

**LECANIA CUPREA (A. MASSAL.) V. D. BOOM & COPPINS  
IN V. D. BOOM AND STAUROTHELE FRUSTULENTA VAIN.  
— TWO NEW SPECIES IN THE ESTONIAN LICHEN FLORA**

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**Abstract.** Two new for Estonia lichen species were found on limestone substrates in Maardu phosphorite quarries and the Kostivere karst field, North Estonia. *Lecania cuprea* (A. Massal) v. d. Boom & Coppins in v. d. Boom was found only in Maardu. *Staurothele frustulenta* Vain. was found in Maardu and Kostivere.

**Key words:** *Lecania cuprea*, *Staurothele frustulenta*.

During 1989–90 the formation of lichen groupings on newly exposed limestone substrates in the quarries of Maardu and the epilithic plant groupings of the limestone outcrops in the Kostivere karst field (North Estonia) were studied (Fig.). A few species of lichens collected during that period were identified as new to the lichen flora of Estonia. The data on the habitats and localities of *Xanthoria soredata* (Vain.) Poelt and *Arthonia lapidicola* (Taylor) Branth & Rostr. were already reported in earlier publications (Martin & Temina, 1992; Temina, 1994). The data about the localities of two species, which are new to Estonia, are presented below. The nomenclature of lichen species follows Santesson (1993).

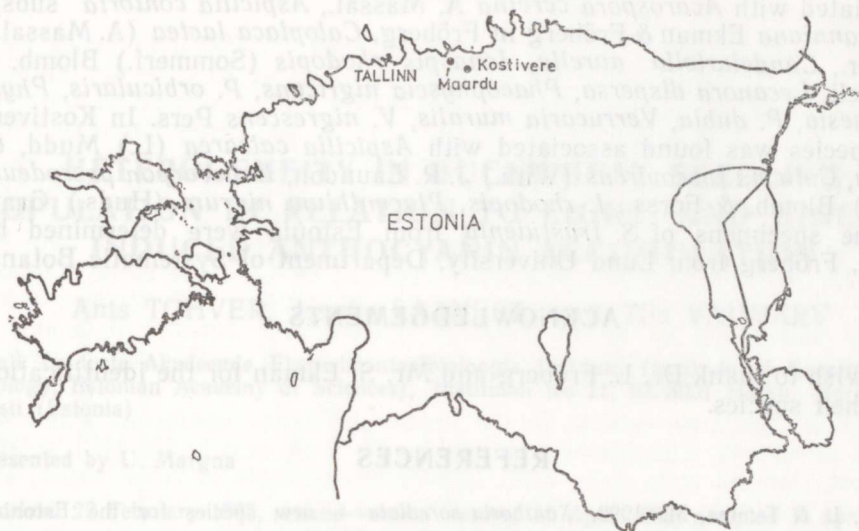
*Lecania cuprea* (A. Massal.) v. d. Boom & Coppins  
in v. d. Boom (= *Bacidia cuprea* (A. Massal.) Lettau)

The specimens collected in North Estonia agree with the description of that species given by Wirth (1980) and Purvis et al. (1992).

The description of my specimens: thallus crustose, thin, granular areolated, greyish-green. Apothecia 0.2–0.6 mm in diameter, flat when young with a thin rim and convex when old without a rim, reddish-brown. Exciple colourless. Hymenium 40–45  $\mu\text{m}$  tall, colourless; J+ blue, soon changing into burgundy. Hypothecium colourless. Paraphyses colourless, the apices up to 3  $\mu\text{m}$ . Spores 13–30 $\times$ 2–3  $\mu\text{m}$ , 3-septate, fusiform.

According to Santesson (1993) and Purvis et al. (1992) the species grows on deeply shaded limestone rocks, also on serpentine. It occurs in montane habitats in Europe and America.

In Estonia *L. cuprea* has been found twice on limestone substrates in Maardu quarries. The first time it was found in a quarry recultivated in 1961 and the second time in a quarry recultivated in 1981. The species was found associated with *Arthonia lapidicola* (Taylor) Branth & Rostr., *Caloplaca holocarpa* (Hoffm. ex. Ach.) A. E. Wade, *Candelariella aurella* (Hoffm.) Zahlbr., *Lecanora dispersa* (Pers.) Sommerf., *L. hagenii* (Ach.)



The location map of *Lecania cuprea* and *Staurothele frustulenta* in Estonia.

Ach., *Lecidella stigmatea* (Ach.) Hertel & Leuckert, *Phaeophyscia nigricans* (Flörke) Moberg, *P. orbicularis* (Neck.) Moberg, *Physcia caesia* (Hoffm.) Fűrnr., *P. dubia* (Hoffm.) Lettau, and *Verrucaria muralis* Ach.

The material of *L. cuprea* from Estonia collected by the author was determined by Mr. S. Ekman from Lund University, Department of Systematic Botany.

*Staurothele frustulenta* Vain. (= *S. catalepta* sensu Malme, non (Ach.) Blomb. & Forssell)

The characteristics of my specimens fit very well the original description of Vainio (1921) and the description of the species in the *Handbook of Polish Lichens* by Nowak & Tobolewski (1975).

The description of my specimens: thallus crustose, thick, cracked-areolate, dark brown. Perithecia 0.3 mm in diameter, half-immersed one per talline warts; centrum rounded, 0.2–0.25 mm wide; involucrellum only developed in the upper part of the perithecium, brownish-black; exiciple colourless. Spores 2 per ascus, 40–52 × 16–21 μm, muriform, brown. Hymenial algae globose, 3–4 μm in diameter. Hymenium J+ blue.

According to Santesson (1993) the species usually occurs on siliceous rocks, sometimes on slightly calciferous rocks.

The distribution of *S. frustulenta* is not properly documented because of taxonomic difficulties. That species (under the original name) is known from Karelia (Vainio, 1921), Poland (Nowak & Tobolewski, 1975), and Sweden and Norway (Santesson, 1993). According to Wirth (1987) that species (under the name *S. catalepta* sensu Malme non (Koerber) Blomb. & Forss.) has a wide distribution in Europe. The authors of *The Lichen Flora of Great Britain and Ireland* (Purvis et al., 1992) included that species as an intergrade in *S. fissa* (Taylor) Zwackh, which has a wide distribution in the British Isles, Europe, North America, probably New Zealand.

In Estonia *S. frustulenta* has been found three times on limestone substrates in a quarry in Maardu recultivated in 1961, and twice on limestone outcrops of the Kostivere karst field. In Maardu the species was found

associated with *Acarospora cervina* A. Massal., *Aspicilia contorta* subsp. *hoffmanniana* Ekman & Fröberg in Fröberg, *Caloplaca lactea* (A. Massal.) Zahlbr., *Candelariella aurella*, *Ionaspis rhodopis* (Sommerf.) Blomb. & Forssell, *Lecanora dispersa*, *Phaeophyscia nigricans*, *P. orbicularis*, *Physcia caesia*, *P. dubia*, *Verrucaria muralis*, *V. nigrescens* Pers. In Kostivere the species was found associated with *Aspicilia calcarea* (L.) Mudd, *C. lactea*, *Collema fuscovirens* (With.) J. R. Laundon, *Endocarpon psorodeum* (Nyl.) Blomb. & Forss., *I. rhodopis*, *Placynthium nigrum* (Huds.) Gray.

The specimens of *S. frustulenta* from Estonia were determined by Dr. L. Fröberg from Lund University, Department of Systematic Botany.

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### **LECANIA CUPREA (A. MASSAL.) V. D. BOOM & COPPINS IN V. D. BOOM JA STAUROTHELE FRUSTULENTA VAIN. — KAKS UUT LIIKI EESTI LIHHENOFLOORAS**

Marina TEMINA

Eesti lihhenofloora kaks uut liiki leiti Maardu fosforiidikarjääri ja Kostivere karstiaala (Põhja-Eesti) lubjakivisubstraatidelt. *Staurothele frustulenta* esines Maardus ja Kostiveres, *Lecania cuprea* ainult Maardus.

### **LECANIA CUPREA (A. MASSAL.) V. D. BOOM & COPPINS IN V. D. BOOM И STAUROTHELE FRUSTULENTA VAIN. — ДВА НОВЫХ ВИДА В ЛИХЕНОФЛОРЕ ЭСТОНИИ**

Марина ТЕМИНА

Два новых для лихенофлоры Эстонии вида были найдены на известняковых субстратах в Маардуских фосфоритовых карьерах и на Костивереском карстовом поле (Северная Эстония). *Lecania cuprea* был найден только в Маарду. *Staurothele frustulenta* был обнаружен в Маарду и в Костивере.