ON THE SPECIES OF BU Ellia AND DIPLOTOMMA FROM MANIPUR, INDIA

K. P. SINGH
Botanical Survey of India, Shillong

AND

S. R. SINGH
Department of Botany, Jai Narain Degree College, Lucknow

ABSTRACT

The paper reports the occurrence of 15 species of Buellia and 5 species of Diplotomma from Manipur, India. Out of these, 2 species viz.—Buellia conspirans and Diplotomma chlorophaea are new records for India and therefore, are described in detail. Diplotomma chlorophaea is made a new combination. A key to the all species is also provided to facilitate their identification in the area.

The lichen genera Buellia De Not. s. str. and Diplotomma Mass, are represented in India by 40 species and 9 species respectively (S. Singh 1979, K. Singh 1980, S. Singh and Awasthi 1981, K. Singh and S. Singh 1982). Only 4 species of Buellia and 2 of Diplotomma had so far been recorded from Manipur. During the course of detailed taxonomic investigations on the specimens from Manipur additional 11 species of Buellia and 3 of Diplotomma have been found. Out of these 10 species of Buellia and 2 of Diplotomma are already known from other regions of India. Two taxa viz. Buellia conspirans (Nyl.) Vain. and Diplotomma chlorophaea (Hepp. ex. Leight.) Singh et Singh comb. nov. are new reports from India. In order to facilitate the identification a key for all the species of Buellia and Diplotomma recorded from Manipur is given in this paper. Full descriptions of the two taxa which are new records for India are also provided along with a new combination. The descriptions of other taxa are omitted since they are already available in above mentioned publications.

Key to the species of Buellia and Diplotomma recorded from Manipur

1a. Spores 2-celled
2a. Thallus corticolous:
   3a. Thallus wall ± uniformly thickened:
      4a. Thallus K+ red, P+ yellow:
         5a. Disc of apothecium greyish pruinose, spores 16.5-23×6.9-9 μm, atranorin and norstictic acid present
         5b. Disc of apothecium epruinose:
             6a. Thallus thin, ± uniform, spores 24-32×9-12 μm, atranorin
             6b. Thallus thick, verruculose, spores 18-32×6.9 μm, atranorin, norstictic, salacinic acid unidentified terpines present
      4b. Thallus K—, P—:

Buellia

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Thallus saxicolous, crustaceous, effuse, whitish to ashy grey, cracked areolate to verruculose, surrounded by black hypothalline line. Apothecia black, prominent, adnate to sessile, constricted below, rounded, 0.2-0.7 mm diam.: margin black, thick, persistent; disc flat to concave, epruinose; hymenium 60-75 (100) μm high, not inspersed with oil globules, I+ blue; internal stipe pale brown, K-; exciple reddish brown, K+ red crystals; asci 8-spored; spores brown, transversely 2-celled, ellipsoidal, uniformly thickened. (g) 12-17 × 6-8 μm surface ornamented; paraphyses simple to furcated.

Chemistry: Thallus K+ red, C-, KC-, P + yellow, I-, UV-; atranorin, norstictic acid present (TLC).

7a. Internal stipe pallid, exciple less than 20 μm thick, spores 18-24× 7-12 μm, no lichen substances present

7b. Internal stipe dark reddish brown, exciple more than 30 μm thick:

8a. Thallus rusty, cracked, exciple 35-60 μm thick, spores 10-15 (18) × 6-8 μm no lichen substances present

8b. Thallus conspicuous, smooth, exciple 50-90 μm thick, spores 18-25 × 9-13 μm, atranorin present

B. montana (Stirt.) Zahlbr.

5b. Spore wall unevenly thickened:

9a. Thallus K+ reddish brown, spores ± mischoblastiomorphic, 15-18 × 6-9 μm, atranorin, norstictic acid and terpenes present

9b. Thallus K-, P-, spores placodiomorphic, 20-26 × 6-8 μm, atranorin terpenes present

B. placodiomorpha Vain.

2b. Thallus saxicolous:

10a. Spores mischoblastiomorphic, 10-20 × 3-11 μm, thallus K-, P-, no lichen substances present:

B. posthabita (Nyl.) Zahlbr.

10b. Spores not mischoblastiomorphic, wall ± uniformly thickened:

11a. Medulla I+ blue:

12a. Thallus K+ yellow, P+ yellow, thick, areolate, spores 15-24 × 6-9 μm, atranorin, norstictic acid, baemomycetic acid and unidentified substance present

B. megalayanensis Singh et Asas.

12b. Thallus K+ red, P+ yellow, atranorin and norstictic acid present:

13a. Spores surface ornamented, apothecia partially erumpent, spores 15-18 × 6-7 μm

B. cephalophora Zahlbr.

13b. Spores smooth, apothecia immersed, spores 12-16 × 6-8 μm

B. aethalea (Ach.) Th. Fr.

11b. Medulla I-:

14a. Thallus K+ red, P-, spores ornamented, 15-21 × 9-12 μm, no lichen substances present:

B. palniensis Singh et Asas.

14b. Thallus K+ red, P+ yellow, atranorin and norstictic acid present, spore surface smooth and terpenes present:

15a. Thallus ± granular to verruculose or cracked areolate, apothecia adnate to subsessile, spores (9) 12-17 × 6-8 μm

B. conspicua (Nyl.) Vain.

15b. Thallus ± uniform, areolate, apothecia sunken in the thallus, spores 12-15 × 5.5-7 μm

B. subdistisiformis (Leight.) Vain.

1b. Spores transversely 4-6 celled or muriform:

16a. Thallus corticolous:

17a. Spores transversely septeate surface ornamented:

18a. Thallus K+ red, P+ yellow, spores 4-celled, 18-30 × 9-12 μm, atranorin and norstictic acid present

D. lauricaeae (Fée) Mill.-Arg.

18b. Thallus K+ yellow, spores 4-6 celled 18-24 × 6-9 (12) μm, atranorin

D. proximata Magn.

17b. Spores muriform, surface smooth, 15-25 × 6-12 μm thallus K-, P-

D. alicheata (Hoffm.) Branth.

16b. Thallus saxicolous:

19a. Spores transversely 4-celled surface ornamented, thallus K+ red, P+ yellow, spores 18-31 36 × 7-11 μm, atranorin, norstictic acid present

D. manippensism Singh et Singh

19b. Spores muriform, surface smooth:

20a. Thallus K+ red, P+ yellow, apothecia sunken, spores 15-24 × 9-12 μm, atranorin, norstictic acid present

D. chlorophora (Hepp. ex Leight.) Lett.

20b. Thallus K-, P-, apothecia prominent, spores 15-25 × 6-12 μm, no chemical substance present

D. alicheata (Hoffm.) Branth.
Specimens examined: Tegnoupal, Moreh, Singh 550830, 550833, 550834, 550836, 550837 (all CAL).

Extra Indian specimen examined: Nova granata, Lindig 1863, Herb. Nyl. 10547 (Holotype: H).

The species known from tropical regions of America is characterized by the thallus reactions, black constricted apothecia and spore size.

**Diplotomma chlorophaeae** (Hepp. ex Leight.)

Thallus saxicolous, crustaceous, whitish grey to dark grey, effuse, cracked-areolate; hypothallus not seen but blackish at the junction of other thalli. Apothecia sunken, black, rounded, 0.3-0.6 mm diam.; margin white and present in younger apothecia but becomes indistinct in mature apothecia; disc flat to concave, epruinose; hymenium 120-130 μm high, not inspersed with oil globules, I+ blue, internal stipe and exciple brown, K+ red crystals; asci 8-spored; spores brown, ellipsoid, muriform, 15-24 × 9-12 μm, surface smooth; paraphyses simple.

Chemistry: Thallus K+ yellow-orange, C-, KC-, P+ yellow, I-, UV-, atranorin, norstictic acid present (TLC).

Specimen examined: Korong, Mao, Singh 550271 (CAL).

This species known from Europe is characterized by muriform spores and thallus reactions. **B. alboaara** (Hoffm.) Branth., has also muriform spores but differs from **B. chlorophaeae** by negative thallus reactions.


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