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Halecania santessonii, a new lichenicolous lichen from Russia

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Abstract: A new species, *Halecania santessonii* growing on *Porpidia albocaerulescens*, is described from the Russian Far East. It is the second lichenicolous *Halecania* species known.

Key words: Russian Far East, *Catillariaceae*, *Porpidia albocaerulescens*

Introduction

The genus *Halecania* was introduced by Mayrhofer (1987) to accommodate species of *Lecania* s. lat. that differ from *Lecania* s. str. in having asci with a uniformly amyloid (*Catillaria*-type) apical dome (Fig. 1D), paraphyses with dark brown apical caps, and halonate ascospores. The asci in *Lecania* s. str. have an amyloid apical dome penetrated by a non-amyloid, conical apical cushion (*Bacidia*-type), paraphyses without apical caps (although a loose, pigmented 'hood' occurs in some species), and non-halonate ascospores. The reddish brown (K+ purplish tinge) epithecial pigment found in many *Lecania* species is never present in *Halecania*. Further differences are found in the conidiomata, which, unfortunately, were not considered by Mayrhofer (1987, 1988). In *Lecania* the conidia are acrogenous (Types I–III of Vobis 1980) and sickle-shaped or curved-filiform, whereas in *Halecania* they are pleurogenous (Type VI of Vobis 1980) and shortly rod-shaped. The conidiogenous cells and conidia of *Halecania* are almost identical to those of *Catillaria* s. str., thus supporting Mayrhofer's view that the two genera are closely related.

The most recent work on *Halecania* (van den Boom & Elix 2005) provided notes on many species and a key to all known species of the genus. Of the fifteen species of *Halecania*, three are found in Russia (Kotlov 2003): *H. alpivaga* (Th. Fr.) M. Mayrhofer, *H. lecanorina* (Anzi) M. Mayrhofer & Poelt, and *H. rhypodiza* (Nyl.) Coppins. The only lichenicolous species are the previously described *H. lobulata* van den Boom & Elix and the new species *H. santessonii* described below, the other species being saxicolous, corticolous, or growing on mosses and plant debris.

The material upon which the new species is based was collected in 1991 by Prof. Rolf Santesson during the Russian-Swedish lichenological expedition to the Russian Far East, in which the author was one of the participants. Rolf Santesson examined the collections, discovered a lichen species growing abundantly on *Porpidia albocaerulescens* (Wulfen) Hertel & Knoph, recognized it as a possible new taxon and passed it to the author to describe as a new species.

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Material and Methods

The material was studied using a light microscope. Sections *c.* 15 µm thick were hand-cut and mounted in water, 10% solution of potassium hydroxide (K), or Lugol's reagent following pre-treatment with K (K/I). Measurements of asci and ascospores were all made from material mounted in water and in K. Photographs were taken using a 3·1 mega pixel digital camera Canon Powershot G1. The standard methods of thin-layer chromatography (TLC) were used for the identification of lichen substances (Culberson & Ammann 1979).

The Species

Halecania santessonii Andreev sp. nov.

Thallus lichenicola supra *Porpidiam albocaerulescentem*, ex areolis minutis dispersis vel contiguis consistans,

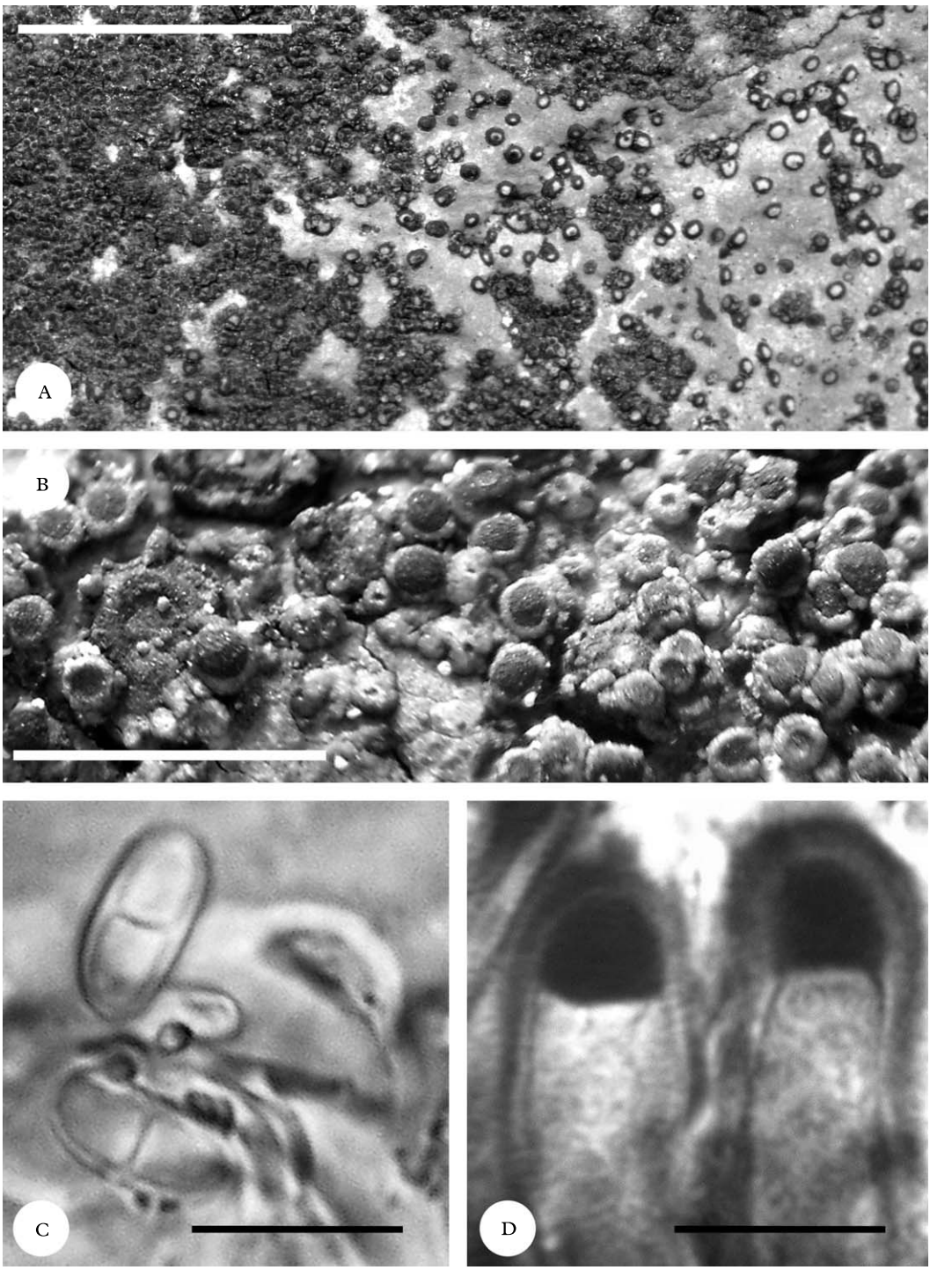

FIG. 1. *Halecania santessonii* (holotype). A & B, habitus, ascomata on the thallus of *Porpidia albocaerulescens*; C, ascospores; D, ascus tips (with an apical K/I+ apical dome of *Catillaria*-type). Scales: A = 1 cm; B = 1 mm; C, D = 10 μm.

fuscogriseus. Thallus areolas, ± dispersas, rotundas, planas aut leviter convexas, fuscogriseas, *c*. 0·1–0·5 mm diam. compositus. Apothecia 0·1–0·4 mm diam., per excipulum propium tenuissimum et marginem thallinum circumcincta; discus brunneus planus vel convexus, epruinosus. Epithecium brunneum, K−. Hymenium 30–40 µm altum. Hymenium et hypothecium hyalinum. Paraphyses simplices vel supra furcata, pileis apicalibus fuscatis vulgo instructae. Asci clavati, 35–44 × 9–14 µm, 8-spori; tholo uniformiter intense amyloideo. Ascosporae 1-septatae, 8–9.6 (11) × 3·2–4·8 (6·5) µm, epispora gelatinosa plerumque parum conspicua. Conidiomata destituta.

Typus: Russia, Primorskii krai, Lazovskii distr., Lazovskii Reserve, Nogeevskaya pad', river junction Nogeyevskaya and Left Nogeyevskaya rivers, 43°08′N, 134°01′E, 500 m alt., on *Porpidia albocaerulescens* growing on acidic rock, 20 September 1991, *R. Santesson* 33257 (UPS—holotypus).

(Fig 1)

Thallus continuous, areolate, grey, beige, light brown or grey-brown, round or irregular, 2–5 mm diam., later confluent to 1–5 cm diam., lichenicolous on thallus and apothecia of *Porpidia albocaerulescens*. *Areoles* light brown or grey-brown, round, granulose to flat and subsquamulose, with subeffigurate margin darker than the areole surface; scattered or dense, 0·1–0·25–0·5 mm diam. and 0·05–0·1 mm high. *Hypothallus* light brown, glossy, like a thin pruina on the thallus of *Porpidia*.

Apothecia 0·1–0·25–0·4 mm diam., 0·1 mm high, dark brown, sessile, adpressed, flat or slightly convex, edged by a very thin dark brown proper margin and a thicker thalline margin concolorous with the thallus, normally one per areole; disc dark brown, glossy, epruinose, more or less flat, sometimes elevated above the thalline margin. *Thalline exciple* light brown in ectal zone and hyaline in inner zone, containing coccoid algae (5–) 8–10 (–12) µm diam. *Hypothecium* hyaline. *Hymenium* hyaline, 30–35–40 µm high; epihymenium brown, 5–8 µm high, K−. *Paraphyses* aseptate, unbranched, not anastomosing, 0·8–2·2 µm thick, apically swollen to 3 µm. *Asci* clavate, 8-spored, 28–35 × 8–10 µm; with a uniformly amyloid (K/I+ blue) apical dome (*Catillaria*-type; Fig. 1D). *Ascospores* hyaline, ellipsoid, 1-septate (Fig. 1C), 8–9·6 (–11) × 3·2–4·8 (–6·5) µm; perispore in most cases poorly visible.

Pycnidia not observed.

Chemistry. Thallus K−, C−, KC−, PD−; no compounds detected by TLC.

Etymology. *Halecania santessonii* is named in honour of Prof. Rolf Santesson (Uppsala) to mark his pioneering work on the lichenicolous lichens and in memory of our joint work during the Swedish-Russian expedition to the Russian Far East in 1991.

Distribution and ecology. The taxon is known only from the type locality and nearby places in the Lazovskii Reserve in the Russian Far East, on the thalli of *Porpidia albocaerulescens*, growing on acidic rock in forest-covered small river valleys.

Additional specimens examined. **Russia:** *Primorskii krai*: Lazovskii distr., Lazovskii Reserve, Nogeevskaya pad', river junction Nogeyevskaya and Left Nogeyevskaya rivers, 43°08′N, 134°01′E, 500 m alt., on *Porpidia albocaerulescens* growing on acidic rock, 1991, *R. Santesson* 33244b (UPS, LE—topotypes); Lazovskii distr., Lazovskii Reserve, Tretii log, along river Perekatnaya, 43°11′N, 133°59′E, on *Porpidia albocaerulescens*, 450 m, 1991, *R. Santesson* 33161 (UPS); Lazovskii distr., Lazovskii Reserve, valley of river Sukhoi Kluch, 43°02′N, 133°02′E, on *Porpidia albocaerulescens*, 200 m, 1991, *R. Santesson* 33375 (UPS, LE).

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