Journal on New Biological Reports **3**(2): 155 – 158 (2014) **ISSN 2319 – 1104 (Online)**

Some interesting wood rotting non-gilled Agaricomycetes: new to India

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(Received on: 13 July, 2014; accepted on: 16 August, 2014)

ABSTRACT

Three species of non-gilled agaricomycetous fungi *Coronicium gemmiferum* (Bourdot & Galzin) J. Erikss., *Daedaleopsis septentrionalis* (P. Karst.) Niemelä, and *Acanthophysellum lividocoeruleum* (P. Karst.) Boidin were collected from the Himachal Pradesh. They constitute a new record for India and are described and illustrated.

Key words: Non-gilled macro fungi, Agaricomycetes, Himachal Pradesh, 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, Prasher & Lalita 2012, Prasher & Ashok 2013, Prasher & Lalita 2013 and Ashok & Prasher 2014). During the survey of non-gilled Agaricomycetes diversity of Himachal Pradesh, three interesting fungi were collected. Detailed study and literature survey revealed, *Coronicium gemmiferum* (Bourdot & Galzin) J. Erikss., *Daedaleopsis septentrionalis* (P. Karst.) Niemelä, and *Acanthophysellum lividocoeruleum* (P. Karst.) Boidin are new records for India and are being described in detail for the first time (Bilgrami *et al.* 1991, Jamaluddin *et al.* 2004).

MATERIALS AND METHOD

The specimens were collected in to separate zip lock plastic/paper 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.

Collections were critically examined macro and microscopically for different characters.

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The drawings of various structures like hyphae, basidia, setae and basidiospores were made with the help of Camera Lucida manufactured by Irma Pvt. Ltd. from thin sections or crush mounts. The fungi recorded in this paper are classified after Kirk *et. al.* (2008), Index fungorum and Mycobank. The specimens were deposited in the Herbarium of Panjab University Chandigarh India (PAN).

RESULTS

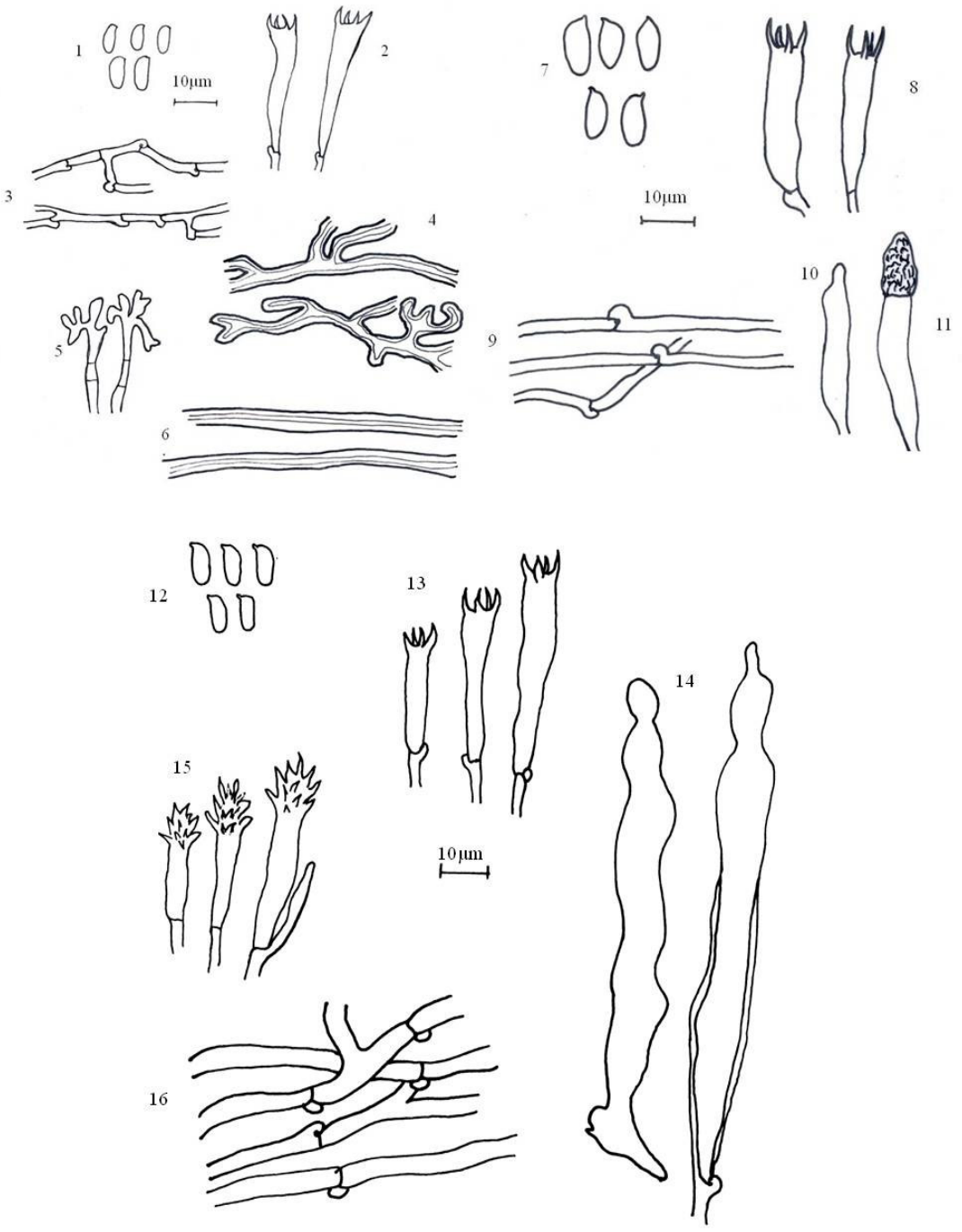
Taxonomy

Coronicium gemmiferum (Bourdot & Galzin) J. Erikss. & Ryvarden 1975. Figs. 7-11, 17

Fructificaion resupinate, membranaceous, easily detachable, hymenophore smooth, whitish to cream.

Hyphal system monomitic; generative hyphae with clamps, 2-3.9 µm wide, sub-hymenial hyphae tortuose, subicular hyphae straight, all covered by numerous, irregularly globose brown matter; basidia clavate to suburniform, 15-22 x 4-5.4 µm, with 4-sterigmata, clamped at the base; cystidia more or less fusiform, 30-35 x 4-6 µm, some without encrustation, few with an apical constriction, other with a cap-like brown encrustation; basidiospores ellipsoid, 8-11.2 x 3.9-5µm, smooth, thin-walled, non-amyloid.

Collection examined: Himachal Pradesh, Hamirpur, Dusdka, on fallen angiospermic stick, Deepali 38561 (PAN), August, 15th 2010.



Figs. 1-16 Non-gilled Agaricomycetous Fungi. ***Daedaleopsis septentrionalis*****.** (1-6). 1. Basidiospores. 2. Basidia. 3. Generative hyphae. 4.Binding hyphae. 5. Dendrohyphidia. 6. Skeletal hyphae. ***Coronicium gemmiferum*****.** (7-11). 7. Basidiospores. 8. Basidia. 9. Generative hyphae. 10. Cystidia. 11. Capitate cystidia. ***Acanthophysellum lividocoeruleum***. (12-16). 12. Basidiospores. 13. Basidia with basal clamp. 14. Cystidia. 15. Acanthophysis. 16. Generative hyphae.

Remarks: The diagnostic features of this species are membranous and easily detachable fructification and two types of cystidia, some are with encrusted cap and some without cap. It is new record for India.

Fig. 17. ***Coronicium gemmiferum*** on fallen angiospermic stick.

Fig. 18. ***Daedaleopsis septentrionalis*** on angiospermic log.

Fig. 19. ***Acanthophysellum lividocoeruleum*** on gymnospermic log.

Daedaleopsis septentrionalis (P. Karst.) Niemelä, Karstenia 22: 11 (1982). Figs. 1-6, 18.

Fructification annual, pileate, effused-reflexed, imbricate; pilei up to 6.5 x 3.5 x 2 cm, corky when fresh becoming hard on drying; concentric zones present on abhymenial surface; hymenial surface greyish light brown in colour; pore tube upto 9 mm long, margin acute, concolorous.

Hyphal system trimitic; generative hyphae up to 2.5 µm broad, branched, septate, with clamp connection; binding hyphae up to 4 µm broad, highly branched, thick-walled; skeletal hyphae up to 4.7 µm broad, aseptate, thick-walled; dendrohyphidia present; basidia upto 40 x 6 µm, clavate, 4-sterigmate, clamped at base; basidiospores 6.6-9.5 x 2.5- 4µm, cylindrical, inamyloid, acyanophilous.

Collection examined: Himachal Pradesh, Bilaspur, on angiospermic log, Deepali 38503 (PAN), October 10th, 2010.

Remarks: It has earlier been reported from Sweden, Finland, Russia and Siberia. It is a new record for India.

Acanthophysellum lividocoeruleum (P. Karst.) Boidin. Fig. C; Figs. 12-16, 19

Fructification resupinate, effused; hymenial surface smooth to somewhat tuberculate, orangish grey; odor strong and pungent.

Hyphal system monomitic; generative hyphae septate, branched, clamped, 3.0-4.0 µm wide; cystidia 7.0-11.5 µm thick, numerous in number, with basal clamp, oily content present; acanthophysis up to 4.0 µm thick, numerous, with short apical protuberances; basidia 20-39.8 x 4.5-5.2 µm, clavate, 4-sterigmatic, basal clamp; basidiospores 6-9.2 x 3.5-4.5 µm, cylindrical, apiculate, smooth, amyloid, acyanophilous.

Collection examined: Himachal Pradesh, Mandi, Karsog, on gymnospermic log, Deepali 38627 PAN, August 19th 2009.

Remarks: *Acanthophysium lividocaeruleum*, also known as *Aleurodiscus lividocaeruleum* (P. Karst.) Lemke, is associated with a white rot of various gymnospermous wood (Gilbertson 1975; Gilbertson & Lindsey 1975). This species is

characterised in having orangish grey fructification and was first described by Karsten (1868) as *Corticium lividocoerulum*. Lemke (1964) shifted it to genus *Aleurodiscus*. Earlier, it was reported from Canada, U.S.A and Europe. However, it is new record for India.

ACKNOWDEGEMANTS

The authors are thankful to Chairperson, Botany Department, Panjab University, Chandigarh for providing laboratory facilities and to UGC (SAP), DRS-III for the infrastructural support.

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