



## *Pronectria rhizocarpicola*, a new lichenicolous fungus from Switzerland

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### Abstract

*Pronectria rhizocarpicola*, a new species of Bionectriaceae is described and illustrated. It is growing parasitically on *Rhizocarpon geographicum* in the Swiss Alps.

**Key words** – Ascomycota – bionectriaceae – hypocreales

### Introduction

The genus *Pronectria* currently comprises 44 species, including 2 algicolous and 42 lichenicolous species. Most of the lichenicolous species are living on foliose and fruticose lichens (32 species), only a few on squamulose and crustose lichens (10 species). No species of the genus was ever reported from the host genus *Rhizocarpon*.

### Materials and methods

Morphological and anatomical observations were made using standard microscopic techniques. Microscopic measurements were made on hand-cut sections mounted in water with an accuracy up to 0.5  $\mu\text{m}$ . Measurements of ascospores and asci are recorded as (minimum–)  $\bar{x} - \sigma_x$  –  $\bar{x} + \sigma_x$  (–maximum) followed by the number of measurements. The holotype is deposited in M, one isotype in the private herbarium of the author (hb ivl).

### Results

*Pronectria rhizocarpicola* Brackel, **sp. nov.**

Figs 1–2

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Etymology – pertaining to the host genus *Rhizocarpon*.

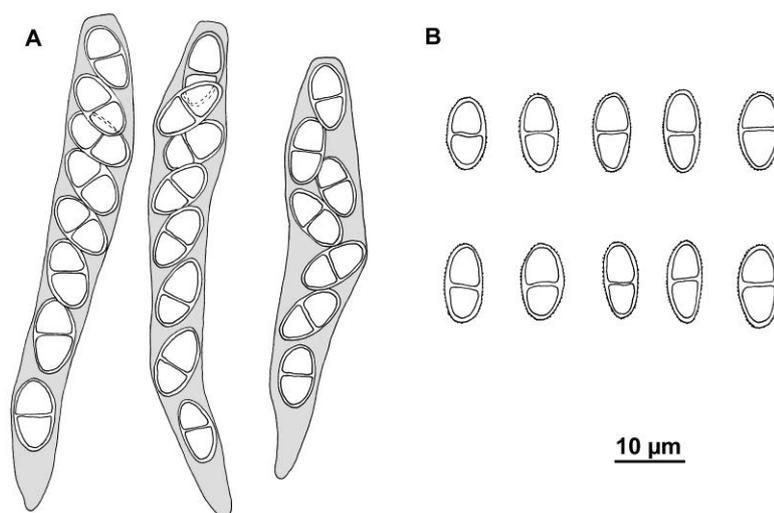
Diagnosis – Fungus lichenicola in thallo et ascomatibus lichenis *Rhizocarpon geographicum* crescens. Ascomata immersa, aurantiaca, ca. 250  $\mu\text{m}$  diam. et 300  $\mu\text{m}$  alta. Asci subcylindrici vel clavati, 8-spori, (55–)59–72(–75)  $\times$  8–9(–10)  $\mu\text{m}$ . Ascosporae ellipsoideae, 1-septatae, tenelluliter verruculosae, (10–)10.3–12.4(–14)  $\times$  (5–)5.1–5.9(–6.5)  $\mu\text{m}$ .

Holotype – Switzerland, Kanton Bern, Sustenpass, granite rocks, on *Rhizocarpon geographicum*, 1950 m, 46°43'23"N, 08°25'45"E, W. v. Brackel, 26.8.2006 (M – holotypus, hb ivl 6623 – isotypus).

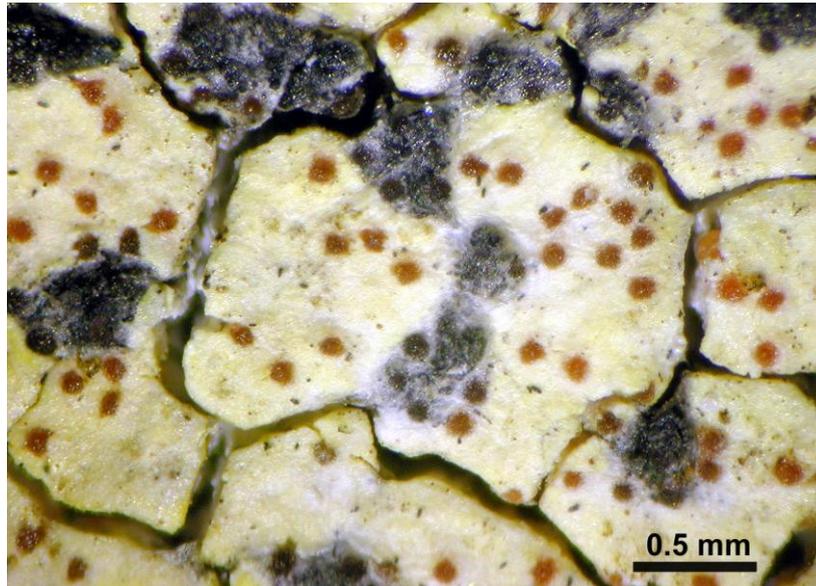
Description – Ascomata completely immersed in the host thallus and apothecia, only the ostiolar region visible, scattered, obpyriform, c. 250  $\mu\text{m}$  wide and 300  $\mu\text{m}$  high, deep orange in exposed parts, papilla truncate, 80–100  $\mu\text{m}$  wide, without hairs; ostiole lined with periphyses c. 1  $\mu\text{m}$  thick; ascomatal wall hyaline to very pale orange, 15–25  $\mu\text{m}$  thick, formed by 4–7 rows of cells; these in cross section 3–9  $\times$  1–3  $\mu\text{m}$ , appanate, thick-walled with narrow lumina on the outer, thin-walled on the inner side of the wall, in surface view of *textura angularis* with cells of 4–9  $\mu\text{m}$  across, K–, I–, lactic acid –; centrum without or with few oil drops. Paraphyses absent at maturity. Asci subcylindrical to clavate, (6–)8-spored, apically truncate, wall not thickened, only ascoplasm I+ dextroid, (55–)59–72(–75)  $\times$  8–9(–10)  $\mu\text{m}$  (n = 10). Ascospores obliquely monostichous or partly distichous in the asci, ellipsoid, hyaline, 1-septate, with cells only slightly different in size and shape, the upper one being somewhat broader and more rounded, not or slightly constricted at the septum, thick-walled, delicately verruculose at high magnification, rarely with small guttules, (10–)10.3–12.4(–14)  $\times$  (5–)5.1–5.9(–6.5)  $\mu\text{m}$ , l/b = (1.7–)1.8–2.3(–2.8) (n = 40).

Distribution and host – The new species is known only from the type locality in Switzerland, growing on *Rhizocarpon geographicum*. The infected regions of the host thallus are discoloured and finally killed.

Discussion – With its orange, immersed perithecia without setae, the lack of persistent interascal filaments, 2-septate ascospores and the K– reacting peridial wall the new species clearly belongs to the genus *Pronectria*. All members of the genus are more or less specific to one host species, genus, or closely related genera. No *Pronectria* species was described from the host genus *Rhizocarpon* or other members of the family Rhizocarpaceae. Three species on other host genera with similar dimensions of the ascospores have to be compared with the new species: *P. dillmaniae* Zhurb. (on *Catapyrenium*) is distinguished by intensively orange- or brownish-red and smaller perithecia [(125–)200(–250)  $\times$  (100–)150(–200)  $\mu\text{m}$ ]. *P. diplococca* Kocourk. et al. (on *Collema*) also has smaller perithecia and the ascospores are disintegrating. *P. robergei* (Mont. & Desm.) Lowen (on *Peltigera* and *Solorina*) seems to be a heterogenous taxon (Zhurbenko 2009) and its ascospore dimensions cover a wide range [8–16  $\times$  (3–)4–8  $\mu\text{m}$ ], including those of the new species. However, the ascospores in *P. robergei* generally are narrowly ellipsoid [l/b = (1.5–)2.6–3.8(–6.0)], the single cells more different from each other with a rounded upper and an attenuated lower one, guttulate, and they are biserially arranged in the asci. Applying the recently published key to lichenicolous *Pronectria* species (Khodosovtsev et al. 2012) to the new species leads to no result.



**Fig 1** – *Pronectria rhizocarpicola* (holotypus): A: asci with ascospores. B: ascospores.



**Fig. 2** – *Pronectria rhizocarpicola* (holotypus): infected part of the thallus of *Rhizocarpon geographicum*.

### References

- Khodosovtsev A, Vondrák J, Naumovich A, Kocourková J, Vondráková O, Motiejunaite J. 2012 – Three new *Pronectria* species in terricolous and saxicolous microlichen communities (Bionectriaceae, Ascomycota). *Nova Hedwigia* 95, 211–220.
- Zhurbenko MP. 2009 – Lichenicolous fungi and lichens from the Holarctic. Part II. *Opuscula Philolichenum* 7, 121–186.