

POLYPORES NEW TO INDIA—II

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ABSTRACT

Six species of Polypores namely *Coltricia pyrophila* (Wake.) Ryv., *Theleporus calcicolor* (Sacc. & Syd.) Ryv., *Grammothele delicatula* (Henn.) Ryv., *Antrodiella semisubina* (Berk. & Curt.) Ryv., *A. liebmannii* (Fr.) Ryv. and *Microporus vernicipes* (Berk.) Kunt. are described as new records from India. *C. pyrophila* is found to be parasitic on *Shorea robusta* Gaertn.

INTRODUCTION

Studies on Polyporaceous fungi of Eastern Himalayas have revealed six species of polypores as new records from India. These species belong to the families Corticiaceae, Polyporaceae and Hymenochaetaceae and have been repeatedly collected from Eastern Himalayas.

MATERIALS AND METHODS

Free hand sections and hyphal types from fresh and dried material were examined in 5% KOH, 1% Phloxine, Melzer solution and Lactophenol (Ryvarden & Johanson, 1980). The specimens collected by the author have been given numbers and are deposited in the Cryptogamic herbarium, Botanical Survey of India, Howrah (CAL); Department of Biology, University of Oslo, Norway (O) and Departamento de Ciencias, Biologicos, Ciudad Universitaria, Buenos Aires, Argentina (BAFC).

Colours are quoted from Kelly and Judd (1955). Drawings were made with the help of Camera lucida.

Coltricia pyrophila (Wake.) Ryv. in Norw. J. Bot. 19 : 231, 1972. Fig. I (l-m).

Fruitbody annual, centrally stipitate, single or caespitose, arising from a common base ;

pileus circular, infundibuliform with a depression at centre, 2-5 cm in diameter, up to 10 mm thick at centre, coriaceous tough when fresh, hard brittle on drying, yellowish white to light yellowish brown, dark brown on drying, velutinate-tomentose in concentric zones when young, glabrous with age, faintly sulcate especially near margin ; margin entire to wavy, thin, deflexed ; pore surface decurrent, yellowish white to yellowish brown when fresh, dark brown on bruising and with age ; tubes 1-2.5 mm deep ; context light yellowish brown, up to 10 mm thick near stipe ; stipe circular, equal or expanded towards ends, finely velutinate, light brown, darker towards base, solid, 2-4 cm long, 5-10 mm in diameter.

Hyphal system monomitic, generative hyphae simple septate, pale to golden yellow, branched, 3-8 μ m wide ; setae and cystidia absent ; basidiospores subglobose to oblong ellipsoid, 4.5-5.5 $\times$ 3-4 μ m, hyaline to pale yellow, non-amyloid, thin-walled.

Specimens examined : JRS 60500 (CAL, O) on roots of living *Shorea robusta* Gaertn., Baghmara, Garo Hills, Meghalaya, Sept., 1986 ; JRS 60501 (CAL) on roots of living *Shorea robusta* Baghmara, Garo Hills, Meghalaya, Oct., 1985 ; JRS 60619 (CAL) on roots of living *Shorea robusta*, Tura Bio-

sphere Reserve, Garo Hills, Meghalaya, Sept., 1987.

The zonate, light to dark brown pileus, distinct robust stipe; colour change on bruising and habitat are good field characters of this species. Wakefield (1916) described it from tropical Africa as growing on burnt ground. But in India it is always found growing on roots of living *Shorea robusta*. Also the colour change of pore surface on bruising which Wakefield made on mention is an important field character of this species.

Theleporus calcicolor (Sacc. & Syd.) Ryv. in Trans. Br. Mycol. Soc. 73 : 12, 1979. Fig. I (a-d).

Fruitbody annual or biennial, resupinate, widely effused up to 20 cm long, 1-2 mm thick; margin white and finely fimbriate; pore surface white to pinkish white or yellowish white; pores up to 0.5 mm deep, 6-8 per mm, irregular and connected to adjacent pores by narrow openings, angular, hymenium restricted to the bases of the pores and more whitish than the sterile pore walls; subiculum very thin, cottony to dense, white, up to 0.5 mm thick.

Hyphal system trimitic, generative hyphae with clamps, up to 2.5 μm wide, branched; skletal hyphae solid, up to 2 μm wide; binding hyphae much branched, solid with tapering branches, 2-5 μm ; dendro-hyphidia present; basidia clavate, 4-sterigmate; spores broadly to oblong ellipsoid with one end pointed, non-amyloid, $5.5-7(8) \times 3-3.5 \mu\text{m}$.

Specimens examined : JRS 60281 (CAL, O) on a dead thin branch of hardwood, Cherapunjee, Khasi Hills, Meghalaya, Aug., 1986; JRS 60308 (CAL) on a dead rotting hardwood stump, Shella, Khasi Hills, Meghalaya, Aug., 1986; JRS 60976 (CAL) on a dead thin branch of hardwood, Mebo, East Siang, Arunachal Pradesh, Sept., 1987.

This is a common species on dead thin branches of hardwoods in the deciduous

forests of Eastern Himalayas. Pinkish to yellowish white pore surface, thin white subiculum and white hymenium at the bases of pores are good field characters. Microscopically dendro-hyphidia and broadly ellipsoid spores are characteristic. The spores and other characters are identical with Lowe (1964).

Grammothele delicatula (Henn.) Ryv., A Preliminary Polypore Flora of East Africa, p. 37, 1980. Fig. I (e-f).

Fruitbody annual, resupinate, adnate, widely effused, 5-15 cm long, 1-4 cm broad and up to 1 mm thick at centre; margin cottony; pore surface greyish white to pinkish white or pinkish grey to pinkish brown, darker with age; pores angular, shallow, up to 0.5 mm deep, 2-4 per mm, distinct and entire; hymenium restricted to the bases of pores; subiculum thin whitish, dark yellowish brown in KOH, up to 0.5 mm thick.

Hyphal system dimitic; generative hyphae hyaline to pale yellow, branched as arboriform skletal hyphae, 2-5 μm wide; dendro-hyphidia present, difficult to observe in dried specimens; spores cylindrical-ellipsoid, $15-18(20) \times 4.5-5.5(6) \mu\text{m}$, non-dextrinoid, hyaline, thin-walled.

Specimens examined : JRS 60488 (CAL, O) on a dead thin branch of hard wood, Balpagram National Park, Garo Hills, Meghalaya, Sept., 1986; JRS 60615 (CAL) on a dead thin branch of hard wood, Namdapha Biosphere Reserve, Tirap dist., Arunachal Pradesh, Sept., 1987.

Pinkish shade of pore surface and large spores are diagnostic features for this species. It is quite a rare species found on dead thin branches of hardwood.

Antrodiella semisupina (Berk. & Curt.) Ryv., A preliminary Polypore Flora of East Africa, p. 261. 1980 Fig. I (i).

Fruitbody annual to perennial, first small,

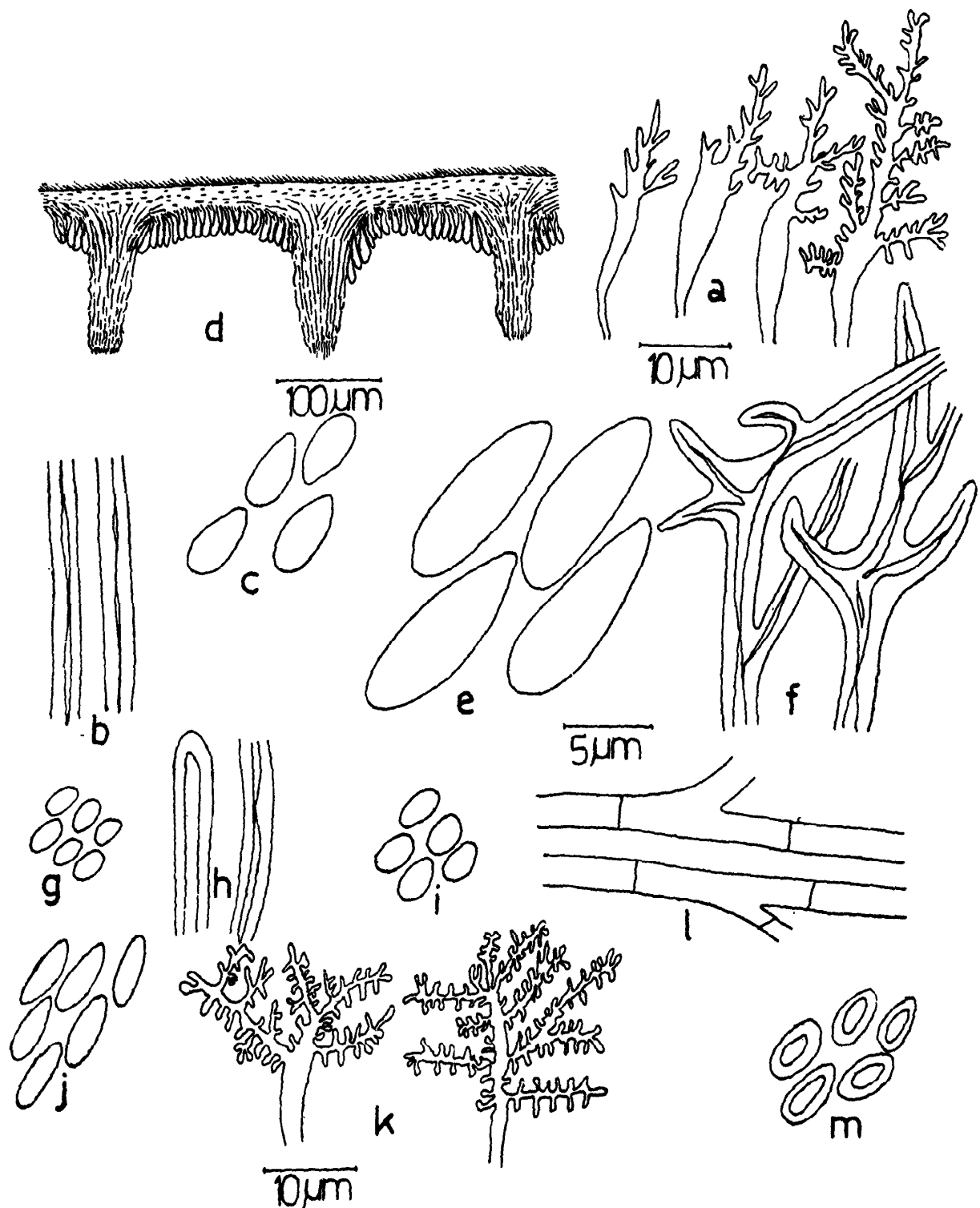


Fig. 1. (a-m) : *Theleporus calcicolor* (a-d) : a. dendrohyphidia, b. skeltal hyphae, c. basidiospores, d. section through fruitbody showing hymenium only at the bases of pores and sterile pore walls ; *Grammothele delicatula* (e-f) : e. basidiospores, f. skeltal hyphae ; *Antrodiella liembannii* (g-h) : g. basidiospores, h. skeltal hyphae ; *A. semisupina* i. basidiospores ; *Microporus vernicipes* (j-k) : j. basidiospores, k. dendrohyphidia ; *Coltricia pyrophila* (l-m) : l. generative hyphae, m. basidiospores.

effused, up to 8 cm long, 1-3 mm thick, later reflexed at upper margin into narrow, mostly imbricately arranged small and semi-recurved pilei up to 4 cm long, 1-2 cm broad and 5-10 mm thick at base, fleshy coriaceous when fresh, hard and waxy on drying, surface white, brownish on bruising, yellowish brown or clay colour with age, soft velutinate to glabrous at maturity, faintly concentrically zonate; margin thin, sterile and paler; pore surface whitish to yellowish brown, shining in incident light; tubes 1-5 mm deep, pale yellowish; pores angular, 5-7 per mm, rarely lacerate with age; context yellowish white, 1-3 mm thick.

Hyphal system dimitic, generative hyphae with clamps, hyaline, branched, 2-3 μ m wide; skeltal hyphae thick-walled, solid, 2-4 μ m wide, spores broadly ellipsoid to subglobose, 3-4.5 $\times$ 2-3 μ m.

Specimens examined : JRS 60228 (CAL, O) base of a rotting hard wood stump, Shella, Khasi Hills, Meghalaya, Aug., 1986; JRS 60986 (CAL) base of a rotting hard wood stump, Pasighat, East Siang, Arunachal Pradesh, Sept., 1987; JRS 60886 (CAL) base of a hard wood rotting stump, Pasighat, East Siang, Arunachal Pradesh, Sept., 1987.

Markedly resupinate to effused-reflexed fruitbody may confuse this species in macroscopical examinations with many other species (Bourdot & Galzin 1928; Bondartsev, 1953; Pilat 1938). But a white glabrous pileus, broadly ellipsoid spores and absence of cystida are features which make this species distinct. *A. semisupina* is close to *A. minutispora* (Reid, Thind & Chatr.) Ryv. but a finely tomentose brownish pileus and smaller spores (2.5-3.5 $\times$ 1.5-2 μ m) separates the latter from the former.

Antrodiella liebmannii (Fr.) Ryv., A Preliminary Polypore Flora of East Africa, p. 258. 1980.

Fruitbody annual, solitary to imbricate, pilei flabelliform to spathulate, many arising

from a common stipe-like base, soft coriaceous when fresh, hard and brittle on drying, 2-3 cm long, 1-2 cm broad and up to 2 mm thick near base, surface glabrous, light reddish brown to reddish black, cracking on drying, margin thin, wavy lobed; pore surface light yellowish brown to medium brown, highly cracking on drying; tubes straw-coloured, up to 1 mm deep; pores minute, 9-10 per mm, invisible to naked eye, shining in incident light; context pale to medium brown, resinous hard when dry; stipe absent or present as a short flattened base, medium reddish brown glabrous, up to 1 cm long.

Hyphal system dimitic, generative hyphae hyaline, with clamps, 1-2.5 μ m wide, difficult to observe; skeltal hyphae hyaline to pale yellow, rarely branched, 2-6 μ m wide; basidia clavate, 4-sterigmate; basidiospores broadly ellipsoid, 2.5-3.5 $\times$ 1.5-2 μ m, non-amyloid, hyaline.

Specimens examined : JRS 60571 (CAL, O) on a rotting hardwood log, Bordumsa, Tirup, Arunachal Pradesh, Sept., 1986; JRS 60977 (CAL) on a rotting hard wood trunk, Maro, Upper Subansiri, Arunachal Pradesh, Sept., 1987; JRS 60836 (CAL) on a dead hard wood trunk, Bulli, West Siang, Arunachal Pradesh, Sept., 1987.

Small, glabrous, reddish brown to black pileus, pale yellowish pore surface which is cracked on drying and broadly ellipsoid spores are distinguishing features of this species.

Microporus vernicipes (Berk.) Kunt. Rev. Gen. Pl. 3 : 494. 1898.

Fruitbody annual, single or gregarious, semicircular to more commonly flabelliform or spathulate with a contracted stipe-like base, up to 4 cm long, 2 cm broad and 1-3 mm thick; pileus light brown to light yellowish brown, dark brown near base, lighter towards margin, faintly zoned, glabrous, a distinct white irregularly growing mycelial

pad present near the base of the pileus and it extends both towards the pileus and upper side of the stipe ; margin sterile, thin ; pore surface light yellowish brown to pinkish brown ; tubes pale yellow, up to 1 mm deep ; pores visible to naked eye, 4-6 per mm ; context white to yellowish white, 1-2 mm thick ; stipe lateral, up to 1 cm long, 0.5-1 mm in diameter, light yellowish brown or greyish brown to dark brown, expanded into a disc at the base, 2 mm in diameter, with a white mycelial outgrowth spreading from the base of the pileus and covering upper side of the stipe.

Hyphal system trimitic, generative hyphae with clamps, difficult to observe in dried specimens, branched, 1.5-2.5 μ m wide ; skeletal hyphae dominating, 2.5-4.5 μ m wide ; binding hyphae tortuous with tapering ends, 1-3 μ m wide ; dendro-hyphidia present along the dissepiments, more common near the pore mouths ; basidia 4-sterigmate ; spores cylindrical, 5-7.5 $\times$ 2-2.5 μ m, non-amyloid.

Specimens examined : JRS 60254 (CAL, BAFC) on the underside of a rotting hardwood log, Jarian, Jaintia Hills, Meghalaya, Aug., 1986 ; JRS 60987 (CAL) on a rotting trunk of hard wood, Pasighat, East Siang, Arunachal Pradesh, Sept., 1987.

M. vernicipes and *M. affinis* (Blume & Nees ex Fr.) Kunt. resemble with each other and can be confused in the field. But in *M. affinis*, the fruitbodies are thicker (up to 5 mm), have no white mycelial outgrowth at the base of pileus and also the pores are smaller (8-10 per mm).

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