



## Wood rotting non-gilled agaricomycetes new to India

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### ABSTRACT

Three species of non-gilled Agaricomyceteous fungi viz: *Fomitopsis lilacinogilva* (Berk.) J.E. Wright & J.R. Deschamps, *Perenniporia fraxinophila* (Peck) Ryvardeen and *Hyphodontia barbajovis* (Bull.) J. Erikss were collected from the Himachal Pradesh (North-Western Himalayas). They constitute a new record for India/Himalayas and are described and illustrated.

**Key Words:** Non-gilled Agaricomycetes, Himachal Pradesh, Himalayas, India.

### INTRODUCTION

This communication is in continuation with our previous reports on Macrofungi/ wood rotting fungi of North- Western Himalayas (Prasher et al. 2011, 2012, 2012a, 2013, 2013a). During the survey of non-gilled Agaricomycete diversity of Himachal Pradesh, three interesting fungi were collected. Detailed study and literature survey revealed these to be *Fomitopsis lilacinogilva* (Berk.) J.E. Wright & J.R. Deschamps, *Perenniporia fraxinophila* (Peck) Ryvardeen and *Hyphodontia barbajovis* (Bull.) J. Erikss. These are new records for India/ Himalayas and are being described in detail for first time (Bilgrami et al. 1991, Jamaluddin et al. 2004 and Sharma 2012).

### MATERIALS AND METHODS

The specimens were collected in to separate zip lock plastic bags and taken to laboratory These specimens were mounted in 3% KOH, cotton blue (in lactic acid) for determining the cyanophilous reaction, melzer's reagent (for determining the amyloidity), 1% aqueous solution of congo red and Phloxine (to determine the presence or absence of clamps and for measuring the hymenial elements and hyphae), sulphobenzaldehyde (water 1.5 ml, pure sulphuric acid 5.0 ml and benzaldehyde 4.5 ml) for staining gloeocystidia after Slysh (1960).

Collections were critically examined macro and microscopically for different characters. The fungi recorded in this paper are classified after Kirk et al. (2008), Index Fungorum and Mycobank. Standard procedures were adopted to study the specimens after Prasher (1999).

The specimens were deposited in the herbarium of Panjab University Chandigarh India (PAN).

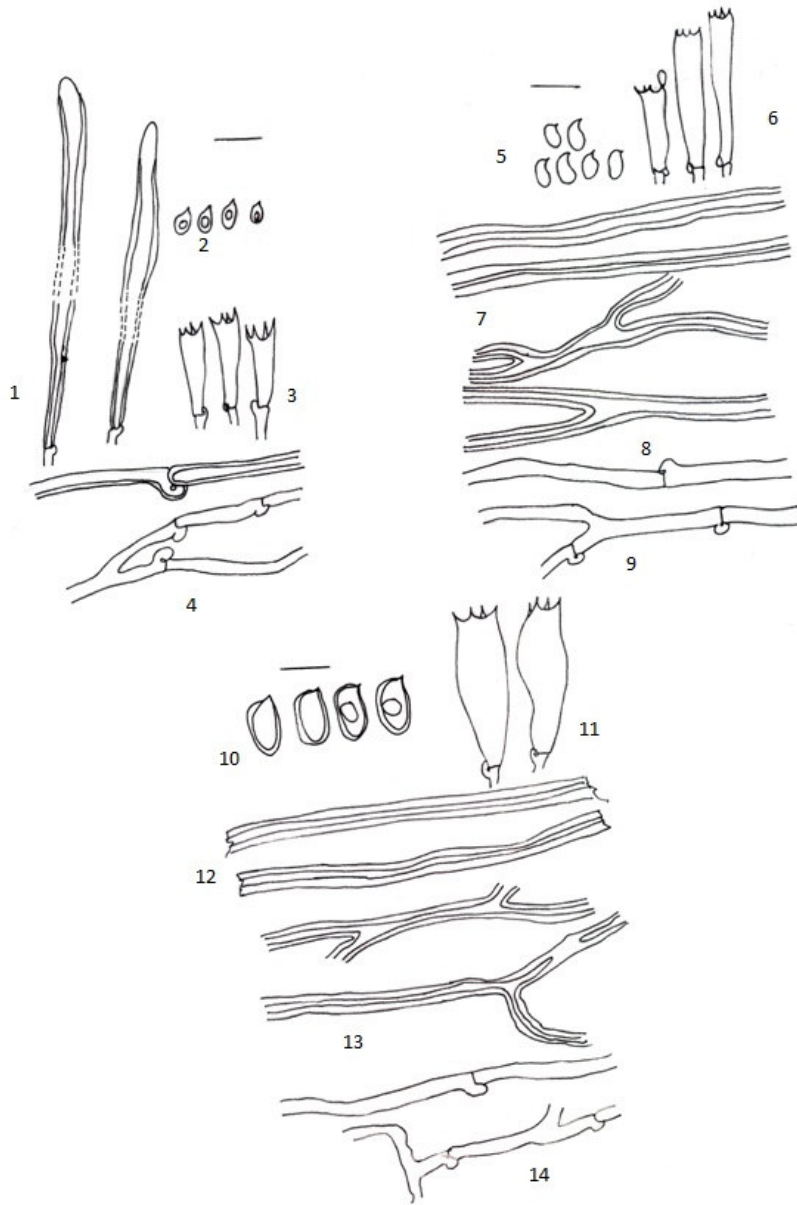
### TAXONOMY

*Fomitopsis lilacinogilva* (Berk.) J.E. Wright & J.R. Deschamps, Revta Investnes agrop. **12** (3): 143 (1975) = *Microporus lilacinogilvus* (Berk.) Kuntze, Revis. gen. pl. (Leipzig) **3** (2):496 (1898) = *Polyporus lilacinogilvus* Berk., Ann. nat. Hist., Mag. Zool. Bot. Geol. **3**: 324 (1839)= *Polystictus lilacinogilvus* (Berk.) Cooke, Grevillea **14** (no. 71): 82 (1886) = *Trametes lilacinogilva* (Berk.) Lloyd, Mycol. Writ. **4** (Syn. gen. Fomes): 226 (1915).

Fig. 1, 5- 9; Fig - 2, B.

Fructification annual to biennial, pileate, effused-reflexed, imbricate; pilei up to 5 x 3 x 2.5 cm, corky when fresh, hard on drying, applanate to unguulate; abhymenial surface smooth, pinkish brown to brown when fresh, light brown on drying; hymenial surface poroid, greyish pink when fresh; pores round to angular, 3-5 (6) per mm at centre and

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**Fig. 1.** *Hyphodontia barba-jovis* (1-4); 1) Cystidia 2) Basidiospores 3) Basidia 4) Generative hyphae. *Fomitopsis lilacinogilva* (5-9); 5) Basidiospores 6) Basidia 7) Skeletal Hyphae 8) Binding hyphae 9) Generative hyphae. *Perenniporia fraxinophila* (10-14); 10) Basidiospores 11) Basidia 12) Skeletal hyphae 13) Binding hyphae 14) Generative hyphae. (10  $\mu$ m).

5-9 at margin; pore tubes up to 2 mm long. Hyphal system trimitic. Generative hyphae up to 3-3.9  $\mu\text{m}$  wide, septate, branched, clamped, thin-walled. Binding hyphae up to 3-4.9  $\mu\text{m}$ , much aseptate, branched, thick-walled. Skeletal hyphae up to 4-5.1  $\mu\text{m}$  wide, aseptate, rarely branched, thick-walled. Cystidia absent. Basidia 17.0-31.0 x 5.0-6.1  $\mu\text{m}$ , clavate, 4-sterigmate, subhyaline, clamped at the base. Cystidia absent. Basidiospores 5.0-6.2 x 2.5-3.6  $\mu\text{m}$ , ellipsoid to cylindrical, smooth, thin-walled, inamyloid, acyanophilous.

**Collection examined:** Himachal Pradesh: Mandi, Dhnotu, on *Cedrus deodara* log, Deepali 38502 PAN, August, 18, 2009; Lahaul-spiti, Kardang Gompa, about 2 km from Lahaul district head quarter, on log of Beli tree, Deepali 38608 PAN, October, 1, 2012.

**Remarks:** This species can be differentiated from other species of the genus by greyish pink hymenial surface and large size of basidiospores. This is being reported for the first time from India/Himalayas.

*Perenniporia fraxinophila* (Peck) Ryvarden, Norw. J Bot. 19: 143 (1972) = *Fomes fraxinophilus* (Peck) Sacc., Syll. fung. (Abellini) 6: 172 (1888) = *Polyporus fraxinophilus* Peck, Bot. Gaz. 7 (4): 43 (1882) = *Poria fraxinophila* (Peck) J.E. Wright, Mycologia 56: 694 (1964) = *Scindalma fraxinophilum* (Peck) Kuntze, Revis. gen. pl. (Leipzig) 3 (2): 518 (1898).

Fig.1, 10-14; Fig. 2, A

Fructification perennial, pileate, effused-reflexed, pileus up to 6 x 7.5 x 3 cm, applanate to unguulate; encrusted, with concentric zones, irregular from margin, hard on drying; hymenial surface poroid, greyish brown when fresh; pores round, 4 per mm; dissepiments thin, entire; pore tubes up to 4 mm long; margins obtuse, regular. Hyphal system trimitic. Generative hyphae up to 3.0- 3.9  $\mu\text{m}$  wide, septate, branched, clamped, thin-walled. Binding hyphae up to 3.3-4.5  $\mu\text{m}$  wide, aseptate, branched, thick-walled. Skeletal hyphae up to 3.9-5.9  $\mu\text{m}$  wide, aseptate, thick-walled, rarely branched. Basidia up to 30.2 x 7.4-10.6  $\mu\text{m}$ , ovate, 4-sterigmate, subhyaline, clamps present at

the base. Cystidia absent or not found. Basidiospores up to 12.2 x 5.6-7.0  $\mu\text{m}$ , ellipsoid, smooth, truncate, thick-walled, brown in color, acyanophilous.

**Collection examined:** Himachal Pradesh: Mandi, Ner chawk, on angiospermic log, Deepali 38538 PAN, July, 29, 2008.

**Remarks-** *Perenniporia fraxinophila* is characterised by white to light greyish brown surface with concentric zones and large sized, truncate basidiospores. This constitutes a new record for India/Himalayas.

*Hyphodontia barba-jovis* (Bull.) J. Erikss., Symb. bot. upsal. 16 (no. 1): 104 (1958) = *Grandinia barba-jovis* (Bull.) Jülich, Int. J. Mycol. Lichenol. 1(1): 35 (1982) = *Hydnum barba-jovis* Bull. [as 'barba-jobi'], Herb. Fr. 11: tab. 481, fig. 2 (1791) = *Kneiffia irpicoides* P. Karst., Bidr. Känn. Finl. Nat. Folk 48: 368 (1889) = *Kneiffiella irpicoides* (P. Karst.) Henn., in Engler & Prantl, Nat. Pflanzenfam., Teil. I Abt. 1: Fungi (Eumycetes) (Leipzig): 141 (1898) [1900] = *Odontia barba-jovis* (Bull.) Fr., Epicr. syst. mycol. (Upsaliae): 528 (1838) [1836-1838] = *Odontia lanceolata* H. Furuk., Bull. Govt Forest Exp. Stn Meguro 261: 36 (1974) = *Sistotrema barba-jovis* (Bull.) Pers., Mycol. eur. (Erlanga) 2: 200 (1825) = *Tubulicrinis prominens* (H.S. Jacks. & Dearden) Donk, Fungus, Wageningen 26(1-4): 14 (1956) = *Xylodon barba-jovis* (Bull.) Chevall., Fl. gén. env. Paris (Paris) 1: 273 (1826).

Fig 11, 1-4; Fig 2, C.

Fructification resupinate, adnate, margin thin; hymenial surface smooth to odontoid, creamish white when fresh, becoming brownish to grayish yellow on drying; margin thinning; paler concolorous to indeterminate. Hyphal system monomitic. Generative hyphae up to 2.9  $\mu\text{m}$ , septate, clamped; basal hyphae parallel to the substrate, thin to thick-walled. Basidia 14.0-17.0 x 4.0-5.1  $\mu\text{m}$ , 4-sterigmate, subclavate with basal clamp. Cystidia 121.0-160.0 x up to 6.9  $\mu\text{m}$ , thick-walled at the base, cylindrical, secondary septa present. Basidiospores 4.1-6.0 x 2.9-4.1  $\mu\text{m}$ , apiculate, ellipsoid and broad, thin-walled, inamyloid, smooth, acyanophilous.



**Fig 2.** A) *Perenniporia fraxinophila*, B) *Fomitopsis lilacinogilva*, C) *Hyphodontia barbajovis*

**Collection examined:** Himachal Pradesh: Sirmaur, near Renuka lake, on Angiospermic log, Deepali 38518 (PAN), July, 31, 2011, IBP 37096

**Remarks:** This species is characterised by smooth to odontoid hymenial surface, cylindrical long cystidia with apical walls and ellipsoid basidiospores. It is now describe as a new record for India/Himalayas.

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