



Research article

Some new additions to the lichen family *Roccellaceae* (Arthoniales) from India

A. R. Logesh, Santosh Joshi, Komal K. Ingle and Dalip K. Upreti*

Lichenology laboratory, Plant Diversity Systematics and Herbarium Division, CSIR-National Botanical Research Institute, Rana Pratap Marg, Lucknow-226001, Uttar Pradesh, India.

*Corresponding Author: upretidk@rediffmail.com

[Accepted: 15 March 2014]

Abstract: Three species of crustose lichens (*Bactrospora acicularis*, *B. intermedia* and *Sigridea chloroleuca*) belonging to the family *Roccellaceae* are reported here as new records for India. The taxonomic characters of each species were described briefly and supported by ecology, distribution and illustrations.

Keywords: Lichens - New records - Eastern Himalayas - Southern India.

[Cite as: Logesh AR, Joshi S, Ingle KK & Upreti DK (2014) Some new additions to the lichen family *Roccellaceae* (Arthoniales) from India. *Tropical Plant Research* 1(1): 1–3]

INTRODUCTION

The genus *Bactrospora* A. Massal. was revised by Egea & Torrente (1993) and represented by 20 species and one variety, among them four were previously reported from India *Bactrospora jenikii* (Vizda) Egea & Torrente, *B. lamprospora* (Nyl.) Lendemer, *B. metabola* (Nyl.) Egea & Torrente, *B. myriadea* (Fée) Egea & Torrente (Singh & Sinha 2010). The genus *Bactrospora* differs from similar genera *Lecanactis* and *Opegrapha* by lecideine ascumata, dark proper exciple and elongate, transversely septate, fragmenting ascospores (Ponzetti & McCune 2006). The allopatric genus *Sigridea* was monographed by Tehler (1993) with four species world-wide. In India Nylander (1867) recorded single species of *Sigridea* as *Platygrapha galucomoides* Nyl. which is now known as *Sigridea glaucomoides* (Nyl.) Tehler. *Sigridea* species are recognized by white thallus, circular ascumata, well developed thalline margin, hyaline, 3-septate, curved ascospores with one end tapering and the presence of psoromic acid. The closely related genus *Schismatomma* differs in having endophloeodal to incoherently organized thallus, poorly developed thalline margin, ± elongate ascumata and chemistry with roccellic acid (Tehler 1993).

In the present study four species, *Bactrospora acicularis*, *B. intermedia* and *Sigridea chloroleuca* are described as new records for the country that were collected from Eastern Himalayas and Southern India.

MATERIALS AND METHODS

The investigation is based on the recent lichen collections from dry deciduous forests of Southern India for lichen collection and the material preserved in the herbarium of the CSIR-National Botanical Research Institute, Lucknow (LWG). Morphological examination of the samples was carried out using Leica™ S8APO stereo-zoom microscope and anatomy was observed with hand cut sections mounted in distilled water, 5% potassium hydroxide solution (KOH) and 1% Lugol's solution under Leica™ DM500 compound microscope. Thin Layer Chromatographic analysis (TLC) was carried out in solvent system-A following the method of Walker & James (1980).

NEW RECORDS

1. *Bactrospora acicularis* (Dodge) Egea & Torrente, *Lichenologist* 25(3): 211–255, 1993. (Fig. 1A)

Lecanactis acicularis Dodge, *Nova Hedwigia* 16: 488, 1969.

Thallus crustose, epiphloeodal, continuous and cracked, areolate, thin. Ascumata sessile, round shaped, 0.4–1.0 mm diam., black, epruinose, smooth. Exciple brownish to black. Hymenium I+ blue. Paraphyses branched and anastomosing. Asci 80–120 × 9–12 µm. Ascospores Patellarioides type, 60–80 × 1.5–3 µm, 15–19 septate.

Chemistry: K-, C-, P-, KC-. No chemical substances detected in TLC.

Ecology and Distribution: This species was previously known from two different localities in Chile (Egea &

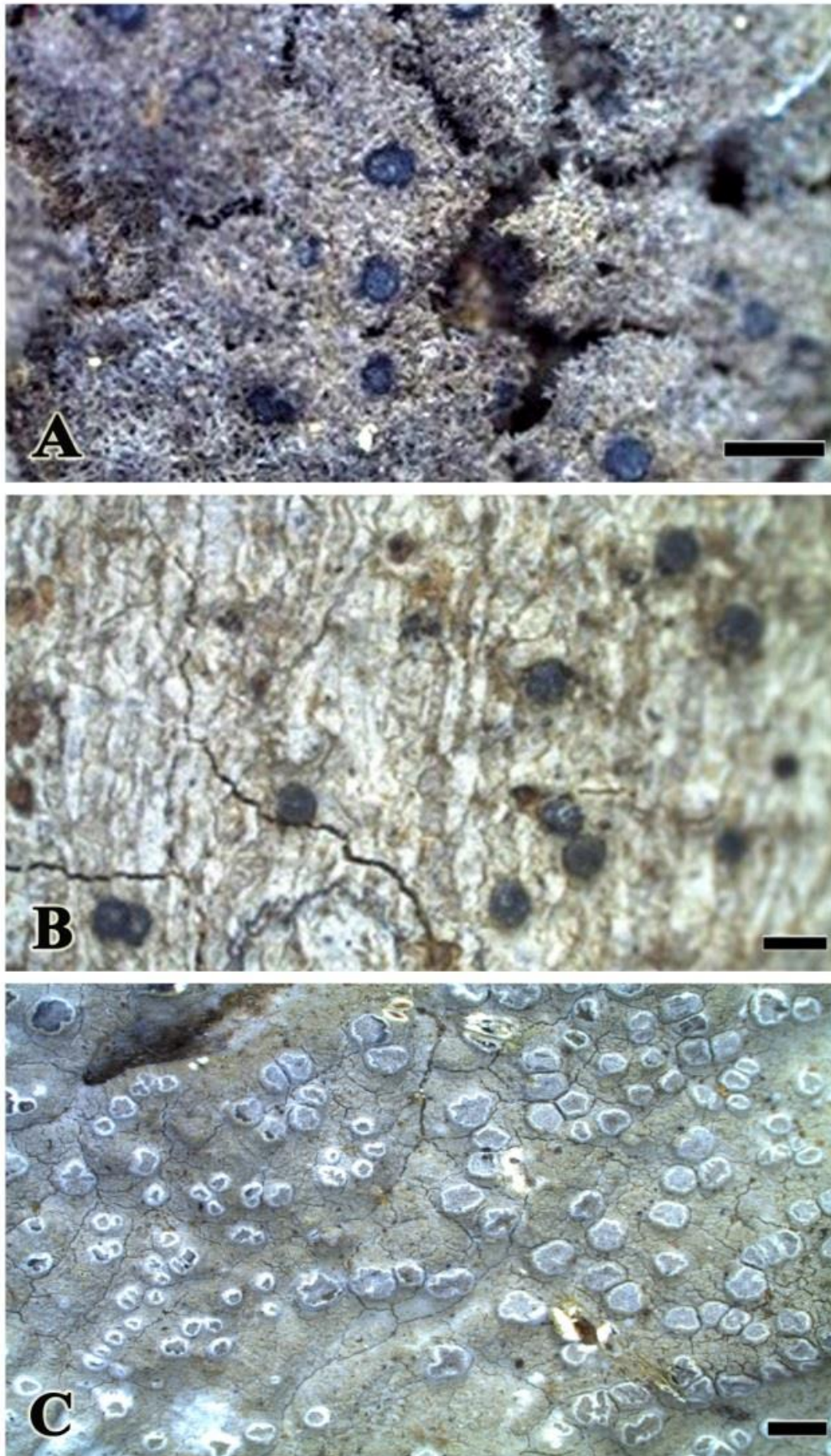


Figure 1. Habit: **A**, *Bactrospora acicularis*; **B**, *Bactrospora intermedia*; **C**, *Sigridea chloroleuca*. Scale bars = 2 mm (A,C); 1 mm (B).

Torrente 1993), is a new record for India found growing on tree in Tiger hill area of Darjeeling district in Eastern Himalayas.

Specimen examined: India, West Bengal, Darjeeling district, Tiger Hill, north face of the hill, alt. 2550 m, 1967, D.D. Awasthi & M.R. Agarwal 67–7 (LWG-LWU).

2. *Bactrospora intermedia* Egea & Torrente, Lichenologist 25(3): 211–255, 1993. (Fig. 1B)

Thallus crustose, corticolous, distinctly brown to black, thin. Ascomata scattered, submerged in the thallus, round shaped, black in colour, 0.4–0.6 mm diam., lacking margin, disc convex. Hymenium I+ reddish. Subhymenium brown, I+ red turning into bluish. Paraphysoids branching and anastomosing. Asci 100–120 × 10–15 µm. Patellarioides-type ascospores, 90–110 × 2–4 µm, transversely 23–28 septate.

Chemistry: K-, C-, P-, KC-. No lichen substances detected in TLC.

Ecology and Distribution: Earlier this species is known only from its type locality in Chile (Egea & Torrente, 1993), is a new record for India found growing on the barks of *Vetaria* sp.

Specimen Examined: India, Kerala, Malapuram district, Valli Kunnu, 1975, A Singh & M Ranjan 102338 (LWG).

3. *Sigridea chloroleuca* (Müll. Arg.) Tehler, Nova Hedwigia 57 (3–4): 428 (1993). (Fig. 1C)

Platygrapha chloroleuca Müll. Arg., Flora 63: 275–290 (1880).

Schismatomma chloroleucum (Müll. Arg.) Zahlbr., Gebrüder Borntraeger 554, 1924.

Thallus ecorticated, cracked, smooth to verruculose, whitish to grey. Ascomata sessile, rarely constricted at base, round to irregular, younger apothecia immersed to emergent, apothecial disc grey to brown, white pruinose, margin thin, paler than the disc and thallus, getting thinner or excluded at maturity apothecia, 0.5–1.5 mm in diam. Exciple brown, 30–35 µm thick. Hypothecium brown to dark brown, I/KI-. Hymenium hyaline to yellowish, clear, I+, KI+ pale blue. Paraphyses branched, articulate, anastomosing, tip slightly swollen. Asci clavate-cylindrical, 8-spored, 60–80 × 10–15 µm. Ascospores fusiform, transversely 3–7 septate, straight to slightly curved, 22.9–27.8 × 3.2–5.3 µm.

Chemistry: K-, P+ golden yellow, C-, KC-. Psoromic acid and pinkish grey spot with hollow at Rf class 3 detected in TLC.

Ecology and Distribution: This species was found growing over the *Ficus* trees at the dry deciduous forests of southern India. Earlier it was only known from Venezuela found growing on the barks of different trees in dry forests (Tehler 1993).

Specimen examined: India, Tamil Nadu, Salem District, Palamalai Hills, 1 km towards Kemmampatty village, 700 m alt. on *Ficus* sp., 13.02.2012, AR Logesh, KK Ingle & P Shukla 12-016466 (LWG).

ACKNOWLEDGEMENTS

Authors are thankful to the Director, CSIR-National Botanical Research Institute, Lucknow for providing necessary facilities to carry out the work and Department of Biotechnology, New Delhi (BT/PR1457/NBD/39/204/2011) for financial support.

REFERENCES

- Egea JM & Torrente P (1993) The lichen genus *Bactrospora*. *The Lichenologist* 25: 211–255.
- Nylander W (1867) Lichenes Kurziani e Calcutta. *Flora*. 50: 3–9.
- Ponzetti J & Mc Cune B (2006) A new species of *Bactrospora* from northwestern North America. *Bryologist* 109: 85–88.
- Singh KP & Sinha GP (2010) Indian Lichens: Annotated Checklist. *Botanical Survey of India, Kolkata, India*, pp. 508.
- Tehler A (1993) The genus *Sigridea* (Roccellaceae, Arthoniales, Euascomycetidae). *Nova Hedwigia* 57(3–4): 417–435.
- Walker FJ & James PW (1980) A revised guide to the microchemical technique for the identification of lichen products. *Bulletin of British Lichenological Society* 46: 13–29.