

A new species of the lichen genus *Crustospathula* from the Philippines

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Abstract: APTROOT, A. & SCHUMM, F. 2009. A new species of the lichen genus *Crustospathula* from the Philippines. – *Herzogia* 22: 67–70.

The lichen genus *Crustospathula* is discussed. One new species, *C. macrocarpa*, is described from the Philippines. A probably further additional species from French Guiana is left undescribed as it is sterile and its affiliation can not be ascertained.

Zusammenfassung: APTROOT, A. & SCHUMM, F. 2009. Eine neue Art aus der Flechtengattung *Crustospathula* von den Philippinen. – *Herzogia* 22: 67–70.

Die Flechtengattung *Crustospathula* wird diskutiert und eine neue Art, *C. macrocarpa*, von den Philippinen beschrieben. Eine weitere Art aus Französisch Guyana bleibt unbeschrieben, da steril und nicht sicher zur Gattung gehörig. Ein Bestimmungsschlüssel wird geboten.

Key words: Taxonomy, lichenized fungi, key, Asia.

Introduction

The lichen genus *Crustospathula* Aptroot was described to accommodate an enigmatic lichen from Papua New Guinea (APTROOT 1998). It is characterized by a crustose thallus with stalked and sometimes branched cartilaginous soredia and *Bacidia*-like apothecia. Since the description of this species, no further species or even records were reported.

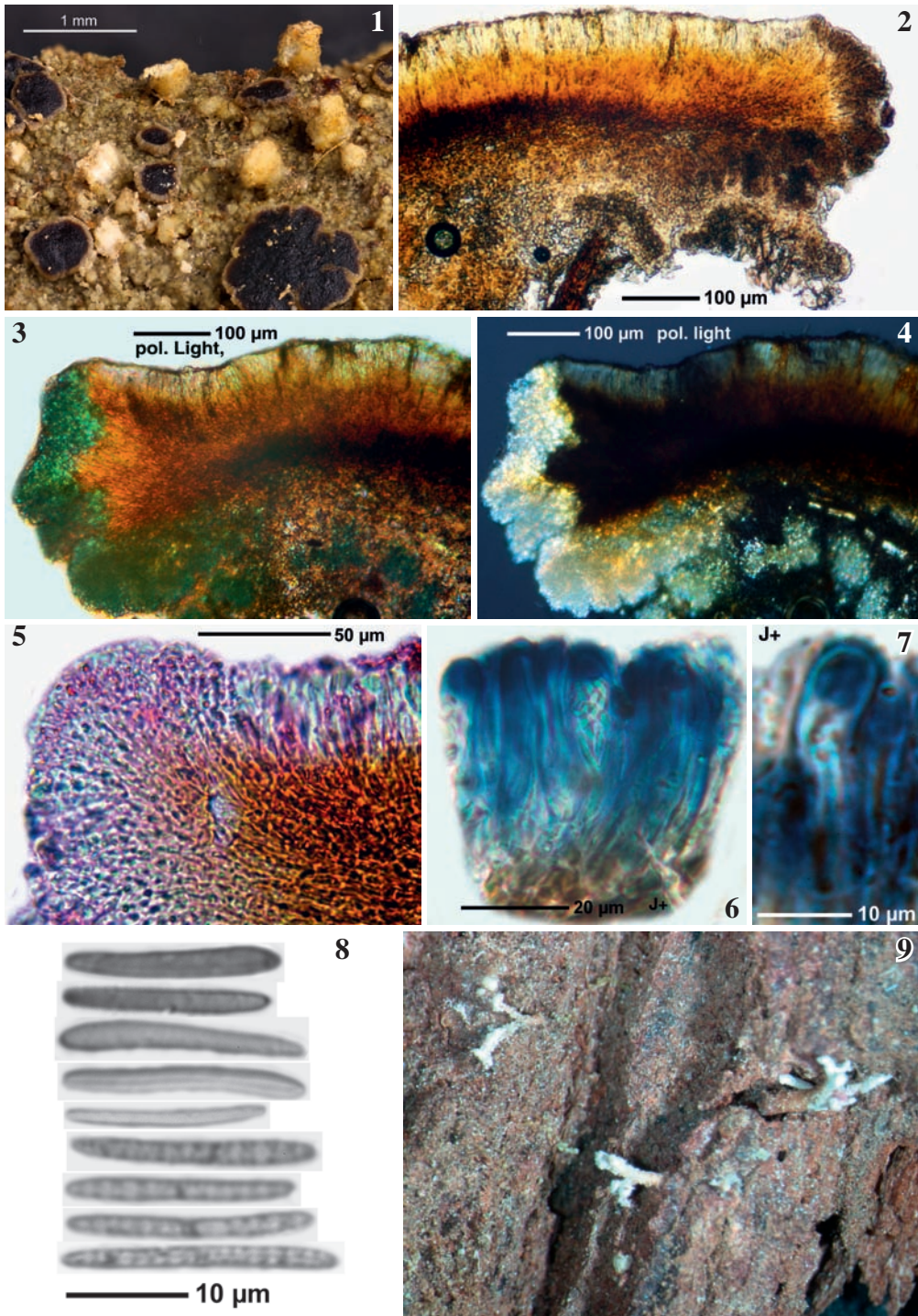
In the meantime, two additional specimens attributable to the genus were found. The purpose of this paper is to formally describe the richly fertile species from the Philippines, and to report and illustrate the sterile species from French Guiana.

Crustospathula macrocarpa Aptroot & Schumm **sp. nov.** (Figs 1–8)

Differt a *Crustospathulis cartilagineis* apotheciis majoris, pigmentatis, ascosporis vulgo aseptatis, hypotheciis pigmentatis, stipulis sorediiferis simplicibus apicibus dilatatis.

Type: Philippines, Negros, Prov. Negros Oriental, Mt. Talinis (Cuernos de Negros), Lunga Nature Trail, Lake Nailig, 9°14.882'N/123°10.490'E, 1520 m, on tree, 10.8.2000, leg. F. Schumm & U. Schwarz (B – Holotypus; ABL, Hb. Schumm 7478 – Isotypi).

Thallus scurfy, green, consisting of agglutinating globular to flattened patches of 25–80 µm diam. with a hyaline algal-free upper layer (pseudo-cortex), algae c. 5 µm diam., hypothallus an indistinct, smooth grey rim. Soredia numerous, whitish, with numerous tiny crystals, glo-



Figs 1–8: Legends on page 69 below.

Fig. 9: *Crustospathula* sp. from French Guiana, showing soredia on branched stalks.

bose, 10–20 µm diam., originating at the tips of stalks. Stalks cartilaginous, green with yellow brown hue, unbranched, cup-shaped to cylindrical, often skewed, up to 0.7 mm high, up to 0.5 mm wide, constricted at the base, dilated at the tips.

Apothecia numerous, round or mostly lobed in outline, 0.2–1.7 mm diam., solitary or clustered, often rejuvenating, sessile but rather appressed, strongly constricted, flat, dull, medium brown to dark brown, margin paler, dull, not raised above the disc, rather regularly 0.1 mm wide. Excipulum hyphal, hyaline, without algae, with masses of tiny refractive crystals that continues under most of the apothecium. Hymenium not inspersed, c. 50–80 µm high, hyaline but tinted orangish in lower part (up to half), epihymenium thin, greyish. Hypothecium orange brown, c. 20–30 µm high. Asci 8-spored, with strongly amyloid tip with tiny masse axiale (*Bacidia*-type). Ascospores hyaline, rod-shaped, variably 0–3-septate with many more aseptate than septate ones, 17–22(–25) × 2–3 µm often curved or bent and somewhat spiraled in the ascus, and ends rounded.

Conidia not observed.

Chemistry: Medulla and soredia UV++ white; lobaric acid and additional in only small concentrations 3 terpenoides and an unknown substance (tlc).

Crustospathula sp. from French Guiana

(Fig. 9)

Specimen: French Guiana, Comm. Regina, S. shore of creek Arataye near confluence with river Approuague, 50–150 m, on base of thick trunk, 23.2.2003, leg. H. Sipman 50765 (ABL, B).

Thallus filmy, green, with finely agglutinating granules, algae c. 5 µm diam., hypothallus absent. Soredia whitish, globose, 15–20 µm diam., irregularly arranged at the tips of stalks. Stalks cartilaginous, flesh-coloured, up to 3 mm high, perpendicular to the bark, repeatedly branched; in section round, solid, up to 0.5 mm thick at the base.

Conidiomata sessile, whitish, conidia globose, hyaline, 0.1–0.2 µm diam.

Chemistry: No spot reactions; zeorin (tlc).

This specimen resembles *Crustospathula cartilaginea* in the cartilaginous stalk of the soredia. However, apothecia are absent and it is not impossible that it is not related at all.

Discussion

With the description of an additional species and the report of a possible further species, the genus *Crustospathula* is not monospecific anymore. The genus was tentatively referred to the Bacidiaceae by APTROOT (1998), based on the apothecium morphology and ascus tip structure. The newly described species seems not to contradict this, although it shows certain resemblances with the Sarrameanaceae (now including e.g. *Loxospora*, see KANTVILAS 2004), especially the spiraled ascospores. The ascus tip however shows a structure typical of the Bacidiaceae, not the undifferentiated shape of the Sarrameanaceae.

Figs 1–8 (on page 68): *Crustospathula macrocarpa*, holotype, **1** – habitus with apothecia and stalked soredia, **2–7** – section through apothecium, **2** – showing pigmentation, **3–4** – showing location of crystals in polarized light, **5** – showing hyphal structure of excipulum in Lactophenol-Cotton blue, **6** – showing spirally arranged ascospores, **6–7** – showing ascus tip pigmentation in IKI after pre-treatment with KOH, **8** – showing ascospores.

The genus *Crustospathula* as a whole is especially characterized by the typical cartilaginous stalks of the soredia and the rod-shaped, often curved or bent ascospores which are variably 0–3-septate.

The species of the genus *Crustospathula* are well differentiated and each characterized e.g. by thallus chemistry, soredium stipe morphology and apothecium size and colour. Re-examination of the type species, *Crustospathula cartilaginea*, revealed the presence of 2'-O-methylperlatolic acid in addition to atranorin with tlc.

Key to the species of *Crustospathula*

- 1 Stalks of the soredia less than twice as long as wide, never branched, constricted at the base
 *C. macrocarpa*
- 1* Stalks of the soredia generally over twice as long as wide, often branched 2
- 2 Stalks of the soredia flattened, sparingly branched *C. cartilaginea*
- 2* Stalks of the soredia round, repeatedly branched *Crustospathula* sp.

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References

- APTROOT, A. 1998. New lichens and lichen records from Papua New Guinea, with the description of *Crustospathula*, a new genus in the Bacidiaceae. – *Tropical Bryology* **14**: 25–34.
- KANTVILAS, G. 2004. Sarrameanaceae. – *Flora of Australia* **56A**: 74–77.

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