Cercosporoid fungi (*Mycosphaerellaceae*) 3. Species on monocots (*Poaceae, true grasses*)

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**Abstract:** The third part of a series of monographic treatments of cercosporoid fungi (formerly *Cercospora s. lat.*, *Mycosphaerellaceae*, *Ascomycota*) continues with a treatment of taxa on monocots (*Liliopsida; Equisetopsida, Magnoliidae, Lilinae*), covering asexual and holomorph species with mycosphaerella-like sexual morphs on true grasses (*Poaceae*), which were excluded from the second part. The species concerned are keyed out, alphabetically listed, described, illustrated and supplemented by references to previously published descriptions, illustrations, and exsiccate. A key to the recognised genera and a discussion of taxonomically relevant characters was published in the first part of this series. Several species are lecto- or neotypified. The following taxonomic novelties are introduced: *Cercospora barretoana* comb. nov., *C. cymbopogonica* nom. nov., *Cladosporium elymi* comb. nov., *Passalora agrostidicola* sp. nov., *P. brachyeltri* comb. nov., and *P. dichanthii-annulati* comb. nov.

**Key words:**

Ascomycota

*Cercospora s. lat.*

*Liliopsida*

Gramineae

hyphomycetes

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### INTRODUCTION

The taxonomy of cercosporoid fungi (*Cercospora s. lat., sensu* Chupp 1954), especially the circumscription of genera in this complex, has long been problematic. It has been subjected to many changes in recent decades, due to subjective assessments of morphology. The emergence of molecular phylogenetic methods and their application to the taxonomy of cercospora-like fungi has led to a better understanding of the importance of morphological and biological traits as well as more stable generic concepts (Crous et al. 2013a, Groenewald et al. 2013). Cercosporoid fungi are worldwide in distribution and embrace a wide range of asexual morphs, asexual holomorphs and species with mycosphaerella-like sexual morphs (*Mycosphaerella s. str.* is now a heterotypic synonym of *Ramularia*, see Braun et al. 2013), which are mostly leaf-spotting plant pathogens. Numerous species cause serious diseases on cultivated plants (crops, ornamental plants, forest trees) in agriculture and forestry. The only comprehensive treatment of this fungal complex (Chupp 1954) has become obsolete. Braun et al. (2013) initiated a project to produce a modern monograph of *Cercospora* and allied genera (*Mycosphaerellaceae*), through a series of monographic papers rather than by a comprehensive treatment in a single opus. A first contribution reviewed aspects of the taxonomy of cercospora-like fungi (history, taxonomic value of traits, circumscriptions of genera, key to genera) and dealt with cercosporoids on fungi, ferns and gymnosperms (Braun et al. 2013). The second part of this series encompassed a treatment of species occurring on monocot families (Braun et al. 2014), but excluding taxa on true grasses (*Poaceae*). The species of cercosporoid fungi on *Poaceae* are treated in the present contribution, which follows the principles outlined in previous parts of this series.

### MATERIAL AND METHODS

The present work is a compilation based on papers and our unpublished data, as well as global literature. Details on methods are given in the papers cited. As far as new examinations are concerned, fungal structures have been examined with standard methods of light microscopy, using an Olympus BX50 microscope, with distilled water and lactic acid as media, but without any staining. If possible, measurements of 30 conidia and other structures have been made at a magnification of ∼1000. All illustrations have been prepared by the first author. The following abbreviations are used: author names follow Brummit & Powell (1992), journals Bridson (2004a, b), and exsiccatea http://www.botanischestaatsammlung.de/DatabaseClient/IndExs/index.jsp (IndExs – Index of Exsiccatea). Taxonomy and
nomenclature of plant families, genera and species are based on the “Angiosperm Phylogeny Website” (http://www.mobot.org/mobot/research/apweb/), Tropicos database (http://www.tropicos.org/), and The Plant List (http://www.theplantlist.org).

**TAXONOMIC TREATMENT**

**Cercosporoid species on Poaceae (Gramineae, true grasses)**

**Cercospora**

**Key to Cercospora species on Poaceae**

1. Conidia at least partly in chains ........................................................................................................... 2
   Conidia consistently solitary ...................................................................................................................... 7

2 (1). Conidia solitary, rarely forming short chains, acicular to obclavate-cylindrical,
   (15–)25–120(–320) × (1.5–)2.5–5.5 µm; on Sorghum spp. ......................................................... C. sorghi var. ciccaronei
   Conidia frequently in chains, not acicular; on other hosts ................................................................. 3

3 (2). Conidiophores very long and rather broad, 100–275 × 4–6 µm, to 20-septate;
   conidia very broad, 3–7.5 µm wide, but hila narrower, 1–1.5 µm;
   on Eremochloa bimaculata, Australia ................................................................. C. eremochloae
   Conidiophores much shorter, less than 100 µm, narrower and only 0–7-septate;
   conidia narrower, 1.5–5 µm wide; on other hosts ................................................................. 4

4 (3). Stromata lacking or almost so; conidiophores rather long, 25–215 × 3–5 µm, 0–7-septate;
   conidia 2–4.5 µm wide, hila 1.5–2.5 µm wide; on Rottboellia cochinchinensis, Africa ..................... C. rottboelliae
   Stromata developed and/or conidiophores much shorter, to 100 µm, and/or conidia narrower,
   1.5–3 µm, and hila only 1–2 µm wide ................................................................. 5

5 (4). Conidia (2.5–)3–5.5(–6) µm wide; on various hosts of the Panicoideae ....................................... C. barretoana
   Conidia narrower, 1.5–3 µm wide (on hosts of Panicoideae) or 1.5–4 µm wide
   (on Agrostis and Sphenopholis, Pooideae, Aveneae, in North America) ........................................ 6

6 (5). On numerous hosts of genera belonging to Panicoideae, almost worldwide ......................... C. fusimaculans
   On Agrostis and Sphenopholis spp. (Pooideae, Aveneae), North America ............................................ C. agrostidis

7 (1). Conidial shape variable, narrowly subcylindrical, subacicular to somewhat cylindrical-obclavate,
   fusiform, very narrow, 30–100 × 1–2 µm, hila narrow, 0.5–1.5 µm; loci of conidiogenous cells minute,
   1–1.5 µm; on Digitaria spp., Africa, Oceania, South America ......................................................... C. digitariae
   Conidia and hila broader; loci mostly larger than 1.5 µm diam; on other hosts .................................. 8

8 (7). Conidiophores very short, 5–20 × 2–4 µm, aseptate; conidia narrowly filiform-acicular,
   30–90 × 1.5–2.5 µm; conidiogenous loci and hila minute, 1–1.5 µm diam;
   on Dactyloctenium ............................................................... C. tessellata
   Conidiophores much longer and/or septate or conidiogenous loci broader;
   conidia consistently acicular or acicular to obclavate-cylindrical or
   uniformly obclavate-cylindrical or cylindrical, hila mostly broader; on other hosts ....................... 9

9 (8). Conidia obclavate, cylindrical, base obconically truncate, at most some conidia subacicular,
   but acicular conidia with truncate base lacking ................................................................................. 10
   Conidia consistently acicular (C. api complex) or at least partly acicular, i.e. ranging from
   acicular to obclavate-cylindrical (often only younger and/or smaller conidia obclavate-cylindrical,
   base of the conidia truncate to obconically truncate) .................................................................... 28

10 (9). Conidia relatively broad, 4–9 µm wide, average ≥ 5 µm ......................................................... 11
   Conidia narrower, (1.5–)2–5(–6) µm wide, average < 5 µm ......................................................... 14

11 (10). Conidiogenous loci minute, 0.5–1.5 µm diam; conidia (10–)15–65(–85) × 3–6.5 µm,
   hila 1–2 µm wide; on Oryza (Ehrhartoideae, Oryzeae) ................................................................. C. janseana
Conidiogenous loci broader, more than 1.5 µm; conidia longer, at least partly more than 100 µm, 4–9 µm wide, hila larger, 2–3 µm diam; on hosts belonging to Panicoideae, Andropogoneae (Saccharum, Zea) .............................................................................................................. 12

12 (11) On Saccharum spp. ......................................................................................................................................................................................................... C. longipes
On Zea mays ........................................................................................................................................................................................................ 13

13 (12) Conidiophores 40–180 µm long; conidia broadly obclavate-cylindrical, 30–100 × 4–9 µm;
cultures not slow-growing, forming a red pigment (cercosporin) ........................................................................................................ C. zeae-maydis
Conidiophores to about 100 µm in length; conidia broadly fusiform; cultures slow-growing, without formation of red pigments (cercosporin) [morphologically barely distinguished from C. zeae-maydis, but genetically clearly differentiated] ........................................................................... C. zeina

14 (10) Conidia, to 150 µm, average > 50 µm (on Eragrostis, Ischaemum, Miscanthus, Paspalum, Cenchrus (including Pennisetum), Setaria) ............................................................................................................................................................................. 15
Conidia relatively short, 15–65 µm long, average < 50 µm (on other hosts) ........................................................................................................................................................................... 20

15 (14) Stromata small, little developed; conidiophores in relatively small fascicles, 2–15;
on Echinochloa, Ischaemum, Paspalum, Cenchrus, including Pennisetum and Setaria (Panicoideae) ........................................................................................................................................................................................................ 16
Stromata well-developed, large, to 80 µm diam; conidiophores numerous, to 30 per fascicle;
on Eragrostis or Miscanthus ......................................................................................................................................................................................... 19

16 (15) Conidiophore 0–1-septate; on Ischaemum australe or Cenchrus spicatus [Pennisetum glaucum] ........................................................................................................................................................................... 17
Conidiophores 0–4-septate; on Echinochloa or Setaria .......................................................................................................................................................................... 18

17 (16) Conidia obclavate-cylindrical, but long conidia may be almost acicular;
on Cenchrus spicatus [Pennisetum glaucum], India ........................................................................................................................................................................................... C. typhoides
Conidia consistently obclavate; on Ischaemum australe, Australia ........................................................................................................................................................................................................ C. ischaemi

18 (16) Conidiophores short, 8–45 µm; on Paspalum and Setaria .............................................................................................................................................................................................................. C. setariae
Conidiophores longer, 10–80 µm; on Echinochloa ............................................................................................................................................................................................................ C. echinochloae

19 (15) Conidiophores long, (15–)40–120 µm, 1–7-septate; on Miscanthus, Taiwan ......................................................... C. miscanthi
Conidiophores shorter, 15–30(–50) µm, 0–1(–2)-septate; on Eragrostis brownii, New Zealand .................. C. eragrostidis

20 (14) Conidiogenous loci minute, 0.5–1.5 µm diam; conidia 3–6.5 µm wide, hila 1–2 µm wide; on Oryza ............ C. janseana
Conidiogenous loci larger, 1.5–2 µm, and/or conidia narrower, 2–5 µm ................................................................................. 21

21 (20) Conidiophores 0–1-septate; on Cymbopogon or Erharta ............................................................................................... 22
Conidiophores pluriseptate, at least partly with two or more septa ......................................................................................................... 23

22 (21) Conidiophores 28.5–70 µm long, 1-septate; conidia 1–10-septate; on Cymbopogon, India ........ C. cymbopogonicola
Conidiophores shorter, 15–30(–40) µm, 0(–1)-septate; on Erharta, New Zealand .................................................. C. microlaenae

23 (21) Stromata well-developed, large, 20–300 µm diam; conidiophores long, 30–160 µm;
on Chusquea (Bambusoideae, Bambuseae) .......................................................................................................................................................................................... C. chusqueae
Stromata lacking or small, 10–30 µm diam; conidiophores shorter, to 80 µm;
on hosts of other subfamilies ................................................................................................................................................................................ 24

24 (23) Conidiophores 10–60 µm long, 0–1-septate; on Bothryochloa saccharoides ...................................................... C. bothryochloae
Conidiophores with to 4 septa; on other hosts .............................................................................................................................. 25

25 (24) Conidiophores rather robust, broad, 10–80 × 3–8 µm, mostly pale, subhyaline, yellowish or pale to medium olivaceous-brown; on Echinochloa ........................................................................................................................................................................................................ C. echinochloae
Conidiophores narrower, 2–5 µm wide, pigmentation usually darker; on other hosts ........................................... 26

26 (25) Stromata lacking or almost so; on Zizania (Ehrhartioideae, Oryzeae) ................................................................. C. zizaniae
Stromata to 30 µm diam; on Cynodon or Sporobolus (Chloridoideae) .................................................................................................................. 27
27 (26) On Cynodon (Chloridoideae, Cynodonteae), India ......................................................... C. cynodontis
On Sporobolus (Chloridoideae, Eragrostideae), North America ........................................... C. seriata

28 (9) Conidia acicular to obclavate-cylindrical, base truncate to obconically truncate ........................ 29
Conidia consistently acicular, base truncate ........................................................................... 35

29 (28) Conidiophores relatively short, 10–67 µm, 0–1(–2)-septate; conidia mostly obclavate-cylindrical;
on Bromus spp. or Cenchrus spicatus [Pennisetum glaucom] .................................................. 30
Conidiophores plurisepitate (about 3–20 or even more); acicular conidia abundant .................. 31

30 (29) Conidiophores cylindrical or only somewhat geniculate; conidia 2.5–5 µm wide;
on Cenchrus spicatus [Pennisetum glaucom], India ............................................................... C. typhoides
Conidiophores distinctly, often strongly geniculate; conidia narrower, 1–3.5 µm wide;
on Bromus, North America ................................................................................................. Cercospora sp.

31 (29) Stromata well-developed, to 50 µm diam; conidiophores rather long, 25–300 µm,
conidiogenous loci minute, 1–1.5(–2) µm diam; conidia to 260 µm long; on Eleusine, Asia ............ C. eleusines
Stromata lacking or very small, to 20 µm diam; and/or conidiogenous loci 1.5–2 µm diam or
even larger; on other hosts .................................................................................................... 32

32 (31) Stromata 10–50 µm diam; conidiophores (10–)20–150(–220) × (2.5–)3–6.5(–7) µm;
conidiogenous loci and conidal hila 1.5–3 µm diam; on Sorghum ................................. C. sorghi and C. sorghicola
Stromata lacking or very small, to 20 µm diam; conidiogenous loci and hila 1.5–2 µm diam or,
if larger, conidiophores very long, to 800 µm ..................................................................... 33

33 (32) Conidiophores very long, 20–800 µm; conidia 30–300 µm long; conidiogenous loci (1.5–)2–3 µm;
on Festuca, North America ................................................................................................. C. festucae
Conidiophores much shorter, to 160 µm; conidiogenous loci 1.5–2 µm diam; on other hosts .......................................................... 34

34 (33) Conidia 20–80 µm long, hyaline, subhyaline to very pale olivaceous;
on Bouteloua and Chondrosus spp., North America ............................................................. C. boutelouae
Conidia longer, 40–235 µm long, consistently hyaline; on Rottboellia spp., Asia, South America .... C. rottboelligena

35 (28) Conidiophores consistently short, 6–28 µm long, pale olivaceous-brown; conidia narrow,
30–130 × 2–3 µm; on Oplismenus ................................................................. C. opilsmeni
Conidiophores much longer, 20–240 µm long, and darker, and/or conidia wider, 2–5 µm wide;
on other hosts ..................................................................................................................... 36

36 (35) Conidiophores short, 15–50 µm long; on Coix or Secale ...................................................................... 37
Conidiophores much longer, > 50 µm long ............................................................................. 38

37 (36) Leaf spots circular to elliptical, 1–5 mm diam; on Coix, India ............................................................... C. coicis
Leaf spots oblong, forming narrow lines, 0.5 mm wide or larger lesions to 35 × 3 mm; on Secale ............................................. C. secalis

38 (36) Stromata lacking or very small; conidiophores long, to 250 µm long;
conidiogenous loci relatively large, 2–4 µm; on Bromus and Cenchrus (including Pennisetum) ........ 39
Stromata larger, 10–50 µm diam, and/or conidiophores much shorter, about 20–150 µm long;
and/or conidiogenous loci smaller, 2–2.5 µm diam; and/or conidia shorter, (15–)20–50(–100) µm ............................................. 40

39 (38) Conidia to 240 µm long; on Cenchrus (including Pennisetum) spp. .................................................. C. penniseti
Conidia shorter, to about 120 µm long; on Bromus inermis ..................................................... Cercospora sp.

40 (38) Conidia relatively short, (15–)20–50(–100) µm long; on Secale ......................................................... C. secalis
Conidia longer, 15–155 µm long; on Aristida or Arthraxon spp. .................................................... 41

41 (40) Leaf spots oval to oblong, 0.5–2 mm in length; on Aristida spp., North America ................ C. aristidae
Leaf spots circular to angular, 2–5 mm diam; on Arthraxon spp., India ...................................... C. arthraxonis
Tabular key to Cercospora species on Poaceae

The species are listed in form of a tabular key based on host genera in alphabetical order.

On *Agrostis* .......................................................... C. agrostidis

On *Aristida* .......................................................... C. aristidae

On *Arthraxon* .......................................................... C. arthraxonis

On *Avena* ......................................................... ?C. secalis

On *Beckeropsis* .................................................. C. fusimaculans

On *Bothriochloa* .................................................. C. bothryochloae

On *Bouteloua*
1 Conidia solitary .................................................. C. bouteloea
   Conidia catenate .................................................. ?C. fusimaculans

On *Brachiaria* ..................................................... C. fusimaculans

On *Bromus*
1 Conidia acicular, 3–4 µm wide; conidiophores 30–200 µm long, not or only slightly geniculate, conidiogenous loci and hila 2–3.5 µm diam .......................................................... C. apii s. lat.
   Conidia narrowly obclavate to acicular, shorter conidia sometimes fusiform, 1–3.5 µm wide; conidiophores shorter, 10–40 µm, distinctly, often even strongly geniculate, conidiogenous loci and hila 1–2 µm diam .................................................. *Cercospora* sp.

On *Cenchrus* (including *Pennisetum*)
1 Conidia catenate ............................................. C. fusimaculans
   Conidia solitary .................................................. 2

2 (1) Conidiophores 50–250 µm long, pluriseptate; conidia acicular .................................................. C. penniseti
   Conidiophores 17–67 µm long, 0–1-septate; conidia obclavate-cylindrical .................................................. C. typhoides

On *Chasmopodium* ............................................... C. fusimaculans

On *Chondrosus* .................................................. C. bouteloeae

On *Chusquea* ..................................................... C. chusqueae

On *Coix* ............................................................. C. coicis

On *Cymbopogon* ................................................ C. cymbopogonicola

On *Cynodon* ........................................................ C. cynodontis

On *Dactyloctenium* ............................................. C. tessellata

On *Digitaria*
1 Conidia solitary .................................................. C. digitariae
   Conidia catenate .................................................. C. fusimaculans

On *Echinochloa*
1 Conidia formed singly ....................................... C. echinochloae
   Conidia catenate .................................................. 2

2 (1) Conidia 1.5–3 µm wide ..................................... C. fusimaculans
   Conidia wider, (2.5–)3.5(–6) µm wide ....................... C. barretoana
Conidia solitary ................................................................................................................................................

Conidia catenate ....................................................................................................................................

On *Setaria* ....................................................................................................................................................................

On *Secale* ..........................................................................................................................................................

Conidia much shorter, < 100 µm long; conidia 1.5–3 µm wide

2 (1) Conidiophores 25–300 µm long, pluriseptate, conidiogenous loci 1–1.5(–2) µm diam;

conidia acicular to obclavate-cylindrical, 50–260 × 3–4 µm ................................................................. C. eleusines

Conidiophores very short, 5–20 × 2–4 µm, 0(–1)-septate; conidia narrowly filiform-acicular,

30–90 × 1.5–2.5 µm ...................................................... C. tessellata

On *Entolasia* ..................................................................................................................................................... C. fusimaculans

On *Eragrostis* .................................................................................................................................................. C. eragrostidis

On *Eremochloa* ........................................................................................................................................ C. eremochloae

On *Festuca* .................................................................................................................................................... C. festucae

On *Hordeum* .................................................................................................................................................. ?C. secalis

On *Hymenachne* ................................................................. C. barretoana

On *Ischaemum* ........................................................................................................................................... C. ischaemi

On *Miscanthus* ........................................................................................................................................... C. miscanthi

On *Muhlenbergia* ............................................................. C. muhlenbergiae (see Doubtful, excluded and insufficiently known species)

On *Opismenus*

1 Conidia catenate ................................................................................................................................. C. fusimaculans

Conidia solitary ............................................................................................................................... C. opismeni

On *Oryza* ..................................................................................................................................................... C. janseana

On *Panicum*  

1 Conidia 1.5–3 µm wide ...................................................... C. fusimaculans

Conidia wider, (2.5–)3–5.5(–6) µm wide ...................................................... C. barretoana

On *Paspalidium* ....................................................................................................................................... C. fusimaculans

On *Paspalum* ............................................................................................................................................... C. setariae

On *Pennisetum* see *Cenchrus*

On *Rottboellia* 

1 Conidia formed singly, acicular, 40–235 µm long, 3- to pluriseptate .................................................. C. rottboelliiigena

Conidia catenate ........................................................................................................................................ C. fusimaculans

2 (1) Conidiophores to 215 µm long; conidia 15–55 × 2–4.5 µm, 1–7-septate ............................................. C. rottboelliae

Conidiophores much shorter, < 100 µm long; conidia 1.5–3 µm wide ....................................................... ?C. fusimaculans

On *Saccharum* ...................................................................................................................................... C. longipes

On *Secale* .................................................................................................................................................. C. secalis

On *Setaria* 

1 Conidia catenate ................................................................................................................................. C. fusimaculans

Conidia solitary ........................................................................................................................................ C. setariae
On Sorghum
1 Conidia frequently catenate, 1.5–3 µm wide .......................................................... C. fusimaculans
Conidia solitary or only rarely catenate, broader, usually 2.5–5.5 µm wide ........................................... 2

2 (1) Conidia consistently solitary ................................................................. C. sorghi var. sorghi and C. sorghicola
Conidia mostly solitary, but occasionally in short chains ......................................................... C. sorghi var. ciccaronei

On Sphenopholis ............................................................................................................................... C. agrostidis

On Sporobolus ............................................................................................................................ C. seriata

On Stenotaphrum .......................................................................................................................... C. fusimaculans

On Triticum ........................................................................................................................................... ?C. secalis

On Urochloa ........................................................................................................................................ C. fusimaculans

On Zea
1 Conidia catenate ........................................................................................................... C. fusimaculans
Conidia solitary .................................................................................................................. 2

2 (1) Conidia acicular, narrow, < 5 µm wide .............................................................. C. apii s. lat. (C. sorghi var. maydis)
Conidia broadly obclavate-cylindrical to fusiform, 4–9 µm wide .................................................... 3

3 (2) Conidiophores 40–180 µm long; conidia broadly obclavate-cylindrical, 30–100 × 4–9 µm;
cultures not slow-growing, forming a red pigment (cercosporin) ......................................................... C. zeae-maydis
Conidiophores to about 100 µm long; conidia broadly fusiform; cultures slow-growing,
without formation of red pigment (cercosporin) [morphologically barely distinguished]
from C. zeae-maydis, but genetically clearly differentiated] ....................................................... C. zeina

On Zizania ............................................................................................................................................ C. zizaniae

List of Cercospora species on Poaceae

Cercospora agrostidis G.F. Atk., J. Elisha Mitchell
Sci. Soc. 8: 44 (1892).
(Fig. 1)

Literature: Saccardo (1892: 656), Vassiljevsky & Karakulin

Illustration: Braun & Mel’nik (1997: fig. 84).

Description: Leaf spots elliptical, about 3–5 mm long and
1–3.5 mm wide, centre ochraceous to pale brown, with
a narrow to broad, purplish violet to dull reddish brown margin
or halo. Caespituli amphigenous, punctiform, dark brown to
blackish, scattered. Mycelium internal. Stromata substomatal,
almost lacking or relatively small, 10–30 µm diam, brown,
composed of swollen hyphal cells, 2–6 µm diam, circular to
slightly irregular-angular in outline. Conidiophores in small to
moderately large fascicles, divergent to dense, arising from
stromata, through stomata, erect, straight, subcylindrical or
somewhat narrowed towards the apex to slightly geniculate-
sinuous, unbranched, 20–70(–125) × 3–5 µm, continuous to
plerisepitate, olivaceous, yellowish to medium brown, often
paler towards the tip, thin-walled, smooth; conidiogenous cells
integrated, terminal or conidiophores occasionally reduced to
conidiogenous cells, 10–35 µm long, conidiogenous loci
conspicuous, 1–2 µm diam, slightly thickened and darkened.
Conidia solitary or catenate, in simple chains, narrowly
cylindrical-obclavate, fusiform, straight to curved, (10–)20–
60 × 1.5–4 µm, (1–)2–5(–7)-septate, colourless, thin-walled,
smooth, apex subobtuse to subacute in solitary conidia,
conically truncate in catenate ones, base short to long
obconically truncate, 1–2 µm wide, hila somewhat thickened
and darkened.

Lectotype (designated here, MycoBank, MBT200446):
USA: Alabama: Lee County, Auburn, on Agrostis sp., 23 Jul.
1891, Newman & B. M. Duggar 2036 (CUP-A 2036#1(AL)).
Isolectotypes: CUP-A 2036#2(AL), CUP 40788.

Host range and distribution: Agrostis (gigantea, perennans,
scabra, Agrostis sp.), Sphenopholis obtusata, Poaceae
(Pooideae, Aveneae), ?Caucasus (Azerbaijan, Georgia),
North America (USA, Alabama, Idaho, North Dakota, Oklahoma).

Notes: Due to the colourless conidia, we prefer to maintain C.
agrostidis as a species of Cercospora s. str. since results of
molecular sequence analyses have shown that species with
thickened, darkened conidiogenous loci and conidial hila
combined with colourless conidia, irrespective of whether
they are formed singly or in chains, belong to Cercospora
s. str. (Braun et al. 2013). Based on morphological similarity
and re-examinations of type collections, Braun & Meńnik (1997) reduced Cercospora agrostidis to synonymy with Passalora fusimaculans. The latter species is almost circumglobal and undoubtedly confined to hosts of Passalora fusimaculans. The latter species is almost circumglobal and undoubtedly confined to hosts of Poaceae subfam. Poaceae. Cercospora agrostidis is confined to North America on a few species of Agrostis and Sphenopholis obtusata, two genera belonging in subfamily Pooidae (Aveneae). The two species are morphologically barely distinguishable, although C. agrostidis tends to have somewhat longer and wider conidia, but they are probably biologically distinct, occurring on unrelated grasses, and not conspecific. We prefer to follow Chupp (1954) and maintain two separate species. Cultures and results of molecular sequence analyses are necessary for a final taxonomic conclusion. The identity of collections from Azerbaijan and Georgia (Caucasus) are unconfirmed (Braun & Meńnik 1997).

Cercospora apii Fresen. s. lat. (sensu Crous & Braun 2003: 35).

(A) On Bromus inermis.

Notes: Cercospora collections on Bromus inermis and B. marginatus were previously referred to as “C. festucae” which is incorrect. The genera Bromus (Bromeae) and Festuca (Poeae) are not closely allied and belong to distantly related tribes of the Pooidae (Bouchenak-Khelladi et al. 2008). Material on Bromus marginatus was not available, but two North American samples on B. inermis were examined. One of them was a typical collection morphologically assignable to Cercospora apii s. lat. (USA, Texas, College Station, on Bromus inermis, Oct. 1949, M. D. Whitehead, BPI 436347): Conidiophores in small to moderately large fascicles, divergent to moderately dense, arising from small stromatic hyphal aggregations, erect, straight, subcylindrical or only slightly geniculate, unbranched, 30–200 × 3–6 μm, pluriseptate, pale to medium brown throughout or tips paler, occasionally subhyaline, thin-walled, smooth; conidigenous cells, integrated, terminal and occasionally intercalary, 10–40 μm long, with a single or only few conidiogenous loci, thickened and darkened, 2–3.5 μm diam; conidia solitary, acicular, 40–120 × 3–4 μm, 3–10-septate, hyaline, thin-walled, smooth, apex subacute, base truncate, 2–3 μm wide, thickened and darkened. The second sample is morphologically distinct (see Cercospora sp.).

(B) On Zea mays.

(Fig. 2)

Synonym: Cercospora sorghi var. maydis Ellis & Everh., J. Mycol. 3: 15 (1887) [lectotype (designated here, MycoBank, MBT200447): USA: Louisiana: Rapides Parish, on Zea mays, 23 Jul. 1886, A. B. Langlois 613 (BPI 441565); isolectotypes: BPI 441551, NY 838620].

Cercospora sorghi f. maydis (Ellis & Everh.) Sacc., Syll. Fung. 10: 656 (1892).

Notes: Chupp (1954) mentioned that Cercospora sorghi var. maydis from Zea mays is not able to infect Sorghum spp. and possibly represents a separate species. Results of molecular sequence analyses showed that sequences of Cercospora sorghi var. maydis from Africa and North America cluster with C. apii and C. beticola, respectively (Goodwin et al. 2001, Crous et al. 2006), i.e. C. apii s. lat. can be transmitted to maize. North American sequences clustered with C. apii s. str., i.e. C. sorghi var. maydis must be considered a synonym of the latter species, and a sequence from Africa with C. beticola, both belonging to C. apii s. lat. The differentiation between the two species is only possible on the basis of multilocal sequence analyses (Groenewald et al. 2006, 2010). Type material of C. sorghi var. maydis has been re-examined and is characterised as follows: Often on faded or necrotic leaves; caespituli scattered, punctiform, dark brown to blackish; mycelium internal; stromata lacking or small, brown, mostly substomatal; conidiophores in small fascicles, divergent, emerging through stomata, erect, straight, subcylindrical, not or only slightly geniculate near the apex, unbranched, 20–180 × 4–6 μm, 2- to pluriseptate,
pale to medium brown throughout or tips somewhat paler, thin-walled, smooth; conidiogenous cells integrated, terminal, with a single or only few conidiogenous loci, 3–4 µm diam, thickened and darkened; conidia solitary, acicular, 40–120 × 2–4.5 µm, pluriseptate, hyaline, thin-walled, smooth, apex subacute, base truncate, 2–3 µm wide, hila thickened and darkened.


(Fig. 3)


Illustration: Chupp (1954: 243, fig. 115).

Description: Leaf spots oval to oblong, 0.5–2 mm in length, olivaceous to brown with reddish brown margin. Caespituli amphigenous, but usually hypophyllous, punctiform, dark brown. Mycelium internal. Stromata substomatal, 10–50 µm diam, subglobose, brown to dark brown. Conidiophores in divergent fascicles, 5–20, arising from stromata, through...
stomata, erect, straight to curved, subcylindrical to flexuous or geniculate-sinuous in the fertile portion, unbranched, 20–125 × 4–6 µm, pluriseptate, uniformly medium to medium dark brown, thin-walled, smooth; conidiogenous loci 2–2.5 µm diam. Conidia solitary, acicular or subacicular, straight to curved, 40–120 × 2.5–4 µm, pluriseptate, hyaline, thin-walled, smooth, attenuated towards a pointed tip, base truncate or only slightly attenuated at the base, about 2 µm wide, hila somewhat thickened and darkened.

**Holotype:** USA: Alabama: Uniontown, on Aristida sp., Poaceae (Aristidoideae), 4 Sep. 1894, B. M. Duggar (CUP 39097).

**Host range and distribution:** Only known from the type collection.

**Note:** This species belongs to the *Cercospora apii* complex.


(Fig. 4)

**Literature:** Crous & Braun (2003: 67), Kamal (2010: 18).

**Illustration:** Patil & Sawant (1991: 16, figs 1–2).

**Description:** Leaf spots circular to angular, 2–5 mm diam. *Caespituli* amphigenous. *Mycelium* internal. *Stromata* substomatal, globose, pseudoparenchymatous, 30–45 µm diam, brown. *Conidiophores* fasciculate, divergent, arising from stromata, through stomata, erect, straight to curved, geniculate in the upper fertile portion, unbranched, 37–155 × 4.5–6 µm, narrowed and paler towards the tip, septate, brown, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci conspicuous, thickened and darkened. Conidia solitary, acicular, straight to curved, 15–155 × 3 µm, 4–15-septate, hyaline, thin-walled, smooth, apex subobtuse to pointed, base truncate, hila thickened and darkened.

**Holotype:** India: Maharashtra: Kolhapur, Amba, on Arthraxon hispidus, 15 Oct. 1985, M. S. Patil (HCIO 39889).

**Host range and distribution:** On Arthraxon hispidus, Poaceae (Panicoideae, Andropogoneae), Asia (India, Maharashtra).

**Notes:** This is undoubtedly a species of the *Cercospora apii* s. lat. complex. The conidia were described as “cylindric, attenuated towards the apex”, but the illustration clearly shows acicular ones.

**Cercospora barretoana** (U. Braun & Crous) U. Braun & Crous, **comb. nov.**

MycoBank MB811240

(Fig. 5)


**Synonyms:** Cladosporium pircularioides Deam. & House, *Circ. New York State Mus.* 24: 57 (1940), nom. inval.

**Fig. 4. Cercospora arthraxonis** (based on Patil & Sawant 1991: 16, figs 1–2). A. Conidiophore fascicle. B. Conidia. Bar = 10 µm.
Description: Leaf spots scattered, small, narrow, oval, fusoid to oblong, 0.5–3 mm long and to 1 mm wide, or 3–8 mm diam, yellowish brown, straw-coloured, reddish brown to dark brown, often surrounded by a pale yellowish brown to olivaceous-brown halo. Caespituli amphigenous, scattered, but not effuse, loose, pale brown. Mycelium internal, subcuticular; hyphae 2–4 µm wide. Stromata 10–45 µm diam, brown, composed of swollen hyphal cells, circular to angular in outline, 4–10 µm diam, pale yellowish brown, brownish, amber-coloured, smooth, walls slightly thickened. Conidiophores loosely fasciculate, 3–19, arising from stromata, erumpent, erect, straight to somewhat flexuous, unbranched, subcylindrical-filiform to somewhat genulate-sinuous, 20–180 × 3–6(–9) µm, 0–6-septate, not constricted at the septa, pale brown or olivaceous-brown, yellowish brown, sometimes paler towards the apex, wall thin to somewhat thickened, 0.5–0.8 µm, smooth or almost so; conidiogenous cells integrated, terminal or intercalary, occasionally conidiophores reduced to conidiogenous cells, 10–65 µm long, conidiogenous loci conspicuous, at first terminal, later lateral, on shoulders formed by sympodial proliferation, 2–10 per cell, 1.5–2(–3) µm diam, apex truncate to slightly convoluted, somewhat thickened and darkened. Conidia solitary or in unbranched chains, fusiform, ellipsoid, subcylindrical to obclavate, 9–70 × (2.5–)3–5.5(–6) µm, 0–4(–6)-septate, not constricted at the septa, hyaline or subhyaline, wall thin or only slightly thickened, 0.3–0.5 µm, smooth, apex rounded, attenuated to truncate, base truncate, 1–2 µm diam, hila somewhat thickened and darkened.


Host range and distribution: On Echinochloa (esculenta, polystachya), Hymenachne amplexicaulis, Panicum (boreale, Panicum sp.), Poaceae (Panicoideae, Paniceae), Asia (Thailand), North America (USA, New York, Wisconsin), South America (Brazil).

Notes: Due to the wider conidia, this species was originally described as a variety of Passalora fusimaculans. Based on several additional collections and clear morphological differences, it was later raised to species rank (Soares & Barreto 2006). Species with catenate, colourless conidia and thickened, darkened conidiogenous loci and conidial hila belong to Cercospora s. str. (see discussion under C. fusimaculans).

Cercospora bothriochloae U. Braun & Crous, Mycotaxon 92: 396 (2005) (Fig. 6)

Illustration: Braun & Crous (2005: 397, fig. 1).
**Holotype:** USA: Kansas; Meade County, near State Lake, on leaves of Bothriochloa saccharoides, Poaceae (Panicoideae, Andropogoneae), 18 Jun. 1957, C. T. Rogerson R3803 (NY 936943).

**Host range and distribution:** Only known from the type collection.

**Cercospora boutelouae** Chupp & H.C. Greene, *Farlowia* 1: 579 (1944).

(Fig. 7)

**Literature:** Chupp (1954: 244), Braun et al. (2002: 123), Crous & Braun (2003: 86).

**Description:** Leaf spots amphigenous, narrowly elliptical to oblong, 0.5–4 mm in length, pale brown to blackish, margin indefinite or with yellowish halo. Caespituli mainly hypophyllous, in lines, dark. Mycelium internal. Stromata lacking or small, composed of a few swollen hyphal cells, brown. Conidiophores fasciculate, 2–14, divergent, arising from internal hyphae or stromatic hyphal aggregations, erect, straight to curved, subcylindrical, unbranched, geniculate in the fertile apical portion, 20–100 × 3–6 µm, sparingly septate, pale to medium brown, somewhat paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, 10–30 µm long, conidiogenous loci thickened and darkened, 1.5–2 µm diam. Conidia solitary, acicular or subacicular to obclavate, straight to curved, occasionally sigmoid, 20–80 × 3–5 µm, 2–8-septate, hyaline.
to subhyaline (pale olivaceous), thin-walled, smooth, apex obtuse to subacute, base truncate or short to long obconically truncate, about 2–2.5 µm wide, hila thickened and darkened.

**Lectotype (designated here, MycoBank, MBT200448):**
**USA:** Wisconsin: Dane County, Madison, on *Bouteloua curtipendula* [racemosa], 26 Jul. 1943, H. C. Greene (CUP 39229). *Isolectotypes*: BPI 433803, WIS.

**Host range and distribution:** On *Bouteloua curtipendula*, *Chondrosus* (gracilis [Bouteloua gracilis], hirsutus [Bouteloua hirsuta]), *Poaceae* (Chloridoideae, Cynodonteae), North America (USA, Colorado, Illinois, Iowa, Oklahoma, South Dakota, Virginia, Wisconsin).

**Note:** A true *Cercospora* s. str. distinct from *C. apii* s.lat. by having obclavate conidia with obconically truncate base.


(Fig. 8)

**Description:** *Leaf spots* amphiogenous, formed as small specks, 0.5–1 mm diam, later forming long, narrow streaks, 2–30 × 0.5–1 mm, medium to dark brown, margin indefinite, but with yellow halo, surrounding tissue often becoming necrotic, finally large leaf segments or entire leaves discoloured, straw yellow. *Mycelium* internal. *Stromata* variable, almost lacking to well-developed, large, oblong, 20–300 µm long, dark brown to blackish. *Conidiophores* in moderately large to large fascicles, arising from stromata, divergent to dense, erect, straight to curved, cylindrical-filiform or slightly to distinctly geniculate-sinuous, unbranched, 30–160 × 3–5.5 µm, pluriseptate throughout, pale to medium dark brown or olivaceous-brown, paler towards the tip, wall thin to somewhat thickened, smooth; conidiogenous cells integrated, terminal and intercalary, 10–40 µm long, with a single or mostly several distinct conidiogenous loci, 1.5–2 µm diam. *Conidia* solitary, subcylindrical, obclavate-cylindrical, fusiform, straight to curved, rarely sinuous, 20–50 × 3–5 µm, 1–4(–5)-septate, hyaline, thin-walled, smooth, apex obtuse to subacute, base obconically truncate, 1.5–2 µm wide, hila somewhat thickened and darkened.

**Holotype:** Colombia: Lenquazaque, Cundinamarca, on *Chusquea* sp., *Poaceae* (Bambusoideae, Bambuseae), 1 Dec. 1940, A. Franko (CUP 39412).

**Host range and distribution:** Only known from the type collection.

**Note:** A true *Cercospora* s. str. distinct from *C. apii* s.lat. by its small, cylindrical, obclavate-cylindrical to fusiform, 1–4(–5)-septate conidia.

**Cercospora coicis** N.D. Sharma & Mishra, *J. Indian Bot. Soc.* 56: 131 (1977); as “coixii”.

(Fig. 9)


**Cercospora coicicola** Kamal, *Cercosporoid Fungi of India*: 35 (2010), nom. nov.

**Literature:** Crous & Braun (2003: 131), Kamal (2010: 35–36).

**Description:** Leaf spots amphigenous, circular to elliptical, 1–5 mm diam, with greyish brown to grey centre surrounded by a darker margin, brownish to red. Caespituli amphigenous. Mycelium internal. Stromata small, a few aggregated swollen cells to prominent, substomatal, 15–35 µm diam, brown. Conidiophores in divergent to sometimes dense fascicles, 2–10, arising from stromata, through stomata, erect, subcylindrical to geniculate, unbranched, 15–45 × 3–5 µm, 0–3-septate, brown or olivaceous-brown, thin-walled, smooth; conidiogenous cells intercalary or reduced to conidiogenous cells, conidiogenous loci thickened and darkened. Conidia solitary, acicular, shorter ones cylindrical or almost so, straight to somewhat curved, 15–125 × 3–5 µm, 3–13-septate, hyaline, thin-walled, smooth, apex pointed or subobtuse, base truncate or only slightly attenuated at the base, hila thickened and darkened.


**Host range and distribution:** On Coix lacryma-jobi (Panicoidae, Andropogoneae), Poaceae, Asia (India, Madhya Pradesh, Maharashtra).

**Notes:** Type material was not examined, but according to the original description and illustration (Crous & Braun 2003), this species may be a true Cercospora s. str. close to C. apii s. lat. Kamal (2010) examined type material and confirmed its position as a Cercospora species. He emphasized that the homonymous C. coicis M.S. Patil & Sawant was distinct from C. apii s. lat. by its smaller, broader, few-celled, almost cylindrical conidia and introduced the new name C. coicicola for this taxon. The latter species was probably based on immature material with relatively short conidia. Young, short, more or less cylindrical conidia were also described and illustrated for C. coicis. The two species are probably conspecific and Cercospora on Coix lacryma-jobi is treated as a single species.

**Cercospora cymbopogonicola** U. Braun, nom. nov. MycoBank MB811241 (Fig. 10)


**Literature:** Crous & Braun (2003: 382), Kamal (2010: 88).

**Illustration:** Govindu & Thirumalachar (1954: plate 8, figs 33–34).
Notes: Type material of *Cercospora sorghi* var. *cymbopogonis* could not be traced and is probably not preserved, but based on the original description this taxon is distinct from *Cercospora sorghi* by having much shorter and narrower conidia and warrants consideration as a distinct species. The relation to collections of "*C. sorghi*" on other *Cymbopogon* spp. from other parts of the world (see "host range" under *C. sorghi*) is unclear.


(Fig. 11)

*Description:* Leaf spots amphigenous, also on the leaf sheath, oblong-linear, scattered, 0.5–2 × 0.2–0.3 mm, brown, centre later grey to greyish white. *Caespituli* amphigenous. *Mycelium* internal. *Stromata* small, poorly developed, brown. *Conidiophores* fasciculate, 2–5, loose to moderately dense, erect, straight to somewhat geniculate-sinuous, unbranched, 20–55 × 3–5 µm, 0–2-septate, olivaceous-brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, conidiogenous loci probably somewhat thickened and darkened. *Conidia* solitary, obclavate-cylindrical to cylindrical, 17.5–65(–105) × 2.5–4 µm, 0–5-septate, subhyaline, thin-walled, smooth, apex obtuse, base obconically truncate, hila probably somewhat thickened and darkened.

*Types:* **India:** Uttar Pradesh: Varanasi, on *Cynodon dactylon*, 10 Oct. 1965, R. A. Singh, MSP No. 344 (K(M) IMI 129666 and HCII – syntypes).

*Illustration:* Pavgi & Singh (1971: 118, figs 8–10).

*Description:* Leaf spots amphigenous, also on the leaf sheath, oblong-linear, scattered, 0.5–2 × 0.2–0.3 mm, brown, centre later grey to greyish white. *Caespituli* amphigenous. *Mycelium* internal. *Stromata* small, poorly developed, brown. *Conidiophores* fasciculate, 2–5, loose to moderately dense, erect, straight to somewhat geniculate-sinuous, unbranched, 20–55 × 3–5 µm, 0–2-septate, olivaceous-brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, conidiogenous loci probably somewhat thickened and darkened. *Conidia* solitary, obclavate-cylindrical to cylindrical, 17.5–65(–105) × 2.5–4 µm, 0–5-septate, subhyaline, thin-walled, smooth, apex obtuse, base obconically truncate, hila probably somewhat thickened and darkened.

*Types:* **India:** Uttar Pradesh: Varanasi, on *Cynodon dactylon*, 10 Oct. 1965, R. A. Singh, MSP No. 344 (K(M) IMI 129666 and HCII – syntypes).
**Host range and distribution:** On *Cynodon dactylon*, Poaceae (*Chloridoideae*, *Cynodontieae*), Asia (India, Uttar Pradesh; Malaysia).

**Notes:** Type material of this species held at IMI was examined and found to be in poor condition and without conidia. Only a few conidiophores, as described in the original description and illustration were found. Detailed examinations of the conidiogenous loci were impossible. Syntype material deposited at HCIO was not available. This species requires leptotypification. The colourless conidia of this species indicate it belongs to *Cercospora s. str.*


(Fig. 12)

**Literature:** Crous & Braun (2003: 161), Kamal (2010: 41).

**Illustration:** Kranz (1966: 75, fig. 2).

**Description:** Leaf spots elliptical to rounded, 3–4 mm diam, brown, at first indistinct, finally often confluent. *Caespituli* amphigenous, punctiform, dark brown. *Mycelium* internal. *Stromata* substomatal, 10–30 µm diam, almost colourless to brown. *Conidiophores* in well-developed, large fascicles, 10–30, arising from stromata, through stomata, erect, straight, subcylindrical-conical to somewhat geniculate-sinuous, straight to curved, unbranched, 5–45 × 2–3 µm, usually aseptate, occasionally with a single indistinct septum, subhyaline to light brown, thin-walled, smooth; conidiophores usually reduced to conidiogenous cells, conidiogenous loci conspicuous, thickened and darkened, 1–1.5 µm diam. *Conidia* solitary, narrowly subcylindrical, subacicular to slightly cylindrical-obclavate or fusiform, straight to curved, occasionally sigmoid, 30–100 × 1–2 µm, 3–8(–11)-septate, hyaline, thin-walled, smooth, apex acute to subobtuse, base short obconically truncate, 0.5–1.5 µm wide, hila slightly thickened and darkened.

**Holotype:** Guinea: Kindia, on *Digitaria longiflora*, Jul. 1962, J. Kranz (K(M) IMI 95634).

**Host range and distribution:** On *Digitaria* (*abyssinica [mutica, scalarum], exilis, insularis, longiflora, stricta, Digitaria sp.*), Poaceae (*Panicoideae*, *Paniceae*), Africa (Guinea, Kenya, Nigeria, Uganda), Asia (India, Chandigarh), Oceania (New Caledonia), South America (Venezuela).

**Note:** A true *Cercospora s. str.* distinct from *C. api s. lat.*


(Fig. 13)


**Exsiccatea:** Davis, Fungi Wiscon. Exs. 14.
thickened and darkened, 1.5–2 µm diam. **Conidia** solitary, obclavate-cylindrical, straight to somewhat curved, 20–65(−95) × 2–5 µm, 0–7-septate, hyaline or subhyaline, with a pale greenish tinge (i.e. wall colourless, but content of the cells pale greenish), thin-walled, smooth, apex subacute or subobtuse, base truncate 1.5–2 µm wide, hila thickened and darkened.

**Lectotype** (designated here, MycoBank MBT200449): **USA**: Wisconsin: Sauk County, Devil’s Lake, on *Echinochloa crus-galli*, 9 Aug. 1913, J. J. Davis (BPI 436024). **Isolectotypes**: CUP 39736, WIS and Davis, Fungi Wiscon. Exs. 14, e.g. BPI 436026, 868177 and CUP.

**Host range and distribution:** On *Echinochloa* (colona, crus-galli, polystachya, *Echinochloa* sp.), *Poaceae* (Panicoideae, Paniceae), Asia (India, Uttar Pradesh; Papua New Guinea), Central and South America (Panama, Venezuela), North America (USA, Iowa, Kansas, North Dakota, Wisconsin), Oceania (Fiji, New Caledonia), West Indies (Cuba).

**Notes:** A true Cercospora *s. str.* distinct from *C. apii* *s. lat.* by having consistently obclavate-cylindrical conidia. Records on *Cyperus rotundus* are doubtful. Chupp (1954) mentioned that he examined a collection on *Echinochloa crus-galli* from North Dakota, which morphologically agreed with *C. sorghi*, while other material from Venezuela deviated by longer and narrower conidia.

**Cercospora eleusines** Munjal, Lall & Chona, *Indian Phytopathol.* 14: 181 (1961); as “eleusinis”. (Fig. 14)

**Literature:** Crous & Braun (2003: 173), Kamal (2010: 43).

**Illustration:** Munjal et al. (1961: 183, fig. 3).

**Description:** Leaf spots oblong, 2–8 × 0.5–2 mm, also at sheaths, centre greyish white, margin olivaceous-brown to dark brown. *Caespituli* hypophyllous. *Mycelium* internal. *Stromata* subglobose, small or to 50 µm diam, brown. *Conidiophores* in fascicles, few to numerous, divergent to dense, arising from stromata, erect, straight to curved, subcylindrical to geniculate-sinuous or subnodulose, unbranched, 25–300 × 4–5 µm, pluriseptate, brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, occasionally intercalary, 10–40 µm long, conidiogenous loci thickened and darkened, 1–1.5(−2) µm diam. *Conidia* solitary, acicular to narrowly obclavate-cylindrical, 50–260 × 3–4 µm, pluriseptate, hyaline, apex subacute to narrowly obtuse, base truncate to acicularly truncate, 1–2 µm wide, hila thickened and darkened.


**Host range and distribution:** On *Eleusine* (coracana, *Eleusine* sp.), *Poaceae* (Chloridoideae, Eragrostideae), Asia (India, Uttarakhand; Nepal, Thailand).

**Note:** This is a true Cercospora *s. str.* distinct from *C. apii* *s. lat.* by having smaller conidiogenous loci, 1–1.5(−2) µm wide, and acicular to narrowly obclavate-cylindrical conidia.

**Cercospora eragrostidis** McKenzie & Latch, *New Zealand J. Agric. Res.* 27: 113 (1984); as “eragrostis”. (Fig. 15)

**Literature:** Crous & Braun (2003: 175).
Illustration: McKenzie & Latch (1984: 114, fig. 1A).

Description: Leaf spots amphigenous, elliptical-linear, centre pale, margin pale brown. Caespituli hypophyllous. Mycelium internal; hyphae branched, septate, pale olivaceous, 2–3 µm wide. Stromata substomatal, 30–55 × 25–30 µm, medium brown. Conidiophores in well-developed fascicles, to 30, divergent to dense, erect, straight to flexuous, subcylindrical-conical to somewhat geniculate in the fertile portion, unbranched, 15–30(–50) × 3.5–5.5 µm, 0–1(–2)-septate, olivaceous-brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, polyblastic, sympodial, conidiogenous loci thickened and darkened, slightly prominent, 1.25–2 µm diam. Conidia solitary, obclavate-cylindrical, straight to usually somewhat curved, 30–120 × (2–)3–3.5(–4) µm, (0–)3–6(–8)-septate, hyaline, pink in mass, thin-walled, smooth, apex rounded to subacute, base short obconically truncate, 1.25–2 µm wide, hila somewhat thickened and darkened.


Host range and distribution: On Eragrostis brownei, Poaceae (Chloridoideae, Eragrostideae), New Zealand.

Note: A true Cercospora s. str. distinct from C. apii s. lat.
Cercospora eremochloae R.G. Shivas & A.J. Young, *Persoonia* 26: 111 (2011). (Fig. 16)

**Description:** Leaf spots amphigenous, narrowly elliptical, often elongated, to 7 cm long, 0.5–1.5 mm wide, smaller leaf spots vein-limited, centre orange to pale brown with darker reddish to purplish brown diffuse margin. *Caesiptili* hypophyllous, punctiform or inconspicuous, dark brown. *Myceum* internal. Stromata reddish brown, immersed, erumpent, usually substomatal, to 40 \( \mu \text{m} \) diam. Conidiophores in small, loose fascicles, 2–10, arising from stromata, usually through stomata, erect, geniculate-sinuous, unbranched to branched, 100–275 \( \times \) 4–6 \( \mu \text{m} \), somewhat attenuated towards the apex, pluriseptate (to 20), reddish brown, paler towards the tip, wall thin, smooth; conidiogenous cells integrated, terminal, sympodial, geniculate, mono- to polyblastic, conidiogenous loci thickened and darkened, 1–1.5 \( \mu \text{m} \) wide. *Conidia* solitary or in short branched or unbranched chains, cylindrical, ellipsoid, obovoid, obclavate, fusiform, straight or almost so, 10–35 \( \times \) 3–7.5 \( \mu \text{m} \), (0–)1–4(–6) septate, hyaline or subhyaline, smooth, apex rounded, base short obconically truncate, 1–1.5 \( \mu \text{m} \) wide, hila somewhat thickened and darkened-refractive.

**Holotype:** Australia: Queensland: Mareeba, on *Eremochloa bimaculata*, 30 Apr. 1987, J. L. Alcorn (BRIP 15782). Isotype: K(M) IMI 321201.

**Host range and distribution:** On *Eremochloa bimaculata*, Poaceae (*Panicoideae, Andropogoneae*), Australia (Queensland).

**Notes:** Due to at least partly catenate conidia and short, broad conidia with few septa, this species is passalora-like and resembles former *Phaeoramularia* species. Its position in *Cercospora s. str.* (Groenewald et al. 2013) was determined by means of molecular sequence analyses (ITS and LSU), which provides additional proof that passalora-like species with colourless conidia belong to *Cercospora*, even in rare cases when conidia are formed in chains.

Cercospora festucae Hardison, *Mycologia* 37: 492 (1945). (Fig. 17)

**Description:** Leaf spots oval to oblong, 0.5–4 mm in length, centre grey, margin purplish. Caespituli amphigenous, but mainly hypophyllous. Mycelium internal. Stromata lacking or only formed as small aggregations of a few swollen hyphal cells, brown. Conidiophores in small to moderately large, loose to dense fascicles, mostly 3–8, arising from internal hyphae or stromatic hyphal aggregations, erect, straight, subcylindrical to somewhat geniculate-sinuous, unbranched, 20–800 \( \times \) 3–5 \( \mu \text{m} \), with few to numerous septa, pale to medium olivaceous-brown, paler towards the tip; conidiogenous cells integrated, terminal, conidiophores rarely reduced to conidiogenous cells, about 10–30 \( \mu \text{m} \) long, conidiogenous loci thickened and darkened, 2–3 \( \mu \text{m} \) diam. Conidia solitary, acicular, shorter conidia subacicular, fusoid-obclavate, straight to curved, occasionally somewhat sigmoid, 30–300 \( \times \) 2–5 \( \mu \text{m} \), 3- to pluriseptate, hyaline, apex pointed, base truncate, subtruncate to short obconically truncate, (1.5–)2–3 \( \mu \text{m} \) wide, hila thickened and darkened.


**Host range and distribution:** On *Festuca arundinacea* [elatior], Poaceae (*Pooidae, Bromeae, Poeae*), North America (USA, Georgia, Kentucky, Mississippi, Oklahoma, Oregon, Texas).

**Notes:** This is a true *Cercospora s. str.* close to *C. apii s. lat.* The lengths of the conidiophores and conidia are variable, ranging from uniformly short to long conidiophores to 800 \( \mu \text{m} \), and conidia to 300 \( \mu \text{m} \). Short conidia may be narrowly

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Fig. 16. *Cercospora eremochloae* (K(M) IMI 321201, isotype). A. Conidiophores. B. Conidiophore tips. C. Conidia. Bar = 10 \( \mu \text{m} \).
obclavate-cylindrical, with truncate to obconically truncate bases. Collections on *Bromus inermis* and *B. marginatus* were previously referred to as *C. festucae*, which is incorrect. The genera *Bromus* (*Bromeae*) and *Festuca* (*Poeae*) are not closely allied. The two tribes belong to the *Pooideae* but they are only distantly related (Bouchenak-Khelladi et al. 2008). Material on *Bromus marginatus* was not available, but two collections on *B. inermis* from Texas were re-examined and found to belong to two different species, each morphologically distinct from *C. festucae* (see *Cercospora apii* [A] and *Cercospora* sp.). A record of *C. festucae* on *Bromus marginatus* from Japan (Katsuki 1966, Crous & Braun 2003) is also incorrect and can currently only be referred to as *C. apii* s. lat. Katsuki (1966) provided a description of this material: stromata none; conidiophores solitary or 2–3 stalks, medium olivaceous-brown near the base, paler and sometimes narrower toward the tip, almost straight, not branched, tips rounded, sparingly septate, 47–90 × 2–3um; conidia acicular, curved or undulate, indistinctly 2–7 septeate, base truncate, tip acute, hyaline, 21–54 × 2–3 um. A part of the material concerned had been sent to C. Chupp who considered it as a collection belonging to *C. apii* s. str. A sample maintained in Japan was recently re-examined by C. Nakashima, and found to be devoid of any conidiophores and conidia.


(Fig. 18)


*Illustrations:* Chupp (1954: 243, fig. 116), Vasudeva (1963: 112, fig. 72), McKenzie & Latch (1984: 114, fig. 1D), Ellis (1976: 260, fig. 197A), Hsieh & Goh (1990: 141, fig. 109, 144, fig. 110, as *Phaeoramularia* sp.), Guo et al. (2003: 145, fig. 91).

*Description:* Leaf spots amphigenous, oval, elliptical, fusiform to oblong or irregular, 0.5–4 × 0.5–2 mm, when oblong or confluent to 10 mm in length, centre brownish to dingy grey, margin reddish to dark brown, sometimes entire spots uniformly brown. *Caespituli* amphigenous, often epiphyllous, delicate to distinctly punctiform, scattered, dark. *Myceillum* internal; hyphae branched, septeate, 1.5–5 µm wide, subhyaline to pale olivaceous. *Stromata* lacking or almost so to developed, but not very large, immersed to substomatal, 10–35 µm diam, brown. *Conidiophores* in divergent to occasionally dense fascicles, 2–30, arising from internal hyphae or stromata, through stomata or erumpent, erect, straight, subcylindrical or somewhat attenuated towards the tip to moderately geniculate-sinuous, unbranched, 10–70(–100) × 2.5–4(–5) µm, 0–3(–4)-septate, subhyaline, pale olivaceous-brown to medium brown, pigmentation...
uniform throughout or paler towards the tip, thin-walled, smooth; conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 10–30 µm long, with conspicuous conidiogenous loci, 1–1.5(–2) µm diam, thickened and darkened. *Conidia* solitary or catenate, in simple chains, narrowly obclavate-cylindrical, subacicular, (10–)20–100 × 1.5–3 µm, 1–7-septate, colourless, thin-walled, smooth, apex subacute to subtruncate or conically truncate in catenate conidia, base subtruncate to short obconically truncate, 1–1.5 µm wide, hila slightly thickened and darkened.

**Lectotype (designated here, MycoBank, MBT200450): USA:** Alabama: Lee County, Auburn, on *Panicum dichotomum*, 15 Aug. 1891, B. M. Duggar 2054 (CUP-A-2054#1(AL)).

Host range and distribution: On *Brachiaria* (brizantha, decumbens, dicyoneura, eminii, fasciculata, humicola, jubata, reptans, ruiziensis, serrata, subquadripars [milliformia]), *Beckeroopsis* sp., *Cenchrus* (hordeoides *Pennisetum* hordeoides), *pedicellatus* [P. pedicellatum], *polystachion* [P. polystachyon], *purpureum* [P. purpureum], *spicatus* [P. glaucum], *Chasmopodium* (caudatum, Chasmopodium sp.), *Digitaria* (cognata [Leptoloma cognatum], insularis, ischaemum, abyssinica [scalarum]), *Echinocloa* (kolona, crus-galli), *Entolasia* marginata, *Ichnanthus* sp., *Opismenus* undulatifolius, *Panicum* (acuminatum [implicatum, pacificum], antidotale, boscii, clandestinum, dichotomiflorum, dichotomum, laetum, latifolium, laxiflorum [xalepense], leibergii, maximum, mertensii, millicum, oligosanthes [scriberianum], perlomum, plicatum [praecocius], portoricense [columbianum], virgatum, wilcoxianum, Panicum spp.). *Paspalidium* geminatum, *Rottboellia* cochinchenensis (exaltata), *Setaria* (barbata, homonyma [aequalis, lancea], plicata, pumila [pallidifusca]), *Sorghum* (bicolor, halepense), *Stenotaphrum* (pallens, secundatum), *Urochloa* panicoides [Panicum javanicum], *Zea mays*, *Poaceae* (*Panicoidae*) [unresolved records on *Bouchloe dactyloides* [Bouteloa dactyloides] and *Eleusine coracana*, *Chloroideae*), Africa (Botswana, Ethiopia, Ghana, Guinea, Ivory Coast, Kenya, Malawi, Nigeria, Rwanda, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe), Asia (Brunei, China, India, Japan, Korea, Malaysia, Papua New Guinea, Philippines, Taiwan, Thailand), Australia, Caucasus (Azerbaijan, Georgia), Central and South America (Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Nicaragua, Panama, Peru, Venezuela), Europe (France, Russia), New Zealand, North America (Mexico; USA, Alabama, Florida, Iowa, Idaho, Illinois, Kansas, North Carolina, North Dakota, Oklahoma, Oregon, Texas, Virginia, West Virginia, Wisconsin), Oceania (Fiji, Guam, New Caledonia, Palau, Samoa, Solomon Islands, Tonga, Vanuatu), and West Indies (Cuba, Dominican Republic, French Antilles, Guadeloupe, Jamaica, Martinique, Puerto Rico, Trinidad and Tobago, Virgin Islands).

Notes: Since the conidia of *C. fusimaculans* are colourless, we prefer to maintain this taxon as a species of *Cercospora s. str.* as results of molecular sequence analyses have shown that species with thickened, darkened conidiogenous loci and conidial hila combined with colourless conidia, irrespective of whether they are formed singly or in chains, belong to *Cercospora s. str.* (Braun et al. 2013). *Cercospora agrostidis* on *Agrostis* and *Sphenopholis* spp. (*Poaceae, Pooidaeae, Aveneae*) in North America, previously reduced to synonymy with *C. fusimaculans* (Braun & Mel’nik 1997, Crous & Braun 2003), is now at least tentatively maintained as a separate species (see comments under *C. agrostidis*). Hsieh & Goh (1990) described conidia to 200 µm long, but conidia longer than 100 µm have not been found in our examinations. *Rottboellia cochinchenensis* [*R. exaltata*] has been recorded as a host of *C. fusimaculans*. These records are doubtful and probably represent *C. rottboelliae.*
Cercospora ischaemi R.G. Shivás, Marney & McTaggart, Fungal Biol. (2014), http://dx.doi.org/10.1016/j.funbio.2014.09.004 (Fig. 19)

Illustration: Shivás et al. (2014: 4, fig. 2)

Description: Leaf spots amphigenous, linear to narrowly elliptoidal, bordered by parallel leaf veins, to 1 cm long and 1 mm wide, dark reddish brown to dark brown, with a narrow yellowish diffuse halo to 0.5 mm wide, scattered, of similar appearance on upper and lower leaf surfaces. Caespituli absent. Conidiophores erumpent through the cuticle, in loose fascicles of 2–5, erect, subcylindrical, sometimes geniculate, 10–40 × 3–5 μm, subhyaline to pale brown, thin-walled, smooth; conidiogenous cells terminal, subcylindrical, sympodial, hyaline, smooth, polyblastic; conidiogenous loci conspicuous, flat, circular, thickened and darkened, 1.5–2.0 μm wide. Conidia solitary, oblate, with a narrowly obconically truncate base and then attenuated towards the apex, 60–120 × 4–5 μm, 1–3-septate, hyaline, smooth, hila thickened and darkened-refractive, 1.5–2.0 μm wide.

In vitro: (in the dark, 23°C, after 4 wk): Colonies on potato-dextrose agar 5 cm diam, flat with scarce aerial mycelium, pale mouse grey with irregular pale and darker patches, margin irregularly crenate; reverse fuscous-black and paler towards the margin. On oatmeal agar 2.5 cm diam, flat with scarce aerial mycelium, pale mouse grey, zonate, faintly rosy-vinaceous towards the margin, reverse fuscous-black; on malt extract agar 3 cm diam, flat, radially wrinkled, margin entire, grey-olivaceous, reverse black.

Holotype: Australia: Northern Territory: Victoria River Downs, S 15° 36′ 05″, E 131° 12′ 49″, on leaves of Ischaemum australe, 20 Apr. 2012, R.G. Shivás (BRIP 56010, including ex-type strain).

Host range and distribution: On Ischaemum australe, Poaceae (Panicoideae, Andropogoneae), Australia (Northern Territory, Western Australia).

Notes: Cercospora ischaemi is known from the type collection and a second sample from Western Australia (BRIP 51367). A specimen (BRIP 4473) on Ischaemum australe from Queensland had comparable symptoms to C. ischaemi, but according to Shivás et al. (2014) morphological examination indicated the fungus differed and warranted further study. Cercospora ischaemi, together with C. eremochloae, are recently described species from native Australian tropical grasses (Crous et al. 2011). Cercospora coniogrammes (JX143583) on Coniogramme (Pteridaceae) from Australia had the highest genetical identity (96%, 496/518 identical base pairs) to C. ischaemi in a BLAST search of the ITS region of rDNA.


(Fig. 20)


Cercospora oryzae Miyake, Bot Mag. Tokyo 23 (267): 139 (1909) [holotype: Japan: Ehime: Agricultural Experiment Station, on Oryza sativa, Sep. 1907, I. Miyake (not traced, probably not preserved)].

Sphaerulina oryzina Hara, Diseases of the rice plant (Japan): 144 (1918) [holotype: Japan: Gifu: Kawaue, on Oryza sativa, 25 Oct. 1917 (not traced, probably not preserved)].


**Description**: Leaf spots amphigenous, linear or elliptical, 2–15 × 0.5–3 mm, paler to dark brown, paler towards the periphery or centre paler, margin indefinite or darker. Mycelium internal. Stromata lacking or small, about 10–20 µm diam, substomatal, brown. Conidiophores solitary or in small, loose fascicles, about 2–15, arising from internal hyphae or stromata, through stomata, erect, straight to curved, subcylindrical to geniculate-sinuous, sometimes strongly curved to sinuous, unbranched, length variable, occasionally uniformly short, 10–140(–160) × 3–6(–7) µm, continuous to pluriseptate (0–12), pale to medium brown, rarely darker, sometimes paler towards the tip, thin-walled, smooth; conidigenous cells integrated, terminal, occasionally reduced to conidigenous cells, about 10–40 µm long, conidigenous loci somewhat thickened and darkened, 0.5–1.5 µm diam. Conidia solitary, cylindrical to obclavate, straight to curved, (10–)15–65(–85) × 3–6.5 µm, (1–)3–5(–12)-septate, hyaline or subhyaline, thin-walled, smooth, apex obtuse to subacute, base obconically truncate, 1–2 µm wide, hilum somewhat thickened and darkened.

**Sexual morph**: Ascomata scattered to gregarious, immersed, 60–100 µm diam. Asci cylindrical-clavate, 50–60 × 10–13 µm, 8-spored. Ascospores fusoid, 20–33 × 4–5 µm, 3-septate, colourless.


**Host range and distribution**: On *Oryza* (barthii, latifolia, sativa, rufipogon), Poaceae (Ehrhartioideae, Oryzeae), widely distributed, Africa (Angola, Chad, Congo, Gabon, Gambia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Niger, Nigeria, Somalia, South Africa, Sudan, Tanzania, Togo, Zambia, Zimbabwe), Asia (Afghanistan, Bangladesh, Brunei, Cambodia, China, India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Syria, Taiwan, Thailand, Vietnam), Australia, Central and South America (Argentina, Bolivia, Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Panama, Suriname, Venezuela), North America (Mexico; USA, Alabama, Arkansas, Florida, Louisiana, South Carolina, Texas), Oceania (Fiji, Solomon Islands), and West Indies (Cuba, Dominican Republic, Haiti, Puerto Rico, Trinidad and Tobago, Virgin Islands).

**Notes**: Reports of this species on *Leptochloa mucronata* [filiformis] (Chloridoideae, Eragrostideae), *Cenchrus purpureus* [Pennisetum purpureum], *Coix lacryma-jobi*, *Imperata cylindrica*, *Panicum maximum* and *P. repens* (Panicoideae) are not conspecific with *Cercospora janseana* and probably belong to other *Cercospora* species with obclavate-cylindrical conidia. Type material of *Sphaerulina oryzina* could not be traced, but several other collections are deposited at NIAES.


**Illustrations**: Ellis (1976: 261, fig. 198A), Yen & Sun (1978: 395, fig. 1D–E), Hsieh & Goh (1990: 135, fig. 102), Guo et al. (2005: 122, fig. 83).

**Description**: Leaf spots amphigenous, oval to linear, at first narrowly oval and reddish, later elongated, with brown centre and yellowish halo, about 1–8 × 0.5–2 mm, sometimes confluent, forming larger reddish brown blotches, to 14 mm in length. *Caespituli* amphigenous, but mainly hypophyllous.
Mycelium internal. Stromata lacking or small aggregations of swollen hyphal cells, 10–25 µm diam, brown. Conidiophores in small to moderately large fascicles, to 18, usually divergent, arising from stromata, erect, straight, subcylindrical, geniculate, simple or rarely branched, 30–280 × 3–7 µm, pluriseptate, pale to medium dark brown throughout or paler towards the tip, wall thin to slightly thickened, smooth; conidiogenous cells integrated, terminal and intercalary, 10–50 µm long, with a single to mostly several conidiogenous loci, thickened and darkened, 1–2.5 µm diam. Conidia solitary, obclavate, straight to curved, 30–120 × 3–6(–7) µm, 3–10-septate, hyaline, thin-walled, smooth, apex subacute, base obconically truncate, 1.5–2 µm wide, hila thickened and darkened.


Host range and distribution: On Saccharum (officinarum, spontaneum), Poaceae (Panioidae, Andropogonae), widely distributed, Africa (Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Somalia, South Africa, Tanzania, Uganda, Zambia, Zimbabwe), Asia (Afghanistan, Bangladesh, India, Indonesia, Myanmar, Nepal, Papua New Guinea, Philippines, Sri Lanka, Taiwan, Thailand), Central and South America (Argentina, Brazil, Colombia, Costa Rica, Nicaragua, Panama), North America (Mexico; USA, Alabama, Florida, Louisiana), Oceania (Hawaii, Solomon Islands), and West Indies (Cuba, Dominican Republ., Jamaica, Puerto Rico, Virgin Islands).

Notes: Chupp (1954) reduced Cercospora longipes to synonymy with C. koepkei, but according to Deighton (1979: 22), C. koepkei is not the same as C. longipes. The latter species is a true Cercospora s. str. distinct from C. apii s. lat.

Cercospora microlaenae McKenzie & Latch, New Zealand J. Agric. Res. 27: 115 (1984). (Fig. 22)


Illustration: McKenzie & Latch (1984: 114, fig. 1B).

Fig. 21. Cercospora longipes (BPI 437895, neotype). A. Conidiophore fascicle. B. Conidiophore tips. C. Conidia. Bar = 10 µm.

Fig. 22. Cercospora microlaenae (PDD 43153, holotype). A. Conidiophore fascicles. B. Conidia. Bar = 10 µm.
Description: Leaf spots amphigenous, sometimes also on the leaf sheath, linear, forming black streaks, often vein-limited, becoming chlorotic around the spots, chlorosis may spread to cover the whole width of leaves, often dying from the tip downwards. *Caespituli* amphigenous. *Mycelium* internal; hyphae mainly composed of swollen cells, 2–5 mm wide, hyaline to pale brown, smooth. *Stromata* substomatal, 15–60 × 15–50 µm, pale to dark brown. *Conidiophores* in well-developed fascicles, to 30, divergent, arising from stromata, through stomata, erect, straight to flexuous, subcylindrical, fertile portion geniculate-sinuous, unbranched, 15–30(–40) × (3–)3.5–4 µm, 0(–1)-septate, pale olivaceous-brown, paler towards the tip, thin-walled, smooth; conidiophores usually reduced to conidiogenous cells, conidiogenous loci thickened and darkened, slightly prominent, 1.25–1.75 µm diam. *Conidia* solitary, obclavate-cylindrical, straight to curved, (20–)30–50(–70) × 2–2.5(–3) µm, (1–)4–6(–8)-septate, colourless, thin-walled, smooth, apex rounded, base short obconically truncate, 1–1.5 µm wide, hila thickened and darkened.


Note: A true *Cercospora* distinct from the *C. apii* s. lat. complex by having obclavate-cylindrical conidia with obconically truncate base.


(Fig. 23)


Illustrations: Hsieh & Goh (1990: 136, fig. 103), Guo et al. (2005: 123, fig. 84).

Description: Leaf spots amphigenous, elliptical, 3–20 mm diam, grey with purplish brown border. *Caespituli* amphigenous. *Mycelium* internal. *Stromata* lacking to well-developed, to 80 µm diam, dark brown. *Conidiophores* in divergent fascicles, (0–)2–20, arising from internal hyphae or stromata, erect, subcylindrical, unbranched, geniculate, (15–)40–120 × 4–6 µm, 1–7-septate, brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal and intercalary, with conspicuous conidiogenous loci, thickened and darkened. *Conidia* solitary, obclavate, straight to mostly curved at the apex, 40–100 × 3–4.5(–5) µm, 3–7-septate, hyaline, thin-walled, smooth, apex acute, base obconically truncate.


Host range and distribution: On *Miscanthus floridulus* [japonicus], Poaceae (*Panicoideae*, *Andropogoneae*), Asia (Taiwan).


(Fig. 24)


Illustration: Lall et al. (1962: 119, fig. 3).
Description: Leaf spots linear, 1–5 mm long, sometimes confluent, tan. Caespituli amphigenous. Mycelium internal. Stromata subglobose, dark brown, to about 45 µm diam. Conidiophores in small to larger, loose to dense fascicles, somewhat geniculate, irregular in width, unbranched, short, 6–28 × 3–6 µm, septate, pale olivaceous-brown; conidiogenous loci small, thickened and darkened. Conidia solitary, acicular, straight to curved, 30–130 × 2–3 µm, pluriseptate, hyaline, apex pointed, base truncate, hila thickened and darkened.

Holotype: India: Himachal Pradesh: Shimla (Simal), on Oplismenus sp., 7 May 1960, G. Lall (HCIO 27097).

Host range and distribution: On Oplismenus sp., Poaceae (Panicoideae, Paniceae), Asia (India, Himachal Pradesh).

Notes: A true Cercospora distinct from common C. apii s. lat. by uniformly short conidiophores and narrowly acicular conidia. Type material was not available for re-examination.
straight, subcylindrical, usually not or only once geniculate, unbranched, 50–250 × 4–6 µm, pluriseptate, distance between septa 10–25 µm, uniformly medium brown to dark olivaceous-brown, wall thin to slightly thickened, smooth; conidiogenous cells integrated, terminal, 10–30 µm long, conidiogenous loci thickened and darkened, with a single terminal locus or two, rarely several loci, 2.5–4 µm diam. Conidia solitary, acicular, straight to curved, 30–240 × 2–5 µm, pluriseptate, hyaline, thin-walled, smooth, apex acute or subacute, base truncate, 2–4 µm wide, hila thickened and darkened.


Host range and distribution: On Cenchrus (distachyus [Pennisetum distachyum], spicatus [Pennisetum glaucum], typhoides, Setaria glauca, orientalis [Pennisetum orientale], purpureus [Pennisetum purpureum]), Poaceae (Panicoidae, Paniceae), Africa (Malawi), Asia (India, Tamil Nadu, Uttar Pradesh; Japan), Central America (Costa Rica), and North America (USA, Georgia).

Notes: This species is part of the morphological Cercospora apii s. lat. complex. Material on Cenchrus distachyus from Costa Rica refers to an unpublished collection deposited as BPI 439319. Cercospora typhoides, described from India on Pennisetum glaucum, differs in having shorter, 0–1-septate conidia and mainly obclavate-cylindrical conidia. The identity of Indian records of C. pennisetii is unclear. It is possible that all of them belong to C. typhoides. Indian material was not available for examination. The record of C. pennisetii from Japan on Pennisetum glaucum (Katsuki 1966) is uncertain as material could not be traced. Katsuki’s (1966) description agrees with this species, except for much larger stromata, 48–60 × 30–48 µm.


(Fig. 26)


Illustrations: Kranz (1966: 81, fig. 7), Yen (1973: 113, fig. 6).

Description: Leaf spots amphigenous, elliptical-fusiform to irregular, 1–6 mm diam, at first pale brown, later darker brown, centre finally grey to greyish white, margin indefinite. Cæspituli amphigenous, but more abundant on the lower surface, indistinct or fine, dark to blackish brown. Mycelium internal. Stromata lacking or almost so, sometimes with small substomatal aggregations of a few swollen hyphal cells, brown. Conidiophores in loose fascicles, 2–8, arising from internal hyphae or swollen hyphal cells, through stomata, erect to decumbent, straight to distinctly geniculate-sinuous, unbranched, 25–215 × 3–5 µm, 0–7-septate, pale to medium brown, sometimes paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, occasionally intercalary, about 10–30 µm long, sometimes distinctly subdenticulate, conidiogenous loci thickened and darkened, 2–2.5 µm diam. Conidia catenate, in simple chains, cylindrical, subcylindrical to obclavate-cylindrical, straight to somewhat curved, 15–55 × 2–4.5 µm, 1–7-septate, hyaline, thin-walled, smooth, ends obtuse, rounded, truncate to short obconically truncate, 1.5–2.5 µm wide, hila somewhat thickened and darkened.
Holotype: Guinea: Kindia, on Rottboellia cochinchinensis, Aug. 1963, J. Kranz (K(M) IMI 102274).

Host range and distribution: On Rottboellia cochinchinensis [exaltata], Poaceae (Panicoideae, Andropogoneae), Africa (Gabon, Guinea, Ivory Coast).

Notes: The conidiogenous loci are thickened and darkened, and, due to the catenate conidia, this species was considered phaeoramularia-like and assigned to Passalora s. lat. (Crous & Braun 2003). Results of molecular sequence analyses has shown that passalora-like species with colourless conidia belong to Cercospora (Groenewald et al. 2013), which also applies to species with catenate conidia as recently demonstrated for C. eremochloae (see Shivas & Young, in Crous et al. 2011). Cercospora rottboelliae is at present better maintained as species of Cercospora, although sequence data is not yet available for this fungus. Cercospora rottboelliae is morphologically close to C. fusimaculans, which has also been recorded on Rottboellia spp., but differs in having longer conidiophores and shorter, broad conidia.

Yen (1975) introduced the new name Cercospora rottboelliae colla as replacement for C. rottboelliae J.M. Yen & Gilles, non Kranz, and cited material from the Ivory Coast. This material was preserved and has been re-examined (Ivory Coast, Abidjan, on Rottboellia cochinchinensis, 16 Feb. 1974, G. Gilles 101, PC).

Cercospora rottboelligena Y.L. Guo & Y. Jiang, Mycosystema 19: 447 (2000); as “rottboelligena”.

(Fig. 27)


Illustrations: Guo & Jiang (2000b: 447, fig. 2), Guo et al. (2005: 125, fig. 85).

Description: Leaf spots amphigenous, circular to oblong or irregularly shaped, 2–10 × 1–4 mm or confluent and larger, centre brown, on the upper side with darker brown border, paler below. Caespituli amphigenous, fine, brown. Mycelium internal. Stromata lacking or only formed as small stromatic aggregations of a few swollen hyphal cell, 10–20 μm diam, substomatal to intraepidermal, brown, cells to 6 μm diam. Conidiophores in small to moderately large fascicles, 2–15, arising from internal hyphae or stromatic hyphal aggregations, through stomata or erumpent, erect, straight, subcylindrical to strongly geniculate-sinuous, unbranched, (10–)25–160 × 3.5–6.5 μm, (0–)1–5-septate, medium brown, paler towards the tip, wall thin to slightly thickened, smooth; conidiogenous cells integrated, terminal and intercalary, 10–50 μm long, conidiogenous loci solitary to several, conspicuous, thickened and darkened, 1.5–2 μm diam. Conidia solitary, acicular or almost so to narrowly obclavate-subcylindrical, straight to somewhat curved, 40–235 × 2.5–4.5 μm, 3- to pluriseptate, hyaline, thin-walled, smooth, apex obtuse to subacute, base subtruncate to obconically truncate, 1.5–2 μm wide, hila thickened and darkened.

Fig. 27. Cercospora rottboelligena (HMAS 78800, holotype). A. Conidiophore fascicles. B. Conidiophore tips. C. Conidia. Bar = 10 μm.


Host range and distribution: On Rottboellia cochinchinensis [exaltata], Poaceae (Panicoideae, Andropogoneae), Asia (China, Guangxi), South America (Venezuela).

Note: A true Cercospora s. str. distinct from C. api s. lat. by having acicular to obclavate-cylindrical conidia with obconically truncate, narrower bases.


(Fig. 28)


Description: Leaf spots oblong, narrow lines, 0.5 mm wide or larger lesions to 35 × 3 mm, pale to dark brown, sometimes with yellowish halo. Caespituli amphigenous, punciform, blackish, scattered, mostly arranged in lines. Mycelium internal. Stromata small to medium in size, mainly substomatal, 10–50 μm diam, sometimes oblong, to 80 μm, brown, composed of swollen hyphal cells, circular to somewhat angular-irregular in outline, 2–7 μm
Conidiophores in small to moderately dense, arising from stromata, through stomata, divergent, erect, straight, subcylindrical to somewhat geniculate, unbranched, (15–)20–70(–100) × 3–5 µm, sparingly septate, uniformly pale to medium brown, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 10–40 µm long, conidiogenous loci conspicuous, thickened and darkened, (1.5–)2–3 µm wide. Conidia solitary, acicular, shorter conidia sometimes subcylindrical, straight to somewhat curved, 20–105 × 3–4.5 µm, pluriseptate, hyaline, thin-walled, smooth, apex subobtuse, base truncate to somewhat obconically truncate, (1.5–)2–2.5(–3) µm wide, hila thickened and darkened.

Host range and distribution: On Secale cereale, Poaceae (Pooideae, Triticeae), North America (USA, Illinois, Virginia).

Notes: This species belongs to the Cercospora apii s. lat. complex (Crous & Braun 2001: 330). The identity of records from Malawi and Papua New Guinea on Triticum spp., and reports on Avena sativa, Hordeum vulgare, and Triticum spp. from North America (USA, Illinois) (Crous & Braun 2003) are doubtful.


Leaf spots amphigenous, irregularly oblong, 1–3 × 0.5–1 mm, yellowish brown to dingy grey, margin usually darker, brown, sometimes with yellowish halo, finally sometimes entire leaves turning brown, necrotic. Caespitiuli amphigenous, punctiform, in lines, dark brown to blackish. Mycelium internal. Stromata small, 10–30 µm diam, substomatal to immersed, brown. Conidiophores in small to moderately large fascicles, loose to moderately dense, arising from stromata, through stomata or erumpent, erect, straight, subcylindrical or attenuated towards the tip to moderately geniculate-
sinuous, unbranched or rarely once branched, 10–50 × 2–5 
μm, 0–3-septate, pale to medium brown throughout or mostly 
paler towards the tip, occasionally subhyaline at the very tip, 
thin-walled, smooth; conidiogenous cells integrated, terminal 
or conidiophores reduced to conidiogenous cells, 10–30 μm 
long, conidiogenous loci thickened and darkened, 1.5–2 μm 
diam. Conidia obclavate-cylindrical, straight to somewhat 
curved, 20–65(–70) × 2–4 μm, 2–6-septate, hyaline, thin-
walled, smooth, apex obtuse, base short obconically truncate, 
1.5–2.5 μm wide, hila thickened and darkened.

Lectotype (designated here, MycoBank, MBT200452): 
USA: Alabama: Auburn, on Sporobolus asper, 7 Aug. 1891, 
Duggar & Newman 2009 (CUP-A 2009#1). Former 
syntype: CUP-A 2009#2 (from 24 Jul. 1891). Topotypes: CUP 41196, 
OSC 9905.

Host range and distribution: On Sporobolus (clandestinus 
[compositus var. clandestinus], compositus [asper], 
cryptandrus), Poaceae (Chloridoideae, Eragrostideae), North 
America (USA, Alabama, Oklahoma, Wisconsin).

Note: A true Cercospora s. str. distinct from C. apii s. lat. by 
having obclavate-cylindrical conidia.

Soc. 8: 50 (1892).

(Fig. 30)

Synonyms: Cercosporina setariae (G.F. Atk.) Hori, J. Pl. Prot. 
(Tokyo) 4: 1 (1917).

Cercospora setaricola Tehon & E.Y. Daniels, Mycologia 19: 
128 (1927) [holotype: USA: Illinois: McDonough County, 
Macomb, on Paspalum glaucum, 16 Aug. 1924, P.A. Young 
11542 (ILLS 11542); isotypes: CUP 41211, NY 945705; 
paratype: ILLS 7905].

Cercospora paspali W.W. Ray, Mycologia 36: 173 (1944) 
[holotype: USA: Oklahoma: Perkins, on Paspalum 
stramineum, 26 Aug. 1942 (CUP 33134); isotypes: BPI 439257, CUP 40469, MICH 15347, NY 937110].

Literature: Saccardo (1892: 655; 1972: 1384), Vassiljevsky 
& Karakulin (1937: 271–272), Chupp (1954: 253), Katsuki 
(1965: 34), McKenzie & Latch (1984: 115), Hsieh & Goh 

Illustrations: Chupp (1954: 250, fig. 118), McKenzie & Latch 
(1984: 114, fig. 1C), Hsieh & Goh (1990: 138, fig. 105), Guo 
et al. (2005: 126, fig. 86).

Description: Leaf spots amphigenous, oval to elliptical, 1–12 
× 0.5–2 mm, dark reddish brown or brown, later with grey 
centre, often confluent. Caespituli amphiogenous. Mycelium internal. Stromata small, substomatal, brown. Conidiophores in divergent fascicles, 2–15, arising from stromata, through stomata, erect, straight, subcylindrical to somewhat geniculate-sinuous, unbranched, 8–45 × 2–5 μm, rarely longer, continuous to septate, yellowish olivaceous to medium olivaceous-brown, often paler towards the tip, thin-
walled, smooth; conidiogenous cells integrated, terminal or 
conidiophores reduced to conidiogenous cells, about 5–25 μm 
long, conidiogenous loci conspicuous, somewhat thickened and 
darkened, 1–2 μm diam. Conidia solitary, narrowly obclavate- 
cylindrical, longer ones sometimes almost subacicular, straight 
to somewhat curved or slightly sigmoid, (20–)30–100(–150) × 
(1.5–)2–5(–6) μm, 1–13-septate, hyaline, thin-walled, smooth, 
apex subacute or subobtuse, base subtruncate to usually 
short to long obconically truncate, 1–2 μm wide, somewhat 
thickened and darkened.

Lectotype (designated here, MycoBank, MBT200453): USA: 
Alabama: Auburn, on Paspalum glaucum [Setaria glauca], 17 
Sep. 1891, B. M. Duggar (CUP-A 2120). Isolectotype: CUP 
41208.
Host range and distribution: On Paspalum (conjugatum, dilatatum, glaucum [lutescens, Setaria glauca], scrobiculatum, stramineum), Setaria (italica, palmifolia, parviflora [geniculata], poiretiana, pumila, sphenclata, viridis), Poaceae (Panicoidae, Paniceae), Africa (Guinea, Mauritius, Uganda), Asia (China, India, Japan, Korea, Russia, Taiwan), Caucasus (Georgia), Central and South America (Argentina, Brazil, Guatemala, Panama), Europe (Poland, Romania, Russia, Ukraine), New Zealand, North America (USA, Alabama, Florida, Iowa, Illinois, Kansas, Kentucky, Maryland, Michigan, Minnesota, New Hampshire, North Dakota, New York, Oklahoma, Pennsylvania, Texas, Virginia, West Virginia, Wisconsin).

Notes: A true Cercospora s. str. distinct from C. api s. lat. in having obclavate-cylindrical conidia. Records of C. setariae on Sporobolus cryptandrus from North America refer to C. seriata.

Cercospora sorghi Ellis & Everh., J. Mycol. 3: 15 (1887).

(Fig. 31)

var. sorghi


Description: Leaf spots amphigenous, mostly oblong, 2–16 × 0.5–5 mm, at first mostly dark purple to reddish, later with tan to brown centre, occasionally definite leaf spots lacking. Caespituli amphigenous. Mycelium internal. Stromata absent or almost so to well-developed, 10–50 µm diam, subglobose, brown to dark brown. Conidiophores fasciculate, 3–20, arising from internal hyphae or stromata, erect, straight, subcylindrical to geniculate-sinuous in the upper half, width sometimes somewhat irregular, unbranched, (10–)20–150(–220) × (2.5–)3–6.5(–7) µm, pluriseptate, medium dark brown or olivaceous-brown, somewhat paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, 10–65 µm long, conidiogenous loci conspicuous, thickened and darkened, 1.5–3 µm diam. Conidia solitary, acicular to obclavate or obclavate-cylindrical, straight to somewhat curved, (15–)25–120(–320) × (1.5–)2.5–5.5(–7) µm, 1–20-septate, hyaline, thin-walled, smooth, apex subacute, base truncate to obconically truncate, 1.5–5 µm wide, hila thickened and darkened.

Lectotype (designated here, MycoBank, MBT200454):

Host range and distribution: On Sorghum (=alum, arundinaceum [verticilliflorum], bicolor [dochna, roxburghii, vulgare], drummondii [=sudanense], halepense, propinquum), Poaceae (Panicoidae, Andropogoneae), widely distributed in the tropics and subtropics, Africa (Benin, Burkina Faso, Burundi, Cameroon, Central African Republ., Chad, Congo, Ethiopia, Gabon, Gambia, Ghana, Ivory Coast, Kenya, Malawi, Mauritius, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe), Asia (Bangladesh, Bhutan, Brunei,
Notes: A true Cercospora s. str. distinct from C. api s. lat. in the at least partly obclavate or obclavate-cylindrical conidia. Records of collections on other hosts than Sorghum spp. [Bothriochloa pertusa [Amphilophis pertusa, Andropogon pertusus], Cymbopogon nardus [afrorandus, validus], caesius [excavatus], citratus, schoenanthus], Echinochloa (crus-galli, hispidula, pyramidalis), Holcus lanatus, Hyparrhenia rufa, Panicum miliaceum, Cenchrus (spicatus [Pennisetum glaucum, cytophoides], purpureus [P. purpureum]), Setaria geniculata, Sporobolus sp., Thelepegon sp., Zea mays (see Crous & Braun 2003) are doubtful and unproven and seem to belong to other species. Records on Echinocloa spp. belong undoubtedly to C. echinocloae, collections on Cenchrus (including Pennisetum) spp. to C. pennisetii and those on Setaria geniculata and Sporobolus sp. to C. setariae. Records on Zea mays refer to Cercospora sorghi var. maydis, which is not conspecific with C. sorghi (see C. api). Available molecular sequence analyses support C. sorghi as a species of its own (Goodwin et al. 2001, Crous et al. 2006). Okori et al. (2004) examined populations of C. sorghi in Africa by molecular methods and showed that collections from wild and cultivated Sorghum spp. are indistinguishable based on AFLP and ITS data. They postulated that Cercospora on wild Sorghum spp. might be sources of inoculum to cultivated species. Cercospora sorgicola is a cryptic species described from Iran, which is morphologically barely distinguishable from C. sorghi, but genetically distinct (discussion see C. sorgicola).

Ellis & Everhart (1887) introduced Cercospora sorghi var. maydis. Chupp (1954) emphasized that this Cercospora from Zea mays does not infect Sorghum spp. and possibly represents a separate species, which is supported by results of molecular sequence analyses (Goodwin et al. 2001, Crous et al. 2006). Sequences of Cercospora sorghi var. maydis from Africa and North America cluster with C. api and C. beticina (Crous et al. 2006), i.e. C. api s. lat. can be transmitted to maize.


Illustration: Pons (1993: 5, fig. 2).
Notes: Cercospora collections on Bromus were previously assigned to *C. festucae*, which is incorrect. A sample of "*C. festucae*" on *Bromus inermis* from Texas was examined and found to be distinct from the latter species as well as from another collection on this host morphologically assigned to *C. api* *s. lat.* The first collection differed from *C. api* and *C. festucae* in having shorter, strongly geniculate conidiophores and narrower conidia, mostly obclavate with obconically truncate base, 1–2.5 µm wide: Lesions variable, ranging from small brown spots to often oblong to large discoloured patches, brownish to dingy grey, finally large leaf segments or almost entire leaves discoloured, necrotic; *caespituli* amphigenous, punctiform, scattered, dark brown; *mycelium* internal; *stromata* small or oblong, to 40 × 10 µm, substomatual, brown; *conidiophores* in small to moderately large fascicles, loose to dense, arising from stromata, through stomata, erect, straight to usually distinctly geniculate, often strongly so, unbranched, 10–40 × 3–6 µm, 0–1(–2)-septate, pale to medium olivaceous, brownish to yellowish brown, darker in mass, conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, usually with several conidiogenous loci, often aggregated near the apex, 1–2 µm diam, thickened and darkened; conidia solitary, narrowly obclavate to acicular, shorter conidia sometimes fusiform, 20–100 × 1–3.5 µm, shorter conidia usually 1–4-septate, longer ones pluriseptate, hyaline, thin-walled, smooth, apex acute to subobtuse, base truncate to short obconically truncate, 1–2 µm wide, thickened and darkened. This fungus is well characterized, but as it is currently only known from a single collection we refrain from introducing a formal description of this fungus as new species here.


(Fig. 33)

*Description:* Leaf spots oblong, 3–5 × 0.5–1 mm, dark brown to blackish, sometimes with bluish tinge. *Caespituli* hypophyllous, pustulate, arrangement linear. *Mycelium* internal. *Stromata* well-developed, substomatual, 20–50 µm diam, dark olivaceous-brown, composed of swollen hyphal cells, circular to slightly angular-irregular in outline. *Conidiophores* in small to moderately large fascicles, mostly dense, arising from stromata, through stomata, erect, straight, subcylindrical to conical, non-geniculate, unbranched, short, 5–20 × 2–4 µm, aseptate, rarely with a single basal septum, pale to dark olivaceous-brown, thin-walled; *conidiophores* usually reduced to conidiogenous cells, 1–3(–4) conspicuous conidiogenous loci, 1–1.5 µm diam, thickened and darkened. *Conidia* solitary, filiform-acicular, straight to curved, 30–90 × 1.5–2.5 µm, indistinctly 3- to pluriseptate, hyaline, thin-walled, smooth, apex subacute, base truncate to somewhat obconically truncate, 1–1.5 µm wide, hila slightly thickened and darkened.


*Host range and distribution:* On *Dactyloctenium aegyptium* [*Eleusine aegyptia*], *Eleusine* (coracana, jaegeri), Poaceae (*Chloridoideae, Eragrostideae*), Africa (Ethiopia, Kenya, Nigeria), North America (USA, Alabama).

*Note:* A true species of *Cercospora s. str.* distinct from *C. api* *s. lat.* by having short conidiophores and narrow conidia.


*Description:* Leaf spots amphigenous, at first visible as minute dark brown spots, later circular or elliptical, 1.5–4.5 ×
0.5–2 mm, longer axis parallel to veins, centre grey, margin purplish to brown. *Caespituli* amphigenous, punctiform, in parallel rows. *Mycelium* internal. *Stromata* lacking or small, with a few substomatal swollen hyphal cells, brown. *Conidiophores* in fascicles, arising from internal hyphae or stromatal aggregations, emerging through stomata, erect, straight, subcylindrical, occasionally subclavate to flexuous, distinctly geniculate-sinuous, unbranched, 40–180 × 4–8 µm, 0–1–8-septate, uniformly pale olivaceous to medium brown, thin-walled, smooth; conidiogenous cells integrated, terminal, occasionally intercalary, 10–40 µm long, often subclavate when terminal, conidiogenous loci conspicuous, thickened and darkened, 2–3 µm wide. *Conidia* solitary, broadly obclavate-subcylindrical, 30–100 × 4–9 µm, 1–10-septate, hyaline, thin-walled, smooth, apex obtuse, base obconically truncate, 2–3 µm wide, hila thickened and darkened.

**In vitro:** Colonies on PDA reaching 15–25 mm diam after 3 wk, forming ample spermatia. Colonies on MEA erumpent, with sparse aerial mycelium, margin smooth, but irregular, surface olivaceous-grey with irregular patches of white to smoke-grey, reverse iron-grey, colonies fertile. On OA colonies spreading with moderate aerial mycelium, margin smooth but irregular, surface red with patches
of white and pale olivaceous-grey, fertile. Formation of cercosporin (red pigment) observed (Goodwin et al. 2001, Crous et al. 2006).

**Host range and distribution:** On *Zea mays*, Poaceae (*Panicoideae, Andropogoneae*), Africa (Cameroon, Congo, Ethiopia, Kenya, Malawi, Mozambique, Nigeria, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe), Asia (India, China), Caucasus (Azerbaijan, Georgia), Central and South America (Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Panama, Peru, Venezuela), West Indies (Trinidad and Tobago), and North America (Canada, Mexico; USA, Alabama, Colorado, Delaware, Iowa, Illinois, Kansas, Kentucky, Maryland, Minnesota, North Carolina, Ohio, Pennsylvania, South Dakota, Tennessee, Virginia, Wisconsin, West Virginia).

**Note:** A true *Cercospora s. str.* distinct from *C. apiif s. lat.* by its broadly obclavate-cylindrical conidia, and molecularly established as separate species (Goodwin et al. 2001, Crous et al. 2006, Groenewald et al. 2013).
to dense, arising from internal hyphae or stromata, emerging through stomata, erect, straight, subcylindrical to flexuous, distinctly geniculate-sinuous, unbranched or occasionally branched above, 40–100 × 5–7 µm, 1–5-septate, uniformly pale olivaceous to medium brown, thin-walled, smooth; conidiogenous cells integrated, terminal, 40–60 × 5–6 µm, with several conspicuous conidiogenous loci, thickened and darkened-refractive, 2–3 µm diam. Conidia solitary, broadly fusiform, (40–)60–75(–100) × (6–)7–8(–9) µm, (1–)3–5(–10)-septate, hyaline, thin-walled, apex subobtuse, base subtruncate to obconically truncate, 2–3 µm wide, hila thickened and darkened-refractive.

In vitro: Colonies on PDA reaching 10–15 mm after 3 wk, forming spermogonia. On MEA erumpent, with sparse aerial mycelium, margin smooth, but irregular, surface olivaceous-grey with irregular patches of white or iron-grey, reverse iron-grey, colonies fertile. On OA colonies spreading with moderate whitish aerial mycelium, margin smooth but irregular, olivaceous-grey, fertile.


Host range and distribution: On Zea mays, Poaceae (Panicoideae, Andropogoneae), Africa (Kenya, Rwanda, South Africa, Uganda, Zambia, Zimbabwe), Asia (China), North America (USA, North Carolina, New York, Ohio, Virginia).

Notes: Besides obvious genetic differences, this species differs from Cercospora zeae-maydis in having shorter conidiophores, to about 100 µm in length, broadly fusiform conidia, and slow-growing cultures without formation of red pigments (cercosporin), but the differentiation between the two species just based on morphology is difficult. Cercospora zeae-maydis is the most common species on maize in North America, although C. zeina also occurs in the USA. Unambiguous identification requires molecular sequence analyses.

Cercospora zizaniae Thirum. & Govindu, Sydowia 7: 49 (1953).

(Fig. 36)


Illustration: Thirumalachar & Govindu (1953: pl. II, figs 9–10).

Description: Leaf spots linear, short to very long, to about 1 mm wide, to irregular, yellowish to brown, later confluent, forming long stripes or almost entire leaves becoming necrotic, margin indefinite. Caespituli mainly epiphyllous, finely punctiform to effuse, dark brown to blackish. Mycelium internal. Stromata lacking or only with aggregations of a few swollen hyphal cells, brown. Conidiophores in small fascicles, divergent, arising from internal hyphae or stromatic hyphal aggregations, erect, divergent, straight, geniculate, unbranched, 20–180 × (2–)3–5(–6) µm, 1–10-septate, light brown, paler towards the apex, tips sometimes subhyaline, thin-walled, smooth; conidiogenous cells integrated, terminal and intercalary, 10–50 µm long, conidiogenous loci conspicuous, thickened and darkened, 1.5–2.5 µm diam. Conidia solitary, obclavate-cylindrical to subcircular, straight to curved, (25–)30–60 × 3–4 µm, 1–6-septate, hyaline, thin-walled, smooth, apex subacute or subobtuse, base truncate, subtruncate to mostly obconically truncate, 1.5–2 µm wide, hila thickened and darkened.


Host range and distribution: Only known from the type collection.
Note: A true Cercospora s. str. distinct from C. apii s. lat. in the relatively short conidia at least partly with an obconically truncate base.

Doubtful, excluded and insufficiently known species


Host range and distribution: On Saccharum (officinarum, Saccharum spp.), Poaceae, Africa (Madagascar), Asia (Indonesia, Philippines).

Note: Not a Cercospora fide Chupp (1954). The status of this species is unclear. The original description is meagre and type material is not preserved.


Illustration: Braun (1995: 204, Fig. 197).


Isotypes: BPI 433860, CUP 39251, NY 936944).

Host range and distribution: On Bromus (rigidus, secalinus, vulgaris, Bromus sp.), Poaceae, Asia (Russia, Asian part), North America (USA, Illinois, Oregon, Washington).

Cercospora eleusines Henn., in herb.

Material examined: Japan: Köchi (Tosa): Inomachi, on Eleusine indica, Poaceae, Yoshinaga (B).

Note: An unidentified helminthosporioid fungus with broad, distoseptate conidia possibly identical with Drechslera nodulosa (Berk. & M.A. Curtis ex Sacc.) Subram. & B.L. Jain.


(Fig. 37)

Synonym: Cladosporium elymi (Rostr.) U. Braun, comb. nov.

MycoBank MB8112422

Fig. 37. Cladosporium elymi (C-F-92454, holotype). A. Conidiophore fascicle. B. Conidiophores. C. Conidia. Bar = 10 µm.


Description: Leaf spots oblong, formed as narrow streaks between veins, 1–5 × 0.5–1 mm, sometimes confluent, pale to medium dark brown, margin indefinite. Caespituli amphigenous, mostly hypophyllous, scattered, punctiform, dark brown to blackish. Mycelium internal. Stromata globular to irregular, small aggregations of a few swollen hyphal cells to large stromata, 10–80 µm diam, substomatal to immersed, dark brown, composed of swollen hyphal cells, rounded to somewhat angular-irregular in outline, 2–7 µm diam, walls somewhat thickened. Conidiophores in small to mostly large, usually dense fascicles, arising from stromata, erect, straight, subcylindrical-conical to moderately geniculate in the upper half, unbranched, 10–30 × 2–5 µm, 0–1(–2)-septate, pale olivaceous to olivaceous-brown, slightly paler towards the tip, dark brown in mass, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, conidiogenous loci coronate, darkened-refractive, 1–2 µm diam. Conidia catenate, usually in simple chains, broadly ellipsoid-ovoid, obovoid, occasionally limoniform, straight, 5–15 × 3–7 µm, 0–1-septate, pale olivaceous to olivaceous-brown, thin-walled, smooth or faintly and irregularly verruculose, apex of primary conidia obtuse,
broadly rounded or conically truncate in catenate conidia, base subtruncate to short obconically truncate, 1–2 µm wide, hila cononate, somewhat darkened-refractive.

**Holotype:** Denmark: Tisvilde, on Leymus arenarius, Poaceae (Pooideae, Triticeae), 29 Jun. 1898, E. Rostrup (C-F-92454).

**Host range and distribution:** Only known from the type collection.

**Notes:** The original description is confused and based on heterogeneous elements. The described conidiophores pertain to a *Cladosporium*. Abundant pigmented conidia with hila agreeing with the coronate (cladosporioid) scar type of the conidiogenous cells are present in the type material. The described hyaline conidia, which Rostrup interpreted as conidia of *Cercospora elymi*, were also found in the recently re-examined type collection, but they do not belong to the described conidiophores. The conidiogenesis of these colourless, mostly 20–30 × 3–4 µm and 3-septate, fusarioid conidia, is unclear, but they were definitely not formed by the described conidiophores. The hila are rounded to truncate, unthickened and not darkened-refractive. The application of the name *C. elymi* is herewith confined to the *Cladosporium* element in the type material. This species is biotrophic. Based on the recently published monograph of *Cladosporium* (Bensch et al. 2012), all biotrophic and saprobic species of this genus have been compared with *C. elymi* and were morphologically distinguishable.


(Fig. 38)


**Description:** Leaf spots on leaves and the leaf sheath, forming small straw-coloured to brown discolorations, later confluent and extending, finally sometimes entire leaves discoloured, necrotic. *Caespituli* amphigenous, punctiform, dark brown. *Mycelium* internal. *Stromata* usually well-developed, 20–60 µm diam, brown, composed of swollen hyphal cells, rounded to somewhat angular-irregular in outline. *Conidiophores* in small to very large, loose to mostly dense fascicles, occasionally almost coremioid, arising from stromata, erect, straight, subcylindrical, geniculate-sinuous in the upper half or sometimes throughout, unbranched, 40–200 × 3–6 µm, pluriseptate, pale to medium olivaceous-brown throughout or somewhat paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, 10–60 µm long, subdenticulate to denticulate, denticles subcylindrical to conical, 1.5–2 µm diam, wall of the conidiogenous loci neither thickened nor darkened or somewhat refractive, in front view visible as minute circle (only rim distinct, content not darkened). *Conidia* solitary, fusiform to short obclavate, 20–35 × 3–5.5 µm, 1–3-septate, hyaline or subhyaline, thin-walled, smooth, apex obtuse, base short obconically truncate, 1.5–2 µm wide, hila unthickened or refractive to slightly darkened-refractive.

**Lectotype (designated here), MycoBank, MBT200457): USA:** Alabama: Lee County, Auburn, on Muhlenbergia diffusa, 3 Oct. 1891, G. F. Atkinson (CUP-A 33). **Isolectotype:** CUP 40345.

**Host range and distribution:** On Muhlenbergia (*glomerata, mexicana [foliosa], racemosa, schreberi [diffusa], sylvatica, tenuifolia, Muhlenbergia sp.*), Poaceae, North America (USA, Alabama, Iowa, Kansas, North Dakota, Nebraska, New York, Wisconsin).

**Notes:** Chupp (1954) excluded this species from *Cercospora* since the conidia are often 1-septate. Crous & Braun (2003) called the affinity of this species to cercosporoid genera into question and, due to the denticle-like conidiogenous loci, supposed a possible relation to the *Dactylaria* complex. The phylogenetic affinity of this species is unknown. The general habit is not dactylarioid but cercosporoid. The small, 0–3-septate conidia arising from subdenticulate to denticle-like conidiogenous loci are similar to those of *Denticulalia* spp. (Deighton 1972, Ellis 1976, Braun et al. 2013). *Cercospora muhlenbergii* differs in having hyaline conidia formed singly (cf. pigmented catenate conidia in *Denticulalia*). Denticle-like conidiogenous loci are...
common in *Pseudocercospora* species, whereas colourless conidia as well as amero- to phragmosporous conidia are uncommon. The conidiogenous loci are unthickened, but at least partly darkened by being refractive or even slightly darkened-refractive, i.e. somewhat intermediate between *Passalora* and *Pseudocercospora*. The structure of the conidiogenous loci and colourless conidia do not indicate *Passalora* as currently circumscribed. Conidiogenous loci and conidia are also reminiscent of species of *Distocercospora*, although the conidia are euseptate. The generic affinity of *C. mühlenbergii* is unclear, and possibly a new genus is required pending molecular sequence analyses.


**Description**: Leaf spots amphigenous, often covering the entire leaf surface, reddish. *Caespitulis* mainly hypophyllous, brown, minute, numerous. *Conidiophores* in fascicles, arising from stromata, erect, curved, geniculate, wider towards the apex, 66–89 × 6–7 µm, septate, grey-brown, paler towards the tip. *Conidia* usually fusiform, about 20–40 × 4–6 µm [according to Chupp’s (1954) estimation], 1–3-septate, greenish to pale brownish, base broad, obconically truncate, apex attenuated to rounded.

**Holotype**: Czech Republic: near Prague, Strasnice, on *Poa palustris* [fertilis], Poaceae, 13 May 1911, Ed. Baudys.

**Host range and distribution**: Only known from the type collection.

**Notes**: Not a *Cercospora fide* Chupp (1954). Type material of this species was not available for re-examination. Based on the original description, *C. poae* is probably a synonym of *Passalora graminis*, which is known on *Poa* spp. as hosts, but the identity has not yet been proven on the basis of type material.


**Type**: Indonesia: Jawa Barat (West-Java), on *Saccharum officinarum* (probably not preserved).

**Host range and distribution**: On *Brachiaria fasciculata* [Panicum fasciculatum], *Cenchrus* (clandestinus [Pennisetum clandestinum], purpureus [P. purpureum]), *Cymbopogon citratus*, *Cynodon dactylon*, Digitaria insularis, *Echinocloa colona*, *Leptocoryphium lanatum*, *Panicum maximum*, *Saccharum officinarum*, *Zea mays*, Poaceae, Africa (Malawi, Mauritius, Nigeria, Sierra Leone, Senegal, South Africa, Uganda), Asia (India, Indonesia, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Taiwan), Australia, Central and South America (Brazil, Guatemala, Venezuela), North America (Mexico; USA, Alabama, Florida, Georgia, Gulf states, Louisiana), Oceania (Fiji, Hawaii, Solomon Islands), and West Indies (Barbados, Cuba, Dominican Republ., Haiti, Jamaica, Puerto Rico, Virgin Islands).


**Literature**: Saccardo (1892: 656), Chupp (1954: 252).

**Illustrations**: Braun (1999: 172, fig. 20), Amaradasa et al. (2014: 83, fig. 2).


**Host range and distribution**: On *Buchloë dactyloides*, *Cynodon dactylon*, *Poaceae*, Central America (Guatemala), and North America (USA, Colorado, Iowa, Kansas, North Dakota, Nebraska, Oklahoma, South Dakota, Texas, Wisconsin).

**Note**: Type material was indicated as deposited at NY, but was not found there, but two duplicates (isotypes) were located which are used for lectotypification here.

*Cercospora striiformis* G. Winter, *Hedwigia* 25: 103 (1886); as “*striaeformis*”.


Conidiophores solitary as well as in small, loose fascicles, 3–6 µm wide; arising from superficial hyphae; conidiogenous loci small, 1–1.5 µm diam; on conidia 4–6 µm wide, hyaline; on P. koepkei

5 (4) Stromata well-developed, large, 10–75 µm diam; conidiophores strictly solitary, arising from superficial hyphae; conidiogenous loci small, 1–1.5 µm diam; on Saccharum spp. ........................................... P. vaginæ

Stromata lacking or small, 10–20 µm diam; conidiophores in small fascicles and solitary; conidiogenous loci larger, 1.5–2 µm diam; on Miscanthus, Saccharum and Sorghum spp. .................................................. P. koepkei

6 (4) Conidiophores consistently solitary, arising from superficial hyphae, 6–8 µm wide; conidia 4–6 µm wide, hyaline; on Imperata cylindrica ................................................................. P. imperatae

Conidiophores solitary as well as in small, loose fascicles, 3–6 µm wide; conidia 3–5 µm wide, subhyaline to pale olivaceous; on Hystrix patula .................................................. P. asprellæ
Tabular key to Passalora species on Poaceae

The species are listed in form of a tabular key based on host genera in alphabetical order.

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<tr>
<th>Key</th>
<th>Description</th>
<th>Host Genera</th>
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<td></td>
<td>Conidia solitary</td>
<td>.......................... 14</td>
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<tr>
<td>8 (7)</td>
<td>Stromata large, 30–350 µm diam; conidiophores short, 5–15 × 3–6 µm, aseptate; conidia 15–60 × 4–6.5 µm, 1–4-septate; on <em>Paspalum clavuliferum</em></td>
<td>.......................... P. paspalicola</td>
</tr>
<tr>
<td></td>
<td>Stromata smaller, 10–60 × 60 µm; and/or conidiophores much longer and septate</td>
<td>.......................... 9</td>
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<tr>
<td>9 (8)</td>
<td>Conidia short and broad, 11–23 × 5–11 µm, aseptate</td>
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<td></td>
<td>Conidia longer and/or narrower, septate, at least 1-septate</td>
<td>.......................... 11</td>
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<tr>
<td>10 (9)</td>
<td>Conidiogenous loci 1–2 µm diam; on <em>Phragmites australis</em></td>
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</tr>
<tr>
<td>11 (9)</td>
<td>Stromata large, 30–100 µm diam; conidiophores long, 80–160 µm; conidia 3.5–7 µm wide; on <em>Cenchrus bambusiformis</em> [Penisetum bambusiforme]</td>
<td>.......................... P. tungurahuensis</td>
</tr>
<tr>
<td></td>
<td>Stromata smaller, to 50 µm diam; conidiophores shorter, 10–90 µm; conidia narrower, 1.5–5 µm wide</td>
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<tr>
<td>12 (11)</td>
<td>Conidia narrow, 18–38 × 1.5–2 µm; on <em>Agrostis</em> sp.</td>
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<td></td>
<td>Conidia much wider, 2–5 µm wide</td>
<td>.......................... 13</td>
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<tr>
<td>13 (12)</td>
<td>Conidiophores in small fascicles of to 10, 15–45 µm long; conidia often in branched chains; on <em>Dichanthium annulatum</em></td>
<td>.......................... P. dichanthii-annulati</td>
</tr>
<tr>
<td></td>
<td>Conidiophores in larger fascicles of 13–25, 30–90 µm long; conidia mostly in unbranched chains; on <em>Digitaria diagonalis</em></td>
<td>.......................... P. digitariae</td>
</tr>
<tr>
<td>14 (7)</td>
<td>Stromata well-developed, large, 100–500 µm diam; conidiophores long, 40–150 µm; conidia narrow, 20–65 × 1.5–4 µm, mostly 1-septate; on <em>Chloris</em> and <em>Eustachys</em> spp.</td>
<td>.......................... P. caespitosa</td>
</tr>
<tr>
<td></td>
<td>Stromata lacking or smaller, 10–130 µm diam and/or conidia much broader, 3–8 µm; on other hosts</td>
<td>.......................... 15</td>
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<tr>
<td>15 (14)</td>
<td>Stromata large, 50–150 µm diam; conidiophores 50–300 µm long; conidia 20–55 × 5–8 µm, (1–)3–(4)-septate; on <em>Arundinaria</em> spp.</td>
<td>.......................... P. compacta</td>
</tr>
<tr>
<td></td>
<td>Stromata lacking or smaller, usually &lt; 100 µm; conidiophores mostly &lt; 100 µm in length; conidia 0–2-septate or broader, (5–)6–12(–14) µm</td>
<td>.......................... 16</td>
</tr>
<tr>
<td>16 (15)</td>
<td>Conidia 3–6 µm wide</td>
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<td></td>
<td>Conidia broader, 5–14 µm wide</td>
<td>.......................... 18</td>
</tr>
<tr>
<td>17 (16)</td>
<td>Stromata absent; conidiophores solitary or in loose groups; conidia subhyaline; on <em>Brachyelytrum erectum</em></td>
<td>.......................... P. brachyelytri</td>
</tr>
<tr>
<td></td>
<td>Stromata present, small, 10–25 µm diam; conidiophores distinctly fasciculate; conidia subhyaline to olivaceous-brown; on <em>Leersia oryzoides</em></td>
<td>.......................... P. ramularioides</td>
</tr>
<tr>
<td>18 (16)</td>
<td>Stromata variable in shape and size, 20–130 µm diam; conidia (15–)20–50(–60) × (5–)6–12(–14) µm, smooth or almost so; on a wide range of grasses</td>
<td>.......................... P. graminis</td>
</tr>
<tr>
<td></td>
<td>Stromata applanate to oblong, to 60 × 20 µm; conidia 12–38 × 5–10.5 µm, verruculose; on <em>Milium effusum</em></td>
<td>.......................... P. millii</td>
</tr>
</tbody>
</table>

*Agrohordeum* .......................... P. graminis

*Agropyron* .......................... P. graminis

*Agrositanion* .......................... P. graminis
Agrostis
1 Conidia formed singly, 15–60 × 5–14 µm, (0–)1(–3)-septate ........................................... P. graminis
Conidia solitary and in chains, 18–38 × 1.5–2 µm, 3–4-septate ........................................ P. agrostidicola

Alopecurus ......................................................................................................................... P. graminis

Ammophila ......................................................................................................................... P. graminis

Anthoxanthum .................................................................................................................. P. graminis

Arctagrostis ......................................................................................................................... P. graminis

Arrhenatherum .................................................................................................................. P. graminis

Arthraxon .......................................................................................................................... P. arthraxonis

Arundinia
1 Conidia (0–)1(–3)-septate ............................................................................................... P. graminis
Conidia (1–)3(–4)-septate ................................................................................................. P. compacta

Avena ..................................................................................................................................... P. graminis

Beckmannia ......................................................................................................................... P. graminis

Brachyelytrum ..................................................................................................................... P. brachyelytri

Bromus .................................................................................................................................. P. graminis

Calamagrostis ....................................................................................................................... P. graminis

Cenchrus (incl. Pennisetum)
1 Conidia solitary and in chains, 15–60 × 3.5–7 µm, (0–)1–4(–5)-septate .............................. P. tungurahuensis
Conidia solitary, 15–60 × 5–14 µm, (0–)1(–3)-septate ......................................................... P. graminis

Chloris ................................................................................................................................. P. caespitosa

Cinna ..................................................................................................................................... P. graminis

Cynodon ............................................................................................................................... P. graminis

Cynosurus ............................................................................................................................ P. graminis

Dactylis .................................................................................................................................. P. graminis

Danthonia ............................................................................................................................. P. graminis

Deschampsia ....................................................................................................................... P. graminis

Dichanthium ........................................................................................................................ P. dichanthii-annulati

Digitaria
1 Conidia formed singly, 15–60 × 5–14 µm, (0–)1(–3)-septate ........................................... P. graminis
Conidia solitary and in chains, 20–55 × 2.5–3 µm, 1–5-septate ........................................ P. digitariae

*Elyhordeum ........................................................................................................................ P. graminis

*Elymus ................................................................................................................................ P. graminis

*Elystanion ............................................................................................................................ P. graminis
<table>
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<tr>
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<th>Cercosporoid fungi</th>
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<td><em>Eragrostis</em></td>
<td>P. graminis</td>
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<tr>
<td><em>Eustachys</em></td>
<td>P. caespitosa</td>
</tr>
<tr>
<td><em>Festuca</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Glyceria</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Helictotrichon</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Hierochloe</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Homalotrichon</em></td>
<td>P. graminis</td>
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<tr>
<td><em>Hordeum</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Hystrix</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td>1</td>
<td>P. imperatae</td>
</tr>
<tr>
<td><em>Imperata</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Koeleria</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Leersia</em></td>
<td>P. graminis</td>
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<tr>
<td><em>Leucopoa</em></td>
<td>P. graminis</td>
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<tr>
<td><em>Leymus</em></td>
<td>P. graminis</td>
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<tr>
<td><em>Lolium</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Melica</em></td>
<td>P. ramularioides</td>
</tr>
<tr>
<td><em>Milium</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td>1</td>
<td>P. milii</td>
</tr>
<tr>
<td><em>Miscanthus</em></td>
<td>P. koepkei</td>
</tr>
<tr>
<td>1</td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Muhlenbergia</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Nassella</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Oryzopsis</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Panicum</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td><em>Pennisetum</em>, see <em>Cenchrus</em></td>
<td></td>
</tr>
<tr>
<td><em>Phalaris</em></td>
<td>P. graminis</td>
</tr>
<tr>
<td>1</td>
<td>P. phalaridis</td>
</tr>
</tbody>
</table>

Conidia smooth or almost so ..............................................................................................................
Conidia verruculose ....................................................................................................................................
Conidia catenate, 12–23 × 5–10.5 µm, aseptate ..............................................................................
Conidia solitary, 15–60 × 5–14 µm, (0–)1(–3)-septate .................................................................
Conidia solitary, 15–60 × 5–14 µm, (0–)1(–3)-septate .................................................................
Mycelium in vivo internal; stromata lacking or almost so; conidia 20–75 × 3–5 µm, 2–6-septate ....
Mycelium in vivo internal and external; stromata developed; conidia 15–60 × 5–14 µm, (0–)1(–3)-septate ....
Mycelium in vivo internal and external; solitary conidiophores arising from superficial hyphae;
conidia 20–65 × 4–6.5 µm .............................................................................................................
**List of Passalora species on Poaceae**

**Passalora agrostidicola** Phengs. & U. Braun, sp. nov.  
Mycobank MB811239 (Fig. 39)

*Description:* Leaf spots circular to irregular, 1–5 mm diam, reddish to medium brown in the centre, margin brown to dark brown. *Caespituli* amphigenous, scattered. *Mycelium* internal, inconspicuous. *Stromata* well-developed, substomatal, subglobose, 20–50 µm diam, brown to dark brown, composed of swollen hyphal cells, oval, ellipsoid to angular in outline, wall 0.3–0.5 µm wide. *Conidiophores* fasciculate, 6–24, arising from substomatal stromata, emerging through stomata, or arising from almost superficial stromal hyphal aggregations, erect, straight to curved, unbranched, subcylindrical or slightly narrowed towards the tip, 10–52 × 3–5 µm, 0–1-septate, pale to moderately olivaceous-brown, wall 0.3–0.5 µm wide, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 10–30 µm long, 3–5 µm wide below and 1.5–2 µm above, conidiogenous loci conspicuous, thickened and darkened, 1.5–2 µm diam. *Conidia* solitary or catenate, in simple chains, cylindrical or subcylindrical, straight

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<table>
<thead>
<tr>
<th>Poaceae Family</th>
<th>Species</th>
<th>Diagnoses</th>
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<tbody>
<tr>
<td>Phleum</td>
<td><em>P. graminis</em></td>
<td>Conidia solitary, 15–60 × 5–14 µm, (0–)1(–3)-septate; conidiophores 30–200 × 4–7 µm; conidia 20–65 × 4–6.5 µm, 1–7-septate, pale to almost colourless to olivaceous-brown</td>
</tr>
<tr>
<td>Phragmites</td>
<td><em>P. maculicola</em></td>
<td>Conidia solitary, 11–23 × 5–11 µm, aseptate; conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Poa</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Pseudosclerochloa</td>
<td><em>P. graminis</em></td>
<td>Conidiophores longer, 30–200 × 4–7 µm; conidia 20–65 × 4–6.5 µm, 1–7-septate, almost colourless to olivaceous-brown</td>
</tr>
<tr>
<td>Puccinellia</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Paspalum</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Secale</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Sorghum</td>
<td><em>P. koepkei</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Spartina</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Stenotaphrum</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Syagrus</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Torreyochloa</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Trisetum</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
<tr>
<td>Triticum</td>
<td><em>P. graminis</em></td>
<td>Conidiophores 15–50 × 3–5 µm; conidia 10–30 µm long, 1–3 µm wide at the ends, 0–1-septate, subhyaline; conidiogenous loci 1.5–2 µm diam</td>
</tr>
</tbody>
</table>
to somewhat curved, 18–38 × 1.5–2 µm, 3–4-septate, slightly constricted at the septa, pale olivaceous, wall thin (0.2–0.3 µm), smooth to finely verruculose, both ends subtruncate when catenate, apex bluntly rounded in solitary and primary conidia, apical hila 0.5–0.8 µm wide, basal hila 0.5–1.5 µm wide, somewhat thickened and darkened.


**Host range and distribution:** Only known from the type collection.

**Notes:** Phengsintham et al. (2013) identified the type collection of this species as *Passalora fusimaculans*, including *Cercospora agrostidis* as a synonym, which is now treated as separate species. *Passalora agrostidicola* is distinguished from *C. agrostidis* by its circular to irregular leaf spots, larger stromata, 0–1-septate conidiophores, and shorter and narrower, olivaceous, partly verruculose, cylindrical to subcylindrical conidia. The collection on Agrostis from Thailand is not conspecific with *C. agrostidis* (as well as *C. fusimaculans s. lat.*). Based on its pigmented conidia, the fungus from Thailand is better placed in *Passalora*. *Cercospora agrostidis* and *C. fusimaculans* are now treated as species of *Cercospora s. str.* due to their colourless conidia.


(Fig. 40)


**Literature:** Guo et al. (2003: 30–31).

**Illustrations:** Guo & Xu (2002: 498. fig. 1), Guo et al. (2003: 31, fig. 16).

**Description:** Leaf spots amphigenous, subcircular to elliptical, 0.5–1.5 mm diam, often confluent, margin indefinite, at first olivaceous-brown, later brown to dark brown, with yellowish
brown halo on the upper surface, brown to greyish brown below. Caespituli amphigenous. Mycelium internal and external; superficial hyphae emerging through stomata, sometimes forming loose ropes, often climbing leaf hairs, branched, septate, 1.5–3.2 µm wide, subhyaline, thin-walled, smooth. Stromata lacking or substomatal, subglobose, 15–35 µm diam, pale olivaceous-brown. Conidiophores loosely fasciculate, 5–10, arising from stromata, through stomata or solitary, arising from superficial hyphae, lateral, straight to curved, subcylindrical to attenuated towards the tip, unbranched, 1–3 times geniculate, about 9–37 × 3–5.5 µm, 0–2-septate, pale olivaceous to olivaceous or brown at the base, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, conidiogenous loci conspicuous, thickened and darkened, 1.5–2.5 µm diam. Conidia solitary, narrowly obclavate to acicular, straight to curved, 30–118 × 2.5–4 µm, 3–12-septate, hyaline, thin-walled, smooth, apex acute to obtuse, base obconically truncate, hila thickened and darkened.


**Host range and distribution:** Only known from the type collection.

**Notes:** The generic affinity of this species is not clear. The general habit of *P. arthraxonis* is mycovellosielloid, but the conidia are formed singly, cercospora-like and colourless. It may belongs to *Cercospora s. str.*, but this question remains unresolved.


(Fig. 41)


*Synonym:* Cercospora asprellae Ellis & Galloway, *in herb.*

**Literature:** Chupp (1954: 256).

**Illustration:** Braun (1996: 207, fig. 2).

**Description:** Leaf spots amphigenous, narrow, oblong, 1–2 × 0.5 mm, later confluent, forming narrow streaks, to about 10 mm long, dark, blackish, margin indefinite. Caespituli amphigenous, mostly hypophyllous, dense, velvety, dull greyish brown. Mycelium internal and external; superficial hyphae branched, septate, 2–6 µm wide, subhyaline to olivaceous-brown, thin-walled, smooth, often dense, intertwined or forming ropes. Stromata lacking or only with small, brown hyphal aggregations. Conidiophores in small, loose fascicles, arising from stromatic hyphal aggregations or solitary, arising from superficial hyphae, erect, straight, subcylindrical to geniculate-sinuous, unbranched, 10–70 × 3–6 µm, aseptate or only sparingly septate, pale olivaceous to olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 10–30 µm long, conidiogenous loci conspicuous, 1–2 µm diam, thickened and darkened. Conidia solitaire, fusiform, obclavate, 20–75 × 3–5 µm, 2–6-septate, rarely somewhat constricted at the septa, subhyaline to pale olivaceous, thin-walled, smooth, apex acute to obtuse, base obconically truncate, 1.5–2 µm wide, hila thickened and darkened.

**Holotype:** USA: Oregon: on Hystrix patula, 10 Sep. 1889, M. B. Waite 199 (NY 985492).
**Host range and distribution:** On *Hystrix patula* [Asprella hystrix, Elymus hystrix], Poaceae (Pooidae, Triticeae), North America (USA, Illinois, Oregon).

**Passalora brachyelytri** (H.C. Greene) U. Braun & Bensch, **comb. nov.**


**Literature:** Bensch *et al.* (2012: 302).

**Illustrations:** Schubert (2005a: 64, fig. 5), Bensch *et al.* (2012: 302, fig. 358).

**Description:** Leaf spots distinct, numerous, scattered, narrow, oblong to oblong-elliptical, 1–3(–7) mm long and to 1 mm wide, reddish brown, surrounded by a paler reddish brown halo, often along leaf veins, occasionally confluent. *Caespituli* hypophyllous, scattered, loosely villose, pale, whitish to pale brown. *Mycelium* internal. *Stromata* lacking. *Conidiophores* solitary or in small, loose groups, arising from internal hyphae, emerging through stomata, erect, straight to somewhat flexuous, geniculate-sinuous, mostly unbranched, rarely apically branched, 48–130 × 3.5–5.5 µm, slightly attenuated towards the apex, septate, not or somewhat constricted at the septa, pale brown or olivaceous-brown, wall somewhat thickened, smooth; conidiogenous cells integrated, terminal and intercalary, 12–35 µm long, proliferation sympodial, geniculate, with a single to several conspicuous conidigenous loci, protuberant, subdenticulate, planate, 1.5–2 µm diam, somewhat thickened and darkened-refractive. *Conidia* in unbranched chains, straight, subcylindrical, subfusiform, rarely somewhat obclavate, (6–)14–27 × 3–5(–6) µm, 1-septate, septum more or less median, or not or only slightly constricted at the septum, subhyaline, thin-walled, smooth, apex rounded, slightly pointed or mostly truncate, base truncate, 1–2 µm wide, with protuberant hilum, thickened and darkened-refractive.


**Host range and distribution:** On *Brachyelytrum erectum*, Poaceae (Pooidae, Brachyelytreae), North America (USA, Wisconsin).

**Notes:** This species is readily distinguishable from *Cercospora fusimaculans* (syn. *Passalora fusimaculans*) by its much broader conidia. Schubert (2005a) reduced *Cladosporium brachyelytri* to synonymy with *Passalora fusimaculans* var. *barretoana* (now *Cercospora barretoana*). *Cercospora barretoana*, confined to hosts in the Panicoideae, differs from *P. brachyelytri* (on *Brachyelytrum*, Pooidae, Brachyelytreae) in having 0–4(–7)-septate, much longer conidia, 9–70 µm. Based on colourless, cercosporoid conidia, *Passalora barretoana* and *P. fusimaculans* are now treated as species of *Cercospora* s. str. The generic affinity of *Cladosporium brachyelytri* is not clear, but due to the consistently didymosporous, almost colourless conidia, we prefer to place this species in *Passalora* s. lat. pending molecular studies.


**Literature:** Chupp (1954: 244), Crous & Braun (2003: 92).

**Illustration:** Braun (1999: 163, fig. 10).

**Exsiccate:** Ellis & Everh., North Amer. Fungi 2590, 3192.

**Description:** Leaf spots lacking. *Caespituli* amphigenous, mostly hypophyllous, punctiform to pustulate, blackish. *Mycelium* internal. *Stromata* immersed to somewhat erumpent, large, about 100–500 µm diam, dark brown to blackish, composed of swollen hyphal cells, 2–8 µm diam, pale to medium dark brown. *Conidiophores* numerous, in dense fascicles, arising from stromata, erumpent, forming sporodochial conidiomata, straight, subcylindrical to slightly

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**Fig. 42.** *Passalora brachyelytri* (WIS, holotype). A. Leaf spots. B. Conidiophore fascicles. C. Conidiophores. D. Conidia. Bar = 10 µm. U. Braun del.
flexuous-sinuous, barely to slightly geniculate, unbranched, 40–150 × 3–6 µm, width uniform, 0–2-septate, pale olivaceous to medium brown, medium dark brown in mass, tips often paler, wall thin to slightly thickened, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 20–120 µm long, conidiogenous loci conspicuous, thickened and darkened, 1.5–2 µm diam, not or barely protuberant. Conidial solitary, cylindrical, cylindrical-obclavate, fusiform, 20–65 × 1.5–4 µm, (0–)1(–3)–septate, subhyaline to pale yellowish brown, thin-walled, smooth, apex obtuse, base short obconically truncate, 1–2 µm wide, hilum barely thickened, somewhat darkened.

**Lectotype (designated here, MycoBank, MBT200459): USA: Mississippi: Ocean Springs, on Eustachys petraea, 30 Aug. 1881, S. M. Tracy 1215 (BPI 433902). Isollectotype: MiCH 15265. Former syntypes: Ocean Springs, on Eustachys petraea, 16 Sep. 1889, S. M. Tracy (CUP 39255) and Ellis & Everh., North Amer. Fungi 3190 (e.g. BPI 433904, CUP, OSC 53156).

**Host range and distribution:** On Chloris gayana, Eustachys (neglecta, petraea [Chloris petraea, swartziana]), Poaceae (Chloridoideae), North America (USA, Florida, Michigan, Mississippi, Wisconsin).

**Notes:** The “lectotypification” cited in Braun (1999) is incorrect since the proposed material (Ellis & Everh., North Amer. Fungi 3192) was collected in 1893, i.e. after the publication of this species name.


(Fig. 44)

**Basionym:** Cladosporium compactum Berk. & M.A. Curtis, *Grevillea* 3: 106 (1875).


**Illustrations:** Deighton (1967: 59, fig. 30, 61, fig. 31).

**Description:** Leaf spots lacking or almost so. *Caespitulus* hypophyllous, more or less evenly scattered, punctiform, dark. Mycelium internal. Stromata well-developed, oblong, 50–150 µm, dark brown. Conidiophores in large, compact fascicles (to 100 or even more), looser when young, very dense and sometimes even subcoremioid when older, arising from stromata, erumpent, rupturing the cuticle, erect, straight to somewhat curved-sinuous, mostly geniculate-sinuous above, often strongly so, unbranched or rarely branched, 50–300 × 3–6.5 µm, loosely pluriseptate, pale, olivaceous, thin-walled, smooth; conidiogenous cells integrated, terminal and intercalary, 10–45 µm long, geniculate, conidiogenous loci conspicuous, thickened and darkened, prominent, 1.5–2.5 µm diam. Conidia solitary, broadly ellipsoid-fusiform to obclavate, straight to slightly curved, 20–55 × 5–8 µm, (1–)3–(4)–septate, pale olivaceous, thin-walled, smooth, apex usually attenuated towards an obtuse or subobtuse tip, occasionally broadly rounded, base short obconically truncate, about 2 µm wide, hilum somewhat thickened and darkened.

Host range and distribution: On Arundinaria (gigantea subsp. tecta [tecta], Arundinaria sp.), Poaceae (Bambusoideae, Bambuseae), North America (USA, Alabama, Florida).

Passalora dichanthii-annulati (Chaudhary, S.K. Singh & P.N. Singh) U. Braun, comb. nov. MycoBank MB811244 (Fig. 45)
Basionym: Phaeoramularia dichanthii-annulatai Chaudhary, S.K. Singh & P.N. Singh, Indian Phytopathol. 55: 469 (2002); as “dichanthii-annulatae”.

Illustration: Chaudhary et al. (2002: 469, fig. 1).

Description: Leaf spots amphigenous, small, dark brown. Caespituli hypophyllous, effuse, brown. Mycelium internal. Stromata well-developed, subepidermal, pseudoparenchymatous, about 20–25 µm diam, pale olivaceous. Conidiophores in fascicles, to 10, arising from stromata, erect, straight to flexuous, geniculate, unbranched, 15–45 × 3–4 µm, 1–5-septate, light olivaceous, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci conspicuous, thickened and darkened. Conidia solitary to catenate, in simple or often branched chains, cylindrical or subcylindrical, straight to curved, 13–68 × 2–5 µm, 2–7-septate, light olivaceous, thin-walled, smooth, apex subacute to obtuse, base obconically truncate, hila thickened and darkened.


Host range and distribution: Only known from the type collection.
Notes: This species is morphologically close to *Passalora barretoana*, but differs in having more cylindrical conidia often formed in branched chains. The genus *Dichanthium* belongs in the *Andropogoneae*. All known hosts of *P. barretoana* are members of the *Paniceae*.


(Fig. 46)

Illustration: Crous & Sutton (1997: 282, fig. 4).

Description: Leaf spots amphigenous, narrowly elliptical, 3–8 mm long and 0.5–2 mm wide, light brown. Caespituli amphigenous, scattered, distinct, punctiform, dark brown. Mycelium internal; hyphae branched, septate, 2–4 µm wide, hyaline to olivaceous, thin-walled, smooth. Stromata well-developed, substomatal, 20–40 µm diam, dark brown. Conidiophores in fascicles, 13–25, arising from stromata, through stomata, erect, divergent, straight, subcylindrical to slightly sinuous, unbranched, 30–90 × 3–5 µm (combined length of stromata and conidiophores 40–110 µm), 1–5-septate, medium brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, 15–35 µm long, conidiogenous loci conspicuous, thickened and darkened, about 1.5–2 µm diam. Conidia solitary to catenate, in simple chains, subcylindrical-obclavate, 20–55 × 2.5–4 µm, 1–5-septate, pale olivaceous, thin-walled, smooth, apex obtuse to subtruncate in catenate conidia, base short obconically truncate, about 1.5–2 µm wide, hila somewhat thickened and darkened.


Host range and distribution: Only known from the type collection.


(Fig. 47)

Illustration: Pons (1996: 46, fig. 1).

Description: Lesions not distinct. Caespituli epiphyllous. Mycelium internal and external; superficial hyphae emerging through stomata, branched, 1.5–3 µm wide, subhyaline, thin-walled, smooth. Stromata lacking or small, substomatal, *textura angularis*, pigmented. Conidiophores solitary, arising from superficial hyphae, lateral, or arising from small stromata in small, loose fascicles, through stomata, erect, straight or flexuous, subcylindrical, unbranched, 15–50 × 3–5 µm, aseptate or 1–2-septate, pale to dark brown, thin-walled, smooth; conidiogenous cells integrated, terminal, intercalary or conidiophores reduced to conidiogenous cells, proliferation sympodial, 7–30 µm long, 3–5 µm wide below and 2.5–4 µm wide above; conidiogenous loci conspicuous, unthickened to somewhat thickened. Conidia solitary, subcylindrical to short obclavate, straight to curved, 10–45 µm long, base and apex 1–3 µm wide, 0–4-septate, subhyaline to pale olivaceous, thin-walled, smooth, apex obtuse, base obconically truncate, basal hilum thickened and darkened.

Holotype: Taiwan: Taipei, on *Sorghum bicolor* [vulgare], 6 Nov. 1909, Y. Fujikuro (NTU-PPE, hb. Sawada). Isotype: TNS-F-218232).

Host range and distribution: On *Sorghum bicolor* [vulgare], Poaceae (*Panicoideae, Andropogoneae*), Asia (Taiwan).
Notes: The combination of morphological characters in this species is unusual. Its generic affinity is unclear, as its conidia are subhyaline or pale and thus cercospora-like. On the other hand, solitary conidiophores in vivo arising from superficial hyphae are not typical of Cercospora s. str. Presently this species is maintained in Passalora s. lat. Based on results of the examination of isotype material, the assignment of this species to the latter genus was confirmed. Sawada (1959) and Goh & Hsieh (1990) cited C. andropogonis as a synonym of Cercospora sorghi, a true Cercospora s. str., which is in conflict with the examinations of Pons (1996) and our own observations. It is possible that authentic material of C. andropogonis (nom. nud.) originally encompassed conidiophores and conidia of two cercosporoid fungi, although this is not proven.

(Fig. 48)
Cladosporium sphaeroideum Cooke, Grevillea 8(46): 60 (1879) [holotype: New Zealand: Counterbury Alps, on

Fig. 47. Passalora fujikuroi (NTU-PPE, holotype). A. Solitary conidiophores. B. Conidia. Bar = 10 µm.

Fig. 48. Passalora graminis (HAL, lectotype). A. Conidiophore fascicles. B. Conidiophores. C. Conidia. Bar = 10 µm.
Poa foilosa, ex herb. M. C. Cooke 398 (K(M) 121569]).


Scolicotrichum compressum Allesch., in Syd., Mycoth. March. 4388 (1895) and Hedwigia 35: (34) (1896) [lectotype (designated here), MycoBank, MBT200463]: Germany:

Berlin, Lichterfelde, on Poa compressa, Sep. 1895, P. Sydow (BPI 425109); isolectotypes: Syd., Mycoth. March. 4388, e.g. B, PAD.

Scolicotrichum graminis var. nanum Sacc., Ann. Mycol. 3: 515 (1905) [holotype: Italy: Belluno, Agordo, on Dactylis glomerata, D. Saccardo (not preserved in PAD)].


Passalora compressa (Allesch.) Petr., Reliquiae Petrakianae 1: 50 (No. 192) (1977), comb. inval. (Art. 41.5).


Illustrations: Vassiljevsky & Karakulin (1937: 212, fig. 19), Ellis (1971: 280, fig. 192 B), Guo et al. (2003: 91, fig. 57).


Description: Leaf spots lacking or indefinite, i.e. colonies on necrotic or faded leaves, or with lesions of variable shape and size, mostly oblong, at first 2–12 × 1–4 mm, later forming long necrotic streaks, finally large leaf segments or almost entire leaves necrotic, yellowish, ocheraceous, straw-coloured, pale brown to dark brown, greyish brown, dingy grey, sometimes with diffuse yellowish halo. Caespituli usually hypophyllous, scattered, punctiform, dark brown to blackish. Mycelium internal. Stromata variable in shape and size, but usually well-developed, substomatal to immersed, 20–130 µm diam, brown, cells circular to somewhat angular-irregular in outline, 3–12(–15) µm diam. Conidiophores in small to very large fascicles, arising from stromata, through stomata or erumpent, divergent to dense, erect, straight, cylindrical, subcylindrical to somewhat curved, sinuous, slightly geniculate, unbranched, apex usually obtuse, sometimes hooked, 20–105 × 3–8 µm, 0–4-septate, individual conidiophores pale to medium brown, medium to dark brown in mass, thin-walled, smooth to somewhat rough-walled; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 15–60 µm long, with a single to several conspicuous conidiogenous cells, circular in outline, 2.5–4 µm diam, somewhat thickened and darkened, usually barely protuberant. Conidia formed singly, ellipsoid-ovoid, obvoid, short obclavate, (15–)20–50(–60) × (5–)6–12(–14) µm, 0–3-septate, mostly 1-septate, occasionally slightly constricted at the septa, subhyaline to pale brownish, thick-walled, smooth to somewhat rough-walled, apex obtuse, often broadly rounded, base rounded to short obconically truncate, sometimes somewhat peg-like, 3–5 µm wide, hila somewhat thickened and darkened.

Lectotype (designated here, MycoBank, MBT200464): Germany: Rheinland-Pfalz: Mt. Rabenkopf, on grass leaves (exact identity unclear), Fuckel [Fungi Rhen. Exs. 130] (HAL). Isolectotypes: Fuckel, Fungi Rhen. Exs. 130 (e.g. FH, G).

Host range and distribution: On ×Agrohordeum macounii, Agropyron cristatum, ×Agrostisianum sp., Agrostis (capillaris, castellana, exarata, gigantea, hallii, oregoneenis, rossiae, scabra, stolonifera [palustris], tenuis), Alopecurus (aequalis, alpinus, carolinianus, geniculatus, pratensis, textilis [tiflisiensis]), Ammophila (arenaria, Ammophila sp.), Anthoxanthanum odoratum, Arctragrostis (latifolia, Arctagrostis sp.), Anhenatherum [album [erianthum], elatius subsp. elatius, elatius subsp. bulbosus [Avena bulbosa]], ?Arundinaria (gigantea subsp. gigantea, gigantea subsp. tecta [tecta]), Arundinaria sp.), Avena sativa, Beckmannia (eruciformis, syzigachne, Beckmannia sp.), Bromus (anomalus, carinatus, cutharticus [wildenowii], ciliatus, frondosus, hordeaceus [mollis], inermis, japonicus, kalmii [purpureus], laeves, marginalis [treviriatissus], orcuttianus, pacificus, secalinus, sitchensis, vulgaris), Calamagrostis (canadensis, inexpansa), Chenchrus (purpureus [Pennisetum purpureum], Cenchrus sp.), Cinna (arundinacea, latifolia, Cinna sp.), Cynodon (dactylon, Cynodon sp.), Cynosurus (cristatus, echinatus), Dactylis (glomerata subsp. glomerata, glomerata subsp. hispanica [hispanica]), Danthonia (californica, intermedia, Danthonia sp.), Deschampsia (atropurpurea, cespitosa, dantanoioides, elongata, Deschampsia sp.), Digitaria
(eriantha [smutless], sanguinalis, Digitaria sp.), *Elyhordeum stebbinsianum* [Elymus aristatus], *Elymus (alibicans* [Agropyron griffithii], angulatus [antarcticus], canadensis [robustus], caninus, enysi, elymoides [Sitanion hystrix], glaucus, *hanseni* [Sitanion + *hanseni*], hispidus [Agropyron trichophorum], lanceolatus [Agropyron dasystachyum, *A. riparium*], macrorus [Agropyron sericeum], mollis, multitetum [Sitanion jubatum], repens, *saxicola*, sibiricus, smithii, spicatus, trachycalus [Agropyron latiglume, richardsonii, subsessitud, vanouverensis, virginicus), *Elysiastanion sp.*, Ergrostis (secundiflora, Ergrostis sp.). Festuca (arundinacea [elatori], kingii, nigrescens, rubra, subulata, varia), Glyceria (borealis, canadensis, elata, fluitans, grandis, leptostachya, maxima, notata, remota, septentrionalis, Glyceria sp.), *Helictotrichon canescens* [Trisetum canescens], *Hierochloe (redolens, Hierochloe sp.*), *Homalotrichon pubescens* [Avenula pubescens], Hordeum (brachyantherum, bulbosum [nodosum], jubatum, pusiulm, vulgare), *Hystrix (patula, Hystrix sp.*), Koeleria (micranthera [cristata], Koeleria sp.), *Leersia* (oryzoides, Leersia sp.), *Leymus* (condensatus [Elymus condensatus], *mollis* [Elymus mollis], tricoides [Elymus tricoides]), *Lolium* (multiflorum, perenne, Lolium sp.), *Melica* (bulbosa, geyeri, smithii, spectabilis, subulata, Melica sp.), *?Milibium* (effusum, Milium sp.), *Micansanthus (sicensis, Micsanthus sp.*), *Muhlenbergia* (filiformis, mexicana, racemosa, sylvatica, Muhlenbergia sp.), *Nassella viridula* [Stipa viridula], *Oryzopsis hymenoides*, Oryzopsis sp.), Panicum (antidotale, Panicum sp.), *Phalaris arundinacea*, *Phleum (alpinum, pratense)*, Phragmites (australis, sp.), *Poa* (alpina, annua, *arida*, chiai, compressa, cusickii [epilis], foliosa, interior, juncofjolia [ampla, nevadensis], longiligula, nemoralis, nervosa, palustris, pratensis, remota [Glyceria remota], secunda, stenantha, trivalis), *Pseudosclorella rupestris* [Poa canbyi, gracillima, sandbergii], *Puccinellia (distans, Puccinellia sp.*), *Secale (cereale, montana)*, *Spartina gracilis, Stenotaphrum sp.*), *Stipa* (comata, corona, lemmnii, lettermannii, nelsoni [williamsi], *occidentalis* [californica, colombiana, elmeri], pinetorum, speciosa, *thurberiana* Stipa sp.), *Torreyochloa pauciiflora* [Glyceria pauciiflora], *Trisetum (flavescent, montanum, spicatum)*, *Triticum (aestivum, Triticum sp.*), *Zea mays, Poaceae*, widespread, Africa (Canary Islands, South Africa), Asia (China, Iran, Japan, Taiwan, Thailand), Australia, Caucasus (Armenia), Europe (Belgium, Finland, France, Germany, Italy, Poland, Russia, UK, Ukraine), New Zealand, North America (Canada, Manitoba, Ontario; USA, Alaska, Arizona, California, Colorado, Idaho, Illinois, Kansas, Kentucky, Main, Maryland, Massachusetts, Michigan, Minnesota, Mississipi, Montana, Nebraska, New Hampshire, New Mexico, New York, Nevada, North Dakota, Ohio, Oregon, South Carolina, South Dakota, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, Wyoming), South America (Argentina, Chile, Colomba), and West Indies (Cuba, Puerto Rico, Virgin Islands).

Notes: *Passalora graminis* is widespread on a wide range of grasses. Deighton (1967) considered *P. graminis* an aggregate species possibly composed of several taxa. Collections on various hosts, however, are morphologically uniform. The biology of various species is not well known. It often occurs on necrotic or faded leaves and is sometimes considered a parasite of weakened grasses. Inoculation experiments and results of molecular sequence analyses are necessary to elucidate the biology and taxonomy of this species. In the interim, we prefer to maintain *Passalora graminis* in its current wide sense (s. lat.). Records of *P. graminis* on *Anadenaria* spp. are doubtful and possibly refer to *P. compactum*. Collections of *P. graminis* on *Milium effusum* may belong to *P. miliii*.

Data on asexual/sexual morph connections of *Scolicocitrichum graminis* are confusing and unsubstantiated. *Scolicocitrichum graminis* is often listed as the asexual morph and synonym of *Mycosphaerella recutita* (Fr.) Johanson 1884 (see Index Fungorum database), which goes back to Fuckel (1870: 107) who cited this species as a “conidial form” of *Sphaerella recutita* (Fr.) Rabenh. (syn. *Sphaeria recutita* Fr. 1823), which was confirmed by Cooke (1871: 921), Arx (1949: 67) provided a comprehensive description of *M. recutita*. According to Eriksson (1992), the type material of *Sphaeria recutita* does not contain a *Mycosphaerella*, i.e. the common application of this name for a *Mycosphaerella* on grasses must be considered erroneous. The oldest valid name for *M. recutita sensu* Arx is not *Mycosphaerella wichertiana* (J. Schröt.) Johanson 1884, as suggested by Eriksson (1992), but *Sphaeria disseminata* De Not. & Carestia 1871 (i.e. *Mycosphaerella disseminata* (De Not. & Carestia) Tomlin 1967), which was re-combined as *Davidiella disseminata* (De Not. & Carestia) Aptroot 2006 (Aptroot 2006: 80). *Davidiella* is a synonym of *Cladosporium*, i.e. the asexual morphs are entirely cladosporid with catenate conidia and a specific coronate type of conidigenous loci and conidal hila. A genetic connection between *Passalora graminis* and *Davidiella disseminata* (*M. recutita sensu* Arx) is doubtful. Detailed examinations of the life-cycle of *P. graminis*, cultures and molecular examinations are necessary to elucidate the true biology and life cycle of this species.

The fungal herbarium of G.H. Otth was originally deposited at BERN. Some years ago, the fungus collections of BERN were transferred to ZT. Type material of *Passalora hordei* is now preserved in ZT, but syntypes of *P. punctiformis*, described from *Dactylis glomerata* and *Melica uniflora*, have not been traced. There is a single specimen on *Arrhenatherum elatum* (Bern, G.H. Otth) deposited at ZT under the name *P. punctiformis*. It is unclear if this collection represents type material of this species. The reference to “*Dactylis* and *Melica*” in the protologue indicates uncertainty in the identification of the host species.


(Fig. 49)


Illustrations: Hsieh & Goh (1990: 139, fig. 106), Guo et al. (2003: 32, fig. 17).

Description: Leaf spots amphigenous, subcircular to elliptical, 2–10 mm diam, often confluent, yellowish to pale brown, margin indefinite. Caespituli amphigenous, mainly hypophyllous, unevenly scattered, diffuse, dark. Mycelium internal and external; superficial hyphae sparingly branched, 2–3 µm wide, pale olivaceous, thin-walled, smooth. Stromata almost lacking, only with a few swollen hyphal cells or conidiophores arising from superficial hyphae, lateral, occasionally arising from hyphal aggregations, in loose groups, to 4, subfasciculate, erect, straight, subcylindrical to somewhat curved or geniculate-sinuous, unbranched, 20–75 × 6–8 µm, 0–3-septate, pale to medium brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, about 10–35 µm long, conidiogenous loci conspicuous, thickened and darkened.

Conidia solitary, cylindrical to obclavate-cylindrical, straight or almost so, 30–65 × 4–6 µm, 1–7-septate, colourless, thin-walled, smooth, apex obtuse, base rounded to obconically truncate, about 2 µm wide, hila thickened and darkened.


Host range and distribution: On Imperata cylindrica [arundinacea], Poaceae (Panicoideae, Andropogoneae), Asia (China, India, Philippines, Taiwan).

Notes: The generic affinity of this species is unclear. The colourless conidia support placement in Cercospora s. str., but the mycovellosiella-like habit with solitary conidiophores arising from superficial hyphae are in conflict. We prefer to retain this species in Passalora.


Fig. 49. Passalora imperatae (S-F20471). A. Solitary conidiophores. B. Conidia. Bar = 10 µm.
small, 10–20 µm diam, brown. **Conidiophores** in small, mostly loose fascicles, 2–15, arising from internal hyphae or stromata, through stomata, and solitary, arising from superficial hyphae, lateral, rarely terminal, erect, straight, subcylindrical to distinctly geniculate-sinuous, unbranched, 30–200 × 4–7 µm, aseptate to pluriseptate, pale to medium olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal or intercalary, occasionally conidiophores reduced to conidiogenous cells, about 10–40 µm long, with a single to several conspicuous conidiogenous loci, thickened and darkened, 1.5–2 µm diam.

**Conidia** solitary, fusiform-obclavate, mostly straight, occasionally somewhat curved, 20–65 × 4–6.5 µm, 1–7-septate, often 3-septate, without constrictions, colourless or almost so to pale olivaceous, thin-walled, smooth, apex obtuse to subacute, base short obconically truncate, 1.5–2.5 µm wide, hila thickened and darkened.

**Syntypes:** **Indonesia:** Java: on Saccharum spp., W. Krüger (probably not preserved).

**Host range and distribution:** On Miscanthus (floridulus [japonicus], sinensis), Saccharum (officinarum, robustum [edule], spontaneum), Sorghum bicolor, Poaceae (Panicoideae, Andropogoneae), Africa (Gabon, Ghana, Kenya, Mauritius, Reunion, Sierra Leone, Somalia, South Africa, Tanzania, Zimbabwe, Uganda), Asia (Brunei, Cambodia, China, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Sabah, Sri Lanka, Taiwan, Thailand), Australia, Central and South America (Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Guyana, Honduras, Panama, Suriname, Venezuela), North America (Mexico; USA, Alabama, Florida, Louisiana), Oceania (American Samoa, Fiji, French Polynesia, Guam, Hawaii, Micronesia, New Caledonia, Palau, Samoa, Solomon Islands, Tonga, Vanuatu), and West Indies (Cuba, Dominican Republic, Puerto Rico, Trinidad and Tobago, Virgin Islands).

**Notes:** The status of *Cercospora koepkei* var. *sorghi* is not clear. Re-examination of the type material and additional collections are necessary, but type material was not traced. This taxon is tentatively treated as a synonym of *P. koepkei*. A neotypification of *P. koepkei* is not proposed since suitable material from Java has not yet been found.


(Fig. 51)

**Basionym:** *Scolicotrichum maculicola* Ellis & Kellerm., *J. Mycol.* 3: 103 (1887); as “*maculicolum*.”

**Synonym:** *Fusicladium maculicola* (Ellis & Kellerm.) Ondřej, *Česká Mykol.* 25: 337 (1971).


**Illustrations:** Ondřej (1971: 238, figs 1–2), Braun (2000: 37, fig. 6).


**Description:** Leaf spots amphigenous, oblong, fusiform, ellipsoid, 3–15 × 1–2(–3) mm, yellowish, ochraceous, dingy brownish, margin narrow, dull medium to dark brown. *Caespite* amphigenous, mainly hypophyllous, punctiform, mostly dense, dark brown to blackish. *Mycelium* internal. *Stromata* small to well-developed, substomatal, globose to oblong, 10–60 µm diam, brown, composed of swollen hyphal cells, subcircular to somewhat irregular in outline, about 3–7 µm diam. *Conidiophores* in small to fairly large, loose to dense fascicles, arising from stromata, through stomata, erect, straight and subcylindrical to usually moderately to strongly geniculate-sinuous, unbranched or only rarely branched, (20–)30–80(–100) × (3–)4–7(–8) µm, continuous to septate, mostly sparingly septate, pale to medium brown or olivaceous-brown throughout or paler towards the tip, wall thin to slightly thickened, smooth, occasionally somewhat verruculose; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 10–50 µm long, with a single to several conspicuous conidiogenous loci, non-proliferant, truncate, slightly thickened and somewhat darkened, 1–2 µm diam, non-cornate (i.e., not cladosporioid).

**Conidia**
Braun et al.

**Passalora maculicola** (Syd.) G.A. de Vries, *Contribution to the Knowledge of the Genus Cladosporium Link ex Fries* 94 (1952).


**Exsiccatae:** Syd., *Mycoth. Germ.* 1295, 1296.

**Description:** Leaf spots on living and faded leaves, indistinct or linear, about 1 mm wide, length variable, pale, margin indefinite. *Caespituli* hypophyllous, scattered, punctiform, dark brown to blackish. Mycelium internal. Stromata substomatal to intraepidermal, appenate to oblong, to 60 × 20 μm, brown, composed of swollen hyphal cells, subcircular to irregular in outline, 3–8 μm diam. *Conidiophores* in moderately large to very large fascicles, moderately dense, arising from stromata, through stomata or erumpent, erect, straight, subcylindrical to somewhat curved-sinuous, usually not geniculate, unbranched, 40–75 × 5–8 μm, aseptate or 1–2-septate, septa more or less near the base, brownish, thin-walled, smooth; conidiophores reduced to conidiogenous cells or integrated, terminal, to 60 μm long, tips often curved, with a single or several conspicuous conidiogenous loci near the tip, circular in outline, 2–3 μm diam, slightly thickened and darkened. *Conidia* solitary, ellipsoid-ovoid, broadly obovoid or short cylindrical, 12–38 × 5–10.5 μm, 0–2-septate, not constricted, subhyaline, pale olivaceous, olivaceous to pale greyish brown, thin-walled, verruculose, apex broadly rounded, base subtruncate to short obconically truncate, 2.5–3 μm wide, hila slightly thickened and darkened.


**Host range and distribution:** On *Phragmites australis*, *Poaceae* (Arundinoideae), North America (Canada, Ontario; USA, Iowa, Kansas, North Dakota, Nebraska, Oklahoma, Oregon, South Dakota, Washington, Wisconsin).

**Notes:** North American records of this species on *Arundo donax* are unproven and unclear. The generic affinity of *P. maculicola* is intricate and can only be verified with certainty by using cultures and results from molecular sequence analyses. The general habit of this species is cladosporioid and reminiscent of heterosporium-like *Cladosporium* species (Bensch *et al.* 2012), but the conidiogenous loci and conidial hila are not coronate (not cladosporioid) but truncate and somewhat thickened and darkened, i.e. cercospora-like. Due to verruculose conidia, *P. maculicola* is also comparable with *Asperisporium*, which is possibly a synonym of *Passalora s. lat.* (Braun *et al.* 2013). The conidia in *Asperisporium* spp. are usually formed singly. At present this species is best maintained in *Passalora*. *Deightoniella roumeguerei* (Cavara) Constant. 1983 (syn. *Scolicotrichum roumeguerei* Cavara 1890, as "roumegueri") is another species on *Phragmites*, which is distinct and not congeneric.

**Passalora milii** (Syd.) G.A. de Vries, *Contribution to the Knowledge of the Genus Cladosporium Link ex Fries:* 94 (1952).

*Fig. 52*  

**Exsiccatae:** Syd., *Mycoth. Germ.* 1295, 1296.

**Description:** Leaf spots on living and faded leaves, indistinct or linear, about 1 mm wide, length variable, pale, margin indefinite. *Caespituli* hypophyllous, scattered, punctiform, dark brown to blackish. Mycelium internal. Stromata substomatal to intraepidermal, appenate to oblong, to 60 × 20 μm, brown, composed of swollen hyphal cells, subcircular to irregular in outline, 3–8 μm diam. *Conidiophores* in moderately large to very large fascicles, moderately dense, arising from stromata, through stomata or erumpent, erect, straight, subcylindrical to somewhat curved-sinuous, usually not geniculate, unbranched, 40–75 × 5–8 μm, aseptate or 1–2-septate, septa more or less near the base, brownish, thin-walled, smooth; conidiophores reduced to conidiogenous cells or integrated, terminal, to 60 μm long, tips often curved, with a single or several conspicuous conidiogenous loci near the tip, circular in outline, 2–3 μm diam, slightly thickened and darkened. *Conidia* solitary, ellipsoid-ovoid, broadly obovoid or short cylindrical, 12–38 × 5–10.5 μm, 0–2-septate, not constricted, subhyaline, pale olivaceous, olivaceous to pale greyish brown, thin-walled, verruculose, apex broadly rounded, base subtruncate to short obconically truncate, 2.5–3 μm wide, hila slightly thickened and darkened.

BPI 427262, F 1093516. Former syntypes: Syd., Mycoth. Germ. 1295, e.g. CUP, M, MICH 15428; Syd., Mycoth. Germ. 1296, e.g. BPI 427263, CUP, M, MICH 15429).

Host range and distribution: On *Milium effusum*, Poaceae (*Pooidae*, *Aveneae*), Europe (France, Germany, Latvia, Russia).

**Notes:** Several collections from Germany (B700006628, 700006630–700006636, 700006482) and two samples from Latvia (B700006627, 700006629) have been examined. Based on the verruculose conidia, this species is reminiscent of *Asperisporium*.


*(Fig. 53)*


**Literature:** Chupp (1954: 250), Crous & Braun (2003: 308).

**Illustration:** Braun (2001: 53, fig. 12).

**Exsiccatea:** Cif., Mycofl. Dom. Exs. 331.

**Description:** Leaf spots indistinct, later irregular, brown discolorations, usually 1–3 mm diam. *Caespituli* amphiogenous, punctiform, subcircular to oblong in outline, blackish. *Mycelium* internal. *Stromata* immersed, large, 30–350 µm diam, dark brown. *Conidiophores* numerous, densely fasciculate, forming well-developed sporodochial conidiomata, conidiophores little differentiated, reduced to conidiogenous cells, only developed as somewhat elongated peripheral cells of the stromata, subcylindrical-conical, 5–15 × 3–6 µm (sometimes with persistent conidia resembling longer conidiophores), aseptate, brownish, thin-walled, smooth, conidiogenous loci conspicuous, slightly thickened and darkened, 1–1.5 µm diam. *Conidia* solitary.
to catenate, occasionally in branched chains, cylindrical, obclavate-subcylindrical, ellipsoid-ovoid, 15–60 × 4–6.5 µm, 1–4-septate, subhyaline to pale olivaceous, thin-walled, smooth, apex obtuse, base rounded to obconically truncate, 1–1.5 µm wide, hila slightly thickened and darkened.


Host range and distribution: Only known from the type collections.

(Fig. 54)

**Illustration:** Schubert & Braun (2007: 198, fig. 5).

**Description:** Leaf spots amphigenous, elliptical to oblong, to 10 mm long and 1–2 mm wide, scattered, but often aggregated, occasionally confluent, pale brown, surrounded by a narrow brown margin, surrounding leaf tissue often discoloured, brownish to somewhat reddish brown, often somewhat paler below. Caespituli usually hypophyllous, occasionally epiphyllous, scattered to effuse, often in lines, at first covered by the white detached cuticle, later erumpent, loose to dense, caespitose, pale brown, velvety. Mycelium internal, subcuticular to intraepidermal; hyphae sparingly branched, 3–5 µm wide, septate, pale yellowish brown, smooth, wall only slightly thickened. Stromata substomatal, dense, several layers deep, composed of swollen hyphal cells, subglobose to angular, pale yellowish brown, smooth, walls slightly thickened. Conidiophores loosely to densely fasciculate, arising from stromata, emerging through stomata, erect, straight to somewhat flexuous, cylindrical, sometimes geniculate towards the apex, unbranched, 35–80 × 4–5.5(–6) µm, (0–)1–4-septate, subhyaline to pale brown, smooth, wall thin or almost so; conidiogenous cells integrated, terminal, rarely intercalary, cylindrical, 20–50 µm long, sympodial, with a single or several conspicuous conidiogenous loci, somewhat crowded near the apex, protuberant, truncate, (1–)1.5–2.5(–3) µm diam, thickened and somewhat darkened.
cercosporoid fungi 3

ARTICLE

re refractive. Conidia catenate, in unbranched chains, broadly ellipsoid-fusiform, 12–23 × 5–10.5 μm, aseptate, almost hyaline to pale olivaceous, smooth or almost so, walls unthickened, attenuated towards the apex and base, hila protuberant, truncate, 1–2.5 μm diam., somewhat thickened and darkened-refractive.


Host range and distribution: Only known from the type collection.

Note: Resembling Cercospora barretoana, but conidia much shorter, broader, aseptate and at least slightly pigmented.

(Fig. 55)


Illustration: Braun (2000: 41, fig. 9).

Description: Leaf spots amphigenous, fusiform, elliptical, 1–5 × 0.5–1.5 mm, centre pale, yellowish to ochraceous, later greyish white, margin narrow, dark. Mycelium internal. Stromata almost absent or small, 10–25 μm diam, brown, substomatal to intraepidermal, cells globose to somewhat angular-irregular in outline, 2–8 μm diam, walls somewhat thickened. Conidiophores solitary or in small fascicles, loose to dense, arising from stromata, through stomata or erumpent, erect, straight, subcylindrical to geniculate-sinuous, unbranched, 25–100 × 3–7 μm, septate, pale to medium brown throughout or apex somewhat paler, walls somewhat thickened, smooth; conidiogenous cells integrated, terminal, 20–50 μm long, conidiogenous loci somewhat thickened and darkened, 1.5–2 μm diam. Conidia solitary, rarely in short chains, subcylindrical, subfusiform, ellipsoid-ovoid, 15–30 × 3–6 μm, (0–1)-septate, subhyaline to pale yellowish, ochraceous or olivaceous-brown, thin-walled, smooth, apex obtuse, rounded, base short obconically truncate, 1–2 μm wide, hila slightly thickened and darkened.

Holotype: France: Côte-d’Or, on Leersia oryzoides, F. Fautrey 23 (PAD).

Host range and distribution: On Leersia (oryzoides, Leersia sp.), Poaceae (Ehrhartoideae, Ehrharteae), Europe (France, Ukraine), North America (USA, Iowa).

(Fig. 56)

Description: Leaf spots amphigenous, large, large leaf segments or later almost entire leaves discoloured, greyish brown, margin indefinite or with a diffuse yellowish halo. Caespituli epiphyllous, punctiform, scattered, dark brown to blackish. Stromata immersed, large, 30–100 µm diam, dark brown, composed of swollen hyphal cells, circular to somewhat angular-irregular in outline, about 3–6 µm diam. Conidiophores in large fascicles, loose to mostly dense, arising from stromata, erumpent, erect, straight, subcylindrical to somewhat geniculate-sinuous, unbranched, 80–160 × 4–7.5 µm, pluriseptate throughout, pale to medium dark brown, tips paler, wall somewhat thickened, smooth; conidiogenous cells integrated, terminal, occasionally intercalary, 10–40 µm long, with a single to several conspicuous conidiogenous loci, somewhat thickened and darkened, 1.5–2 µm diam. Conidia solitary or in short chains, ellipsoid-ovoid, subcylindrical, almost obclavate, fusiform, 15–60 × 3.5–7 µm, (0–)1–4(–5)-septate, hyaline, subhyaline to pale greenish olivaceous, thin-walled, smooth, apex obtuse to short conically truncate in catenate conidia, base short obconically truncate, 1.5–2 µm wide, hila somewhat thickened and darkened.


Host range and distribution: On Cenchrus bambusiformis [Pennisetum bambusiforme], Poaceae (Panicoideae, Paniceae), South America (Brazil, Ecuador).


(Fig. 57)


Description: Spots mainly on sheaths, sometimes also formed as leaf spots, at first small, subcircular to elliptical, red, margin conspicuous, spots later confluent or increasing, to about 15 mm diam, on leaves dark reddish above, indistinct below. Caespituli amphigenous, effuse, dark greyish brown, velvety, mostly in the centre of the lesion. Mycelium internal and external; superficial hyphae sparingly branched, septate, pale, thin-walled, smooth. Stromata sometimes developed, substomatal, 10–75 µm diam, dark brown, but without conidiophore fascicles. Conidiophores solitary, arising from superficial hyphae, lateral, at the top of mother cells, occasionally terminal, i.e. at the end of procumbent hyphae, erect to ascending, straight to curved, subcylindrical, conical to geniculate-sinuous, simple or sometimes branched, occasionally entangled, 20–200 × 3–5 µm, 1–5-septate, pale olivaceous-brown to darker brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, with conspicuous conidiogenous loci, about 1–1.5 µm diam. Conidia solitary, cylindrical or obclavate-cylindrical, straight to somewhat curved, 15–55 × 3–6.5 µm, 0–5-septate, occasionally slightly constricted at the septa, hyaline to olivaceous, thin-walled, smooth, apex obtuse, base short obconically truncate, 1–2 µm wide, somewhat thickened and darkened.

Holotype: Indonesia: Java: on Saccharum officinarum (details not recorded, probably not preserved).
Host range and distribution: On Saccharum (officinarum, spontaneum), Poaceae (Panicoidae, Anthrogetoneae), Africa (Ghana, Madagascar, Malawi, Mauritius, Mozambique, Senegal, Sierra Leone, South Africa, Togo, Zimbabwe), Asia (Afghanistan, China, India, Indonesia, Japan, Malaysia, Philippines, Taiwan, Thailand, Vietnam), Central and South America (Brazil, Costa Rica, El Salvador, Guatemala, Guyana, Honduras, Panama, Peru, Venezuela), North America (Mexico; USA, Florida, Georgia, Louisiana, Texas), Oceania (Hawaii), and West Indies (Barbados, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, Trinidad and Tobago, Virgin Island).

Notes: Chupp (1954) referred to "Ber. Vers. Stat. Zuckerr. West Java 1: 64 (1890)" as the place and date of publication of the basionym. Type material of this species is probably not preserved, but a neotypification is postponed since appropriate material from Java has not yet been found.

Doubtful, excluded and insufficiently known species


Illustrations: Deighton (1979: 24, fig. 12), Braun (1998: 203, fig. 471).


Mycovellosiella sacchari Sarbajna, see Pseudocercospora sacchari.

Mycovellosiella taiwanensis (T. Matsumoto & W. Yamam.) X.J. Liu & Y.L. Guo, see Pseudocercospora taiwanensis.


Illustration: Guo et al. (2003: 89, fig. 57).


Holotype: Brazil: Rio Grande do Sul: São Leopoldo, on hymenium (rarely stalk) of Thelephora sp., on bamboo, Poaceae, Rick (not traced).

Notes: This species, known from the type collection in Brazil and on Bambusa sp. in China (Guo et al. 2003), is undoubtedly not congeneric with Passalora in the current sense, but its generic affinity is unclear.

Basionym: Cercosporidium bambusicola Sawada, Taiwan Agric. Res. Inst. Rep. 87: 77 (1944), nom. inval. (Art. 39.1); as "bambusicolum".


Holotype: Taiwan: Taipei, on Bambusa sp., Poaceae, 6 Mar. 1913, Y. Fujikuro (NTU-PPE, herb. Sawada).


Illustration: Viégas (1946: plate 26).

Description: Leaf spots hypophyllous, oblong, 5–10 mm, 1–2 mm wide, between veins, brown. Colonies effuse. Mycelium internal and external; superficial hyphae septate, hyaline. Conidiophores solitary, arising from superficial hyphae, erect, straight to curved-sinuous, unbranched, 50–180 × 4–4.5 μm, pluriseptate, brown below, subhyaline above; conidiogenous cells integrated, terminal, barely geniculate, but with obtuse, truncate denticles. Conidia solitary, ellipsoid, 10–16 × 6–7 μm, 1-septate, at first hyaline, later brown, thin-walled, asperulate, ends more or less rounded.

Holotype: Brazil: Matto Grosso: Jupiã, Rio Paraná, on Eragrostis ciliaris, Poaceae, 20 Apr. 1943, R. O. Botero (not traced).

Notes: Type material of this species has not been examined. The affinity of P. eragrostidis is unclear, but it does not belong to the complex of cercosporoid fungi. Viégas (1946) described asperulate conidia and illustrated superficial mycelium, so that this species could also be a member of Cladosporium (subgen. Heterosporium).


Type: Not clearly indicated, there are cultures under IMI 173304 and in the “Indian Type Culture Collection” and a dried culture in “Herbarium, New Delhi University, Dept. of Botany”.

Notes: This species was isolated from green leaves of Triticum. The material in IMI (now K) has been examined and the taxonomic affinity of P. graminicola was unclear, but this species is not cercosporoid.


Notes: This is a saprobic species which was placed in the genus Chalastospora E.G. Simmons, Pleosporales (Crous et al. 2009). In a new phylogenetic/taxonomic concept of Alternaria s. lat., recently introduced by Woudenberg et al. (2013), Chalastospora was reduced to synonymy with Alternaria and treated as section of this genus. Based on this concept, Alternaria malorum is the nomenclaturally correct name of this species. Cladosporium gossypii is the oldest valid name for this species, but the epithet “gossypii” is pre-occupied in Alternaria so cannot be taken up.

Pseudocercospora

Key to Pseudocercospora species on Poaceae

1 Mycelium in vivo internal; stromata large, to 230 μm diam; conidia (23–)30–38.5(–42.5) × 5.8–7.7 μm, 4–7-septate; on Bambusa tulda .......................................................... P. bambusae

Mycelium in vivo internal and external, superficial, with solitary conidiophores arising from superficial hyphae; stroma not developed; on other hosts .......................................................... 2

2 (1) Leaf spots absent; conidia cylindrical-filiform, 20–90 × 2–3 μm, pale olivaceous-brown; on Saccharum .......................................................... P. whalianensis

Leaf spots present, distinct; conidia at least partly obclavate or acicular, and/or hyaline or subhyaline .......................................................... 3
3 (2) Conidia pigmented, at least pale olivaceous-brown; on *Cymbopogon* or *Saccharum* .............................................................. 4
Conidia hyaline or subhyaline; on *Saccharum* ............................................................................................................................... 5

4 (3) Conidiophores narrow, 4–65 × 1–3.5 µm; conidia narrowly obclavate-cylindrical, 15–80 × 1–3.5 µm; on *Saccharum* ................................................................................................................................. 6
Conidiophores somewhat wider, 16–55 × 3–4 µm; conidia obclavate-cylindrical, 25–95 × 3–4 µm; on *Cymbopogon* P. cymbopogonis

5 (3) Older leaf spots subcircular to irregular, 0.5–12 mm wide, reddish to dark purple, most distinct on the upper leaf surface (referred to as “Purple spot of sugarcane”); conidiophores short, 12–35 µm long, 1–3-septate ........................................................................... 6
Leaf spots different, characteristic purple spots not formed; conidiophores longer, 10–156 µm long, 0–7-septate .................................................. 7

6 (5) Lesions developed as characteristic black stripes; conidia long, obclavate-filiform, 14–212 × 2–4.5 µm, 1–22-septate ................................................................................................................................. 7
Lesions different, black stripes not formed, leaf spots either developed as ring spots or as elliptical to oblong patches, brown, reddish or straw-coloured ................................................................. 8

7 (6) Lesions developed as characteristic ring spots (circular to irregular, 4–21 × 1.5–7.5 µm, or confluent, to 35 mm diam, brown, often with a reddish brown to dark reddish brown narrow border, finally with a grey centre surrounded by a purplish brown margin); conidia 36–127 × 2–3.5 µm ................................................................................................................................. 7
Lesions narrowly elliptical to oblong, 2–10 × 1–1.5 mm; conidia longer, 20–275 × 2–4 µm ................................................................. 8

Tabular key to *Passalora* species on *Poaceae*

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<td><em>Bambusa</em></td>
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<td>P. bambusae</td>
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<td><em>Cymbopogon</em></td>
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<td>P. cymbopogonis</td>
</tr>
<tr>
<td><em>Saccharum</em></td>
<td>1 Leaf spots lacking; conidia cylindrical-filiform, 20–90 × 2–3 µm, pale olivaceous-brown</td>
<td>P. whalianensis</td>
</tr>
<tr>
<td></td>
<td>Leaf spots developed, distinct; conidia at least partly obclavate or acicular, and/or hyaline or subhyaline</td>
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<tr>
<td>2 (1) Conidia pigmented, pale olivaceous-brown</td>
<td>P. sacchari</td>
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<tr>
<td>Conidia hyaline or subhyaline</td>
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<tr>
<td>3 (2) Older leaf spots subcircular to irregular, 0.5–12 mm wide, reddish to dark purple, most distinct on the upper leaf surface (referred to as “Purple spot of sugarcane”); conidiophores short, 12–35 µm, 1–3-septate</td>
<td>P. rubropurpurea</td>
<td></td>
</tr>
<tr>
<td>Leaf spots different, characteristic purple spots not formed; conidiophores longer, 10–156 µm, 0–7-septate</td>
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<td>4 (3) Lesions developed as characteristic black stripes; conidia long, obclavate-filiform, 14–212 × 2–4.5 µm, 1–22-septate</td>
<td>P. atrofiliformis</td>
<td></td>
</tr>
<tr>
<td>Lesions different, black stripes not formed, leaf spots either developed as ring spots or as elliptical to oblong patches, brown, reddish or straw-coloured</td>
<td>.................................................................</td>
<td>5</td>
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<tr>
<td>5 (4) Lesions developed as characteristic ring spots (circular to irregular, 4–21 × 1.5–7.5 µm, or confluent, to 35 mm diam, brown, often with a reddish brown to dark reddish brown narrow border, finally with a grey centre surrounded by a purplish brown margin); conidia 36–127 × 2–3.5 µm</td>
<td>P. saccharicola</td>
<td></td>
</tr>
<tr>
<td>Lesions narrowly elliptical to oblong, 2–10 × 1–1.5 mm; conidia longer, 20–275 × 2–4 µm</td>
<td>.................................................................</td>
<td>8</td>
</tr>
</tbody>
</table>
List of Pseudocercospora species on Poaceae


(Fig. 58)


**Description**: Leaf spots amphigenous, at first yellow, ovoid to rounded, later developing into narrow dark brown to black streaks, 5–36 mm long and 0.5–1.2 mm wide, between veins (referred to as "Black stripe of sugarcane"). *Caespituli* amphigenous, mostly hypophyllous. *Mycelium* internal and external, superficial. *Stromata* lacking. *Conidiophores* solitary, arising from superficial hyphae, lateral, at the top of mother cells, erect, subcylindrical, narrowed towards the tip, geniculate-tortuous, unbranched, 20–80 × 3–4.5 μm, 2–6(–9)-septate, dark olivaceous-brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci inconspicuous, unthickened, not darkened. *Conidia* solitary, narrowly obclavate-filiform, slightly to strongly curved, 14–212 × 2–4.5 μm, 1–22-septate, hyaline or subhyaline, hila neither thickened nor darkened.


**Host range and distribution**: On *Saccharum officinarum*, Poaceae (Panicoideae, Andropogoneae), Asia (China, Taiwan).


(Fig. 59)

**Illustration**: Saika & Sarbhoy (1986: 433, fig. 1).

**Description**: *Caespituli* hypophyllous, at first scattered, punctiform, later effuse, velvety, forming circular, subcircular to elliptical colonies, brown to dark brown. *Mycelium* immersed; *hyphae* branched, septate, about 2.5–4 μm wide, subhyaline to pale brown. *Stromata* epidermal to subepidermal, subcircular to flattened, to 230 μm diam, pigmented. *Conidiophores* numerous, arising from stromatic hyphal aggregations, erect, divergent, almost straight below, flexuous to geniculate above, unbranched, about 87.5–180 μm long, 3–4.7 μm wide below and 4.7–6.3 μm wide above at the subclavate apex, 4–7-septate, pale to medium brown, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci inconspicuous. *Conidia* solitary, broadly obclavate-fusiform, straight to slightly curved, about (23–)30–38.5(–42.5) × 5.8–7.7 μm, 4–7-septate, pale to medium brown, thin-walled, smooth, apex obtuse, base short obconically truncate, about 1.5–2.5 μm wide, hila unthickened, not darkened.


**Host range and distribution**: Only known from the type collection.

**Notes**: *Pseudocercospora bambusae* Deighton 1973 is a different cercosporoid fungus on *Bambusa* spp., distinguished from other species.
in the short, colourless conidiophores and colourless conidia. Hsieh & Goh (1990: 147) re-examined type material of *Cercosporella dendrocalami* Sawada 1944 (*nom. inval.*, Art. 39.1) and reduced it to synonymy with Deighton’s species.


(Fig. 60)


**Description:** Leaf spots scattered or confluent, brown, margin indefinite. *Caespituli* amphigenous or only hypophyllous. *Mycelium* internal and external; superficial *hyphae* emerging through stomata, branched, septate, pale olivaceous-brown, 2–3 μm wide. *Stromata* lacking. *Conidiophores* solitary, arising from superficial hyphae, lateral, at the top of mother

**Fig. 59.** *Pseudocercospora bambusae* (based on Saika & Sarbhoy 1986: 433, fig. 1). A. Conidiophore fascicle. B. Conidiophore tip. C. Conidia. Bar = 10 μm.

**Fig. 60.** *Pseudocercospora cymbopogonis* (based on Yen 1977: 149, fig. 2). A. Superficial hyphae emerging through a stoma. B. Solitary conidiophores arising from superficial hyphae. C. Conidiophore. D. Conidia. Bar = 10 μm.


**Illustrations:** Yen (1977: 149, fig. 2), Guo et al. (1998: 384, fig. 316).
cells, erect, straight to tortuous-geniculate, unbranched, 16–55 × 3–4 µm, 1–6-septate, olivaceous-brown, apex rounded to truncate, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci inconspicuous. Conidia solitary, obclavate-cylindrical, somewhat curved-sinuous, 25–95 × 3–4 µm, 4–11-septate, pale olivaceous-brown, thin-walled, smooth, apex rounded, base slightly short obconically truncate, hila unthickened, not darkened.


*Host range and distribution:* Only known from the type collection.


*(Fig. 61)*

_Basionym:* Cercospora rubropurpurea S.H. Sun, *J. Agric. Forest.* (Taichung) **4:** 182 (1955).


_Description:* Leaf spots at first only visible as indistinct yellowish stripes, later subcircular to irregular, 0.5–12 mm wide, reddish to dark purple, most distinct on the upper leaf surface (referred to as “Purple spot of sugarcane”). _Caespituli_ amphigenous, mainly epiphyllous. _Mycelium_ internal and external, superficial. Stromata lacking. Conidiophores solitary, arising from superficial hyphae, lateral, at the top of mother cells, erect, straight to slightly curved, geniculate, unbranched, 12–35 × 3.5–4 µm, 1–3-septate, olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci inconspicuous. Conidia solitary, obclavate, cylindrical, acicular, straight to slightly curved, 45–108 × 3–3.5 µm, 3–7(–9)-septate, hyaline, thin-walled, smooth, apex subacute or subobtuse, base subtruncate to long obconically truncate, hila unthickened, not darkened.

*Holotype:* Taiwan: Taichung, on Saccharum officinarum, 9 Aug. 1955, S. H. Sun (not traced).

*Host range and distribution:* On Saccharum officinarum, Poaceae (Panicoideae, Andropogoneae), Asia (China, Taiwan).


*(Fig. 62)*


_Synonym:* Pseudocercospora sacchari U. Braun & Crous, in Crous & Braun, *Mycosphaerella and Anam.*: 488 (2003), nom. illegit. (Art. 52.1)


*Illustration:* Sarbajna (1990: 161, fig. 1), Bhalla & Sarbhoy (2000: 264, fig. 4).
**Description:** Leaf spots amphiogenous, circular, elliptical to eye-shaped, with greyish centre, surrounded by a reddish brown margin, 3–11 mm diam, sometimes confluent. **Caespituli** amphiogenous, mainly hypophyllous, deep olivaceous, somewhat floccose. **Mycelium** internal and external; **superficial hyphae** emerging through stoma, branched, septate, pale brownish, 1–2.5 µm wide, sometimes intertwined, forming ropes. **Stromata** lacking or almost so. **Conidiophores** solitary, arising from superficial hyphae, lateral, at the top of mother cells, erect, straight, subcyllindrical to strongly curved, sinuous, geniculate, unbranched or branched, 4–65 × 1–3.5 µm, 0–6-septate, pale olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores sometimes reduced to conidiogenous cells, about 10–25 µm long, conidiogenous loci inconspicuous or visible by being denticate-like, but always unthickened and not darkened. **Conidia** solitary, obclavate-cylindrical (often with short lateral branchlets, sometimes giving rise to secondary conidia), 15–80 × 1–3.5 µm, 2–13-septate, often slightly constricted at septa, pale olivaceous-brown, thin-walled, smooth, apex obtuse or subobtuse, base short obconically truncate, about 1.5–2 µm wide, hila unthickened, not darkened.

**Holotype:** India: West Bengal: Baduria, on *Saccharum officinarum*, 18 Oct. 1986, K. K. Sarbajna (K(M) IMI 311125).

**Host range and distribution:** On *Saccharum officinarum*, Poaceae (Panicoideae, Andropogoneae), India (West Bengal).


(Fig. 63)


**Illustrations:** Yen et al. (1953: 5, fig. 2), Sun (1955: 167, fig. 23), Guo et al. (1998: 386, fig. 318).

**Description:** Leaf spots at first small, circular to irregular, dark green to yellowish, later larger and subcircular to irregular, 4–21 × 1.5–7.5 mm or confluent and larger, to 35 mm diam, brown, often with a reddish brown to dark reddish brown narrow border, finally with a grey centre surrounded by a purplish brown margin (referred to as “Ring spot of sugarcane”). **Caespituli** hypophyllous. **Mycelium** internal and external. **Stromata** lacking. **Conidiophores** solitary, arising from superficial hyphae, lateral, at the top of mother cells, erect, distinctly geniculate, simple, rarely branched, 34–126 × 3–3.5 µm, 2–4-septate, olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci inconspicuous. **Conidia** solitary, obclavate, acicular, straight to slightly curved, 36–127 × 2–3.5 µm, 3–9-septate, hyaline, thin-walled, smooth, apex subacute, base subtruncate, hila neither thickened nor darkened.

**Syntypes:** Taiwan: Taichung, on *Saccharum officinarum*, 10 Aug. 1955, S. H. Sun; Taichung, Nantu, Puli, Wufeng, on *S. officinarum*, 1935, W. Y. Yen (not traced).

**Host range and distribution:** On *Saccharum officinarum*, Poaceae (Panicoideae, Andropogoneae), Asia (China, Taiwan).

(Fig. 64)


*Illustrations*: Matsumoto & Yamamoto (1934: 585, fig. 1 and pl. 3 [upper left and right]), Sun (1955: 168, fig. 24), Sivanesan (1976: fig., unnumbered).

*Description*: Leaf spots elliptical to oblong, 2–10 × 1–1.5 mm, yellowish to reddish brown, centre later straw-coloured. *Caespituli* amphigenous. *Mycelium* internal and external, superficial; hyphae branched, septate, 1–3.5 µm wide, subhyaline to pale olivaceous or brownish, thin-walled, smooth. *Stromata* lacking. *Conidiophores* solitary, arising from superficial hyphae, lateral, at the top of mother cells, erect, subcylindrical to geniculate, somewhat attenuated towards the tip, unbranched, 5–100(–155) × 2.5–4.5 µm, 0–7-septate, subhyaline, pale olivaceous, yellowish brown to olivaceous brown, paler towards the tip, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, conidiogenous loci inconspicuous, neither thickened nor darkened. *Conidia* solitary, narrowly obclavate to acicular, straight, curved to somewhat sinuous, 20–275 × 2–4 µm, indistinctly 1–15-septate, hyaline or subhyaline, thin-walled, smooth, apex subacute, base subtruncate, hila neither thickened nor darkened.
Lectotype (designated here, MycoBank, MBT200468): Taiwan: Hualien Kang (Karenkō), on Saccharum officinarum, 13 May 1934, W. Yamamoto (CUP 41374). Isolectotypes: BPI 441849, 441850.

Host range and distribution: On Saccharum officinarum Poaceae (Panicoideae, Andropogoneae), Asia (China, Japan, Taiwan).

Notes: Leptosphaeria taiwanensis W.Y. Yen & C.C. Chi (Yen & Chi 1952) was originally proposed as sexual morph of Cercospora taiwanensis, but Hsieh (1979) linked this species to Stagonospora taiwanensis W.H. Hsieh and Phoma sp. Erikksson & Hawksworth (2003) introduced the combination Saccharicola taiwanensis (W.Y. Yen & C.C. Chi) Erikss. & D. Hawksw. 2003 and emphasized further examination was required to establish the asexual/sexual morph connexion of S. saccharicola. Matsumoto & Yamamoto (1934) cited “in foliis Sacchari officinarum, Karenkō, Taiwan (Formosa)” (without date and collector) as type material. They mentioned that the fungus was brought to their attention in spring 1933 by I. Okamoto, but the material concerned was sterile. They obtained a second sample in 1934 and recollected this fungus in that year themtheves, i.e. all original samples collected at Karenkō, including duplicates preserved at BPI and CUP, are syntypes.


Illustration: Yen & Sun (1978: 395, fig. 1 A–C).

Description: Leaf spots lacking. Caespituli amphigenous. Mycelium internal and external; superficial hyphae branched, septate, 2–2.5 µm wide, pale olivaceous-brown, thin-walled, smooth. Stromata lacking. Conidiophores solitary, arising from superficial hyphae, lateral, at the top of mother cells, erect, straight to curved, subcylindrical or once geniculate, 10–45 × 3–3.5 µm, 1–4-septate, pale olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal, conidiogenous loci inconspicuous, unthickened, not darkened. Conidia solitary, cylindrical-filiform, straight to somewhat curved, 20–90 × 2–3 µm, 1–11-septate, pale olivaceous-brown, thin-walled, smooth, apex rounded, base subtruncate, hila unthickened, not darkened.

Holotype: Taiwan: Whalian, Kungfu, on Saccharum officinarum, 12 Aug. 1977, S.K. Sun 114 (not traced).

Host range and distribution: On Saccharum officinarum, Poaceae (Panicoideae, Andropogoneae), Asia (Taiwan).
**Description:** Leaf spots variable, often oblong and marginal, dark reddish brown. Caespituli amphigenous, mainly hypophyllous. Mycelium internal and external; superficial hyphae sparingly branched, septate, 1–3 µm wide, subhyaline or pale, thin-walled, verruculose. Stromata lacking or almost so. Conidiophores solitary, arising from superficial hyphae, lateral, erect, straight, subcylindrical to geniculate-sinuous, unbranched, 20–60(–75) × 2–4 µm, 0–4-septate, pale olivaceous to olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, about 10–25 µm long, conidiogenous loci inconspicuous to somewhat conspicuous by being slightly darkened-refractive, barely thickened, 1–1.5 µm diam. Conidia solitary, narrowly obclavate-subcylindrical, 10–80 × 2–3.5(–4) µm, 0–6-septate, subhyaline, thin-walled, verruculose, apex subacute or subobtuse, base short obconically truncate, 1–2 µm wide, barely thickened, slightly refractive.

**Host range and distribution:** Only known from the type collection.

**Notes:** This species is a typical stenella-like fungus with verruculose superficial hyphae and solitary conidiophores. The solitary conidia are also verruculose. The conidigenous loci are often inconspicuous, 1–1.5 µm wide, unthickened and slightly darkened-refractive.

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