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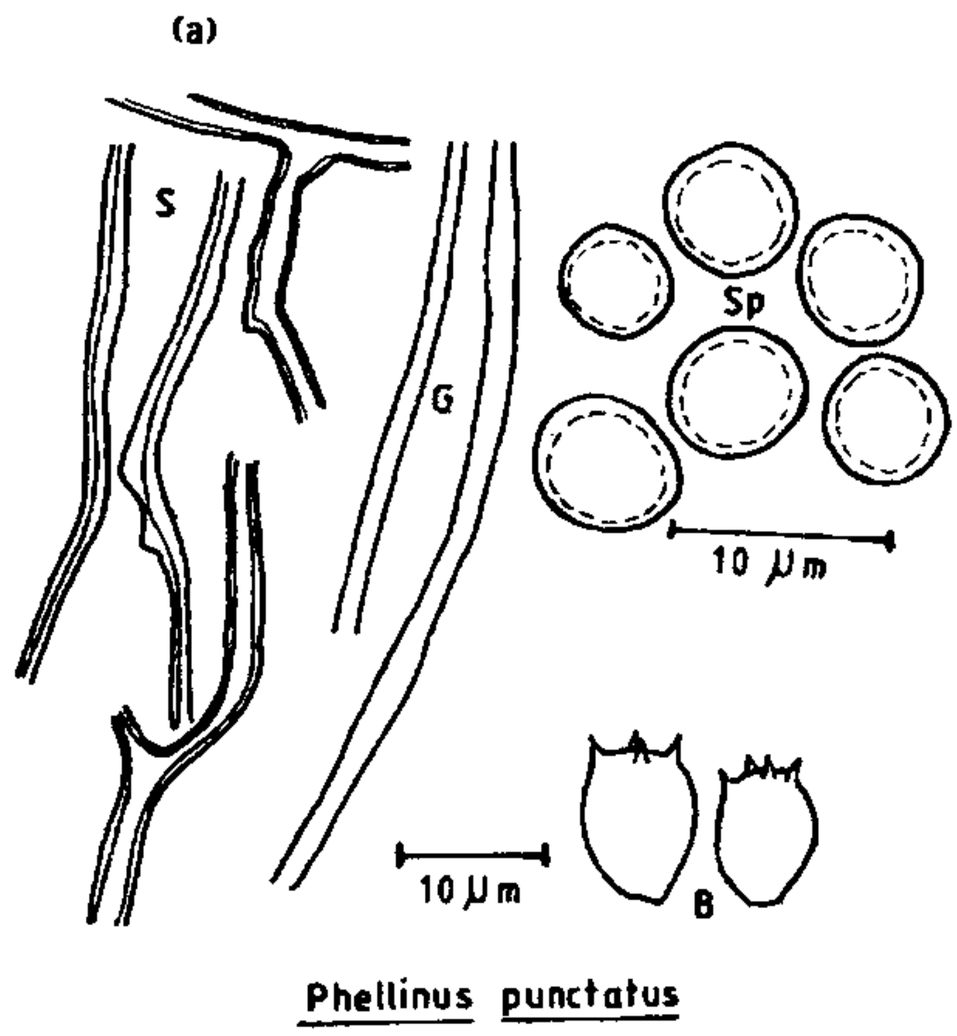

Figure 1a. *Phellinius punctatus;* **b.** *Pellinus höhnelii.* B, basidia. G, generative hyphae. S, skeletal hyphae. Se, setae. Sh, setal hyphae. Sp, spores.

NEW RECORDS OF *PHELLINUS* FROM INDIA

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DURING a survey of the wood-decaying fungi of Kerala, S. India, two species of *Phellinus*, hitherto unrecorded from India, were encountered. These fungi are described and illustrated in this account. Colour terminology used is that of Kornerup & Wanscher[1]. The materials are deposited in the Herbarium, Department of Botany (CALI), Calicut University and the duplicate materials are in the Herbarium of the Division of Mycology and Plant Pathology (HCIO), Indian Agricultural Research Institute, New Delhi, India.

Phellinus punctatus (Fr.) Pilat. (figure 1a)
Atl. Champ. Europe 3:530, 1942.-Syn. *Polyporus punctatus* Fr. Hym. Eur. p. 572, 1874. *Poria punctata* (Fr.) Karst. Bidr. Finl. Natur. O. Folk. 37:83, 1882.

Fruitbody perennial, resupinate, effused, inseparable from wood, thickened at the central region, becoming plano-convex to pulvinate, up to 6 mm thick at the centre and receding towards the margin, woody hard. Pore surface amber yellow (4B6) to golden (4C6), colour fading towards the margin; surface smooth, cracking irregularly with age; margin pale yellow, adpressed and flat, finely velutinate; pores small, not visible to naked eye, round, 5–6 per mm, dissepiments 75–100 μm thick; pore tubes concolorous to the pore surface, stratified about 2 mm long in each layer, old tubes filled with context hyphae, pores oblique. Context olive yellow (3C8), a thin layer present between pore strata, upto 1 mm at the central region, almost absent towards the margin.

Hyphal system dimitic. Generative hyphae hyaline, thin-walled, simple septate, branched, easily breaking, 1.5–2 μm broad, cyanophilous, rather frequent. Skeletal hyphae yellowish, thick-walled, rarely branched, cylindrical or slightly twisted, ends becoming hyaline and attenuated, brownish with KOH, lumen

broad to obliterating, 2–3 μm broad. Setae none. Basidia short, broadly clavate, four spored, 10–12 × 7–8 μm, sterigma 2–3 μm long, straight. Spores almost globose to slightly sub-globose, hyaline while young, becoming somewhat yellowish when mature, smooth, thick walled, 5–6 μm in diam in case of globose spores, others 5–6 × 5–5.5 μm, dextrinoid in Melzer's reagent.

Associated with white rot, sap wood becoming spongy and brittle, heart wood however not attacked. Parasitic on living *Santalum album* Linn with only the affected region dead. Botanical Garden, Calicut University, Kerala, 20-6-1984, *Ganesh G* 61 (HCIO, No. 37789).

Overall the present collection agrees well with that of *P. punctatus* from Western North America[2] and from E. Africa[3]; however, the cystidioles could not be observed and spores were slightly smaller.

Phellinus hohnelii (Bres.) Ryv. (figure 1b). Preliminary polypore flora of E. Africa p. 173, 1980. - Syn. *Fomes hohnelii* Bres. Ann. Mycol. 10: 499, 1912.

Fruitbody perennial, solitary, pileate, sessile, attached with a broad lateral base, sub-applanate to broadly ungulate, heavy, tough-woody, 27–57 × 17–30 × 7.5–15 cm. PILEUS sepia brown (4F4) to smoke brown (4F2) to coal black (3F1), younger areas slightly wine yellow (3B3); glabrous, rimose crusty, concentrically sulcate, older parts breaking into irregular blocks, radial cracks more prominent, rough in older regions; margin thick, rounded, smooth. Pore surface yellowish clay (5D5) when fresh becoming dark blonde (5D4) to nougat (5D3) to black when dry; surface somewhat uniform, rough, cracking irregularly with age; pores round, 3–4 per mm, up to the margin, dissepiments almost as thick as pore mouth width; pore tubes yellowish brown (5E8) becoming blackish brown when old, stratified, each layer about 0.6–1 cm thick, old tubes stuffed with context tissue. Context yellowish brown to blackish brown, up to 3 cm thick, absent between stratas, homogeneous, fibrous.

Hyphal system dimitic. Generative hyphae hyaline, thinwalled, branched, simple septate, 1.5–3 μm broad. Skeletal hyphae yellowish with a brownish tinge, thick-walled, less branched, simple septate, lumen broad, 2.5–4 μm broad, darkening with KOH. Setal hyphae present, brownish, thick-walled, acute, sometimes end obliquely projecting into the hymenium, up to 400 μm long, 6–10 μm broad. Setae present, ventricose to acuminate, brownish, thick-walled, 18–27 × 6–9 μm.

Occurring on living *Terminalia* sp in an evergreen forest causing white rot, the decay being confined to heart wood. Wefts of while mycelium are seen on decaying wood. The sporophores appear on the trunk as low as 2 ft up from the ground level to almost 20 ft Kamathalamudi, Parambiculam, Kerala, 12-11-1985, *Ganesh G* 269 (HCIO, No. 37790); idem, 12-7-1985, *Ganesh G* 219 (CALI).

The authors are grateful to Dr Leif Ryvarden, Universiteteti Oslo, Norway for his help in the identification of the specimens.

5 December 1985; Revised 9 April 1986

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VESICULAR—ARBUSCULAR MYCORRHIZAL FUNGI IN ROOTS AND SCALE-LIKE LEAVES OF *CANNA INDICA* L (CANNACEAE)

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VESICULAR-arbuscular mycorrhizas (VAM) have been reported in a wide range of plants including ornamental plants[1,2]. Reports on the occurrence of VAM fungi in scale-like leaves of some rhizomatous plants of Zingiberaceae have been made recently[3,4]. VAM fungi have also been reported to occur in modified leaves of *Salvinia*[5], senescent leaves of a moss[6], and decaying leaves of peanut[7]. Occurrence of VAM in roots and scale-like leaves of two cultivars of *Canna indica* L is reported in this communication.

The root and the scale-like leaves of rhizome of two cultivars (green leaved and brown leaved) of *Canna indica* L were collected from the botanical garden of this college. Roots and scale-like leaves were fixed in FAA, cleared with 1 N KOH, bleached with alkaline 3% H_2O_2 and stained with trypan blue in lactophenol[8]. The percentage mycorrhizal infection of root and scale-like leaves was calculated[9].