

LICHENS NEW TO INDIAN FLORA—I

During the course of my taxonomic investigations on the lichen flora of Manipur, several interesting results have been published (SINGH, 1977, 1978). In continuation of the same studies additional eight taxa discovered as new records for the Indian Flora are being described below. The specimens are deposited in herbarium CAL.

1. *Bacidia philippina* (Vain.) Zahlbr., Cat. Lich. Univ. 4 : 136. 1927. *Bilimbia philippina* Vain., Ann. Acad. Sci. Fennic., Ser A, 15(6) : 76. 1921.

Thallus terricolous, crustose, uneven, cracked, ashy grey to whitish grey. Apothecia brownish black, rounded to irregular, 0.5-0.8 mm in diameter, epruinose ; hypothecium brown ; asci 8-spored ; spores colourless, transversely 3-septate, fusiform, $18-26 \times 6-9 \mu\text{m}$. Thallus K—, C—, KC—, P—.

The species known from Philippines is characterized by the transversely 3-septate fusiform spores.

Specimen examined—Manipur-Ukhrul, Carnations avenue, SINGH 55160.

2. *Buellia alboatra* (Hoffm.) Branth et Rostr., Bot. Tidsskr. 4 : 239. t. 3. f. 40. 1869. *Lichen alboater* Hoffm., Enum. Lich. p. 30. 1784.

Thallus saxicolous or corticolous, crustose, whitish grey, rimose-areolate to rimose subverrucose, hypothallus absent. Apothecia black, rounded, 0.3-0.6 (0.7) mm in diameter, adnate to sessile, epruinose, very young apothecia with thin thalline margin, which later is excluded hymenium colourless, not inspersioned with oil globules, I+blue ; hypothecium brown ; asci 8-spored ; spores brown, transversely septate to muriform, transversely 3-5 septate, and when muriform 1-2 longitudinal septa present, oblong-ellipsoid, $15.5-24.8 \times 6-12 \mu\text{m}$.

Thallus K—, medulla K—, C—, KC—, P—, I—.

The species is distributed in temperate parts of the world. It is easily characterized from other Indian species by the negative chemical colour reactions and muriform spores.

Specimens examined—Manipur—Litan, Sakkibung, Singh 54912 ; Karang, Monjong hill, Singh 55016.

3. *Buellia subdisciformis* (Leight.) Vain., Étude. Lich. Brésil, 1 : 167. 1890. *Lecidea subdisciformis* Leight. Lich. Flora Great Brit. p. 308. 1871.

Thallus saxicolous, crustose, ashy grey, areolate, surrounded by black hypothallus. Apothecia black, rounded, adnate, 0.3-0.4 mm in diameter, epruinose ; hymenium colourless, not inspersioned with oil drops, I+blue ; hypothecium brown ; asci 8-spored ; spores brown, 2-celled, ellipsoid, $12-15 \times 5.5-7 \mu\text{m}$.

Thallus K+yellow-red ; medulla K+red, C—, KC—, P+deep yellow orange, I—.

The species distributed in Europe is characterized by the prominent black hypothallus and the stated colour reactions in medulla. It resembles *Buellia aethalea* (Ach.) Th. Fr., which has medulla I+blue and P—.

Specimens examined—Manipur-Ukhrul, on way to Tolloi, Singh 54717 ; Gungbi, Singh 55186.

4. *Catillaria leptocheila* (Tuck.) Ridd., Mycologia, 4 : 128. 1912 ; *Lecidea leptocheila* Tuck. in Nyl. Ann. Sci. Nat. Bot. Ser. 4, 19 : 351. 1863.

Thallus corticolous, crustose, whitish grey, verrucose, surrounded by black hypothalline line. Apothecia black, rounded to irregular, sessile, up to 1.5 mm in diameter,

epruinose ; epithecium K + bluish green ; hypothecium violet black, K— ; asci 8-spored ; spores colourless, 2-celled, ellipsoid, $15-18 \times 5-7 \mu\text{m}$.

Thallus K + yellowish, C—, KC—, P—.

The species distributed in the tropical regions of the world is characterised by the verrucose thallus and violet black, K-hypothecium. It resembles *Castillaria leptocheiloides* (Nyl.) Zahlbr., which differs in granular thallus and the brown hypothecium K + violet-purple. It has also some similarity to *C. endochroma* (Fée) Zahlbr., but the hypothecium in this case is bluish brown and spores are larger ($14-30 \times 6-7 \mu\text{m}$. *sensu* Vainio (1890).

Specimens examined—Manipur-Ukhrul, on way to Nugaingu, Singh 54642 ; Litan, on the way to Mapith hill range peak, Singh 54950.

5. *Lecania erysibe* (Ach.) Mudd., Mann. Brit. Lich. p. 141. 1861 ; *Lichen erysibe* Ach., Lich. Suec. Prodrum. p. 50. 1798.

Thallus saxicolous, crustose, yellowish-green grey, granular to subareolate. Apothecia greyish brown, rounded, adnate to sessile, 0.3-0.5 mm in diameter, epruinose with thalloid margin ; asci 8-spored ; spores colourless, 2-celled, ellipsoid, $12-15 \times 4-6 \mu\text{m}$. Thallus K—, C—, KC—, P—.

This is a very common species mainly distributed in temperate parts of the world. It is characterized by yellowish green grey, granular, areolate thallus and ellipsoid spores. It was reported previously from Nepal by PAULSON (*vide* AWASTHI 1965, p. 59.)

Specimen examined—Manipur-Ukhrul, on way to Tolloi, Singh 54695.

6. *Lecania expallescens* (Nyl.) Oxn. Bull. Jard. Bot. Kieff. 9 : 63. 1928 ; *Lecidea expallescens* Nyl. Flora 67 : 214. 1884.

Thallus saxicolous, crustose, whitish grey, granular. Apothecia pale brown, rounded, adnate, 0.2-0.3 mm in diameter, epruinose with thalloid margin ; asci 8-spored ; spores colourless, 2-celled, ellipsoid, $9-13 \times 3-4 \mu\text{m}$.

Thallus K + yellowish, C—, KC—, P—.

The species known from boreal Asia is characterized by the whitish grey, granular thallus and smaller spores. It resembles *L. erysibe* (Ach.) Mudd. which has yellowish grey thallus and slightly larger spores.

Specimen examined—Manipur-Ukhrul, on way to Tolloi, Singh 54712.

7. *Lecania umbraticula* (Nyl.) Smith, Mono. Brit. Lich. 1 : 349. 1918. *Lecanora umbraticula* Nyl. Flora 62 : 205. 1879.

Thallus saxicolous, crustose, light green, subleprose. Apothecia few, pale yellowish-grey, rounded, adnate, 0.2-0.3 mm in diameter, epruinose with thalloid margin ; asci 8-spored ; spores colourless, 2-celled, fusiform, $9-16 \times 3-4.5 \mu\text{m}$.

Thallus K—, C—, KC—, P—.

The species known from Habernia is characterized by subleprose thallus and smaller fusiform spores.

Specimens examined—Manipur-Litan, Makuchepu, Singh 54926 ; Gungbi, Singh 55279.

8. *Pertusaria hakkodensis* Yasuda ex Räsänen, Journ. Jap. Bot. 16 : 99. 1940.

Thallus corticolous, crustose, pale yellowish to greenish grey, smooth to subverrucose. Fertile verrucae many, hemispherical, 0.4-0.6 mm in diameter, adnate, upper surface flat with black ostiole, 2-3 apothecia present in each verruca ; asci 6-8-spored ; spores colourless, simple, ellipsoid with smooth walls, $30-45 \times 15-21 \mu\text{m}$.

Thallus K—, C—, KC—, P—.

The taxon known from Japan is characterised by the size of verrucae and spores.

It resembles *Pertusaria alpina* Hepp., which has numerous ostioles at the apex of verrucae and has KC+yellow reaction in thallus.

Specimen examined—Manipur-Ukhrul, Carnations avenue, Singh 55164.

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