Unguiculariopsis stenospora, the first parasitic fungus on *Celothelium lutescens*

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Abstract: *Unguiculariopsis stenospora* (*Cordieritidaceae*, *Leotiales*, *Ascomycota*) is described as a new species. It is the first parasitic fungus on *Celothelium lutescens*, an ascomycete frequently found on bark of old *Prunus avium* trees in deciduous forests.

Zusammenfassung: *Unguiculariopsis stenospora* (*Cordieritidaceae*, *Leotiales*, *Ascomycota*) wird als neue Art beschrieben. Es handelt sich um den ersten parasitischen Pilz auf *Celothelium lutescens*, ein Ascomycet, der häufig auf der Rinde alter Vogelkirschbäume (*Prunus avium*) in Laubwäldern vorkommt.

Material and methods
Morphology was studied on the air-dried type specimen using a dissecting microscope Leica M65. Anatomical investigations, measurements and photographs were carried out by light microscopes fitted with phase contrast [Olympus BH 2 (FB) and Leica DMLS2 (EZ)] on hand-cut sections or squash preparations mounted in tap water (H2O), 5 % solution of potassium hydroxide (K), Phloxin 1% and Lugols´s reagent (I). Spore measurements are given as an approximate range (smallest and largest found in brackets).

Unguiculariopsis stenospora F. BERGER, R. CEZANNE & M. EICHLER, spec. nova (Figs. 1, 2)

MycoBank no.: 859170

Diagnosis: Fungus fungicola supra perithecia *Celothelium lutescens* sedens. Ascomata aggregata, usque ad 0,17 × 0,1 mm. Ab *Unguiculariopsis aceris* differt in selectione hostis, ascomatis minoribus, excipulo pilis hyalinis, terminaliter uncinatiformis dense obtecto, 18–37 µm; ascosporis ellipsoideis, angustioribus (4,8–)7–8 × 1,2–1,4(–1,5) µm; hymenium et epihymenium hyalinum, paraphyses filiformes.

Etymology: The epithet refers to the narrowest ascospores in the genus *Unguiculariopsis*.

Holotype: Germany, Hessen, Darmstadt, Scheftheimer Weg, deciduous forest (mainly *Fagus*, *Quercus robur*, *Prunus avium*), 180 m s. m., 49,87871° N, 8,70304° E, TK25: 6118/114, on old *Prunus avium*, on perithecia of *Celothelium lutescens* F. BERGER & APTROOT, 1. January 2025, R. CEZANNE & M. EICHLER 13898 – (FR); isotype: Herbar F. BERGER 38586.

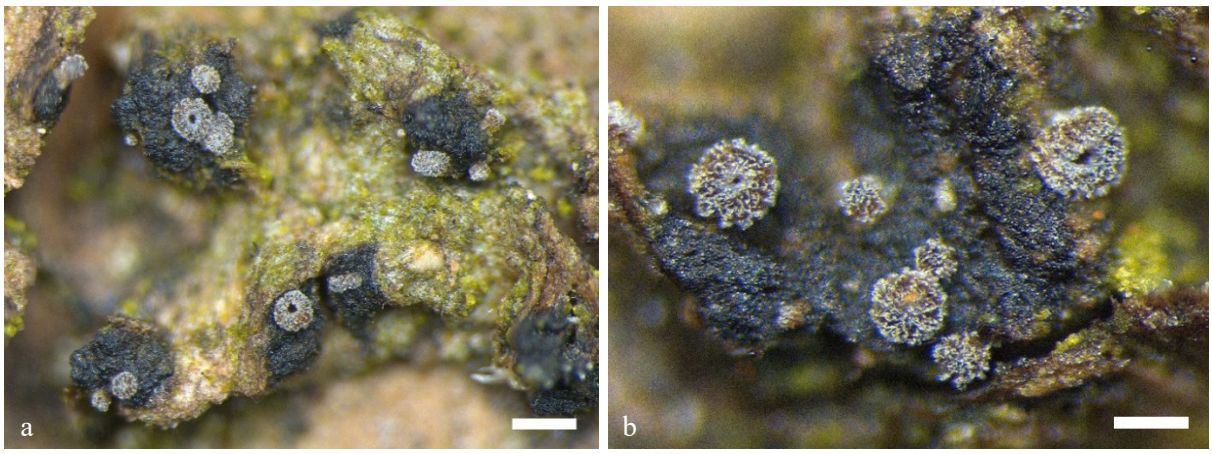

Fig. 1. *Unguiculariopsis stenospora* [CE 13912]. *a*, *b* ascomata growing on superficially damaged host ascomata of *Celothelium lutescens*. Scale bars: a 1.0 mm; b 200 µm.

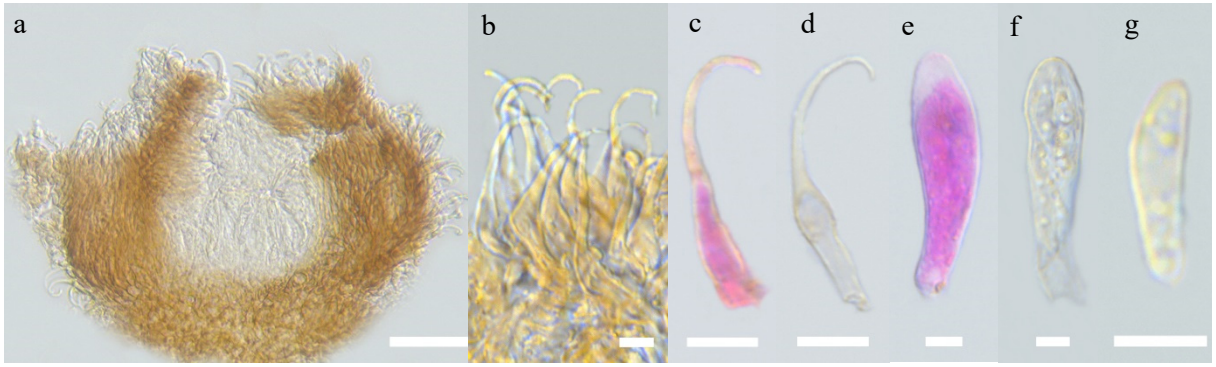

Fig. 2. *Unguiculariopsis stenospora* [CE 13912]. *a* vertical section of an apothecium, *b* upper part of excipule, *c* terminally hyaline, hooked hair of exciple with a club-shaped, hollow base in Phloxine B, *d* hair of exciple in H_2O, *e* juvenile ascus in Phloxine B, *f* ascus in H_2O, *g* ascospore in H_2O. Scale bars: a 50 µm; b–g 5 µm.

Description:

All measurements and observations of microscopical sections of recently collected and air-dried ascomata were done in tape water. K was added to test a reaction of the ascoma wall. Phloxin 1% in water was added for better contrasting the hollow base of the excipule hairs.

A p o t h e c i a : cupulate, hemispherical, 100–170 µm in diam., up to 100 µm high; nearly cleistohymenial, with narrow punctiform or slit-like ostiolum, disc brown, rarely visible, margin of exciple persistently incurved, dirty white due to dense hairs on the exciple, ascomata sessile to nearly stipitate, gregarious, 1–5(–12) on superficially unhealthy (roughened) peridia of *Celothelium lutescens*.

E x c i p l e : in section whole exciple medium brown, 10–15 µm, K-, textura globosa to angularis at base (medular exciple sensu ZHUANG 1988) and at the inner side of the lateral exciple, cells thin-walled, 3–5(–7) µm in diam., outer side of uprising lateral (ectal) exciple of periclinal, septate, slightly undulating hyphae, with units of 6–14 × 2–3 µm, forming a textura intricata, terminally turning into abundant hairs, covering the outer side of the exciple from margin to base (Fig. 2a).

H a i r s : 18–37 µm long, the base wide, brown, with central lumen, upper 2/3 hyaline, with coiled or crooked, extruded acute apex without lumen (Fig. 2b–d).

H y m e n i u m : hyaline, 30–40 µm high, subhymenium indistinct.

P a r a p h y s e s : scattered, filiform, 1–1.5 µm, with free ends, not exceeding the ascus ends.

A s c i : cylindrical to subclavate (Fig. 2e, f), wall KI-, I-, 26–32 × 4.8–6 µm, uniformly thick, ascoplasma KI (+) very discrete blue, with 8 irregularly to obliquely positioned ascospores.

A s c o s p o r e s : oblong to long ellipsoid, hyaline, (4.8–)7–8 × 1.2–1.4(–1.5) µm, n = 28, with obtuse ends, containing 2–4 fine oil droplets (Fig. 2g).

C o n i d i o m a t a : not seen.

Habitat and distribution: *Unguiculariopsis stenospora* was found on the host perithecia on the west side of an old *Prunus avium* trunk. Accompanying lichen species observed: *Caloplaca obscurella* (J. LAHM) TH. FR., *Candelariella efflorescens* R. C. HARRIS & W. R. BUCK agg., *Coenogonium pineti* (ACH.) LÜCKING & LUMBSCH, *Hyperphyscia adglutinata* (FLÖRKE) H. MAYRHOFER & POELT, *Lepraria incana* (L.) ACH. agg., *Phlyctis argena* (ACH.) FLOT., *Physcia tenella* (SCOP.) DC. It is only known from the type location.

Discussion

This is the first parasitic fungus on *Celothelium lutescens*, an inconspicuous, facultatively lichenized pyrenomycete on shadowed parts of stems of mostly old *Prunus*, mainly *P. avium*; the host can be found in colline to submontane mixed deciduous forests (BERGER & APTROOT 1998). In the investigated area, *C. lutescens* is abundant on nearly all trees of *Prunus avium* with a breast circumference of more than 60 cm. *Celothelium lutescens* is visible as dispersed black, dull, roundish ascomata on cinnamon-coloured dots on bark and has no obligate connection to algae, and consequently no structured lichenized thallus, but *Trentepohlia* algae are found irregularly around the perithecia. So, it is not classified a true lichen.

Unguiculariopsis species have a lichenicolous or fungicolous lifestyle on ascomycetes. The genus was monographed by ZHUANG (1988). In the meanwhile, more species were recognized and some transferred from or to other genera (ALSTRUP & HAWKSWORTH 1990, KONDRATYUK & al. 1994, ETAYO & DIEDERICH 1996, ZHUANG & WANG 1998, DIEDERICH & ETAYO 2000, ZHUANG 2000, KONDRATYUK & GALLOWAY 2005, ETAYO & SANCHO 2008, ETAYO & TRIEBEL 2010, BRACKEL 2011, ZHUANG 2014, KONDRATYUK & al. 2016, ETAYO 2017). Now it contains 30 species, 14 lichenicolous and 16 fungicolous, the latter predominately on pyrenomycetes. Discriminating interspecific features are their predominantly specific host choice, the size of ascomata, form, length and shape of hairs, presence or absence of lumina in the outermost part of the hairs,

presence of external granula on the hairs, texture and size of the exciple, form and size of asci and ascospores. Respecting the new taxon, nearly all species have particularly bigger ascomata, and all have thicker ascospores, wider than 1.5 µm.

Unguiculariopsis stenospora has the smallest ascomata in the genus. Its size is comparable only with *U. lucaniae* BRACKEL and *U. helmutii* S. Y. KONDR., L. LŐKÖS & HUR, both lichenicolous on discomycete lichens, the former on *Lecidella elaeochroma* (ACH.) M. CHOISY, with ascomata of 100–200 × 100 µm, an orange to reddish brown, K+ darkening exciple, and wider ascospores of 5–6 × 2–2.6 µm, the latter on *Rinodina*, with ascomata diameter of (90–)130–140(–150) µm, and ascospores 6–7 × 1.5–2.2 (–2.5) µm, mainly differing in straight, short hairs. *Unguiculariopsis stenospora* has the narrowest ascospores (1.2–1.5 µm) in the genus. *Unguiculariopsis ahtii* D. HAWKSWORTH, D.J. GALLOWAY & S.Y. KONDR. and *Protounguicularia fasciculata* (ETAYO) ETAYO (= *Unguiculariopsis f.* ETAYO), both lichenicolous on tropical *Pseudocyphellaria* sp. with ascospores 1.5–2 µm wide, have much larger ascomata.

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