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**Five New Records of Family Atheliaceae from Jammu Division (J. & K.)**

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**ABSTRACT**

A detailed account of five species (*Amphinema byssoides*, *Athelopsis subinconspicua*, *Leptosporomyces galzinii*, *L. roseus* and *Tylospora fibrillosa*), which are new reports for the Jammu division (J&K) has been given. Of these, *Tylospora fibrillosa* is a new record for India, whereas the other four species are being described for the first time the state of Jammu & Kashmir.

**Key words:** Basidiomycota, Agaricomycetes, Corticioid fungi

**INTRODUCTION**

The members of family Atheliaceae are characterized by resupinate, loosely adnate basidiocarps, branched, septate, with or without clamps generative hyphae, clavate to subclavate, 4-sterigmate basidia and inamyloid basidiospores. An account of five first reports from Jammu division (*Amphinema byssoides*, *Athelopsis subinconspicua*, *Leptosporomyces galzinii*, *L. roseus* and *Tylospora fibrillosa*) has been given. Of these, first four species are new records for the state of Jammu and Kashmir, as earlier only *Amphinema byssoides* has been reported by Rattan (1977) from the Kashmir division. It is pertinent to mention here that *Tylospora fibrillosa* is a new record for India. The material of all the five species have been deposited at the Herbarium, Botany Department, Punjabi University, Patiala (PUN). The color standards used are as per Methuen's Handbook of colors by Kornerup and Wanscher (1978).

**Key to the genera:**

1. Sterile structures present.....*Amphinema*
1. Sterile structures absent.....2
2. Basidia pedunculate.....*Athelopsis*
2. Basidia not pedunculate.....3
3. Spores ellipsoid to subcylindrical to subfusiform, smooth.....*Leptosporomyces*
3. Spores triangular, smooth or ornamented.....*Tylospora*

**TAXONOMIC DESCRIPTIONS**

**1. *Amphinema byssoides*** (Fr.) J. Erikss., *Symb. Bot. Upsal.* **16**: 112, 1958. - *Thelephora byssoides* Fr., *Syst. Mycol.* **1**: 452, 1821.

**Figs. 1-5**

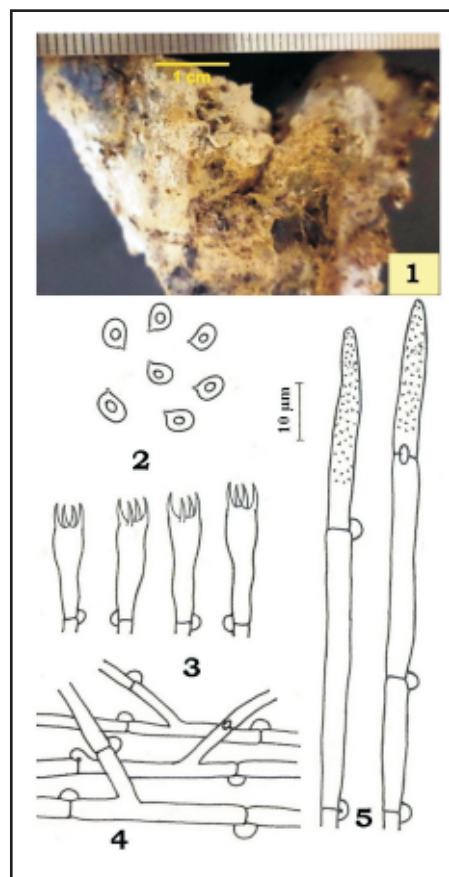
Fruitbody resupinate,  $\leq 100$   $\mu\text{m}$  thick in section, adnate, effused. Hymenial surface smooth to velvety under lens due to projecting cystidia, colour varies from creamish white to pastle yellow to greyish yellow when collected. Margins fibrillose, paler concolorous, or indistinct. Hyphal system monomitic. Generative hyphae branched, nodose-septate, pale yellow,  $\leq 3.3$   $\mu\text{m}$  wide; subicular hyphae horizontal, less branched; subhymenial hyphae vertical, more branched. Cystidia numerous, hyphoid, 2 to 3-celled due to 1-2 nodose

septa, encrusted with grainy matter, with basal clamp,  $80-86 \times 2.6-3.6$   $\mu\text{m}$ ; projecting  $\leq 60$   $\mu\text{m}$  out of the hymenium. Basidia clavate, somewhat constricted, 4-sterigmate, with basal clamp,  $15-20 \times 4.5-5.2$   $\mu\text{m}$ ; sterigmata  $\leq 4.2$   $\mu\text{m}$  long. Basidiospores ellipsoid, thin-walled, apiculate, smooth, inamyloid, acyanophilous,  $4.2-5.5 \times 3.6-4.2$   $\mu\text{m}$ .

**Specimen**

**examined** - India: J&K, Jammu, Kathua, Billawar, about 8 km from Sukrala towards Machhedi, on bark of *Pinus roxburghii*, Jyoti 6967 (PUN), October 11, 2013.

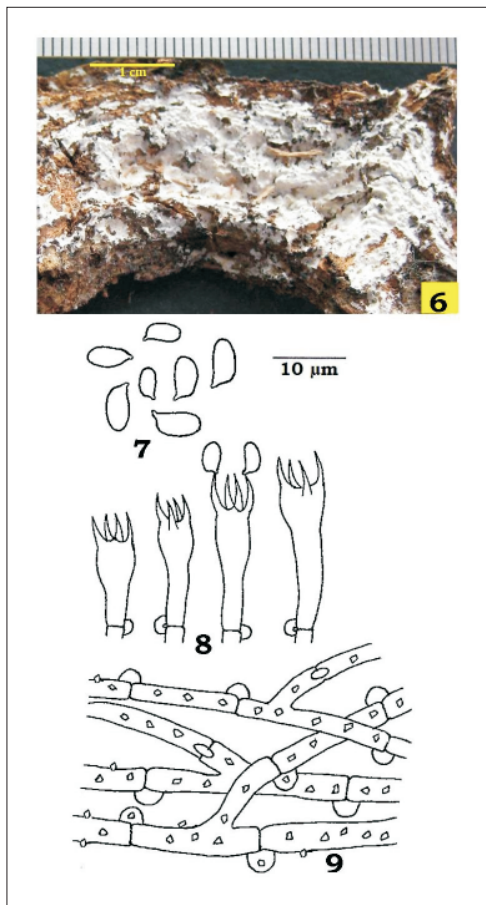
**Remarks:** Earlier, Thind and Rattan (1968) reported it from district Baramula (J.&K.) and Himachal Pradesh, followed by Rattan (1977) from Himachal Pradesh, Samita (2014) from Uttarakhand. Later, Dhingra *et al.* (2011 and 2014) listed it from the Eastern Himalaya and Himachal Pradesh respectively. However, here it is being reported as a new record for Jammu division (J. & K.).



**Figs. 1-5. *Amphinema byssoides*:**  
 1. Basidiocarp showing hymenial surface; 2. Basidiospores; 3. Basidia; 4. Generative hyphae; 5. Hyphoid cystidia.

**2. *Athelopsis subinconspicua*** (Litsch.) Jülich, *Persoonia* 8(3): 292, 1975. - *Corticium subinconspicuum* Litsch., *Glasn. Skopsk. Naucn. Drustva* 18: 178, 1938.

**Figs. 6-9**



**Figs. 6-9. *Athelopsis subinconspicua*:** ≤ 3.3 µm wide; 6. Basidiocarp showing hymenial surface; 7. Basidiospores; 8. Basidia; 9. Generative subicular hyphae.

horizontal; subhymenial hyphae denser, vertical. Sterile structures absent. Basidia clavate, pedunculate, 4-sterigmate, with basal clamp, 10-19 × 4.6-6 µm; sterigmata ≤ 4.6 µm long. Basidiospores narrowly ellipsoid to ellipsoid, thin-walled, apiculate, smooth, inamyloid, acyanophilous, 4-6.5 × 2-2.6 µm.

**Specimen examined-** India: J&K, Ramban, Nathatop, Ladhahar, on stump of *Cupressus sempervirens*, Jyoti 5083 (PUN), October 11, 2011; Karlah, Nag Mandir Road, on the under surface of *Cedrus deodara* log, Jyoti 5084 (PUN), September 10, 2012; Udhampur, about 16 km from Patnitop towards Sanasar, on stump of *Cupressus sempervirens*, Jyoti 5081, 5082 (PUN), October 11, 2011; about 16 km from Patnitop towards Sanasar, on stump of *C. sempervirens*, Jyoti 8284 (PUN), October 05, 2014.

**Remarks:** This species is characteristic in having pedunculate basidia and narrowly ellipsoid to ellipsoid basidiospores and is being described for the first time from

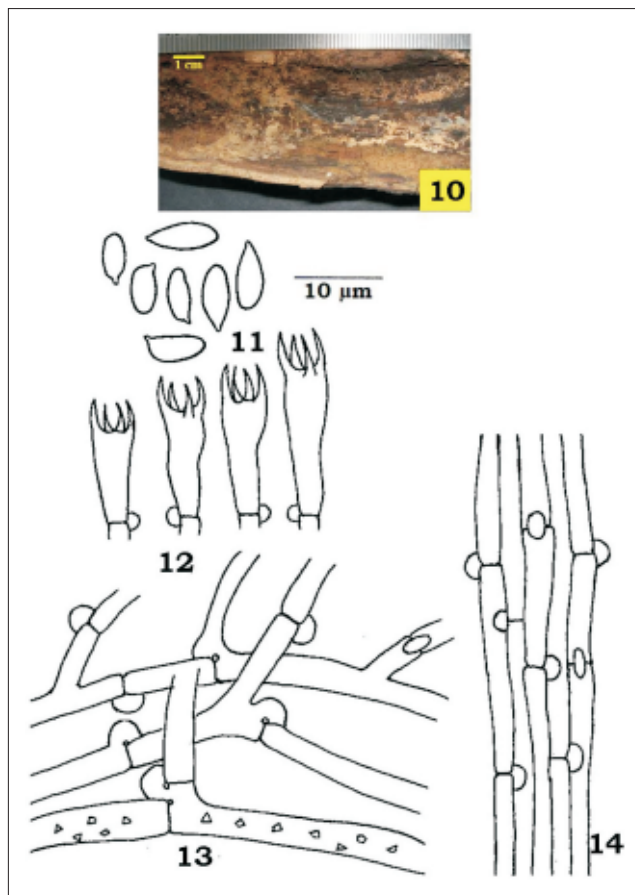
Jammu and Kashmir. Earlier reports from India are by Kaur (2012), Prashar and Ashok (2013) as well as Dhingra *et al.* (2014) from Himachal Pradesh and Samita (2014) from Uttarakhand.

**3. *Leptosporomyces galzinii*** (Bourdot) Jülich, *Willdenowia, Beih.* 7: 192, 1972. - *Corticium galzinii* Bourdot *Rev. Sci. Bourb. Centr. Fr.* 23(1): 11, 1910.

**Figs. 10-14**

Fruitbody resupinate, ≤ 180 µm thick in section, loosely adnate, effused. Hymenial surface smooth, colour varies from light orange to greyish orange in fresh state, brownish orange in dry state. Margins fibrillose, paler concolorous, or indistinct. Hyphal cordons present. Hyphal system monomitic. Generative hyphae branched, nodose-septate, ≤ 4.5 µm wide; subicular hyphae loosely interwoven, horizontal, encrusted with crystalline matter; subhymenial hyphae denser, vertical, smooth. Hyphal cordons ≤ 15 µm wide, usually unbranched. Sterile structures absent. Basidia clavate, 4-sterigmate, with basal clamp, 10-16 × 4.5-5.2 µm; sterigmata ≤ 4.2 µm long. Basidiospores subcylindrical to subfusiform, thin-walled, apiculate, smooth, inamyloid, acyanophilous, 5.5-7.5 × 2.3-2.6 µm.

**Specimen examined-** India: J&K, Jammu, Udhampur, about 16 km from Patnitop towards Sanasar, on stump of *Cupressus sempervirens*, Jyoti 8289 (PUN), October 05, 2014.

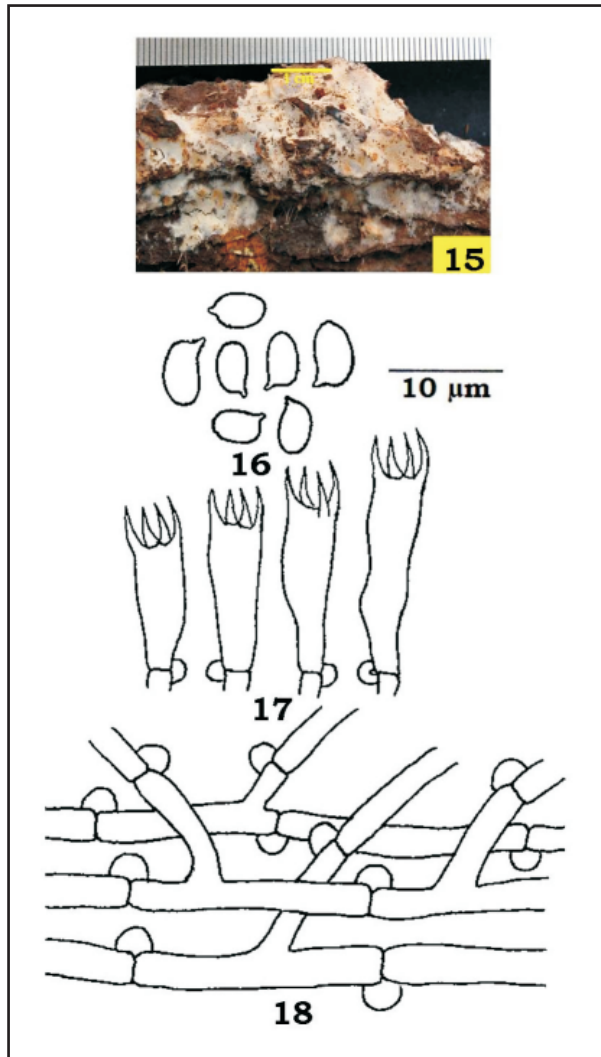


**Figs 10-14. *Leptosporomyces galzinii*:** 10. Basidiocarp showing hymenial surface; 11. Basidiospores; 12. Basidia; 13. Generative hyphae; 14. Hyphal cordons.

**Remarks:** It is peculiar in having hyphal cordons and subcylindrical to subfusiform basidiospores and first report from Jammu and Kashmir. Earlier reports from India are by Kaur (2012), Prasher and Ashok (2013) and Dhingra *et al.* (2014) from Himachal Pradesh, and Samita (2014) from Uttarakhand.

**4. *Leptosporomyces roseus*** Jülich, *Willdenowia*, Beih. 7: 208, 1972. **Figs. 15-18**

Fruitbodies resupinate,  $\leq 150 \mu\text{m}$  thick in section, loosely adnate, effused. Hymenial surface smooth, colour varies from orangish white to pale orange in fresh state, pale orange to greyish orange in dry state. Margins fibrillose, paler concolorous, or indistinct. Hyphal system monomitic. Generative hyphae branched, nodose-septate,  $\leq 3 \mu\text{m}$  wide; subicular hyphae loosely interwoven, horizontal; subhymenial hyphae denser, vertical. Sterile structures absent. Basidia clavate, 4-sterigmate, with basal clamp and oily contents,  $10-16 \times 3.9-4.2 \mu\text{m}$ ; sterigmata  $\leq 3.6 \mu\text{m}$  long. Basidiospores ellipsoid, thin-walled, apiculate, smooth,



**Figs. 15-18. *Leptosporomyces roseus*:** 15. Basidiocarp showing hymenial surface; 16. Basidiospores; 17. Basidia; 18. Generative hyphae.

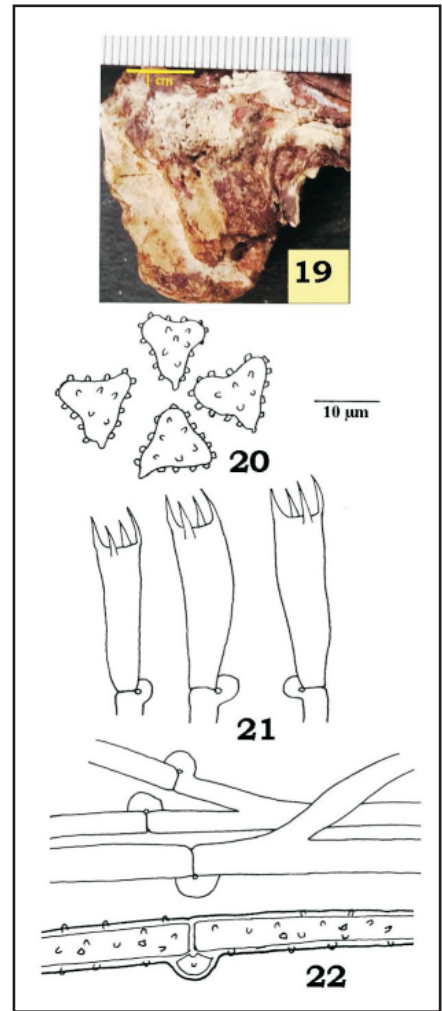
inamyloid, acyanophilous,  $4-6 \times 2.3-3 \mu\text{m}$ .

**Specimens examined-** India: J.&K., Jammu, Ramban, Karlah, Nag Mandir road, on bark of *Cedrus deodara*, Jyoti 5085, 5086, 5087, 8138, 8173, 8232 (PUN), September 10, 2012; Doda, Bhadarwah, Nalthi, on stump of *C. deodara*, Jyoti 8180 (PUN), September 26, 2014; Ramban, Karlah, Nag Mandir road, on bark of *C. deodara*, Jyoti 8274, 8297 (PUN), October 04, 2014.

**Remarks:** This species was first reported from India by Singh (2007) from district Chamba (H.P.), followed by Kaur (2012) from Himachal Pradesh in the North Western Himalaya and later it has also been listed by Dhingra *et al.* (2014) from Himachal Pradesh. However, here it is the first report of this species from Jammu and Kashmir.

**5. *Tylospora fibrillosa*** (Burt) Donk, *Taxon* 9: 220, 1960. - *Hypochnus fibrillosus* Burt, *Annals of the Missouri Botanical Garden* 3: 238, 1916. **Figs. 19-22**

Fruitbody resupinate,  $\leq 250 \mu\text{m}$  thick in section, adnate, effused. Hymenial surface smooth to granulose to reticulate, colour orangish white to greyish orange when collected. Margins pruinose, paler concolorous, or indistinct. Hyphal system monomitic. Generative hyphae branched, nodose-septate; subicular hyphae horizontal, thick-walled, encrusted with granular crystals,  $\leq 5.2 \mu\text{m}$  wide; subhymenial hyphae vertical, thin-walled, smooth,  $\leq 4.5 \mu\text{m}$  wide. Sterile structures absent. Basidia clavate to subcylindrical, 4-sterigmate, nodose-septate at the base,  $20-25 \times 5.8-7.5 \mu\text{m}$ ; sterigmata  $\leq 5.9 \mu\text{m}$  long. Basidiospores triangular, lobed, thin-walled, apiculate, ornamented, inamyloid, cyanophilous,  $8.7-9.8 \times 9.1-10.7 \mu\text{m}$ .



**Figs. 19-22. *Tylospora fibrillosa*:** 19. Basidiocarp showing hymenial surface; 20. Basidiospores; 21. Basidia; 22. Generative hyphae.

**Specimen examined-** India: J.&K., Jammu, Ramban, Nag Mandir road, on decaying gymnospermous stump, Jyoti 8304 (PUN), September 25, 2014.

**Remarks:** This species is peculiar in having triangular, lobed, ornamented basidiospores and a new report for India. Earlier, it has been reported from Estonia, France, Germany, Belarus, Ireland, Macedonia, Albania, United Kingdom, Slovenia, Russia, Sweden, Austria, Italy, Denmark, Norway, Finland and Italy ([www.mycobank.org](http://www.mycobank.org), 2017).

#### ACKNOWLEDGMENTS

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