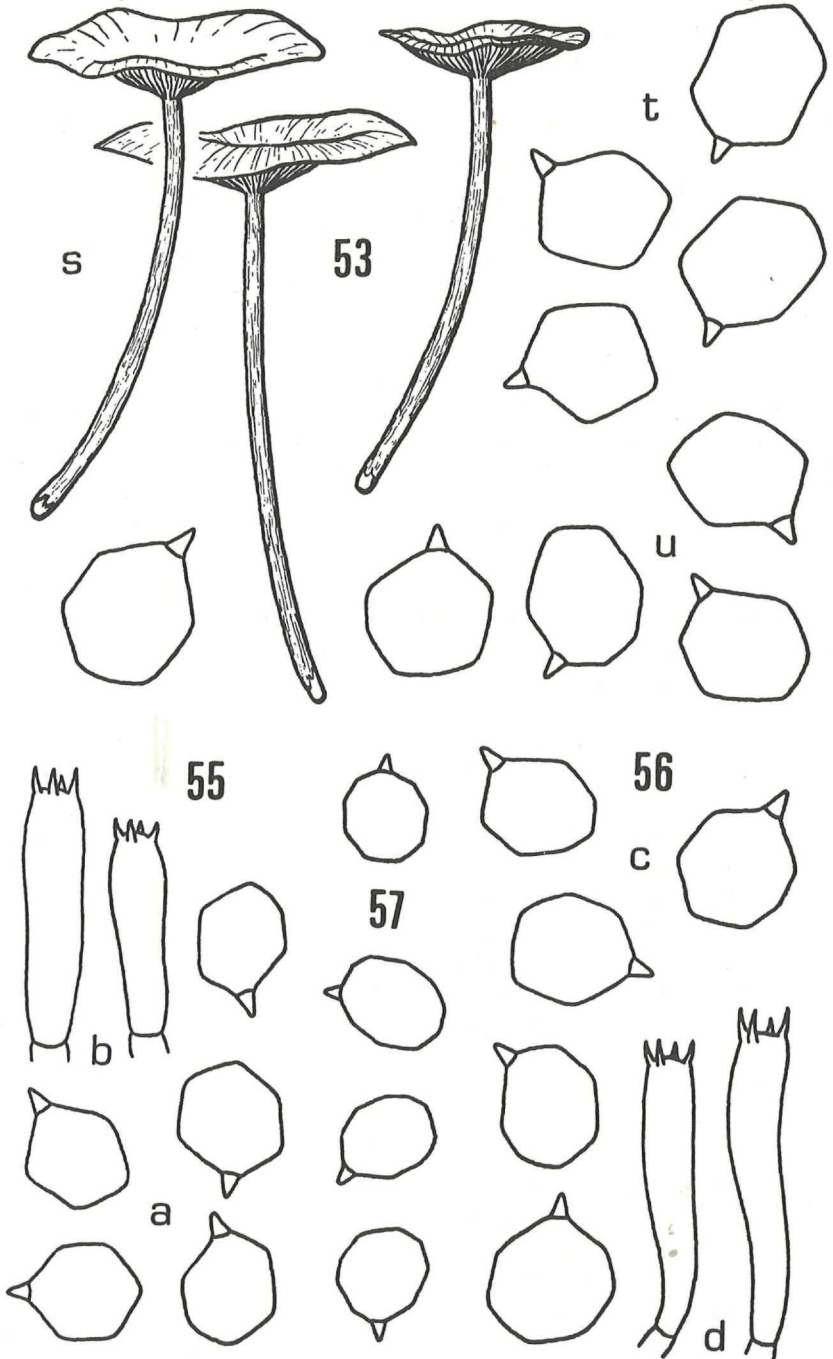


Fig. 17. 53: *E. patagonicum* (M 3099, type): t. spores; (75/116): s. carpophores; u. spores. — 55: *E. obscurum* (206, type): a. spores; b. basidia. — 56: *E. andinum* (1741, type): c. spores; d. basidia. — 57: *E. garibaldii* (37852, type): spores.



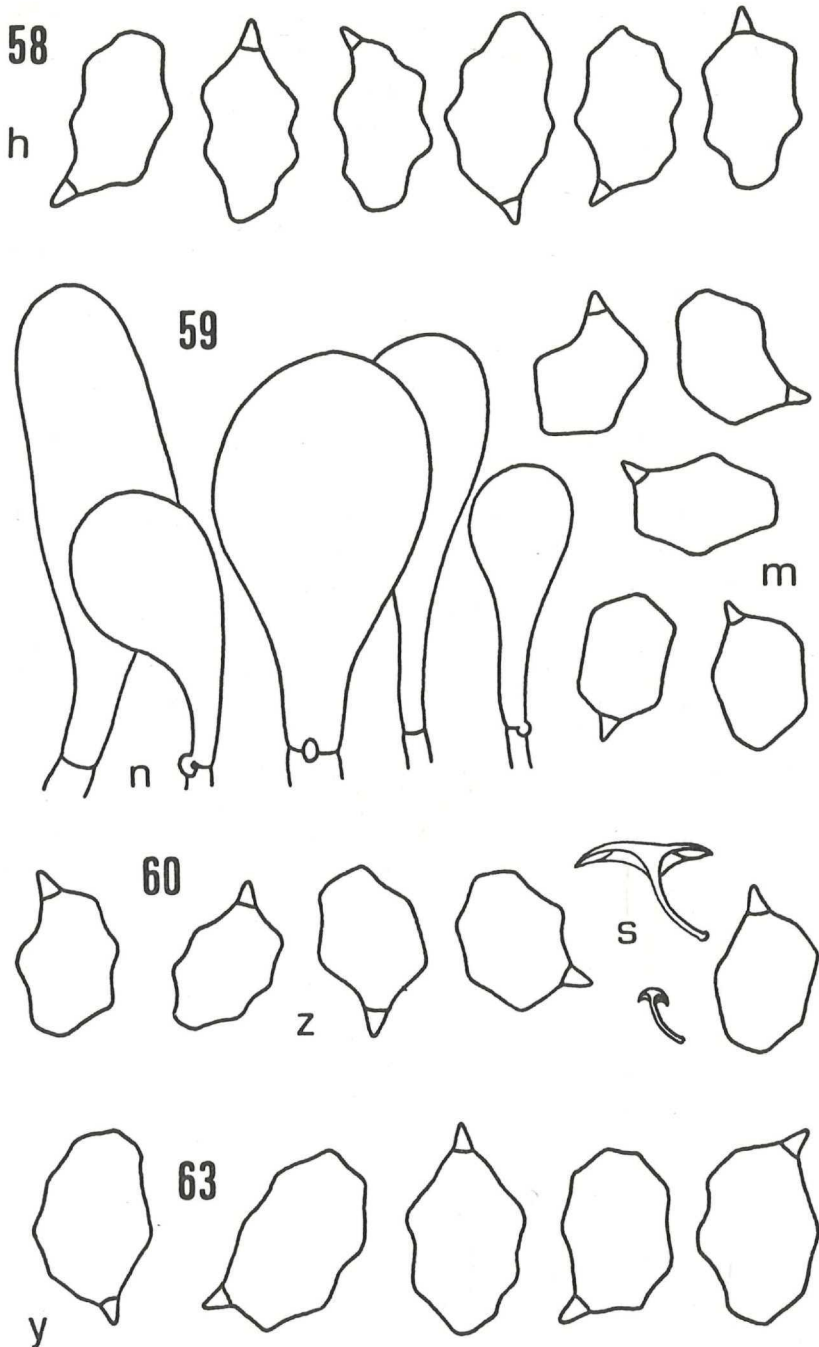


Fig. 18. 58: *E. lowyi* (B 4227, type): h. spores. — 59: *E. cyathiforme* (416, type): m. spores; n. cheilocystidia. — 60: *E. argentinum* (17058, type): s. carpophores; z. spores. — 63: *E. incanum* (75/146): y. spores.

52. *Entoloma tucuchense* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 161

Illustrations: DENNIS (1953, 1970). Pl. 16, fig. 52 p, r.

Habitat: On soil in forest. Trinidad.

Material: Trinidad: "Tucuche-Naranja, 2. X. 1949, leg. DENNIS" (K, 107, holotype).

Observations: Due to the cellular cuticle this is an outstanding representative of the genus *Entoloma*, not only in South America but also world-wide seen. Spores 7—9/6—7,5  $\mu\mu$ , 5—6-angled. Basidia 35—45/10  $\mu\mu$ , 4-spored. Cystidia absent. Cuticle of clavate to ovoid cells, with thin-walled membrane, brown vacuolar or plasmatic pigment present. Clamp connections none.

53. *Entoloma patagonicum* (SINGER) HORAK 1978 b: Fl. Cript. Tierra del Fuego 13: (in press)

Bas. *Rhodophyllus patagonicus* SINGER 1969: Nova Hedwigia Beih. 29: 339.

Illustrations: HORAK (1978 b). Pl. 17, fig. 53 s, t, u.

Habitat: On soil or on rotten wood. Argentina.

Material: Argentina: Rio Negro: "Laguna Frias, 21. III. 1963, leg. SINGER" (BAFC, M 30 99, holotype). — "Puerto Blest, 4. IV. 1962, leg. HORAK" (ZT, 62/118). — Neuquén: "Rincon, 13. III. 1963, leg. SINGER" (BAFC, M 3535: "*Rh. politus* (FRIES)"). — "La Angostura, 8. XI. 1966, leg. SINGER" (BAFC, M. 6035: "*Rh. sericeus* (FRIES)"). — Tierra del Fuego: "Puerto Harberton, II. 1973, leg. SHANLY (17)" (BAFC, 23313). — "Lapataia, 14. III. 1975, leg. HORAK" (ZT, 75/116).

Observations: *E. patagonicum* is a common and well defined species which grows in the *Nothofagus* forests of Argentina (and probably also Chile).

54. *Entoloma imbecille* HORAK 1978 b: Fl. Cript. Tierra del Fuego 13: (in press)

Syn. *Entoloma fragile* HORAK 1973: Nova Hedwigia Beih. 43: 56 (preocc.).

Illustrations: HORAK (1973, 1978 b).

Habitat: On rotten wood of *Nothofagus* spp. Argentina. New Zealand.

Material: Argentina: "Tierra del Fuego, Tierra Mayor, 23. III. 1974, leg. HORAK" (ZT, 74/232).

Observations: This small grey brownish fungus strongly reminds of *E. myceliosum*. However, the spores of *E. imbecille* are larger, there are clamp connections on the pigment-encrusted hyphae of the cuticle and the context is emitting a strong farinaceous smell. For more details see HORAK (1953, 1978 b).

55. *Entoloma obscurum* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 167

Illustrations: DENNIS (1953, 1970). Pl. 17, fig. 55 a, b.

Habitat: On soil among litter (bamboo). Trinidad.

Material: Trinidad: "St. Joseph, 20. X. 1952, leg. DENNIS" (K, 206, holotype).

Observations: The holotype is in fragmentary condition so that the description given by DENNIS can not be complemented.

56. *Entoloma andinum* DENNIS 1961: Kew Bull. 15: 146

Illustrations: DENNIS (1961). Pl. 17, fig. 56 c, d.

Habitat: On soil. Venezuela.

Material: Venezuela: "Mérida, Sierra de Santo Domingo, Laguna Negra, 3440 m, 27. VII. 1958, leg. DENNIS & BUZA" (K, 1741, holotype).

Observations: Both macroscopically and microscopically *E. andinum* is close to *E. obscurum* from Trinidad (compare fig. 55 and 56).

57. *Entoloma garibaldi* HORAK 1978 b: Fl. Cript. Tierra del Fuego 13: (in press)

Illustrations: HORAK (1978 b). Pl. 17, fig. 57.

Habitat: On soil in wet and swampy locality. Argentina.

Material: Argentina: "Tierra del Fuego, Paso Garibaldi, 28. III. 1975, leg. HORAK" (LPS, 37852, holotype).

Observations: For full description see HORAK (1978b). Among the South American brown coloured species with umbilicate pileus *E. garibaldi* has the smallest spores, 6—7/5—6  $\mu$ .

58. *Entoloma lowyi* (SINGER) c. n.

Bas. *Rhodophyllus lowyi* SINGER 1973: Sydowia Beih. 7: 97.

Illustrations: Pl. 18, fig. 58 h.

Habitat: On rotten wood. Brazil.

Material: Brazil: "Para, Belem, 10. VI. 1966, leg. SINGER" (F, B 4227, holotype).

Observations: Spores 10—12,5/6—7,5  $\mu$ , with 1—2 median constrictions. Basidia 28—34/10—12  $\mu$ , 4-spored, Cystidia absent. Cuticle a cutis of repent cylindrical hyphae (3—10  $\mu$  diam.) with brownish plasmatic pigment. Clamp connections absent.

59. *Entoloma cyathiforme* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 163

Illustrations: DENNIS (1953). Pl. 18, fig. 59 m, n.

Habitat: On soil. Trinidad.



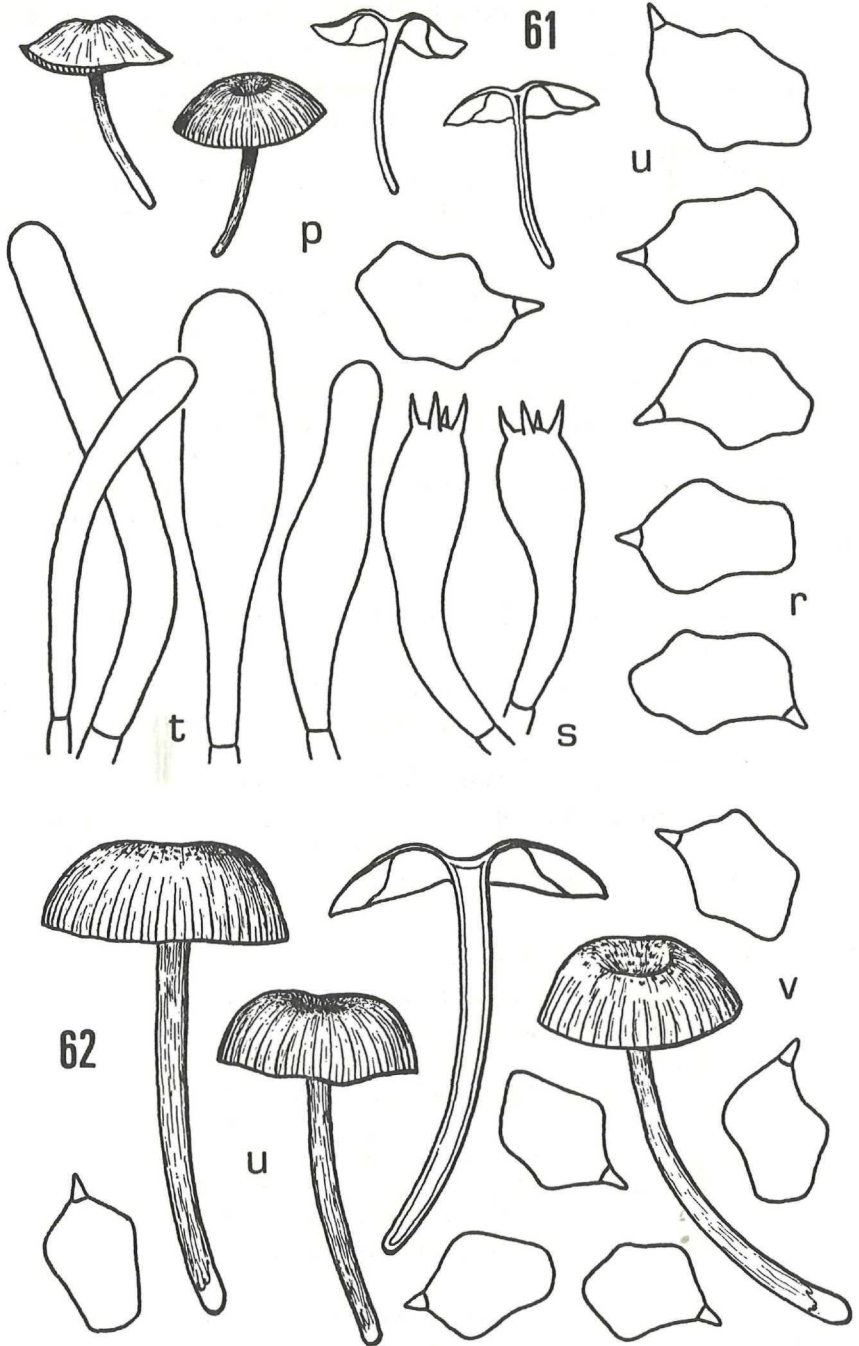


Fig. 19. 61: *E. hololeucum* (M 6774, type): r. spores; (62/152): p. carpophores; u. spores; s. basidia; t. cheilocystidia. — 62: *E. necopinatum* (62/149, type): u. carpophores; v. spores.

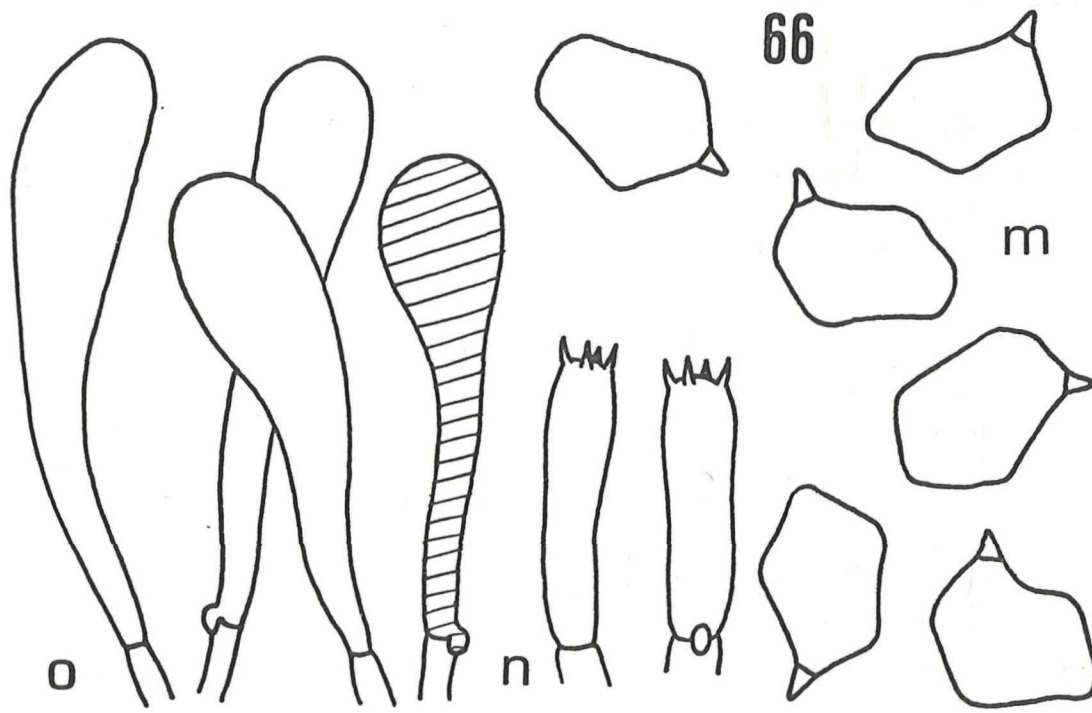
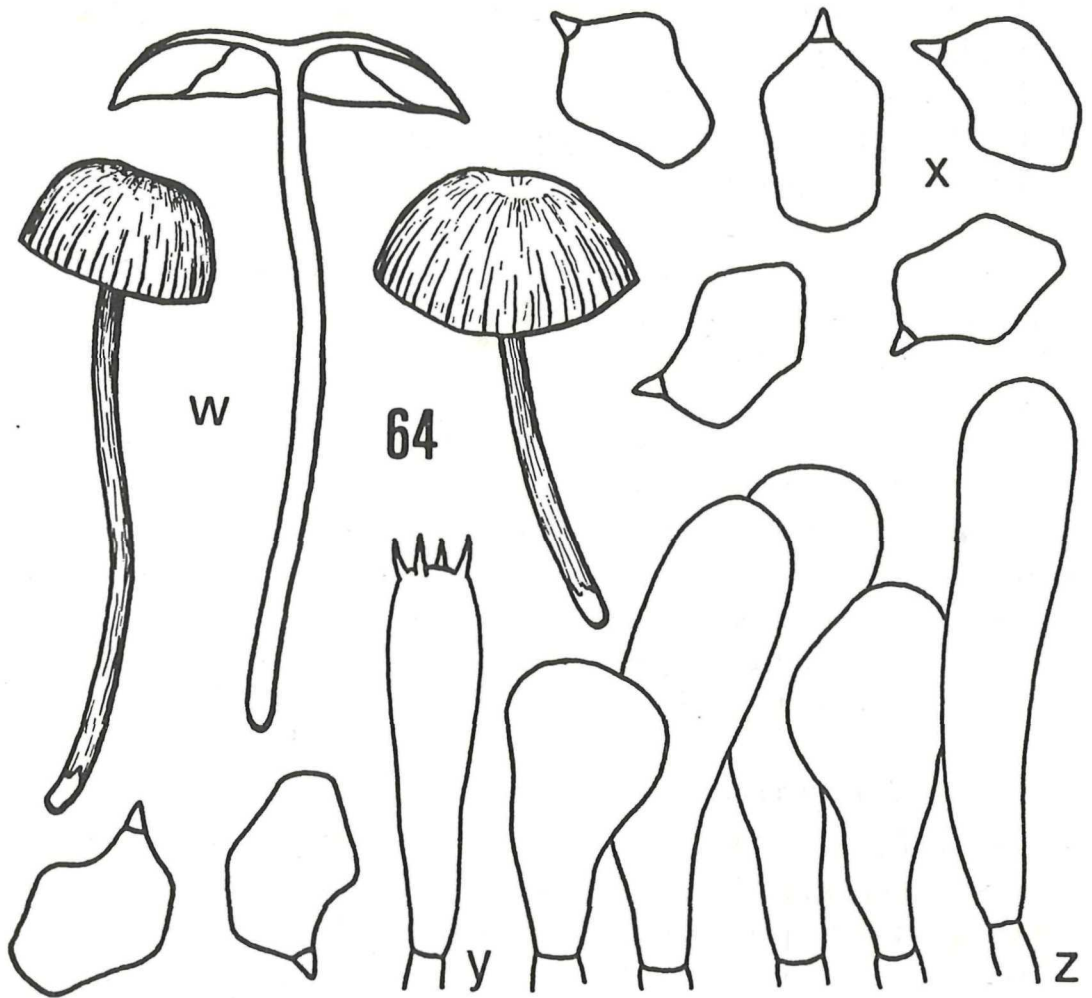


Fig. 20. 64: *E. lazoii* (70/343, type): w. carpophores; x. spores; y. basidia; z. cheilocystidia. — 66: *E. serrulatum* (1002): m. spores; n. basidia; o. cheilocystidia.

Material: Trinidad: "Arena Forest, I. XII. 1949, leg. DENNIS" (K, 416, holotype).

Observations: Large, vesiculose to clavate (25—60/12—30  $\mu$ ) and hyaline cheilocystidia are distinctive for this all over white coloured species. Spores measure 8—9/6—7  $\mu$ , 5—6-angled.

60. *Entoloma argentinum* (SPEGAZZINI) c. n.

Bas. *Claudopus argentinus* SPEGAZZINI 1899: An. Mus. Nac. B. Aires 6: 120.

Illustrations: Pl. 18, fig. 60 y, z.

Habitat: On soil among mosses. Argentina.

Material: Argentina: "La Plata, Parque, 18. VIII. 1888, leg. SPEGAZZINI" (LPS, 17058, holotype).

Observations: In plate 18, figure 60 a copy of the original drawing of *E. argentinum* is reproduced. Unfortunately the type collection is in poor condition so that only the spores have been recovered (9—10/6—7,5  $\mu$ ). According to SINGER & DIGILIO (1951: 428) this species also occurs in Northern Argentina (Tucuman).

61. *Entoloma hololeucum* (SINGER) c. n.

Bas. *Rhodophyllus hololeucus* SINGER 1969: Nova Hedwigia Beih. 29: 348.

Illustrations: Pl. 19, fig. 61, p, r, s, t.

Habitat: On rotten plant debris or on soil. Chile.

Material: Chile: "Cordillera Pelada, Chiveria, 7. V. 1967, leg. SINGER" (SGO, M 6774, holotype). — Chile, Prov. Osorno: „Valle Gol-Gol, Anticura, 1. IV. 1963, leg. HORAK" (ZT, 62/137). — "Pucatrihue, 29. IV. 1963, leg. HORAK" (ZT, 62/152). — "Puyehue-Ref. Antillanca, 5. IV. 1963, leg. HORAK" (ZT, 66/540).

Observations: Occasionally the umbilicate pileus bears a small papilla (ZT, 62/137). Among the white coloured species of *Entoloma* with depressed centre of the pileus this species is well characterized by the cylindrical cheilo- and caulocystidia. Pigment is encrusting the membranes of the cuticular hyphae which have no clamp connections.

62. *Entoloma necopinatum* HORAK sp. n.

Pileo — 40 mm lato, umbilicato, psittacino, subsquamuloso, sicco. Lamellis adnatis vel subdecurrentibus, viridis. Stipite — 60/—4 mm, cylindrico, psittacino, cavo, sicco. Odore nullo. Sporis 8,5—10/6—7  $\mu$ , 5—6-angulatis. Cystidiis nullis. Ad terram in silva pluviali. Chile. Holotypus (ZT, 62/149).

Pileus 25—40 mm diam., umbilicate from the beginning, margin not upturned, deep green (parrot green), paler or greenish-yellowish towards the striate margin, dry, subsquamulose at centre otherwise smooth, membranaceous, hygrophanous. Lamellae broadly adnate to subdecurrent, L 12—16, 1 3 (7), greenish at first changing to pale yellow-green, or pale greenish-pink, edge concolorous, even. Stipe



40—60/2—4 mm, cylindrical, occasionally attenuated towards base, concolorous with pileus, with white tomentum at base, pruinose at apex, smooth below, hollow, fragile, dry, single in groups. Context green. Odour and taste not distinctive. Chemical reactions on pileus: KOH, NH<sub>3</sub>-negative. HCl — yellow.

Spores 8,5—10/6—7 m $\mu$ , 5—6-angled. Basidia 25—32/9—11 m $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of repent cylindrical hyphae (3—10 m $\mu$  diam.), with plasmatic pigment. Clamp connections absent.

Illustrations: Pl. 19, fig. 62 u, v.

Habitat: On soil among litter in rain forest. Chile.

Material: Chile: "Prov. Osorno, Pucatrihue, 27. IV. 1963, leg. HORAK" (ZT, 62/149, holotype).

Observations: This is the most eye-catching species of *Entoloma* in South America. Aged carpophores could be taken as *E. incanum* (see 63) but the spores of that fungus are considerably larger.

63. *Entoloma incanum* (FRIES) HESLER 1967: Nova Hedwigia Beih. 23: 147

Bas. *Agaricus incanus* FRIES 1821: Syst. Myc. 1: 209.

Illustrations: BRESADOLA (575), LANGE (77 C), HORAK (1978b). Pl. 18, fig. 63 y.

Habitat: On soil in and outside of forests, often in swamp-associations. Argentina, Europe, Japan.

Material: Argentina: Tierra del Fuego: "N of Ushuaia, 13. III. 1975, leg. GIAIOTTI" (ZT, 75/95). — "Ensenada, Pampa Alta, 16. III. 1975, leg. HORAK" (ZT, 75/146).

Observations: Spores 10—13/7—9 m $\mu$ , 5—7-angled. Basidia 35—48/9—12 m $\mu$ , 4-spored. Cystidia absent, Cuticle a cutis of cylindrical suberect (on the pileus disk) hyphae (5—12 m $\mu$  diam.) with plasmatic pigment. Clamp connections absent. The South American specimens agree in all essential characters with collections found in Europa.

64. *Entoloma lazoii* HORAK sp. n.

Pileo — 50 mm lato, e convexo hemisphaerico umbilicato brunneo marginem versus pallidiori. Lamellis adnexis, pallide azureis dein roseis. Stipite — 95/—4 mm, cylindraceo, pallide azureo dein albido, sicco. Odore nullo. Sporis 8—9,5/5—7 m $\mu$ , 5—6-angulatis. Cheilocystidiis 30—55/10—16 m $\mu$ , clavatis, hyalinis. Ad terram in silvis. Chile. Holotypus (ZT, 70/343).

Pileus 25—50 mm, conico-convex when young becoming expanded with depressed to umbilicate centre, margin waved, dark brown, paler towards the strongly striate margin, dry, smooth. Lamellae adnate to adnexed, crowded, whitish-bluish at first turning

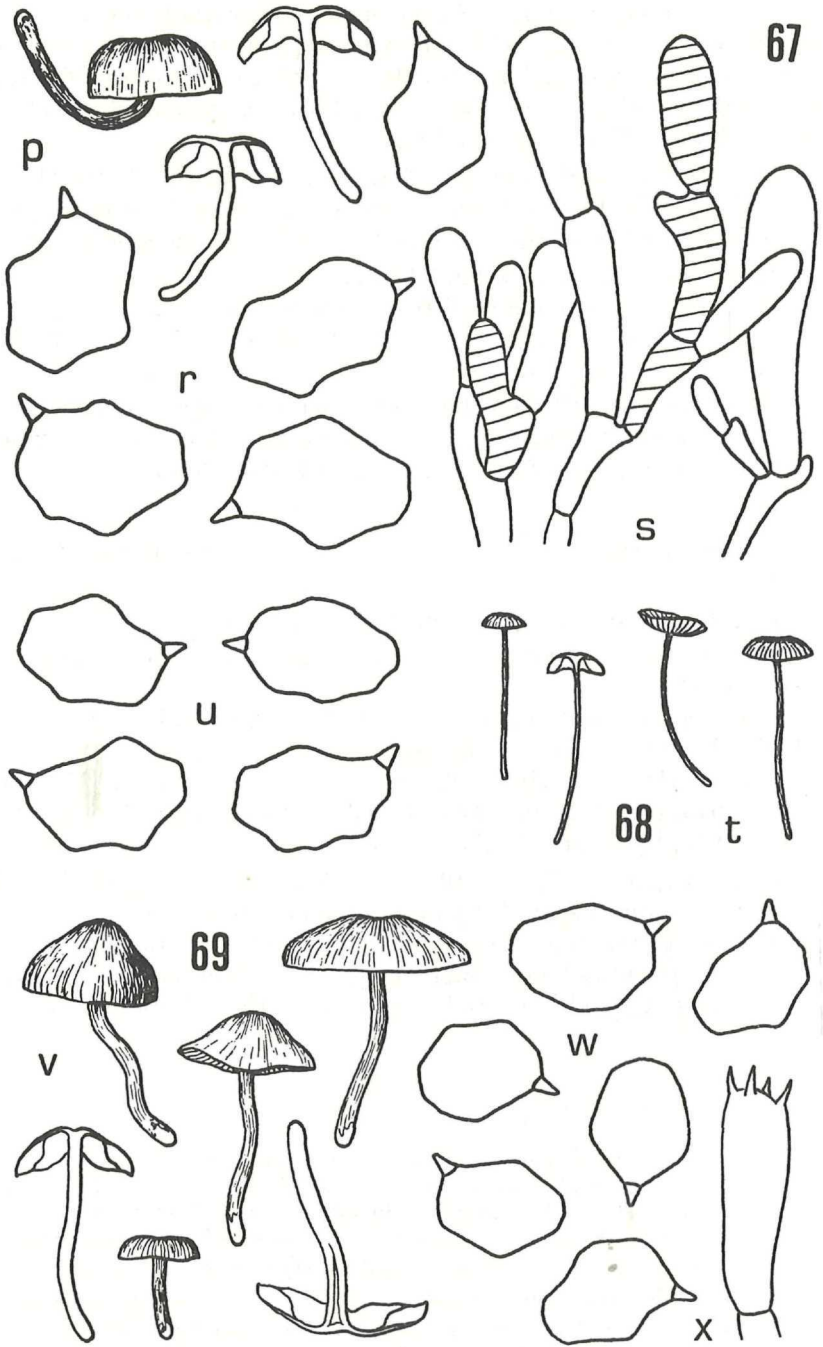


Fig. 21. 67: *E. proximum* (62/124, type): p. carpophores; r. spores; s. cheilocystidia. — 68: *E. infirmum* (62/236, type): t. carpophores; u. spores. — 69: *E. vibrantium* (62/153, type): v. carpophores; w. spores; x. basidia.

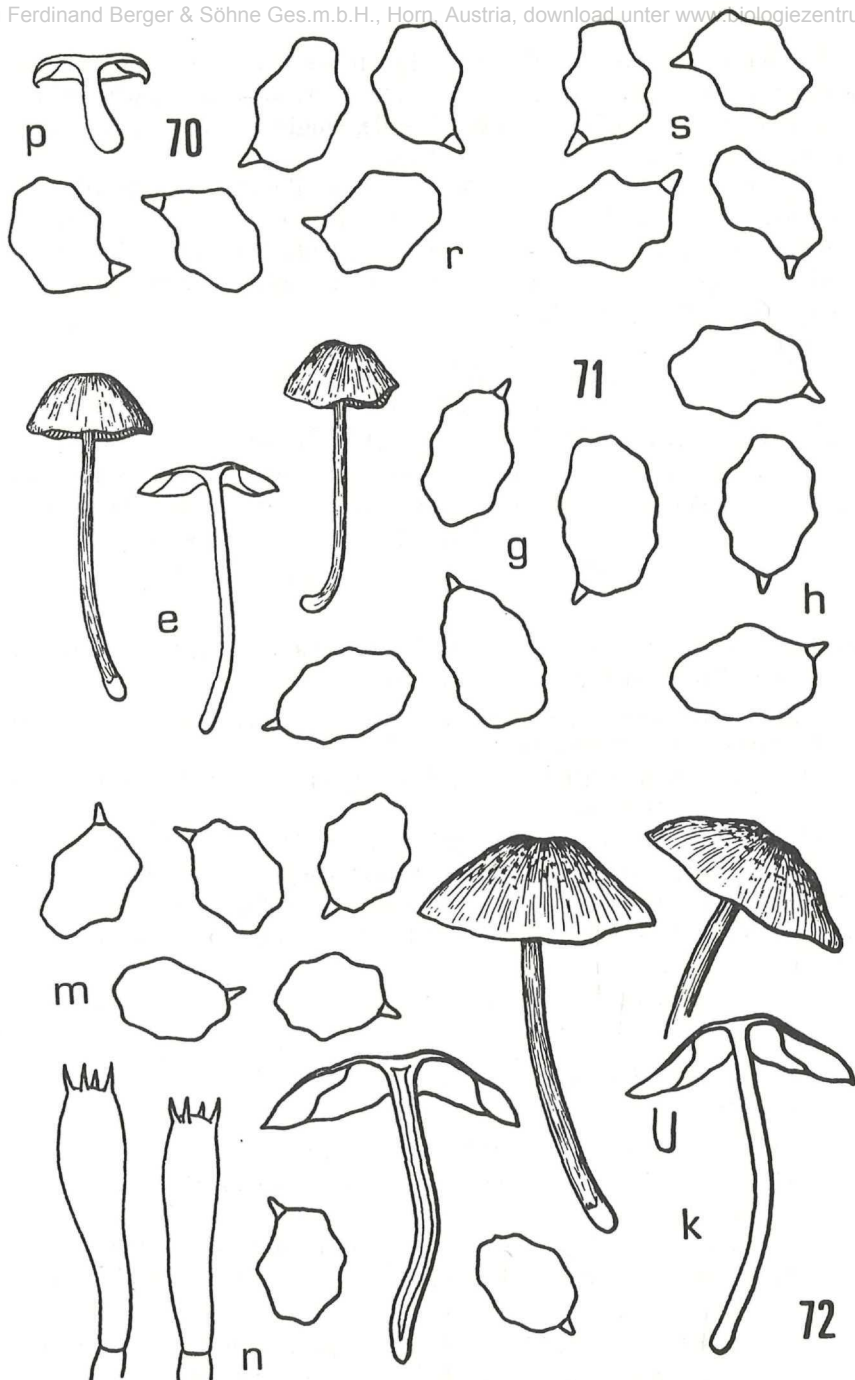


Fig. 22. 70: *E. lazulinellum* (17064, type): p. carpophore; r. spores; (1153, type of *E. lazulino-ardesiaca*): s. spores. — 71: *E. austroanatium* (M 3093, type): h. spores; (62/123): e. carpophores; g. spores. — 72: *E. portentosum* (62/147, type): k. carpophores; m. spores; n. basidia.

pink, edge concolorous, fimbriate. Stipe 40—95/2—4 mm, cylindrical, terete, pale blue changing to whitish in mature specimens, with white cottony base, smooth, dry, hollow, fragile, single. Context brownish in pileus. Odour and taste not distinctive.

Spores 8—9,5/5—7 m $\mu$ , 5—6-angled. Basidia 30—40/10 m $\mu$ , 4-spored. Cheilocystidia 30—55/10—16 m $\mu$ , clavate to vesiculose, thin-walled, hyaline. Pleurocystidia none. Cuticle a cutis with ovate to clavate terminal cells (10—23 m $\mu$  diam.) with vacuolar pigment. Clamp connections absent.

Illustrations: Pl. 20, fig. 64 w, x, y, z.

Habitat: On soil among litter in forest. Chile.

Material: Chile: "Prov. Osorno, Bosque de Llanquacura, 11. V. 1969, leg. LAZO" (ZT, 70/343 (= LLAN-70), holotype).

Observations: Macroscopically this species is similar to *E. melanocephalum* STEVENSON from New Zealand (HORAK 1973). Close examination, however, shows that the spores of the Chilean fungus are much smaller.

65. *Entoloma sodale* (KUEHNER & ROMAGNESI) HORAK 1978 b: Fl. Cript. Tierra del Fuego 13: (in press)

Bas. *Rhodophyllus sodalis* KUEHNER & ROMAGNESI 1955: Rev. Myc. 20: 35 (= *Rh. lampropus* ss. BRESADOLA).

Illustrations: BRESADOLA (570,1), KUEHNER & ROMAGNESI (1955), HORAK (1978 b).

Habitat: On soil in swampy localities. Argentina, Chile.

Material: Argentina: "Tierra del Fuego, Ensenada, Pampa Alta, 16. III. 1975, leg. GIAIOTTI" (ZT, 75/136). — Chile: "Prov. Osorno, Valle Gol-Gol, Puyehue, 31. III. 1963, leg. HORAK" (ZT, 62/136).

Observations: A full description is given in HORAK (1978 b).

66. *Entoloma serrulatum* (FRIES) HESLER 1967: Nova Hedwigia Beih. 23: 140

Bas. *Agaricus serrulatus* FRIES 1821: Syst. Myc. 1: 204.

Illustrations: BRESADOLA (573), LANGE (77 G). Pl. 20, fig. 66 m, n, o.

Habitat: On soil in forest. Venezuela, Europe, California.

Material: Venezuela: "Miranda, Los Guayabitos, 8. VI. 1959, leg. DENNIS & FOLDATS" (K, 1002).

Observations: Compared with European collections the cheilocystidia have similar shape but differ in size. Since *E. serrulatum* is also reported from California (LARGENT 1977) its occurrence in South America may not be restricted to Venezuela alone.



67. *Entoloma proximum* HORAK sp. n.

Pileo —20 mm lato, convexo dein centro depresso, azureo, velutino-squamoso. Lamellis emarginatis, pallide azureo, acie nigro-azurea instructis. Stipite —25/—2 mm, cylindrico, pallide griseo-azureo. Odore nullo. Sporis 10—11,5/6,5—8,5 m $\mu$ . 5—6-angulatis. Cheilocystidiis 20—50/4—10 m $\mu$ , cylindraceis, articulatis, pigmento azureo impletis. Ad terram in silvis. Argentina. Holotypus (ZT, 62/124).

Pileus 10—12 mm diam., hemispherical to convex, centre depressed or subumbilicate, margin inrolled, deep blue all over, estriate, not hygrophanous, dry, appressed fibrillose to subsquamulose in the centre. Lamellae broadly adnate or emarginate, subdecurrent with short tooth, L 10—12, 1—3, pale blue turning bluish pink, edge dark blue, fimbriate. Stipe 10—25/—2 mm, cylindrical, curved, dark blue later fading to pale blue, base white, minutely fibrillose, dry, solid, single. Context blue. Odour and taste not distinctive.

Spores 10—11,5/6,5—8,5 m $\mu$ , 5—6-angled. Basidia 33—40/10—14 m $\mu$ , 4-spored. Cheilocystidia 20—50/4—10 m $\mu$ , cylindrical or subclavate, articulate, forming dense seam on edge, with blue plasmatic pigment. Cuticle a cutis with repent to subclavate hyphae (5—16 m $\mu$  diam.), with conspicuous blue vacuolar pigment. Clamp connections absent.

Illustrations: Pl. 21, fig. 67 p, r, s.

Habitat: On soil among mosses in *Nothofagus* forest. Argentina.

Material: Argentina: "Rio Negro, Laguna Frias, path to Paso P. Rosales, 11. IV. 1962, leg. HORAK" (ZT, 62/124, holotype).

Observations: At the first glimpse one is inclined to identify this fungus as *E. serrulatum*. However, its spores are smaller and the cheilocystidia are of different morphology.

68. *Entoloma infirmum* HORAK sp. n.

Pileo —8 mm lato, e convexo subumbilicato, griseo-azureo. Lamellis emarginato-decurrentibus, griseis. Stipite —25/0,5 mm, cylindrico, fragili, azureo. Odore nullo. Sporis 9—10,5/6,5—7,5 m $\mu$ , 5—6-angulatis. Cystidiis nullis. Ad terram inter muscos. Chile. Holotypus (ZT, 62/236).

Pileus 4—8 mm diam., hemispherical to convex later centre becoming subumbilicate to depressed, aged carpophores concave, grey, apex, pale blue, striate, not hygrophanous, dry, minutely fibrillose, centre slightly squamulose, thin. Lamellae emarginate to subdecurrent, distant, L 6—8, 1 l, grey to pale grey-pink in mature specimens, edge concolorous, even. Stipe 15—25/0,5 mm, cylindrical, slender, fragile, deep blue, with few white fibrils at base, apex pruinose, glabrous below, solid, single. Context pale blue. Odour and taste not distinctive.

Spores 9—10,5/6,5—7,5 m $\mu$ , 5—6-angled. Basidia 30—37/10 m $\mu$ , 4-spored. Cheilocystidia absent. Cuticle a cutis of repent cylindrical

hyphae (4—12  $m\mu$  diam.), with brownish encrusting pigment. Clamp connections absent.

Illustrations: Pl. 21, fig. 68 t. u.

Habitat: On soil among mosses. Chile.

Material: Chile: "Prov. Osorno, Pucatrihue, 30. IV. 1963, leg. HORAK" (ZT, 62/236, holotype).

Observations: This is a very fragile and slender species which grows on wet localities among *Marchantia* and other mosses. Contrary to most of the blue coloured *Entoloma*-species *E. infirmum* has a pigment which is encrusting the membranes of the cuticular hyphae.

#### 69. *Entoloma vibrantium* HORAK sp. n.

Pileo —25 mm lato, e convexo subumbilicato, lilacino vel caesio, subglabro. Lamellis emarginatis, pallide azureis dein roseis. Stipite —30/—2,5 mm, cylindrico, lilaceo, caesio tinctu, glabro. Odore nullo. Sporis 8—9,5/6—6,5  $m\mu$ , 5—6-angulatis. Cystidiis nullis. Ad terram in locis graminosis. Chile. Holotypus (ZT, 62/153).

Pileus 10—25 mm diam., hemispherical to convex later centre becoming depressed or subumbilicate, blue-lilac with distinct green tints, minutely squamulose on disk, glabrous towards striate margin, dry. Lamellae emarginate, crowded, L 14—20, 1—7, pale blue when young, turning pink in mature specimens, edge even, concolorous. Stipe 15—30/—2,5 mm, cylindrical, pale blue-lilac with green tints, white tomentum on base, dry, smooth, hollow, fragile, single in groups. Context pale blue-green. Odour and taste not distinctive.

Spores 8—9,5/6—6,5  $m\mu$ , 5—6-angled. Basidia 25—32/8—10  $m\mu$ , (2- and) 4-spored. Cystidia absent. Cuticle a cutis of repent cylindrical hyphae (4—15  $m\mu$  diam.,) with encrusting pigment. Clamp connections none.

Illustrations: Pl. 21, fig. 69 v, w, x.

Habitat: On soil in paddocks, meadows. Chile.

Material: Chile: "Prov. Osorno, Bahia Mansa S of Pucatrihue, 28. IV. 1963, leg. HORAK" (ZT, 62/153, holotype).

Observations: The most distinctive characters of this species are: blue-green colour of pileus and stipe, small spores, encrusting pigment, absence of clamp connections.

#### 70. *Entoloma lazulinellum* (SINGER) c. n.

Bas. *Rhodophyllus lazulinellus* SINGER 1950: Lilloa 23: 229.

Syn. *Pleurotus lazulinus* SPEGAZZINI 1926: Bol. Acad. Nac. Cienc. Cordoba 29: 120 (= *Entoloma*, preocc.).

*Leptonia lazulino-ardesiaca* DENNIS 1961: Kew Bull. 15: 149.

Illustrations: Pl. 22, fig. 70 p, r, s. — DENNIS (1961, 1970: *Lept. lazulino-ardesiaca*).

Habitat: On rotten wood, Argentina, Venezuela.



Material: Argentina: "Cordoba, Alta Gracia, 16. II. 1925, leg. BRUCH" (LPS, 17064, holotype). — Venezuela: "Miranda, Cortada del Guayabo, 9. VII. 1958, leg. DENNIS" (K. 1153 and 1153 A, holotype of *Lept. lazulino-ardesiaca* incl. var. *brunnea* DENNIS).

Observations: The characters found on the type material indicate that the two taxa are conspecific. Both grow on rotten wood. Additional data to the collection from Venezuela: spores 7,5—8,5/5—6,5  $\mu$ , 6—7-angled. Basidia 25—35/8—9  $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis composed of repent to suberect cylindrical hyphae (4—10  $\mu$  diam.) with blue plasmatic pigment. Clamp connections absent.

71. *Entoloma austroanatinum* (SINGER) c. n.

Bas. *Rhodophyllus austroanatinus* SINGER 1969: Nova Hedwigia Beih. 29: 337.

Illustrations: Pl. 22, fig. 71 e, g, h.

Habitat: On soil in *Nothofagus* forests. Argentina.

Material: Argentina, Rio Negro: "Laguna Frias, 21. III. 1963, leg. SINGER" (BAFC, M 3093, holotype). — "Laguna Frias, track to Paso P. Rosales, 7. IV. 1962, leg. HORAK" (ZT, 62/123, topotypical material).

Observations: On fresh carpophores dominate lilac to violet colours and less blue tints. Spores measure 8,5—10/5,5—6,5  $\mu$ , multiangled (see fig. 71 g, h). Basidia 30—42/8—10  $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis of repent cylindrical hyphae (8—15  $\mu$  diam.) with bluish plasmatic and encrusting pigment. Clamp connections present (type) or absent.

72. *Entoloma portentosum* HORAK sp. n.

Pileo — 35 mm lato, e convexo subumbilicato, nigro-ardesiaco, fibrilloso-squamuloso. Lamellis emarginatis, azureis dein roseis. Stipite — 50/—3 mm, cylindrico, pileo concolori, glabro. Odore nullo. Sporis 7—8,5/4,5—6  $\mu$ , saepe multiangulatis. Cystidiis nullis. Ad lignum putridum in silvis. Chile. Holotypus (ZT, 62/147).

Pileus 20—35 mm diam., hemispherical to convex becoming depressed or subumbilicate at centre, blue-black (occasionally with slight lilac tint), not hygrophanous, striate, coarsely fibrillose to hairy or subsquamulose, dry, membranaceous. Lamellae emarginate to subdecurrent, crowded, L 10—12, 1 3 (—7), pale grey-blue when young becoming pink, edge concolorous, even. Stipe 30—50/2—3 mm, cylindrical, blue-black, base with white tomentum, dry, minutely fibrillose, hollow, fragile, single in groups. Context blue. Odour and taste not distinctive. Chemical reactions on pileus: KOH, NH<sub>3</sub> — negative. HCl — lilac.

Spores 7—8,5/4,5—6  $\mu$ , multiangled. Basidia 30—36/8—9  $\mu$ ,

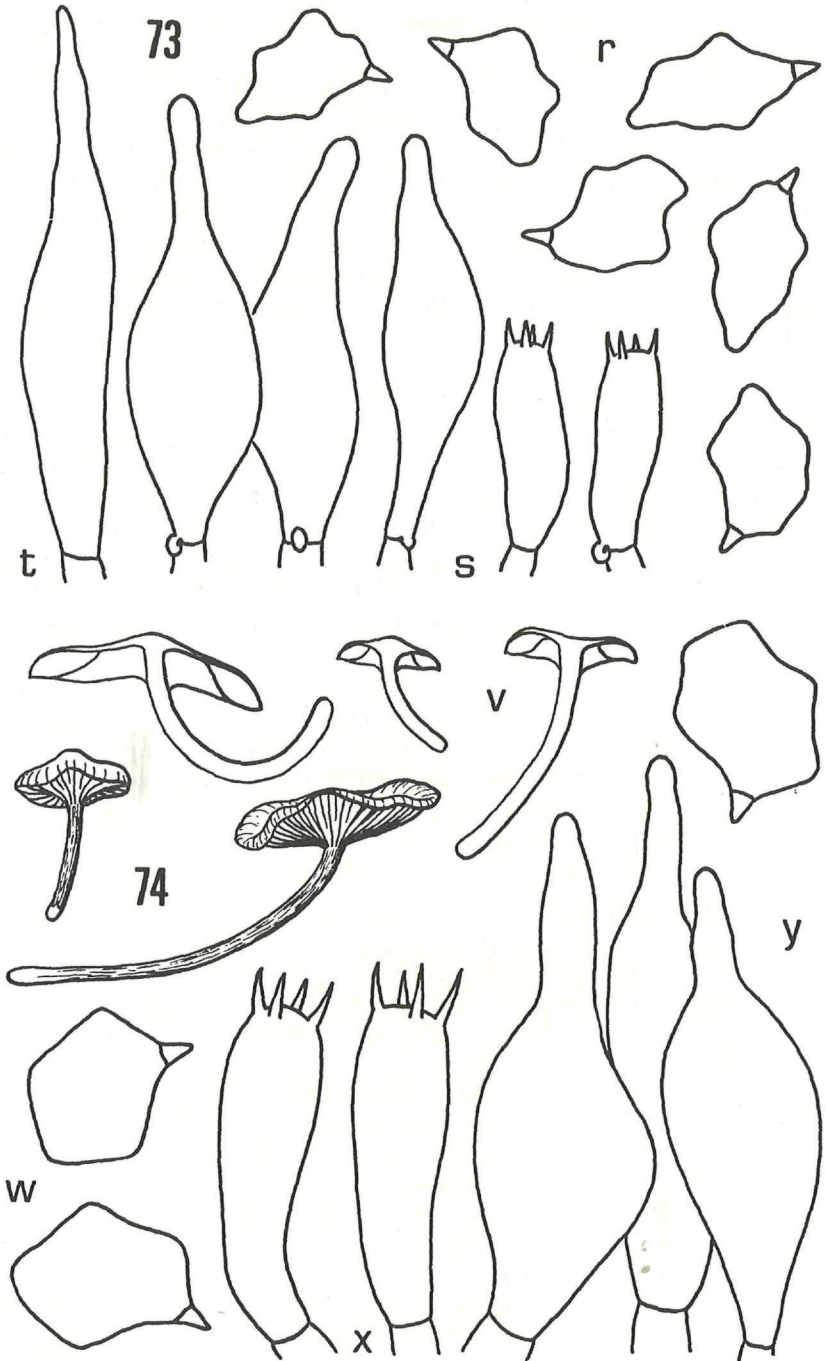


Fig. 23. 73: *E. naranjanum* (108, type): r. spores; s. basidia; t. cheilocystidia. — 74: *E. disputatum* (75/415): v. carpophores; w. spores; x. basidia; y. cheilo- and pleurocystidia.



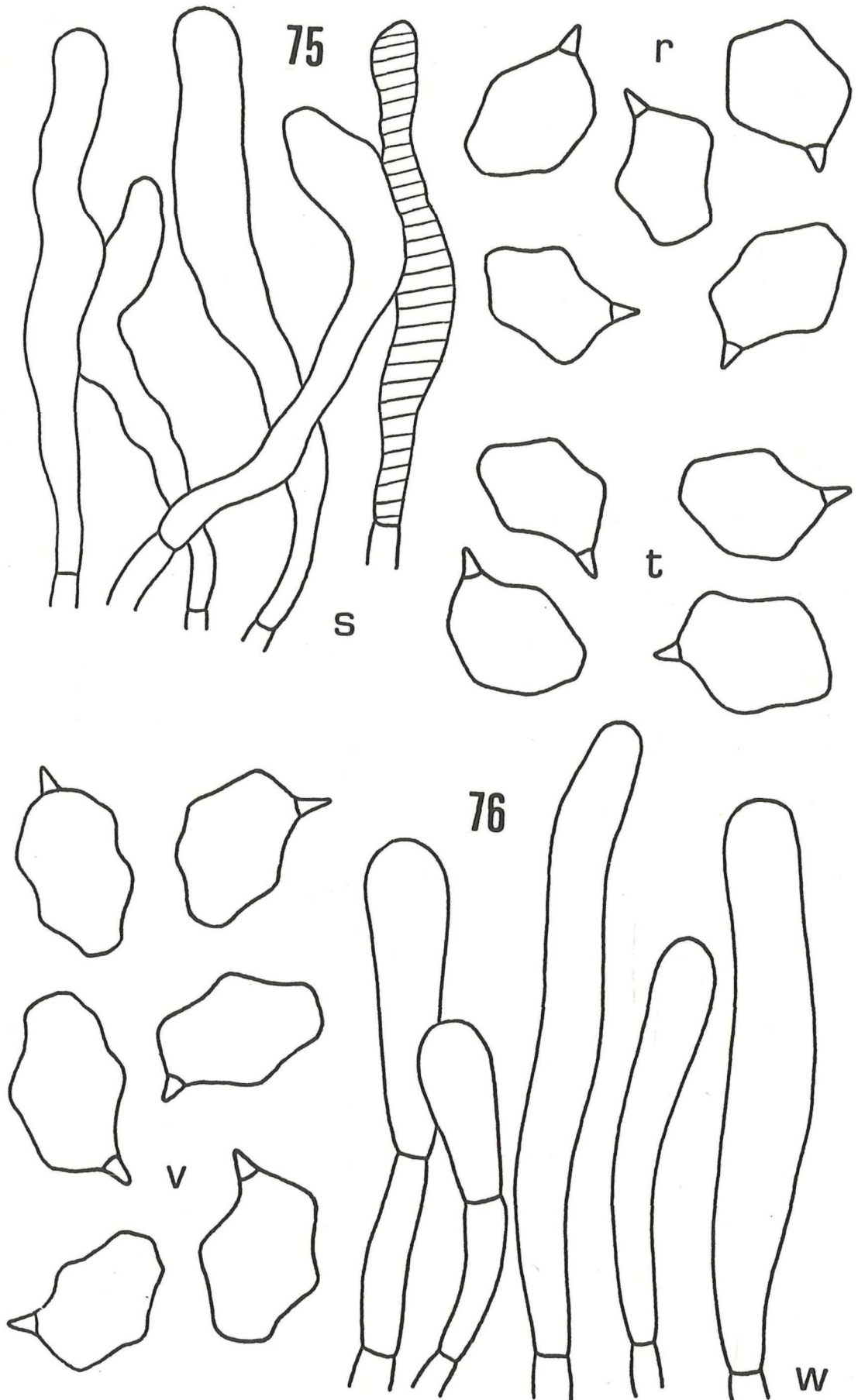


Fig. 24. 75: *E. lacteonigrum* (M 3645, type): r. spores; s. cheilocystidia; (M 3180, type of *Rh. nubigenus*): t. spores. — 76: *E. underwoodii* (52, type): v. spores; w. cheilocystidia.

4-spored, with clamp connection on basal septum. Cystidia none. Cuticle a cutis or trichoderm of hyphae with cylindrical or ovate terminal cells (8–18  $m\mu$  diam.), with blue plasmatic and encrusting pigment. Clamp connections present, sometimes rare on cuticular hyphae.

Illustrations: Pl. 22, fig. 72 k, m, n.

Habitat: On rotten wood in forests. Chile, Prov. Osorno: "Pucatrihue, 22. IV. 1963, leg. HORÁK" (ZT, 62/147, holotype). — "Cord. Pelada, Chiveria, 17. IV. 1975, leg. HORÁK" (ZT, 75/397).

Observations: This species is a close relative of *E. austro-antinum*. The spores, however, are smaller and the fruitingbodies are of black-blue colour.

73. *Entoloma naranjanum* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 167

Illustrations: DENNIS (1953), 1970). Pl. 23, fig. 73 r, s, t.

Habitat: On soil among mosses. Trinidad.

Material: Trinidad: "Tucuche-Naranja, 2. X. 1949, leg. DENNIS" (K, 108, holotype).

Observations: Spores 9–11/5,5–7  $m\mu$ , 5–7-angled, often constricted or distorted. Basidia 22–28/8–9  $m\mu$ , 4-spored. Cheilocystidia 50–75/12–18  $m\mu$ , fusoid to lageniform, hyaline, thin-walled. Cuticle a cutis of repent cylindrical hyphae (4–20  $m\mu$  diam.), with plasmatic pigment. Clamp connections present.

74. *Entoloma disputatum* HORÁK sp. n.

Pileo —35 mm lato, ex umbonato subumbilicato, pallide brunneo, sicco. Lamellis adnato-decurrentibus, brunneolis dein roseis. Stipite —55/–2,5 mm, cylindrico, pileo concolori. Odore acidulo. Sporis 10–12/9–10  $m\mu$ , 5–6-angulatis. Cheilo- et pleurocystidiis 45–90/10–24  $m\mu$ , fusoido-rostratis, hyalinis. Ad terram in silvis nothofagineis. Chile. Holotypus (ZT, 75/415).

Pileus 15–35 mm diam., conico-convex or umbonate at first becoming depressed and finally subumbilicate, pale brown, striate, dry, minutely innate-fibrillose, membranaceous, hygrophanous. Lamellae broadly adnate-decurrent, crowded, pale brown turning to pink, edge concolorous, albofimbriate in mature specimens. Stipe 20–55/1,5–2,5 mm, cylindrical, curved, concolorous with pileus, base white from tomentum, glabrous, hollow, brittle, dry, single in groups. Context pale brown. Odour and taste acidulous, like *Lepiota cristata*.

Spores 10–12/9–10  $m\mu$ , 5–6-angled. Basidia 40–50/11–14  $m\mu$ , 4-spored. Cheilo- and pleurocystidia 45–90/10–24  $m\mu$ , polymorphous, clavate to ventricose-fusoid with elongate neck, hyaline, thin-walled, numerous. Cuticle a cutis of repent, cylindrical hyphae (4–12  $m\mu$  diam.) with encrusting and plasmatic pigment. Clamp connections absent.

Illustrations: Pl. 23, fig. 74 v, w, x, y.

Habitat: On soil in *Nothofagus* forest. Chile.

Material: Chile: „Prov. Osorno, Antillanca, near Refugio, 23. IV. 1975, leg. HORAK” (ZT, 75/415, holotype).

Observations: This pale brown and macroscopically rather inconspicuous species is characterized by large spores and numerous cheilo- and pleurocystidia.

75. *Entoloma lacteonigrum* (SINGER) c. n.

Bas. *Rhodophyllus lacteoniger* SINGER 1969: Mycofl. Australis, 345.

Syn. *Rhodophyllus nubigenus* SINGER 1969: Mycofl. Australis, 348.

Illustrations: Pl. 24, fig. 75 r, s, t.

Habitat: On soil under *Nothofagus*, often in swampy localities. Argentina.

Material: Argentina: Neuquén: “Villa Angostura, 29. IV. 1964, leg. SINGER” (BAFC, M 3645, holotype). — “Puerto Manzano, 22. IV. 1964, leg. SINGER” (BAFC, M 3401, “*Rhod. rhodopolius* ss. ROMAGNESI”). — Rio Negro: “Laguna Frias, track to Paso P. Rosales, 24. III. 1963, leg. SINGER” (BAFC, M 3180, holotype of *Rh. nubigenus* SINGER). — “Laguna Frias, Puerto Allegro, 5. IV. 1962, leg. HORAK” (ZT, 62/121, topotypical material of *Rh. nubigenus* SINGER). — Tierra del Fuego: “Tierra Mayor, 25. II. 1974, leg. GAMUNDI” (ZT, 74/92). — “Ensenada, Pampa Alta, 16. III. 1975, leg. HORAK” (ZT, 75/147). — „Ensenada, Pampa Alta, 16. VIII. 1975, leg. HORAK” (ZT, 75/149).

Observations: For this common species the following characters are distinctive: umbilicate pileus, conspicuous brown edge of the lamellae, cylindrical to subclavate cheilocystidia with brown plasmatic pigment and lacking clamp connections. The cheilocystidia vary in size from 30—90/7—14  $\mu$ .

76. *Entoloma underwoodii* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 166  
= *Eccilia earlei* MURRILL 1911: Mycologia 3: 274 (syn.).

Illustrations: DENNIS (1953, 1970). Pl. 24, fig. 76 v, w.

Habitat: On mossy log amongst *Leucobryum*. Trinidad.

Material: Trinidad: “Arima, 25. IX. 1949, leg. DENNIS” (K, 52).

Observations: *E. underwoodii* is similar to *E. lacteonigrum* differs, however, by its strongly and darker striate pileus, larger spores and hyaline cheilocystidia.

77. *Entoloma trinitense* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 165  
= *Nolanea fragilis* BAKER & DALE 1951: Comm. Myc. Inst. Myc. Pap. 33: 90 (syn.).

Illustrations: DENNIS (1953, 1970). Pl. 25, fig. 77 k, m, n.

Habitat: On soil under bamboo. Trinidad, Cuba.

Material: Trinidad: “St. Joseph, 9. VIII. 1947, leg. BAKER” (K, 1499, holotype).

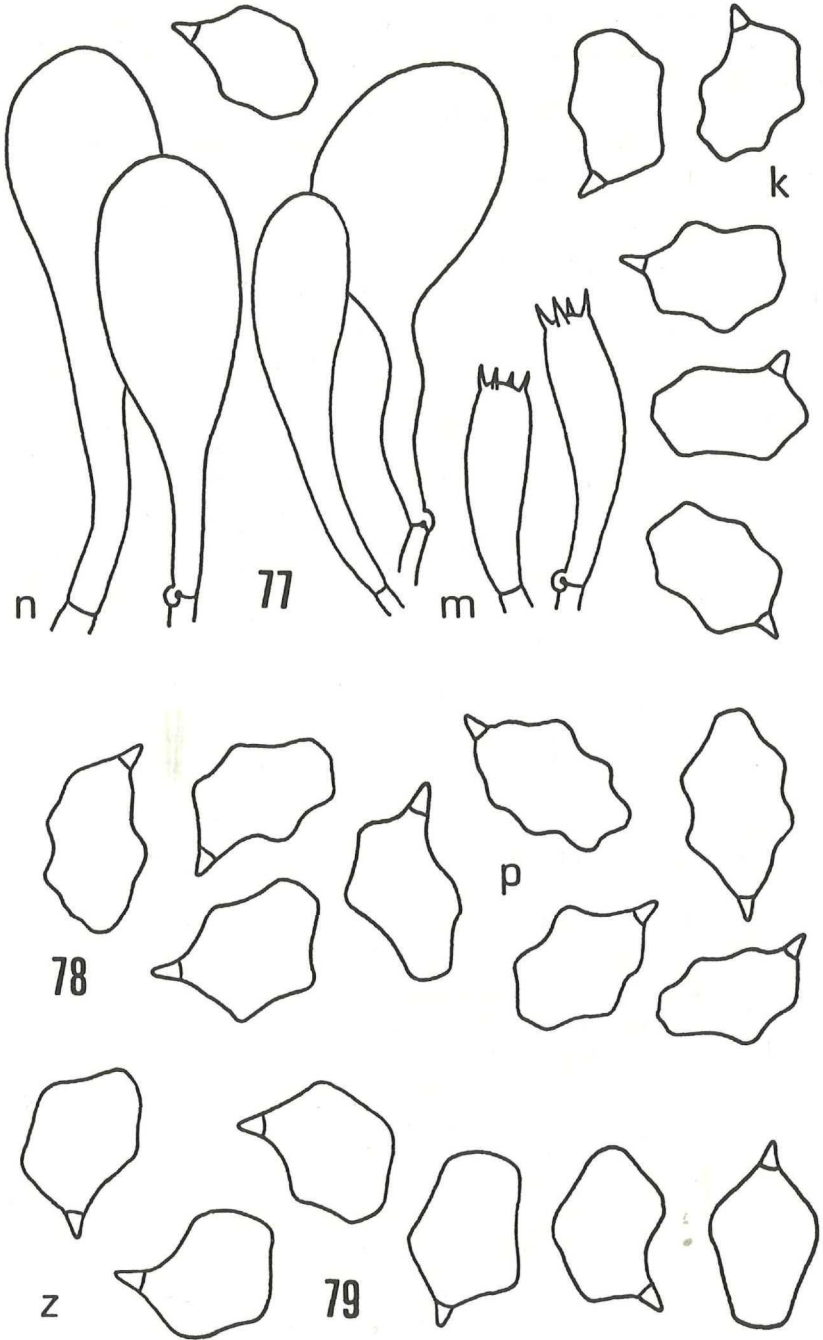


Fig. 25. 77: *E. trinitense* (1499, type): k. spores; m. basidia; n. cheilocystidia. — 78: *E. umbilicatum* (245, type): p. spores. — 79: *E. atropileatum* (1032, type): spores.



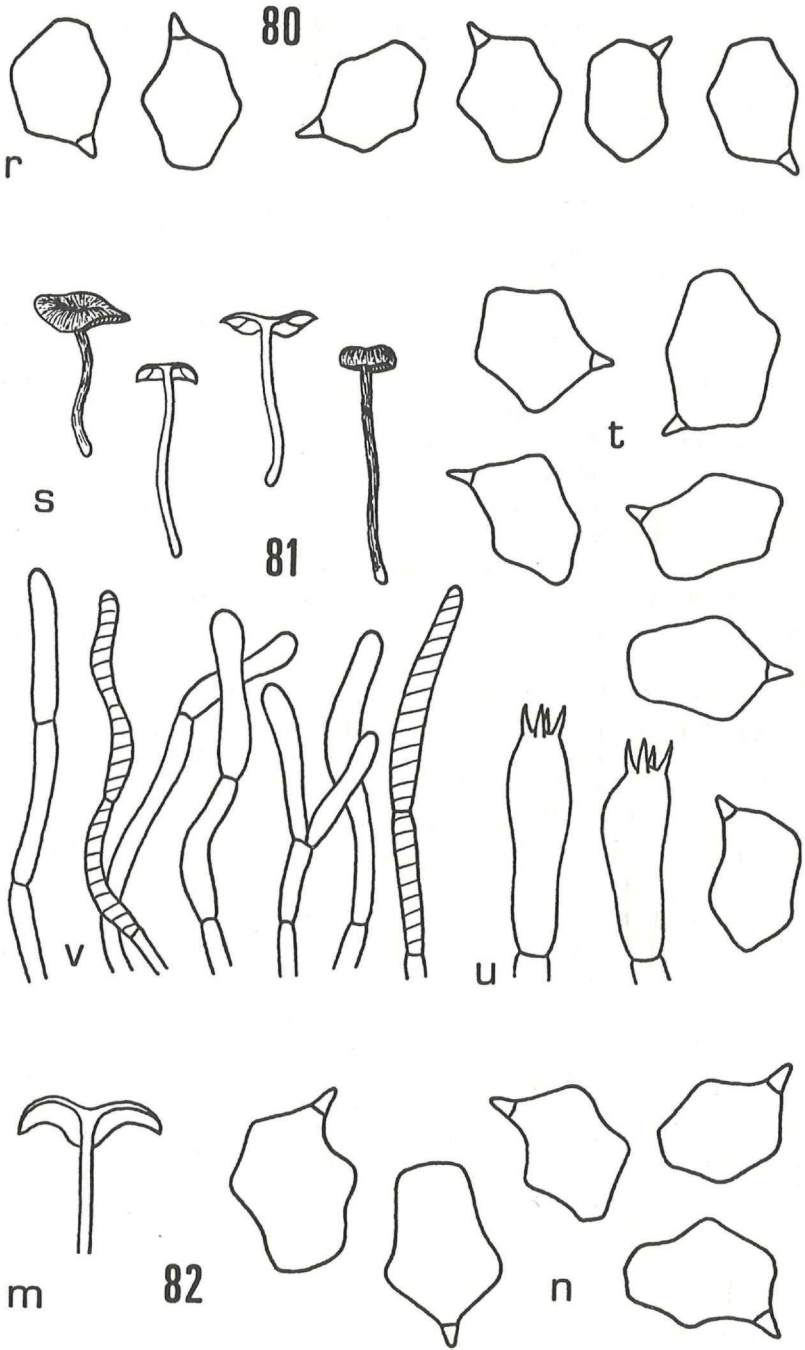


Fig. 26. 80: *E. pellectum* (37851, type): r. spores. — 81: *E. occultum* (62/140, type): s. carpophores; t. spores; u. basidia; v. cuticle. — 82: *E. fusco-rufescens* (38540, type): m. carpophores; n. spores.

Observations: Spores 8,5—10/6—7,5  $\mu\mu$ , 5—7-angled. Basidia 25—35/9—10  $\mu\mu$ , 4-spored. Cheilocystidia 50—75/12—24  $\mu\mu$ , clavate, hyaline, thin-walled. Cuticle a cutis of repent cylindrical hyphae (5—12  $\mu\mu$  diam.), with plasmatic pigment. Clamp connections present but rare.

78. *Entoloma umbilicatum* DENNIS 1953: Bull. Soc. Myc. Fr. 69: 168  
nec. *E. umbilicatum* (MURRILL) HESLER 1967: Nova Hedwigia Beih. 23: 29.  
(= *E. umbiliciforme* HESLER)

Illustrations: DENNIS (1953, 1970). Pl. 25, fig. 78 p.

Habitat: On soil. Trinidad. Argentina.

Material: Trinidad: "Maqueripe, Diego Martin, 27. X. 1949, leg. DENNIS" (K, 245, holotype). — Argentina: "Rio Negro, Sta. Maria, Lago Nahuel Huapi, 30. IV. 1964, leg. SINGER" (BAFC, M 3712, "*Rh. sarcitulus* K. & R. ss. SINGER").

Observations: Spores 10—12/6—7,5  $\mu\mu$ , 5—7-angled, often with median constriction. The spores are like those of *E. lowyi* whose carpophores, however, are white and not brown. This species has to be renamed since it is a later synonym of the North American taxon *Leptoniella umbilicata* MURRILL (1917: 91) (LARGENT 1977: 264).

79. *Entoloma atropileatum* DENNIS 1961: Kew Bull. 15: 147

Syn. *Lept. sericella* (FRIES) ss. DENNIS 1961: Kew Bull. 15: 149.

*Lept. sericella* var. *avilana* DENNIS 1961: Kew Bull. 15: 149.

Illustrations: DENNIS (1961). Pl. 25, fig. 79 z.

Habitat: On soil in forests. Venezuela.

Material: Venezuela: "El Junquito, 1800 m, 10. VI. 1958, leg. DENNIS & FOLDATS" (K, 1032, holotype). — "Mérida, Sierra Santo Domingo, Laguna Mucubaji, about 3570 m, 25. VII. 1958, leg. DENNIS & BUZA" (K, 1720, "*L. sericella*"). — "El Avila, 2000 m, 17. VI. 1958, leg. DENNIS" (K, 1058, "*L. sericella* var. *avilana*").

Observations: So far this species was collected only in the highlands of Venezuela. *E. atropileatum* is close to *E. lacteonigrum* from Patagonia which, however, bears coloured cheilocystidia on the edge of the lamellae. According to DENNIS (1961) *E. sericella* var. *avilana* also has cylindrical to ventricose cheilocystidia. When studying the authentic collection we searched in vain for these cheilocystidia. Under these circumstances we put this fungus as synonym to *E. atropileatum*.

80. *Entoloma plectum* HORAK 1978 b: Fl. Cript. Tierra del Fuego 13: (in press)

Illustrations: HORAK (1978 b). Pl. 26, fig. 80 r.

Habitat: On rotten bark of *Nothofagus* among mosses. Argentina.

Material: Argentina: "Tierra del Fuego, Tierra Mayor, 9. III. 1974, leg. HORAK" (LPS, 37851, holotype).

Observations: For full description see HORAK (1978).

81. *Entoloma occultum* HORAK sp. n.

Pileo —13 mm lato, e fusco nigro, subumbilicato, sicco. Lamellis emarginatis, albidis dein roseis. Stipite —30/1,5 mm, cylindrico, pileo concolori raro azureo tinctu, glabro. Odore nullo. Sporis 8,5—10/6—7,5 m $\mu$ , 5—6-angulatis. Cystidiis nullis. Ad terram in silvis. Chile. Holotypus (ZT, 62/140).

Pileus 6—13 mm diam., hemispherical becoming depressed or subumbilicate at centre, margin upturned in mature specimens, black, fuliginous or fuscous when wet, paler drying, striate, hygrophanous, dry, covered with minute radially arranged wrinkles or small squamules. Lamellae broadly adnate to emarginate, ventricose, L 12—14, 1—3, whitish when young turning to pink, edge concolorous, even. Stipe 20—30/1—1,5 mm, cylindrical, terete, brown, often with blue tint, white tomentum at base, glabrous, dry, hollow, fragile, single. Context black-brown in pileus, grey with blue tint in stipe. Odour and taste not distinctive.

Spores 8,5—10/6—7,5 m $\mu$ , 5—6-angled. Basidia 24—30/8—10 m $\mu$ , 4-spored. Cystidia none. Cuticle a trichoderm of erect chains of cylindrical hyphae (4—10 m $\mu$  diam.), with brown plasmatic pigment. Clamp connections absent.

Illustrations: Pl. 26, fig. 81 s, t, u, v.

Habitat: On soil among mosses and ferns in forests. Chile.

Material: Chile: "Prov. Osorno, Valle Gol-Gol, Anticura, 2. IV. 1963, leg. HORAK" (ZT, 62/140, holotype).

82. *Entoloma fusco-rufescens* (SPEGAZZINI) c. n.

Bas. *Eccilia fusco-rufescens* SPEGAZZINI 1889: Bol. Acad. Nac. Cienc. Cordoba 11: 32.

Illustrations: Pl. 26, fig. 82 m, n.

Habitat: On rotten ferns. Brazil.

Material: Brazil: "Apiahy, IV. 1888, leg. SPEGAZZINI" (LPS 38540, holotype).

Observations: The type material is in bad condition and from all microscopical characters only the spores (9—11/6,5—8 m $\mu$ ) could be studied. SPEGAZZINI's sketch found on the herbarium sheet is reproduced in plate 26, fig. 82.

83. *Entoloma tenebricosum* HORAK sp. n.

Pileo —18 mm, convexo-subumbilicato, e fusco fuligineo, fibrilloso-squamosulo, sicco. Lamellis emarginatis, pileo concoloribus. Stipite —40/—3 mm, cylindrico, fusco, apicem versus pruinoso. Odore nullo. Sporis 9—10,5/



6,5–7,5  $\mu$ , 5–7-angulatis. Caulocystidiis 35–60/4–10  $\mu$ , cylindraceis. Ad terram in silvis nothofagineis. Chile. Holotypus (ZT, 62/134).

Pileus 10–18 mm diam., hemispherical to convex with distinct umbilico, margin incurved, dark brown, fuscous or fuliginous when wet, ageing paler, not hygrophanous, estriate, densely covered with coarse radially arranged fibrils or small squamules, dry. Lamellae emarginate to subdecurrent with short tooth, L 8–10, 13–7  $\mu$ , pale brown to pale fuliginous changing to pale pink-brown, edge concolorous, even or crenate. Stipe 20–40/2–3 mm, cylindrical, often subclavate towards base, concolorous with pileus, apex distinctly pruinose, minutely fibrillose towards white base, hollow, fragile, dry, single in groups. Context brown. Odour and taste not distinctive.

Spores 9–10,5/6,5–7,5  $\mu$ , 5–7-angled. Basidia 35–42/9–11  $\mu$ , 4-spored. Cheilo- and pleurocystidia absent. Caulocystidia 35–60/4–10  $\mu$ , cylindrical (to clavate, rarely also lageniform), hyaline, thin-walled. Cuticle a cutis or trichoderm of cylindrical hyphae with conspicuous fusoid to conical terminal cells, with brown plasmatic pigment. Clamp connections numerous.

Illustrations: Pl. 27, fig. 83 k, m, n, o.

Habitat: On soil in *Nothofagus* forest. Chile.

Material: Chile: "Magellanes, Puerto Natales, Monte Alto, 23. III. 1963, leg. HORÁK" (ZT, 62/134, holotype).

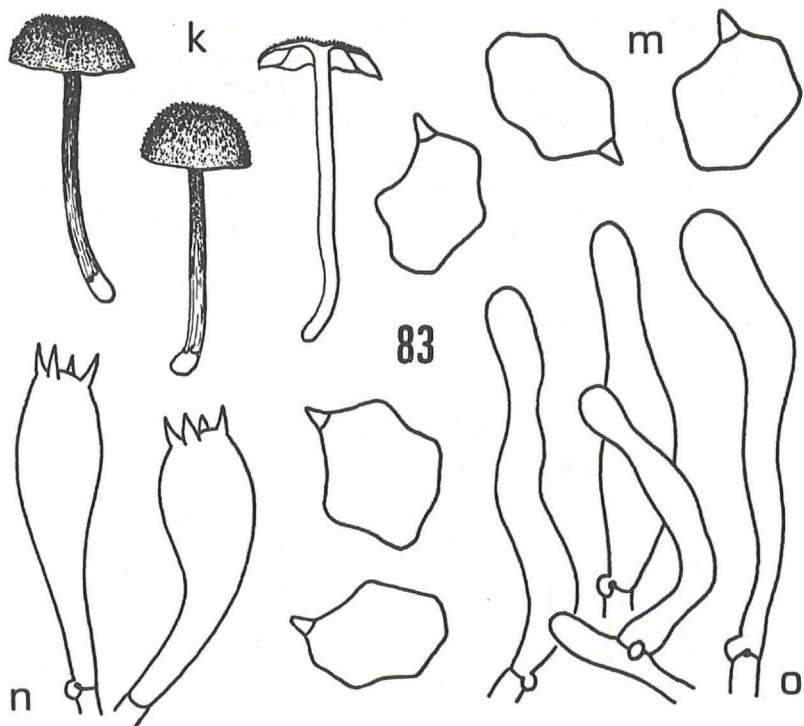
Observations: This species shares the deep brown colour and the caulocystidia (that means the pruinose stipe) with *E. pruinosisipes* (see 17). However, the shape of the spores distinguishes the two taxa distinctly.

#### 84. *Entoloma impedidum* HORÁK sp. n.

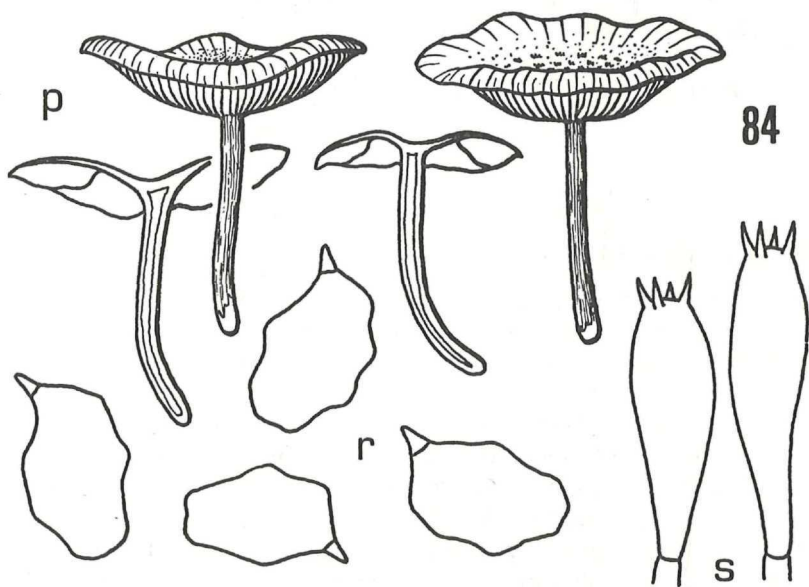
Pileo –45 mm lato, e convexo subumbilicato, pallide brunneo, e centro squamuloso. Lamellis emarginatis, pallide brunneo-roseis. Stipite –40/–3 mm, cylindrico, pileo concolori, glabro. Odore nullo. Sporis 9–11/ 6,5–8  $\mu$ , 5–7-angulatis. Cystidiis nullis. Ad terram et ad lignum putridum in silvis. Chile, Argentina. Holotypus (ZT, 62/148).

Pileus 15–45 mm diam., from the beginning with shallow umbilico, margin upturned and concave in aged carpophores, pale brown to pale grey-brown, drying paler, striate, hygrophanous, squamulose in centre,  $\pm$  glabrous towards margin, dry. Lamellae broadly adnate to emarginate, L 10–14, 13, ventricose, pallid to pale brownish when young, pale pink-brown later, edge concolorous, even or crenate. Stipe 20–40/2–3 mm, cylindrical, often terete, concolorous with pileus or paler, base covered with white tomentum, glabrous, dry, hollow, fragile, single in groups. Context pale brown. Odour and taste not distinctive. Chemical reactions: KOH, NH<sub>3</sub> and HCl on pileus: negative.





83



84

Fig. 27. 83: *E. tenebricosum* (62/134, type): k. carpophores; m. spores; n. basidia; o. caulocystidia. — 84: *E. impedidum* (62/148, type): p. carpophores; r. spores; s. basidia.

Spores 9—11/6,5—8  $\mu$ , 5—7-angled. Basidia 30—40/9—11  $\mu$ , 4-spored. Cystidia absent. Cuticle a cutis or trichoderm of repent or erect cylindrical or clavate terminal cells (8—14  $\mu$  diam.), with brownish plasmatic pigment. Clamp connections none.

Illustrations: Pl. 27, fig. 84 p, r, s.

Habitat: On soil or on rotten wood in forests. Chile, Argentina.

Material: Chile, Prov. Osorno: "Pucatrihue, 23. IV. 1963, leg. HORAK" (ZT, 62/148, holotype). — "Pucatrihue, 22. IV. 1963, leg. HORAK" (ZT, 62/146). — Argentina: "Neuquén, Puerto Manzano, Cerro Cortinario, 26. IV. 1964, leg. SINGER" (BAFC, M 3502, "*Rh. substrictior* SINGER var. ?").

### Excluded species

*Claudopus subvariabilis* SPEGAZZINI (1889): Bol. Acad. Nac. Cienc. Cordoba 11: 411

= *Melanotus subvariabilis* (SPEGAZZINI) SINGER (1949): Lilloa 22: 511

*Entoloma xylophilum* SPEGAZZINI (1926): Bol. Acad. Nac. Cienc. Cordoba 28: 305

= *Pluteus xylophilus* (SPEGAZZINI) SINGER 1949: Lilloa 22: 405

*Nolanea bruchii* SPEGAZZINI (1926): Bol. Acad. Nac. Cienc. Cordoba 29: 124

= *Pluteus chrysophlebius* spp. *bruchii* (SPEGAZZINI) SINGER 1956: Trans. Brit. Myc. Soc. 39: 196

*Eccilia porcellanica* DENNIS (1961): Kew Bull. 15: 145

= *Rhodocybe porcellanica* (DENNIS) c. n.

### Species incertae sedis

\* no authentic material existing

#### 1. Taxa published by SPEGAZZINI:

*Eccilia flaccida* SPEG. ined. see FARR (1973) 35, 1: 448

*Omphalia (Collybiaria pyxidata) goniospora* SPEG. ined. Type LPS 16806: "Argentina, Cordoba, San Vicente, 24. II. 1900, leg. STUCKERT (8520)".

Spores 9—10,5/6—7  $\mu$ , multiangular. The material represents a species of *Entoloma* but no notes about macroscopical characters do exist. Its affinity to *Entoloma* was already suggested by SACCARDO (1887): Syll. Fung. 5: 313 (see FARR (1973)).

*Eccilia platensis* SPEG. (1893): An. Mus. Nac. B. Aires 6: 120

There are two collections in LPS: 38542 (type) and 38543. The spores measure 11—13,5/5,5—7  $\mu$ , fusoid to subpyriform, in KOH yellowish, smooth, thin-walled membrane, inamyloid,

germ pore absent. The material is too poor to render other microscopical characters, and therefore its taxonomic position remains unresolved. Since the spores have no longitudinal ridges or grooves we are reluctant to admit SINGER's (1950: Lilloa 23: 226) opinion that this fungus belongs to *Clitopilus*. See also *E. farctipes* SPEG.

\**Claudopus argentinensis* SPEG. (1899): An. Soc. Cient. Arg. 47: 264

*Naucoria pampicola* SPEG. (1899): An. Mus. Nac. B. Aires 6: 132  
= *Rhodophyllus pampicola* (SPEGAZZINI) SINGER 1950: Lilloa 23: 229 (no material studied).

\**Claudopus chilensis* SPEG. (1921): Bol. Acad. Nac. Cienc. Cordoba 25: 12

*Eccilia farctipes* SPEG. (1926): Bol. Acad. Nac. Cienc. Cordoba 28: 307 — Together with the type material (LPS, 38545) a sketch drawn by SPEGAZZINI is kept in LPS. The deep umbilicate pileus is about 35 mm wide, with arcuate lamellae, and the cylindrical stipe measures 35/1,5 mm. Spores similar to those of *E. platensis* SPEG. (see above). According to our experience the material of *E. platensis* and *E. farctipes* is conspecific with the type collection of *Ag. (Lentinellus) omphalomorphus* which was described by BERTELO & MONTAGNE (1835: Ann. Sc. Nat. Bot. II 8: 367 nec *Lentinellus omphalomorphus* ss. SINGER 1969) from Chile.

*Nolanea cordobensis* SPEG. (1926): Bol. Acad. Nac. Cienc. Cordoba 23: 229 — All characters found on the type material (LPS, 38544: "Cordoba, Alta Gracia, 16. II. 1925, leg. SPEGAZZINI") are relegating this fungus to *Lepiota* (see also SINGER 1950: Lilloa 23: 229).

2. Taxa published by RICK (compare SINGER 1953: Lilloa 26: 57—159)

a. Broteria 17: 101—111 (1919)

\**Leptonia albo-serrulata* RICK, \**Leptonia fuliginestraminea* RICK,  
\**Leptonia olivacea* RICK, \**Leptonia rosea* RICK, \**Leptonia straminea* RICK.

[*Inocybe megalospora* RICK = *Rhodophyllus squamifolius* (MURRILL) SINGER 1953: Lilloa 26: 128. This species also occurs in Tucuman, Argentina (see SINGER & DIGILIO 1951: 429).

b. Broteria 18: 48—63 (1920)

\**Claudopus fimbriatus* RICK, \**Eccilia atrata* RICK, \**Eccilia striaepes* RICK, \**Eccilia violacea* RICK.

c. Broteria 24: 97—118 (1930)

\**Claudopus subvariabilis* RICK, \**Entoloma alboflavidum* RICK,  
\**Nolanea badia* RICK, \**Nolanea vulpina* RICK.

[*Eccilia anastomosans* RICK (12973, type). According to SINGER (1953: Lilloa 26: 97) the spores are 4,2—5,5/4,2—4,5  $\mu$ , with rounded angles. Probably a member of *Rhodocybe*.



d. Lilloa 3: 399—455 (1938)

\**Eccilia citrinella* RICK, \**Eccilia intermedia* RICK, \**Eccilia purpureopunctata* RICK, \**Leptonia brunneogrisea* RICK (mixed collection, see SINGER 1953: Lilloa 26: 99), \**Leptonia hispida* RICK, \**Leptonia viridipes* RICK, \**Nolanea brunneo-grisea* RICK, \**Nolanea limosa* var. *brasiliensis* RICK, \**Nolanea pleopodioides* RICK.

[*Eccilia nivea* RICK (12957, type). SINGER (1953: Lilloa 26: 97) considers this species as identical with *Clitocybe scyphoides* var. *submicropus* (RICK) SINGER (1946).

[*Pluteus leptonia* RICK (14525, type ?). On the material rhodophylloid spores were found (SINGER 1963: Lilloa 26: 98).

3. Further taxa mentioned by RICK (1939): Lilloa 5: 13—30

\**Entoloma ameides* B. & BR., \**Entoloma ardosiacum* BULL., \**Entoloma dichroum* PERS., \**Entoloma griseocyaneum* FR., \**Entoloma helodes* FR., \**Entoloma sericeum* BULL., \**Entoloma viridans* PERS., \**Leptonia anatina* LASCH, \**Leptonia chalybaea* PERS., \**Leptonia chloropolia* FR., \**Leptonia cocles* FR., \**Leptonia euchroa* PERS., \**Leptonia formosa* FR., \**Leptonia forquignoni* QUELET, \**Leptonia incana* FR., \**Leptonia lazulina* FR., \**Leptonia linkii* FR., \**Nolanea fuscogrisella* PECK, \**Nolanea hesperidium* BRIGANT, \**Nolanea juncea* FR., \**Nolanea mammosa* FR., \**Nolanea papillata* BRESADOLA, \**Nolanea pascua* PERS., \**Nolanea proletaria* FR., \**Nolanea versatilis* FR.

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