Bull. Soc. linn. Provence, t. 72, 2021
ISSN 0373–0875—Date de parution: 17/11/2021

Sclerococcum toensbergii Diederich new to France and Europe

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Résumé : *Nous rapportons de la présence du champignon lichénicole non lichénisé* Sclerococcum toensbergii *sur* Caloplaca cerina *dans les Vosges du sud, donnons une description du spécimen et précisons son écologie.*
Mots clés : *Champignons lichénicoles, Vosges, Rinodina malangica.*

Resumo: *Ni raportas pri la ĉeesto de la nelikeniĝinta fungo likenloĝa* Sclerococcum toensbergii *sur* Caloplaca cerina en S Vogezoj, priskribas la specimenon kaj precizigas ĝian ekologion.
Ŝlosilvortoj : *Likenloĝaj fungoj, Vogezoj,* Rinodina malangica.

Abstact: *We report Sclerococcum toensbergii from a find in the southern Vosges on Caloplaca cerina, give a description of the specimen and specify its ecology.* **Keywords** *: lichenicolous fungi, Vosges, Rinodina malangica*

Introduction

Sclerococcum toensbergii was described by Diederich and van den Boom (2017) from Mount St. Helens, Washington, USA, growing on *Pertusaria carneopallida*. The authors reported a second specimen from the Olympic Peninsula, Washington, growing on *Megalaria pulverea*, that they considered as conspecific. They found it surprising to find a species of *Sclerococcum* on two not closely related host genera and authors discussed the possibility of an aggregate of morphologically similar taxa. Usually, species of *Sclerococcum* are confined to one host genus or a few closely related genera, but recently the species was reported by Ekman et Tønsberg (2019) on the newly described *Biatora alnetorum*. Therefore, the current host spectrum of *S. toensbergii* up to now includes members of the families *Pertusariaceae* and *Ramalinaceae*.

Before Diederich et al. (2018) transferred all species of *Dactylospora* Körb. to *Sclerococcum*, the genus contained only asexual lichenicolous hyphomycetes. These anamorphs are characterised by dark brown to black sporodochia with a (sub–)hyaline mycelium growing inside the substratum, and (sub–)hyaline micronematous conidiophores, often densely packed together. The conidiogenous cells are short cylindrical to ellipsoid, terminally integrated and mostly monoblastic. The ellipsoid or irregular brown, thick–walled, septate to (sub–) muriform conidia are often arranged in irregular chains.

During an excursion in the southern Vosges, the second author found a hyphomycete on *Caloplaca cerina* that proved to fit the description of *Sclerococcum toensbergii*. With this find the host spectrum of the species includes also a member of the *Teloschistaceae*. It is not yet clear, whether *S. toensbergii* really has such a broad host spectrum or if it represents an aggregate of morphologically very similar, more specialised taxa. Pending further investigations, we include our specimen in *S. toensbergii* and give a detailed description to facilitate a possible segregation in the future.

Locality

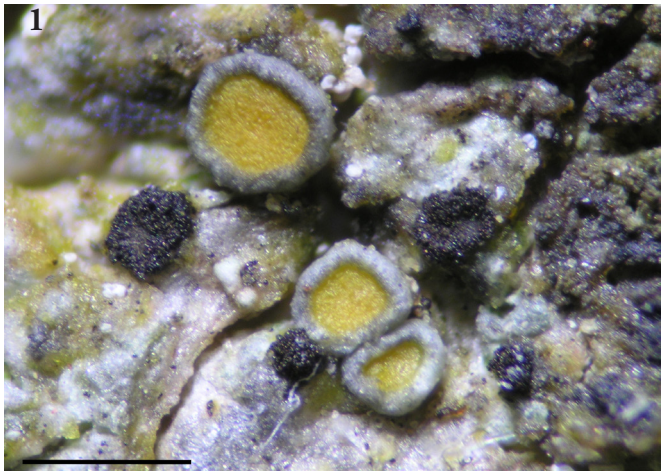
France, dép. Vosges, Vosges, ballon de Servance, alt. 1150 m, on *Sorbus aucuparia*, on *Caloplaca cerina*, 26.8.2020, leg. V. Wirth, det. W. v. Brackel.

Description of the French specimen

(for better comparability analogue to the description of Diederich and van den Boom 2017)

Colonies lichenicolous on the corticolous lichen *Caloplaca cerina*, forming superficial, convex or (due to the erosion of the inner conidia) slightly concave sporodochia, shiny blackish, rounded or irregular in form, 150–250(–300) µm diameter, well delimited, older ones seemingly basally constricted (due to overhanging masses of conidia). Vegetative hyphae subhyaline to pale brown, immersed in the host thallus, 1·5–3·5 µm diameter. Conidiophores aggregated into dense sporodochia, not or sparsely branched, subhyaline to pale to medium brown, 1·5–3 µm thick. Conidiogenous cells monoblastic or polyblastic, terminal, integrated, pale brown, subspherical to ellipsoid or elongate, hardly distinguishable from other conidiophore cells, 5–8 × 4–5 µm. Conidia produced singly, separating easily, dry, acrogenous, ellipsoid, medium to dark brown (lower cell or cells paler, almost subhyaline), muriform, with up to 20 cells [5–10 cells visible in optical section], (13·0–)14·9–21·1(–23·0) × (8·0–)8·7–10·3(–11·0) µm, Q = (1·4–)1·6–2·2(–2·4) (n = 20), often spreading around sporodochia on host thallus; conidial cells subspherical to ellipsoid, 3–8 µm diameter, often guttulate; septa 0·5 µm thick, medium to dark brown; wall medium to dark brown, 0.5–1 µm thick, smooth. All parts K– except for the conidia that become darker and more greyish.

All these features are in accordance with the protologue except for the paler lower part of the conidia, not mentioned by Diederich and van den Boom (loc. cit.) and also not or not clearly visible in their pictures.



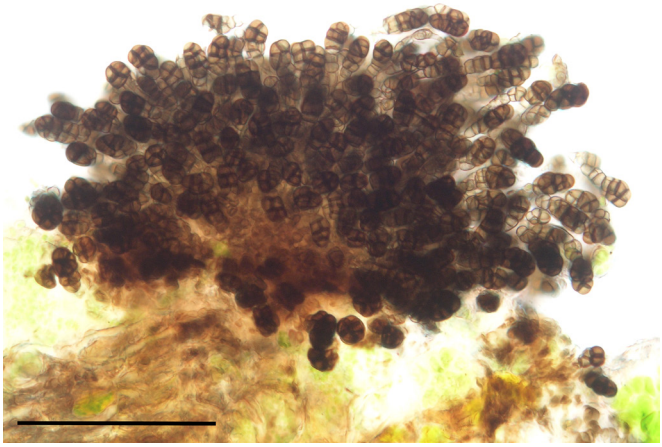


Fig. 1: *Sclerococcum toensbergii* on *Caloplaca cerina*, habitus. Bar = 0·5 mm.
Fig. 2: *Sclerococcum toensbergii*, section through a sporodochium with abundant conidia. Bar = 100 µm.

Ecology

Caloplaca cerina, the host of the lichenicolous fungus, grows basally on *Sorbus aucuparia* in midst of *Nardus* grassland and dwarf shrub heaths with *Vaccinium myrtillus* and *Calluna vulgaris*, well exposed to light. It is accompanied by *Lecidella elaeochroma* and *Rinodina malangica*. As typical for *Rinodina malangica*, the whole community is likely to be covered by snow for a long time during the winter.

The locality lies in in the region with the highest precipitations in the North–East of France. At an elevation of only 1150 m, they reach 1900 mm per year; the ratio between precipitation and elevation unlikely to be reached anywhere in Central Europe, not even in the neighboured Black Forest. Possibly the high humidity of the habitat is of relevance for the occurrence of *Sclerococcum toensbergii*. Both at Mount St. Helens and at the Olympic Peninsula the annual precipitation reaches 2500 mm (https ://gisgeography.com/us–precipitation–map/).

The occurrence of *Rinodina malangica* at this (relatively low) elevation is notable too. Roux (2017) reports the species from the ballon d'Alsace at an elevation of 1153 m, c. 3·5 km away from our locality and Bossière and Montavont (2007) report a find of Roux 2006 from the Hohneck near Stosswihr, c. 30 km from our locality. In the Alps, this lichen grows mainly on *Rhododendron* above the timberline (Hinteregger et al. 1989). It was found in the Black Forest too (Feldberg, on *Fagus*, 1250 m; first report for Germany outside the Alps), also associated with *Caloplaca cerina* and *Lecidella elaeochroma* s.lat.

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