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SPOROCADACEAE Corda (SORDARIOMYCETES, ASCOMYCOTA) IN WESTERN EUROPE KEY TO THE SPECIES.

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Syn.: *Bartaliniaceae* Wijayaw.et al., *Discosiaceae* Maharachch. & K.D. Hyde, *Pestalotiopsisaceae* Maharachch. & K.D. Hyde, *Robillardaceae* Crous

Introduction:

The family Sporocadaceae, also known as pestalotioid fungi, is of economic interest due to its mostly pathogenic behaviour and its capability to produce interesting secondary metabolites.

Sexual stage morphology, host association and geographical location is less informative to distinguish taxa. The asexual type can not always strictly be defined, e.g. acervuloid and pycnidoid, and one should keep in mind that conidiomata formed in culture may differ from those found in nature. On the contrary, conidium size, septation, cell colour and wall type, presence or absence of appendages and appendage length show to be very useful for determination of genera and species. So, a dichotomous key is provided mainly based on conidium morphology. However, some genera and species are phylogenetically distinct but remain difficult or impossible to distinguish based on morphological characteristics.

Family specifications:

Habitat: Saprobic or pathogenic on plants, terrestrial or aquatic.

Sexual morph: Ascomata perithecial, immersed in bark, globose to pyriform, scattered or confluent; peridium thick, dark brown, pseudoparenchymatous. Paraphyses filiform. Asci cylindrical, containing 8 uniseriate or biseriate ascospores, thin-walled. Ascospores fusoid or ellipsoidal, septate, pale, yellow to dark brown.

Asexual morph: Conidiomata pycnidial, acervular or stromatic, but synnematosus or sporodochial in *Synnemapestaloides*, superficial, semi-immersed or immersed, scattered, gregarious or confluent, glabrous, wall of textura angularis, textura globulosa or sometimes of textura prismatica. Conidiophores branched or reduced to conidiogenous cells, mostly hyaline, smooth. Conidiogenous cells ampulliform, lageniform, cylindrical or subcylindrical, hyaline, sometimes pale brown. Conidia mostly septate, smooth, undulate or verruculose, fusoid, subcylindrical or cylindrical, straight or curved; end cells mostly hyaline, or sometimes pale brown; median cells pale brown to dark brown, or sometimes almost colourless; appendages on the end cells present, or absent in some genera, if present, tubular, filiform, straight or flexuous, attenuated or not, branched or unbranched.

Genera belonging to this family:

1. *Allelochaeta* Petr.
2. *Bartalinia* Tassi
3. *Broomella* Sacc
4. *Ciliochorella* Syd.
5. *Diploceras* (Sacc.) Died.
6. *Disaeta* Bonar
7. *Discosia* Lib.
8. *Discostroma* Clem.
9. *Distononappendiculata* F. Liu, L. Cai & Crous
10. *Diversimediispora* F. Liu, L. Cai & Crous
11. *Heterotruncatella* F. Liu, L. Cai & Crous
12. *Hyalotiella* Papendorf
13. *Hymenopleella* Munk
14. *Immersidiscosia* Kaz. Tanaka, Okane & Hosoya
15. *Monochaetia* Allesch.
16. *Monochaetinula* Muthumary, Abbas & B. Sutton
17. *Morinia* Berl. & Bres.
18. *Neopestalotiopsis* Maharachch., K.D. Hyde & Crous
19. *Nonappendiculata* F. Liu, L. Cai & Crous
20. *Parabartalinia* F. Liu, L. Cai & Crous
21. *Pestalotiopsis* Steyaert
22. *Pseudopestalotiopsis* Maharachch., K.D. Hyde & Crous

23. *Pseudosarcostroma* F. Liu, L. Cai & Crous
24. *Robillarda* Sacc.
25. *Sarcostroma* Cooke
26. *Seimatosporium* Corda
27. *Seiridium* Nees
28. *Sporocadus* Corda
29. *Strickeria* Körb.
30. *Synnemapestaloides* T. Handa & Y. Harada
31. *Truncatella* Steyaert
32. *Xenoseimatosporium* F. Liu, L. Cai & Crous
33. *Zetiaspizna* Nag Raj

Key to the sexual genera of *Sporocadaceae*:

- 1 Ascospores hyaline 2
- 1' Ascospores at least partly brown 3

- 2 Asci with J+ apical ring. Ascospores uniseriate. Asexual morph: see *Seimatosporium*. Associated with twigs and branches..... *Discostroma*
- 2' Ascomata perithecial, immersed in host tissue, solitary or aggregated in cultures, covered by a small clypeus, obpyriform; wall composed of several layers of thin-walled, brown cells. Asci long elliptical, thickened apex and indistinct apical structures J-, with biseriate ascospores. Paraphyses degenerating at maturity. Ascospores biseriate, hyaline, 3-septate, ellipsoid, straight to inequilateral. Follicolous. *Allelochaeta*

- 3 Sexual morph: Ascomata solitary or gregarious, immersed under minute clypeus, uniloculate, subglobose to globose, coriaceous, papillate or apapillate, brown. Peridium comprising light yellow or brown, thick-walled cells of textura prismatica in the upper part, and thick-walled, hyaline to pale brown cells of textura angularis in other parts. Hamathecium comprising numerous hypha-like paraphyses, slightly constricted at the septa, tapering towards the ends. Asci 8-spored, pedicellate, with J- apical ring. Ascospores fusoid, sometimes pale greyish-brown with doliiform median cells and yellowish to pale greyish-brown end cells or brown at maturity, glabrous, thick-walled, straight or curved, with pointed ends, 1–3-septate with constrictions at the septa and bearing unbranched, terminal appendages or ornamented wall..... *Heterotruncatella*
- 3' Ascospores without appendages 4

- 4 Ascospores with subhyaline end cells 5
- 4' Ascospores without subhyaline ends 6

- 5 Asci cylindrical; ascospores muriform *Strickeria*
- 5' Asci with J-, apical ring; ascospores multiseptate *Broomella*

- 6 Sexual morph: Asci cylindrical, with 8 uni- to partially biseriate ascospores, containing a flat, V-shaped to sinuous, amyloid apical ring. Ascospores oblong, ellipsoid or fusoid, symmetric, mostly muriform, light yellow- to reddish brown wall and septa more strongly pigmented than contents, smooth, partly turning dull green in Lugol, lacking a sheath. Asexual morph monochaetia-like. *Hymenoplella*
- 6' Sexual morph: Ascospores cylindrical-oblong, euseptate, septa often thicker than the wall, yellow- to dark brown, guttulate; asci with amyloid apical ring. Asexual morph: Conidiomata non-stromatic, acervular or pycnidial; conidia versicolorous, median cells 5-6-septate, with a single apical appendage *Seiridium*

Key to the asexual genera (sexual morph unknown) of *Sporocadaceae*:

- 1 Conidiomata synnematos or sporodochial, determinate, black, not changing colour in 2 % KOH or 85 % lactic acid, arising from a basal stroma composed of textura angularis; hyphae of stipe parallel or those of sporodochia loose; conidial mass black, globose to subglobose, subgelatinous. Conidiophores verticillately to sublaterally branched several times. Conidiogenous cells cylindrical to subcylindrical with annellations. Conidia fusoid with a truncate base, straight, septate, pale olivaceous to pale brown; apical appendage single or absent, when present, unbranched or dichotomously branched; basal appendage single or absent, when present, unbranched or irregularly branched, excentric *Synnemapestaloides*
- 1' Conidiomata not synnematos 2

- 2 Conidia +/- without appendages; conidiomata stromatic, acervular.....section A
- 2' Conidia with one or more appendages; conidiomata coelomycetous 3

- 3 Conidiomata stromatic, variable applanate, immersed to suberumpent, occasionally appearing as conical blisters, unilocular to plurilocular, glabrous, dark brown to glistening black. Conidiophores mostly reduced to conidiogenous cells, colourless, smooth, invested in mucus. Conidiogenous cells discrete, rarely integrated, clavate, ampulliform, lageniform, narrow conical, subcylindrical, or cylindrical, colourless, thin-walled, smooth. Conidia cylindrical, fusoid, naviculate or subcylindrical, straight or curved, euseptate, cells of varying lengths, colourless, pale olivaceous or brown, smooth, bearing a cellular, unbranched or branched, filiform or attenuated appendage at each end; appendages

	maintaining protoplasmic continuity with conidium body and characteristically <u>inserted on the basal and apical cells on the concave side of the conidium</u>	<i>Discosia</i>
3'	Cf. <i>Discosia</i> but conidiomata pycnidoid, deeply immersed, with developed beak (or opening) with hyaline periphyses ..	<i>Immersidiscosia</i>
3"	Conidia with conidial appendages otherwise	4
4	Conidial appendages, if present, single	5
4'	Conidial appendages at least several at one end, branched or unbranched	section D
5	Conidial appendages, if present, single and usually unbranched	section B
5'	Conidial appendages, if present, single and at least partly branched	section C

Section A – Conidial appendages absent

1	Conidia distoseptate	<i>Distononappendiculata</i>
1'	Conidia mostly 3-euseptate	2
2	Conidia fusoid, straight or slightly curved, 3-euseptate, smooth, not constricted at the septa; basal cell obconic with a truncate or obtuse base, colourless to pale grey; median cells doliiform, pale brown, thick-walled; apical cell conical, colourless to pale grey; appendages absent.....	<i>Nonappendiculata</i>
2'	Conidia (1)3(7)-euseptate	see <i>Spororcadus</i>

Section B – Conidial appendages, if present, single and unbranched:

1	Conidia with basal appendage	2
1'	Conidia mostly without basal appendage	8
2	Conidia allantoid to subcylindrical, with apical and basal, unbranched, ragged appendage	<i>Xenoseimatosporium</i>
2'	Conidia otherwise; appendages, if present, smooth-walled	3
3	Conidiomata non-stromatic	4
3"	Conidiomata stromatic	5
4	Conidiomata non-stromatic, acervular, black. Conidiophores septate, branched, colourless, smooth. Conidiogenous cells discrete or integrated, cylindrical, subcylindrical, or lageniform, thin-walled. Conidia fusoid, straight or curved, 4-septate, collapsed or not collapsed at septa, smooth; basal cell obconic with a truncate base, colourless; median cells cylindrical or doliiform, thick-walled, pigmented; apical cell conical, colourless; apical appendage single, attenuated; basal appendage single, excentric	<i>Diseata</i>
4	Conidiomata pycnidoid, globose to sybglabose, lack. Conidiophores mostly reduced to conidiogenous cells. Conidia fusiform and curved, holoblastic, usually 3 to 4(7) septate, with colorless to olivaceous brown or olivaceous median cells, and apical and basal appendages	<i>Monochaetinula</i>
5	Conidiomata stromatic, pycnidoid, unilocular, black. Conidiophores hyaline, reduced to conidiogenous cells. Conidia dorsiventral, 3-septate, smooth-walled, hyaline; apical and basal cell tapering into a slender, pointed appendage, <u>lateral wall of the apical cell with an appendage</u> ; middle cells cylindrical	<i>Ciliochorella</i>
5'	Apical cell without lateral appendage	6
6	Conidiomata stromatic, acervular, erumpent, unilocular to plurilocular, glabrous, dark brown to black; basal stroma of textura angularis; dehiscing via an irregular split in the overlying host tissue. Conidiophores reduced to conidiogenous cells or branched and septate, hyaline or pale brown at base, smooth, invested in mucus. Conidiogenous cells discrete or integrated, ampulliform, lageniform, cylindrical, subcylindrical, mostly hyaline, or pale brown below, smooth, proliferating percurrently. Conidia fusoid, naviculate, subcylindrical or acerose, straight or curved, euseptate, wall thin and with or without slight constrictions at the septa, <u>smooth-walled</u> ; median cells hyaline to medium brown; end cells hyaline, bearing mostly a single appendage at each end, which could be branched; appendages continuous with the conidium body or cellular, not separated from the conidium body by septa, branches filiform or attenuated and flexuous; basal appendage excentric, narrowly cuneiform to spike-like, podiform or cellular. Microconidia present in some species, acerose, unicellular, hyaline, smooth.	<i>Allelochaeta</i>
6'	Median cells of the conidia pale brown to brown, with <u>undulate or verruculose wall</u>	7
7	Conidiomata stromatic, variable from acervular to acervuloid, pycnidoid or cupulate, innate-erumpent or erumpent, unilocular with the locule often irregularly convoluted, glabrous, dark brown to black. Conidiophores sometimes reduced to conidiogenous cells, septate, unbranched or branched, colourless, thin-walled. Conidiogenous cells discrete or integrated, ampulliform, lageniform to subcylindrical or cylindrical, colourless, thin-walled, smooth. Conidia fusoid, straight or curved, 3–5-septate, occasionally 6–7-septate, basal cell obconic with a <u>truncate base</u> , colourless, thin-walled, smooth; <u>median cells cylindrical or doliiform, thick-walled (including both distal septa)</u> , mid-brown to brown, wall smooth, undulate or verruculose; apical cell conical, almost colourless, smooth; appendages cellular, attenuated, unbranched, filiform, tubular or flexuous; apical appendage single; basal appendage single, excentric ...	<i>Sarcostroma</i>
7'	Conidiomata acervular, superficial or immersed, pale brown. Conidiophores sparsely septate, branched at the base, often reduced to conidiogenous cells, colourless, invested in mucus. Conidiogenous cells lageniform or ampulliform,	

discrete or integrated, colourless, thin-walled, smooth. Conidia fusoid with an acute apex and a truncate or obtuse base, straight or slightly curved, 4–5-septate, wall undulate or verruculose, apical and basal cell colourless, median cells pale brown, without or with slight constriction at the septa; apical appendage single, attenuated, flexuous, not branched; basal appendage single, tubular, excentric, unbranched. *Pseudosarcostroma*

- 8 Conidiomata stromatic, acervular, erumpent, dark brown to black. Conidiophores septate, branched, sometimes reduced to conidiogenous cells, hyaline, thin-walled. Conidiogenous cells discrete or integrated, lageniform, clavate, obclavate, subcylindrical or cylindrical, colourless, thin-walled, smooth. Conidia obovoid, ellipsoid, subcylindrical, pyriform or clavate, straight or curved, smooth, (1)3(7)-septate, basal cell obconic with a truncate base, hyaline or concolourous with median cells, thin- or thick-walled; median cells cylindrical or doliiform, thick-walled, pale brown to brown; apical cell conic with round apex, concolourous with median cell(s), appendage absent in most species, when present, single, unbranched, filiform, tubular, flexuous; basal appendage excentric. *Sporocadus*
- 8' Conidiomata stromatic, acervuloid. Conidiophores septate and branched or reduced to conidiogenous cells, colourless, smooth, invested in mucus. Conidiogenous cells discrete or integrated, ampulliform, lageniform, cylindrical, subcylindrical or irregular, annellidic, colourless to pale brown, smooth. Conidia fusoid, straight or slightly curved, mostly 4-euseptate; basal cell obconic with a truncate base, hyaline to pale brown; median cells with thick, smooth or ornamented walls, pigmented and concolourous; apical cell conical, hyaline to pale brown; apical appendage single; basal appendage usually absent, when present, single, unbranched, centric; appendages cellular, unbranched or seldomly branched (*M. karstenii*), attenuated (see *Pestalotiopsis monochaeta* too) *Monochaetia*

Section C – Conidial appendages, if present, single and branched:

- 1 Conidia without basal appendage 2
- 1' Conidia mostly with a basal appendage 3
- 2 Conidiomata stromatic, pycnidial or pycnidoid, erumpent, unilocular to variably loculate, often convoluted, glabrous, dehiscing by an ostiole or by an irregular split in the apical wall and overlying host tissue. Conidiophores reduced to conidiogenous cells or with 1–2 supporting cells lining the cavity of the locule, invested in mucus. Conidiogenous cells discrete, ampulliform to lageniform, hyaline, smooth; proliferating sympodially or percurrently near apex. Conidia composed of a conidium body and an apical cell modified into a branched appendage; conidium body ellipsoid, fusiform or subcylindrical, 1-septate, wall smooth, with or without constriction at the septum, hyaline to pale brown, often guttulate; apical cell short cylindrical at base, then dividing into 2–5 branches, branches thin-walled, tubular, filiform, ends pointed or swollen, flexuous, divergent, smooth, hyaline, devoid of contents *Robillardia*
- 2' Conidiomata stromatic, pycnidial, immersed, vaseshaped with a well-defined venter and a long neck, venter unilocular or irregularly divided, glabrous, brown to dark brown. Conidia cylindrical, euseptate; apical cell sub-cylindrical, colourless; median cells almost colourless to pale brown, longer than end cells, smooth; appendage cellular, arising from the apical cell and maintaining protoplasmic continuity with it, branched close to the point of origin; branches 2–4, attenuated, flexuous; basal cell without appendage *Hyalotiella*
- 3 Conidiomata stromatic, acervular, pycnidoid, semi-immersed to erumpent, glabrous, brown to black. Conidiophores septate and branched, colourless, smooth. Conidiogenous cells discrete or integrated, subcylindrical, cylindrical, ampulliform or lageniform, annellidic, colourless or almost colourless to pale brown, thin-walled, smooth. Conidia fusoid, ellipsoid, ovoid, clavate, 2-4-septate, occasionally 5-6-septate, wall smooth, sometimes constricted at the septa; basal cell obconic with a truncate base, smooth, colourless; median cells pale brown to brown, concolourless; apical cell without apical appendage, pale brown and concolourous with the median cells, but apical cell with an appendage paler or almost colourless; conidia with basal appendage only, or with no appendages, or with appendages at both ends, filiform, flexuous, attenuated; apical appendage (when present) single, unbranched; basal appendage single, branched or unbranched, excentric *Seimatosporium*
- 3' Conidia with a branched apical appendage and single, unbranched basal appendage 4
- 4 Conidiomata stromatic, pycnidoid to undeterminate. Conidia cylindrical to fusoid with an acute or blunt apex and a truncate base, straight or slightly curved, 3–4-euseptate, apical cell hyaline and devoid of contents, other cells hyaline to pale brown, wall smooth, with or without constrictions at septa, suprabasal cell longer than the rest, apical appendage single, arising as a tubular extension of the apical cell and not separated from it by a septum, invariably trifold with 2–4, narrow, attenuated, flexuous, divergent branches; basal appendage tubular, single, unbranched, exogenous, filiform, flexuous *Bartalinia*
- 4' Conidiomata stromatic, acervular, erumpent. Conidiophores sparsely septate and branched at the base, often reduced to conidiogenous cells, colourless, invested in mucus. Conidiogenous cells ampulliform, cylindrical, colourless, thin-walled, smooth. Conidia cylindrical to fusoid with a rounded or obtuse apex and a truncate base, straight or slightly curved, 4-septate, smooth, apical and basal cell colourless, median cells pale brown, without or with slight constriction at the septa, suprabasal cell longer than the rest, bearing appendages; apical appendage arising laterally from the apical cell, 3–5 divergent branches, attenuated, filiform, flexuous; basal appendage single, filiform, unbranched, exogenous *Parabartalinia*

Section D – Conidial appendages several at one or both ends:

- 1 Conidia with versicoloured median cells 2
- 1' Conidia with +/- concolourous median cells 3

- 2 Conidiomata stromatic, acervular to pycnidoid, superficial to semiimmersed, black, erumpent. Conidiophores, septate, often reduced to conidiogenous cells, colourless, smooth, invested in mucus. Conidiogenous cells discrete, cylindrical, lageniform, or ampulliform, colourless, smooth. Conidia fusoid, euseptate; basal cell obconic with a truncate base, thin-walled, colourless to pale brown, basal appendage single; median cells doliiform, trapezoid, thick-walled, without or with slight constriction at septa, pale brown to black, the second and third cell from apex darker than other median cells, the basal median cell verruculose; apical cell conic or semi-circle with a small protuberant apex giving rise to appendages, thin-walled, colourless to pale brown; appendages attenuated, tubular, filiform, flexuous, branched or unbranched..... *Diversimediispora*
- 2' Conidiomata acervular or pycnidial, unilocular or irregularly plurilocular. Conidiophores often reduced to conidiogenous cells. Conidia fusiform, ellipsoid to cylindrical, straight to curved, 4-septate; basal cell conic to subcylindrical, hyaline or pale brown to olivaceous, rugose to smooth-walled, with single tubular appendage, unbranched, centric; three median cells doliiform, wall rugose to verruculose, versicoloured, septa darker than the rest of the cell; apical cell hyaline, with one to many tubular apical appendages, branched or unbranched (but see *Pestalotiopsis* too) *Neopestalotiopsis*
- 3 Conidiomata stromatic, acervular to pycnidoid, immersed to semi-immersed, glabrous, brown to black. Conidiophores septate, branched, colourless, smooth, mucous. Conidiogenous cells discrete or integrated, cylindrical, ampulliform, lageniform, annellidic, colourless, smooth. Conidia fusoid, 3-euseptate, straight or curved; basal cell obconic with truncate base, thin-walled, colourless, sometimes pale brown; median cells doliiform to subcylindrical, wall thick, often verruculose, yellowish brown to brown, concolourous; apical cell conic, thin-walled, colourless; apical appendages cellular, unbranched, rarely branched, tubular, filiform, flexuous; basal appendage absent *Truncatella* or *Heterotruncatella*
Similar genera but phylogenetically distinct.
- 3' Basal appendage present 4
- 4 Conidiomata stromatic, acervular or pycnidial, erumpent, glabrous, dark brown to black. Conidiophores reduced to conidiogenous cells or unbranched and septate, occasionally sparsely branched, colourless, smooth, invested in mucus. Conidiogenous cells discrete or integrated, ampulliform, lageniform, cylindrical, subcylindrical, conical, or obclavate, mostly colourless, or pale brown in the upper part and colourless below, smooth. Conidia fusoid or subcylindrical, straight or slightly curved, 3-septate, wall thin and with or without slight constrictions at the septa, smooth; median cells almost colourless to mid-brown; end cells colourless, bearing single or more appendages at each end; appendages cellular, not separated from the conidium body by septa, branched or unbranched, filiform or attenuated and flexuous; basal appendage excentric. *Diploceras*
- 4' Conidia appendages unbranched 5
- 5 Conidiomata acervular; conidia muriformly septate, with several apical and a single (rarely two) basal, unbranched appendage (exception: *M. acacia* has multiseptate conidia) *Morinia*
- 5' Conidia phragmosporous 6
- 6 Conidiomata acervular. Conidia fusoid to oval, 3- or 4-septate, median cells pigmented, concolorous or versicoloured, with thicker wall than end cells; end cells (sub)hyaline; usually 2-5 apical appendages arising as tubular extensions from the apical cell; , basal appendage single, centric. Not host-specific..... *Pestalotiopsis*
- 6' Conidiomata acervular or pycnidial. Conidia 4-septate; three median cells doliiform, concolourous, brown to dark brown or olivaceous, wall rugose to verruculose, septa darker than the rest of the cell; 2-4 tubular apical appendages (mostly 3), arising in an apical crest, but each inserted at a different locus, flexuous, branched or unbranched, with or without spatulate tips; basal appendage single, tubular, unbranched, centric *Pseudopestalotiopsis*

Allelochaeta Petr.

Syn.: *Vermisporium*, *Discostromopsis*
Type species: *Allelochaeta gaubae* Petr.
Lit.: Crous et al. 2018b: 282.

- 1 Conidiomata stromatic, acervular, epiphyllous, erumpent, 80-300 µm wide, 40-90 µm deep, glabrous, pale brown. Conidiophores branched at the base, up to 25 µm long. Conidiogenous cells subcylindrical to obclavate, 7-17x2.5-3.5(4) µm, smooth, hyaline, with up to 3 annellations. Conidia subcylindrical to naviculate, 21-40(44)x(3.5)4.5 µm, 3(4-5)-septate, bearing tubular, unbranched appendages, basal cell obconic with truncate base bearing minute marginal frills, hyaline; median cells subcylindrical, subhyaline to yellowish brown; apical cell narrow conical, hyaline; apical appendage single, (3)5-7(8) µm long; basal appendage single, excentric, 5-9(13) µm long; occasionally both appendages may be forked. Foliicolous on *Epilobium angustifolium*, *E. hirsutum*. Phen.: VII-IX (CZ, DE) *Allelochaeta kriegeriana* (Bres.) Crous (2018)
Ill.: Nag Raj 1993: fig. 41.7.

Bartalinia Tassi

Type species: *Bartalinia robillardoides* Tassi
Lit.: Nag Raj 1993: 133, Crous et al. 2014: 145.

- 1 Conidiomata stromatic, pycnidoid to indeterminate or variable, amphigenous, subepidermal, initially immersed, becoming erumpent, globose or depressed globose to angular, 180-240 µm diam., 80-200 µm high, unilocular, glabrous, brown to black, lacking an ostiole; wall to 40 µm thick, of textura angularis. Conidiophores reduced to conidiogenous cells, invested in mucus. Conidiogenous cells ampulliform, hyaline, thin-walled, smooth, 4-8x3-4.5 µm. Conidia subcylindrical, 4-septate, smooth, slightly constricted at the septa, (19)21-24(27)x3-4 µm, Qm=7.1, bearing appendages; basal cell obconic with a truncate base, hyaline; apical cell conical, hyaline, devoid of contents, forming a tubular, branched appendage; apical appendage branches into three unbranched, attenuated, flexuous, divergent branches, (15)16-20(22) µm long; basal appendage single, unbranched, filiform, flexuous, excentric, 4-7 µm long. On leaves of *Callistemon*, *Magnolia*, *Poa* sp. Phen.: I-X (IT,NL) **Bartalinia robillardoides** Tassi (1900)
 Ill.: Nag Raj 1993: fig. 10.5, Crous et al. 2014: fig. 2.
- 1' Conidiomata stromatic, pycnidoid, immersed, hemispherical to subglobose, 130-280 µm wide, 100-230 µm deep, unilocular, glabrous, brown to black, lacking an ostiole, wall to 40 µm thick, of textura angularis. Conidiophores reduced to conidiogenous cells, invested in mucus. Conidiogenous cells lageniform, 5-10;5x3-3.5 µm, smooth, hyaline. Conidia subcylindrical to fusiform, (3)4(5)-septate, 23-33x3.5-4(4.5) µm, Qm=7.4; basal cell obconic with a truncate base and hyaline; median cells subhyaline; apical cell conical, hyaline, devoid of contents, drawn out at the apex into a tubular, appendage composed of (2)3 branches each 13-22 µm long; basal appendage single, unbranched, excentric, 3.5-7 µm long. On leaves of *Laurus nobilis*. (FR) **Bartalinia laurina** (Mont. ex Desm.) Nag Raj (1993)
 Ill.: Nag Raj 1993: fig. 10.3.

Broomella Sacc.

Type species: *Broomella umbrina* (Fr.) De Not.
 Lit.: Ahn & Shaerer 1998: 265, Shoemaker et al. 1989: 309.

- 1 Spores 22-34x5-7 µm, 3-septate, yellow brown central cells, hyaline to slightly yellow end cells, one 6-7 µm long seta at each end; saprobic on stems of *Clematis vitalba*; phen.: IX-V (BE/F, BE/W, IT) **Broomella vitalbae** (Berk. & Broome) Sacc. (1883)
- 1' Ascomata subepidermal, globose, (250)300-450 µm diam., papillate; asci 90-120x9-12 µm; spores 18-22(24)x5.5-7 µm, 3-septate, mid-cells red-brown, end cells yellow, verrucose, with one setose 5-8(12)x1 µm appendage at each end; *Truncatella* anamorph with conidia 20-26x6-7 µm, 3-septate, central cells greyish brown, end cells hyaline, with 2-3 apical setae 20-25x1 µm and one basal seta 5-8x1 µm. Saprobic on stem of *Clematis alpine*. Phen.: VII (CH) **Broomella verrucosa** Shoemaker, C.E. Babc. & E. Müll. (1989)
 Ill.: Shoemaker et al. 1989: fig. 1-8.

Ciliochorella Syd.

Type species: *Ciliochorella mangiferae* Syd.
 Lit.: Nag Raj 1993: 209, Suberamanian et al. 1956: 314.

No Western European species determined.

Diploceras (Sacc.) Died. 1915, emend.F. Liu, L. Cai & Crous

Type species: *Diploceras hypericinum* (Ces.) Died.
 Lit.: Nag Raj 1993: 277, Liu et al. 2019: 311.

- 1 Sexual morph: unknown. Asexual morph Acervuli brown, 0.2 mm diam.: Conidiophores septate, branched, colour-less, smooth, thin-walled, invested in mucus. Conidiogenous cells annellidic, discrete or integrated, mostly subcylindrical, 5-15x1-2.5 µm, colourless, smooth or verruculose. Conidia fusoid, sometimes cylindrical, curved, 15-22x2.5-4.5 µm, 3-septate, slightly constricted at septa, smooth, basal cell short cylindrical, trapezoid, thin-walled, hyaline to pale brown, 2.5-3.5 µm long; median cells cylindrical, pale brown, relatively thick-walled, second cell from the base 6-8.5 µm long, the third cell 4-6 µm long; apical cell conic with an obtuse apex, thin-walled, hyaline to pale brown, 2.5-4 µm long; appendages with independent loci of origin, flexuous, attenuated, unbranched, or dichotomously branched at one appendage; 2 apical appendages, 7.5-20.5 µm long; 1-3 basal appendages, excentric, (3.5)8.5-21.5 µm long; mean conidium length/width ratio = 4.8:1. On leaves of *Hypericum perforatum*, *H. tetrapterum*. Phen.: VIII (CH, DE, FR, IT, NL, SE, UK) **Diploceras hypericinum** (Ces.) Died. (1915)
 Ill.: Ellis & Ellis 1985: fig. 1532 (sub *Seimatosporium hypericinum*), Nag Raj 1993: fig. 41.6, Liu et al. 2019: fig. 11.

Discosia Lib.

Syn.: *Adisciso* Kaz. Tanaka
 Type species: *Discosia artocreas* (Tode: Fr.) Fr.
 Lit.: Vanev 1991: 387, Nag Raj 1993: 299, Li et al. 2015: 37, Senanayake et al. 2015: 94, Liu et al. 2019: 319, Bundhun et al. 2021: 173.

- 1 Conidia 4-celled, an appendage arising just next to the apex and to the base of the conidium 2

- 1' Conidia 4-celled, an appendage arising next to the two end septa 9
- 2 Two middle cells not equal in length 3
- 2' Two middle cells almost equal in length 8
- 3 Lower middle cell longer than the upper middle cell 4
- 3' Upper middle cell longer than the lower middle cell 6
- 4 Sexual state: Unknown. Asexual state: Conidiomata up to 150 µm diam., stromatic, pycnidial, erumpent to superficial, subglobose to lenticular, unilocular, dark brown; wall composed of polygonal brown cells. Conidiophores hyaline to pale brown, subcylindrical, 0–1-septate, branched below or not, 7-15×2–3 µm. Conidiogenous cells integrated, terminal, hyaline to pale brown, subcylindrical, 5-8×1.5-2 µm. Conidia cylindrical, 3-septate, pale brown, with an appendage at both ends, (11)14-16(17)×2.5(3) µm; basal cell 2.5–3 µm long, obconic with truncate hilum, second cell from base 5–8 µm long, third cell 3–4 µm long and apical cell 2-3 µm long with obtusely rounded apex. Appendages cellular, unbranched, filiform, excentric; apical appendage 10-13 µm long, basal appendage 7-11 µm long. On leaves of *Tilia* sp. Phen.: VIII (AT) **Discosia pseudoartocreas** Crous & Damm (2013)
Ill.: Crous & al. 2013: 248.
- 4' Conidia larger 5
- 5 Sexual state: Unknown. Asexual state: Conidiomata 100–250 µm diam., 20–45 µm high, conspicuous, pycnidial, stromatic, amphigenous, scattered or aggregated and confluent, flattened or concave at the centre with a convex margin and a relatively thin stromatic base, rounded, black, glabrous, epidermal, unilocular or multilocular, with locules separated by cells of textura porrecta, ostiolate. Peridium 6–17 µm wide, composed of 3–4-layers, with outer 1–2-layers brown and inner 1–2-layers hyaline, composed of thin-walled cells of textura angularis. Ostiole circular, papillate. Conidiophores absent. Conidiogenous cells 2–5×1–3 µm, holoblastic to phialidic, ampulliform, integrated, hyaline, smooth-walled. Conidia cylindrical to allantoid, 10–19×1.5–4 µm, initially hyaline, becoming pigmented to pale brown at maturity, smooth-walled, guttulate, 3-euseptate, thin-walled; with basal cell obconic, slightly truncate at the base and appendaged; 2 median cells subcylindrical, with second cell from the base 4–7 µm long and third cell 2.5–4 µm long; apical cell subconical with a obtuse apex; apical and basal cells each with a single filamentous appendage at the ends, apical appendage 4–10 µm and basal appendage 6–9 µm. Saprobic on dead leaves of *Fagus sylvatica*. Phen.: IX (IT) **Discosia italica** W.J. Li, J.K Liu & K.D. Hyde (2015)
Ill.: Li et al. 2015: fig. 2.
- 5' Sexual state: Unknown. Asexual state: Conidiomata 200–500 µm diam., 30–75 µm high, pycnidial, stromatic, epiphyllous or hypophyllous, solitary, scattered to gregarious or confluent, applanate to disc-like, partly immersed or superficial, rounded to irregular in outline, glabrous, unilocular or divided into several locules by tissue cells of textura porrecta, ostiolate. Peridium 10–15 µm thick, composed of 5–6 layers of cells, with outer 2–3 layers dark brown, inner 1–2 layers colourless, comprising thin-walled cells of textura angularis. Ostiole circular, papillate. Conidiophores reduced to conidiogenous cells, arising from the upper cells of the basal stroma. Conidiogenous cells 4–8×1–3.5 µm, subcylindrical to narrowly flaskshaped, developing directly on the inner-most layer of peridium-wall, phialidic, each producing a single conidium, integrated, hyaline, smooth. Conidia cylindrical to subcylindrical, 13–20×2.5–3 µm, straight or slightly curved, 3-septate, with cells of equal width and colour (yellowish to colourless); basal cell obconic, with a truncate base; 2 median cells subcylindrical, second cell adjacent to the base 5–9 µm long, the third cell adjacent to the apex 2–4 µm long; apical cell subconical with a rounded apex; apical and basal cells each with a subapical and suprabasal, filiform, flexuous or straight appendage; 6–10 µm long. Saprobic on dead leaves of *Fagus sylvatica*. Phen.: ? (IT) **Discosia fagi** W.J. Li, J. K. Liu & K.D. Hyde (2015)
Ill.: Li et al. 2015: fig. 3.
- 6 Sexual morph: Undetermined. Asexual morph: Conidiomata 700-1000 µm diam., up to 80 µm deep, stromatic, amphigenous, scattered to gregarious, erumpent, uni- to bilocular, black. Basal stroma composed of cells of textura prismatica; upper wall of bluish textura epidermoidea. Conidiogenous cells 7–40×1.5–2.5 µm, subcylindrical to lageniform or ampulliform. Conidia 12.5-19×2.5-3.5 µm, mostly 3-septate, cells unequal, subhyaline; basal cell narrowly obconic, with truncate base; 2 median cells together 6.5-11 µm long, subhyaline, with septa thicker and darker than the periclinal wall, with cells unequal (second cell from the base 2-4 µm long, third cell 4-8 µm long): apical cell subconical with acute apex, hyaline at apex and sub-hyaline below; appendages tubular, unbranched, flexuous, appendage on the apical cell polar, 10-21 µm long; appendage on the basal cell subpolar, 6-20 µm long. On leaves of *Amelanchier vulgaris*, *Crataegus* sp., *Populus* sp. Phen.: V (AT, DE, FR) **Discosia fraxinea** (Schwein.) Nag Raj (1993)
Ill.: Nag Raj 1993: fig. 42.6.
- 6' Conidiomata smaller, superficial 7
- 7 Sexual morph: Undetermined. Asexual morph: Conidiomata 450–550 µm diam., 125–176 µm high, stromatic, pycnidoid, solitary or gregarious, superficial, globose to subglobose, unilocular, rugose, dull black, with a short beak, ostiolate. Peridium 10–20 µm wide, composed of two types of pseudoparenchymatous cells, forming thickwalled cells of textura epidermoidea towards the apex, with textura prismatica at the base, with inner layers hyalines. Conidiophores septate, unbranched or occasionally branched, cylindrical, hyaline, smooth. Conidiogenous cells 6–40×1–2 µm, holoblastic, cylindrical, hyaline, smooth-walled. Conidia 15–18×2.5–3.5µm, median cells pale brown, naviculate to subcylindrical, narrow towards the base, 3-septate, slightly curved, with cells of unequal length, hyaline to pale brown, bearing appendages; basal cell narrowly obconic with a truncate base bearing a prominent dehiscence scar, with septa

thicker and darker than the periclinal wall, with the second cell close to apical cell twice or more than two times that of the size of the third cell close to basal cell, with apical cell subconical and with an acute apex; appendage 10–20 µm long, single, unbranched, flexuous. Saprobic on dead leaf of *Fagus sylvatica*. Phen.: IV–VI (IT)

..... **Discosia neofraxinea** W.J. Li, Camporesi & K.D. Hyde (2015)
 Ill.: Senanayake et al. 2015: fig. 10.

7' Sexual morph: Undetermined. Asexual morph: Conidiomata 410–800 µm diam., 45–70 µm high, stromatic, scattered to gregarious, superficial, unilocular to bilocular, rugose, dull black, ostiolate. Conidiomatal wall 10–20 µm thick at the base, outermost layer comprising a thick-walled dark brown textura angularis, gradually becoming pale towards the inner layer; near the apex thick-walled dark brown to black textura epidermoidea. Conidiophores up to 40 µm high, unbranched or at times branched, 0–1(2)-septate or reduced to conidiogenous cells, cylindrical, hyaline, smooth. Conidiogenous cells 8–30×0.7–1.5 µm, subcylindrical to elongate-ampulliform, hyaline, smooth-walled, holoblastic. Conidia 12–16×1.5–3 µm, naviculate, to subcylindrical, straight or faintly curved, mostly 3-septate, with septa thicker and darker than the periclinal wall, with cells unequal, hyaline to sub-hyaline, smooth-walled, bearing an appendage on both apical and basal cells; basal cell narrowly obconic, with truncate base; 2 median cells, together 6–10 µm (cell close to the apical cell 4–6 µm long, almost twice the size of the 2–4 µm long cell adjacent to the base); apical cell subconical with acute apex, hyaline at apex and sub-hyaline below; appendages tubular, unbranched, flexuous; appendage on apical cell 5–17 µm, polar; appendage on basal cell 4–17 µm long, inserted slightly above conidium base. Saprobic on leaves of *Pyrus* sp. Phen.: XII (IT)

..... **Discosia ravennica** Bundhun, Jeewon, Camporesi, J.C. Kang & K.D. Hyde (2021)
 Ill.: Bundhun et al; 2021: fig.2.

8 Sexual state: Unknown. Asexual state: Conidiomata 150–500 µm diam. up to 60 µm deep., pycnidial, circular, disc-shaped or plane, sometimes immersed, black, shiny, single, scattered or gregarious. Ostioles 20–45 µm diam., central or excentric. Conidiogenous cells annellidic. Conidia 4-celled, cylindrical, with cells of equal width and colour, slightly narrowed at the ends, rounded at the apex, truncate at the base, slightly curved or straight, hyaline, 10-19×2.5-4 µm; middle cells almost equal in length, appendages filiform, unbranched, hyaline, straight, up to 10 µm long. Saprobic on leaves of *Acer*, *Betula*, *Carpinus*, *Castanea*, *Corylus*, *Fagus*, *Juglans*, *Populus*, *Quercus*, *Rhododendron*, *Salix*, *Sorbus*, *Tilia*, herbaceous (*Anemone*, *Galium*, *Lysimachia*, *Oenothera*, *Oxalis*, *Viola*) and graminicolous. Phen.: (VI)VIII–IV (AT, BE/F, DE, FR, IT, PL, SE, UK)

..... **Discosia artocreas** (Tode: Fr.) Fr. (1849)
 Ill.: Ellis & Ellis 1985: fig. 378, Liu et al. 2018: fig. 18.

8' Conidiomata stromatic, pycnidoid, hypophyllous, scattered to gregarious, erumpent pustulate, 200-800 µm wide, 120-160 µm deep, uni- to plurilocular, glabrous, dark brown, dehiscence by splitting the apical wall. Conidiophores reduced to hyaline ampulliform conidiogenous cells 3-4x2-2.5 µm, with up to 3 annellations. Conidia fusiform to naviculate, 14-27.5x2-3 µm, 3-septate, smooth, subhyaline; basal cell obconic with a truncate base; 2 median cells cylindrical, about equal, together 10-21 µm long; apical cell conical with acute apex; appendages filiform, flexuous, unbranched, polar; aical appendage 5-10 µm long; basal appendage excentric, (2)5-8(9) µm long. On leaves of *Brachychiton populneus* and *Laurus nobilis*. Phen.: V (IT, PT)

..... **Discosia lauricola** Nag Raj (1993)
 Ill.: Nag Raj 1993: fig. 42.7.

9 Asexual morph: Conidiomata 300-530 µm diam., 70-130 µm deep, stromatic, amphigenous, applanate, oval to almost rounded in outline, uni- to plurilocular, glabrous, glistening black; basal stroma of thick-walled and dark brown textura angularis. Conidiophores reduced to conidiogenous cells. Conidiogenous cells 10-13x1.5-2 µm tapering at the apices. Conidia subcylindrical, straight to slightly curved, 18-20x3-3.5 µm, 3-septate, cells unequal, appendages 14-16 µm long. On dead cones of *Abies alba*, *Picea abies*, *Pseudotsuga*, on *Fagus*, *Pteridium*.(BE/W, FR, IT)

..... **Discosia strobilina** Lib. (1837)
 Ill.: Sutton 1980: fig. 71, Nag Raj 1993: fig. 42.12.

9' Conidia longer 10

10 Asexual morph: Conidiomata 240-400 µm diam., 100-150 µm deep, stromatic, epiphyllous, scattered to gregarious, erumpent, unilocular, glistening black; basal stroma of thick-walled and dark brown textura angularis. Conidiophores reduced to conidiogenous cells. Conidiogenous cells ampulliform to lageniform, (5)7-11x(1.5)2.5-3(4) µm, smooth, hyaline. Conidia subcylindrical, straight or slightly curved, 19.5-27(30)x3-3.5(4) µm, 3-septate, cells unequal, smooth, pale brown to brown; basal cell obconic with a truncate base and minute marginal frills; two median cells cylindrical, darker than the end cells; together (12)13-19(20.5) µm long; apical cell subconical with rounded apex; appendages tubular, broader at the base, flexuous; appendage on the apical cell (6)8-13(15) µm long, inserted about 1-1.5 µm from the septum; appendage on the the basal cell 7-17 µm long, inserted about 1.5-2 µm from the septum. On dead leaves of *Phillyrea latifolia* and *Smilax aspera*. Phen.: II (IT)

..... **Discosia pleurochaeta** Durieu & Mont. (1849)
 Ill.: Nag Raj 1993: fig. 42.9.

10' Asexual morph: Conidiomata 300–360µm diam., 40–80µm high, stromatic, gregarious, occasionally confluent, flattened, glabrous, black, superficial, unilocular. Ostiole papillate, single circular, central. Conidiomata wall 15–25 µm thick at the base, composed of pale brown, thin-walled cells of textura angularis, wall near ostiole thinner, composed of dark brown, thick-walled cells of textura angularis. Conidiogenous cells 3–5×1–3µm, holoblastic, discrete, determinate, conical, hyaline to pale brown, smooth, only in basal conidiomatal wall. Conidia 20–28×3-5 µm, 3- septate, median cells pale brown, apical and basal cells sub-hyaline to hyaline, subcylindrical, tapered to a truncate base, apex obtuse, straight or slightly curved, dorsiventral, smoothwalled, bearing an appendage inserted very close (1–2µm) to the apical and basal septa; apical appendage 15–18 µm, long, tubular, unbranched; basal appendage 17-22 µm, long,

tubular, unbranched. Saprobic on dead leaf of *Crataegus* sp..Phen.: X (IT)
 **Discosia pseudopleurochaeta** Wijayawardene, Camporesi & K.D. Hyde (2015)
 Ill.: Senanayake et al. 2015: fig. 11.

Diseata Bonar emend. F. Liu, L. Cai & Crous
 Type species: *Diseata arbuti* Bonar
 Lit.: Liu et al. 2019: 314.

No Western European species known.

Discostroma Clem. = see *Seimatosporium*
 Type species: *Discostroma rehmi* (Schnabl) Clem. = *Seimatosporium ribis-alpini* (Fautrey) Shoemaker & E. Müll.
 Lit.: Tanaka et al. 2011: 93, Réblová et al. 2016: 132.

- 1 Mature spores pale to dark brown 2
- 1' Mature spores remaining hyaline 3
- 2 Asci uniseriate, IKI+; 1-septate spores 11-14x5.5-7 µm and 3-septate spores 13-16.5x6-7.5 µm present, greyish brown. Saprobic on twigs of *Rosa* spp.; phen.: VII **Discostroma polymorphum** Brockmann (1976)
- 2' Asci uniseriate, IKI+; spores elongate ellipsoid, 15-18x5.5-7.5 µm, 3-septate, seldomly with a longiseptum, pale brown. Saprobic on twigs of *Ribes alpinum*, *Ribes petraeum*; phen.: V
 **Discostroma saccardoanum** (Jacq.) Brockmann (1976)
- 3 Spores mainly 1-septate 4
- 3' Spores with 3 or more septa 9
- 4 Spores up to 4 µm wide 5
- 4' Spores wider 7
- 5 Ascomata immersed, up to 0.25 mm diam., mostly clypeate; spores 18-23x2.5-3.5 µm, 1-septate, hyaline, guttulate. Saprobic on stems of *Rubus fruticosus*; phen.: X-XII (BE/F) "**Paradidymella**" **clarkii** D. Hawsw. & Sivan. (1976)
 Ill.: Hawsw. & Sivan. 1976: fig. 2.
- 5' Spores up to 14 µm long 6
- 6 Ascomata immersed, with a dark brown clypeus; spores 10-12x2.5-3.5 µm, 1-septate, smooth or slightly roughened, hyaline or subhyaline. On *Holcus lanatus*; phen.: VIII "**Paradidymella**" "**holci**" D. Hawsw. & Sivan. (1976)
- 6' Ascomata immersed, up to 0.4 mm diam., clypeate; spores slightly curved, 10-14x3-4 µm, 1-septate, hyaline; saprobic on stems of *Epilobium angustifolium*, *E. dodonaei*, *E. fleischeri*, *E. hirsutum*; phen.: (I)III-VII (BE/F)
 **Seimatosporium tostum** (Berk. & Broome) Rossman & W.C. Allen (2016)
- 7 Spores broadly fusiform, 13.5-18x5.5-7.5 µm, 1-septate, hyaline to weakly greenish. Saprobic on *Cassiope tetragone* **Discostroma hyperboreum** (P. Karst.) O.E. Erikss. (1992)
- 7' Spores 1(2.3)-septate 8
- 8 Spores ellipsoid, 10-12(13)x4-5(5.5) µm, 1(2-3)-septate, not constricted at the septa, hyaline; saprobic on bark of twig of *Rosa canina*, *Rosa pendulina*, *Rosa rubrifolia*; phen.: VII-IX **Discostroma rosae** Brockmann (1976)
- 8' Spores ellipsoid, 12-15(17)x5.5-6.5 µm, 1(2-3)-septate, hyaline to pale yellowish. Saprobic on bark of twigs of *Rosa* spp., *Cornus sanguinea*; phen.: II-X **Discostroma canina** Brockmann (1976)
- 9 Ascomata globose to depressed globose, 300-530 µm high, 320-600 µm diam., single or 2-6 grouped under blackened clypeus, immersed to erumpent, ostiolate. Beak 70-160 µm high, 100-130 µm diam., short cylindrical, with hyaline periphyses. Paraphyses filiform, hyaline, 5 µm wide at the base, septate. Asci 138-193x10-13 µm, J+; spores elongate ellipsoid, 16-25x7.5-11 µm, 3-5(7) transversal septa and 1 longitudinal septum, hyaline. Saprobic on twigs of *Ribes alpinum*, *R. petraeum*, *R. rubrum*; phen.: IV,VI-VIII
 **Seimatosporium massarina** (Sacc.) Jaklitsch & Voglmayr (2016)
 Ill.: Tanaka et al. 2011: fig. 6 & 7j-k.
- 9' Spores mostly 3-septate, seldomly with longisepta 10
- 10 Ascomata immersed, up to 0.4 mm diam., clypeate; spores 19-22(24)x10-13 µm, with 3 traverse septa and one longiseptum, hyaline. Saprobic on stems of *Arctostaphylos alpina* and *A. rubra*; phen.: VI-VIII
 **Discostroma propendulum** (P. Karst.) Brockmann (1976)
- 10' Spores elongate ellipsoid, 16.5-20(25)x7.5-9(10) µm, with 3-5 transverse septa and seldomly one longiseptum, hyaline to yellow. Saprobic on bark of twigs of *Cornus mas*, *Cornus sanguinea*; phen.: VI 10

Distononappendiculata F. Liu, L. Cai & Crous

Type species: *Distononappendiculata banksiae* (Crous & Summerell) F. Liu, L. Cai & Crous.

Lit.: Liu et al. 2019: 322.

No Western European species known.

Diversimediispora F. Liu, L. Cai & Crous

Type species: *Diversimediispora humicola* F. Liu, L. Cai & Crous

Lit.: Liu et al. 2019: 327.

No Western European species known.

Heterotruncatella F. Liu, L. Cai & Crous

Type species: *Heterotruncatella lutea* (H.J. Swart & D.A. Griffiths) F. Liu, L. Cai & Crous

Lit.: Senanayake et al. 2015: 91 (sub *Truncatella spartii*), Liu et al. 2019: 327.

- 1 Sexual morph: Ascomata 175-190 µm diam., immersed, globose to subglobose, brown, ostiolate, apapillate. Hamathecium comprising 2.5-4µm wide, branched paraphyses. Asci 62-70x6-6.5 µm, 8-spored, short pedicellate, with an indistinct, J-, apical apparatus. Ascospores, fusiform, 8-11.5x3.5-4 µm, hyaline when young, brown at maturity, with one thick septum, constricted at septum, pointed at ends. Asexual morph: Conidiophores septate, branched at the base, colourless, smooth, invested in mucus. Conidiogenous cells annellidic, discrete, mostly cylindrical or lageniform, 8.5-23x1.5-4.5 µm, colourless, smooth. Conidia fusoid, straight or curved, 20.5-37x6-9µm, l:w:m= 3.5:1, mostly 3-septate, smooth or verruculose; basal cell obconic with a truncate base, thin-walled, hyaline, 2.5-6.5 µm long; median cells 2, cylindrical or subcylindrical, mid-brown to brown, thick-walled, each 5-12 µm long; apical cell conic with an acute or truncate apex, thin-walled, hyaline, 4-6.5 µm long; 3-4 apical appendages, arising at different points, tubular, rough, unbranched or dichotomously branched at one appendage, variable in size, (4)11.5-52(63) µm long; single basal appendage or absent, if present, tubular, unbranched, centric, occasionally dichotomously branched, 4.5-25(44)µm long. On *Spartium junceum*. Phen.: XI (IT) **Heterotruncatella spartii** (Senan.et al.) F. Liu, L. Cai & Crous (2019) III.: Liu et al. 2019: fig. 32.

Hyalotiella Papendorf

Type species: *Hyalotiella transvalensis* Papendorf

Lit.: Nag Raj 1993: 421, Liu et al. 2019: 347.

No Western European species known.

Hymenopleella Munk emend. F. Liu, L. Cai & Crous

Syn.: *Dyrithiopsis* L. Cai et al.

Type species: *Hymenopleella hippophaëicola* Jaklitsch & Voglmayr

Lit.: Jaklitsch et al. 2016: 96, Liu et al. 2019: 349, Samarakoon et al. 2020: 22.

- 1 Ascomata perithecial, immersed, scattered or in small groups, 0.2-0.4(0.5) mm diam., producing inconspicuous irregular bumps with small black dots, short-papillate. Asci cylindrical, (90)97-126(134)x(12)12.5-16(17) µm with 8 uniseriate, rarely more or less biseriate, ascospores, with a short stipe, with a flat, V-shaped to sinuous, amyloid apical ring (4.0)4.5-5.5x(0.7)0.8-1.2(1.5) µm. Ascospores (15.2)17.5-22.5(26.5)x(7.2)8.0-9.0(9.7) µm, Q = (1.8)2.1-2.7(-3.3) µm, oblong, ellipsoid or fusoid, symmetric, ends rounded; on twigs of *Hippophaë rhamnoides*. Phen.: VI-VIII (AT, DE) **Hymenopleella hippophaëicola** Jaklitsch & Voglmayr (2016) III.: Jaklitsch et al. 2016:fig. 9.

Immersidiscosia Kaz. Tanaka, Okane & Hosoya

Type species: *Immersidiscosia eucalypti* (Pat.) Kaz. Tanaka, Okane & Hosoya

Lit.: Nag Raj 1993: 308, Tanaka et al. 2011: 94.

- 1 Conidiomata 200-370 µm high, 320-480 µm diam, pycnidial, subglobose to sometimes lenticular in section view, amphigenous, immersed (later erumpent at the ostiole), scattered, unilocular, ostiolate. Beak of conidiomata short, 50-115 µm long, 75-150 µm diam, composed of thick-walled, small black cells, with hyaline periphyses. Wall of conidiomata 15-25(-50) µm thick at the sides, composed of polygonal brown cells. Conidiophores up to 45 µm long, cylindrical, branched. Conidiogenous cells 5-20 µm long, 1.5-2 µm wide at the base, cylindrical, holoblastic, hyaline, smooth. Conidia 15-19.5 x 2.5-3 µm, cylindrical, 3-septate, hyaline, with an appendage at both ends; basal cell 2.5-

3.1(3.8) μm long, obconic, truncate at the base; 2 median cells 10–13.8 μm long, cylindrical (second cell from the base 5–7 μm long, third cell 5–6.8 μm long); apical cell 2.5–3 μm long. Appendage single, cellular, unbranched, filiform; apical appendage 8–15 μm long; basal appendage 10–15 μm long, eccentric. On leaves of *Eucalyptus* and *Laurus*. Phen.: X (FR) **Immersidiscosia eucalypti** (Pat.) Kaz. Tanaka, Okane & Hosoya (2011) Ill.: Tanaka et al. 2011: fig. 8.

Monochaetia (Sacc.) Allesch.

Type species: *Monochaetia monochaeta* (Desm.) Allesch.

Lit.: Nag Raj 1993: 478, De Silva et al. 2017: 123, Crous et al. 2018a: 190 (*M. junipericola*), Liu et al. 2019: 353.

- 1 Conidia smooth-walled 2
- 1' Conidia not smooth-walled 5

- 1 Conidia up to 23 μm long 2
- 1' Conidia longer 4

- 2 Conidiomata stromatic, acervuloid, dark brown to black. Conidia ellipsoid to fusiform, 3-4-septate, 15-22x5.5-7.5 μm , Qm=2.8, median cells pale brown, end cells hyaline; apical cell drawn out in a 2-4.5 μm long appendage; basal appendage often lacking, when present 1 μm long. On leaves of *Quercus ilex*, *Q. pubescens*. Phen.: IX, II (IT) **Monochaetia ilicina** (Sacc.) Nag Raj (1985) Ill.: Nag Raj 1993: fig. 73.6
- 2' Apical appendage longer 3

- 3 Conidiomata acervuloid to pycnidoid, epiphyllous. Conidia fusiform, 15-17x5-5.5 μm , 4(5)-septate; median cells thin-walled, smooth, brown; end cells hyaline; apical appendage single, branched, 12-20 μm long; basal appendage, when present, 1-3 μm long. On leaves of *Camellia* sp., *Allium*, *Cassia*, *Curcuma*, *Daucus*, *Peltophorum*, *Rhododendron*. Phen.: IV (BE/F, CZ, FR, IT) • **Monochaetia karstenii** (Sacc. & Syd.) B. Sutton (1970) Ill.: Sutton 1980: fig. 153A, Nag Raj 1993: fig. 92.8
- 3' Conidiomata acervuloid, hypophyllous, black. Conidia fusoid, straight, 17-23x4.5-7 μm , Qm=3.5, 4(5)-septate, median cells pale to mid brown, apical appendage 7-15 μm , basal appendage centric, 1.5-7 μm long. On living leaves of *Castanea sativa* and *Quercus robur*, *Q. cerris*, *Q. ilex*. Phen.: VI-IX (BE, FR, IT, NL, UK) **Monochaetia monochaeta** (Desm.) Allesch. (1902) Ill.: Nag Raj 1993: fig. 73.9, Liu et al. 2019: fig. 39.
- 3'' Leaf spots small to broad, irregular, pale brown to reddish brown, sometimes confluent, with stromatic and acervular conidiomata on the upper surface. Conidia fusiform to oblong-ellipsoid, 15-19(24)x(5-5)6-5-7.5 μm , 3-4-septate, pale brown but with darker central cells, and each with a hyaline, cellular, curved, unbranched, apical appendage variable in length, sometimes also with a short, filiform, basal appendage 1-4(7) μm long. On living leaves of *Quercus* spp. Phen.: II, IX (IT) **Monochaetia saccardiana** (Vogolino) Sacc. & Traverso (1885) Ill.: IMI n°1936.

- 4 Conidiomata acervular, hypophyllous. Conidia straight to slightly curved, 18-26(29)x6-8 μm , Qm=3.6, 4-septate, median cells olivaceous or umber, apical appendage single, 10-38 μm long, basal appendage often lacking, when present 3-15 μm long. On decaying leaves of *Castanea* sp. and *Quercus* sp. Phen.: VI (NL) **Monochaetia kansensis** (Ellis & Barthol.) Sacc. & D. Sacc. (1906) Ill.: Nag Raj 1993: fig. 73.7.
- 4' Conidiomata acervular. Conidia ellipsoid, straight or curved, 20-27(29)x7-9.5 μm , Qm=2.9, 4-septate; basal cell obconic with truncate base bearing minute marginal frills; median cells brown to dark brown; end cells subhyaline; apical appendage single, 7-14(23) μm long; basal cell often lacking, when present 2-5 μm long. On branches and twigs of *Schinum molle*. (PT) **Monochaetia schini** M.T. Lucas & Sousa da Câmara (1954) Ill.: Nag Raj 1993: fig. 73.12.

- 5 Conidia with Qm up to 3.5 6
- 5' Conidia with Qm>3.5 7

- 6 Conidiomata acervular, predominantly epiphyllous, black. Conidia fusiform, 21-26x7.5-9 μm , Qm=2.8, 4-septate; median cells pale brown to yellowish brown, verruculose; end cells subhyaline; apical appendage single, 3-24 μm long; basal appendage lacking or, if present, centric and 1-8 μm long. On fallen leaves of *Quercus* sp. (IT) **Monochaetia saccardoi** (Speg.) Allesch. (1902) Ill.: Nag Raj 1993: fig. 73.11.
- 6' Conidia 20-26x6.5-8.5 μm , Qm=3.3, 4-septate, median cells dark or umber, thick-walled, distinctly verruculose; apical appendage 16-30 μm long, basal appendage usually lacking, 4-9 μm long. On decaying leaves of *Castanea* sp., *Corylus* sp. and *Quercus* sp. (USA) **Monochaetia concentrica** (Berk. & Broome) Sacc. & D. Sacc. (1906) Ill.: Sutton 1980: fig. 152C, Nag Raj 1993: fig. 73.3.
- 6'' Conidiomata acervular, epiphyllous, black. Conidia fusiform, (16.5) 22-24.5x6-7 μm , Qm=3.5, 4-septate, 3th and 4th cell shorter than 2nd cell (from base); median cells pale brown to mid brown, thick-walled, minutely verruculose; end cells hyaline; apical cell terminating in a single, unbranched, appendage 2-16 μm long; basal appendage usually lacking,

when present 1-6 µm long. On living leaves of *Corylus avellana*. Phen.: IX (DK)
..... **Monochaetia coryli** (Rostr.) Allesch. (1902)
Ill.: Nag Raj 1993: fig. 73.3.

7 Conidiomata acervuloid. Conidia fusiform, 20-29x5.5-7 µm, Qm=3.8, 4-septate; median cells with central cell the smallest, thick-walled, verruculose, brown to dark brown; end cells hyaline; apical appendage single, 10-20 µm long; basal appendage often lacking, when present 1-7 µm long. On stems of *Oxyris alba*. Phen.: IV, IX (IT)

..... **Monochaetia oxyridella** (Tassi) Sacc. & D. Sacc. (1906)
Ill.: Nag Raj 1993: fig. 73.10.

7' Conidiomata pycnidoid, erumpent, ovoid, 150–250 µm diam. Conidiophores hyaline, smooth, 3–6-septate, branched, subcylindrical, 40–100x3–4 µm. Conidiogenous cells terminal and intercalary, hyaline, smooth, subcylindrical, 10–30x2.5–3 µm, proliferating percurrently at apex. Conidia fusoid-ellipsoid, (22)25-27(28)x(5)6(7) µm, Qm=4.3, 4-septate, not constricted at septa, medium brown and finely verruculose, end cells hyaline; apical cell terminating in a single, unbranched, filiform, flexuous appendage, 10–20 µm long; basal cell with single, unbranched, flexuous, excentric appendage, 2–15 µm long. Conidiomata with beta conidia developing on OA, beta conidia hyaline, smooth, filiform, curved, apex obtuse, base truncate, 12–22x1.5–2 µm. On twig of *Juniperus communis*. Phen.: IV (DE)

..... **Monochaetia junipericola** Crous & R.K. Schumach. (2018)
Ill.: Crous et al. 2018a: fig. 22.

Monochaetinula Muthumary, Abbas & B. Sutton

Syn.: *Neotruncatella* Hyang B. Lee & T.T.T. Nguyen

Type species: *Monochaetinula terminaliae* (Bat. & J.L. Bezerra) Muthumary, Abbas & B. Sutton

Lit.: Muthumary et al. 1986: 103, Perera et al. 2018: 177.

No Western European species determined.

Morinia Berl. & Bres. emend. F. Liu, L. Cai & Crous.

Type species: *Morinia pestalozzioides* Berl. & Bres.

Lit.: Collado et al. 2006: 616, Liu et al. 2019: 355.

1 Conidiomata acervular. Conidia muriform 2

1' Conidiomata stromatic, pycnidoid to indeterminate, amphigenous, erumpent, globose or depressed globose, up to 200 µm diam., unilocular, glabrous brown, lacking an ostiole; wall of brown textura angularis, cells thick-walled and brown in the outer layers, becoming thin-walled and paler toward the conidial hymenium. Conidiophores reduced to conidiogenous cells or with a supporting cell, invested in mucus. Conidiogenous cells ampulliform, hyaline, thin-walled, smooth, 7–12x3–5 µm; proliferating percurrently near apex. Conidia subcylindrical, widest in upper region; (31)33-37(41)x(3.5)4(4.5) µm, 4-septate, smooth (warty with age), slightly constricted septa; basal cell obconic with a truncate base, hyaline; apical cell conical, subhyaline, forming a tubular, unbranched central appendage; apical cell subhyaline, smooth with apical excentric appendage and lateral appendage in middle of apical cell; basal appendage single, centric, 12–17x1 µm; all appendages unbranched, flexuous, cellular, not separated by a septum. On leaves of *Acacia melanoxylon*. Phen.: (FR) **Morinia acaciae** (Crous) F. Liu, L. Cai & Crous (2018)

2 Conidiogenous cells cylindrical, 10-19x2-3 µm, septate, hyaline. Conidia fusiform, ellipsoid, pyriform, (16)20-25x6-8 µm, with 5-7 transverse septa and 1-3(4) vertical or oblique septa, median cells brown, end cells hyaline, with 2-3 apical appendages 23 µm long and 0(1-2) basal appendages 3-5 µm long. On dead stems of *Artemisia*, *Sedum sediforme*. Phen.: IV, IX (ES, IT)

..... **Morinia pestalozzioides** Berl. & Bres. (1889)

2' Conidiogenous cells filiform, septate, 23-42x2-3 µm, hyaline. Conidia fusiform, ellipsoid, pyriform, 25-31(42)x8-10 µm, 5-7-septate, median cells brown, end cells hyaline, (2)3 apical appendages up to 39 µ long and one basal appendage up to 32 µm long. On living stems of *Calluna vulgaris*, *Helichrysum*, *Santolina*, *Thymus*. Phen.: I (ES)

..... **Morinia longiappendiculata** Collado & Platas (2006)

Neopestalotiopsis Maharachch. et al.

Type species: *Neopestalotiopsis protearum* (Crous & L. Swart) Maharachch., K.D. Hyde & Crous

Lit.: Macharachchikumbura et al. 2012: 95, Ismael et al. 2013: 619, Macharachchikumbura et al. 2013d: 617, Macharachchikumbura et al. 2014a: 121, Macharachchikumbura et al. 2014b: 389.

1 Conidiophores indistinct. Conidiogenous cells hyaline, simple, filiform, 3-12 µm long. Conidia 20-26x5-7 µm, fusiform, straight to slightly curved, 4-septate; basal cell conical, hyaline, thin and verruculose, 3-5 µm long; three median cells 13-15.5 µm long, dark brown, verruculose, septa and periclinal walls darker than the rest of the cell, versicoloured, (second cell from base pale brown, 4–5.5 µm; third cell darker brown, 4-5 µm; fourth cell darker, 4-5 µm); apical cell 3.5-5 µm long, hyaline, conical to cylindrical, comprising 2-4 appendages; apical appendages 20–30 µm long, tubular, arising from the apex of the apical cell; basal appendage, 4-8 µm long, filiform. On trunk of *Vitis* (FR)

..... **Neopestalotiopsis asiatica** (Maharachch. & K.D. Hyde) Maharachch., K.D. Hyde & Crous (2014)
Ill.: Macharachchikumbura et al. 2012: fig. 7 (sub *P. asiatica*)

- 1' Conidia wider 2
- 2 Conidia up to 9 µm wide 3
- 2' Conidiomata 200-400 µm diam, pycnidial, globose, brown, semi-immersed releasing black conidia in a slimy, glistening mass. Conidiophores indistinct. Conidiogenous cells discrete to lageniform, hyaline, smooth, thin-walled, 3-8×2-6 µm, proliferating 1-2 times percurrently, collarete present and not flared. Conidia (40)42-46(47)×(9)9.5-12 µm, fusiform to clavate, straight to slightly curved, 4-septate; basal cell obconic with a truncate base, hyaline or sometimes pale brown, thin- and smooth-walled, 8.5-9 µm long; three median cells (30)31-33.5(34) µm long, brown, septa and periclinal walls darker than rest of the cell, versicoloured, wall rugose; second cell from base pale brown; third and fourth cell brown; apical cell 5-8 µm long, hyaline, conic to acute; with 2-4 tubular appendages on apical cell, inserted a crest at the apex of the apical cell, unbranched, flexuous, (10)16-26(30) µm long; single basal appendage, tubular, unbranched, centric, 11-15 µm long. On decaying leaves of *Pteridium* sp. Phen.: VIII (FR)
 **Neopestalotiopsis magna** (Maharachch. & K.D. Hyde) Maharachch., K.D. Hyde & Crous (2013)
 Ill.: Macharachchikumbura. et al. 2013d: fig. 2a-j.
- 3 Conidiomata pycnidial in culture on PDA, globose to clavate, solitary, semi-immersed, dark brown to black, up to 250 µm diam; exuding dark brown to black conidial masses. Conidiophores reduced to conidiogenous cells. Conidiogenous cells discrete, ampulliform to lageniform, hyaline, rugose-walled, proliferating 2-3 times percurrently, 5-25×3-10 µm, apex 2-4 µm diam. Conidia fusoid, ellipsoid, straight to slightly curved, 4-septate, (24)25-30(31)×(6.5)7-8.5(9) µm; basal cell conic to obconic with a truncate base, hyaline, rugose and thin-walled, 4.5-6.5 µm long; three median cells doliform, (14.5)15-18.5(19) µm long, wall rugose, versicoloured, septa darker than the rest of the cell (second cell from the base pale brown, 5-7 µm long; third cell brown, 5-7 µm long; fourth cell brown, 5.5-7.5 µm long); apical cell subcylindrical, hyaline, thin- and smooth-walled, 3.5-5.5 µm long; with 1-3 tubular apical appendages, arising from the apical crest, unbranched, filiform, 2-10(18) µm long, basal appendage single, tubular, unbranched, centric, 2-4 µm long. On trunk of *Vitis* (FR)
 **Neopestalotiopsis javaensis** Maharachch., K.D. Hyde & Crous (2013)
 Ill.: Macharachchikumbura et al. 2013d: fig. 12
- 3 Conidia on average less than 25 µm long 4
- 4 Conidia fusiform, 19-27×5-8.5 µm, 4-septate, with two dark brown and one light brown median cell; with 2-3(4) apical setulae 14-34 µm long and one basal appendage (2)4-9 µm long. Causing grey leaf spots on *Camellia sinensis*, *Fragaria*, *Mangifera* (ES, IT). **Neopestalotiopsis clavispora** (G.F. Atk.) Maharachch., K.D. Hyde & Crous (2014)
 Ill.: Ismael et al. 2013: fig. 1e-f, Wang Z.H. et al. 2017 : fig. 2 – group III.
- 4' Conidiomata (on PDA) pycnidial, globose to clavate, solitary, semi-immersed, brown to black, 100-300µm diam; exuding dark brown to black conidial masses. Conidiophores reduced to conidiogenous cells. Conidiogenous cells discrete, ampulliform to lageniform, hyaline, smooth- and thin-walled, simple, apex 2-5µm diam. Conidia ellipsoid to clavate, straight to slightly curved, 4-septate, (19)19.5-25(26)×(7)7.5-9(9.5) µm, somewhat constricted at septa; basal cell obconic with truncate base, rugose and thin-walled, 3.5-5.5 µm long; three median cells (13)13.5-16(16.5) µm long, doliform, verruculose, versicoloured, septa darker than the rest of the cell (second cell from base pale brown; third cell dark brown; fourth cell brown); apical cell obconic, hyaline, thin- and smooth-walled, 3-6µm long; with 3 tubular apical appendages, arising from the apical crest, flexuous, unbranched, (19)21-31(33) µm long; basal appendage single, tubular, unbranched, centric, 6-23µm long. On wood of *Picea* sp., leaves of *Camellia*. Phen.: VIII (UK)
 **Neopestalotiopsis piceana** Maharachch., K.D. Hyde & Crous (2014)
 Ill.: Macharachchikumbura et al. 2014a: fig. 15.

Nonappendiculata F. Liu, L. Cai & Crous

Type species: *Nonappendiculata quercina* F. Liu, L. Cai & Crous

Lit.: Liu et al. 2019: 358.

- 1 Sexual morph: unknown. Asexual morph: Conidiomata black, scattered, covered by aerial mycelia, acervular, stromatic. Conidiophores septate, unbranched or branched at the base, colourless, smooth, often reduced to conidiogenous cells. Conidiogenous cells discrete, cylindrical, subcylindrical, variable in size, 3-19×1-3 µm, colourless, smooth. Conidia fusoid, straight, 3-septate, smooth, not constricted at the septa, 13-18×5-7 µm, l/w_m= 2.5:1; basal cell obconic with a truncate base, thin or fairly thick-walled, pale grey, 3-4.5 µm long; median cells 2, doliform, pale brown, thick-walled, ± equal length, each 3-4.5 µm long; apical cell conic with an acute or rounded apex, hyaline to pale grey, 2.5-5 µm; lacking appendages. On leaf of *Quercus pubescens*, *Q. suber*. Phen.: IX (IT)
 **Nonappendiculata quercina** F. Liu, L. Cai & Crous (2018)
 Ill.: Liu et al. 2018: fig. 43.

Parabartalinia F. Liu, L. Cai & Crous

Type species: *Parabartalinia lateralis* F. Liu, L. Cai & Crous

Lit.: Liu et al. 2018: 358.

No Western European species known.

Pestalotiopsis Steyaert

Syn.: teleom. *Pestalospaeria* M.E. Barr

Type species: *Pestalotiopsis guepinii* (Desm.) Steyaert = *P. maculans* (Corda) Nag Raj

Lit.: Sutton 1980: 263, Ellis & Ellis 1985: 108 etc., Nag Raj 1993: 618, Macharachchikumbura et al. 2012: 95, Ismael et al. 2013: 619, Macharachchikumbura et al. 2014a: 121, Wang Z.H. et al. 2017: 1802, bladmineerders.nl, Liu et al. 2018: 361, Phukhams. et al. 2020: 173.

- 1 Conidiomata pycnidoid, rounded to oval in outline, pale brown to brown. Conidia fusiform, 3-septate, 23-32x7.5-9.5(10) μm ; 2 median cells thick-walled, verruculose to rugose, pale brown; end cells hyaline; appendages on apical cell in an apical crest of 3, 15-31 μm long; basal appendage, when present, 3-14 μm long. On phyllodes of *Acacia* sp. or *Mimosa* sp. Phen.: IV (PT) **Pestalotiopsis torrendii** (J.V. Almeida & Sousa da Câmara) Nag Raj (1993)
Ill.: Nag Raj 1993: fig. 92.24.
- 1' Conidia 4-septate. 2
- 2 Conidia 4-9 μm wide 3
- 2' Conidia wider 19
- 3 Apical appendage(s) up to 15 μm long 4
- 3' Apical appendages up to 30 μm long 7
- 3'' Apical appendages up to 40(50) μm long 16

Conidia 4-9 μm wide and apical appendage(s) up to 15 μm long

- 4 Conidia up to 20 μm long 5
- 4' Conidia longer 6
- 5 Conidiomata 80-150 μm diam., acervular, subepidermal in origin, with basal stroma, with lateral wall 2-4 cells thick comprising hyaline to pale brown cells of textura angularis. Conidiophores indistinct. Conidiogenous cells discrete, simple, short, filiform. Conidia fusiform to ellipsoid, straight to slightly curved, 16-20x5-7 μm ; with short basal cell, obtuse, hyaline, thin-walled and verruculose, 2.7-3.8 μm long, with one filiform appendage; with three median cells, dolliiform to subcylindrical, concolorous, olivaceous, with septa and periclinal walls darker than the rest of the cell, together 12.4-13.8 μm long, second cell from base 4.3-5.3 μm , third cell 4-4.7 μm , fourth cell 3.8-4.4 μm ; apical cell hyaline, conic, 2.4-3.4 μm long, with two to three appendages, 7-15 μm long; on leaves of *Carpinus betulus*, *Rhododendron ponticum*, etc.; phen.: VII (NL, IT) **Pestalotiopsis adusta** (Ellis & Everh.) Steyaert (1953)
Ill.: Macharachchikumbura S. et al. 2012: fig. 5a-h.
- 5' Conidia ellipsoid-fusiform, 15-17x5-7 μm , median cells together 10-12 μm long, umber to olivaceous, guttulate; apical cell hyaline, conic, with (2)3 apical appendages 5-13 μm long; basal cell short, obtuse to rounded, hyaline, with straight 2-5 μm long appendage. On leaves of *Cryptomeria japonica*; phen.: III **Pestalotiopsis cryptomeriae** (Cooke) B. Sutton (1990)
- 6 Acervuli becoming black and granular; conidia 18-25(28)x7-8 μm , (3)4-septate, end cells hyaline, median cells brown, 1-3 apical appendages 5-12.5(20) μm long, 1(2) basal appendages 2-5 μm long; on dead leaves of *Cladium mariscus*, *Eucalyptus botryoides*, *Pinus pinea*. Phen.: III (ES, PL, PT) **Pestalotiopsis disseminata** (Thüm.) Steyaert (1949)
Ill.: Ellis & Ellis 1985: fig. 2018, Liu et al. 2018: fig. 45.
- 6' Sexual morph: unknown. Asexual morph: Conidiophores hyaline, septate, branched. Conidiogenous cells discrete or integrated, cylindrical or sub-cylindrical, hyaline, smooth-walled, 3-24x1-3 μm . Conidia fusoid to oval, straight, 16.5-29x6-9.5 μm , l/w_m= 2.8:1, 4-septate; basal cell cylindrical, obconic with a truncate base, hyaline, thin-walled, 3-5 μm long; three median cells dolliiform or trapezoid, 14-18.5 μm long, smooth-walled, concolorous or the top two median cells darker than the third cell, pale brown to brown, the two median septa usually darker than distal septa, \pm equal, each 4.5-6.5 μm long; apical cell 2-4.5 μm long, hyaline, subcylindrical or conical with a truncate or acute base, thin-walled; with 2-4 tubular apical appendages, arising from apex or laterally from apical cell, unbranched, or branched at one appendage, 2-14 μm long; 0-1 basal appendages, when present, tubular, unbranched, centric, 1.5-4.5 μm long. On *Protea*. Phen.: IV (ES)..... **Pestalotiopsis hispanica** F. Liu, L. Cai & Crous (2018)
Ill.: Liu et al. 2018: fig. 46.

Conidia 4-9 μm wide and apical appendages up to 30 μm long

- 7 Conidiomata up to 0.3 mm diam. Conidia fusoid, ellipsoid, straight to slightly curved, (21)22-28.5(30)x(5.5)6-7.5(8) μm ; basal cell obconic to hemispherical with a truncate base, hyaline, verruculose and thin-walled, 4-7 μm long; three median cells dolliiform, (13.5)14.5-17.5(-18.5) μm long, wall verruculose, concolorous, olivaceous, septa darker than the rest of the cell (second cell from the base 4-6.5 μm long; third cell 4-7 μm long; fourth cell 4-6.5 μm long); apical cell 3-4.5 μm long, hyaline, subcylindrical, rugose and thin-walled; with (2-)3 tubular apical appendages, arising from the apical crest, unbranched, filiform, (6)8-18(20) μm long; two basal appendages; centric appendage tubular, 3-8 μm long and excentric appendage tubular, 1-3 μm long. On *Paeonia* sp., bark of *Platanus hispanica* and *Taxus baccata* dry needles, leaves of *Ceratonia siliqua* (IT, NL, SL, UK) **Pestalotiopsis biciliata** Maharachch., K.D. Hyde & Crous (2014)
Ill.: Maharachch. et al. 2014a: fig. 23.
- 7' Conidia with one basal appendage 8

8	Conidia verruculose or with striae	9
8'	Conidia smooth-walled	11
9	Conidia fusiform, 19-25x5.5-6.5(7) µm, 4-septate, basal cell obconic with a truncate base, hyaline; median cells thick-walled, versicoloured, 2nd and 4th cell pale brown and with longitudinal striae, 3th cell brown and smooth; apical cell smooth and hyaline, with 2-5 appendages 7-17 µm long in the upper half; basal appendage single, unbranched, 4-7 µm long. On stems of <i>Euphorbia palustris</i> . Phen.: IX (IT)	Pestalotiopsis palustris Nag Raj (1993) Ill.: Nag Raj 1993: fig. 92.16.
9'	Median cells of the conidia not striate	10
10	Conidia fusoid, ellipsoid to subcylindrical, straight to slightly curved, (23)24.5-29(30)x6-8 µm, basal cell obconic to conic with a truncate base, hyaline, verruculose and thin-walled, 4.5-6.5 µm long; three median cells doliiform, (14) 16-18.5(19) µm long, wall minutely verruculose, concolourous or middle median cell is much darker than other cell, olivaceous, septa darker than the rest of the cell (second cell from the base 5-7 µm; third cell 5.5-7 µm; fourth cell 5-6.5 µm); apical cell 3.5-5 µm long, hyaline, cylindrical to subcylindrical, thin- and smooth-walled; with (2)3 tubular apical appendages, arising from the apical crest, unbranched, filiform, flexuous (9)18-27(17) µm long; basal appendage single, tubular, unbranched, centric, 3-6 µm long. On <i>Telopea</i> sp. and seeds of <i>Oryza sativa</i> .(DK, IT)	Pestalotiopsis oryzae Maharachch., K.D. Hyde & Crous (2014)
10'	Acervuli up to 0.25 mm diam. Conidia fusoid, ellipsoid, straight to slightly curved, (21)22.5-27(28)x(6-)7-9(9.5) µm; basal cell obconic with a truncate base, hyaline, minutely verruculose and thin-walled, 5-6.5 µm long; three median cells doliiform to subcylindrical, (15)16-17.5(18.5) µm long, wall verruculose, concolourous, but occasionally the two upper median cells are slightly darker than the lower median cell, brown, septa darker than the rest of the cell (second cell from the base 4.5-6.5 µm long; third cell 4.5-6.5 µm long; fourth cell 4.5-6 µm long); apical cell 4-6 µm long, hyaline, subcylindrical, thin- and smooth-walled; with (2-)3 tubular apical appendages, unbranched, filiform, (13) 14.5-24 µm long; basal appendage single, tubular, unbranched, centric, 4-8.5 µm long. On leaves of <i>Chamaerops humilis</i> . (IT)	Pestalotiopsis chamaeropsis Maharachch., K.D. Hyde & Crous (2014)
11	Conidiomata acervular, punctiform, black. Conidia 21-29x7-9.5 µm, smooth, mid to dark brown median cells and hyaline end cells, 3-6 apical appendages 10-27 µm long, basal appendage 5-14 µm long. On living and dead leaves of <i>Chamaecyparis</i> , <i>Cryptomeria</i> , <i>Cupressus</i> , <i>Juniperus</i> , <i>Pinus</i> , <i>Sequoia</i> , <i>Thuja</i> . Phen.: XII-IV (BE/F, NL)	• Pestalotiopsis funerea (Desm.) Steyaert (1949) Ill.: Ellis & Ellis 1985: fig. 497.
11'	Conidia with 2 to 4 apical appendages	12
12	Conidia with up to 4 apical appendages	13
12'	Conidia with 2-3 apical appendages	15
13	Conidiomata pycnidial, later acervular, 100-200 µm diam., black. Conidia fusiform, (17)21-26x4-6.5 µm, 4-septate, middle cells brown, end cells hyaline, with 2-4 apical appendages 9-17(21) µm long, one basal appendage (2)4-9.5 µm long. On needles of <i>Taxus</i> , leaves of <i>Camellia</i> , <i>Hedera</i> , etc. (tropical, subtropical)	Pestalotiopsis microspora (Speg.) G.C. Zhao & Nan Li (1995) Ill.: Strobel et al. 1996: fig. 1.
13'	Conidia wider	14
14	Conidiomata acervular on PDA, globose, aggregated or scattered, semi-immersed or partly erumpent, exuding black conidial masses. Conidiophores septate near base, simple or rarely branched at base, subcylindrical with a swollen base, hyaline, up to 28 µm long. Conidiogenous cells discrete, cylindrical, hyaline, smooth, 12-25x2-4 µm. Conidia fusoid to ellipsoid, straight to slightly curved, (20)23.5-24.5(27.5)x(5)7.5-8 µm, 4-septate; basal cell obconic, hyaline, smooth and thin-walled, 3.9-7.3 µm long; three median cells doliiform (12.2)14.8-15.6(17.3) µm long, smooth, thin-walled, concolourous, occasionally the two upper median cells slightly darker than the lower one, olivaceous to brown, septa darker than the rest of the cell; apical cell 2.4-4.8 µm long, hyaline, conical to subcylindrical, thin- and smooth-walled; with 3-4 tubular apical appendages (mostly 3), arising from the apical crest, unbranched, filiform, up to 20(28) µm long, basal appendage single, filiform, unbranched, centric, 1.4-7.6 µm long. On <i>Pinus pinea</i> , <i>P. pinaster</i> (PT)	Pestalotiopsis pini A.C. Silva, E. Diogo & H. Bragança (2020)
14'	Conidiomata acervular, punctiform, black. Conidia 24-29x6-8 µm, end cells hyaline, other cells brown, the middle one darkest, with 2-4 apical appendages mostly 20-30 µm long and a basal appendage 6-8 µm long; on dead branches of <i>Myrica</i>	Pestalotiopsis oxyanthi (Thüm.) Steyaert (1949) Ill.: Maharachch., K.D. Hyde & Crous 2014: fig. 38.
15	Conidiomata acervular, black. Conidia fusiform, straight, 23-25.5x7.2-8.5 µm, 4-septate, end cells hyaline, median cells brown smooth, with 2-3 apical appendages 14.1-19.5 µm long and one basal appendage 6.4-7.2 µm long. On leaves of <i>Mangifera indica</i> (IT)	Pestalotiopsis uvicola (Speg.) Bissett (1983)
15'	Conidiomata acervular, about 0.1 mm diam. Conidia 22-28x6-8 µm, end cells hyaline, median cells pale brown, the upper two often slightly darker than the lower one, with 2-3 apical appendages 10-23 µm long, basal appendage 4-7 µm long. On leaves of ? <i>Cornus sanguinea</i> , <i>Euonymus japonicus</i> , <i>Hedera helix</i> , <i>Prunus</i> , <i>Vaccinium</i> , <i>Zea mays</i> ; phen.: I, VI, IX-X (BE/F, UK)	• Pestalotiopsis neglecta (Thüm.) Steyaert (1953)

Conidia 4-9 µm wide and apical appendages up to 40(50) µm long

- 16 Conidia 24-38x5-9 µm, median cells concolorous pale brown, 2-5(6) apical setulae 14-40(45) µm long, without basal appendage; on leaves of *Camellia sinensis*. **Pestalotiopsis camilliae** Yan M. Zhang, Maharachch. & K.D. Hyde (2012)
 Ill.: Wang Z.H. et al. 2017 : fig. 2 – group II.
- 16' Conidia with a basal appendage 17
- 17 Conidiomata acervular, 100-150 µm diam., black. Conidia ellipsoid-fusoid, 21.5-26x6.5-8.5 µm, 4-septate, middle cells dark brown, end cell hyaline; 3 apical appendages 30-40 µm long, basal appendage 5-15 µm long. On living leaves of *Rubus caesius*. Phen.: XI (IT) **Pestalotiopsis longiseta** (Speg.) K. Dai & Tak. Kobay (1990)
- 17' Conidia longer, with 2-5 apical appendages 18
- 18 Conidiomata acervular, mostly hypophyllous, up to 200 µm diam., conidia emerge in black cirrhi; conidia 21-30x6.5-8.5 µm, 4-septate, median cells equally olivaceous brown or with the two upper ones or middle one somewhat darker, end cells hyaline, with (2)3(5) apical appendages 8-48 µm long and a basal appendage 4-16 µm long. On dead leaves of *Laurus*, *Magnolia*, *Camellia japonica*, *C. sinensis*, *Erica*, *Rhododendron*, cupules of *Quercus robur*, phen.: V-VI, X-XI (BE/F, CH, CZ, DE, DK, FR, IT, NL, PT) • **Pestalotiopsis maculans** (Corda) Nag Raj (1993)
 Ill.: IMI Description n°320, Sutton 1980: fig. 149, Ellis & Ellis 1985: fig. 1012, Nag Raj 1993: fig. 92.11.
- 18' Conidiomata pycnidial, globose, aggregated or scattered, semi-immersed on PDA, dark brown to black, 100–400 µm diam. Conidiophores indistinct, often reduced to conidiogenous cells. Conidiogenous cells discrete, cylindrical to subcylindrical, hyaline, smooth, proliferating up to 3 times, 10–30x2–4µm, with visible periclinal thickening; collarete slightly flared, up to 3µm long when present. Conidia fusoid, ellipsoid, straight to slightly curved, 4-septate, (22)23.5–29(31)x6–8.5 µm; basal cell hemispherical to obconic with a truncate base, hyaline, verruculose and thin-walled, 4–6 µm long; three median cells doliiform, 15.5–19.5 µm long, wall verruculose, concolorous, but occasionally the two upper median cells darker than the lower median cell, brown, septa darker than the rest of the cell; apical cell 4.5–6 µm long, hyaline, subcylindrical, rugose and thin-walled; with 3–5 tubular apical appendages, arising from the apical crest, unbranched, filiform, (20)23–35(42) µm long; basal appendage single, tubular, unbranched, centric, 9–25 µm long. On *Chamaecyparis* sp. (NL) **Pestalotiopsis scoparia** Maharachch., K.D. Hyde & Crous (2014)
 Ill.: Maharachch., K.D. Hyde & Crous 2014a: fig. 42.

Conidia in average more than 8 µm wide

- 19 Conidia smooth-walled 20
- 19' Conidia with verruculose median cells 21
- 20 Acervuli at first covered then opening to expose black spore mass; conidia 19-25x7-9.5 µm, upper median cells dark brown, lower one pale brown, end cells hyaline, 2-3 apical appendages, rarely 4, up to 30 µm long, basal appendage 2-5 µm long. On dead branches of *Rosa canina* **Pestalotiopsis versicolor** (Speg.) Steyaert (1949)
- 20' Acervuli mostly epiphyllous, up to 0.4 mm diam., black; conidia 22-29x8-11 µm, upper median cells dark brown, lower one pale brown, end cells hyaline, 2 to 4 apical appendages up to 30 µm long, basal appendage 3-6 µm long. On dead leaves of *Calluna vulgaris*, *Camellia*, *Erica* sp., *Rhododendron hybridum*, *R. ponticum*, *Prunus laurocerasii*, phen.: VII-IX (BE/F, UK) • **Pestalotiopsis sydowiana** (Bres.) B. Sutton (1961)
 Ill.: Ellis & Ellis 1985: fig. 1013.
- 21 Conidia ellipsoid, straight to slightly curved, (25)27-40(42)x7-11(11.5) µm, 4-septate, slightly constricted at septa, basal cell conic to obconic with a truncate base, rugose and thin-walled, 5.5-9.5 µm long; three median cells (17)18-25(26) µm, doliiform, verruculose, concolorous, but occasionally the two upper median cells slightly darker than the lower median cell; apical cell conic, hyaline, thin- and smooth-walled, 4-6.5 µm long; with single, tubular apical appendage, unbranched, filiform, (40)43-67(75) µm; basal appendage single, tubular, unbranched, centric, 6-14 µm long. On *Taxus baccata* and endophytic in branches of *Quercus robur*. Phen.: IV, VII (NL) **Pestalotiopsis monochaeta** Maharachch., K.D. Hyde & Crous (2014)
 Ill.: Maharachch., K.D. Hyde & Crous 2014a: fig. 36.
 Easily misidentified as a *Monochaetia*.
- 21' Conidia fusiform, 25-40x9-11 µm, 4-septate; basal cell obconic with truncate base bearing minute marginal frills, smooth, hyaline; median cells versicoloured (2nd cell pale brown and minutely verruculose, 3th cell brown, smooth; 4th cell pale brown but darker than the 2nd one, smooth); apical cell conic, smooth, hyaline; apical appendages 4-5, unbranched, arising from different loci on the upper half of the apical cell, 17-23 µm long; basal appendage, if present, single, unbranched, centric, 3-10 µm long. On fronds of *Pteridium aquilinum*. Phen.: ? (IT) **Pestalotiopsis macrospora** (Ces.) Steyaert(1949)
 Ill.: Nag Raj 1993: fig. 92.10.
- 21'' Conidia shorter, with several apically appendages 22
- 22 Conidiomata pycnidial in culture on PDA, globose to oval, solitary or aggregated in clusters, semi-immersed, black, 120–320 µm diam., exuding globose, black, glistening, conidial masses. Conidia 21-33x6-15 µm, l/w_m= 3:1, fusiform or clavate-fusiform, straight or slightly curved, 4-septate; basal cell conical, hyaline, thin and verruculose, 2–5 µm long; three median cells doliiform, olivaceous, concolorous, verruculose, 14–16 µm long, septa and periclinal walls darker than the rest of the cell (second cell from base 2–6 µm; third cell 5–9 µm; fourth cell 3.4–6.9 µm long); apical cell 1.6–

5.4 µm long, hyaline, cylindrical to subcylindrical with 3–6 tubular apical appendages (mostly 3), arising from crown of the apical cell, unbranched, filiform 11–34 µm long; basal appendage single, unbranched, filiform, 6–10 µm long. On dead stem of *Clematis vitalba*. Phen.: II (IT) **Pestalotiopsis verruculosa** Maharachch. & K.D. Hyde (2012)
 Ill.: Maharachchikumbura et al. 2012: fig. 26a-h, Phukhams. et al. 2020: fig. 111.

22' Apical appendages longer 23

22" Acervuli punctiform, black; conidia (20)26–33x8–11 µm; 3 median cells brown, 2nd and 4th cell (from base) paler and than the smooth 3th cell and verruculose; end cells hyaline, smooth; apical appendage 30–60 µm long, sometimes branched; basal appendage, if present, 2–7 µm long. On dead leaves of *Chamaecyparis lawsoniana*. Phen.: VII (NL) .
 **Pestalotiopsis monochaetioides** (Doyer) Steyaert (1949)
 Ill.: Ellis & Ellis 1985: fig. 458, Nag Raj 1993: fig. 92.13.

23' Apical appendages up to 40 µm long 24

24 Conidiomata pycnidial in culture on PDA, globose, scattered or gregarious and confluent, semi-immersed, dark brown, up to 200 µm diam. Conidiophores septate near the base, branched, subcylindrical. Conidiogenous cells discrete, subcylindrical or ampulliform to lageniform, smooth-walled, percurrently proliferating 1–3 times. Conidia 26–35x8–11 µm, ellipsoid, straight to slightly curved, 4-septate, basal cell conic with obtuse end, hyaline, thin-walled and verruculose, 5–7 µm long, with three median cells, doliiform to cylindrical, with thick verruculose walls, constricted at the septa, olivaceous, septa darker, wall rugose, together 18–28 µm long, second cell from base 5.5–8.5 µm; third cell 6–9 µm; fourth cell 6–9 µm; apical cell hyaline, conic to subcylindrical 4–6.5 µm long; with 2–5 tubular apical appendages arising from the apex of the apical cell (rarely 1 appendage arising from just above the septum separating upper median and apical cell), 20–40 µm long; basal appendage 6–10 µm. Saprobic on *Cupressus glabra*. Phen.: XI (IT)
 **Pestalotiopsis italiana** Maharachch., Camporesi & K.D. Hyde (2015)
 Ill.: Liu et al. 2015: fig. 10.

24' Conidia ellipsoid, straight to slightly curved, (25)25.5–33(34)x8.5–10.5 µm, Qm= 3.1:1; basal cell conic to obconic with truncate base, thin-walled, 5–7 µm long; three median cells (16.5)17–23(24) µm long, doliiform, thick-walled, verruculose, concolourous, but occasionally the two upper median cells slightly darker than the lower median cell, wall rugose (second cell from base 5–8.5 µm; third cell 6–9 µm; fourth cell 6–8 µm); apical cell conic, hyaline, thin- and smooth-walled, 3.5–5 µm long; with 1–4 tubular apical appendages, with some branched appendages, arising from the apex of the apical cell and sometimes from just above the septum separating the apical and subapical cell, 20–40 µm long; basal appendage single, tubular, unbranched, centric, 3–9 µm long. On *Sciadopitys verticillate*, *Pinus pinea* (NL, PT) **Pestalotiopsis hollandica** Maharachch., K.D. Hyde & Crous (2014)
 Ill.: Maharachch., K.D. Hyde & Crous 2014a: fig. 30.

Pseudopestalotiopsis Maharachch. et al. emend. F. Liu, L. Cai & Crous

Type species: *Pseudopestalotiopsis theae* (Sawada) Maharachch. et al.

Lit.: Liu et al. 2019: 373.

1 Acervuli initially subepidermal, later erumpent, finally exposed. Conidiophores simple, short, filiform, fugacious. Conidia fusiform, slightly constricted at septa, 4-septate, 20–31x(4)5–8.5 µm; basal cell obconic, hyaline, thin and smooth-walled, 4.3–5.6 µm long; 3 median cells dark brown, septa and periclinal walls darker than the rest of the cell, together 15–20 µm long; apical cell hyaline, conic to cylindrical 4.2–5.8 µm long; apical appendages tubular, 2–4, arising from the upper portion of the apical cell, 15–40(50) µm long, slightly swollen at the apex; basal appendage filiform, 5–11 µm, apically knobbed. On living leaves of *Camellia sinensis*, *C. japonica*, *Diospyros kaki* (ES)
 **Pseudopestalotiopsis theae** (Sawada) Maharachch. et al.
 Ill.: Wang Z.H. et al. 2017 : fig. 2 – group I.

Pseudosarcostroma F. Liu, L. Cai & Crous

Type species: *Pseudosarcostroma osyridicola* F. Liu, L. Cai & Crous.

Lit.: Liu et al. 2019: 374.

1 Sexual morph: unknown. Asexual morph: Conidiophores septate, branched, mostly reduced to conidiogenous cells, smooth, colourless. Conidiogenous cells discrete, mostly lageniform or ampulliform, 4.5–14.5x1.5–3.5 µm, colourless, smooth. Conidia fusoid, straight or slightly curved, wall undulate, mostly 4-septate, occasionally 5-septate, distal septa thicker than the rest cell, 18.5–29.5(33)x4.5–7.5 µm, l/w_m= 4.2:1, basal cell obconic with a truncate base, hyaline, thin-walled, 3–5 µm long; median cells 2, cylindrical, doliiform, pale brown, thick-walled, each 3–8 µm long; apical cell conic with acute apex, thin-walled, hyaline, 2–5.5 µm long; apical appendage, centric, 9.5–20.5 µm long; basal appendage excentric, both appendages single, attenuated, tubular, unbranched, 5.5–19.5 µm long. On twigs of *Osyris alba*. Phen.: X (FR) **Pseudosarcostroma osyridicola** F. Liu, L. Cai & Crous (2018)
 Ill.: Liu et al. 2019: fig. 57.

Robillarda Sacc. (1880)

Type species: *Robillarda sessilis* (Sacc.) Sacc.

Lit.: Crous et al. 2015: 184, Liu et al. 2019: 376..

- 1 Conidiomata stromatic, pycnidoid, scattered to gregarious, occasionally confluent, immersed to partly erumpent, uni- to plurilocular, ovoid, globose or depressed globose, usually 110-210 µm diam. but to 500 µm diam. when plurilocular, and to 200 µm high, glabrous, dark brown to black; ostiole papillate or not, circular or oval; wall to 30 µm thick, of an thick-walled outer textura angularis, dark brown to brown in the outer layers, becoming progressively thin-walled and paler toward an inner, hyaline, textura prismatica; when present, interocular tissue hyaline, thin-walled textura prismatica. Conidiophores reduced to conidiogenous cells, invested in mucus. Conidiogenous cells ampulliform to subcylindrical, hyaline, smooth, guttulate, 5-8x2-4 µm, proliferating sympodially at apex. Conidia composed of a conidium body and a separate apical cell modified into a branched appendage; conidium body fusiform, straight or slightly curved, wall smooth, with and often slightly constricted median septum, hyaline to pale brown, (9)11-12(13)x(2.5)3(3.5) µm; apical cell cylindrical for 1-2.5 µm then dividing into 2-3 divergent branches devoid of cell contents; attenuated towards the apex, flexuous, 18-22 µm long and less than 1.5 µm wide at the broadest point; on wilted leaves of *Magnolia*, *Rubus caesius*. Phen.: X (IT) **Robillarda sessilis** (Sacc.) Sacc. (1880)
 Ill.: Crous et al. 2015: fig. 17.

Sarcostroma Cooke

Type species: *Podisoma foliicolum* Berk. ≡ *Sarcostroma foliicola* (Berk.) M. Morelet
 Lit.: Nag Raj 1993: 770, Lee et al. 2006: 175, Liu et al. 2019: 378.

- 1 Conidia up to 18(20) µm long 2
 1' Conidia longer "3
- 2 Acervuli scattered or gregarious, remaining immersed, in section low conoid, 132-270 µm wide. Basal stroma pseudoparenchymatous, consisting of a few layers of brown, thick-walled, angular cells, 9-14 µm thick; lateral tissue absent or present, when present similar to the basal stroma. Conidiophores often reduced to conidiogenous cells or poorly developed. Conidiogenous cells annellidic, hyaline, discrete, smooth, cylindrical to lageniform, (5.5)8-10(13)x2-3 µm. Conidia fusiform to ellipsoid, straight or slightly curved, (15)17-18(20)x(6)7-7.5(9) µm, 4-(5)-septate; apical cell hyaline, conical, 2-3x3 µm, smooth, thin-walled; median cells brown, doliiform, 10-16x 7-8 µm, echinulate, thick-walled; basal cell hyaline, obconical with truncate end, 2.5-3x3 µm, smooth, thin-walled. Apical appendage single, centric, unbranched, 27-38x1-1.5 µm, flexuous, attenuated. Basal appendage single, excentric, unbranched, 25-40x1-1.5 µm, flexuous, attenuated. On dead petiole of *Pteridium aquilum*. Phen.: ? (UK)
 **Sarcostroma restionis** S.J. Lee & Crous (2006)
 Ill.: Lee et al. 2006: fig. 20-24.
- 2' Acervuli black. Conidiophores 35-40 µm long or reduced to conidiogenous cells. Conidiogenous cells smooth, hyaline; Conidia fusiform, 14-18x5.5-6.5 µm, 4-septate; three median cells verruculose and yellowish brown to brown; end cells smooth, almost hyaline; apical appendage single and 4-14 µm long, basal appendage single and excentric, 5-12 µm long. On branches of *Euphorbia spinosa*. Phen.: (IT) **Sarcostroma microsorum** (Sacc.) Nag Raj (1993)
 Ill.: Nag Raj 1993: 111.17.
- 3 Sexual morph: unknown. Asexual morph: Conidiophores septate, branched, colourless, smooth, thin-walled, sometimes reduced to conidiogenous cells. Conidiogenous cells discrete or integrated, mostly cylindrical, subcylindrical, 7-13.5 1-2.5 µm, colourless, smooth. Conidia lunate or fusoid, curved or occasionally straight, 4-septate, wall smooth or undulate, not constricted at the septa, 19-23.5x3-6.5 µm, l/w_m= 4.2:1; basal cell obconic with a truncate base, colourless to pale brown, 2.5-4 µm long; median cells 3, cylindrical or subcylindrical, thick-walled, mid-brown or yellowish brown, together 12.5-15.5 µm long; apical cell conical, colourless or occasionally pale brown, 3-5 µm long; apical appendage single, filiform, unbranched, attenuated, 25-35 µm long; basal appendage single, unbranched, filiform, excentric, 21-37 µm long. On *Babiana dregei*. Phen.: VII (FR)
 **Sarcostroma longiappendiculatum** F. Liu, L. Cai & Crous (2018)
 Ill.: Liu et al. 2018: fig. 64.
- 3' Conidia 6-9 µm wide 4
- 4 Acervuli hypophyllous, black. Conidiophores smooth, hyaline, up to 30 µm long. Conidiogenous cells 7-22x2-3.5 µm. Conidia fusiform, 17-22x6-8(8.5) µm, 4-septate, 3 median cells verruculose and brown, end cells smooth and almost hyaline; appendages tubular, attenuated, unbranched; basal appendage single, excentric 9-36 µm long; apical appendage single and 15-33 µm long. On leaves and twigs of *Berberis buxifolia*. Phen.: XII (DK)
 **Sarcostroma berberidis** (Lind) Nag Raj (1993)
 Ill.: Nag Raj 1993: fig. 111.3.
- 4' Conidia 5-septate 5
- 5 Acervuli stromatic, epiphyllous, 0.15 mm diam., dark brown to black. Conidia fusiform, 19-23x7.5-9 µm, 5-septate, median cells verruculose and pale brown, end cells hyaline, apical and basal appendages up to 9(11) µm long. Saprobiic on leaves of *Juniperus communis*. Phen.: VIII-IX (DK, UK) **Sarcostroma foliicola** (Berk.) M. Morelet (1985)
 Ill.: Nag Raj 1993: fig. 111.9, Ellis & Ellis 1985: fig. 669.
- 5' Conidiomata stromatic, erumpent, black. Coniophores up to 40 µm long, occasionally reduces to conidiogenous cells. Conidiogenous cells 10-14(15)x2-3.5 µm, smooth, hyaline. Conidia fusiform, 27-36x 8-10(11) µm, 5-septate; median cells, longitudinally disposed verruculose and brown, apical and basal cell smooth, almost hyaline; apical appendage

single, attenuated, 8-12 µm long; basal appendage single, excentric, 4-10 µm long. On inner surface of bark of *Laurus nobilis*. (FR) **Sarcostroma plagiochaetum** (Sacc.) Nag Raj (1993)
 Ill.: Nag Raj 1993: fig. 111.18.

Seimatosporium Corda 1833 ss. str. (excluding e.g. *Diploceras*)

Syn.: *Clathridium*, *Griphosphaeria*, *Paradidymella*, teleom. *Discostroma* Clem.

Type species: *Seimatosporium rosae* Corda

Lit.: Müller & Arx 1962: 670 (sub *Lejosphaerella*), Shoemaker 1963: 411, Brockmann 1976: 275, Dennis 1978: 326 (sub *Griphosphaeria corticola*), Ellis & Ellis 1985: 240 (sub *Paradidymella clarkii*) & 348 (sub *Paradidymella tosta*) & 464 (sub *Paradidymella holci*), Nag Raj 1993: 813, Tanaka et al. 2011: 85, Norphanphoun et al. 2015: 385, Rossman et al. 2016: 5, Perrerera et al. 2016 : 51, Liu et al. 2019: 387.

- 1 Sexual morph known 2
- 1' Sexual morph unknown 13

- 2 Mature spores pale to dark brown 3
- 2' Mature spores remaining hyaline 4

- 3 Asci uniseriate, IKI+; 1-septate spores 11-14x5.5-7 µm and 3-septate spores 13-16.5x6-7.5 µm present, greyish brown. Saprobic on twigs of *Rosa* spp.; phen.: VII (CH)
 **Discostroma polymorphum** Brockmann = **Griphosphaeria polymorpha** (Brockmann) Lar.N. Vassiljeva (1998)
- 3' Asci uniseriate, IKI+; spores elongate ellipsoid, 15-18x5.5-7.5 µm, 3-septate, seldomly with a longiseptum, pale brown. Saprobic on twigs of *Ribes alpinum*, *Ribes petraeum*; phen.: V
 "**Discostroma**" **saccardoanum** (Jac.) Brockmann (1976)

- 4 Spores mainly 1-septate 5
- 4' Spores with 3 or more septa 10

- 5 Spores up to 4 µm wide 6
- 5' Spores wider 8

- 6 Ascomata immersed, up to 0.25 mm diam., mostly clypeate; spores 18-23x2.5-3.5 µm, 1-septate, hyaline, guttulate. Saprobic on stems of *Rubus fruticosus*; phen.: X-XII "**Paradidymella**" **clarkii** D. Hawsw. & Sivan. (1976)
 Ill.: Hawsw. & Sivan. 1976: fig. 2.
- 6' Spores up to 14 µm long 7

- 7 Ascomata immersed, with a dark brown clypeus; spores 10-12x2.5-3.5 µm, 1-septate, smooth or slightly roughened, hyaline or subhyaline. On *Holcus lanatus*; phen.: VIII "**Paradidymella**" **holci** D. Hawsw. & Sivan. (1976)
- 7' Ascomata immersed, up to 0.4 mm diam., clypeate; spores slightly curved, 10-14x3-4 µm, 1-septate, hyaline; saprobic on stems of *Epilobium angustifolium*, *E. dodonaei*, *E. fleischeri*, *E. hirsutum*; phen.: (I)III-VII (BE/F)
 **Seimatosporium tostum** (Berk. & Broome) Rossman & W.C. Allen (2016)

- 8 Spores broadly fusiform, 13.5-18x5.5-7.5 µm, 1-septate, hyaline to weakly greenish. Saprobic on *Cassiope tetragone*
 **Discostroma hyperboreum** (P. Karst.) O.E. Erikss. (1992)
- 8' Spores 1(2-3)-septate 9

- 9 Sexual morph: Spores ellipsoid, 10-12(13)x4-5(5.5) µm, 1(2-3)-septate, not constricted at the septa, hyaline. Asexual morph: Conidiomata acervular, intra-epidermal, 250–500 µm diam., unilocular, glabrous, brown, dehiscing by irregular split in the overlying host tissue; basal stroma thin. Conidiophores sparsely septate and branched, colourless, thin-walled, smooth, up to 10 µm long. Conidiogenous cells lageniform to cylindrical, colourless, thin-walled, smooth. Conidia fusiform, straight to slightly curved, (11)12-16.5x3.5-4(5) µm, l/w_m= 3.9, hyaline or slightly olivaceous, 3-septate, basal cell conic to obconic, thin-walled and verruculose, 2–3.5 µm long; median cells doliiform to cylindrical, with thick verruculose walls, constricted at septa, concolourous, olivaceous, with septa and walls darker than the rest of the cell; apical cell hyaline, cylindrical to subcylindrical 2.5–4 µm long, with 1 tubular apical appendage, 5–10 µm long, unequal in length; basal appendage present, 5–8 µm long. Saprobic and weak parasitic on dead and dying branches of *Rosa canina*, *R. pendulina*, *R. rubrifolia*; phen.: V-IX (CZ, DE) **Seimatosporium rosae** Corda (1833)
 Ill.: Shoemaker 1964: fig. 1, Nag Raj 1993: fig. 115.10, Norphanphoun et al. 2015: fig. 4*, Liu et al. 2018: fig. 68.
- 9' Spores ellipsoid, 12-15(17)x5.5-6.5 µm, 1(2-3)-septate, hyaline to pale yellowish. Saprobic on bark of twigs of *Rosa* spp., *Cornus sanguinea*; phen.: II-X **Discostroma canina** Brockmann (1976)

- 10 Sexual morph: Ascomata globose to depressed globose, 300-530 µm high, 320-600 µm diam., single or 2-6 grouped under blackened clypeus, immersed to erumpent, ostiolate. Beak short cylindrical, with hyaline periphyses. Paraphyses filiform, hyaline, 5 µm wide at the base, septate. Asci 138-193x10-13 µm, J+; spores elongate ellipsoid, 16-25x7.5-11 µm, 3-5(7) transversal septa and 1 longitudinal septum, hyaline. Asexual morph: Conidiomata acervular or pycnidia, 0.15-0.5 mm diam. Conidia fusiform, ellipsoid or clavate, (10)11-17(19)x3-6 µm, (2)3-septate, median cells brown to

pale brown; apical cell hyaline if bearing an appendage, basal cell with truncate base, hyaline to pale brown, with an appendage 14 µm long. Caulicolous (<i>Ribes alpinum</i> , <i>R. petraeum</i> , <i>R. rubrum</i> , <i>Rosa</i> , <i>Rubus idaeus</i> , <i>R. occidentalis</i> , <i>Salix caprea</i>). Phen.: II-IV, VI-VIII (AT, DE, FR)	
..... Seimatosporium massarina (Sacc.) Jaklitsch & Voglmayr (2016) ? = Seimatosporium salicinum (Corda) Nag Raj (1993) Ill.: Nag Raj 1993: fig. 115.12.1-2, Tanaka et al. 2011: fig. 6 & 7j-k.	
10' Spores mostly 3-septate, seldomly with or without longisepta	11
11 Ascomata immersed, up to 0.4 mm diam., clypeate; spores 19-22(24)×10-13 µm, with 3 travisepta and one longiseptum, hyaline. Saprobic on stems of <i>Arctostaphylos alpina</i> and <i>A. rubra</i> ; phen.: VI-VIII	
..... Discostroma propendulum (P. Karst.) Brockmann (1976)	
11' Ascospores up to 10 µm wide	12
12 Spores elongate ellipsoid, 16.5-20(25)×7.5-9(10) µm, with 3-5 transverse septa and seldomly one longiseptum, hyaline to yellow. Saprobic on bark of twigs of <i>Cornus mas</i> , <i>Cornus sanguinea</i> ; phen.: VI	
..... Discostroma sanguineae Brockmann (1976)	
12' Sexual morph: Ascomata appearing on the bark surface as dark brown to black circular patches, 150–230 µm high, 185-350 µm diam., solitary, immersed, depressed globose, membranous, dark brown to brown, with a periphysate ostiole. Peridium 15–43 µm, multilayered, of textura angularis to textura intricata. Hamathecium comprising 3–6 µm wide, hypha-like, apically free paraphyses. Asci 75-148×9-16 µm, 8-spored, short pedicellate, with a refractive, J+ apical ring. Ascospores fusiform or ellipsoidal, 10-21×4-8.5 µm, hyaline, (1-2)3(4) transversely septate, smooth, thick-walled. Asexual morph: Conidia clavate or obovoid, 3-septate, without appendages. Saprobic on <i>Cornus sanguinea</i> . Phen.: III(t) (IT)	
..... Seimatosporium cornii Wijayaw., Camporesi & K.D. Hyde (2015) Ill.: Perera et al. 2016: fig.2.	
13 Conidia 3-septate	14
13' Conidia 4-5-septate	29
14 Apical appendage mostly present	15
14' Apical appendage mostly absent	21
15 Appendages on average up to 7.5 µm long	16
15' Appendages longer	17
16 Appendages 5 µm long	
16' Conidiomata acervylar to indeterminat, 100-200 µm wide, dark brown to black. Conidiophores 20-40 µm long or reduced to conidiogenous cells. Conidiogenous cells 5-15×2-2.5 µm, smooth, hyaline. Conidia clavate, ellipsoid or fusiform, 12-18×5.5-6.5 µm, 3-septate, smooth; basal cell obconic with truncate base bearing minute marginal frills, almost hyaline; 2 median cells mid brown to brown; apical cell pale brown to mid brown; basal and apical appendage, when present, tubular and 1-14 µm long. On dead canes of <i>Vitis vinifera</i> . Phen.: III (DE, FR, UK)	
..... Seimatosporium hysterooides (Fuckel) Brockmann (1976) Ill.: Nag Raj 1993: fig. 115.6 & 115.6.1.	
17 Conidia less than 15 µm long	18
17' Conidia more than 15 µm long	20
18 Conidia fusiform, (11)12-15×3.5-4.5(5) µm 3-septate, verruculose, median cells olivaceous, end cells hyaline, apical appendage 5-10 µm long, basal appendage 5-8 µm long. On branches of <i>Rosa canina</i> , <i>Rosa sp.</i>	
..... see Seimatosporium rosae	
18 Appendages longer	19
19 Appendages up to 30 µm long	
19' Sexual morph: undetermined. Asexual morph: Acervuli circular, 0.08-0.2 mm diam. Conidia 11-15×4-6 µm, 3-septate, median cells light brown and 6-9 µm long, appendages up to 30-35 µm long. On stem cankers and leaf spots of <i>Rosa</i> spp. Phen.: IV-IX (AT, CZ, CH, DE)	
..... Seimatosporium caudatum (Preuss) Shoemaker (1964) Ill.: Shoemaker 1964: fig. 3.	
20 Conidiophores branched, reduced to conidiogenous cells, colourless, smooth. Conidiogenous cells discrete, mostly cylindrical or subcylindrical, 4.5-12×1.5-2.5 µm, colourless, smooth. Conidia fusoid, curved, 3-septate, wall smooth, 13.5-18×2.5-4 µm, l/w _m = 5:1; basal cell trapezoid, subcylindrical, thin-walled, hyaline to pale brown, 2-3.5 µm long; median cells 2, cylindrical, thick-walled, pale to mid-brown, each 3.5–6 µm long; apical cell conic with an acute apex, thin-walled, hyaline to pale brown, 2.5-4.5 µm long; apical appendage single, attenuated, tubular, unbranched, hyaline, occasionally pale brown, 2-11(15) µm long; basal appendage lacking or, when present, attenuated, tubular, single, unbranched, excentric, (1)3-11.5 µm long. From forest soil under <i>Fagus sylvatica</i> . Phen.: ? (DK)	
..... Seimatosporium soli F. Liu, L. Cai & Crous (2018)	
20' Conidia 15.5-18×5.5-6.5 µm, appendages 1-3 µm long. On leaves of <i>Aristotelia</i> (Chili)	
..... Seimatosporium monochaetioides (Speg.) B. Sutton (1975)	

21 Conidia in average less than 4.5 µm wide	22
21' Conidia more than 4.5 µm wide	23
22 Acervuli up to 125 µm diam. Conidiophores 5-10x1-3 µm, with 0-1 annellations. Conidia 11-19x3-5 µm, 3-septate, straight, median cells medium brown, end cells hyaline; apical appendage, if present, unbranched and up to 10 µm long; basal appendage unbranched, up to 10 µm long. On twigs of <i>Lonicera</i> , <i>Physocarpus</i> , <i>Syringa</i> . (DE, NL, SE)	
..... Seimatosporium loniceræ (Cooke) Shoemaker (1964)	
..... Ill.: Sutton 1980: fig. 161D, Nag Raj 1993: fig. 115.8..	
22' Conidia falcate or straight, 3-septate, wall smooth, 15.5-21.5x3-4.5 µm, l/w _m = 5.2:1; basal cell obconic with a truncate base, or subcylindrical, hyaline, 2.5-4 µm long; median cells 2, fairly thick-walled and pale brown, cylindrical, each 4-8 µm long; apical cell conic with an acute apex, hyaline, 1.5-5.5 µm long; apical appendage lacking or, when present, tubular, filiform, single, unbranched, attenuated, 2-16 µm long; basal appendage lacking or, when present, single, tubular, filiform, unbranched, attenuated, excentric, 1.5-14 µm long;. Host unknown. (DE)	
..... Seimatosporium germanicum F. Liu, L. Cai & Crous (2018)	
..... Ill.:Liu et al. 2018: fig. 67.	
23 Conidia up to 19 µm long	24
23' Conidia longer	28
24 Conidia mostly without appendages	25
24' Conidia mostly with appendages	26
25 Conidimata acervular, about 100 µm diam., black. Conidiophores up to 30x1.5-2 µm, hyaline. Conidia fusiform, 13-18x4.5-5.5 µm, 3-septate, mid pale brown, end cells often paler than median ones, without appendages. Saprobitic on twigs of <i>Vaccinium myrtillus</i> . Phen.: IV	
..... Seimatosporium vaccini (Fuckel) B. Erikss. (1974)	
..... Ill.: Sutton 1980: fig. 163F.	
25' Conidiomata acervular, mostly epiphyllous, 90-150 µm wide, black. Conidiophores 50-60 µm long, smooth, hyaline. Conidiogenous cells 10.5-18x2-2.5 µm. Conidia ellipsoid, 11-19x5-6 µm, l/w _m = 2.7, (2)3(4)-septate, smooth; basal cell obconic with truncate base bearing minute marginal frills, almost hyaline; other cells pale brown; apical appendage absent; basal appendage absent or, if present, tubular, excentric, (1.5)2.5-8 µm long. On leaves of <i>Alnus</i> . Phen.: IX (FR)	
..... Seimatosporium alneum Nag Raj (1986)	
..... Ill.; Nag Raj 1993: fig. 115.1.	
26 Conidiomata pycnidoid, semi-immersed, 100-250 µm wide, 90-230 µm deep, unilocular, dark brown to black. Conidiophores up to 40 µm long or reduced to conidiogenous cells. Conidiogenous cells 8-14x1.5-3 µm. smooth, hyaline. Conidia clavate, 13-16.5x4.5-6.5 µm, l/w _m = 2.6, 3-septate, smooth; basal cell obconic with truncate base bearing marginal frills, almost hyaline; median cells pale brown; apical cell with rounded apex, pale brown, without appendage; basal appendage tubular, single, with 2-3 branches, 4-20 µm long. On dead twigs of <i>Lonicera caerulea</i> . Phen.: IV (SE)	
..... Seimatosporium effusum (Vesterg.) Shoemaker (1964)	
26' Basal appendage unbranched	27
27 Conidia fusiform, ellipsoid or clavate, (10)11-17(19)x3-6 µm, (2)3-septate, median cells brown to pale brown; apical cell hyaline if bearing an appendage, basal cell with truncate base, hyaline to pale brown, with an unbranched appendage 14 µm long. Caulicolous	see <i>Seimatosporium massarina</i>
27' Conidiomata acervular, 175-250 µm diam., 200-250 µm high, unilocular, subglobose, superficial to subepidermal, solitary, dark brown to black, with apapillate ostiole. Conidiomata wall composed of brown walled-cells of textura angularis, with thin, hyaline, inner wall. Conidiophores 10-60x2-4 µm long, cylindrical, branched, hyaline, smooth-walled. Conidiogenous cells holoblastic, annellidic, simple, integrated, determinate, hyaline. Conidia 12-17.5x3-6 µm, obovoid to fusiform, truncate at base, obtuse at apex, straight, 3-septate, constricted and brown to dark brown at the septa, eguttulate, medium brown, hyaline to subhyaline at basal and apical cell, smooth-walled, with or without tubular basal and apical appendages; basal appendage when present 6-15 µm long, unbranched; apical appendage when present unbranched, 8-25 µm long. On dead branch of <i>Rosa villosa</i> . Phen.: VII (IT)	
..... Seimatosporium pseudorosae Wijayaw., Camporesi & K.D. Hyde (2016)	
..... Ill.: Li et al. 2016: fig. 72.	
28 Sexual morph: unknown. Asexual morph: Conidiophores irregularly branched, sometimes reduced to conidiogenous cells, colourless, smooth. Conidiogenous cells discrete or integrated, mostly cylindrical, variable in size, 4.5-25x2-3 µm, colourless, smooth, with up to two annellations. Conidia cymbiform, fusoid, straight, 3(6)-septate, wall smooth, 13.5-26x4.5-6 µm, l/w _m = 3.2:1; basal cell obconic with a truncate base, subcylindrical, colourless or similar to that of median cells, 2.5-4 µm long; median cells 2(4), fairly thick-walled and pale brown to yellowish brown, each 3.5-5.5 µm long; apical cell obtuse or conical, colourless, sometimes similar to that of median cells, 1.5-4.5 µm long; apical appendage lacking or, when present, single, unbranched, attenuated, 4-11 µm long; basal appendage single, unbranched, excentric, 4-10 µm long. On dead stem of <i>Vitis vinifera</i> . Phen.: IV (ES)	
..... Seimatosporium vitis-viniferae F. Liu, L. Cai & Crous (2018)	

- 28' Sexual morph: unknown. Asexual morph: Conidiomata 330-400 µm diam., 220-250 µm high, acervular, superficial, solitary to gregarious, black, apapillate ostiolate. Conidiophores 25–55x2–4 µm, cylindrical, branched, hyaline. Conidiogenous cells holoblastic, simple, integrated, determinate, hyaline. Conidia fusiform or obovoid, base truncate, straight, 34-51x13-18 µm, with 3 transverse septa, dark septa brown, constricted at septa, guttulate when immature, medium brown, with hyaline to subhyaline basal cell, smooth-walled, appendage absent. Saprobic on branches of *Cornus sanguinea*. Phen.: III(t) (IT) **Seimatosporium cornicola** Wijayaw., Camporesi & K.D. Hyde (2015)
 Ill.: Wijayaw., Camporesi & K.D. Hyde 2015: fig.3
- 28'' Sexual morph: Undetermined. Asexual morph: Conidiomata 320–350 µm diam., 50–120 µm high, acervular, unilocular, subglobose, superficial to subepidermal, solitary to gregarious, dark brown to black, non papillate ostiole. Conidiomata wall multi-layered, outer wall thick, composed of brown cells of textura angularis, inner wall thin, hyaline. Conidiophores 5–30x2–4 µm, long, cylindrical, branched, hyaline, smooth-walled. Conidiogenous cells holoblastic, annellidic, simple, integrated, determinate, hyaline. Conidia 31–42x5–7 µm, obovoid to fusiform, occasionally truncate base, obtuse apex, straight to slightly curved, 3-transverse septate, brown to dark brown septa, constricted at the septa, often guttulate at immaturity, medium brown, hyaline to sub-hyaline basal cell, smooth-walled, appendage absent. Saprobic on dead branches and stems of *Cornus* sp. Phen.: I (IT)
 **Seimatosporium pseudocornii** Wijayaw., Camporesi & K.D. Hyde (2016)
- 29 Conidia 4-septate 30
- 29' Conidia 5-septate 31
- 30 Acervuli up to 0.2 mm diam. Conidia 15-21x4.5-6 µm, 4-septate, median cells brown, end cells hyaline, appendage at each end up to 12 µm long. Saprobic on leaves of *Rhododendron* (UK)
 **Seimatosporium arbuti** (Bonar) Shoemaker (1964)
 Ill.: Ellis & Ellis 1985: fig. 1014.
- 30' Conidia 20-25x5-6 µm, 4-septate, median cells brown, end cells hyaline, apical appendage up to 15 µm long, basal appendage up to 30 µm long. On leaves of *Quercus robur*. Phen.: VI (NL) **Seimatosporium** sp.
- 31 Conidia 27-37x9-12 µm, 5-septate, median cells brown, end cells hyaline or pale brown. Saprobic on branches of *Ulmus*, *Vitis*. Phen.: I (FR, UK) **Seimatosporium macrospermum** (Berk. & Broome) B. Sutton (1975)
 Ill.: Sutton 1980: fig. 162B, Ellis & Ellis 1985: fig. 1217.
- 31' Acervuli up to 0.25 mm diam. Conidia 20-23x6-7 µm, 5-septate, median cells pale brown, end cells hyaline, basal appendage up to 25 µm long, apical appendage up to 30 µm long. Saprobic on leaves of *Rhododendron* (UK)
 **Seimatosporium mariae** (Clinton) Shoemaker (1964)
 Ill.: Ellis & Ellis 1985: fig. 1015.

Seiridium Nees

Syn.: *Blugiascospora* Shoemaker et al., *Pestalotia* De Not.

Type species: *Seiridium marginatum* Nees

Lit.: Nag Raj 1993: 849, Jaklitsch et al. 2016: 93, Bonthond et al. 2018: 96.

- 1 Conidial appendages lacking. On *Cupressus* sp. (IT, PT) **Seiridium pseudocardinale** Wijayaw. et al. (2016)
- 1' Conidia with appendages 2
- 2 Conidia in average up to 31 µm long 3
- 2' Conidia longer 9
- 3 Conidia up to 8.5 µm wide 4
- 3' Conidia wider 5
- 4 Conidiomata pycnidoid, stromatic. Conidia blastic-phialidic, fusiform to ellipsoid; 5-septate, 18-28x(6.5)7-8.5 µm, median cells brown, end cells hyaline; apical appendage single, simple or branched, 3-36 µm long; basal appendage single, simple or branched, 2-7 µm long, sometimes absent. On corticated twigs of *Cornus alba*, *Cornus sanguinea*, *Cornus* sp. Phen.: V-X (DE, IT) **Seiridium venetum** (Sacc.) Nag Raj (1989)
 Ill.: Nag Raj 1989: fig. 20-30, Maharachchikumbura et al 2015: fig. 4.
- 4' Conidiomata acervular to sporodochial. Conidia lunate to falcate, often curved, euseptate, (24)28–33.5(38.5)x(6)7–8(9) µm, 6-celled with four pale brown central cells, terminal cells hyaline; apical appendages single or multiple, centric, branched or unbranched, 8.5–27 µm; basal appendage single, cylindrical, centric, occasionally branched, 5.5–14 µm. On leaves and twigs of *Vitis vinifera*. Phen.: X (FR, IT) **Seiridium pezizoides** (De Not.) Crous (2019)
 Ill.: Maharachchikumbura et al. 2011: fig. 1*, Bonthond et al. 2019: fig. 64.
- 5 Conidia lunate to falcate, curved, (21)26.5-31(35.5)x(7)8.5–10(10.5) µm, 5-septate, not striate, bearing two appendages, euseptate without visible pores; basal cell obconic with a truncate base, hyaline, 2.5–5 µm; four median cells, smooth, cylindrical to doliiform, pale to brown; apical cell conical, hyaline; appendages cylindrical, attenuated; apical appendage single, centric, 6.5–12 µm long, occasionally branched near the tip; basal appendage consistently present, single, cylindrical, centric and excentric, 3.5–10.5 µm long. On *Cupressus*. Phen.: XI (IT)
 **Seiridium neocupressi** Bonthond, Sandoval-Denis & Crous (2018)
- 5' Conidia fusiform to ellipsoid 6

- 6 Apical appendage up to 3 µm long 7
6' Apical appendage longer 8
- 7 Conidiomata stromatic, pycnidoid to acervuloid, up to 400 µm wide, mostly unilocular, pale brown to brown. Conidiophores 50-80 µm long. Conidiogenous cells Conidia fusiform, straight to slightly curved, (20)20.5-30x(7;5)8-10 µm, 5-septate with pores clearly visible, edian cells mid brown to brown; end cells subhyaline, each bearing an 1(1.5) µm long appendage. On *Cupressus*, *Cupressus*., *Chamaecyparis*, *Cryptomeria*, *Cupressocyparis*, *Juniperus* and *Thuja*. (ES, FR, IE, IT, PT, UK) .. **Seiridium cardinale** (W.W. Wagener) B. Sutton & I.A.S. Gibson (1972) Ill.: Nag Raj
Ill.: Bonthond et al. 2018: fig. 5-6.
- 7' Conidiomata stromatic, acervuloid, 150-800 µm wide, pale brown. Conidiophores up to 70 µm long. Conidiogenous cells 12.5-21x1.5-2.5 µm, smooth, hyaline. Conidia fusiform, (22)24-33x9-11 µm; basal cell obcoic with truncate base, subhyaline; 4 median cells brown, with thick septa and longitudinally striate wall; appendages tubular, attenuated, corniform, unbranched; apical appendage single, 1.5-3 µm long; basal appendage, when present, centric, 1 µm long. On bark of *Ulmus* sp. Phen.: (IT, UK) **Seiridium intermedium** (Sacc.) B. Sutton (1975)j
Ill.: Nag Raj 1993: fig. 116.9.
- 8 Conidiomata stromatic, pycnidoid, 390-500 µm wide, dark brown. Conidiophores up to 90 µm long. Conidiogenous cells 12-19(20)x1.5-2 µm, smooth, hyaline. Conidia fusiform, 27-32x10-12 µm, 4 median cells smooth-walled and brown, end cells hyaline; appendages tubular, attenuated, unbranched; apical cell single, (4)9-17 µm long; basal appendage, when present, single, centric, 4-19 µm long. On dead branches of *Pistacia terebinthus*. Phen.: V (IT)
..... **Seiridium terebinthi** (Briosi) Nag Raj (1993)
Ill.: Nag Raj 1993: fig. 116.15.
- 8' Conidiomata stromatic, pycnidoid, 250-400 µm wide, unilocular, dark brown to black. Conidiophores up to 120 µm long. Conidiogenous cells 8-20x1.5-2.5 µm, Conidia fusiform to ellipsoid, 26-32x(10)11-13 µm, 5-septate; basal cell obconic with truncate base, almost hyaline; 4 median cells thick-walled, brown to dark brown; apical cell short conic, almost hyaline; appendages tubular, attenuated, unbranched; apical appendage single, 1.5-5 µm long; basal appendage, when present, single, centric, 1-4 µm long. On twigs of *Cistus monspeliensis*. Phen.: V (ES)
..... **Seiridium canariense** (Petr.) Nag Raj & Kendrick (1986)
Ill.: Nag Raj 1993: fig. 116.4.
- 8'' Conidiomata stromatic, acervuloid, 140-260 µm wide, dark brown. Conidiophores up to 60 µm long. Conidiogenous cells 13-26x2-3 µm, smooth, hyaline. Conidia fusiform, (22)24-34x9.5-11.5 µm, basal cell obconic with truncate base, sunhyaline; 4 median cells thick-walled, brown to dark brown; apical cell conical, subhyaline; appendages tubular, corniform, unbranched; apical appendage single, 1-3.5 µm long; basal appendage, when present, 0.5 µm long. On twigs of *Bignonia grandiflora* (IT) **Seiridium tecomae** (Sacc.) B. Sutton (1975)
Ill.: Nag Raj 1993: fig. 116.14.
- 9 Sexual morph: Ascomata perithecial, immersed, depressed globose to pyriform, 0.3–0.6x0.2–0.5 mm, scattered or confluent in numbers of 2–3, visible through bark fissures as pale brownish spots with a central black papilla. Papilla periphysate. Asci cylindrical, (145)150-178(190)x(9.0)10.5-14.8(16) µm, containing 8 uniseriate ascospores, amyloid ring (3.2)3.5-4.5(4.8) µm wide, (0.6)0.9-1.6(1.8) µm high. Ascospores cylindrical-oblong, (17.5)21-25.7(32.5) x(8.0)8.5–10(11.5) µm, Q (2.1)2.3–2.8(3.7), with 3(5) thick eusepta often thicker than the wall, yellow- to dark brown, multiguttulate when fresh and often with irregularly disposed minute light dots 0.5–1 µm diam. Asexual morph: Conidiomata acervular. Conidiophores hyaline, cylindrical, more or less straight, sparsely and mostly asymmetrically branched near the base, up to 90x4 µm. Conidia formed terminally, (35.2)38-42(45)x(8.2)8.8-10.2(11) µm, Q (3.5)3.9–4.6(4.9), fusiform, straight, with 5 thick eusepta, versicolorous, of 4 brown cells with striate surface and hyaline end cells, each with a hyaline unbranched filiform appendage-up to 52 µm long. On *Rosa canina*. Phen.: IV-VII (AT, CH, FR) **Seiridium marginatum** Nees (1816)
Ill.: Nag Raj 1993: fig. 116.12.
- 9' Conidiomata stromatic, pycnidoid, 250-650 µm wide, black. Conidiophores 80-140 µm long. Conidiogenous cells 14-22x2-2.5 µm, smooth, hyaline. Conidia fusiform, 29-35x10-12(12.5) µm; basal cell obconic with truncate base, almost hyaline, 4 median cells yellowish brown to brown; apical cell almost hyaline; appendages tubular, attenuated; apical appendage single, unbranched, 4-8(11) µm long; basal appendage, when present, single, unbranched, 1-5(6) µm long. On dry branches of *Olea* sp. (IT) **Seiridium ceratosporum** (De Not.) Nag Raj (1993)
Ill.: Nag Raj 1993: fig. 116.6.
- 9'' Conidiomata pycnidoid, 200-400 µm wide, black. Conidiophores up to 80 µm long. Conidiogenous cells 10-26x1.5-3 µm, smooth, hyaline. Conidia fusiform, (27.5)29-37x11.5-13 µm ; 4 median cells thick-walled, brown to dark brown end cells subhyaline ; appendages tubular, attenuated, unbranched; apical appendage single, 1.5-5 µm long ; basal appendage, when present, single, centric, 1.5-5 µm long. On branches of *Viburnum tinus*. Phen.: V (PT)
..... **Seiridium viburni** (Sousa da Câmara & Luz) B. Sutton (1963)

Sporocadus Corda

Type species: *Sporocadus lichenicola* Corda
Lit.: Liu et al. 2019: 392.

- 1 Mean conidium length/width ratio less than 3 2

1'	Mean conidium length/width ratio 3 and more	7
2	Conidia up to 16 µm long	3
2'	Conidia longer	5
3	Sexual morph: unknown. Asexual morph: Acervuli about 0.2 mm diam., black. Conidia 10-12x3-5 µm, 2(3)-septate, pale brown, basal cell palest and sometimes bearing a setulum up to 10 µm long. Saprobic on leaves of <i>Rosa canina</i> (UK).....	Sporocadus rosarum (Henn.) F. Liu, L. Cai & Crous (2018) Ill.: Ellis & Ellis 1985: fig. 1044.
3'	Conidia longer	4
4	Sexual morph: unknown. Asexual morph: Conidiophores septate, branched, sometimes reduced to conidiogenous cells, colourless, smooth. Conidiogenous cells discrete or integrated, mostly lageniform, ampulliform, or obclavate, sometimes subcylindrical, variable in size, 4.5–15x1.5–3.5 µm, colourless, smooth, with up to four annellations. Conidia obovoid, ellipsoid, straight or slightly curved, 10.5–15.5x3–5.5 µm, l/w _m = 2.8:1, pale brown, (2)3-septate, wall smooth, lacking appendages; basal cell obconic with blunt or sometimes round base, hyaline to pale brown, 2–3.5 µm long; median cells 2, doliform, fairly thick-walled and pale brown, each 2.5–4.5 µm long; apical cell short-conic with a round apex, concolourous with the median cells, 2.5–3.5 µm long;. On twig of <i>Sorbus</i> and leaf spot of <i>Ribes</i> . Phen.: XII-II (DE, NL)	Sporocadus microcycclus F. Liu, L. Cai & Crous (2018) Ill.: Liu et al. 2018: fig. 77.
4'	Conidiophores septate, branched, often reduced to conidiogenous cells, colourless, smooth, invested in mucus. Conidiogenous cells discrete or integrated, cylindrical or ampulliform, 6–16x1.5–3 µm, colourless, or pale brown, smooth, with up to four annellations. Conidia obovoid, ellipsoid, or subcylindrical, 3-septate, occasionally 2-septate, wall smooth, 10-15x3.5-6.5 µm, l/w _m = 2.4:1, lacking appendages; basal cell obconic with acute or blunt base, occasionally with a narrow truncate base, hyaline to pale brown, or concolourous with median cells, thin-walled, 1-3.5 µm long; median cells 2, short-cylindrical to doliform, hyaline or pale brown, and becoming mid-brown when mature, each 2.5-4.5 µm long; apical cell conic with round apex, concolourous with the median cells, 3.5–5 µm long. On <i>Rubus fruticosus</i> stem, <i>Pyrus communis</i> , <i>Rhododendron</i> and <i>Vitis</i> . Phen.: II-III (BE/F, NL)	Sporocadus rosigena F. Liu, L. Cai & Crous (2018) Ill.: Liu et al. 2018: fig. 79.
5	Asexual morph: Acervuli 1-2 mm diam. Conidia fusoid to ellipsoid, 25-32x9-11 µm, 3-septate, slightly constricted at the septa, pale yellow. On bark of <i>Populus nigra</i> , <i>P. tremula</i> (FR, IT)	Sporocadus populinus (Bres.) Orsenigo, Rodondi & B. Sutton (1998)
5'	Conidia up to 20 µm long	6
6	Sexual morph: unknown. Asexual morph: Conidiophores septate, reduced to very short conidiogenous cells, colourless, smooth. Conidiogenous cells usually discrete, mostly cylindrical, sub-cylindrical, sometimes lageniform, 4.5–14.5x1.5–3 µm, colourless, smooth, with up to four annellations. Conidia obovoid, or cylindrical with round apical and basal ends, straight, 11.5–20x4.5–6.5 µm, (2)3-septate, wall smooth, barely constricted at the septa, lacking appendages; basal cell obconic with a truncate base, colourless or sometimes concolourous with median cells, 2–5 µm long; median cells 2, doliform or cylindrical, thin-walled, colourless or greyish white, ± equal, each 3–5.5 µm long; apical cell obtuse or conic with round apex, colourless or concolourous with median cells, 2.8–5 µm long; mean conidium length/width ratio = 2.6:1. On dead twigs of <i>Prunus dulcis</i> . Phen.: III (ES)	Sporocadus incanus F. Liu, L. Cai & Crous (2018) Ill.: Liu et al. 2018: fig. 74.
6'	Sexual morph: unknown. Asexual morph: Conidiophores septate, usually branched, colourless, smooth. Conidiogenous cells discrete or integrated, mostly subcylindrical, (6.5)10.5–24x1.5–2.5 µm, colourless, smooth, with up to five annellations. Conidia obovoid or cylindrical, straight, occasionally slightly curved, 3–4-septate, wall smooth, 15–20x4.5–8 µm, lacking appendages; basal cell obconic with a narrow truncate base, hyaline to pale brown, usually concolourous with median cells, 2.5–4.5 µm long; median cells 2–3, doliform or short cylindrical, pale brown, ± equal, each 3.5–6 µm long; apical cell with an obtuse end, concolourous with median cells, usually becoming dark brown at the apex point, 3.5–6.5 µm long; mean conidium length/width ratio = 2.7:1. On twigs of <i>Malus sylvestris</i> . Phen.: X-II (BE/F, NL)	Sporocadus mali F. Liu, L. Cai & Crous (2018) Ill.: Liu et al. 2018: fig. 76.
7	Sexual morph: Ascomata immersed, up to 0.4 mm diam., clypeate; spores ellipsoid, 12-18(23)x5.5-8(9) µm, with 3(5) transverse septa and seldomly one longitudinal septum, hyaline. Asexual morph: Conidia subcylindrical to obovoid, 18-25x 5.5-8 µm, 3-4(5)-septate, pale brown, end cells mostly concolourous with median ones, lacking appendages, mean conidium length/width ratio = 3:1. On bark of branches of <i>Prunus domestica</i> , <i>Prunus spinosa</i> , <i>Rosa canina</i> , <i>Rosa montana</i> , <i>Rosa pendulina</i> , <i>Rubus idaeus</i> , <i>Rubus fruticosus</i> ; phen.: X-III (BE/F, DE, UK)	Sporocadus lichenicola Corda (1839) Ill.: Shoemaker 1964: fig. 2, (non Norphanphoum et al. 2015: fig. 2), Liu et al. 2018: fig. 75.
7'	Sexual morph: unknown. Asexual morph: Conidiophores septate, irregularly branched, colourless, smooth. Conidiogenous cells cylindrical, variable in size, 8–34x1.5–3 µm, colourless, sometimes pale brown, smooth, discrete or integrated. Conidia obovoid, clavate, straight, occasionally curved, 3(5-6)-septate, wall smooth, barely constricted at the septa, 17.5–23(32)x5.5–7.5 µm, lacking appendages; basal cell obconic with truncate base, colourless or pale brown, 3–5(9) µm long; median cells mostly 2, occasionally 4–5, fairly thick-walled, pale to mid-brown, cylindrical, ±	

equal, each 4–6 µm long, together 9.5–14.5 µm long; apical cell short-conic with round apex, concolourous with median cells, 3–7 µm long; mean conidium length/width ratio = 3.4:1. On *Cornus sanguinea*. Phen.: III-V (DE, IT)
 **Sporocadus cornicola** (Wijayaw. & Camporesi) F. Liu et al. (2018)
 Ill.: Liu et al. 2018: fig. 72.

7" Sexual morph: unknown. Asexual morph: On OA, conidiomata scattered, gregarious, dark brown or black, superficial or immersed. Conidiophores septate, irregularly branched, colourless, smooth. Conidiogenous cells integrated, mostly subcylindrical, lageniform, ampulliform, 4.5–14×1–2.5 µm, colourless, smooth, with up to three annellations. Conidia fusoid or obovoid, straight, mostly (2)3(5)-septate, wall smooth, 10-15×3-4.5 µm, bearing appendages; basal cell obconic with a narrow truncate base, hyaline to pale grey, 1.5–2.5 µm long; median cells mostly 2, cylindrical, fairly thick-walled and pale brown, ± equal, each 2–5 µm long; apical cell conic with an acute to almost acute apex when bearing an apical appendage, otherwise broadly conic with an obtuse apex, colourless or concolourous with median cells, 2–3.5 µm long; apical appendage lacking or, when present, single, unbranched, attenuated, tubular or flexuous, variable in size, 2-20 µm long; basal appendage lacking or, when present, unbranched, tubular or flexuous, excentric, 2–15.5 µm long; mean conidium length/width ratio = 3.4:1. On *Rosa canina*. Phen.: XI (SE)
 **Sporocadus trimorphus** F. Liu, L. Cai & Crous (2018)

Strickeria Körb.

Type species: *Strickeria kochii* Körb.
 Lit.: Jaklitsch et al. 2016: 99.

- 1 Sexual morph: Ascomata superficial, scattered, 0.1-0.3 mm diam., first nearly globose, collapsing, discoid or cupulate, broadly attached or downward slightly attenuate, surface black, warted, peridium thick and hard, dark brown, pseudoparenchymatous, papillate ostiole periphysate. Hamathecium of simple, 1.5-4.5 µm wide, apically free paraphyses. Asci 106-132×11-13.5 µm, cylindrical, with 8 uniseriate ascospores, short stipe, thickened apex without a distinct discharge apparatus, in KOH ascus wall thicker, ocular chamber larger, sometimes branched. Ascospores ellipsoid or broadly fusiform, (12)14.8-19(24.2)×(6)6.5-8(8.5) µm, with 3(4) transverse non-constricted septa and 1 longitudinal septum in mid cells, brown, with (sub)hyaline end cells, smooth. Asexual morph in nature: Ascomata associated with minute black pycnidia, 70–105 µm diam., globose, warted with central pore. Pycnidial wall pseudoparenchymatous, of dark brown angular to globose cells 5-13 µm diam. Conidiophores 1–3-celled, hyaline, simple, to c. 40 µm long. No phialides present. Conidia formed in fascicles, (23.5)32.5-48.3(51)×(4.7) 5-6(6.3) µm, Q (4.4)6.0-8.8(-9.6), falcate, first hyaline, 1-celled, finally brown, with 3-4 non-constricted septa, thin-walled, mid cells cylindrical, end cells lighter, acute and curved. On bark, particularly in recessed regions of thick bark, of living trunks of *Robinia pseudoacacia*; phen.: I-XII (AT, DE, IT) **Strickeria kochii** Körb. (1865)
 Ill.: Jaklitsch et al. 2016: fig. 11.
- 1' Ascomata 0.3-0.55(0.7) mm diam.; spores (18)20-30×(7)8-11.5 µm, with 5-7(9) transverse septa, with one longitudinal septum, reddish brown; saprobic on decorticated branches of *Populus* sp.; phen.: I-XII
 **Strickeria pruniformis** (Nyl.) Cooke (1887)

Synnemapestaloides T. Handa & Y. Harada

Type species: *Synnemapestaloides rhododendri* T. Handa & Y. Harada.
 Lit.: Liu et al. 2019: 406.

- 1 Sexual morph: unknown. Asexual morph: Conidiophores septate, branched, colourless, smooth, thin-walled, invested in mucus. Conidiogenous cells integrated, mostly subcylindrical, sometimes ampulliform or lageniform, 7–16×1.5–2.5 µm, colourless, smooth. Conidia fusoid, ellipsoidal, straight, mid-brown, 5(7)-septate, wall smooth or verruculose, without constrictions at the septa, but often collapsed between septa, 16.5–21.5×4.5–7.5 µm, lacking appendages, or with very short appendages (0.5–1 µm); basal cell obconic with a truncate base, periclinal wall thin and colourless in the lower half, becoming thick and progressively darker above, 1–3.5 µm long; median cells mostly 4, fairly thick-walled, yellowish-brown or mid-brown, doliiform, ± equal, each 2.5–4.5 µm long; apical cell short-conic with an acute apex, hyaline, 2–3.5 µm long; mean conidium length/width ratio = 2.9:1. On *Juniperus phoenicea*. (FR)
 **Synnemapestaloides juniperi** F. Liu, L. Cai & Crous (2018)
 Ill.: Liu et al. 2018: fig. 83.

Truncatella Steyaert

Type species: *Truncatella truncata* (Lév.) Steyaert = *T. angustata* (Pers.) Hughes
 Lit.: Steyaert 1949, Nag Raj 1993: 941, Lee et al. 2006: 182, Liu et al. 2019: 408.

- 1 Conidia with mostly single apical appendage 2
- 1' Conidia with more than one apical appendage, often irregularly or dichotomously branched 3
- 2 Asexual morph: Conidia clavate, 15×10 µm, 3-septate (apical appendage to consider as a branched minute cell), both median cells brown, basal cell obconical and hyaline, with 1-2(3) simple or staghorn-like excentric apical appendages 5 µm long. Saprobic on leaves of *Prunus laurocerasus*, leaves of *Lupinus*. (NL)

- **Truncatella laurocerasi** (Westend.) Steyaert (1949)
 Ill.: Westendorp 1857: fig. 1.
- 2' Conidiogenous cells integrated, smooth, cylindrical, hyaline. Conidia fusiform, (19)21-25×(7)7.5-9(10) μm, l/w_m= 2.8:1, 3-septate; apical cell hyaline, conical to trapezoid, smooth, thin-walled; median cells doliiform, dark brown, 14-19 μm long, thick-walled; basal cell hyaline, obconical. Apical appendages rare, single, centric, unbranched to branched. Basal appendage absent. (DE) **Truncatella hartigii** (Tubef) Steyaert (1949)
 Ill.: Steyaert 1949: pl. VIII C*.
- 3 Sexual morph: unknown. Asexual morph: Conidiophores septate and branched, colourless, smooth. Conidiogenous cells discrete or integrated, cylindrical to lageniform, colourless, smooth. Conidia fusoid, straight or occasionally slightly curved, 3(4)-septate, smooth, not constricted at the septa, 15-22.5×5.5-8 μm, l/w_m= 2.7:1; basal cell obconic with a truncate base, fairly thick-walled, hyaline to pale brown, 1.5-3.5 μm long; median cells 2, doliiform, pale to mid-brown, thick-walled, together 11-15 μm long, each 5.5-7.5 μm long; apical cell conic, thin-walled, hyaline, 2-4.5 μm long; 2-4 apical appendages, centric, attenuated, flexuous, branched, 11-26 μm long; basal appendage absent. Parasitic/saprobic on wood including rootstocks of *Aesculus*, *Corylus*, *Malus*, *Picea*, *Pinus*, *Prunus*, *Ribes*, *Tilia* and *Vitis*, parasitic on fruits of *Olea*, leaves of *Prunus*, *Rosa* sp., on seedlings of *Acer*, *Betula*, *Fagus*, *Picea*, *Pinus*, *Tilia*, *Vitis*, on *Cirsium*, *Daucus*, *Lupinus*; phen.: III-VII (BE/F, CH, FR, NL, UK)
 **Truncatella angustata** (Pers.) Hughes (1958)
 Ill.: Steyaert 1949: pl. VIII A*, Nag Raj 1993: fig. 127.1, Ellis & Ellis 1985: fig. 269.
- 3' Conidiogenous cells filiform, colourless. Conidia (15)17-23(25)×6-8 μm, 3-septate, mid-cells brown, apical end with 2-3 filiform, often branched appendages up to 20 μm long, basal cell sometimes with a short pedicel; mid-cells with mucous coating. On cones of *Picea abies*; phen: I-XII (DE, IT)
 **Truncatella conorum-piceae** (Tubef) Steyaert (1949)
 Ill.: Steyaert 1949: pl. VIII D*.

Xenoseimatosporium F. Liu, L. Cai & Crous

Type species: *Xenoseimatosporium quercinum* (Goonas. et al.) F. Liu, L. Cai & Crous

Lit.: Liu et al. 2018: 411.

- 1 Sexual morph: unknown. Asexual morph: Conidiomata acervular, black, scattered or gregarious, semi-immersed or immersed, stromatic, sometimes erumpent. Conidiophores septate, reduced to conidiogenous cells, colourless, smooth. Conidiogenous cells annellidic, discrete, cylindrical, subcylindrical, or lageniform, 3-9.5×1.5-3.5 μm, colourless, smooth. Conidia allantoid, subcylindrical, straight or curved, 2-4-septate, mostly 3-septate, smooth, sometimes slightly constricted at septa, 14.5-30×3.5-6.5 μm, l/w_m = 4:1.; basal cell trapezoid, sub-cylindrical, thin-walled, hyaline, 2-5.5 μm long; median cells mostly 2, cylindrical, colourless, thin-walled, each 5.5-9 μm long; apical cell conic with an acute or rounded apex, sometimes inflated wider than other cells, hyaline, 2.5-6.5 μm; apical appendage single, not attenuated, not smooth, ragged, unbranched, 8.5-20 μm; basal appendage 0-1, when present not smooth, ragged, unbranched, 4-16.5 μm long. On wood of *Carpinus*, *Quercus*, *Rhododendron* sp. Phen.: II (DE) ..
 **Xenoseimatosporium quercinum** (Goonas. et al.) F. Liu, L. Cai & Crous
 Ill.: Goonasekara et al. 2016: fig. 2 (sub *Seimatosporium quercina*).

Zetiasplozna Nag Raj

Type species: *Zetiasplozna unicola*

Lit.: Liu et al. 2018: 356.

Phylogenetic location still undetermined due to the lack of sequences of the generic type.

Synonym list

Synonym:

Discosia eucalypti (Pat.) Nag Raj
Pestalotiopsis guepinii (Desm.) Steyaert
Pestalotiopsis karstenii (Sacc. & P. Syd.) Steyaert
Truncatella spartii Senan. et al.

Current name:

Immersidiscosia eucalypti (Pat.) Kaz. Tanaka, Okane & Hosoya
Pestalotiopsis maculans (Corda) Nag Raj
Monochaetia karstenii (Sacc. & Syd.) B. Sutton
Heterotruncatella spartii (Senan. et al.) F. Liu, L. Cai & Crous

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- Crous P.W. et al. 2015. The Genera of Fungi - fixing the application of the type species of generic names – G 2: *Allantophomopsis*, *Latorua*, *Macrodiplodiopsis*, *Macrohilum*, *Milospium*, *Protostegia*, *Pyricularia*, *Robillarda*, *Rotula*, *Septoriella*, *Torula*, and *Wojnowicia*. *IMA Fungus* 6(1): 163–198.
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