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Protoparmelia hesperia (Ascomycota: *Parmeliaceae*): A new record for India

Pooja Gupta* and G.P. Sinha

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

***Corresponding author:** poojaguptafri09@gmail.com

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ABSTRACT

Protoparmelia hesperia (Kantivilas & Elix) Kantvilas, Papong & Lumbsch is discovered from Assam as a new record to the lichen flora of India. The species is characterized by its crustose thallus, lecanorine apothecia, 12-16 spored asci and simple, small ascospores.

Key Words: Assam, *Lecanorales*, lichen, new record, taxonomy.

INTRODUCTION

Protoparmelia M. Choisy is a genus under Parmeliaceae comprises with c. 30 species, distributed in tropical and subtropical regions of Australia, North & South America and East Asia (Aptroot et al. 2013). Only one species *Protoparmelia badia* (Hoffm.) Hafellner (8–spored asci) is known from India (Singh & Sinha 2010). During the lichenological investigations in northeastern state Assam, second interesting species of *Protoparmelia* was collected. The species was previously treated under the genus *Maronina*, however, after the molecular studies, all the species of *Maronina* have been placed in the *Protoparmelia* (Papong et al. 2011). On the basis of available literatures (Hafellner & Rogers 1990; McCarthy 2004; Kantvilas & Elix 2007; Kantvilas et al. 2010) the specimen has been identified as *Protoparmelia hesperia* (Kantivilas & Elix) Kantvilas, Papong & Lumbsch which is a new addition to the Indian lichen flora.

MATERIALS & METHODS

The species is identified based on specimen collected from Assam, India. Identification was carried out in the Lichenology Laboratory, Botanical Survey of India, Central Regional Centre, Allahabad (BSA). The images displayed in Fig. 1 were obtained with stereomicroscope (Olympus SZ61) and compound microscope (Nikon Eclipse 50*i*). Sections of thalli and ascomata were mounted in water, 10% KOH, and Lugol's iodine solution. All measurements were made in water. Chemical constituents were identified by thin-layer chromatography in solvent C (170 ml toluene, 30 ml glacial acetic acid) according to standardized methods (Orange et al. 2001). Taxonomic description of the same is provided to facilitate its identification.

RESULTS AND DISCUSSION

Protoparmelia hesperia (Kantivilas & Elix) Kantvilas, Papong & Lumbsch *Lichenologist* 43(6): 561–567.2011. *Maronina hesperia* Kantivilas & Elix, *Biblioth. Lichenol*. 96: 138. 2007. **(Fig.-1)**

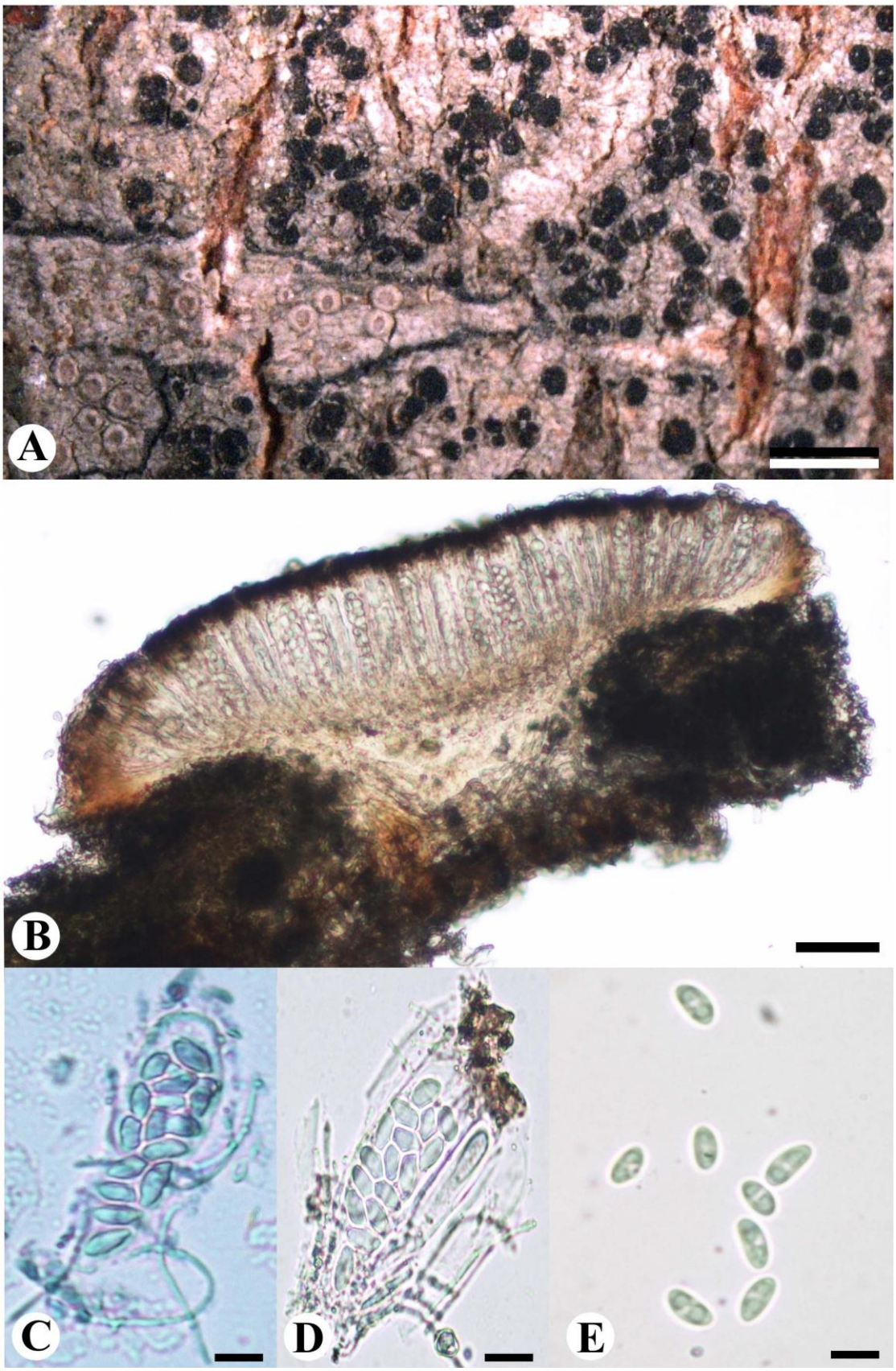

Fig. 1. *Protoparmelia hesperia* **A**. habit; **B**. vertical section of an apothecium; **C&D**. multispored asci; **E**. ascospores. Scales **A**. 1 mm; **B**. 50 µm. **C, D** & **E**. 10 µm.

Thallus crustose, corticolous, 2.5-5 cm. across, 80–120 µm thick, cracked, rimose, epiphloeodal, surface yellowish to grey, with indistinct margin; hypothallus thin, black, ca. 0.3 mm wide; medulla white, I+ blue; photobiont green *Trebouxioid* alga, 7-10 µm diam. *Apothecia*, numerous, irregulary dispersed, emergent, partly marginate, lecanorine, up to 0.3 mm diam.; *disc* reddish-brown to black, plane to convex, epruinose; margin thin, grey, smooth to crenulate, usually disappearing, with algal cells; e*xciple* pale fawn, outer layer brown to dark-brown, hyaline inside, 15–35 µm thick; *epihymenium* dark greenish to brown, N-, 12-15 µm thick; *hymenium* hyaline, inspersed, I+ weak blue, 50-75 µm high; *hypothecium* hyaline to pale yellow, 30-40 µm thick; *paraphyses* simple, occasionally anastomosing, 2-2.5 µm thick, apical cells brown, slightly expanded to 3–3.5 µm thick; *asci Lecanora*–type, clavate, 12-16 spored, 55–60 × 12-14 µm; *ascospores* hyaline, ellipsoid, simple, 6–9(–12) × 3–4(–5) µm. *Pycnidia* immersed, miute, black; conidia small, bacilliform, 2–4 × 1 µm.

Chemistry: All spot tests of thallus and apothecia negative; an unidentified yellow spot appears at Rf class 4–5 in TLC.

Notes: *Protoparmelia hesperia* is distinct from the other species on the basis of reddish brown to black disc, dark greenish browm, pigmented epihymenium, 12–16 spored asci and hyaline, simple ascospores. In overall appearance the genus closely resembles with *Lecanora* but differs chiefly by its polysporic asci and small ascospores. The presence of branched and anastomosing paraphyses and size range of ascospores *P. hesperia* is come close to *P. multifera* (Nyl.) Kantivilas, Papong & Lumbsch but differs by its *Acarospora*–type asci, numbering c. 32–50 per ascus, somewhat smaller ascospores (5–8 × 2–3 µm) and the presence of constipatic and alectoronic acids.

Distribution: Known from Australia (Walebing) and now from India (Assam).

Specimen examined: ASSAM: Dhubri, Panbarie, Panbarie Tea-Estate, on bark of tree, 26° 02′N, 89° 58′E, 26 m alt., 22 May 2006, G.P. Sinha & V.N. Singh 3518 (BSA).

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