

# Foliicolous lichens new to Uttar Pradesh, India

Pooja Gupta and G. P. Sinha\*

Botanical Survey of India, Central Regional Centre, Allahabad-211002, India

E-mail: poojaguptafri09@gmail.com; drgpsinha@gmail.com\*

\*Corresponding author

Manuscript received: 27 March 2015

Accepted for publication: 30 March 2015

## ABSTRACT

Gupta P. & Sinha G. P. 2015. Foliicolous lichens new to Uttar Pradesh, India. Geophytology 45(1): 77-80.

Six species of foliicolous lichens, viz. *Bacidina apiahica* (Müll. Arg.) Vězda, *Byssoloma subdiscordans* (Nyl.) P. James, *Coenogonium dilucidum* (Kremp.) Kalb & Lücking, *C. minimum* (Müll. Arg.) Lücking, *Fellhanera rhapsidophylli* (Rehm) Vězda and *F. semicarpi* (Vain.) Vězda are reported for the first time from Uttar Pradesh along with a key to all known species in the state to facilitate their identification.

**Key-words:** Foliicolous lichens, records, Uttar Pradesh, India.

## INTRODUCTION

Uttar Pradesh is one of the lesser known Indian states in lichen diversity. A total of 132 species are known (Nayaka & Upreti 2013) which include a lone foliicolous species, i.e. lichens growing on living leaves. This seemed inadequate in light of vastness of the area. Further exploration in Terai area of Pilibhit district has provided the evidence. Study of specimens revealed the occurrence of six additional foliicolous species, viz. *Bacidina apiahica* (Müll. Arg.) Vězda, *Byssoloma subdiscordans* (Nyl.) P. James, *Coenogonium dilucidum* (Kremp.) Kalb & Lücking, *C. minimum* (Müll. Arg.) Lücking, *Fellhanera rhapsidophylli* (Rehm) Vězda and *F. semicarpi* (Vain.) Vězda. Thus, the total tally of foliicolous lichens in the state has increased up to 7 species. The present paper enumerates all the foliicolous species known so far from Uttar Pradesh along with a key to facilitate their identification.

## MATERIAL AND METHODS

Lichen specimens were collected from Terai region

of Uttar Pradesh comprising Mahof Reserve Forest of Pilibhit district. These were identified with the help of keys and descriptions provided by Santesson (1952) and Lücking (2008). All observations concerning morphological and anatomical details of thalii and ascomata were examined using Olympus SZ61 Stereo microscope and Nikon Eclipse 50i compound microscope. Squash preparations were studied in water or KOH solution (K) and the amyloid reactions were tested with Lugol's reagents, without (I) or with pre-treatment of KOH (K/I). All the collections are deposited in the herbarium of Botanical Survey of India, Central Regional Centre, Allahabad (BSA).

## ENUMERATION OF TAXA

### Family: Ramalinaceae

1. *Bacidina apiahica* (Müll. Arg.) Vězda, Folia Geobot. Phytotax. 25: 432. 1990.

Plate 1, figure A

**Specimen examined:** Uttar Pradesh, Pilibhit district, Mahof Reserve Forest, 28°44'N, 79°53'E, 198 m alt., 31 July 2014, on *Mangifera indica* leaves,

Pooja Gupta 8687, 8688, 8689, 8694 (BSA).

**Description:** The crustose species is characterized by granulose thallus, 0.3–0.8 mm diam. apothecia with orange–yellow disc and pale yellow margin, I+ blue hymenium and transversely 3–septate, 22–38 × 1.5–2.0 µm ascospores.

**Distribution in India:** This pantropical species is distributed in Arunachal Pradesh, Assam, Tamil Nadu and now reported from Uttar Pradesh.

**Family: Asterothyriaceae**

**2. *Byssoloma subdiscordans*** (Nyl.) P. James.  
Lichenologist 5: 126. 1971.

Plate 1, figure B

**Specimen examined:** Uttar Pradesh, Pilibhit district, Mahof Reserve Forest, 28°44'N, 79°53'E, 198 m alt., 31 July 2014, on *Mangifera indica* leaves, Pooja Gupta 8689A (BSA).

**Description:** The crustose species is characterized by greenish white thallus, 0.3–1.0 mm diam. apothecia with black disc and well developed, white margin, I+ blue hymenium and transversely (1)–3 septate, 10–17 × 3–5 µm ascospores.

**Distribution in India:** This cosmopolitan species is distributed in Arunachal Pradesh, Manipur, Nagaland, Sikkim, Tamil Nadu and now reported from Uttar Pradesh.

**Family: Coenogoniaceae**

**3. *Coenogonium dilucidum*** (Kremp.) Kalb & Lücking, Bot. Jahrb. Syst. 122: 32. 2000.

Plate 1, figure C

**Specimen examined:** Uttar Pradesh, Pilibhit district, Mahof Reserve Forest, 28°44'N, 79°53'E, 198 m alt., 31 July 2014, on *Mangifera indica* leaves, Pooja Gupta 8686B, 8688B (BSA).

**Description:** The crustose species is characterized by green thallus, 0.1–0.2 mm diam. apothecia with waxy yellowish–brown disc, I–hymenium and transversely 1–septate, 6–10 × 2–2.5 µm ascospores.

**Distribution in India:** This pantropical species is distributed in Andaman & Nicobar Islands, Assam and now reported from Uttar Pradesh.

**4. *Coenogonium minimum*** (Müll. Arg.) Lücking, Fl. Neotrop. Monogr. 103: 572. 2008.

Plate 1, figure D

**Specimen examined:** Uttar Pradesh, Pilibhit district, Mahof Reserve Forest, 28°44'N, 79°53'E, 198 m alt., 31 July 2014, on *Mangifera indica* leaves, Pooja Gupta 8688A, 8690B (BSA).

**Description:** The crustose species is characterized by greenish–grey thallus, 0.05–0.2 mm diam. apothecia with pale to yellowish, urceolate disc, I–hymenium and transversely 1–septate, 10–12 × 3–4 µm ascospores.

**Distribution in India:** This pantropical species is distributed in Assam and now reported from Uttar Pradesh.

**Family: Gomphillaceae**

**5. *Fellhanera rhapsidophylli*** (Rehm) Vězda, Folia Geobot. Phytotax. 21: 214. 1986.

Plate 1, figure E

**Specimen examined:** Uttar Pradesh, Pilibhit district, Mahof Reserve Forest, 28°44'N, 79°53'E, 198 m alt., 31 July 2014, on *Mangifera indica* leaves, Pooja Gupta 8688, 8692A (BSA).

**Description:** The crustose species is characterized by farinose thallus, 0.2–0.4 mm diam. apothecia with reddish brown to dark brown disc, I+ blue hymenium and transversely 3-septate, 12–18 × 3–4 µm ascospores.

**Distribution in India:** This pantropical species is distributed in Arunachal Pradesh, Manipur, Nagaland, Tamil Nadu and now reported from Uttar Pradesh.

**6. *Fellhanera semicarpi*** (Vain.) Vězda, Folia Geobot. Phytotax. 21: 214. 1986.

Plate 1, figure F

**Specimen examined:** Uttar Pradesh, Pilibhit



**Plate 1**

A–F. Habit. **A.** *Bacidina apiahica* (Müll. Arg.) Vězda. **B.** *Byssoloma subdiscordans* (Nyl.) P. James. **C.** *Coenogonium dilucidum* (Kremp.) Kalb & Lücking. **D.** *Coenogonium minimum* (Müll. Arg.) Lücking. **E.** *Fellhanera rhapsidophylli* (Rehm) Vězda. **F.** *Fellhanera semicarpi* (Vain.) Vězda. Scale: A–1 mm, B–2 mm, C–0.4 mm, D–0.4 mm, E–2 mm, F–1 mm.

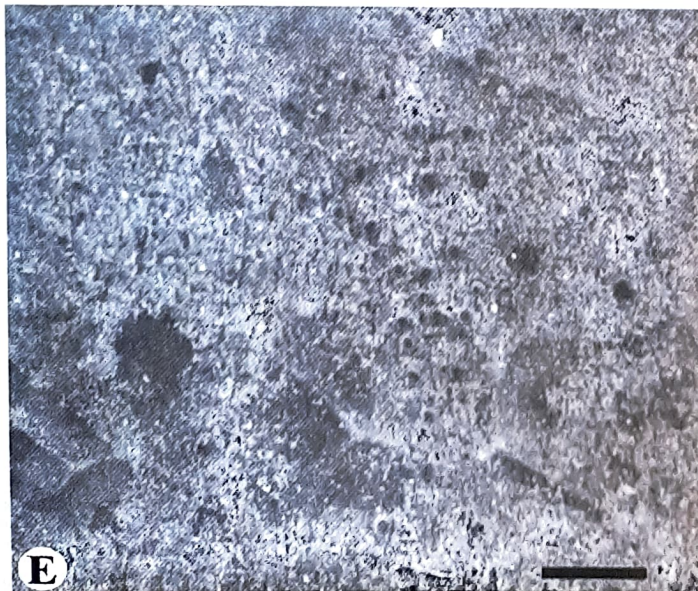
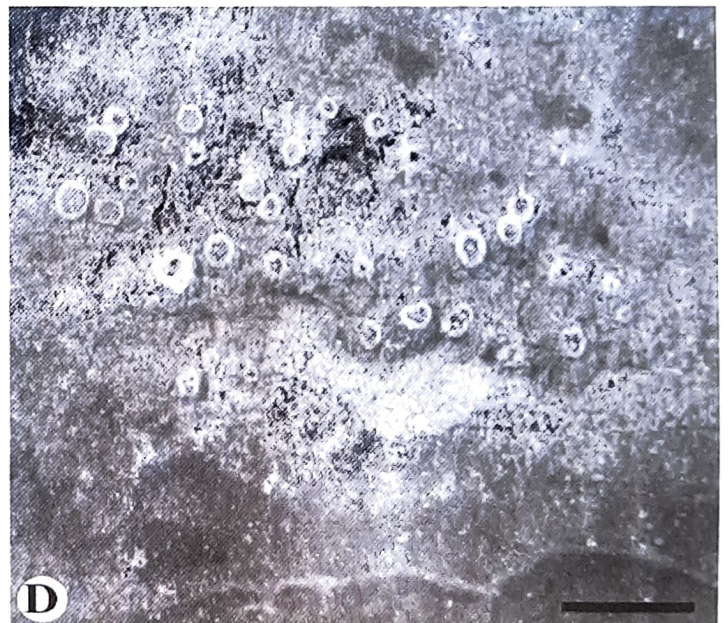
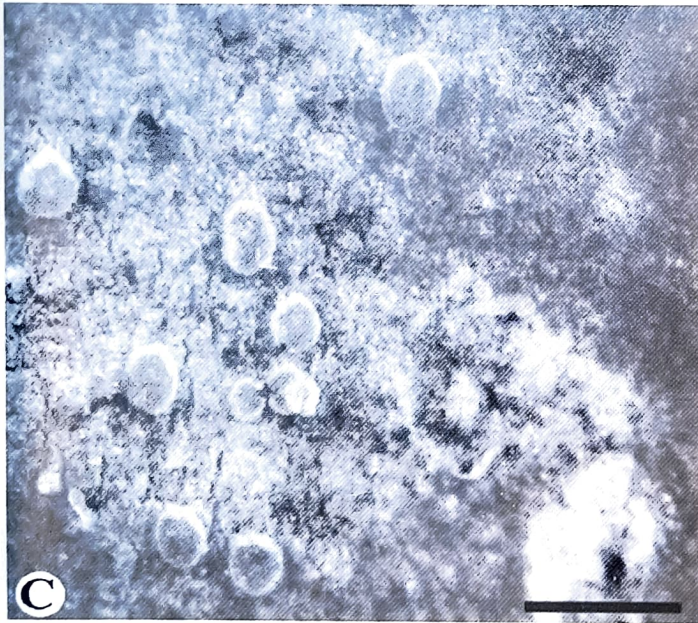
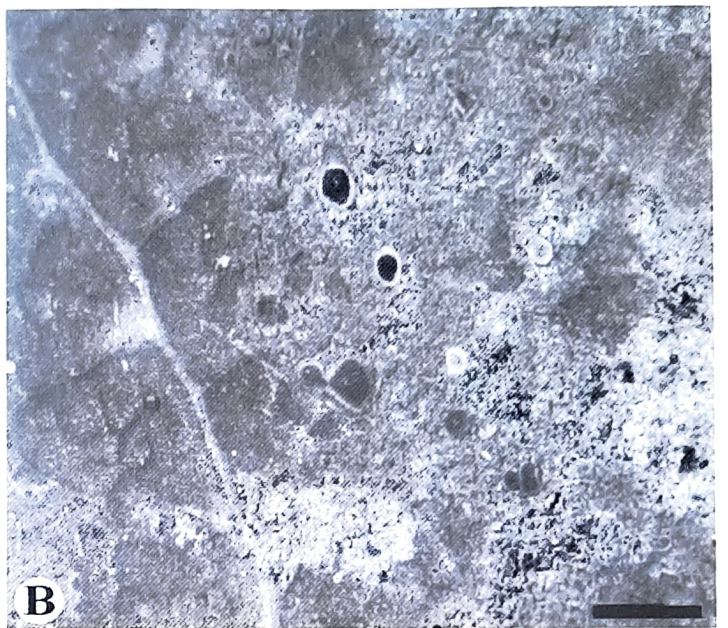
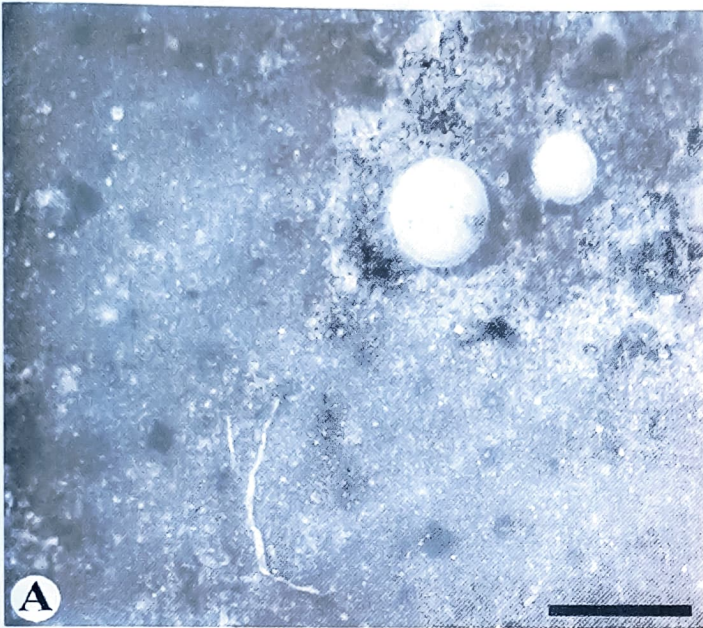


Plate 1

district, Mahof Reserve Forest, 28°44'N, 79°53'E, 198 m alt., 31 July 2014, on *Mangifera indica* leaves, Pooja Gupta 8682, 8689B, 8691 (BSA).

**Description:** The crustose species is characterized by pale greenish grey thallus, 0.1–0.2 mm diam. apothecia with ochraceous yellow disc, I+ blue hymenium and transversely 1-septate, 10–16 × 4–5 µm ascospores with constriction at septum.

**Distribution in India:** This pantropical species is distributed in Arunachal Pradesh, Assam, Meghalaya, Nagaland, Sikkim, Tamil Nadu, West Bengal and now reported from Uttar Pradesh.

**Family: Strigulaceae**

7. *Strigula smaragdula* Fr., Linnaea 5: 550. 1830.

**Distribution in India:** This palaeotropical species is distributed in Andaman Islands, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tamil Nadu and West Bengal. It is included on the basis of earlier record (Nayaka & Upreti 2013).

**KEY TO FOLIICOLOUS LICHEN SPECIES  
OF UTTAR PRADESH**

- 1a. Ascomata perithecia.....7 *Strigula smaragdula*  
 1b. Ascomata apothecia .....2  
 2a. Excipulum with byssoid tissue.....  
 .....2 *Byssoloma subdiscordans*

- 2b. Excipulum lacking byssoid tissue.....3  
 3a. Asci entirely thin-walled, I– or I+ bluish- brownish..4  
 3b. Asci apically thick-walled, I+ bluish.....5  
 4a. Apothecia waxy yellowish–brown; disc plane  
 ..... 3 *Coenogonium dilucidum*  
 4b. Apothecia pale to yellowish; disc concave  
 ..... 4 *Coenogonium minimum*  
 5a. Ascospores bacillar.....1 *Bacidina apiahica*  
 5b. Ascospores oblong-ellipsoid.....6  
 6a. Ascospores transversely 3-septate, 12–18 × 3–4  
 µm.....5 *Fellhanera rhapsidophylli*  
 6b. Ascospores transversely 1-septate, 10–16 × 4–5  
 µm.....6 *Fellhanera semecarpi*

**ACKNOWLEDGEMENT**

The authors are thankful to Dr. Paramjit Singh, Director, Botanical Survey of India, Kolkata for facilities and financial assistance under “Flora of India” project.

**REFERENCES**

- Lücking R. 2008. Foliicolous lichenized fungi. Fl. Neotrop. Monogr. 103: 1–867.  
 Nayaka S. & Upreti D. K. 2013. Lichens of Uttar Pradesh. Lucknow: Uttar Pradesh State Biodiversity Board.  
 Santesson R. 1952. Foliicolous lichens I. A revision of the taxonomy of the obligately foliicolous lichenized fungi. Symb. Bot. Upsal. 12(1): 1–590.