Some Agarics new to India

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Six Agarics, *Callistosporium luteo-olivaceum* (BERK. & CURT.) SINGER, *Chaetocalathus semisupinus* (BERK. & BR.) PEGLER, *Filoboletus manipularis* (BERK.) SINGER, *Lepista hyalodes* (BERK. & BR.) PEGLER, *Marasmiellus purpureoalbus* (PETCH) SINGER and *Tricholoma rhacophorum* (BERK. & BR.) SACC. are recorded and described for the first time from India.

Six agaric species hitherto not recorded from India are described based on southern Indian collections. The colour codes added in brackets are from KORNERUP & WANSCHER (1967). The collections cited are deposited in the herbarium of the Calicut University Botany Department (CALI).

Descriptions

1. *Callistosporium luteo-olivaceum* (BERK. & CERT.) SINGER. – Lloydia 9: 117. 1946. – Fig. 1. a–c.

Pileus 0.8–1.6 cm diam., convex to applanate or umbilicate; surface honey yellow (5D6), glabrous; margin straight, entire. – Lamellae adnate, amber yellow (4B6), narrow, up to 2 mm wide, close, with lamellulae; edge smooth. – Stipe 1.5–3 cm × 1.5–2 mm, central, cylindric or often compressed, fistulose; surface apricot yellow (5B6) at the apex, greyish beige (4C2) at the base, glabrescent. – Odour none. – Spores 4–5 × 2.75–3.5 µm, subglobose, ovo-ellipsoid, hyaline, inamyloid, thin-walled, smooth. – Basidia 15–24 × 5.5–7 µm, clavate, containing a yellowish brown pigment, bearing four sterigmata up to 4 µm long. – Edge of lamellae fertile. – Cheilocystidia and pleurocystidia none. – Hymenophoral trama regular, inamyloid; hyphae 1.5–5 µm diam., often inflating up to 20 µm diam., hyaline, thin-walled. – Context inamyloid; hyphae similar to that of hymenophoral trama. – Pileipellis a repent cutis of radially parallel hyphae, similar to the underlying context but containing a yellowish brown pigment. – Stipe tissue inamyloid; hyphae 1–7 µm diam., inflating up to 20 µm diam., hyaline, thin-walled. – Hyphae lacking clamp connections.

Collection examined. – INDIA, Kerala, Wayanad, Sultan Batteri, on a decaying stump partially buried in soil, from a forest locality near Kuppadi Forest Range Office, 19 June 1985, CALI No. M 265.

As far as known, this is the first Indian record of this species. Earlier it has been recorded only from North America and tropical South America (SINGER, 1970), but according to REDHEAD's (1982) concept of the genus, it occurs also in Europe, China (HORAK, 1987) and Japan (HONGO, 1981). The present collection is in remarkable agreement with the description given by PEGLER (1983) of a collection from Trinidad.

2. *Chaetocalathus semisupinus* (BERK. & BR.) PEGLER. – Kew Bull. 41 (4): 866. 1986. – Fig. 1. d–h.

Pileus 2–4.5 mm diam., membranous, with dorsal attachment, discoid; surface pure white, appressed-hairy; margin entire, with minute appendiculate scales. – Lamellae free to slightly adnexed, radiating from a central point, white, close with lamellulae. – Stipe absent. – Spore print white.

Spores 10–12 × 8–10 µm, subglobose, hyaline, weakly dextrinoid, thin-walled, smooth. – Basidia 18–25 × 8–9 µm, clavate, bearing one or two sterigmata. – Edge of lamellae sterile. – Cheilocystidia 12–25 × 8–10 µm, clavate, with one or two apical prongs, 5–20 µm long, hyaline, thick-walled, encrusted. – Hymenophoral trama narrow, subregular, inamyloid; hyphae 2–10 µm diam., hyaline, thin-walled. – Pileipellis an epicutis of dense, entangled hairs, 250–400 × 4–6 µm, sinuoso-cylindric, tapering towards the apex, unbranched, aseptate, hyaline, dextrinoid, with a strongly thickened wall. – Clamp connections present.

Collection examined. – INDIA, Kerala, Malappuram, Calicut University Campus, Botanical Garden, in groups, on dead twigs in shaded area, 2 Aug. 1985, CALI No. M 312.

The type material of this species is from Sri Lanka. BOEDIJN (1940) reported it from Krakatau (as *Calathinus semisupinus*). Recently PEGLER (1986b) reported it from Malaya and in his opinion (PEGLER, 1986a, 1986b) that this species may well be the common white species of *Chaetocalathus* in South-East Asia often described under different names. In the present collection the spores are subglobose and are larger than those of the type.

3. *Filoboletus manipularis* (BERK.) SINGER. – Lloydia 8: 215. 1945. – Fig. 2. d-g.

Pileus 1–2.5 cm diam., soft and thin, conico-campanulate to convex; surface yellowish grey (2C2) at the centre, white towards the margin, hygrophanous, translucent, subviscid, smooth, tessellate;

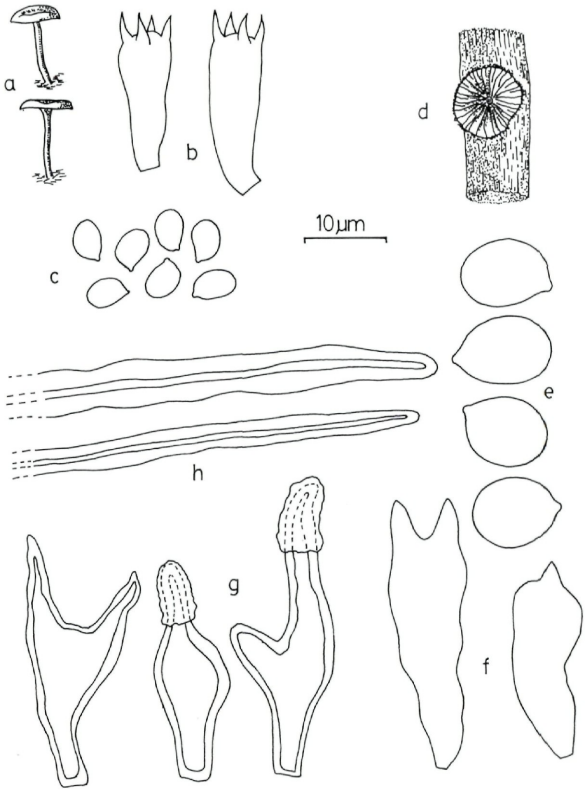

Fig. 1. a–c. *Callistosporium luteo-olivaceum*. – a. habit, × 1. – b. basidia. – c. spores.- d-h. *Chaetocalathus semisupinus*. – d. habit, × 4. – e. spores. – f. basidia. – g. cheilocystidia. – h. hairs of the pileipellis.

margin straight. – Hymenophore slightly subdecurrent, tubulate, white; pores 1 per mm, in radial rows, circular in fresh specimens, angular when dried; edge of the dissepiments slightly pruinose. – Stipe 2.5–4.5 cm × 1.5–3 mm, central, cylindric, almost equal, solid; surface white, glabrous at the apex, tomentose at the base. – Odour none. – Spore print white.

Spores 5–8 × 5–6.5 µm, subglobose to almost globose, hyaline, amyloid, thin-walled, smooth. – Basidia 15–25 × 6.5–8 µm, clavate, bearing four sterigmata up to 7 µm long. – Hymenophore-edge sterile. – Cheilocystidia 40–60 × 10-12 µm, ventricose-clavate to fusoid, often with irregular, diverticulate, apical outgrowths, hyaline, thin-walled. – Pleurocystidia none. – Hymenophoral trama regular, inamyloid; hyphae 1.5–10 µm diam., often inflated up to 30 µm diam., hyaline, thin-walled. – Context inamyloid; hyphae much inflated, 2–50 µm diam., hyaline, thin-walled. – Pileipellis an epicutis of radially arranged repent hyphae, 5–10 µm diam., hyaline, thin-walled, with diverticulate outgrowths. – Stipe tissue inamyloid; hyphae 1.5–25 µm diam., hyaline, thin-walled; hairs of the stipe formed of loose clusters of diverticulate hyphae. – Clamp connections present.

Collection examined. – INDIA, Kerala, Wayanad, Chethaleth Reserve Forest, in dense cespitose clusters on decaying wood, 18 June 1985, CALI No. M 238.

The type material of this species is from Australia. This is the first report of the species from India, although it is reported as common throughout South-East Asia and Australia (Pegler, 1986a). There is also a record of this species from Venezuela (Dennis, 1970). This species is rather common in the forests of Kerala and the densely cespitose clusters of the fungus on rotting wood can be identified instantly. *F. gracilis* (Klotzsch ex. Berk.) Singer is a closely related neotropical species differing only in larger habit and adnexed hymenophore with smaller spores.

4. *Lepista hyalodes* (Berk. & Br.) Pegler. – Kew Bull. Addit. Ser. XII: 79. 1986. – Fig. 2. a–c.

Basidiome large and fleshy. – Pileus 4–12 cm diam., convex to applanate, sometimes umbilicate; surface yellowish white (3A2), becoming pale brownish, not striate, smooth; wart-like proliferations showing poorly developed lamellae often present towards the centre; margin slightly incurved, becoming straight, later deeply incised. – Lamellae adnate with a decurrent tooth, white, becoming pinkish, up to 5 mm wide, very crowded; edge smooth. – Stipe 2–4.5 × 0.7–2 cm, excentric to almost central, almost equal or broader towards the base, hollow to stuffed at the centre; surface

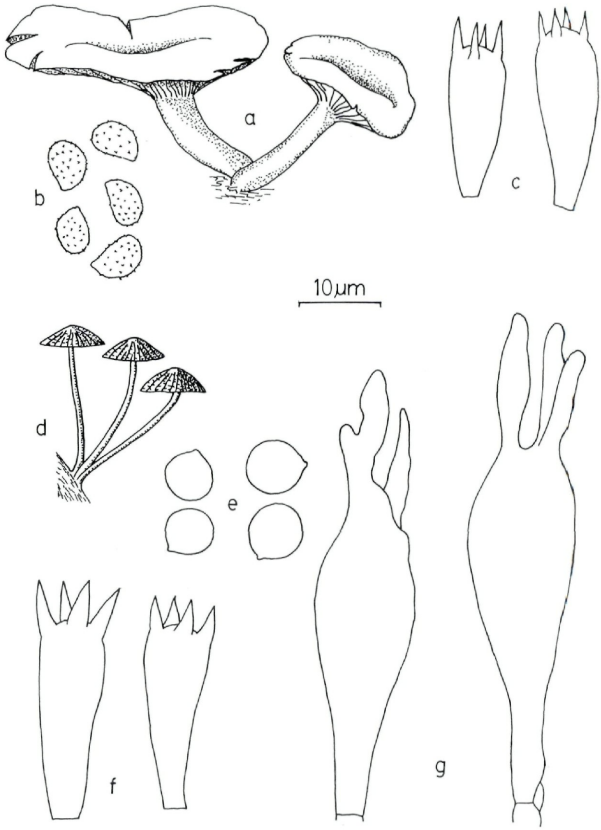

Fig. 2. a–c. *Lepista hyalodes*. – a. habit, × 1/2. – b. spores. – c. basidia.- d–g. *Filoboletus manipularis*. – d. habit, × 1/2. – e. spores. – f. basidia. – g. cheilocystidia.

dull white, finely fibrillose. – Odour not distinctive. – Spore print brownish orange (5C4). – Basidiomes darken to fuscous brown on drying.

Spores 5–7 × 4–5 µm, ellipsoid, hyaline, inamyloid, thin-walled; finely echinulate. – Basidia 18–25 × 7–8 µm, clavate, bearing four sterigmata up to 5 µm long. – Edge of lamellae fertile. – Cheilocystidia and pleurocystidia none. – Hymenophoral trama subregular to almost regular, inamyloid; hyphae 2–7 µm diam., inflating up to 20 µm diam., thin-walled, hyaline. – Context thick, white, inamyloid; hyphae similar to that of hymenophoral trama. – Pileipellis a repent epicutis of interwoven hyphae, 2–7 µm diam. – Stipe tissue inamyloid. – Clamp connections present.

Collection examined. – INDIA, Kerala, Malappuram, Calicut University Campus, on soil in dense cespitose clusters, 12 June 1986, CALI No. M 376.

So far, this species was known only from Sri Lanka. The present collection is in close agreement with the desciption provided by Pegler (1986a) including the colour of both fresh and dried basidiomes. It differs, however, from the Sri Lankan collection in having broader lamellae and slightly larger spores.

5. *Marasmiellus purpureoalbus* (Petch) Singer. – Sydowia 15: 57. 1961. – Fig. 3. a–e.

Pileus 2–6 cm diam., orbicular to reniform, convex with slightly depressed centre; surface yellowish white, sulcato-striate up to the middle, finely pruinose; margin straight. – Lamellae adnate to a subfree collar; yellowish white, subclose, with lamellulae of different lengths, rarely with some interveining; edge smooth. – Stipe 2–3.5 cm, 3–7 mm broad at the apex, tapering towards base, excentric, cylindric to slightly compressed, solid; surface white or often with violet brown (11F6) colour at least in some parts, glabrous. – Odour none. – Spore print white.

Spores 10–15 × 6–8 µm, ellipsoid, hyaline, inamyloid, thin-walled, smooth. – Basidia 27–32 × 8–10 µm, clavate, bearing four sterigmata up to 5 µm long. – Edge of lamellae sterile. – Cheilocystidia 15–25 × 9–11 µm, clavate, with finger-like outgrowths over the apex, hyaline, thin-walled. – Pleurocystidia none. – Hymenophoral trama subregular, not gelatinized; hyphae 2–5 µm diam., inflated up to 30 µm diam., hyaline, thin-walled. – Context inamyloid, not gelatinized; hyphae 2–7 µm diam., inflated up to 20 µm diam., hyaline, thin-walled. – Pileipellis a repent epicutis of hyaline, thin-walled, 2–5 µm wide hyphae with a distinct Rameales-structure. – Stipe tissue inam-

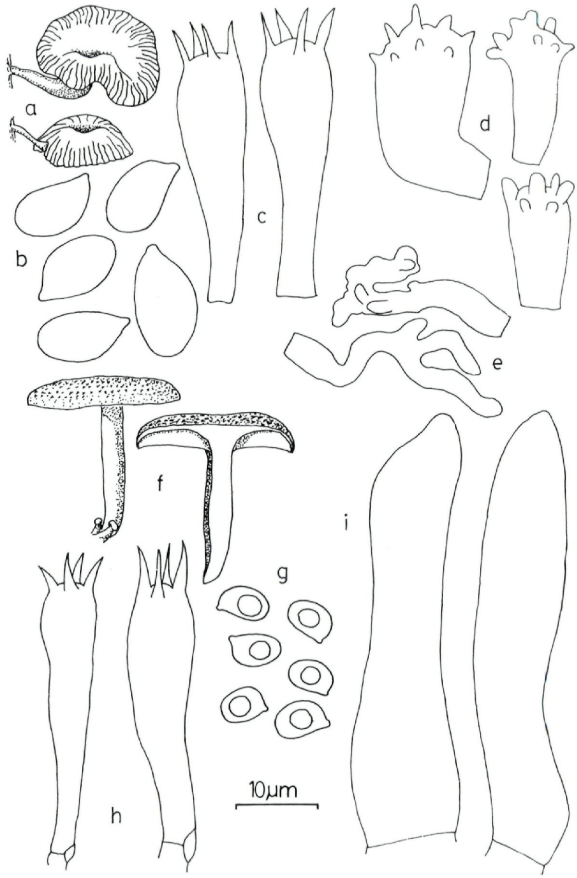

Fig. 3. a–c. *Marasmiellus purpureoalbus*. – a. habit, × 1/2. – b. spores. – c. basidia. – d. cheilocystidia. – e. epicuticular elements. – f–i. *Tricholoma rhacophorum*. – f. habit, × 1/2. – g. spores. – h. basidia. – i. epicuticular elements.

yloid; hyphae 2–15 µm wide, hyaline, thin-walled. – Clamp connections present.

Collection examined. – INDIA, Kerala, Palghat, Tarur, on decaying coconut leaf-rachis, in groups, 30 June 1986, CALI No. M 369.

Although the species is characterized by the vinaceous colour, it has been observed that the pigments are soluble and washed out by rain often leaving white basidiomes (PEGLER, 1977; 1986a). Originally described from Sri Lanka by PETCH (1948) as *Marasmius purpureoalbus*, it has also been reported from Kenya and Tanzania by PEGLER (1977). The spores of the Indian collection are slightly larger than those of other collections mentioned in the literature.

6. *Tricholoma rhacophorum* (BERK. & BR.) SACC. – Syll. Fung. 5: 98. 1887. – Fig. 3. f–i.

Pileus 3–6 cm diam., convex to applanate; surface brownish grey (6E2), densely coated with minute, appressed squamules, not striate; margin straight, entire. – Lamellae adnate, dull white, up to 6 mm wide, crowded, with lamellulae; edge smooth. – Stipe 3–5 × 0.8–1.6 cm, central, cylindric, solid, surface white with scattered, minute, brownish grey (6E2) squamules. – Odour mild, somewhat that of castor oil. – Spore print pure white.

Spores 5–6 × 4 µm, ellipsoid, hyaline, inamyloid, thin-walled, smooth. – Basidia 25–35 × 5–7 µm, clavate, bearing four sterigmata up to 8 µm long. – Edge of lamellae sterile due to clusters of tramal hyphae projecting out of the edge. – Cystidia lacking. – Hymenophoral trama subregular, inamyloid; hyphae 2–5 µm diam., thin-walled, pale yellowish. – Context thick, interwoven; hyphae similar to that of hymenophoral trama. – Pileipellis a disrupted trichoderm formed by appressed, suberect or erect bundles of narrowly cylindric, septate elements, up to 10 µm diam., thin-walled, containing a brown plasmatic pigment. – Stipe tissue inamyloid. – Clamp connections present.

Collection examined. – INDIA, Kerala, Malappuram, Calicut University Campus, Botanical Garden, scattered or in groups on ground amongst litter, 13 June 1985, CALI No. M 162.

This is the first record of this species outside of Sri Lanka. The disrupted trichoderm and the resultant squamulose nature of the pileal surface are characteristic of the species (PEGLER, 1986a). The spores in the present collection are slightly smaller than those of the Sri Lankan specimens.

Acknowledgments

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