

ABOUT *LASIOSPHAERIA* S.L. (4) NEW SPECIES IN THE GENUS *ECHINOSPHAERIA* A.N. Mill. & Huhndorf

BERNARD DECLERCQ

Molenbergstraat 1, 9190 Stekene

Summary

In this fourth contribution about *Lasiosphaeria* s.l. two new species, *Echinosphaeria curvatispora* sp. nov. and *Echinosphaeria latispora* sp. nov., are presented. A dichotomous key to the Western European species of the genus *Echinosphaeria* is added.

Samenvatting

In deze vierde bijdrage tot de *Lasiosphaeria* s.l. worden twee nieuwe soorten, *Echinosphaeria curvatispora* sp. nov. en *Echinosphaeria latispora* sp. nov., voorgesteld. Een determinatiesleutel tot de West-Europese soorten van het genus *Echinosphaeria* is hieraan toegevoegd.

Introduction

This fourth paper related to *Lasiosphaeria* s.l. focuses on *Echinosphaeria* A. Mill. & Huhndorf (Helminthosphaeriaceae). This genus is characterised by superficial, globose to ovoid ascomata covered by thick-walled, mostly aseptate, pale brown to reddish brown setae, asci without subapical globulus, and allantoid to geniculate, hyaline to pale brown spores.

During the study of freshly collected material, two new species could be identified.

Up to now all known Western European species were saprobes taken from woody substrates. However, one *E. canescens* (Pers.) A.N. Mill. & Huhndorf collection was herbicolous (see under material studied). A probable *Echinosphaeria* collection, found on reed (coll. G. Van Ryckegem 126, GENT), was in too poor condition to allow further examination.

Abbreviations used:

IKI- = without any reaction in Lugol's solution; * = living state of cell, † = dead state.

Echinosphaeria curvatispora Declercq sp. nov. (Fig. 1).

Mycobank MB 814041.

Diagnosis: Differs from *Echinosphaeria canescens* by its more curved and distinctly shorter ascospores $17-19.5 \times 4-5 \mu\text{m}$ which may sometimes become uniseptate.

Type collection: Belgium, Prov. Luxemburg, Resteigne, Ruisseau de Passe-Brebis, IFBL J6.54.22, $50^{\circ}2'45''\text{N}$ $5^{\circ}11'52''\text{E}$, 435 m, on a thick decorticated branch of *Fagus sylvatica* lying on moist ground, 25.viii.2007, B. Declercq 07/083 (BR, holotype).

Etymology: referring to the curved ascospores.

Perithecia superficial, gregarious, ovoid, 0.35-0.4 mm diam. by up to 0.5 mm high, covered by dark brown setae, glabrous papilla, black.

Asci cylindrical-clavate, 8-spored, apical apparatus IKI-, † $101 \times 10.5 \mu\text{m}$.

Ascospores cylindrical, with obtuse ends, curved to strongly curved forming an angle ranging from 90° to

135° , mature spores $\dagger 17-19.5 \times 4-5 \mu\text{m}$, $Q_{av} = 4$, with several small guttules (dimensions and guttule pattern of living spores unknown), smooth, hyaline and aseptate; over mature ascospores aseptate or 1-septate, pale brown.

Interthecial filaments tapering, longer than the asci.

Peridial wall in surface view of thick-walled, dark brown textura globulosa-angularis.

Setae tapering, with acute tip, up to $350 \times 17-20 \mu\text{m}$, thick-walled, aseptate, smooth, pale brown.

Anchoring hyphae few, flexuous, with blunt apex, otherwise similar to the setae.

Discussion

The collection is in poor condition so that I was unable to explore the full variability of the specimen. This collection was previously misidentified (see Declercq 2009 – fig. 3A & 4A) as *E. canescens*. However this new species differs from the latter by its shorter and more curved ascospores. *E. canescens* is described and illustrated hereafter for comparison.

Echinosphaeria canescens (Pers.) A.N. Mill. & Huhndorf (Fig. 2).

Perithecia superficial, gregarious, ovoid, 0.3-0.5

mm diam., covered by dark brown setae, glabrous papilla, black.

Asci cylindrical-clavate, with truncate apex, stalked, 8-spored, apical apparatus IKI-, apical ring $3 \mu\text{m}$ wide by $1 \mu\text{m}$ high, $117-142 \times 10.5-13 \mu\text{m}$.

Ascospores allantoid to geniculate in the middle, with rounded ends, mature ascospores $*20-28(-32) \times 4-5(-5.5) \mu\text{m}$, $Q_{av} = 5.5$, guttulate, smooth, hyaline and aseptate; overmature ascospores 0(-1)-septate and pale brown.

Interthecial filaments slightly tapering, longer than the asci, base $5 \mu\text{m}$ diam.

Peridial wall surface of dark brown textura globulosa-angularis.

Setae tapering, with acute tip, $85-460 \times 12-29 \mu\text{m}$, thick-walled, aseptate, smooth, reddish brown.

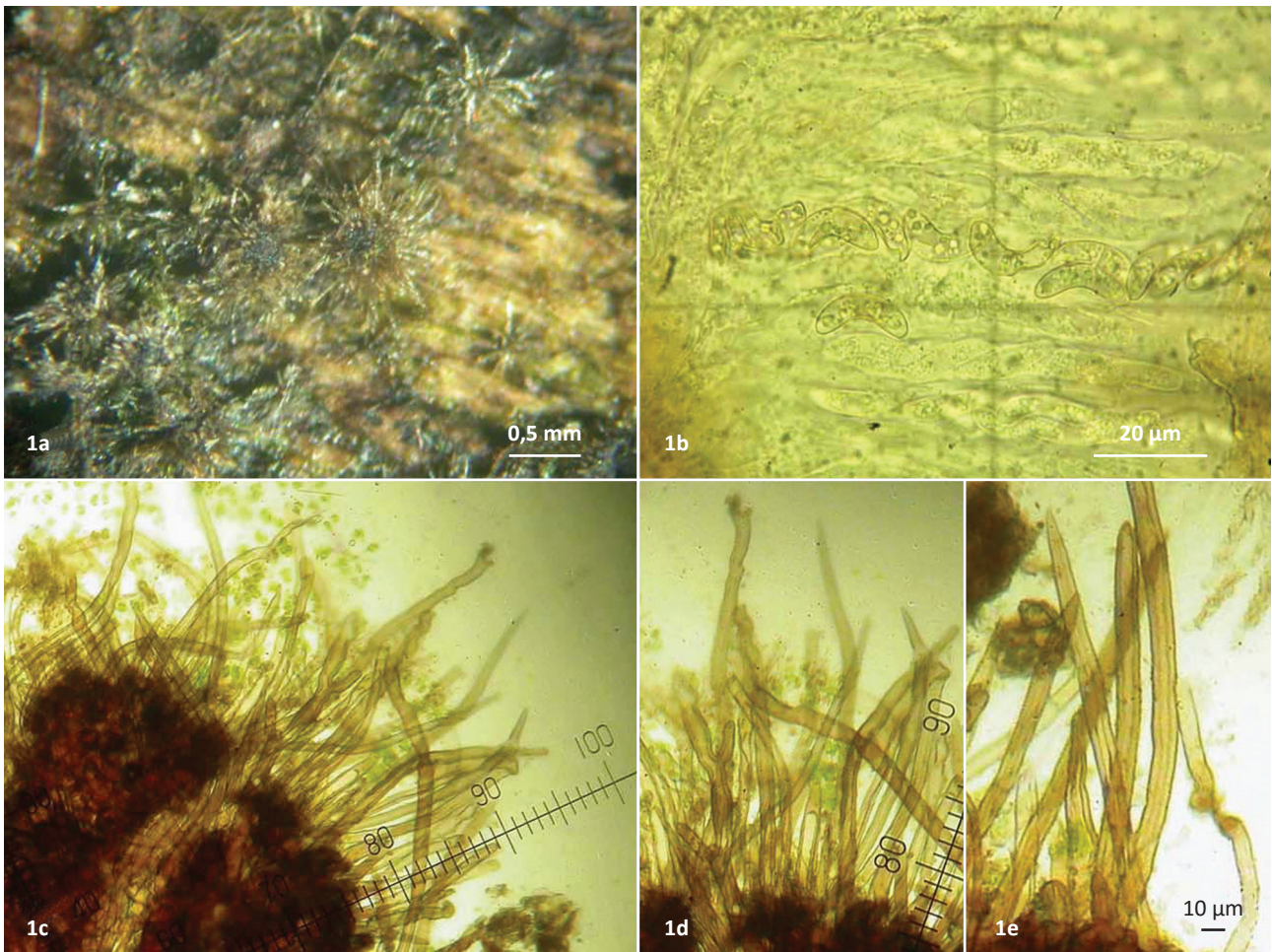


Fig. 1. *Echinospaeria curvatispora* (BD 07/083, holotype). **1a.** Ascomata. **1b.** Asci and ascospores (dead state). **1c-e.** Setae and anchoring hyphae. Scale: 1 unit = 10 µm.

Material studied: **Belgium:** Prov. Luxemburg, Vodelée, Moulin Bayot, IFBL J5.14.32, 50°10'22"N 4°43'11"E, 167 m, on decayed deciduous wood, 27.ix.2007, B. Declercq 07/109 (GENT); Prov. East-Flanders, East-Flanders, Stekene, Gelaag, IFBL C3.28.34, 51°12'9"N 4°2'57"E, 6 m, on decorticated branch of *Salix* sp., 04.iii.2013, B. Declercq 13/008 (GENT); Kemzeke, Stropersbos, IFBL C3.18.43, 51°14'20"N 4°3'44"E, 6 m, on decayed wood of *Salix cinerea*, 04.v.2013, B. Declercq 13/035 (GENT) – **The Netherlands:** Zeeland, Goeree, Preekhilpolder, 51°47'37"N 3°53'53"E, 2m, on stem of

Eupatorium cannabinum, 03.xi.2007, B. Declercq 07/122 (GENT).

Discussion

E. canescens is the most common species of the genus. All mentioned collections have ascomata with aseptate hairs. Munk (1957: fig. 35) presents an atypical septate seta in his drawing while Dennis (1981, fig. 12L) presents an aseptate one. On the other hand Ellis & Ellis (1985) mention ascospores of 30-40 × 4-5 µm which may be more appropriate for *Echinospaeria strigosa*.

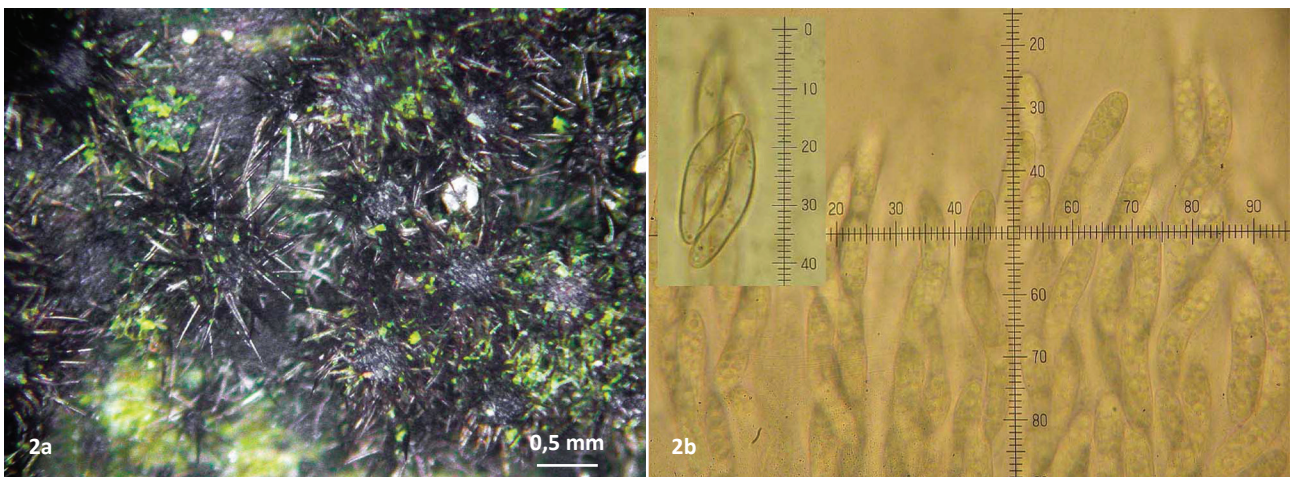


Fig. 2. *Echinospaeria canescens*. **2a.** Ascomata (BD 13/008). **2b.** Asci with mature and (above right) overmature ascospores (BD 13/008). Scale in µm.

Echinosphaeria latispora Declercq sp. nov. (Fig. 3).
 Mycobank MB 814042.

Diagnosis: Differs from *E. strigosa* by its much larger ascospores (35-)38-54 × 7-11(-13) μm and its mostly 4-spored asci.

Type collection: Belgium, Prov. East-Flanders, Sinaai, Heirnisse, IFBL C3.37.43, 51°10'13"N 4°0'15"E, 7 m, on rotten wood of *Populus × canadensis* on moist soil in a deciduous forest, 22.x.2013, coll. B. Declercq 13/097 (BR, holotype).

Etymology: referring to the wide ascospores.

Perithecia superficial, subglobose, tuberculate, 0.45-0.6 mm diam., covered by short pale brown setae. *Asci* clavate, with truncate apex, stalked, apical ring 3 × 1.5 μm, with 4 spores and 4 aborted spores, exceptionally with 8 spores, 113-138 × 22-28 μm. *Ascospores* allantoid with slightly tapering ends, mature spores *(35-)38-54 × (5-)7-11(-13) μm, aseptate, guttulate, smooth, hyaline; overmature ascospores pale brown, rarely 1(2-3)-septate. *Interthecial filaments* tapering, longer than the asci, multiseptate, base 6-8 μm diam. *Peridial wall surface* of dark brown textura globulosa-angularis. *Setae* acute, straight to curved, thick-walled, with narrow

lumen, aseptate, 70-110 × 10-13 μm, pale brown, intermixed with thick-walled, flexuous setae with blunt apex. *Anchoring hyphae* similar to the flexuous setae.

Discussion

E. latispora mainly differs from *E. strigosa* by its mostly 4-spored asci and 7-11 μm wide ascospores. This rare species can most probably be collected, just like the other *Echinosphaeria* species, all over the year. *Helminthosphaeria stuppea* is another very similar species, with thick spores that tend to have conical ends according Candousseau & al. (2001). While *E. latispora* prefers substrates on moist soil, *H. stuppea* is drought-tolerant and differs by its 8-spored asci and shorter, verruculose spores with a different guttule pattern.

Key to the Western European species of *Echinosphaeria*
A. N. Mill. & Huhndorf

- 1 Living ascospores up to 30(32) μm long, hyaline, turning pale brown and 0-1-septate with age 2
- 1' Living ascospores longer, hyaline, turning pale brown and 1(-2-3)-septate with age 3
- 2 Ascospores curved, forming an angle of 90°-135°, †17-19.5 × 4-5 μm; saprophytic on wood (*Fagus*); phen.: VIII *E. curvatispora*
- 2' Ascospores slightly curved to slightly geniculate, *21-28(32) × 4-5(-5.5) μm; saprophytic on wood

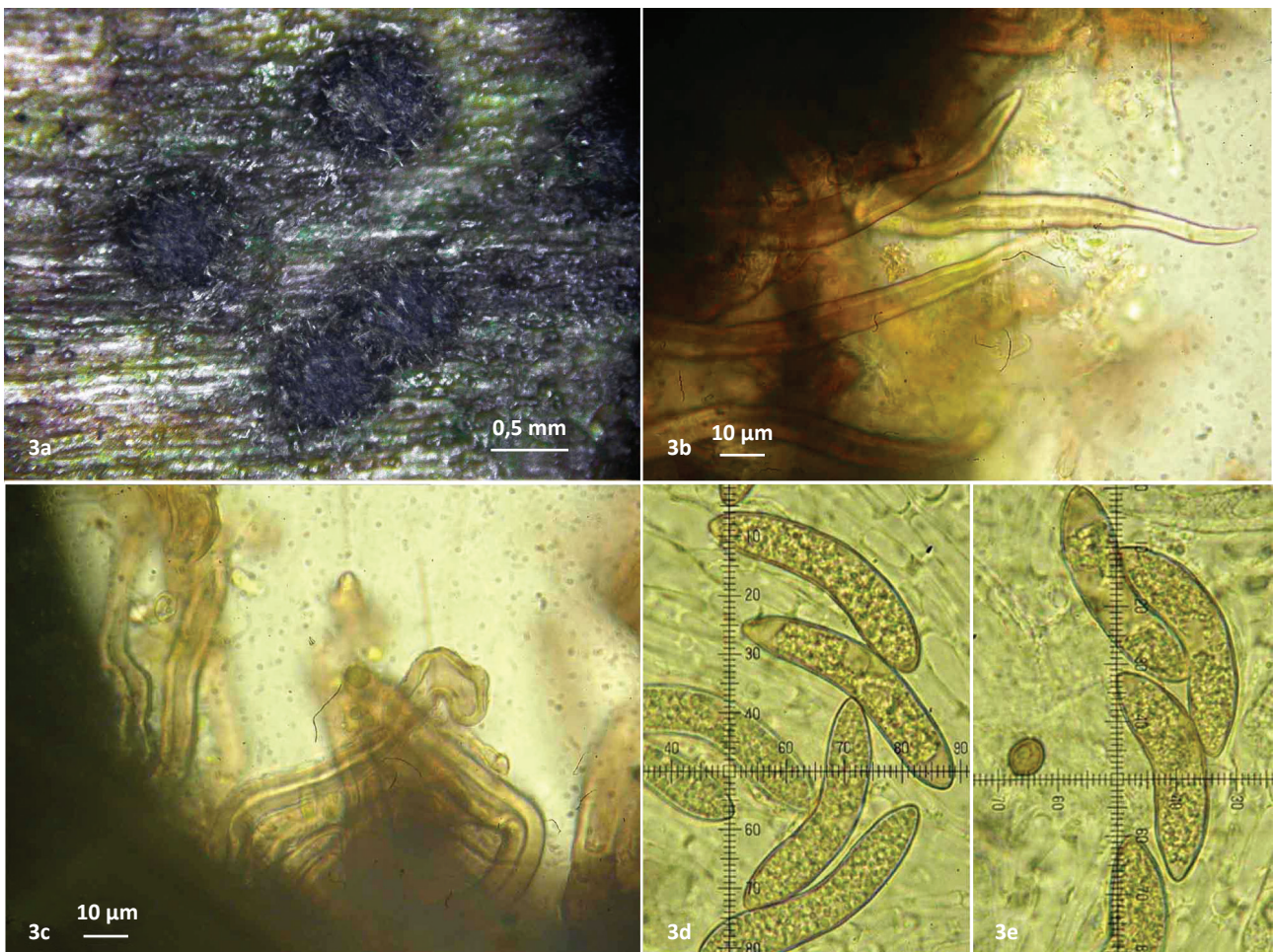


Fig. 3. *Echinosphaeria latispora* (BD 13/008, holotype). **3a.** Ascomata. **3b-c.** Setae. **3d-e.** Ascospores. Scale in μm.

(*Acer, Alnus, Fagus, Fraxinus, Quercus, Salix, Sorbus, Ulmus and Viburnum*) and herbaceous stems (*Eupatorium*); phen.: I-XII ***E. canescens***

- 3** Asci 8-spored; ascospores *30-38 × 5.5-7 μm, smooth to verruculose; on decaying wood (*Alnus, Populus, Salix*); phen.: I-XII ***E. strigosa***
- 3'** Asci with 4 ascospores and 4 aborted ascospores; ascospores *(35)38-54 × (5)7-11(13) μm, smooth; on decaying wood of *Populus*; phen.: IV-V,X ***E. latispora***

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