Zwackhiomyces namibiensis, a new lichenicolous ascomycete (Xanthopyreniaceae) on Psorotichia from Namibia

Paul Diederich & Matthias Schultz


The new lichenicolous species Zwackhiomyces namibiensis is described on Psorotichia cf. schaereri from Namibia and is compared with the similar Z. berengerianus and Z. dispersus.


Die neue lichenicole Art Zwackhiomyces namibiensis wird von Psorotichia cf. schaereri aus Namibia beschrieben und mit den ähnlichen Arten Z. berengerianus und Z. dispersus verglichen.

Key words: lichenicolous fungi, new species

Introduction

During field work in central Namibian savannah biomes conducted within the research program BIOTA-South, subproject S04 (L. Zedda & G. Rambold, University of Bayreuth), the second author collected a specimen of Psorotichia cf. schaereri with lichenicolous pseudothecia of an unknown species of Zwackhiomyces. The material has been studied with the usual microscopical techniques (see Diederich & Zhurbenko 2009) and is described here as a new species.

Results

Zwackhiomyces namibiensis Diederich & M.Schultz sp. nov. (Figs 1–5)

Zwackhiomyces species lichenicola insignis pseudothecii semi-immersis ad superficialibus globosis 120–150 µm diam., ascis 8-sporis c. 45–50 × 8–14(–17) µm, ascosporis 1-septatis levibus (16–)21–26.5 × (5–)6–7 µm.

Type: Namibia, Khomas Distr., NW of Rehobot, just E of D1237, N end of farm Duruchaus, BIOTA-observatory Duruchaus, hectare plot 37, chamaephytic shrubland, exposed on small, flat rocky outcrops at ground level, alt. 1650 m, on Psorotichia cf. schaereri over siliceous rocks, 11.03.2006, M. Schultz 19153 (HBG 019554: holotype; M 0138876, WIND, herb. Diederich: isotypes).
Ascomata perithecioid, half-immersed when young, soon becoming superficial, black, sub-spherical or slightly applanate, 120–150 µm wide; wall entirely dark brown, K–, 15–45 µm thick, pigment extracellular; centrum not inspersed, K/I–; interascal filaments present, linear,
branched or anastomosed, 1.5–2.0 µm thick; asci subcylindrical to clavate, K/I–, wall apically thickened, 8-spored, c. 45–50 × 8–14(–17) µm (difficult to measure, as basal parts often obscured, and as most asci examined were overmature); ascospores 1–2-seriate, hyaline, 1-septate, (16–)21–26.5 × (5–)6–7 µm (ratio length/breadth 3.2–4.4); perispore distinct, hyaline, c. 0.5 µm thick and smooth in water, up to 1 µm thick and wrinkled (giving a verrucose appearance) in KOH; ascospore cells with several large and many small lipid guttules (not disappearing in KOH), each cell probably with one nucleus (region devoid of lipid guttules). Conidiomata unknown.

Host: Psorotichia cf. schaereri (thallus), commensalistic.

Distribution: Known only from the type locality in Namibia.

Observations: A key to all known Zwackhiomyces species was published by Calatayud et al. (2007), and three additional species have been added more recently (Diederich & Zhurbenko 2009, Brackel 2008, Hawksworth & Iturriaga 2006). Following this key, the new species has to be compared with Z. berengerianus (Arnold) Grube & Triebel and Z. dispersus (Körb.) Triebel & Grube.
Z. berengerianus has obpyriform ascomata, slightly shorter ascospores becoming eventually pale brown, $17–24(–27) \times 5–8(–10) \mu m$ (ratio length/breadth 2.9–3.1), a distinctly verrucose perispore, much longer asci, $70–90(–95) \times 12–13.5 \mu m$, and is confined to Mycobilimbia berengeriana (A.Massal.) Hafellner & V.Wirth. Z. dispersus has slightly smaller, subspherical to obpyriform ascomata, $100–130(–170) \mu m$ diam., distinctly shorter and broader ascospores, $(17.5–)18–22 \times (6–)7–7.5(–8) \mu m$ (ratio length/breadth 2.4–2.6), and is confined to Protoblastenia rupestris (Scop.) J.Steiner (Grube & Hafellner 1990).

This is the first known lichenicolous fungus inhabiting species of the genus Psorotichia, though occasionally non-lichenized fungi can be found growing on sterile or moribund thalli of crustose Lichinaceae such as Psorotichia, Porocyphus, Pyrenopsis etc. However, the determination of infected, dying or barely sterile specimens is often extremely difficult or virtually impossible. Additionally, we have a specimen of an unknown Nectria-like fungus with 3-septate ascospores collected on Psorotichia schaereri in Luxembourg (Diederich 12444). Parasymbiotic and parasitic ascomycetes growing of fruticose members of the Lichinaceae have been reported by Henssen (1963) on Ephebe spp. and by Henssen et al. (1985) on Lichinella spp.

References


Diederich, P. & Zhurbenko, M. 2009. Sphaerellothecium phaeorrhizae and Zwackhiomyces sipmanii spp. nov. on Phaeorrhiza sareptana from north-eastern Asia, with a key to the species of Sphaerellothecium. – Biblioth. Lichenol. 99: 113–121.


Manuscript accepted: 4 February 2009.

Addresses of authors

Paul Diederich, Musée national d’histoire naturelle, 25 rue Munster, L-2160 Luxembourg. E-mail: paul.diederich@education.lu

Matthias Schultz, Biozentrum Klein Flottbek, Systematik der Pflanzen, Ohnhorststr. 18, D-22609 Hamburg. E-mail: schultzm@botanik.uni-hamburg.de