



Additions to wood decaying fungi of India

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Wood decaying fungi are the important elements of forest ecosystems, as they take care of the decomposition of coarse woody debris (fallen trunks, branches, stumps, etc). Among them, Polypores (Basidiomycota) constitute the major group. They are intensively studied and systematically documented in Europe and North America (Donk 1962; Burdsall 1985; Gilbertson & Ryvarden 1987; Hjortstam & Ryvarden 1990; Ryvarden & Gilbertson 1994). Several resupinate species have been published from different parts of the world (Jülich 1976; Hjortstam & Ryvarden 1982; Roy & De 1996; Hattori & Lee 1999; Dai 2000; Lee et al. 2004). Moreover, Parmasto (1986) has published species from subtropical and tropical Pacific Asia. Many researchers studied wood decaying resupinate fungi in India (Bose 1938; Banerjee 1947; Bagchee & Bakshi 1951; Bakshi 1971; Thind & Dhanda 1980; Roy & De 1996). In central India, these fungi have been studied from Sagar, Harda, Mandla and Jhabua (Saksena & Vyas 1964; Verma et al. 2008). The present paper gives an account of three new records of resupinate wood decaying fungi from Raipur, Jagdalpur, and Kanker districts of Chhattisgarh.

Materials and Methods

The fruit-bodies of resupinate wood decaying fungi were collected during rainy season i.e. July to September 2008 from Chhattisgarh state of central India, geographically ranging from 21°14'1"N & 81°38'1"E to 19°4'0"N & 82°2'1"E (Fig. 1). All the macroscopic and habitat characteristics were noted in situ. Detailed microscopic examinations were made and were identified with the help of the following literature (Rattan 1977; Ryvarden & Johansen 1980; Natrajan & Kolandavelu 1998; Lim et al. 2001; Zmitrovich et al. 2006). Xanthochroic reaction was determined by placing a small piece of material in 10% KOH solution. Free hand sections were made. The cyanophily was observed in cotton blue mounted in lactophenol and amyloidity of structures in Melzer's reagent. The photographs were taken with a Nikon F601 SLR Camera, macroscopic and microscopic characters were studied under the stereozoom Leica, Model Wild M3Z and Advanced Research Microscope, Leica, Model Leitz DMRB (Germany) and camera lucida drawing were also prepared with the help of Triumph trinocular research microscope. The specimens are deposited in the Mycology Herbarium of the Forest Pathology Division at Tropical Forest Research Institute, Jabalpur (TF). The records are new to India since the following authors do not mention them, Butler & Bisby (1954), Tandon & Chandra (1964), Bilgrami et al. (1979, 1981, 1991), Sarbhoy et al. (1975, 1986, 1996), Bhide et al. (1987) and Jamaluddin et al. (2004).

Taxonomy

Australohydnum dregeanum (Berk.) Hjortstam & Ryvarden *Syn. Fung.* (Oslo) 4: 61 (1990) (Fig. 2, Image 1)

Material examined

2.x.2008, on stored logs of *Anogeissus latifolia* Wall., Kanker, Chhattisgarh, 20°16'18"N & 81°29'35"E, coll. C.K. Tiwari, Jagrati Parihar & R.K. Verma, Reg.no. TF 1140.

This fungus causes white fibrous rot.

Lopharia dregeana (Berk.) P.H.B. Talbot. *Bothalia* 6:57 (1951)

Basidiome: annual, resupinate or effuso-reflexed, imbricate, 2-7 x 1-5 x 0.2-0.5 cm (L x B x H). Pileus: hirsute, hispid, dark brown, zonate, no xanthochroic reaction with KOH. Hymenophore: meruloid, daedaloid to reticulate-porose, brown. Context: brown, 2-4 mm thick. Hyphal system: monomitic, generative hyphae septate, with or without clamps, thin- to thick-walled with a narrow lumen, 3.5-7.5 μ m wide, amyloid. Cystidia: heavily encrusted lamprocystidia both of tramal and hymenial origin, 20-25 x 5 μ m. Basidia: long clavate, basally simple septate. Basidiospores: 2.5-3.0 μ m, subglobose, hyaline.

Macroscopically, this species resembles *Punctularia*

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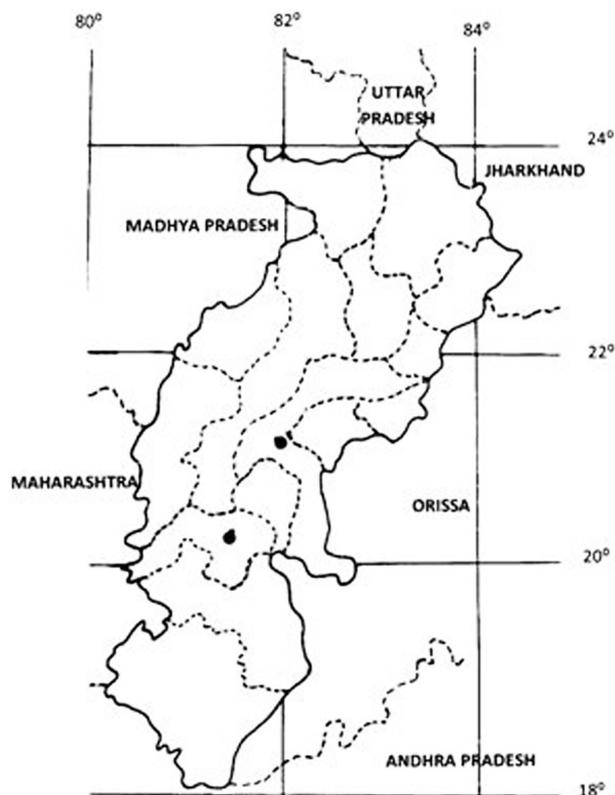


Figure 1. Map of Chhattisgarh showing collection spots

strigosazonata (Schwein.) P.H.B. Talbot, but in latter the hymenophore is smooth. Conspicuously encrusted cystidia and septate hyphae with or without clamps are important characters of *A. dregeanum*.

This species was reported from Kanghwa Island, Kimpo Peninsula, South Korea (Lim et al. 2005) and St-Petersburg, Russia (Zmitrovich et al. 2006).

Hjortstamia friesii (Lév.) Boidin & Gilles *Bull. Soc. mycol. Fr.* 118(2): 99 (2003) [2002] (Fig. 3, Image 2)

Material examined

1.x.2008, on stored wood of *Terminalia tomentosa* W&A., Gariabandh, Raipur, Chhattisgarh, 21°14'1"N & 81°38'1"E, coll. C.K Tiwari, Jagrati Parihar & R.K. Verma, Reg.no. TF 1141.

Thelephora friesii Lév. *Syst. Verz.:* 17 (1854)

Basidiome: annual, resupinate, non poroid, papery soft and pliable, ochraceous to brown, velvety to tomentose. Hymenophore: smooth to slightly wrinkled or occasionally folded, with shallow depressions, pale cinnamon brown. Xanthochroic reaction: all parts of the fruit body change the colour in KOH into violet. Context: more or less concolorous, with the hymenium and separated from the much looser and paler context by a distinct dark line which is most prominent in older parts of the basidiome. Hyphal system: dimitic, generative hyphae septate with or without



Images 1-3. Fruit bodies of resupinate wood decaying fungi. 1 - *Australohydnum dregeanum*; 2 - *Hjortstamia friesii*; 3 - *Schizopora flavipora*.

clamps, hyaline and thin-walled, 2.5-3 μm wide, skeletal hyphae abundant in subhymenium and context, thick-walled, but with a distinct lumen, hyaline 4-5 μm wide, amyloid. Cystidia: metuloids, heavily encrusted in apical region, hyaline, 17.5-22.5 μm in diameter and 80 μm from septum to apex. Basidia: clavate 18-30 x 4-6 μm , basally simple septate, no sterigmata seen. Basidiospores: ellipsoid to sub-cylindrical, hyaline, thin-walled, 4.5-7 x 2.5-3 μm .

This fungus causes white fibrous rot.

The violet colour of the hymenophore on treatment with KOH, and the coarsely encrusted, hyaline, cystidia are the characteristics of this species. Skeletocystidia are not present in this species.

The species was reported from tropical Asia, Pakistan,

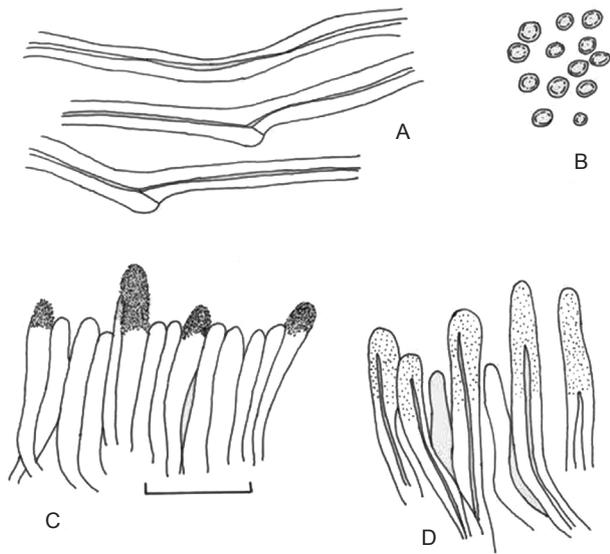


Figure 2. *Australohydnum dregeanum* (scale 20µm). A - generative hyphae; B - basidiospores; C - hymenium with basidia and lamprocystidia; D - fascicles of cystidia.

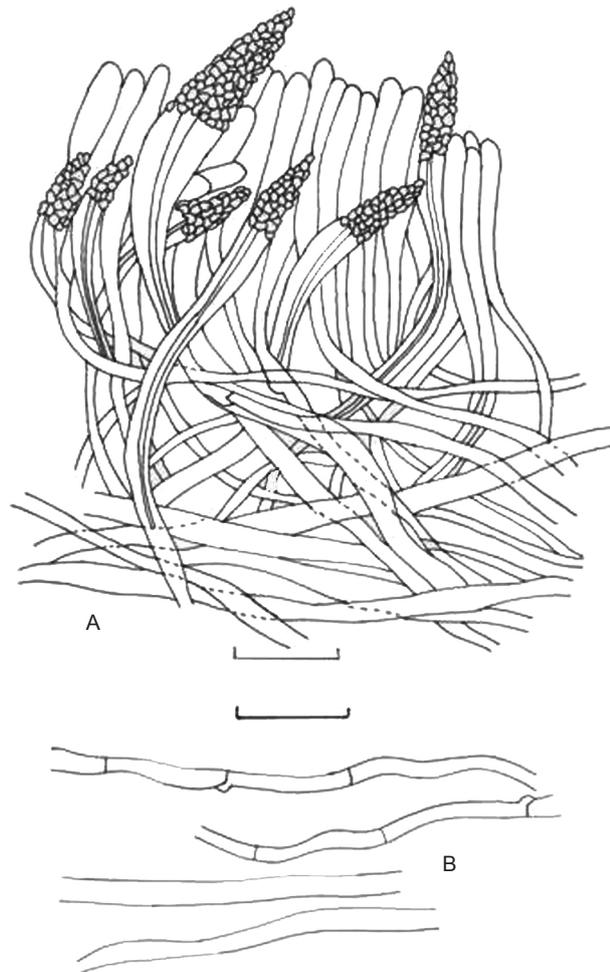


Figure 3. *Hjortstamia friesii* (scale 20µm) A - hymenium with cystidia, basidia; B - generative and skeletal hyphae.

China and New Guinea (Hjortstam & Ryvarden 1990).

Schizopora flavipora (Berk. & M.A. Curtis ex Cooke) Ryvarden, *Mycotaxon* 23: 186 (1985) (Fig. 4, Image 3)

Material examined

30.ix.2008, on dead hard wood of *Lannea coromandelica* (Houtt) Mett, Gariabandh, Raipur, Chhattisgarh, 21°14'1"N & 81°38'1"E, coll. C.K Tiwari, Jagrati Parihar & R.K. Verma, Reg.no. TF 1142.

Poria flavipora Berk. & M.A. Curtis ex Cooke Grevillea 15(73): 25 (1886).

Basidiome: annual, resupinate, coriaceous to tough, fibrous. Xanthochroic reaction: all parts of fruit body turn brown. Hymenophore: poroid, white to cream when dry, appressed, pores 4-5 per mm, margin thin. Context: 1-1.5 mm thick, cream coloured. Hyphal system: monomitic, generative hyphae with clamps, hyaline, thin- to thick-walled, 3-4 µm wide, amyloid. Cystidia: present but more like encrusted hyphoids. Basidia: clavate, with four sterigmata, 5-12 x 3-5 µm, with a basal clamp. Basidiospores: not seen.

This fungus causes white fibrous rot.

Earlier reports derive from deciduous trees (*Quercus* forests) from Korea (Lim & Jung 2001) and on coffee tree as *Poria hypolateritia* Berk. ex Cooke from Sri Lanka (Petch 1916).

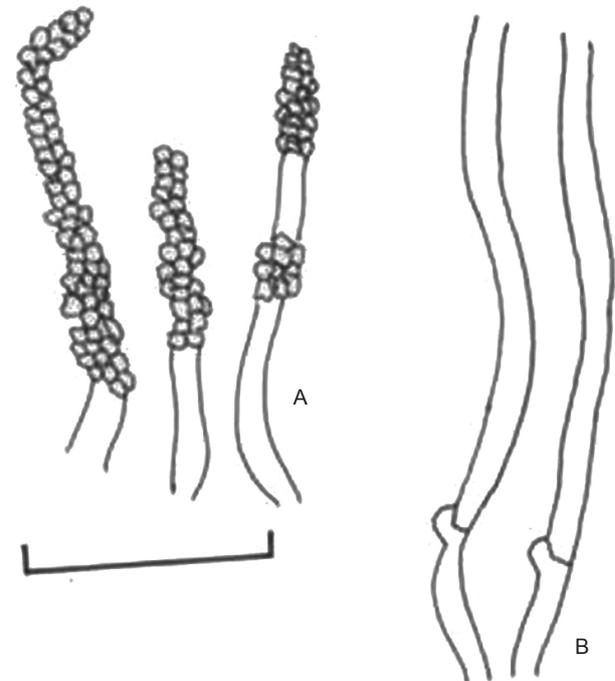


Figure 4. *Schizopora flavipora* (scale 20µm) A - cystidia; B - generative hyphae

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