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# *Mycena rorida* (Fr.) Quél. and related Species from the Southern Hemisphere.

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## Key to related species of *M. rorida* (Fr.) Quél.

1. Pileus wine red, red-brown or orange-red . . . . . 2
- 1.\* Pileus whitish, cream, pale brown or brown . . . . . 3
2. Pileus (and stipe) wine red to red-brown, –6 mm, spores 6,5–7 / 3–3,5  $\mu$ .  
Madagaskar . . . . . 6. *M. baccatipes*
- 2.\* Pileus orange-red, –8 mm, lamellae and stipe white, spores 7,5–9 /  
2,5–3  $\mu$ . Papua New Guinea . . . . . 3. *M. praeclara*
3. Pileus –20 mm, spores 9–12 / 6–8  $\mu$ , cheilocystidia cylindric-clavate.  
Argentina, Chile, J. Fernandez, New Zealand . . . . . 5. *M. austrororida*
- 3.\* Pileus smaller, spores and cheilocystidia not as above . . . . . 4
4. Spores 9–11,5 / 3,5–4,5  $\mu$ , cylindric, basidia mostly 2-spored, cheilo-  
cystidia lanceolate to fusoid, cells of cuticle uniformly clavate to  
vesiculose. Eurasia, North Africa, North America . . . 1. *M. rorida*
4. Spores smaller (6–8,5 / 3–4  $\mu$ ), basidia 4-spored, cheilocystidia not  
lanceolate . . . . . 5
5. Cheilo-, caulo- and dermatocystidia with irregular fingerlike projections  
(simple or forked). Papua New Guinea, Singapore, Ceylon, Brazil,  
Trinidad . . . . . 2. *M. lamprospora*
- 5.\* Cheilo- and caulocystidia clavate-capitate, projections absent, cuticle  
made of smooth vesiculose cells. New Caledonia, Papua New Guinea  
4. *M. irritans*

1. *Mycena rorida* (Fries) Quélet – Fig. 1, A–E.

*Agaricus roridus* Fries in Syst. Myc. 1:156. 1821 (basionym). – *Mycena rorida* (Fries) Quélet in Champ. Jura & Vosges, 74. 1872.

Illustrations. – Konrad & Maublanc (228,2); Lange (54 D); Kühner (1938: 385); Smith (1947: 403).

Habitat. – On rotting debris of frondose and coniferous trees (*Quercus*, *Ilex*, *Picea*), shrubs and herbaceous plants (*Vaccinium*, *Rhododendron*, *Rubus*, *Urtica*, div. mosses). Europe, North Africa (Algeria: Malençon & Bertault 1975: 298), North America (Smith 1947: 403), Siberia (Vassilieva 1973: 150), Japan (Imazeki & Hongo 1960: 412). From sealevel up to 2100 m (Favre 1960: 412).

Material examined. – SWITZERLAND: Luzern, Willisau, 30 Oct. 1963, Horak (ZT 63/307). – Bern, Meiringen, Guttannen, 6 July 1966, Horak (ZT 66/74). – Graubünden, Davos, Stillberg, 8 July 1963, Horak (ZT 64/35).

Among the Eurasian agarics *M. rorida* (Fr.) is a common but taxonomically isolated species without close relationships to other species of *Mycena* (Kühner 1938: 385; Singer 1975: 395).

The most distinctive characters of *M. rorida* are: pileus depressed or subumbilicate, dry, covered with minute dark dots; lamellae arcuate-decurrent; stipe strongly glutinous, single or cespitose; spores 9–11,5 / 3,5–4,5  $\mu$ , cylindrical, smooth,

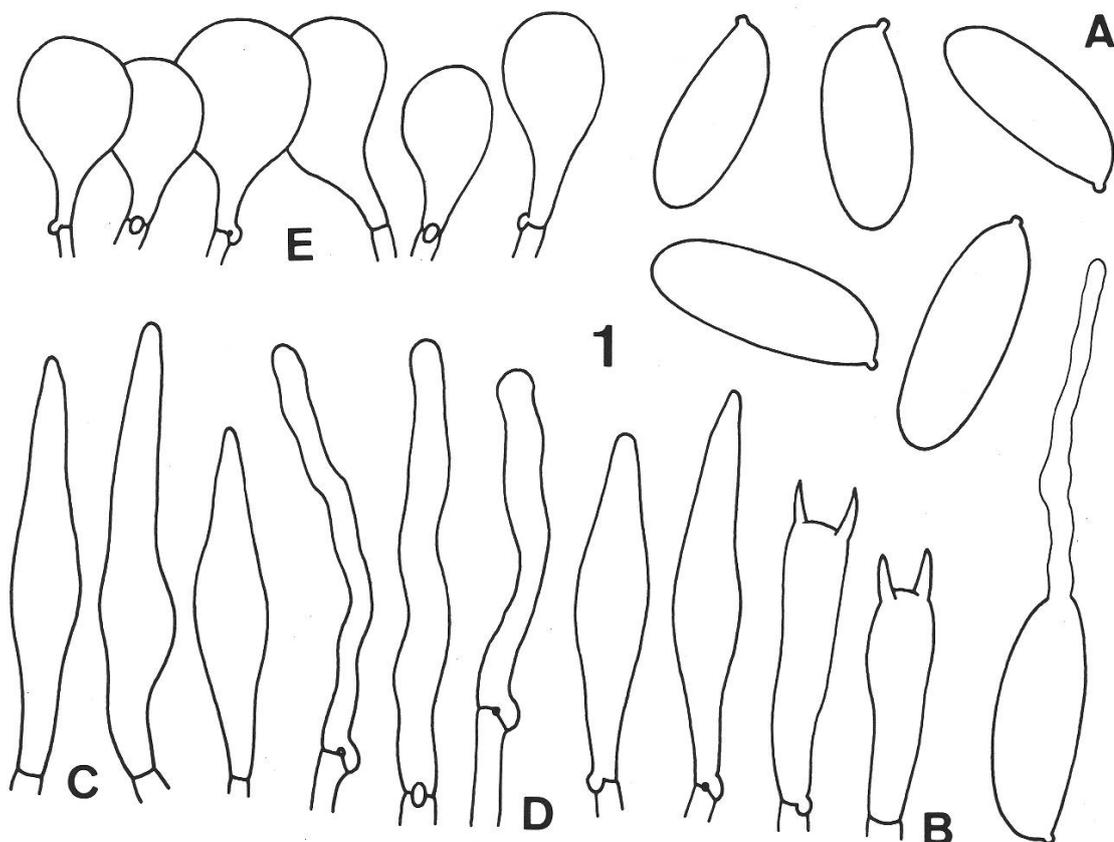


Fig. 1:

*Mycena rorida* (Fries) Quélet (ZT 66/74):

A. spores. – B. basidia. – C. cheilocystidia. – D. caulocystidia. – E. cuticle.

hyaline, amyloid; basidia 20–30 / 5–8  $\mu$ , 2-spored, rarely 4-spored; cheilocystidia 30–45 / 5–8  $\mu$ , lanceolate to fusoid, apex rounded or conical, hyaline; pleurocystidia absent, if present like cheilocystidia; caulocystidia subcapitate or cylindrical, with strongly gelatinized membranes; cuticle a celluloderm of subglobose to clavate cells (20–40 / 10–22  $\mu$ ), with brown plasmatic pigment; clamp connections present.

As pointed out in the key this species is well characterized by the lanceolate or fusoid cheilocystidia, the rather large cylindrical spores and the cylindrical caulocystidia. According to Jossierand's observations (1953: 99) only the mycelium of *M. rorida* is luminous; neither the carpophores nor the spore print show any signs of luminescence.

2. *Mycena lamprospora* Corner ex Horak, stat. nov. – Fig. 2, A–F.

*Mycena rorida* (Fr.) Quélet var. *lamprospora* Corner in Mycologia 42: 427. 1950. – *Mycena pruinoso-viscida* var. *rabaulensis* Corner in Trans. Brit. Myc. Soc. 37: 267. 1954. Illustrations. – Corner (1950: l.c.; 1954: 267); Dennis (1970: pl. 5, 12).

Description taken from fresh material collected in Papua New Guinea:

Pileus – 18 mm diam., hemispherical or convex when young, becoming appanate or subumbilicate, margin striate and incurved finally crenulate, membranaceous, dry, whitish or pale brownish, centre darker coloured and covered with minute brown dots. Lamellae (L 8–12, 1–3) arcuate-decurrent, crowded, white or pale brownish, edge albo-fimbriate, gelatinous thread absent. Stipe – 60 / –2 mm, cylindrical, whitish or pale brown at apex, brown towards base, strongly glutinous when wet, pruinose in dry condition, hollow, single or in dense clusters. Odour and taste not distinctive. Context pale brownish in pileus and stipe. Chemical reactions on pileus: KOH-negative.

Spores 6,5–8,5 / 3–3,5  $\mu$ , elliptic to subcylindric, hyaline, smooth, amyloid. Basidia 22–26 / 4–6  $\mu$ , 4-spored. Cheilo- and caulocystidia 20–50 / 5–15  $\mu$ , irregularly clavate, furcate or subcoralloid, hyaline, without pigment. Cuticle a celluloderm of subglobose or clavate cells (10–50 / 5–30  $\mu$ ), occasionally intermixed with caulocystidia-like cells, brown plasmatic pigment present. Clamp connections numerous.

Habitat. – On rotting leaves, twigs, bark and wood of trees (in Papua New Guinea observed on *Nothofagus carrii*, *Lithocarpus* ssp. and *Castanopsis* ssp.). – Singapore (type), Papua New Guinea (Corner 1950: 427; 1954: 267), Malaysia (Corner 1954: 267), Ceylon (Petch 1926–1927: 132), Brazil (Corner 1950: l.c.), Trinidad (Dennis 1970: 40).

Material examined: PAPUA NEW GUINEA: Morobe district, Bulolo, Manki, 20 Nov. 1971, Horak (ZT 71/316). – TRINIDAD: Naranja, 27 Nov. 1949, Dennis, 380 (K, as „*M. rorida*“).

This species is distinctly different both from *M. rorida* and from *M. irritans*. The three taxa are separated by size and shape of the spores, cheilocystidia and caulocystidia as well. Corner (1950: 427) has reported that only the fresh spore print of this tropical vicariant of *M. rorida* is luminous. Carpophores and mycelium are not luminous at all.

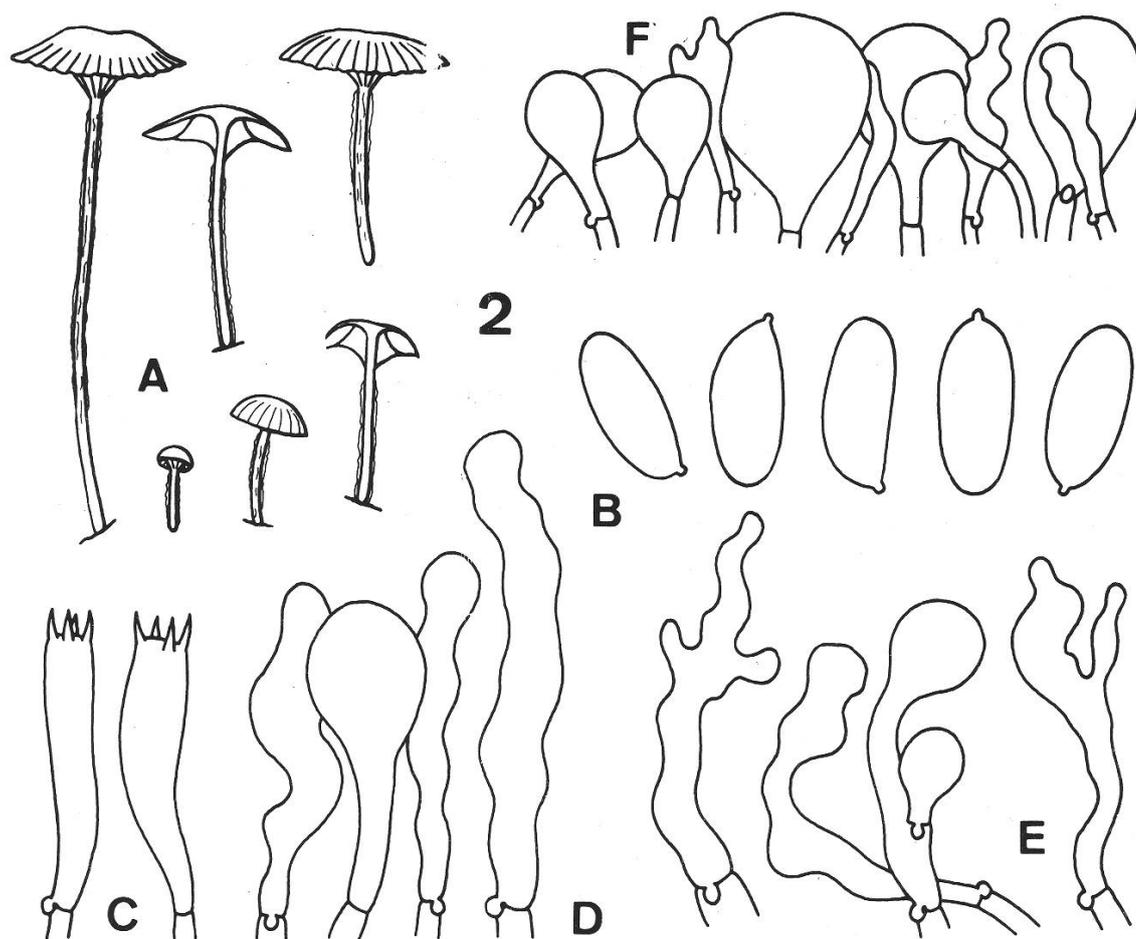


Fig. 2:

*Mycena lamprospora* Corner ex Horak (ZT 71/316):

A. carpophores. — B. spores. — C. basidia. — D. cheilocystidia. — E. caulocystidia. — F. cuticle.

3. *Mycena praeclara* Horak, spec. nov. — Fig. 3, A–F

Pileo –8 mm, ex hemisphaerico subumbilicato, laete aurantiorubro, granuloso, sicco. Lamellis arcuato-decurrentibus, albis, filo gelatinoso nullo. Stipite –30 / –1 mm, cylindrico, albo, subaurantio basim versus, glutinoso. Sporis 7,5–9,5 / 3–4  $\mu$ , elliptico-subcylindratis, amyloideis. Cheilocystidiis 20–30 / 6–9  $\mu$ , lageniformibus, cellulis coralloideis saepe intermixtis. Caulocystidiis ramificato-coralloideis. Ad frustula arborum. Nova Guinea. Holotypus ZT 71/271.

Pileus –8 mm, hemispherical or convex when young becoming subumbilicate or applanate in aged carpophores, deep orange or orange-red, fading in age, centre granular, dry, indistinctly striate towards margin. Lamellae (L 8–12, 1–3), arcuate-decurrent, white, edge smooth, concolorous. Stipe –30 / –1 mm, cylindric, white, pale orange towards base, glutinous when wet, solid, single, not in dense groups or clusters. Odour and taste not distinctive. Context pale orange in pileus. Chemical reactions on pileus: KOH-negative.

Spores 7,5–9,5 / 3–4  $\mu$ , cylindric or subcommaform, hyaline, smooth, amyloid. Basidia 18–25 / 5–8  $\mu$ , 4-spored. Cheilocystidia 20–30 / 6–9  $\mu$ , lageniform or fusiform, hyaline, thin-walled membrane, pigment absent, occasionally intermixed with „cystides en brosse“. Caulocystidia as furcate or irregularly branched terminal cells with strongly gelatinized membranes, –3  $\mu$  diam. Cuticle a celluloderm of globose cells (16–40 / 10–35  $\mu$ ) red-orange plasmatic pigment present. Clamp connections numerous.

Habitat. – On rotting leaves and twigs in rain forests. Papua New Guinea.

Material examined. – PAPUA NEW GUINEA: Morobe district, Bulolo, Taun Creek, 10 Nov. 1971, Horak (holotype, ZT 71/271). – Morobe district, Bulolo, Manki, 16 Jan. 1973, Horak (ZT 72/757).

This richly coloured species is closely related to *M. rorida* (Fr.) but differs in particular by its orange-red pileus, smaller spores and different cystidia. So far this striking fungus was collected only in Papua New Guinea between 900 and 1400 m a.s.l.

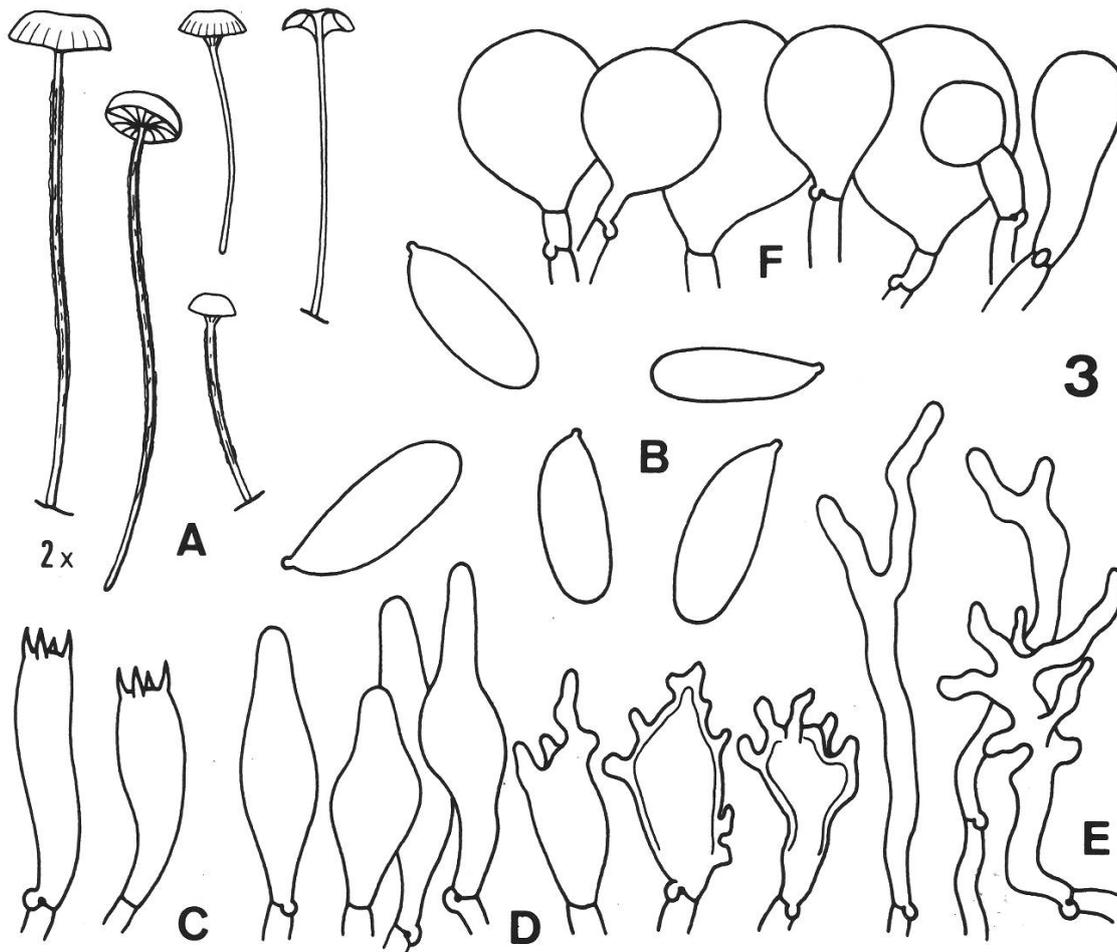


Fig. 3:

*Mycena praeclara* Horak (type):

A. carpophores. – B. spores. – C. basidia. – D. cheilocystidia. – E. caulocystidia. – F. cuticle.

4. *Mycena irritans* Horak, spec. nov. – Fig. 4, A–D.

*Mycena rorida* (Fr.) var. *lamprospora* Corner ss. Heim (1951: 8) (? synonym).

Pileo –15 mm, convexo dein appanato vel subumbilicato, ex albo pallide argillaceo, granuloso, sicco, striato. Lamellis arcuato-decurrentibus, albis, filo gelatinoso nullo. Stipite –45 / –1 mm, cylindrico, albo, basim versus brunneo, perglutinoso. Sporis 6–8 / 3–4  $\mu$ , ellipticis, amyloideis. Cheilocystidiis et caulocystidiis 35–60 / 7–13  $\mu$ , elongato-clavatis. Ad lignum putridum. Nova Caledonia. Holotypus ZT 77/59.

Pileus –15 mm, hemispherical or convex becoming appanate or subumbilicate, margin incurved and conspicuously striate, membranaceous, white or cream turning pale brown, darker at the minutely dotted centre, dry. Lamellae (L 8–12, 1–3) arcuate, decurrent, white, edge concolorous, gelatinous thread absent. Stipe –45 / –1 mm, cylindrical, white at apex, brown towards base, all over covered with thick translucent gelatinous sheath (especially in wet conditions), solid, single or in dense clusters. Odour and taste not distinctive. Context pale brownish. Chemical reactions on pileus: KOH-negative.

Spores 6–8 / 3–4  $\mu$ , elliptical (rarely subcylindric), hyaline, smooth, amyloid. Basidia 16–25 / 4–5  $\mu$ , 4-spored. Cheilo- and caulocystidia 35–60 / 7–13  $\mu$ , clavate, hyaline, often with refractive content. Cuticle a celluloderm of globose to

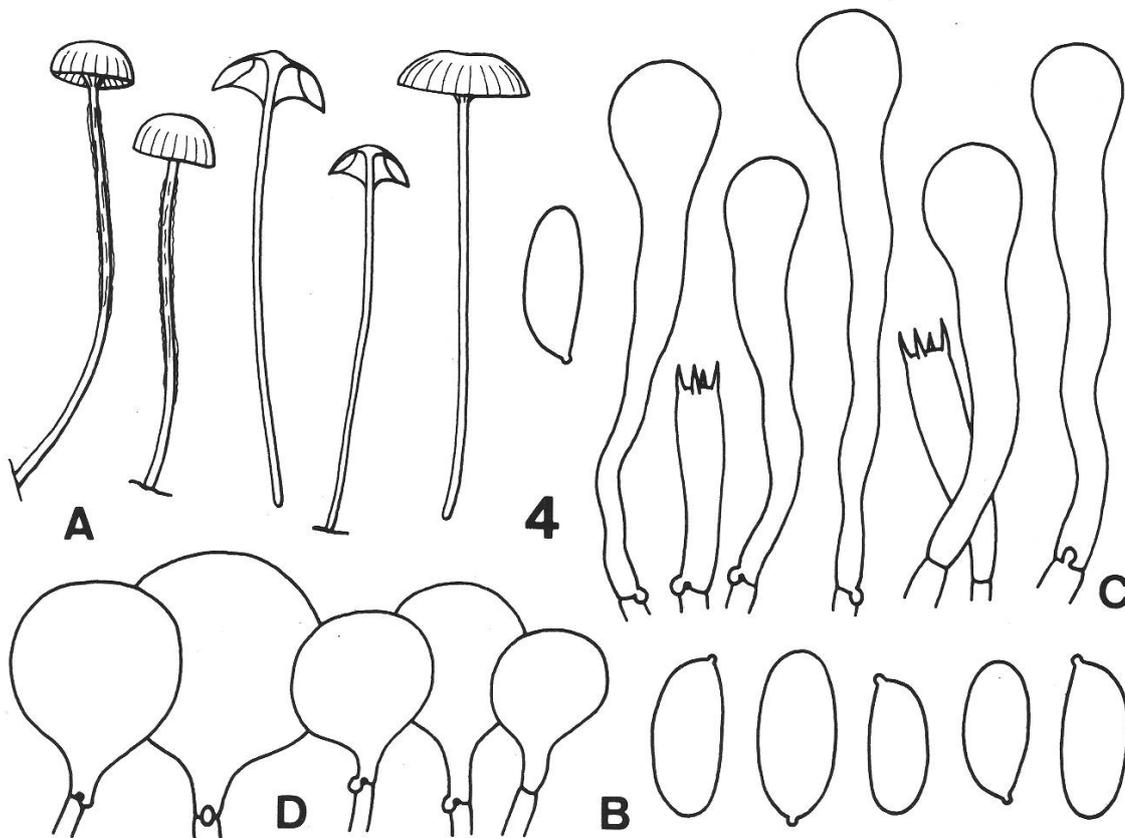


Fig. 4:

*Mycena irritans* Horak (type):

A. carphophores. – B. spores. – C. basidia and cheilocystidia. – D. cuticle

clavate cells, 25–50 / 18–45  $\mu$ , thin-walled, occasionally covered with scattered small crystals, brown (KOH) plasmatic pigment present. Clamp connections numerous.

Habitat. – On rotten wood in coastal and montane forests. New Caledonia (type), Papua New Guinea.

Material examined. – NEW CALEDONIA: N of Yaté, East Coast, 3 March 1977, Horak (holotype, ZT 77/59). – PAPUA NEW GUINEA: Morobe district, Wau, Mt. Kaindi, 3 June 1973, Horak (ZT 73/298).

The structure of the cuticle and the shape of the cheilocystidia distinguish this species from *M. rorida* and *M. lamprospora*.

Without studying the authentic material we assume that this species represents also the fungus which Heim (1951: l.c.) mentions as „*M. rorida* var. *lamprospora*“ from New Caledonia. According to Heim (1951: l.c.) a deep green-blue luminescence was observed on the hymenium of the carpophores; pileus, stipe and mycelium, however, are not luminous.

5. *Mycena austrororida* Singer – Fig. 5, A–C; 6, A–E.

*Mycena austrororida* Singer in Ark. f. Bot. 4: 394. 1959. *Mycena veronicae* Stevenson in Kew Bull. 19: 55. 1964 (synonym).

Illustrations. – Singer (1959: l.c.); Stevenson (1964: l.c.) Horak (1971: 403).

Description taken from fresh carpophores collected in Chile and New Zealand:

Pileus – 20 mm, hemispherical or convex when young later becoming either depressed or subumbonate at centre, not distinctly umbonate, striate margin incurved, white, pale brownish, pale grey-brown or pale yellow-brown, centre covered with minute brown or black dots or squamules, membranaceous, dry.

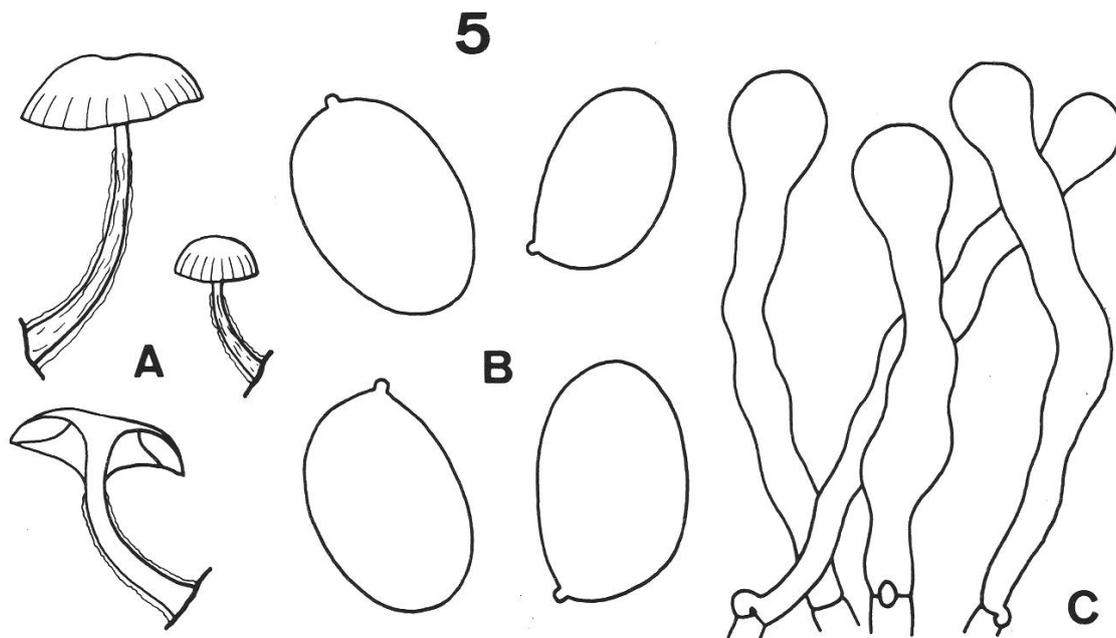


Fig. 5:

*Mycena austrororida* Singer (ZT 66/349):

A. carpophores. – B. spores. – C. cheilocystidia.

Lamellae (L 6–14, 1–3), arcuate-decurrent, white to pallid, edge albofimbriate, occasionally with subglutinous detachable thread. Stipe –50 / –2 mm, cylindric or slightly attenuated towards apex, white or pale grey-brown, glutinous when wet, pruinose in dry condition, hollow, single or in dense clusters. Odour and taste not distinctive. Context pale brown beneath cuticle, white in stipe. Chemical reactions on pileus: KOH-negative.

Spores 9–12 (12,5) / 6–8  $\mu$ , ovate to broadly elliptic, hyaline, smooth, amyloid. Basidia 28–40 / 9–13  $\mu$ , 4-spored. Cheilocystidia 40–80 / 3–9  $\mu$ , cylindric-subclavate to elongate-clavate, rarely elongate-fusoid, hyaline, thin-walled membrane. Caulocystidia similar. Cuticle a celluloderm of clavate cells (20–90 / 10–30  $\mu$ ), with brown plasmatic pigment. Clamp connections present.

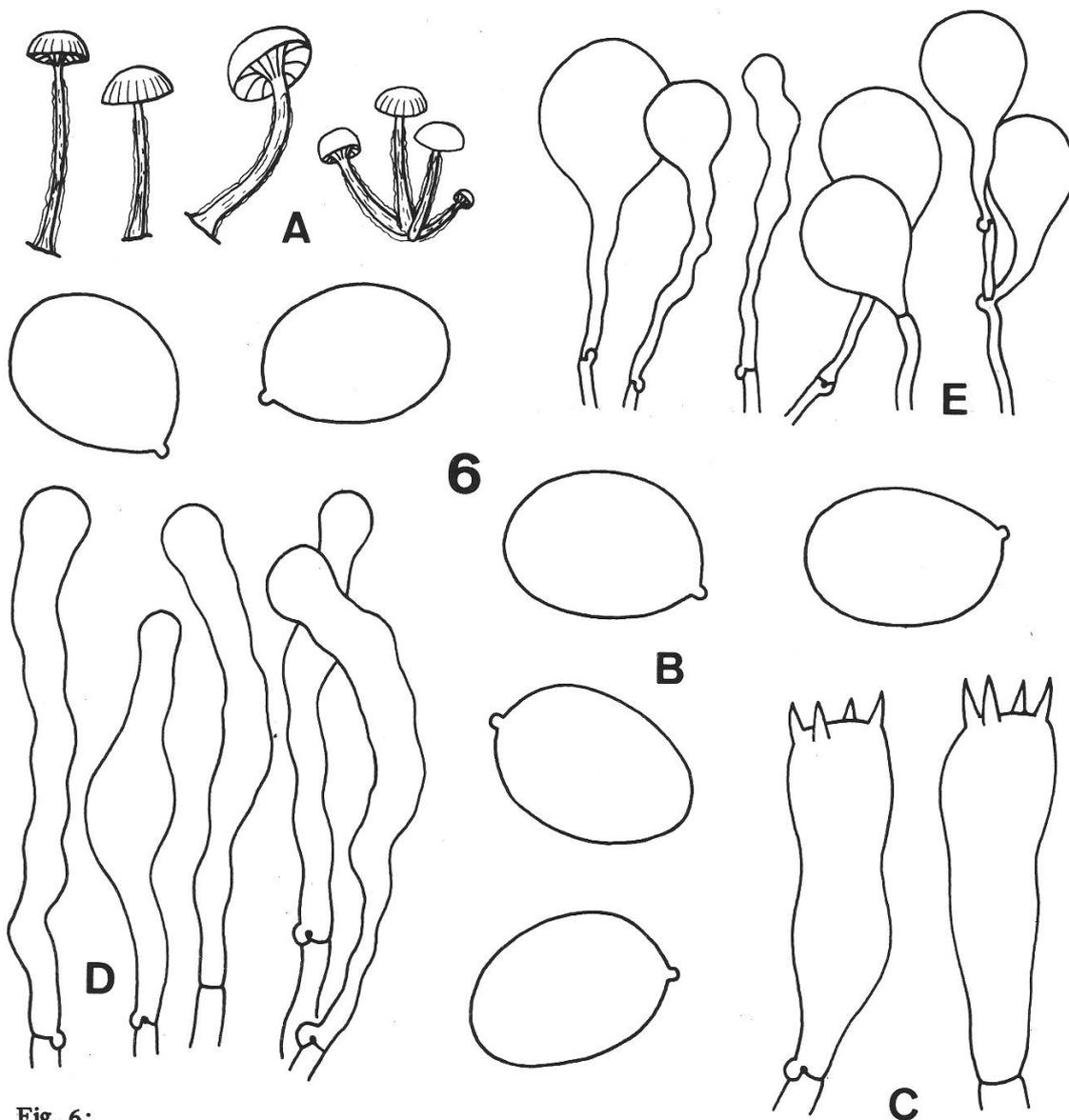


Fig. 6:

*Mycena austrororida* Singer (ZT 68/390):

A. carpophores. – B. spores. – C. basidia. – D. cheilocystidia. – E. cuticle.

Habitat. – On rotting leaves, bark and wood of trees (in New Zealand observed on *Pinus*, *Leptospermum*, *Rhipogonum*), rarely on herbaceous debris. Juan Fernandez (type), Chile, Argentina (Singer 1969: 119), New Zealand.

Material examined. – CHILE: Osorno, Valle „Gol-Gol“, Anticura, 1 April 1963, Horak (ZT 66/149). – Osorno, coastal forest near Pucatrihue, 30 April 1963, Horak (ZT 66/349). – NEW ZEALAND: Kelburn, 20 May 1958, V. Fell in herb. Stevenson-Cone (holotype of *M. veronicae* Stev., K). – New Zealand, Colenso b 545 (K). – Nelson, N of Collingwood, Pakawau Creek, 7 May 1968, Horak (ZT 68/390).

According to Singer (1969: 119) the type material of *M. austrororida* is kept in S. However, despite intensive search, the type collection was not located there.

Based upon our present knowledge *M. austrororida* is distributed in the sub-antarctic region East (Juan Fernandez, southern parts of Chile and Argentina) and West (New Zealand) of the Pacific Ocean. Careful macroscopical and microscopical observations showed that there are no distinctive differences between the specimens cited above (compare also Fig. 5 and 6), with one exception: the cheilocystidia of the South American collections are more clavate-subcapitate as the ones observed on New Zealand specimens.

Concerning luminescence of the carpophores no information has been reported yet.

## 6. *Mycena baccatipes* Métrod

*Mycena baccatipes* Métrod in Prodr. Fl. Myc. Madagascar 3: 62. 1949.

For description and illustration of this outstanding species consult Métrod (1949: l.c.).

Doubtful species with possible relationship to *M. rorida*:

*Agaricus (Mycena) roridulus* Berkeley & Curtis in J. Linn. Soc. 10: 280. 1869.

The type material (K) is in very poor condition and it was impossible to recover any microscopical data.

*Omphalia (Omphaliopsis) roriduliformis* Murrill in North American Fl. 9: 317. 1916.

This fungus was found on a dead log in Jamaica. Murrill emphasizes in the original description that the material is sterile and thus its correct taxonomical position must remain doubtful.

The author is indebted to the authorities of the Forest Service in New Zealand and Papua New Guinea and the Swiss Society of Natural Sciences who financed collecting trips in Australasia. I am grateful also to the curators in K and S who helped to locate type material.

If not otherwise stated the magnification of the figures are: carpophores (nat. size), spores (x 2000), basidia and cystidia (x 1000) and cuticle (vertical section, x 500).

## Summary

Three new species of *Mycena* (*M. lamprospora*, *M. praeclara*, *M. irritans*) are described and illustrated. Luminescence and taxonomical relationships towards *M. rorida* are discussed.

## Zusammenfassung

*Mycena rorida* (Fr.) Quél. und verwandte Arten aus der Südhalbkugel. Drei neue *Mycena*-Arten (Basidiomycetes: *M. lamprospora*, *M. praeclara* und *M. irritans* aus Neu Guinea und Neu Kaledonien) werden beschrieben und abgebildet. Die Beziehungen zu *Mycena rorida* werden diskutiert.

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