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Reichlingia leopoldii gen. et sp. nov., a new lichenicolous hyphomycete from Central Europe

by

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Dedicated to Professor Léopold REICHLING, botanist and entomologist from Luxembourg, on the occasion of his 75th birthday.

Abstract: The new genus *Reichlingia* is described for a lichenicolous dematiateous hyphomycete with non-stromatic conidiophores forming sporodochia or becoming confluent, and dark brown, septate, branched, verrucose conidia. The single species, *R. leopoldii*, appears to be common in Central Europe, where it always grows on an unidentified, perhaps even undescribed, sorediate lichen species with *Trentepohlia* as a photobiont, which develops on bark or on sandstone rocks.

Introduction

Since 1989 the authors have several times collected an apparently undescribed lichenicolous hyphomycete, growing on a sterile lichen with *Trentepohlia* as a photobiont, which could not be identified. More material of the same species has been received on loan from different lichenologists, and it became clear that we were dealing with a common, highly specialized fungus, for which no genus was available.

It is a pleasure for us to name the new fungus in honour of Professor Léopold Reichling, botanist and entomologist from Luxembourg, on the occasion of his 75th birthday.

Material and methods

The specimens studied in this paper are located in the private herbaria of the authors or in the herbaria of Dr André Aptroot, Dr Franz Berger and Prof. Volkmar Wirth (STU). Dried herbarium material was examined with a Zeiss Stereomikroskop DR at

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a magnification of x 10-80. Microscopical observations were performed with a Zeiss Photomikroskop at a magnification of x 2000, with material prepared in water or in lactophenol cotton blue. Drawings were prepared using a drawing tube. Air-dried specimens were sputter-coated with 20 nm of gold and investigated in a scanning electron microscope (Philips SEM 515).

Results

Reichlingia Diederich & Scheidegger gen. nov.

Genus ad hyphomycetes pertinens. Coloniae rufae; stromata nulla. Conidiophora semi-macronemata, mononemata vel in sporodochiis, brunnea, verrucosa. Cellulae conidiogenae integratae, polyblasticae, intercalares, subsphericae. Conidia sicca, irregulariter ramosa, septata, septis constricta, cellulis subsphericis ad ellipsoideis, atrobrunneis, verrucosis.

Type species: *Reichlingia leopoldii* Diederich & Scheidegger.

Colonies brown, forming irregular sporodochia or almost confluent; mycelium immersed in the host thallus, indistinguishable. Stromata, setae and hyphopodia absent. Conidiophores semi-macronematous, mononematous or forming sporodochia, brown, with a thick, verrucose wall. Conidiogenous cells integrated, intercalary, polyblastic, subspherical. Conidia dry, irregularly branched, septate, distinctly constricted at the septa, individual cells subspherical to ellipsoid, dark brown, wall verrucose.

Observations: The new genus resembles some species of *Taeniolella* Hughes with a verrucose conidial wall, but is easily distinguished by the branched conidia and the tendency of the conidiophores to form sporodochia. Species of the genus *Taeniolina* M. B. Ellis have also branched conidia, which are, however, smooth-walled, not distinctly constricted at the septa and much more regular in shape; conidiophores in these species never form sporodochia. In species of *Spilodochium* Sydow, conidiophores always arise from a distinct stroma, and conidia are 0-2-septate. In *Xylohypha* (Fr.) Mason, conidia are 0(-1)-septate and smooth-walled (Ellis 1971, 1976, Hawksworth 1979).

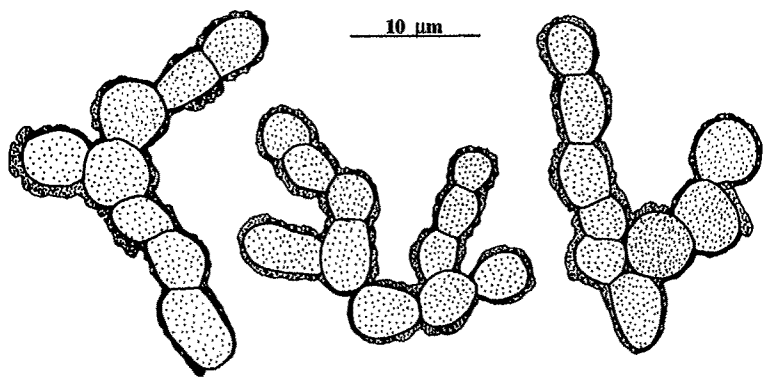


Fig. 1. *Reichlingia leopoldii* (holotype). Conidia.

Reichlingia leopoldii Diederich & Scheidegger sp. nov. (Figs 1-3)

Fungus lichenicola. Conidiophora in sporodochiis 0.1-0.4 mm in diam. saepe confluentibus. Conidia 17-35 µm longa, cellulis 4-6 x 3.5-5.5 µm.

Type: Germany, Württemberg, Oberer Neckar, Oberndorf, Epfendorf, Schlichem Tal, zw. Stadion und Butschhof, alt. 500 m, on an old trunk, 11 April 1992, *V. Wirth* 23450 (STU holotype, herb. Diederich - isotype).

Colonies lichenicolous, reddish to dark chocolate brown, forming irregular sporodochia 0.1-0.4 mm in diam., or almost confluent, covering areas reaching 10 cm or more in diam. Conidiophores dark brown, with a thick, verrucose wall. Conidiogenous cells not clearly defined, the terminal cells acting in turn as conidiogenous cells. Conidia irregularly branched, with one or several ramifications, 17-35 µm long, septate, strongly constricted at the septa, individual cells subspherical to ellipsoid, dark brown, 4-6 µm long, 3.5-5.5 µm thick, wall strongly verrucose, with a granulose dark brown pigmentation.

Host: In all known specimens, the host is a sterile lichen species with *Trentepohlia* as the photobiont, which could not be identified with the current literature. The thallus is relatively thick and entirely leprose- or farinose-sorediate, in some places almost byssoid, greyish or whitish grey, often with a distinct, zonate margin (especially when in contact with other crustose lichens), without any positive reactions (K-, C-, KC-, PD- or yellowish, UV-). The lichen often grows together with other species with *Trentepohlia*, such as *Opegrapha varia* Pers. or *O. vermicellifera* (Kunze) Laundon, but it certainly does not belong to one of these species. It is clearly distinct from other well-known, sterile, sorediate lichens with *Trentepohlia*, like *Dirina stenhammari* (Stenham.) Poelt & Follm., *Enterographa zonata* (Körber) Källsten, *Lecanactis latebrarum* (Ach.) Arnold, *Lecanactis umbrina* Coppins & P. James, *Opegrapha gyrocarpa* Flotow, *Schismatomma cretaceum* (Hue) Laundon, *S. decolorans* (Turner & Borrer ex Sm.) Clauz. & Vězda, *S. niveum* D. Hawksw. & P. James or *S. quercicola* Coppins & P. James. We were also thinking on sterile thalli of *Arthonia arthonioides* (Ach.) A. L. Sm., *A. leucopellaea* (Ach.) Almq. and *Lecanographae lyncea* (Sm.) Egea & Torrente, but they all have a different thallus. This lichen could well represent a new, undescribed species, related to *Lecanactis* or *Schismatomma*, but more specimens, including non-parasitized ones, should be examined before describing it. It has been collected many times on the bark of various trees, but also twice on shaded overhangs of sandstone rocks.

Distribution: The new species is known from Austria, Germany, Luxembourg and Switzerland. It seems to be widespread and common in Central Europe.

Observations: *Reichlingia leopoldii* is easily recognized in the field by the reddish or chocolate brown colonies covering large parts of a sterile, sorediate lichen with *Trentepohlia* as the photobiont, which is often completely covered and therefore indistinguishable. Two other lichenicolous hyphomycetes with dark brown, verrucose conidia growing on lichens with *Trentepohlia* have been described: *Cladosporium arthoniae* M. S. Christ. & D. Hawksw., growing on *Arthonia impolita* (Hawksworth 1979: 210-211), *Lecanographa lyncea* (Sm.) Egea & Torrente and *Schismatomma decolorans* (Diederich 1989: 239), and *Taeniolella verrucosa* M. S. Christ. & D. Hawksw., known from *Arthonia impolita* (Hawksworth 1979: 258-259); they are both distinguished by the 0-1-septate conidia. *Taeniolina scripta* (P. Karst.) P. M. Kirk, a fortuitously lichenicolous hyphomycete with brown and branched conidia, which often grows on leprose thalli (e. g. *Lepraria incana*), is distinguished by smooth-walled conidia which are not distinctly constricted at the septa (Diederich 1989: 254-255, Ellis 1976: 56-58, Hawksworth 1979: 253).

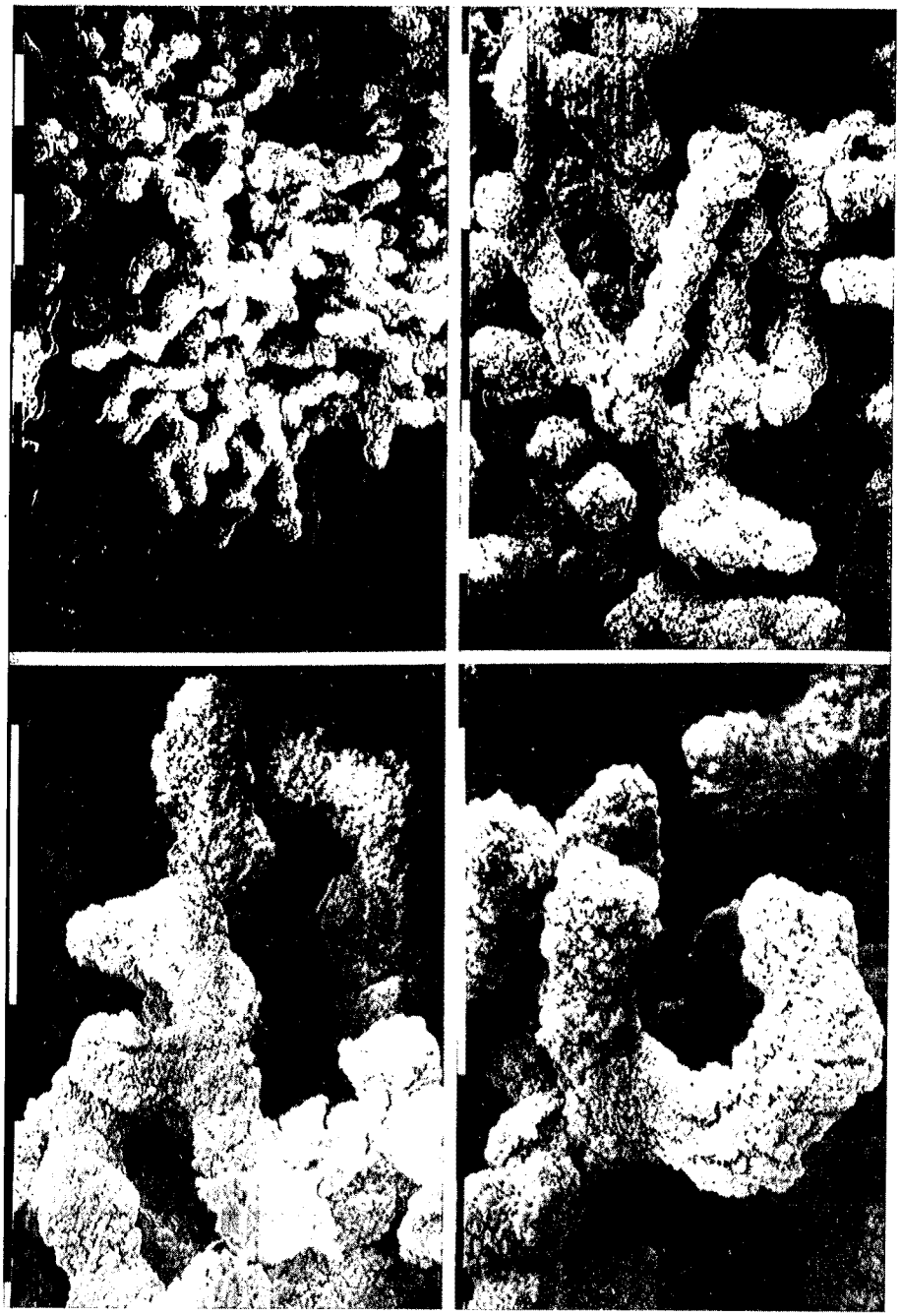


Fig. 2. *Reichlingia leopoldii* (*C. Scheidegger* s. n.). Surface view of sporodochium, conidiophores and conidia. Scanning electron micrographs (air dried). Scale: 10 μm.

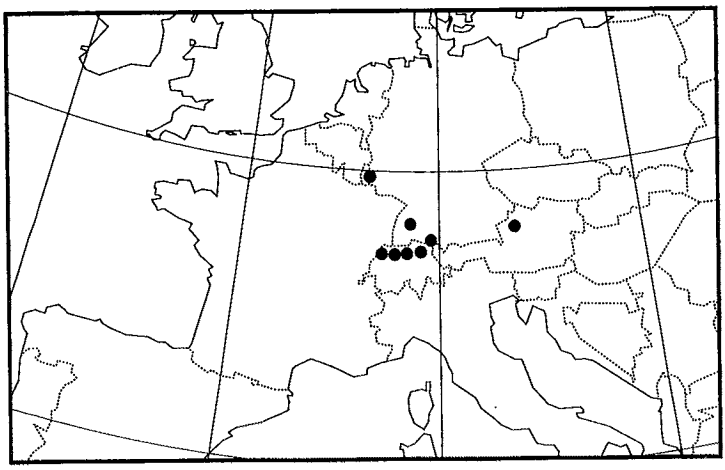


Fig. 3. Distribution of *Reichlingia leopoldii*.

Additional specimens: *Austria*: Oberösterreich, Mühlviertel, Waldaisttal bei Riedlhammer, unter Mönchsfels, alt. 470 m, on bark, 1 May 1995, *F. Berger* 8694 (herb. Berger). - *Germany*: Württemberg, Schönbuch, Aichtal, Neuenhaus, Schaichtal, rechte Talseite, 1-1,3 km oberhalb der Brücke bei Neuenhaus, alt. 330 m, on the base of an old oak tree, 9 March 1990, *V. Wirth* 18859 (STU); Württemberg, Neckarland, Reichenbach/Fils, Reichenbachtal oberhalb Ölmühle, Einmündung des Kaltereutebachs, alt. 310 m, on *Quercus*, 1 May 1992, *V. Wirth* 23708 & *R. Wirth* (STU); Württemberg, Allgäu, Neukirch, Argental beim Zusammenfluβ von Unterer und Oberer Argen, Argenrundweg, on bark, 13 Sept. 1985, *V. Wirth* 16033 (STU). - *Luxembourg*: Beaufort, Vogelsmühle, valley of Halerbaach, on sandstone rock in forest, 6 Aug. 1991, *P. Diederich* 9786 (herb. Diederich); SE of Beaufort, valley of Haupeschbaach, alt. 290 m, on vertical sandstone rock in forest, 1 May 1992, *A. Aptroot* 28808 & *P. Diederich* 4796 (herb. Aptroot, herb. Diederich). - *Switzerland*: Aargau, Vordemwald, alt. 460-490 m, on bark, Oct. 1989, *C. Scheidegger* s. n. (herb. Scheidegger, 9 specimens); Bern, Wohlen, on *Fraxinus*, 10 April 1996, *M. Dietrich* s. n. (herb. Dietrich); Bern, Niederhünigen, on *Abies*, 11 Sept. 1992, *M. Dietrich* s. n. (herb. Dietrich); Jura, 8 km SW of Biel, Twann, Twannbachschlucht, alt. 500-600 m, on *Ulmus*, 31 Jan. 1994, *A. Aptroot* 33828 & *W. O. v. d. Knaap* (herb. Aptroot, herb. Diederich); Luzern, Schüpfheim, on *Picea*, 13 Oct. 1993, *M. Dietrich* s. n. (herb. Dietrich); Obwalden, Sarnen, on *Picea*, 13 May 1994, *M. Dietrich* s. n. (herb. Dietrich); Obwalden, Sachseln, on *Fraxinus*, 15 June 1994, *M. Dietrich* s. n. (herb. Dietrich); Obwalden, Giswil, on *Fagus* and *Picea*, April 1994, *M. Dietrich* s. n. (herb. Dietrich); Thurgau, Basadingen, 1 km W Dickihof, on bark, 8 Oct. 1990, *V. Wirth* 19590 (STU); Zug, Hünenberg, on *Quercus*, Sept. 1996, *C. Scheidegger* s. n. (herb. Scheidegger); Zürich, Rifferswil, on bark, with *Opegrapha vermicellifera*, 1 Nov. 1989, *P. Diederich* 9052 & *C. Scheidegger* (herb. Diederich).

Acknowledgments

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