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PIETER P. G. VAN DEN BOOM & LUCIANA ZEDDA

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Abstract

Boom, P. P. G. van den & Zedda, L.: *Lecania sipmanii*, a new epiphytic lichen species from Syria. – Willdenowia 30: 155-160. 2000. – ISSN 0511-9618.

Lecania sipmanii (Lecanorales, Bacidiaceae), an epiphytic lichen from Syria is described as a species new to science and illustrated. The new species belongs to the L. polycycla group and is mainly characterized by a small, areolate thallus, spores strongly constricted at the septum, paraplectenchymatic excipulum cells and hairs in the thalline margin of the apothecia. It was collected on dust-impregned bark of Salix and Populus species.

Introduction

In two recent revisions of European species of *Lecania* Massal., only saxicolous taxa of the genus are treated (Mayrhofer 1988, Boom 1992) and a total of 20 species are known. Poelt (1969) included corticolous, terricolous and parasitical *Lecania* species and his key is only provisional. No further revision of corticolous species of the genus has been published since Poelt's overview. In some of the most important recent publications, a few corticolous species are treated. Four corticolous species are reported by Purvis & al. (1992) from the British Isles, viz. *L. chlorotiza* (Nyl.) P. James, *L. cyrtella* (Ach.) Th. Fr., *L. cyrtellina* (Nyl.) Sandst. and *L. fuscella* (Schaer.) Körb. In Wirth (1995), five corticolous species are treated from central Europe, viz. *L. koerberiana* Lahm, *L. fuscella*, *L. dubitans* (Nyl.) A. L. Sm., *L. cyrtellina*, *L. koerberiana* and *L. fuscella*).

Lecania species from Mediterranean Asia or Middle East have been recorded poorly. L. cyrtella is reported from Lebanon (Khalife 1982). In Steiner (1921) L. rabenhorstii (Hepp.) Arn. and some varieties of this species are mentioned as a result of an expedition to Mesopotamia, Kurdistan and Syria in 1910. No epiphytic Lecania species are reported by Santesson (1942) and by Werner (1954-59, 1963, 1966) in their contributions on the lichen flora of Syria, Palestina and Lebanon. Steiner & Poelt (1987) described two lichenicolous Lecania species on Caloplaca spp. from Afghanistan, Iran and some other localities in Middle East. L. cyrtella is reported form Turkey by John & Nimis (1998) and Türk & Güner (1998), and from Cyprus by Litterski & Mayrhofer (1998). L. fuscella is known from Mediterranean Turkey (John 1996). Galun & Mukhtar

(1996) found in Israel *L. koerberiana*. The lichen flora of Syria is very poorly known in general and the present work is a contribution to its knowledge.

Material and methods

Specimens were collected in April 1999 by the second author during a 2-week botanical excursion throughout Syria. Anatomical observations of apothecia were conducted on hand-cut sections mounted in water, 10 % KOH and Lugol's iodine. The chemistry was studied by TLC (Thin Layer Chromatography) following Culberson (1972), Culberson & al. (1981) and White & James (1985), and using solvents B and G. Photomicrographs of sections of asci were taken with a Zeiss Axioplan microscope (interference contrast). Vouchers are in B and in the private herbaria of both authors (five specimens altogether).

Lecania sipmanii P. v. d. Boom & L. Zedda, sp. nova

Holotypus: Syria, Jerablus, close to the Turkish border, 36°49'15.9"N, 38°02'02"E, 450 m, abundant on *Salix* sp. in riverside vegetation along the Euphrat close to apple-tree cultivation, 3.4.1999, *Zedda* (B; isotypi: herb. Boom, herb. Zedda).

Thallus crustaceus, verruculosus, cinereo-viridis. Cortex 200 (-250) μm crassum. Algae Chloro-coccaceae, 7-15 μm diametro. Ascomata sessilia, 0.2-0.4 mm in diametro; discus planus, margine crasso, persistente, hirsuto. Hypothecium 20-40 μm altum, hyalinum. Hymenium c. 50-60 μm altum. Epihymenium brunneum. Parathecium brunneum. Excipulum superne plectenchymaticum, cellulis lateralibus brunneis, basaliter incoloratis. Paraphyses simplices, septatae, 1.5-2 μm in diametro, apice leviter incrassatae (c. 3-6.5 μm). Asci intense amyloidei, clavati, octospori, 30-40 × 7-15 μm. Ascosporae uniseptatae, hyalinae, in medio plerumque distincte constrictae, cellulis rotundatis 9-13 × 5-7 μm. Pycnidia pallide fusca. Conidia curva, 12-22 × 0.8 μm.

Thallus crustose, consisting of scattered to contiguous areoles, thin, up to 200 (-250) µm tall; upper surface of areoles verrucose, sometimes covered with minute hairs, up to c. 10×2 µm. Cortex without plectenchymatic cells, up to 30 µm thick and without epineeral layer. Photobiont chlorococcoid, cells mostly globose, 7-15 µm. Apothecia 0.2-0.4 mm diam., very numerous, crowded, sessile, lecanorine with a smooth to granular thalline raised margin, becoming sometimes incomplete and appearing lecideine and receded, very fine hairs sometimes present. Disc flat to slightly convex, blackish brown. Hairs $5-15 \times 2-3 \mu m$, simple, hyaline with granulate surface. Hymenium c. 35-60 µm tall. Epihymenium red brown K -, C -, N -. Parathecium brown. Excipulum paraplectenchymatous, lateral cells red brown becoming hyaline at base, outside sometimes densely hairy. Paraphyses hardly conglutinate, simple, septate; mid-hymenium cells 1.5-2 µm diam., apically occasionally branched; apical cells incrassate, sometimes subglobose, c. 3-7 µm wide, mostly with an external as well as internal reddish brown pigment. Asci narrowly clavate, tholus clearly amyloid, 8-spored, 30-40 × 7-15 μm (Bacidia type). Ascospores uniseptate, hyaline, strongly constricted at the septum, cells subglobose (diplococcoid), 9-13 × 5-7 μm. Pycnidia immersed, pale brownish. Conidia simple, 12-22 × 0.8 μm, filiform, curved to rarely sigmoid (Fig. 1-2).

Chemistry: All parts K -, C -, KC -, PD -, UV -; brown hyphal pigment K -, C -, N -. TLC: no compounds detected.

Etymology: *Lecania sipmanii* is named in honour of the lichenologist Dr Harrie Sipman for supporting the work of both authors.

Distribution and habitat

Lecania sipmanii is known only from the type locality, where it was found abundantly. The species might have been overlooked in the past because of its inconspicuous appearance. The type

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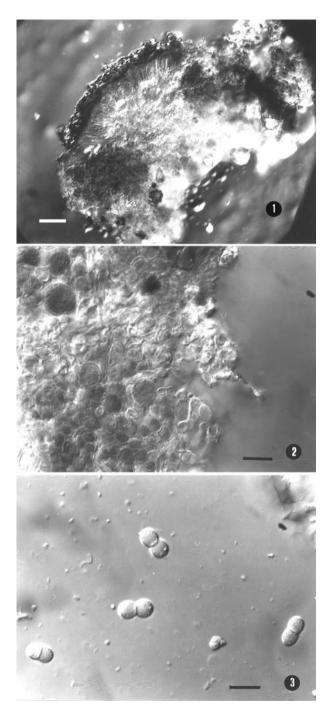


Fig. 1. Lecania sipmanii – 1: longitudinal section of apothecium (scale = $50 \mu m$); 2: photobiont and hair in the excipulum in longitudinal section (scale = $10 \mu m$); 3: ascospores constricted at the septum (scale = $10 \mu m$). – From the type collection.

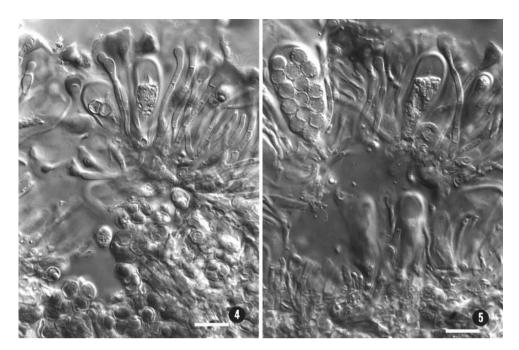


Fig. 2. Lecania sipmanii – 4: young asci (Bacidia type) and paraphyses with incrassate apical cells and pigment (scale = $10 \mu m$); 5: mature ascus with ascospores, young asci and paraphyses (scale = $10 \mu m$). – From the type collection.

material of *L. sipmanii* was collected on the trunk and branches of *Salix* sp., but in the same locality the species is also abundant on *Populus euphratica* Oliv. It should be particularly resistent to temporary inundations, since it was found on trees growing along the riverside of the Euphrat, also on the lowest parts of tree trunks, heavily covered by dust. In these conditions the thallus was often inconspicuous and only apothecia were abundant. In such cases it should be rather resistent to eutrophic conditions as well. In upper parts of tree trunks and on branches the species was associated with very few other lichen species, viz. *Caloplaca alnetorum* Giralt, Nimis & Poelt and a very small, unidentified *Lecanora* species, both much less common than *L. sipmanii*.

Additional specimens examined: SYRIA: Jerablus, close to the Turkish border, 36°49'15.9"N, 38°02'02"E, 450 m, abundant on *Populus euphratica* Oliv., in riverside vegetation along the Euphrat, 3.4.1999, *Zedda* 3700, 3701 (B, herb. Zedda).

Differences to related and similar species

Lecania sipmanii is closely related to the saxicolous species L. polycycla (Anzi) Lettau and L. flavescens Lynge and should belong therefore to the L. polycycla group. Paraphyses in this group are strongly swollen towards their apex, have an external pigmentation and are hardly conglutinate. The ascospores of the new species are, however, much more strongly constricted at the septum, so that both cells are subglobose (diplococcoid). The ascospores of L. sipmanii also resemble those of L. diplococca, a parasitic lichen species described from Afghanistan by Steiner & Poelt (1987), which is known only from Pistacia plants where it was found growing on Caloplaca polycarpoides (J. Steiner) M. Steiner & Poelt. Nevertheless, the ascospores of this lichenicolous Lecania species are smaller than in L. sipmanii. Furthermore L. sipmanii has only paraplectenchymatic excipulum cells, in contrast to L. flavescens, which has an excipulum com-

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posed of anticlinal hyphae, and to L. polycycla, where oblong paraplectenchymatic hyphae are found.

Besides the morphological difference, also the ecology of *L. sipmanii* is different from that of the two aforementioned species of the *L. polycycla* group, since *L. sipmanii* is an epiphytic species, whereas *L. flavescens* and *L. polycycla* are saxicolous species known from calcareous and schistose rocks.

The thallus of *Lecania sipmanii* resembles that of *L. poeltii* P. v. d. Boom, Alonso & Egea and *L. inundata* (Hepp ex Koerb.) M. Mayrhofer. It is likely to be confused with *L. poeltii* because of the presence of the numerous hairs on the thalline margin of the apothecia and the dusty substrata on which both species have been found (Boom & al. 1996). However, *L. poeltii* differs also in having a pseudoparaplectenchymatic exciple, composed of anticlinal hyphae with stouter hairs, and it has ascospores only weakly constricted at the septum. In the field, *L. sipmanii* is most likely to be mistaken for *L. cyrtella*, a species known from W Asia, but the exciple of this latter species is very thin, often becoming excluded. *L. zinaidae* Oxn., a corticolous species also with uniseptate ascospores, is known only from S Ukraine (Oxner 1931), has smaller ascospores and an inconspicuous exciple, and is ecologically confined to the *Artemisia-Festuca* steppe.

The new species might be easily mistaken with species of *Rinodina* (e.g. *R. gennarii* Bagl., *R. oleae* Bagl. and *R. exigua* (Ach.) Gray) because of the similar nature of the thallus and apothecia. Therefore a microscopical investigation is always needed.

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