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Diversity of Genus *Ceriporia* Donk in India

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ABSTRACT

The present paper describes eight species of the resupinate, poroid genus *Ceriporia* Donk based on the specimens collected from different localities in Punjab, Union Territory of Chandigarh and Himachal Pradesh (India). Of the described species, *C. alachuana* (Murrill) Hallenb., *C. camaresiana* (Bourdot and Galzin) Bondartsev and Singer, *C. davidii* (D.A. Reid) M. Pieri and B. Rivoire, *C. microspora* I. Lindblad and Ryvarden, *C. reticulata* (Hoffm.) Domanski, *C. spissa* (Schwein. ex Fr.) Rajchenb. and *C. tarda* (Berk.) are recorded as new to India. *C. leptoderma* (Berk. and Broome) Ryvarden is being reported for the first time from Punjab plains. Key to 12 species of the genus, eight described in the present paper and four reported by the earlier workers, reported so far from India is also provided.

Key words: Polypore, Mushroom, White rot, Wood rotting fungi, Pores

INTRODUCTION

Genus *Ceriporia* (*Meruliaceae, Polyporales, Agaricomycetes, Basidiomycota*) is characterized by annual, resupinate sporocarps with poroid hymenophore. These sporocarps have monomitic hyphal system with simple-septate generative hyphae, clavate basidia and smooth, ellipsoid to cylindrical to allantoid, thin-walled, inamyloid, acyanophilous basidiospores. The genus differs from the closely related genus *Ceriporiopsis* in lacking clamp connections on the generative hyphae. Donk (1933) proposed the genus with *Polyporus viridans* Berk. and Br. as the type. It is a cosmopolitan genus and is reported to cause white rot in conifers and hardwoods (Donk, 1933). The genus is represented by 75 species worldwide (Mycobank, 2023). The review of the work done on the diversity of genus *Ceriporia* from India (Thind and Dhanda, 1979; Natarajan and Kolandavelu, 1998; Bhosle *et al*., 2005; Sharma, 2000, 2012; Ranadive *et al*., 2011; Ranadive, 2013) revealed only five species of the genus recorded from different parts.

During the field surveys conducted in various localities of Punjab, Union Territory of Chandigarh and Himachal Pradesh (India) the authors collected some interesting specimens of resupinate, poroid fungi. On the basis of macro- and micromorphological characters and comparison with the published literature these specimens were identified as eight species of the genus *Ceriporia* i.e., *C. alachuana* (Murrill) Hallenb., *C. camaresiana* (Bourdot and Galzin) Bondartsev and Singer, *C. davidii* (D.A. Reid) M. Pieri and B. Rivoire, *C. leptoderma* (Berk. and Broome) Ryvarden, *C. microspora* I. Lindblad and Ryvarden, *C. reticulata* (Hoffm.) Domanski, *C. spissa* (Schwein. ex Fr.) Rajchenb. and *C. tarda* (Berk.) Ginns. All these are new to the study area. It is pertinent to mention here that seven species (*C. alachuana*, *C. camaresiana*, *C. davidii*, *C. microspora*, *C. reticulata*, *C. spissa* and *C. tarda*) are being described as new to India. The aim of the present paper is to describe and illustrate these eight species and update the key to the species of genus *Ceriporia* from India.

MATERIAL AND METHODS

The present account of the genus *Ceriporia* is based on the collections made during the fungal forays conducted in the different parts of Punjab, Union Territory of Chandigarh and Himachal Pradesh during the rainy season of years 2011-2017. The specimens were collected with the help of a chisel and hammer and a portable saw. The details pertaining to date of collection, name of the locality, type of vegetation, host/substrate, hymenial surface and margins were carefully noted. A moist piece of each specimen was used to get a spore print on a glass slide (Dhingra, 2005). The collected specimens were dried using an electric drier. The dried specimens were fumigated using 1,4-dichlorobenzene crystals (Dhingra, 2005). Photographs depicting details of the hymenial surface were taken using a Canon EOS 550D DSLR camera.

Micromorphological studies were performed by making crush mounts and free hand cut sections

from the basidiocarps in 3%, 5% or 10% potassium hydroxide solution, 1% phloxine in water, 1% Congo red in water, sulphovanillin (0.5 g vanillin + 4 ml conc. sulphuric acid + 2 ml distilled water), Melzer's reagent (0.5 g iodine + 1.5 g potassium iodide + 20 g chloral hydrate + 20 ml distilled water) and 1% cotton blue in lactophenol (Dhingra, 2005). The microscopic attributes pertaining to hyphae, cystidia, basidia and basidiospores were observed under an Olympus compound microscope at magnification of 100X, 400X and 1000X. The outline of all the microscopic structures was drawn using a camera lucida at the same magnifications. Photomicrographs of certain structures were also taken with the help of an Olympus CX microscope. The macro- and micromorphological details were compiled in the form of a description which was compared with the published literature (Natarajan and Kolandavelu,1998; Lindblad and Ryvarden, 1999; Núñez and Ryvarden, 2001; Bhosle *et al*., 2005; Ranadive *et al*., 2011; Ranadive, 2013; Ryvarden and Melo, 2014; Mycobank, 2023) for identification. The material of all the species has been deposited at the Herbarium, Department of Botany, Punjabi University, Patiala (PUN). The color standards used are as per Kornerup and Wanscher (1978). A key to all the 12 species of the genus *Ceriporia* from India has also been given.

RESULTS AND DISCUSSION

Key to the species

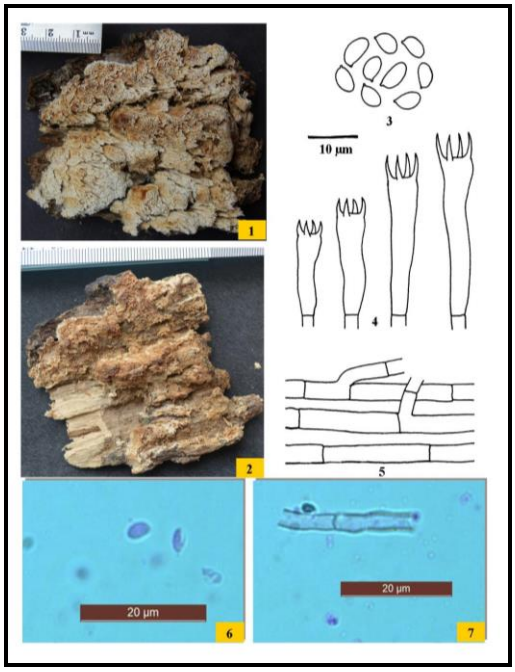
1. Hyphal cordons present ..... *C. davidii*
1. Hyphal cordons absent 2
2. Pores circular to sinous..... *C. viridans**
2. Pores round to angular to elongate to irpiciform..... 3
3. Basidiospores subglobose to broadly ellipsoid ..... *C. xylostromatoides**
3. Basidiospores not as above…..... ……..4
4. Cylindrical hyphoid elements present on edges of tubes or folds ..... *C. purpurea**
4. No sterile elements present..... 5
5. Hymenial surface net-like, fragile, easily separable from the substrate….*C. reticulata*
5. Not as above 6
6. Basidia small, up to 8 µm in length. *C. mellea**
6. Basidia large, more than 8 µm in length 7
7. Sporocarp sections exude oily secretions in 3% KOH solution ... *C. spissa*
7. No such exudation in 3% KOH 8
8. Subiculum reddish white ..... *C. microspora*
8. Not as above 9
9. Subiculum and tramal hyphae branched at right angles ..... *C. tarda*
9. Not as above 10
10. Sporocarp pinkish white to pale red in colour when fresh, subiculum pinkish white ..... *C. leptoderma*
10. Not as above 11
11. Pores 3-4/mm..... *C. alachuana*
11. Pores 2-3/mm..... *C. camaresiana*

*Species described by earlier works from India but not collected during the present studies.

1. *Ceriporia alachuana* (Murrill) Hallenb., *Iranian Journal of Plant Pathology*, **15**(1–4):14 (1979)

= *Poria alachuana* Murrill, Bulletin of the Torrey Botanical Club, **65**:659 (1938)

(Figures 1-7)



Figures 1-7: *Ceriporia alachuana*: 1, Basidiocarp showing hymenial surface (fresh); 2, Basidiocarp showing hymenial surface (dry); 3, Basidiospores; 4, Basidia; 5, Generative hyphae; 6, Photomicrograph showing basidiospore; 7, Photomicrograph showing generative hypha.

Basidiocarps annual, resupinate, effused, adnate, up to 5 mm thick in section; hymenial

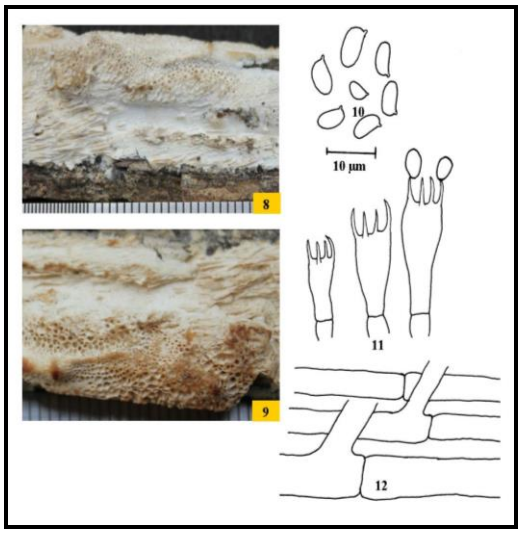
surface poroid, orange white to pale orange to greyish orange to brownish orange to brown when fresh, not changing much on drying; pores angular to elongate to irpiciform, 3-4 per mm; dissepiments thin, entire to lacerate; subiculum up to 500 µm thick, pale orange; pore tubes up to 4.5 mm long; tramal tissue pale orange towards the subiculum, greyish orange to brownish orange towards the hymenial surface; margins thinning, fibrillose, paler than the colour of the hymenial surface, or indeterminate. Generative hyphae up to 4.8 µm wide, simple-septate, thin-walled; subicular hyphae moderately branched often at right angles; tramal and subhymenial hyphae similar. Basidia 14-32 × 5-6.5 µm, clavate, tetrasterigmate, without basal clamp; sterigmata up to 4 µm long. Basidiospores 4.2-5.8 × 2.9-3.5 µm, ellipsoid, smooth, thin walled, with oily contents, acyanophilous, inamyloid.

Collections examined: India, Punjab, Rupnagar, about 5 km from Rupnagar town towards village Nurpur bedi, on fallen angiospermous twigs, Harminder 4722 **(PUN)**, September 23, 2011; Ludhiana town, Tiger Safari, on angiospermous stump, Gurpreet and Navpreet 8349 **(PUN)**, September 8, 2013; Rupnagar, Nurpur bedi town, on angiospermous log, Gurpreet and Avneet 8350 **(PUN)**, September 5, 2012; Union Territory of Chandigarh, Sector 1, back of Sukhna lake, on trunk of *Acacia nilotica*, Gurpreet and Dhingra 8351 **(PUN)**, September 17, 2013; back of Sukhna lake, on angiospermous log, Gurpreet and Dhingra 8352 **(PUN)**, September 17, 2013; Rupnagar, Forest Guest House, on angiospermous log, Avneet and Ellu 11705 **(PUN)**.

Remarks: *C. alachuana* is characteristic in having angular to elongate to irpiciform pores, lack of cystidia, larger basidia and ellipsoid to subcylindrical basidiospores. It is being described for the first time from India. The earlier reports of *C. alachuana* are from Florida, Germany, central France, Italy, Iran, Nepal and Thailand (Ryvarden and Melo, 2014; Mycobank, 2023).

2. *Ceriporia camaresiana* (Bourdot and Galzin) Bondartsev and Singer, *Annales Mycologici*, **39(1)**:50 (1941**)**

= *Poria camaresiana* Bourdot and Galzin, Bulletin de la Socie´te´ Mycologique de France **41**:223 (1995) (**Figures 8-12)**



Figures 8-12: *Ceriporia camaresiana*: 8, Basidiocarp showing hymenial surface (fresh); 9, Basidiocarp showing hymenial surface (dry); 10, Basidiospores; 11, Basidia; 12, Generative hyphae.

Basidiocarps annual, resupinate, soft, effused, adnate, up to 2 mm thick in section; hymenial surface poroid, orange white to pale orange to greyish orange when fresh, not changing much on drying; pores angular, 2-3 per mm; dissepiments thin, entire to lacerate; subiculum up to 600 µm; pore tubes up to 1.9 mm long, orange white; margins thinning, fibrillose, sterile up to 1.5 mm. Generative hyphae up to 4.5 µm wide, much branched, simple-septate, subhyaline, thin-walled. Basidia 10.5-18.5 × 4.5-7 µm, clavate, tetrasterigmate, without basal clamp; sterigmata up to 4 µm long. Basidiospores 4.5-7 × 2.5-3.5 µm, ellipsoid to suballantoid, smooth, subhyaline, thin-walled, inamyloid, acyanophilous.

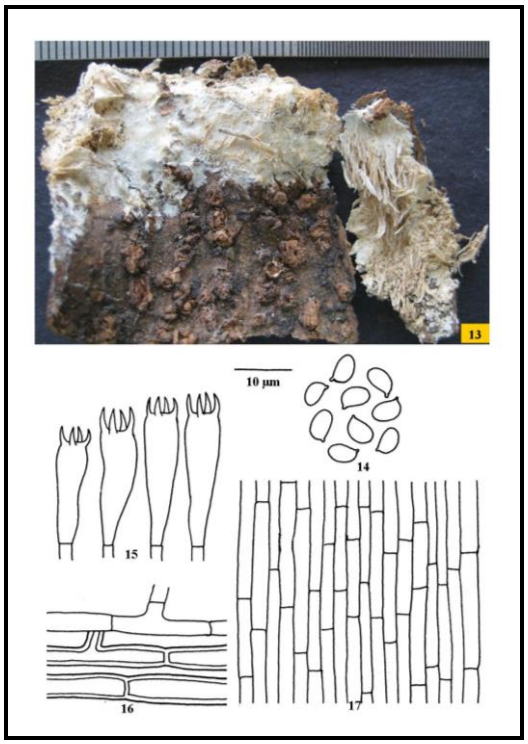
Collections examined: Punjab, Rupnagar, about 5 km from Rupnagar towards Nurpur bedi, on fallen sticks of *Dalbergia sissoo*, Harminder 4723 **(PUN)**, July 22, 2011; Anandpur Sahib, Gara, on trunk of *Eucalyptus tereticornis*, Avneet and Hardeep 8708 **(PUN)**, August 16, 2016; Sangatpur, on trunk of *E. tereticornis*, Hardeep 8709 **(PUN)**, August 16, 2016; Rupnagar, Forest Guest House, on log of *D. sissoo*, Avneet and Avneet 11706 **(PUN)**.

Remarks: *C. camaresiana* differs from *C. alachuana* in having softer sporocarps, smaller basidia and ellipsoid to suballantoid basidiospores It is known as a central European species distributed in France, Germany and Switzerland (Ryverden and

Melo, 2014; Mycobank, 2023). It is a new record for India.

3. *Ceriporia davidii* (D.A. Reid) M. Pieri and B. Rivoire, Bulletin de la Société *Mycologique de France*, **113(3)**:219 (1997)

= *Riopa davidii* D.A. Reid, *Revue de Mycologie*, **33**:247 (1969) **(Figures 13-17)**



Figures 13-17: *Ceriporia davidii*: 13, Basidiocarp showing hymenial surface; 14, Basidiospores; 15, Basidia; 16, Generative hyphae; 17, Hyphal cordon.

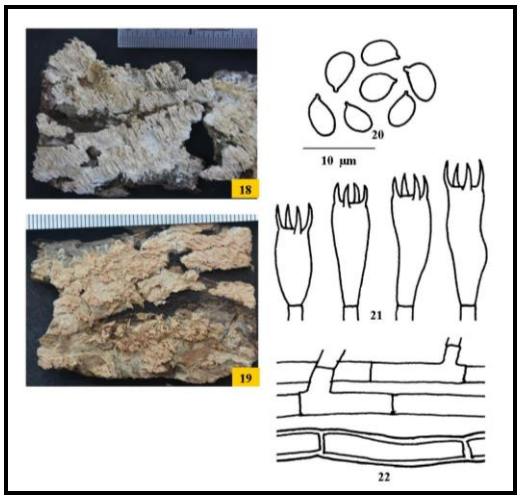
Basidiocarps annual**,** resupinate, effused, adnate, up to 3 mm thick in section; hymenial surface poroid, orange white to greyish orange to brownish orange when fresh, not changing much on drying; pores angular to elongate to irpiciform, 2-4 per mm; dissepiments thin, lacerate; subiculum up to 550 µm thick, pale red; pore tubes up to 2.5 mm long; orange white to greyish orange; margins thinning, somewhat fibrillose, paler than the colour of the hymenial surface, or indeterminate. Generative hyphae up to 5.1 µm wide, simple-septate, thin- to thick-walled; subicular hyphae moderately branched often at right angles; tramal and subhymenial hyphae similar. Hyphal cordons up to 100 µm wide, branched; individual hyphae up to 3.5 µm wide, without clamps. Basidia 15-23 × 4-6.1 µm, generally clavate, somewhat sinuous, tetrasterigmate, without basal clamp; sterigmata up to 4.5 µm long. Basidiospores 4-5.1 × 2.5-3.9 µm, ellipsoid, smooth, thin-walled, acyanophilous, inamyloid, with oily contents.

Collection examined: India, Punjab, Rupnagar, about 10 km from Rupnagar towards Haripur, on trunk of *Acacia nilotica*, Gurpreet and Avneet 8353 **(PUN)**, September 5, 2012.

Remarks: It differs from *C. alachuana* and *C. camaresiana* in having branched hyphal cordons and broader, ellipsoid basidiospores. Earlier, it has been reported only from its type locality in southern France (Ryvarden and Melo, 2014). Here, it is being described for the first time from India.

4. *Ceriporia leptoderma* (Berk. and Broome) Ryvarden, A preliminary polypore flora of East Africa **270** (1980)

= *Polyporus leptodermus* Berk. and Broome, Botanical Journal of the Linnean Society **14**: 54 (1875) (**Figures 18-22)**



Figures 18-22: *Ceriporia leptoderma*: 18, Basidiocarp showing hymenial surface (fresh); 19, Basidiocarp showing hymenial surface (dry); 20, Basidiospores; 21, Basidia; 22, Generative hyphae.

Basidiocarps annual, resupinate, effused, adnate, up to 2 mm thick in section; hymenial surface poroid, pinkish white to pale red when fresh, greyish red on drying; pores angular to elongate to irpiciform, 2-6 per mm; dissepiments thin, entire to lacerate; subiculum up to 400 µm thick, pinkish white; pore tubes up to 1.6 mm long; tramal tissue pinkish white towards the subiculum, greyish red towards the hymenial suface; margins thinning, fibrillose, paler than the colour of the

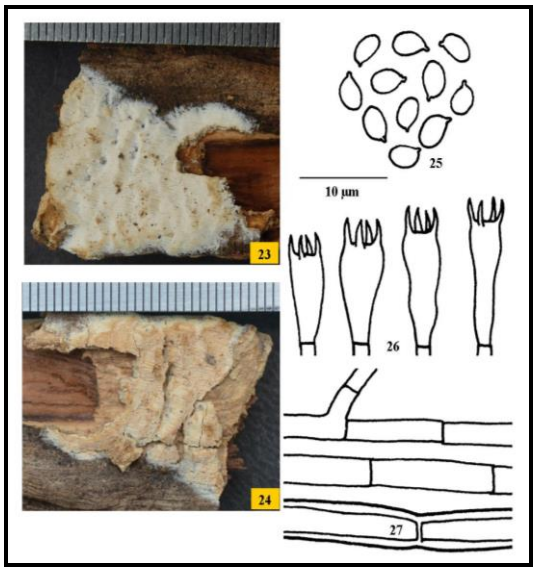
hymenial surface, or indeterminate. Generative hyphae up to 4.5 µm wide, simple-septate; subicular and tramal hyphae moderately branched often at right angles, thin- to thick-walled; subhymenial hyphae thin-walled, more branched. Basidia 9.4-16 × 3-5.5 µm, clavate, tetrasterigmate, without basal clamp; sterigmata up to 4 µm long. Basidiospores 3.9-5.3 × 2.5-3.7 µm, ellipsoid, smooth, thin-walled, acyanophilous, inamyloid.

Collections examined: India, Punjab, Rupnagar, about 10 km from Rupnagar towards Haripur, on fallen stick of *Mangifera indica*, Harminder 4724 **(PUN)**, July 22, 2011; Boat Club, on trunk of *M. indica*, Gurpreet and Avneet 8354 **(PUN)**, September 9, 2012.

Remarks: Earlier from India, this species has been reported/listed from Tamil Nadu (Natarajan and Kolandavelu, 1998) and Maharashtra (Bhosle *et al*., 2005; Ranadive *et al*., 2011; Ranadive, 2013). Here it is being described for the first time from Punjab (Northwest India).

5. *Ceriporia microspora* I. Lindblad and Ryvarden, *Mycotaxon*, **71**:337 (1999)

(Figures 23-27)



Figures 23-27: *Ceriporia microspora*: 23, Basidiocarp showing hymenial surface (fresh); 24, Basidiocarp showing hymenial surface (dry); 25, Basidiospores; 26, Basidia; 27, Generative hyphae.

Basidiocarp annual, resupinate, effused, adnate, up to 1.5 mm thick in section; hymenial surface poroid, orange white to pale orange when fresh, pale red to greyish red on drying; pores angular to elongate, 6-8 per mm; dissepiments thin, entire; subiculum up to 100 µm thick, reddish white; pore tubes up to 1.4 mm long; tramal tissue pale red towards the subiculum, dull red towards the hymenial surface; margins thinning, fibrillose, paler than the colour of the hymenial surface, or indeterminate. Generative hyphae up to 4.5 µm wide, simple-septate, moderately branched, thin- to thick-walled in the subiculum; tramal and subhymenial hyphae similar. Basidia 8.5-12.6 × 3-5 µm, clavate, tetrasterigmate, without basal clamp; sterigmata up to 2 µm long. Basidiospores 2.8-4.2 × 1.8-2.6 µm, ellipsoid, smooth, thin-walled, acyanophilous, inamyloid.

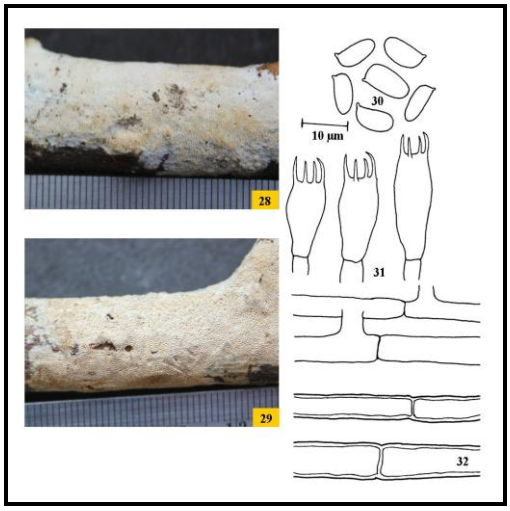
Collection examined: India, Union Territory of Chandigarh, Sector 1, back of Sukhna lake, on angiospermous stump, Gurpreet and Dhingra 8355 **(PUN)**, September 17, 2013.

Remarks: *C. microspora* is characteristic in having smaller pores and minute basidiospores. Lindblad and Ryvarden (1999) described it from Costa Rica. Presently it is being described for the first time from India.

6. *Ceriporia reticulata* (Hoffm.) Domanski, Acta Societatis Botanicorum Poloniae **32**:732 (1963)

=*Mucilago reticulata* Hoffm., Deutschlands Flora oder botanisches Taschenbuch. Zweyter Theil für das Jahr (1795); Cryptogamie t. **12** (1796)

(Figures 28-32)



Figures 28-32: *Ceriporia reticulata*: 28, Basidiocarp showing hymenial surface (fresh); 29, Basidiocarp showing hymenial surface (dry); 30, Basidiospores; 31, Basidia; 32, Generative hyphae.

Basidiocarps annual, resupinate, effused, adnate, up to 980 µm thick in section; hymenial surface poroid, fragile, easily separable from the substrate, arachnoid, orange white to pale orange when fresh, pale red to greyish red on drying; pores angular, 3-4 per mm; dissepiments thin, entire;

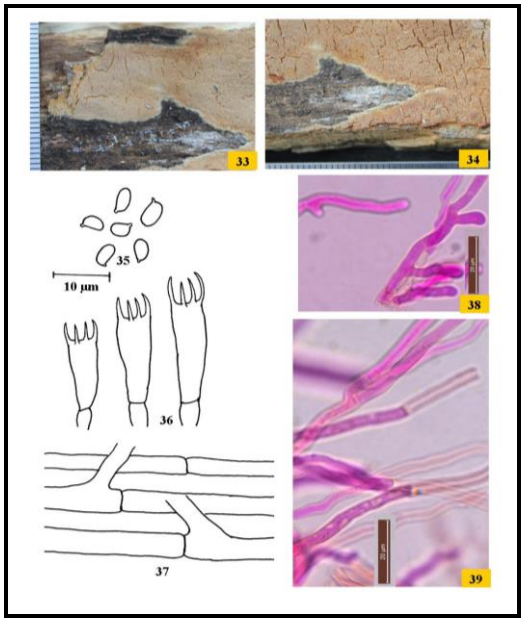
subiculum up to 180 µm thick, orange white; pore tubes up to 800 µm long reddish white; margins thinning, fibrillose, paler concolorous, sterile up to 1.5 mm. Generative hyphae up to 5.5 µm wide, branched at right angles, simple-septate, subhyaline, thin- to thick-walled. Basidia 14.5-21.7 × 6.3-8 µm, clavate, tetrasterigmate, without basal clamp; sterigmata up to 4 µm long. Basidiospores 7-10 × 3.5-4.5 µm, ellipsoid to subcylindrical to rarely suballantoid, smooth, subhyaline, thin walled, inamyloid, acyanophilous.

Collections examined: Punjab, Rupnagar, Anandpur Sahib, Sangatpur, on angiospermous twigs, Hardeep and Chanchal 8712 **(PUN)**, August 16, 2016; Himachal Pradesh, Kullu, Banjar, Manglore, on *Prunus arminiaca* stump, Ellu 11593 **(PUN)**, September 4, 2017; Bhiyali, on *P. arminiaca* stump, Ellu 11594 **(PUN)**, September 6, 2017.

Remarks: *C. reticulata* is peculiar in having comparatively larger basidiospores. Earlier, it has been reported from North America, Brazil, Tunisia, Europe, Norway, Japan, Korea, Taiwan and China (Núñez and Ryvarden, 2001; Ryvarden and Melo, 2014; Mycobank, 2023). Here, it is being described for the first time from India.

7. *Ceriporia spissa* (Schwein. ex Fr.) Rajchenb., *Mycotaxon*, **17**:276 (1983)

=*Polyporus spissus* Schwein. ex Fr., Elenchus Fungorum **1**:111 (1828) **(Figures 33-39)**



Figures 33-39: *Ceriporia spissa*: 33, Basidiocarp showing hymenial surface (fresh); 34, Basidiocarp showing hymenial surface (dry); 35, Basidiospores; 36, Basidia; 37, Generative hyphae; 38-39, Photomicrophographs showing generative hyphae.

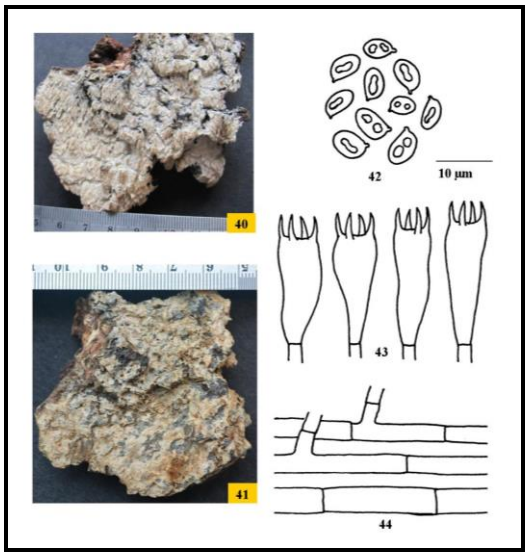
Basidiocarp annual, resupinate, adnate, effused, up to 1.5 mm thick in section; hymenial surface poroid, brownish orange to light brown when collected; pores angular, 6–8 per mm; dissepiments thin, lacerate; subiculum up to 250 µm thick, reddish brown; pore tube up to 1250 µm long, brownish orange; margins thinning, fibrillose, orange-white, or indeterminate. Oily exudation from basidiocarp sections in 3% KOH. Generative hyphae up to 4.5 µm wide, branched, simple-septate, subhyaline, thin-walled. Basidia 12-17.5 × 4.7-5.1 µm, clavate to subcylindrical, tetrasterigmate, without basal clamp; sterigmata up to 4.5 µm long. Basidiospores 2.8-4.4 × 1.8-2.6 µm, ellipsoid to suballantoid, smooth, subhyaline, thin walled, inamyloid, acyanophilous.

Collection examined: Punjab, Rupnagar, Nangal town, Industrial Training Institute, on angiospermous log, Hardeep and Chanchal 8715 **(PUN)**, September 3, 2016.

Remarks: *C. spissa* is unique in having secretion of oily contents from the transversely cut sections of basidiocarp when placed in 3% KOH solution. It is being described for the first time from India. Earlier it has been reported from Spain, England, America and Japan (Ryvarden and Melo, 2014; Mycobank, 2023).

8. *Ceriporia tarda* (Berk.) Ginns, *Mycotaxon*, **21**:326 (1984)

= *Polyporus tardus* Berk., *London Journal of Botany*, **4**:56 (1845) **(Figures 40-44)**



Figures 40-44: *Ceriporia tarda*: 40, Basidiocarp showing hymenial surface (fresh); 41, Basidiocarp showing hymenial surface (dry); 42, Basidiospores; 43, Basidia; 44, Generative hyphae.

Basidiocarps annual, resupinate, effused, adnate, up to 3 mm thick in section; hymenial surface poroid, orange white to pale orange to greyish orange when fresh, greyish orange to brownish orange to brown on drying; pores angular to elongate to irpiciform, 4-5 per mm; dissepiments thin, entire to lacerate; subiculum up to 400 µm thick, pale orange to greyish orange; pore tubes up to 2.6 mm long; tramal tissue pale orange to greyish orange towards the subiculum, brownish orange towards the hymenium; margins thinning, somewhat fibrillose, paler than the colour of the hymenial surface, or indeterminate. Generative hyphae up to 5.6 µm wide, simple-septate, thin-walled; subicular and tramal hyphae branched at right angles, encrusted with small crystalline granules; subhymenial hyphae more branched. Basidia 16-21 × 4.5-7.7 µm, clavate, somewhat sinuous, tetrasterigmate, without basal clamp; sterigmata up to 4.5 µm long. Basidiospores 3.7-6.3 × 2.5-4.3 µm, ellipsoid, smooth, thin-walled, acyanophilous, inamyloid, with oily contents.

Collections examined: India, Punjab, Rupnagar, about 10 km from Roopnagar towards Haripur, on fallen angiospermous sticks, Harminder 4725 **(PUN)**, July 22, 2011; about 10 km from Haripur towards Rupnagar, on trunk of *Acacia catechu*, Gurpreet and Avneet 8356 **(PUN)**, September 5, 2012.

Remarks: This species differs from *C. alachuana* in having encrustation on both subicular as well as tramal hyphae and is being described for the first time from India. Earlier, it has been reported from Australia, North America and China (Mycobank, 2023).

CONCLUSION

Genus *Ceriporia* is peculiar in having resupinate, poroid sporocarps with simple-septate generative hyphae, lack of cystidia and hyaline basidiospores. The genus is reported to cause white rot in gymnospermous as well as angiospermous tree species (Donk, 1933; Ryvarden and Melo, 2014). The earliest report on diversity of the genus *Ceriporia* from India dates back to Dhanda (1977) who described the present-day *C. xylostromatoides* as *Rigidoporus xylostromatoides* on the basis of collections made from the Union territory of Chandigarh. It was followed by *C. mellea* (as *Poria auricoma*) by Thind and Dhanda (1979) from Uttarakhand. Natarajan and Kolandavaelu (1998) published account of *C. leptoderma*, *C. mellea* and *C. xylostromatoides* from Tamil Nadu. Sharma (2000, 2012) provided an illustrated account of *C. mellea* (Uttarakhand), *C. purpurea* (Arunachal Pradesh), *C. viridians* (Meghalaya, West Bengal and Uttarakhand) and *C. xylostromatoides* (Arunachal Pradesh). Bhosle *et al*. (2005), Ranadive *et al*. (2011) and Ranadive (2013) also listed *C. leptoderma*, *C. mellea*, *C. purpurea*, *C. viridians*, *C. xylostromatoides* from different parts of Maharashtra. The present account of eight species of the genus *Ceriporia*, based on collections made from different parts of state Punjab, Union Territory of Chandigarh and Himachal Pradesh adds seven new records of the genus *Ceriporia* from India and increases the total number of species from five to 12.

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CONFLICT OF INTEREST

There is no conflict of interest.

REFERENCES

Bhosle, S.R., Lamrood, P.Y., Vaidya, J.G. 2005. Diversity of Aphyllophoraceous Fungi from the Western Ghats of Maharashtra. In: The fungi-diversity and conservation in India (Eds.: Dargan, J.S., Atri, N.S., Dhingra, G.S.). Bishen Singh Mahendra Pal Singh Publisher, Dehradun, India, pp.103-113.

Dhanda, R.S. 1977. Studies on *Polyporaceae* from northwestern Himalayas. Ph.D. thesis, Panjab University, Chandigarh, p.500.

Dhingra, G.S. 2005. Genus *Phlebia* Fr. in the Eastern Himalaya. *Journal of the Indian Botanical Society*, **84**:111-117.

Donk, M.A. 1933. Revisie van de Nederlandse Heterobasidiomyceteae (uitgez. *Uredinales* en *Ustilaginales*) en *Homobasidiomyceteae-Aphyllophraceae*: II. Mededelingen van het botanisch Museum en Herbarium van de Rijksuniversiteit Utrecht, **9**:1-278.

Kornerup, A. and Wanscher, J.H. 1978. Methuen Handbook of Colour, third ed. Metheun and Co. Ltd., London, p.252.

Lindblad, I. and Ryvarden, L. 1999. Studies in neotropical polypores 3 new and interesting Basidiomycetes (Poriales) from Costa Rica. *Mycotaxonomy*, **71**:335-359.

MycoBank. 2023. *Fungal databases.* Nomenclature and Species Banks. https://www.mycobank.org. (accessed on 21/03/2023).

Natarajan, K. and Kolandavelu, K. 1998. Resupinate Aphyllophorales of Tamil Nadu. Centre for Advanced Studies in Botany, University of Madras, Chennai, India. pp.131.

Núñez, M. and Ryvarden, L. 2001. East asian polypores-2. *Synopsis Fungorum*, Fungiflora AS, Norway, **14**:170-522.

Ranadive, K.R. 2013. An overview of *Aphyllophorales* (wood rotting fungi) from India. *International Journal of Current Microbiology and Applied Sciences*, **2(12)**:112-139.

Ranadive, K.R., Vaidya, J.G., Jite, P.K., *et al.*, 2011. Checklist of Aphyllophorales from Western ghats of Maharashtra state, India. *Mycosphere*, **2**:91-114.

Ryvarden, L. and Melo, I. 2014. Poroid fungi of Europe. *Synopsis Fungorum*, Fungiflora AS, Norway, **31**:1-455.

Sharma, J.R. 2000. Genera of Indian polypores. Botanical Survey of India, Ministry of Environment and Forest, Kolkata, pp.188.

Sharma, J.R. 2012. Aphyllophorales of Himalaya *(Auriscalpiaceae, Tremello-dendropsis).* Botanical Survey of India, Ministry of Environment and Forests, Kolkata, India, pp.590.

Thind, K.S. and Dhanda, R.S. 1979. The *Polyporaceae* of India-IX. Eight species of *Poria* new to India. *Kavaka*, **7**:51-58.