©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

Miscellaneous notes on some micromycetes

UWE BRAUN

Abstract: BRAUN, U. 2000: Miscellaneous notes on some micromycetes. Schlechtendalia **5**: 31-56.
The new genus *Porophilomyces* gen. nov. and the new species *Pseudocercospora chenopodiacearum* sp. nov. and *P. populi* sp. nov. are described and the new combinations *Asperisporium gnaphaliatum* comb. nov., *Cercospora sorghi* var. *ciccaronei* comb. et stat. nov., *Cladosporium alopecuri* comb. nov., *C. praecox* comb. nov., *Entylomella veronicicola* comb. nov., *Erysiphe digitata* comb. nov., *Fusicladiella bicolor* comb. nov., *Passalora janseana* comb. nov., *P. maculicola* comb. nov., *P. ramularioides* comb. nov., *Porophilomyces poricola* comb. nov., *Pseudocercospora angulo-maculae* var. *gorakhpurensis* comb. et stat. nov., *P. butleri* comb. nov., *P. butleri* var. *effusa* comb. nov., *P. caudata* comb. nov., *P. colebrookiicola* nom. nov., *P. dipterocarpacearum* nom. nov., *P. ficigena* nom. nov., *P. haplophragmatis* comb. nov., *P. liquidambaricola* comb. nov., *P. litseigena* nom. nov., *P. malloti-repandi* comb. nov., *P. solenae-heterophyllae* comb. nov., *P. tinosporae* comb. nov., *Stenella cercestis* comb. nov., *S. trijugae* comb. nov. and *Verrucisporota indica* comb. nov. are proposed. Furthermore, the affinities and taxonomic positions of the following taxa are discussed: *Cercospora jamuensis*, *Cladosporium minusculum, Cylindrosporium thalictri, Erysiphe* (*Microsphaera*) *subtrichotoma, Fusicladium livistoniae, Mycovellosiella adinae, M. cordiicola, M. gorakhpurensis, M. mucunae, Passalora* [*Napicladium*] *brunaudii, Phaeoisariopsis woodfordiae, Phaeoramularia indica, P. psidii-guajavae, Pleospora dichondrae, Pseudocercospora ficicola, P. rubi* var. *subhyalina, Pseudocercosporella arcuata* and *Ramularia malachii*. *Ramularia scolopendrii* is recorded from Germany, and *Golovinomyces orontii* is recorded on the new host *Anisodontea capensis*.

Zusammenfassung: BRAUN, U. 2000: Miscellaneous notes on some micromycetes. Schlechtendalia **5**: 31-56.
Die neue Gattung *Porophilomyces* gen. nov. und die neuen Arten *Pseudocercospora chenopodiacearum* sp. nov. und *P. populi* sp. nov. werden beschrieben. Weiterhin werden folgende neue Kombinationen eingeführt: *Asperisporium gnaphaliatum* comb. nov., *Cercospora sorghi* var. *ciccaronei* comb. et stat. nov., *Cladosporium alopecuri* comb. nov., *C. praecox* comb. nov., *Entylomella veronicicola* comb. nov., *Erysiphe digitata* comb. nov., *Fusicladiella bicolor* comb. nov., *Passalora janseana* comb. nov., *P. maculicola* comb. nov., *P. ramularioides* comb. nov., *Porophilomyces poricola* comb. nov., *Pseudocercospora angulo-maculae* var. *gorakhpurensis* comb. et stat. nov., *P. butleri* comb. nov., *P. butleri* var. *effusa* comb. nov., *P. caudata* comb. nov., *P. colebrookiicola* nom. nov., *P. dipterocarpacearum* nom. nov., *P. ficigena* nom. nov., *P. haplophragmatis* comb. nov., *P. liquidambaricola* comb. nov., *P. litseigena* nom. nov., *P. malloti-repandi* comb.. nov., *P. solenae-heterophyllae* comb. nov., *P. tinosporae* comb. nov., *Stenella cercestis* comb. nov., *S. trijugae* comb. nov. und *Verrucisporota indica*. Die Verwandtschaft und taxonomische Stellung folgender Arten werden diskutiert: *Cercospora jamuensis*, *Cladosporium minusculum, Cylindrosporium thalictri, Erysiphe (Microsphaera) subtrichotoma, Fusicladium livistoniae, Mycovellosiella adinae, M. cordiicola, M. gorakhpurensis, M. mucunae, Passalora* [*Napicladium*] *brunaudii, Phaeoisariopsis woodfordiae, Phaeoramularia indica, P. psidii-guajavae, Pleospora dichondrae, Pseudocercospora ficicola, P. rubi* var. *subhyalina, Pseudocercosporella arcuata* und *Ramularia malachii*. *Ramularia scolopendrii* ist neu für Deutschland und *Golovinomyces orontii* wird vom neuen Wirt *Anisodontea capensis* angegeben.

In the present paper, some results of examinations of type collections and other specimens of various micromycetes are published. These examinations have been carried our in the course of monographic studies on cercosporoid hyphomycetes, powdery mildews and in the genus *Fusicladium* s.lat.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

1. ***Asperisporium gnaphaliatum*** (Bonar) U. Braun **comb. nov.** Fig. 1

Bas.: *Fusicladium gnaphaliatum* Bonar, Mycologia 57: 392 (1965).
Material examined: on *Gnaphalium stramineum* (= *G. chilense*), USA, California, Lake Merced, San Francisco Co., 9 Sep. 1934, L. Bonar (UC 532308), holotype. Paratypes: On *G. stramineum*, USA, California, San Fransciso, Golden Gate Park, 16 Oct. 1925, L. Bonar (UC 257214) and USA, California, Humboldt Co., Hors-Linto Creek, 4 Sep. 1938, L. Bonar (UC 640690).
Additional material examined: California Fungi 1250 (UC) and UC 272182, 272183.

Leaf spots almost absent or formed as irregular discolorations, yellowish-ochraceous, brown, leaves soon becoming necrotic, dry. Conidiomata amphigenous, but mostly epiphyllous, scattered to dense, punctiform, subcircular in outline to irregularly shaped, dark brown to black, sporodochial. Mycelium internal; stromata well-developed, immersed, 20-150 µm diam., stromatic hyphal aggregations loose to mostly dense, medium to dark brown. Conidiophores numerous, in fairly dense sporodochial fascicles, arising from stromata, erumpent, erect, subcylindric-subclavate, non-geniculate, unbranched, 20-80 x 4-9 µm or even longer, 0-2(-3)-septate, pale to medium dark brown, tips often paler, wall somewhat thickened, almost smooth to verruculose, above all apically verruculose, conidiophores sometimes reduced to conidiogenous cells, but mostly integrated, terminal, 20-50 µm long, proliferation occasionally enteroblastic-percurrent, but usually sympodial, conidiogenous cells, however, not geniculate, scars conspicuous, numerous, terminal and lateral, often aggregated, flat, not or hardly raised above the level of the wall, slightly thickened, darkened, 2-3 µm diam. Conidia solitary, obovoid, 12-28 x 8-13 µm, (0-)1(-2)-septate, septa more or less median or somewhat in the upper or lower half, occasionally somewhat constricted a the septa, rarely with 1-2 oblique septa or distosepta, pale to medium olivacous brown or brown, wall slightly thickened, verrucose, apex broadly rounded, base truncate or subtruncate, hilum almost unthickened to slightly thickened, somewhat darkened, 2-4 µm diam.

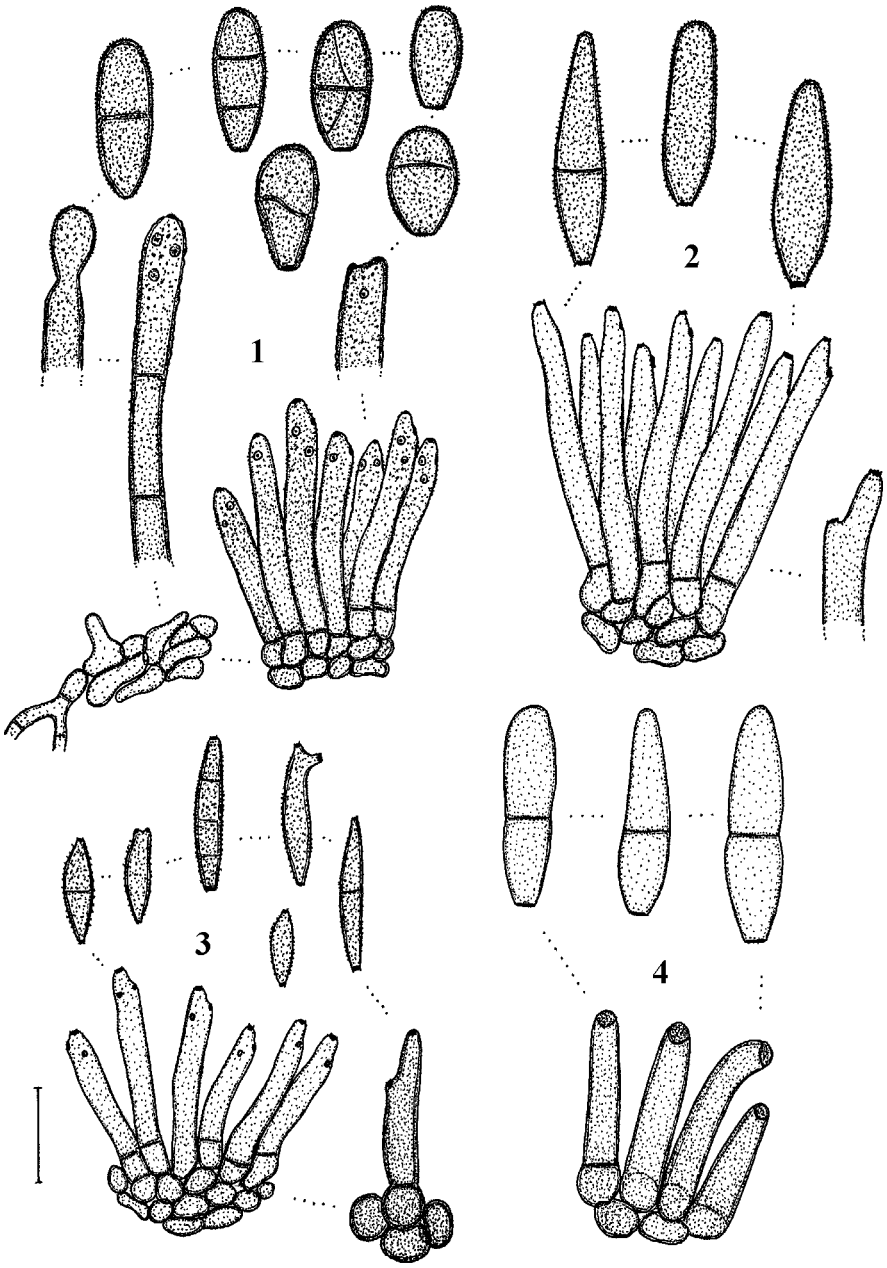
Based on the structure of the conidiogenous cells and scars and the obovoid, verrucose conidia, this species must be placed in *Asperisporium*.

2. ***Cladosporium alopecuri*** (Ellis & Everh.) U. Braun **comb. nov.** Fig. 2

Bas.: *Fusicladium alopecuri* Ellis & Everh., J. Mycol. 4: 53 (1888).
Material examined: on *Alopecurus geniculatus*, USA, Columbia, Montana, 20 May 1887, B.T. Galloway (NY), holotype.

On fading host plants, definite leaf spots lacking, but with yellowish-ochraceous to brownish, later greyish brown discolorations. Caespituli amphigenous, punctiform, brown to blackish brown, later dark greyish brown, scattered to dense. Mycelium internal, forming moderately large stromata, olivaceous to olivaceous brown, occasionally confluent, immersed. Conidiophores in well-developed, usually fairly large, dense fascicles, sometimes in palisade-like layers, arising from stromata, erumpent, erect, straight, subcylindric to slightly geniculate-sinuous, unbranched, 40-120 x 5-9 µm, 0-1-septate, subhyaline, pale olivaceous to yellowish or olivaceous brown, thin-walled, smooth,

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg



Figs 1-4: Conidiophore fascicles, conidiophores, conidia, 1 – *Asperisporium gnaphaliatum*, 2 – *Cladosporium alopecuri*, 3 – *C. praecox*, 4 – *Fusicladiella bicolor*; scale = 20 µm; U. Braun del.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

conidiophores usually reduced to conidiogenous cells; scars conspicuous, thickened and darkened, 3.5-5 µm diam., with a slightly convex central dome and a somewhat raised rim (*Cladosporium/Heterosporium* type). Conidia solitary, obovoid, ellipsoid-ovoid, short cylindrical, 20-40 x 7-13(-15) µm, 0-1-septate, subhyaline, pale olivaceous-yellowish to pale brown, densely finely asperulate-echinulate, apex obtuse, broadly rounded, base obconically truncate, hilum thickened and darkended, 3-5 µm diam. (*Cladosporium* type).

This species belongs in *Cladosporium* subgen. *Heterosporium* (Klotzsch ex Cooke) J. David (1997), is closely allied to *C. phlei* de Vries, but differs from the latter species in having larger stromata, densely fasciculate conidiophores, larger scars and 0-1-septate conidia.

3. ***Cladosporium minusculum*** Sacc., Ann. Mycol. 11: 20 (1913) Fig. 5

Material examined: on *Salix alba*, Malta, Ghain el Gbira, Oct. 1911, Caruana Gatto (PAD), holotype (isotype: IMI 70294).

On living leaves without conspicuous lesions or associated with distinct leaf spots, together with *Alternaria* sp., spots amphigenous, subcircular to irregular, 1-3 mm diam., brownish to greyish white, with a diffuse brownish margin or marginal line. Caespiltuli amphigenous, usually epiphyllous, effuse, dull greyish brown. Mycelium internal. Stromata absent or only with small aggregations of a few swollen hyphal cells, brown. Conidiophores solitary to loosely fasciculate, erumpent, erect, simple, occasionally branched, strongly geniculate-sinuous, 15-100 x 2-5 µm, pale to medium dark brown throughout or tips paler, pluriseptate throughout, wall thin to slightly thickened, smooth; conidiogenous cells integrated, terminal to intercalary, 10-30 µm long, scars numerous, often aggregated near the apex, cladosporioid, protuberant, thickened, darkened, about 1 µm diam. Conidia catenate, in simple or branched chains, one-celled conidia subglobose to ellipsoid-ovoid, 3-10 x 2-5 µm, subhyaline to pale yellowish-olivaceous, verruculose, septate conidia and ramo-conidia ellipsoid-ovoid, fusiform, 6-16 x (3-)4-5(-6) µm, 1-septate, very rarely with two or three septa, pale olivaceous to brownish, verruculose, hila thickened, darkened, 1 µm diam.

C. minusculum is morphologically close to *Cladosporium cladosporioides* (Fresen.) de Vries, but differs in having strongly geniculate-sinuous conidiophores and consistently verruculose conidia. The conidiogenous cells of *C. cladosporioides* are usually not or only slightly geniculate-sinuous and possess only 1-3 terminal denticle-like loci, and the conidia are smooth or almost so, rarely slightly rough-walled (Ellis 1971, Ho et al. 1999). Therefore, this species is tentatively maintained as a separate species. The ecology of *C. minusculum* is not quite clear. It seems to be a secondary invader, but a phytopathogenic or saprobic habit cannot be excluded as well.

4. ***Cladosporium praecox*** (Niessl) U. Braun **comb. nov.** Fig. 3

Bas.: *Fusicladium praecox* Niessl, in Rabenh., Fungi eur., Ed. Nov., Ser. II, No. 1166, Dresden 1868 and Hedwigia 7: 124 (1868).
Material examined: on *Tragopogon orientalis*, Czech Republic, 'pr. Bistenz ad Brunnam Moraviae', May, leg. G. de Niessl, Rabenh., Fungi eur. 1166 (B, HAL, HBG), syntypes.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

On living and fading leaves, causing diffuse yellowish-ochraceous to yellowish brown discolorations. Caespituli amphigenous, subeffuse, not very conspicuous, ochraceous, brownish. Mycelium internal. Stromata absent to well-developed, 10-50 µm diam., substomatal to intraepidermal, yellowish brown, ochraceous, cells subcircular to irregular in outline, 2-7 µm diam. Conidiophores solitary or in small to moderately large fascicles, loose to dense, arising from swollen hyphal cells or stromata, emerging through stomata or erumpent, erect, straight, subcylindric to attenuated towards the apex, somewhat geniculate-sinuous, simple, 10-45 x 2.5-5(-6) µm, 0-2-septate, smooth, wall slightly thickened, subhyaline to pale yellowish-ochraceous or yellowish brown, conidiophores reduced to conidiogenous cells or integrated, terminal, 10-30 µm long, scars protuberant, thickened, darkened, with a central convex dome and a raised rim (*Cladosporium* type), 1.5-2.5 µm diam. Conidia catenate, often in branched chains, ellipsoid-ovoid, fusiform, (8-)12-26(-31) x 4-8 µm, 0-1(-3)-septate, yellowish, pale yellowish brown, ochraceous or pale brown, faintly to conspicuously verruculose-echinulate, wall thin to slightly thickened, with 1-3 hila, protuberant, thickened, darkened (*Cladosporium* type), 1.5-2 µm diam.

Based on the structure of the scars and hila, which belong to the *Cladosporium* type, this species has to be assigned to *Cladosporium*. *C. praecox* is well-characterised by having uniformly short, very pale conidiophores. *C. orchidacearum* Cooke & Massee on cultivated orchids has very similar conidiophores and conidia, but the conidiophores are consistently subhyaline. *C. obtectum* Rabenh. on *Artemisia maritima* is also similar, but the conidiophores are frequently branched and the conidia are 1-6-septate.

5. ***Cylindrosporium thalictri*** Dimitriev, Trav. Mus. Bot. l´Acad. Imp. Sci. Petrograd 13: 150 (1914)

Based on the original description, BRAUN (1995a) reduced *Cylindrosporium thalictri* tentatively to synonymy with *Pseudocercosporella thalictri* (Bondatsev) U. Braun. Holotype material of *C. thalictri* has recently been traced and examined (on *Thalictrum minus*, Russia, Saratov Gub., on hills near Bogorodskoe, 30 Aug. 1913, S.F. Dimitriev, LE 148542), and BRAUN´s (1995) treatment of this species could be confirmed.

6. ***Entylomella veronicicola*** (P. Karst.) U. Braun **comb. nov.**

Bas.: *Septoria veronicicola* P. Karst., Meddel. Soc. Fauna. Fl. Fenn. 14: 104 (1887).
≡ *Pseudocercospora veronicicola* (P. Karst.) W. Wu, B. Sutton & Gange, Mycol. Res. 100(10): 1216 (1996).
= *Ramularia pygmaeae* Lindr., Acta Soc. Fauna Fl. Fenn. 23(3): 33 (1902).
≡ *Entylomella pygmaeae* (Lindr.) U. Braun, Nova Hedwigia 58(1-2): 217 (1994).
= *Entylomella veronicae* Cif., Omagiu lui Traian Săvulescu: 178 (1959).
Material examined: on *Veronica* sp., Finland, Tavastia australis, Messuby (Tampere, Messukyla), Sep. 1860, P. A. Karsten (H), type of *S. veronicicola*; on *Veronica serpyllifolia*, Finland, Satakunta, Monhijärvi, 6 Jun. 1859, Malmgren (H), lectotype of *R. pygmaeae*; on *V. serpyllifolia*, Finland, Tavastia australis, Sysmä, Kurajärvi, 26. VI., Unonius (H), syntype of *R. pygmaeae*. Furthermore, various North American collections on *Veronica peregrina* have been examined (BRAUN 1994).

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

Descriptions: BRAUN (1994: 217), WU et al. (1996: 1216).
Illustrations: BRAUN (1994: 218, FIG. 45), WU et al. (1996: 1216, Figs 44-46).

WU et al. (1996) pointed put that the description of *Septoria veronicicola* is actually based on two discordant elements (sterile pycnidia and the fructification of a hyphomycete), which 'might be different fungus species or different states of the same fungus (anamorph, teleomorph)', confined this name to the hyphomycete and placed it in *Pseudocercospora*. The conidiophores are, however, hyaline or subhyaline (with a pale greenish or yellowish tinge or only faintly pigmented at the very base) and the conidia are colourless, *Ramularia*-like, small, (0-)1(-3)-septate. This fungus agrees very well with *Ramularia pygmaea*, described from the same area, which was assigned to *Entylomella* by BRAUN (1994). Thus, *Septoria veronicicola* is the oldest valid name for the fungus concerned and has priority.

6. ***Erysiphe digitata*** (A.J. Inman & U. Braun) A.J. Inman & U. Braun **comb. nov.**

Bas.: *Microsphaera digitata* A.J. Inman & U. Braun, in Inman et al., J. Phytopathol. 148: 22 (2000).

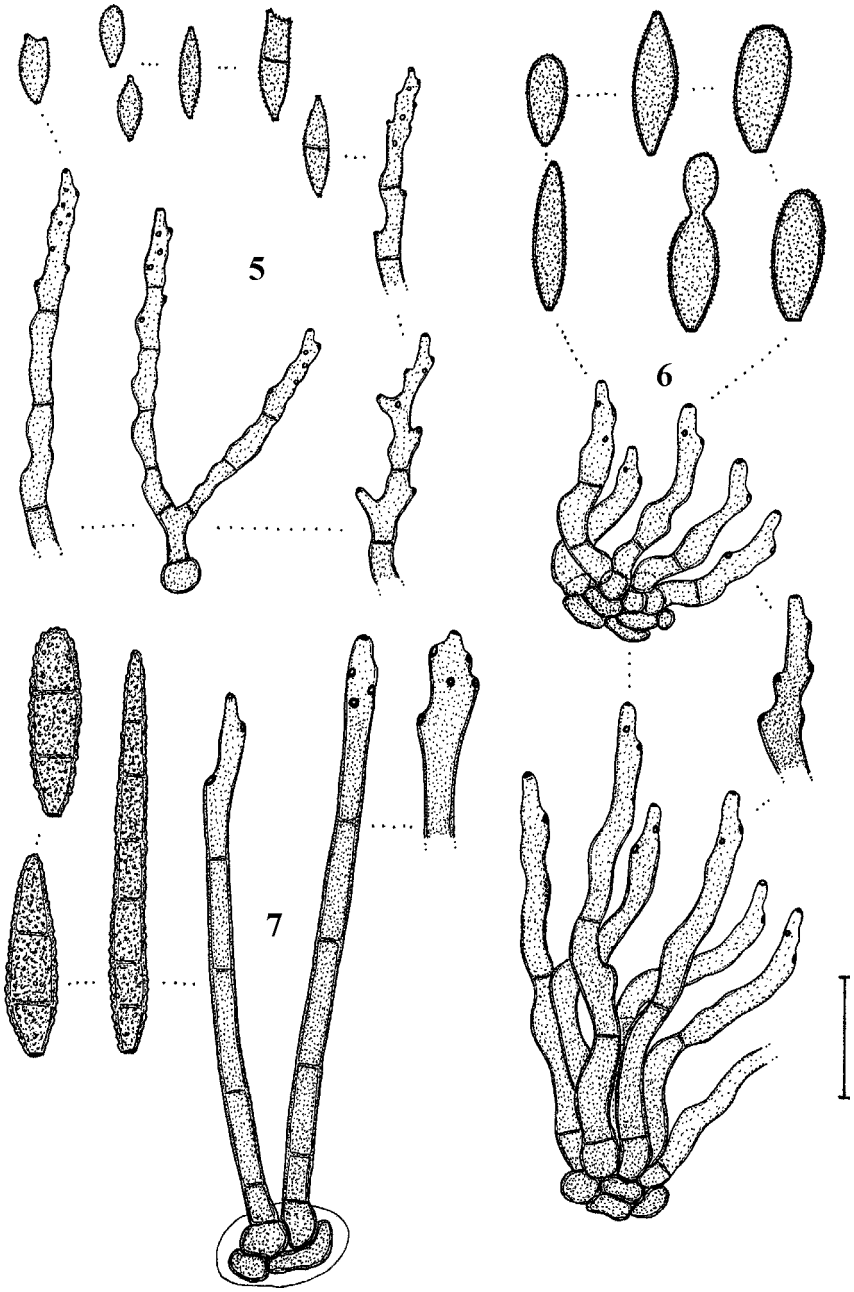
INMAN and BRAUN (in INMAN et al. 2000) described and illustrated the new species *Microsphaera digitata*. According to the new taxonomy of powdery mildew genera with *Pseudoidium* anamorphs, introduced by BRAUN and TAKAMATSU (2000), *Microsphaera* is a synonymy of *Erysiphe* emend. The new concept of the latter genus has been based on results of molecular examinations.

7. ***Erysiphe palczewskii*** (Jacz.) U. Braun & S. Takamatsu, Schlechtendalia **4**: 12 (2000)

= ***Erysiphe subtrichotoma*** (U. Braun) U. Braun & S. Takamatsu, Schlechtendalia **4**: 14 (2000), **syn. nov.**
≡ *Microsphaera subtrichotoma* U. Braun, Mycotaxon **22**(1): 90 (1985).

In 1999, rich material, including ascomata, of *E. subtrichotoma* has been collected on *Robinia hispida* in the botanical garden of the Martin-Luther-University, Halle, Germany, which was the first record of this species from Europe (on *Robinia hispida*, Germany, Sachsen-Anhalt, Halle, botanical garden, 28 Oct. 1999, U. Braun & N. Ale-Agha, HAL). *M. subtrichotoma* has been described on *Robinia pseudacacia* from the Far East of Russia (BRAUN 1985) and has also been recorded on this host from China (BRAUN 1987; CHEN et al. 1987, as "*M. robiniae* Tai"), and Korea (SHIN 1988, 2000, as "*M. robiniae* Tai"). BRAUN (1985) examined type material of *M. robiniae* Tai and showed that this species has a branching type of the appendages which is close to *M. baeumleri* Magnus and allied species. For a species on *Robinia pseudacacia* close to *M. palczewskii* Jacz., he introduced the new name *M. subtrichotoma*. NOMURA (1997) applied the name *M. robiniae* correctly. The sudden occurrence of this "species" in Europe, the morphologically close affinity to *Erysiphe (Microsphaera) palczewskii* and the fact that the latter species, which has also been introduced in Europe, is common in and around Halle, raised the question if the two species are possibly conspecific. A part of the European material of "*M. subtrichotoma*" was sent to S. Takamatsu (Mie University, Japan) who sequenced this material, Japanese material of "*M. subtrichotoma*" and collections of *Erysiphe (Microsphaera) palczewskii*.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg



Figs 5-7: Conidiophore fascicles, conidiophores, conidia, 5 – *Cladosporium minusculum*, 6 – *Passalora maculicola*, 7 – *Verrucisporota indica*; scale = 20 µm; U. Braun del.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

He found that all collections examined were genetically identical. Hence, *E. (M.) subtrichotoma* most be reduced to synonymy with *E. (M.) palczewskii*.

8. ***Fusicladiella bicolor*** (C. Massal.) U. Braun **comb. nov.** Fig. 4

Bas.: *Fusicladium bicolor* C. Massal., Nuovo Giorn. Bot. Ital. 21: 170 (1889) and Atti Accad. d'Agric. Art. Comm. Verona, 3 Ser., 65: 115 (1889).
= *Didymaria pimpinellae* Vestergr., Bot. Not. 1899: 157 (1899).
≡ *Fusicladiella pimpinellae* (Vestergr.) Deighton, in Deighton & Piroz., Mycol. Pap. 101: 26 (1965).
Material examined: on *Chaerophyllum* cf. *hirsutum*, Italy, Prov. Verona, Mt. Lobia, 31 Aug. 1887, C. Massalongo (HBG), isotype of *F. bicolor*.

Type material of *F. bicolor* has been examined and it turned out that this species is identical with *F. pimpinellae*. The conidiophores are uniformly short, about 10 x 8 µm, and the conidia are pale, 30-40 x 8-10 µm.

9. ***Fusicladium livistoniae*** P. Karst., Hedwigia 30: 302 (1891) Fig. 8

Material examined: on *Livistonia chinensis*, Russia, Karelia australis, Vyborg, Liimatta, Sep. 1891, A. Thesleff (H 4252), holotype.

On dead petioles, saprobic. Conidiophores in small to large fascicles, divergent, arsing from brown stromata, erect, straight, subcylindric, occasionally with some constrictions and swellings, unbranched, 40-130 x 3-7 µm, pale to medium dark brown or somewhat reddish brown, paler towards the apex, tips very pale brown to nearly hyaline, pluriseptate throughout, smooth, wall somewhat thickened; conidiogenous cells integrated, terminal, 10-40 µm long, unilocal, determinate, enteroblastic (monophialidic), non-cicatrised. Conidia solitary, short cylindrical to ellipsoid-ovoid, 13-17 x 4-6 µm, dry, aseptate, hyaline or subhyaline, smooth, apex broadly rounded, base subtruncate, neither thickened nor darkened.

This species must be excluded from *Fusicladium* since it is a saprobic hyphomycete with monophialidic conidiogenous cells. However, there is no appropriate genus for this species. It seems to belong in a new, undescribed genus, but comprehensive examinations and comparative studies among phialidic genera of hyphomycetes are necessary for a reassessment of *F. livistoniae*.

10. ***Golovinomyces orontii*** (Castagne) V.P. Gelyuta, Ukr. Bot. Zh. 45(5): 63 (1988)

On *Anisodontea capensis* (Malvaceae), Germany, Sachsen-Anhalt, Halle (Saale), city, cultivated in a pod, 20 Oct. 2000, U. Braun (HAL), anamorph.

Anisodontea capensis, an ornamental plant of South African origin, is a new host for this species. The appressoria are more or less nipple-shaped. The foot-cells of the conidiophores are subcylindric, 40-80 x 9-13 µm, followed by 1-3 shorter cells, and the conidia are catenate, with sinuate outline, ellipsoid to barrel-shaped, 30-35 x 15-20 µm.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

11. *Leptosphaerulina americana* (Ellis & Everh.) Graham & Luttrell, Phytopathology 51: 686 (1961)

= ***Pleospora dichondrae*** Frisullo & U. Braun, Phytopathol. Medit. 35: 141 (1996), **syn. nov.**

R.A. Shoemaker (in litt.) discussed the taxonomic position of *P. dichondrae* and pointed out that this species seems to be identical with *Leptosphaerulina americana* (Ellis & Everh.) GRAHAM & LUTTRELL (1961) [≡ *Pleospora americana* Ellis & Everh.]. *Pleospora dichondrae* agrees, indeed, very well with the concept, description and illustration of *L. americana* and has to be reduced to synonymy with the latter species. *L. americana* is a saprobic species, recorded on *Vicis, Pisum, Trifolium* and *Phleum* spp. from North America (GRAHAM & LUTTRELL 1961). The type collection of *P. dichondrae* represents the first European record of this species on a new host.

12. ***Passalora janseana*** (Racib.) U. Braun **comb. nov.**

Bas.: *Napicladium janseanum* Racib., Parasitische Algen und Pilze Java's 2: 41 (1900).
≡ *Cercospora janseana* (Racib.) O. Constant., Cryptog. Mycol. 3: 63 (1982).
= *C. oryzae* Miyake, J. Coll. Agric. Imp. Univ. Tokyo 2(4): 263 (1910).

The identity of *Napicladium janseanum* and *Cercospora oryzae* has been pointed out by CONSTANTINESCU (1982), based on re-examinations of several syntypes. Since this species is characterised by having slightly thickened and darkened scars and hila and obclavate-subcylindric , mostly 3-4-septate, subhyaline to pale olivaceous conidia, it has to be excluded from *Cercospora* s.str. and assigned to *Passalora*. The conidia in this species range from being consistently solitary to occasionally formed in short chains. Therefore, *P. janseana* is intermediate between *Passalora* and *Phaeoramularia*. However, the latter genus is now considered a synonym of *Passalora* (CROUS et al. 2001).

13. ***Passalora maculicola*** (Ellis & Kellerm.) U. Braun **comb. nov.** Fig. 6

Bas.: *Scolicotrichum maculicola* ('*maculicolum*') Ellis & Kellerm., J. Mycol. 3: 103 (1887).
≡ *Fusicladium maculicola* (Ellis & Kellerm.) Ondřej, Česká Mykol. 25: 237 (1971).
Material examined: on *Phragmites australis*, USA, Manhattan, Kansas, June 1887, W.A. Kellerman No. 934 (NY), lectotype, selected here; several isolectotypes (NY); Ellis & Everh., North American Fungi 1989 (NY), isolectotype. Topotype collections: Kellerm. & Swingle, Kansas Fungi 20 (NY); Rabenh., Fungi eur. 3800 (HAL, NY); Roum., Fungi sel. exs. 5580 (NY).

Leaf spots amphigenous, oblong, fusiform, elliptical, 3-15 x 1-2(-3) mm, yellowish-ochraceous, dingy brownish, margin narrow, dull medium to dark brown. Caespituli amphigenous, mainly hypophyllous, punctiform, mostly dense, dark brown to blackish. Conidiophores in small to fairly large fascicles, loose to moderately dense, arising from stromata, emerging through stomata, erect, subcylindric, usually strongly geniculate-sinuous, simple, rarely branched, (20-)30-80(-100) x (3-)4-7(-8) µm, continuous to septate, usually sparingly septate, pale to medium brown or olivaceous brown throughout or tips

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

paler, smooth, occasionally somewhat rough-walled, thin- to slightly thick-walled; conidiogenous cells integrated, terminal, 10-50 µm long, non-denticulate, scars conspicuous, non-protuberant, more or less flat, slightly thickened, somewhat darkened, 1-2 µm diam. Conidia solitary to catenate, occasionally in branched chains, broadly ellipsoid-ovoid, obovoid, subfusiform, rarely subcylindric or subglobose, 11-23 x 5-11 µm, aseptate, subhyaline to pale yellowish-greenish to olivaceous, verruculose, apex broadly rounded in solitary conidia or attenuated-subtruncate to truncate in catenate ones, base truncate, subtruncate to rounded, hila slightly thickened, darkened.

On account of fasciculate conidiophores emerging through stomata and thickened, darkened, non-fusicladioid conidiogenous loci, this species must be excluded from *Fusicladium* in which it was placed by Ondřej (1971). The catenate, verruculose conidia are rather *Cladosporium* (incl. *Heterosporium*)-like, but the scars are non-cladosporioid (non-protuberant, without central, convex dome surrounded by a raised rim). The scars are rather *Passalora* (incl. *Phaeoramularia*)-like (Crous et al. 2001), so that *S. maculicola* may be assigned to the latter genus.

14. ***Passalora ramularioides*** (Sacc. & Fautrey) U. Braun **comb. nov.** Fig. 9

Bas.: *Scolicotrichum ramularioides* Sacc. & Fautrey, Bull. Soc. Mycol. Fr. 1900: 24 (1900). Material examined: on *Leersia oryzoides*, France, Côte-d´Or, Fautrey No. 23 (PAD), holotype.

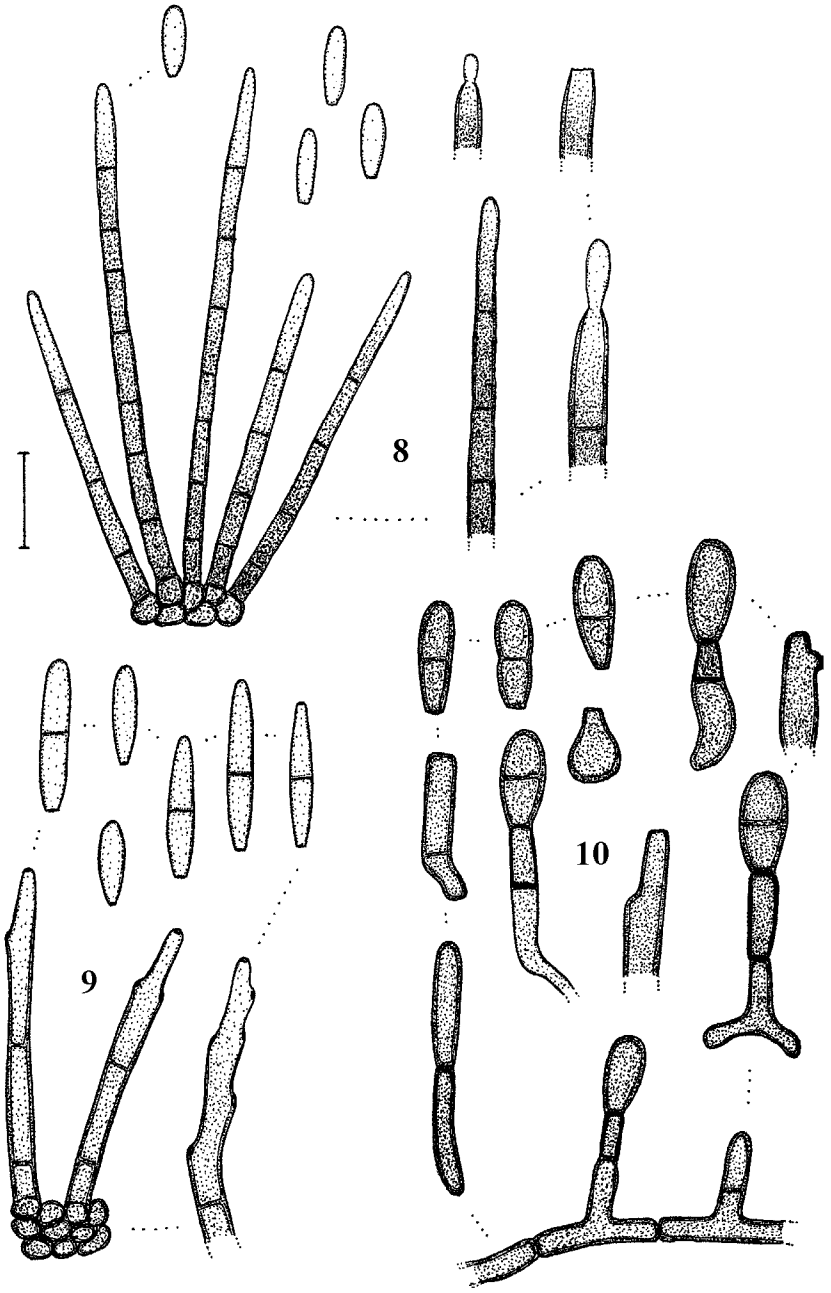
Leaf spots fusiform, elliptical, 1-5 x 0.5-1.5 mm, centre pale, yellowish-ochraceous, later greyish white, margin narrow, dark. Caespituli amphigenous, finely punctiform, effuse to dense, dark brown. Mycelium internal; stromata almost absent or small, 10-25 µm diam., brown, substomatal to intraepidermal, cells subglobose to somewhat angular-irregular, 2-8 µm diam., wall somewhat thickened. Conidiophores solitary or in small fascicles, loose to dense, erect, arising from internal hyphae or stromata, emerging through stomata or erumpent through the cuticle, straight, subcylindric to geniculate-sinuous, unbranched, 25-100 x 3-7 µm, septate, pale to medium brown throughout or apex somewhat paler, smooth, wall somewhat thickened, conidiogenous cells integrated, terminal, 20-50 µm long, scars somewhat thickened and darkened, 1.5-2 µm diam. Conidia solitary, rarely in short chains, subcylindric, subfusiform, ellipsoid-ovoid, 15-30 x 3-6 µm, (0-)1-septate, subhyaline to pale yellowish, ochraceous or olivaceous brown, smooth, apex obtuse, rounded, base short obconically truncate, hila slightly thickened and darkened, 1-2 µm diam.

The present species is a typical *Passalora* with slightly thickened, darkened scars and hila and solitary, 1-septate, pigmented conidia. A single conidium with an additional apical scar has been seen and indicate that short conidial chains may occur. *P. ramularioides* is close to *P. graminis* (Fuckel) Höhn., but differs in having much narrower conidia.

15. ***Phacellium alborosellum*** (Desm.) U. Braun, Nova Hedwigia 50: 509 (1990)

= ***Ramularia malachii*** Y.-X. Wang & X.-Y. Wang, in Wang et al., Mycosystema 16(4): 250 (1997), **syn. nov.**

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg



Figs 8-10: Conidiophore fascicles, conidiophores, conidia, 8 – *Fusicladium livistoniae*, 9 – *P. ramularioides*, 10 – *Porophilomyces poricola*; scale = 20 µm; U. Braun del.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

WANG et al. (1997) described and illustrated *R. malachii* sp. nov. on *Stellaria aquatica* (≡ *Malachium aquaticum*) from Yunnan, China. This species agrees, however, perfectly with *Phacellium alborosellum*, which is common on this host in Asia and Europe (BRAUN 1998).

16. ***Porophilomyces*** U. Braun **gen. nov.**

A Fusicladio habitatione hyperparasitica, conidiophoris et conidiis crassitunicatis, cellulis conidiogenis atriore brunneis, conidiis holothallodibus et cicatricibus conidialibus latis et non-denticulatis differt.

Type species: *Fusicladium poricola* Bonar (≡ *Porophilomyces poricola* (Bonar) U. Braun).

Hyperparasitic, on pore surfaces of *Phellinus* spp. Colonies effuse. Mycelium immersed. Stroma absent. Conidiophores solitary, erumpent, growing out of the hymenial layer, arising from immersed swollen hyphal cells or ordinary hyphae, lateral or terminal, straight, subcylindric or somewhat increasing or decreasing towards the apex, occasionally slightly geniculate-sinuous, unbranched, thick-walled, continuous to septate, subhyaline or pale below, darker above, smooth, conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, much darker than the supporting cells which are often subhyaline, unilocal to multilocal, sympodial, conidiogenesis holothallic, loci flat, broad, wall unchanged, neither thickened nor darkened. Conidia solitary, short cylindrical, ellipsoid-ovoid, 1-septate, often constricted, thick-walled, dark brown, smooth, hilum flat, broad, neither thickened nor darkened.

Porophilomyces poricola (Bonar) U. Braun **comb. nov.** Fig. 10

Bas.: *Fusicladium poricola* Bonar, Mycologia 57: 393 (1965).
Material examined: on pore surface of *Phellinus ferrea*, on logs of *Alnus* sp., USA, California, Humboldt Co., Van Duzen River, 31 Mar. 1931, H.E. Parks 2726 (UC 1272179), holotype; California Fungi 1251 (UC 568840), isotype.

Colonies medium to dark brown, loose to dense, forming spots of 2-10 mm diam., or confluent. Hyphae branched, septate, light brown, 2-6 µm wide, smooth. Conidiophores 10-40 x 4-7 µm, 0-4-septate. Scars of the conidiogenous cells 3-5 µm diam. Conidia 12-25 x 5-11 µm, apex broadly rounded, base truncate, 4-5 µm wide.

Porophilomyces is well-distinguished from *Fusicladium* by its hyperparasitic habit, thick-walled conidiophores and conidia, much darker conidiogenous cells, thalloblastically formed conidia and very broad, flat, not denticle-like scars and hila. The new genus is close to *Sporidesmium* from which it differs in having multilocal, sympodial conidiogenous cells.

17. ***Pseudocercospora butleri*** (Syd.) U. Braun **comb. nov.**

Bas.: *Fusicladium butleri* Syd., Ann. Mycol. 14: 260 (1916).
Material examined: on *Jasminum arborescens*, India, U.P., Orai, Bandlekhand, 27 Feb. 1907, E.J. Butler, No. 1710 (S), holotype.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

= *Cercospora jasminicola* A.S. Mull. & Chupp, Arch. Inst. Biol. Veg., Rio de Janeiro, 3: 93 (1936), nom. inval.
≡ *Pseudocercospora jasminicola* Deighton, Mycol. Pap. 140: 74 (1976).
= *Cercospora jasmini* Sawada, J. Taihoku Soc. Agric. For. 7: 119 (1941), nom. inval.
= *C. odoratissimi* Sawada, Rep. Govt. Res. Inst. Dept. Agric. Formosa 85: 110 (1943), nom. inval.

The examination of type material of *Fusicladium butleri* showed that this species is identical with *Pseudocercospora jasminicola* which is a common, widespread, morphological variable species (DEIGHTON 1976, HSIEH & GOH 1990, GUO & HSIEH 1995, etc.). The type material of *F. butleri* agrees well with common collections of this species. The stromata are relatively large, up to 70 µm diam. (usually up to 50 µm diam.) and the conidiophores and conidia are somewhat wider [(2-)3-6 µm (usually 2-5 µm) and 2.5-5.5 µm (usually 2-4 µm), respectively]. However, these differences are only gradual and not sufficient for a separation of different taxa.
BRAUN & SIVAPALAN (1999) described *Pseudocercospora jasminicola* var. *effusa* for collections on *Jasminum sambac*, characterised by having well-developed superficial hyphae with solitary lateral conidiophores. Based on the new nomenclature, the following combination is necessary:

Pseudocercospora butleri var. ***effusa*** (U. Braun & Sivapalan) U. Braun **comb. nov.**

Bas.: *Pseudocercospora jasminicola* var. *effusa* U. Braun & Sivapalan, Fungal Diversity 3: 15 (1999).

18. ***Pseudocercospora chenopodiacearum*** U. Braun **sp. nov.**

Misapplied name: *Pseudocercospora chenopodii-ambrosioides* (J.-M. Yen) U. Braun & R.F. Castañeda, in Castañeda & Braun, Cryptog. Bot. 1: 51 (1989).
Illustration: Castañeda & Braun (1989: 49, Pl. 5, Fig. 27).

Maculae indistinctae. Coloniae amphigenae, atro-griseae, maculiformes, diffusae. Mycelium primarium immersum. Stromata nulla vel parva, substomatalia, ex cellulis inflatis, olivaceis, 3-8 µm latis composita. Mycelium secundarium externum, superficiale; hyphae per stoma emergentiae, leviae, olivaceae, septatae, ramosae, 1,5-5 µm latae. Conidiophora fasciculata, pauca, ex cellulis stromatibus oriunda, per stoma emergentia, divergentia vel solitaria, ex hyphis secundariis lateraliter vel terminaliter oriunda, 5-35 x 2-6 µm, subrecta vel flexuosa, subsinuosa-geniculata, 0-1-septata, levia, olivacea; cicatrices conidiales inconspicuae. Conidia solitaria, acicularia-subcylindrica, raro obclavata, 40-120 x 2-5 µm, subhyalina, obscure 4-10-septata, apice obtusa vel subacuta, basi truncata vel rotundata, non-incrassata, non-fuscata.

Holotypus: on *Chenopodium ambrosioides* (Chenopodiaceae), Cuba, Peralejo, Granma, 24 Jan. 1987, R.F. Castañeda C87/170 (HAL).

Leaf spots indefinite, forming diffuse, dark, greyish patches, often covering the entire leaf surface. Primary mycelium internal. Stromata absent or small, substomatal, composed

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

of swollen hyphal cells, 3-8 µm diam. Secondary mycelium external, superficial; hyphae emerging through stomata, smooth, olivaceous, septate, branched, 1.5-5 µm wide. Conidiophores in small fascicles, arising from stromata, through stomata, divergent or solitary, arising from secondary hyphae, lateral or terminal, 5-35 x 2-5 µm, almost straight to flexuous, subsinuous-geniculate, 0-1-septate, smooth, olivaceous; conidial scars inconspicuous. Conidia solitary, acicular-subcylindric, rarely obclavate, 40-120 x 2-5 µm, subhyaline, obscurely 4-10-septate, apex obtuse to subacute, base truncate to rounded, not thickened and darkened.

Cercospora chenopodii-ambrosioides J.-M. Yen (1978), described on *Chenopodium ambrosioides* from Taiwan, is, at first sight, very close to the present fungus from Cuba and has been misinterpreted by Castañeda & Braun (1989). J.-M. Yen reassessed all species which he originally published under *Cercospora*, but he retained *C. chenopodii-ambrosioides* in *Cercospora* s.str. This species is a true member of *Cercospora* s.str. close to *C. beticola* Sacc., but differs in having indistinct lesions. The conidiogenous loci in the material from Cuba are indistinct, unthickened, not darkened, so that this taxon belongs in *Pseudocercospora*.

19. ***Pseudocercospora liquidambaricola*** (J.-M. Yen) U. Braun **comb. nov.**

Bas.: *Cercospora liquidambaricola* J.-M. Yen, Bull. Soc. Mycol. Fr. 94: 52 (1978).
≡ *Cercoseptoria liquidambaricola* (J.-M. Yen) J.-M. Yen, Bull. Soc. Mycol. Fr. 97: 92 (1981).
= *Cercospora liquidambaris* Cooke & Ellis ex G.F. Atk., J. Elisha Mitchell Sci. Soc. 8: 48 (1892), nom. confus., sensu Chupp (1954: 259).
= *C. liquidambaris* Sawada, Rep. Govt. Res. Inst. Formosa 85: 112 (1943), homonym, non Cooke & Ellis ex G.F. Atk., 1892, nom. illeg.
= *Pseudocercospora liquidambaris* Goh & W.H. Hsieh, *Cercospora* and similar fungi from Taiwan: 150 (1990).

The identity of *Pseudocercospora liquidambaris* and *Cercoseptoria liquidambaricola* has been pointed out by Guo & Hsieh (1995: 123), based on re-examinations of type collections. The identity of *Cercospora liquidambaris* Cooke & Ellis ex G.F. Atk. is, however, unclear since this name has been used and interpreted in different ways. Atkinson´s description of this species agrees with *Cercospora tuberculans* Ellis & Everh. (≡ *Pseudocercospora tuberculans* (Ellis & Everh.) U. Braun), although he originally intended to refer it to the present species (Chupp 1954). Chupp´s (1954) description and reinterpretation of this name was based on a collection from Florida which he found in the herbarium of Ellis, but this specimen was collected in 1895, i.e., much later. The identity of *C. liquidambaris* can only be clarified by a lectotypification. This name is either a synonym of *Pseudocercospora tuberculans* or *P. liquidambaricola*. However, *C. liquidambaris* is, in any case, not relevant for nomenclatural purposes in *Pseudocercospora* since this epithet is already preoccupied.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

20. ***Pseudocercospora populi*** U. Braun & Morelet **sp. nov.** Fig. 11

A *P. salcicina* (Ellis & Everh.) Deighton conidiis longioribus, saepe verruculosis, cellulis conidiogenis conspicue denticulatis, cicatricibus conidialibus subconspicuis et mycelio externo nullo differt.

Holotype: on *Populus simonii* (Salicaceae), Northeast China, Tongliao, 3 Sep. 1995, M. Morelet 1503 (HAL).

Isotype: HMAS.

Paratypes: on *Populus simonii*, Northeast China, Naimamqui, Aug. 1994, M. Morelet 1493 (HAL, IMI 384492); on *P. simonii*, Northeast China, Tongliao, 6 Sep. 1995, M. Morelet 1501 (HAL, PC); on *Populus* cf. *pseudosimonii*, Northeast China, Tongliao, 6 Sep. 1995, M. Morelet 1502 (HAL).

Leaf spots amphigenous, subcircular to angular-irregular, 1-6 mm diam., medium to dark brown, margin indefinite, sometimes vein-limited. Caespituli hypophyllous, finely punctiform, dark, often not very conspicuous. Mycelium internal; stromata absent or small, only with a few swollen hyphal cells, substomatal, 10-25 µm diam., brown. Conidiophores in small to moderately large fascicles, divergent to moderately dense, arising from internal hyphae or stroma cells, emerging through stomata, erect, geniculate-sinuous, occasionally branched, 5-50 x (2-)3-4(-5) µm, 0-2(-3)-septate, olivaceous to pale olivaceous brown, smooth or almost so, conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 5-25 µm long, usually denticulate, conidiogenous loci inconspicuous to conspicuous by being denticle-like and refractive, wall of the loci unthickened and not darkened, sometimes ultimate rim slightly thickened and darkened (*Paracercospora*-like), often visible as minute rings when viewed from above, about 1.5-2 µm diam. Conidia solitary, very rarely in short chains, narrowly obclavate-subcylindric, short conidia ellipsoid-cylindrical, rarely subacicular-filiform, (15-)20-90(-160) x (2.5-)3-5 µm, (0-)1-6(-10)-septate, pale olivaceous to olivaceous brown, smooth to rough-walled, apex obtuse to subacute, base more or less obconically truncate, 1.5-2 µm wide, hila unthickened, not darkened, but often somewhat refractive.

Pseudocercospora populi differs from *P. salicina* in having longer, often verruculose conidia, conspicuously denticulate conidiogenous cells, subconspicuous conidial scars and lacking external mycelium. *Cercospora populicola* Tharp (CHUPP 1954) is a true *Cercospora* s.str. with colourless acicular conidia and belongs to the *C. apii* complex. *Cercospora jamuensis* V.R. Pandotra is also a true *Cercospora* s.str., but distinct from *C. apii* s.lat. (incl. *C. populicola*) by rather pale, hardly geniculate-sinuous conidiophores, pale conidial scars and short conidia with few septa. Type material of *C. jamuensis* has been examined:

Cercospora jamuensis V.R. Pandotra, Indian J. Mycol. Pl. Pathol. 1(2): 143 (1971) Fig. 12

Leaf spots amphigenous, subcircular to angular-irregular, 1-5 mm diam., brown, greyish brown, later with whitish centre and dark border, often confluent. Caespituli amphigenous,

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

punctiform, pale greyish brown. Mycelium internal; stromata substomatal, 20-70 µm diam., large stromata widening and rupturing the stomata, pale olivaceous to olivaceous brown, composed of swollen hyphal cells, 2-10 µm diam. Conidiophores in small to fairly large fascicles, loose to dense, occasionally solitary, arising from stromata, through stomata, erect, subcylindric, more or less straight, hardly geniculate-sinuous, unbranched, 10-80 x 3-8 µm, continuous to septate, subhyaline, pale olivaceous to olivaceous brown, thin-walled, smooth; conidiogenous cells usually integrated, terminal, 10-50 µm long, conidial scars conspicuous, slightly thickened, but rather pale, slightly darkened, about 2 µm diam. Conidia solitary, acicular-cylindrical, occasionally slightly obclavate, 20-60 x 2.5-4.5 µm, 2-4(-7)-septate, subhyaline, smooth, apex subobtuse to subacute, base truncate, occasionally slightly obconically truncate, about 2 µm diam., hilum slightly thickened and darkened.

Holotype: on *Populus nigra*, India, Jammu, 7 Jan. 1965, V.R. Pandotra, MHJ 378 (IMI 114565).

21. ***Pseudocercospora sydowiana*** (Chupp) U. Braun, Schlechtendalia 2: 25 (1999)

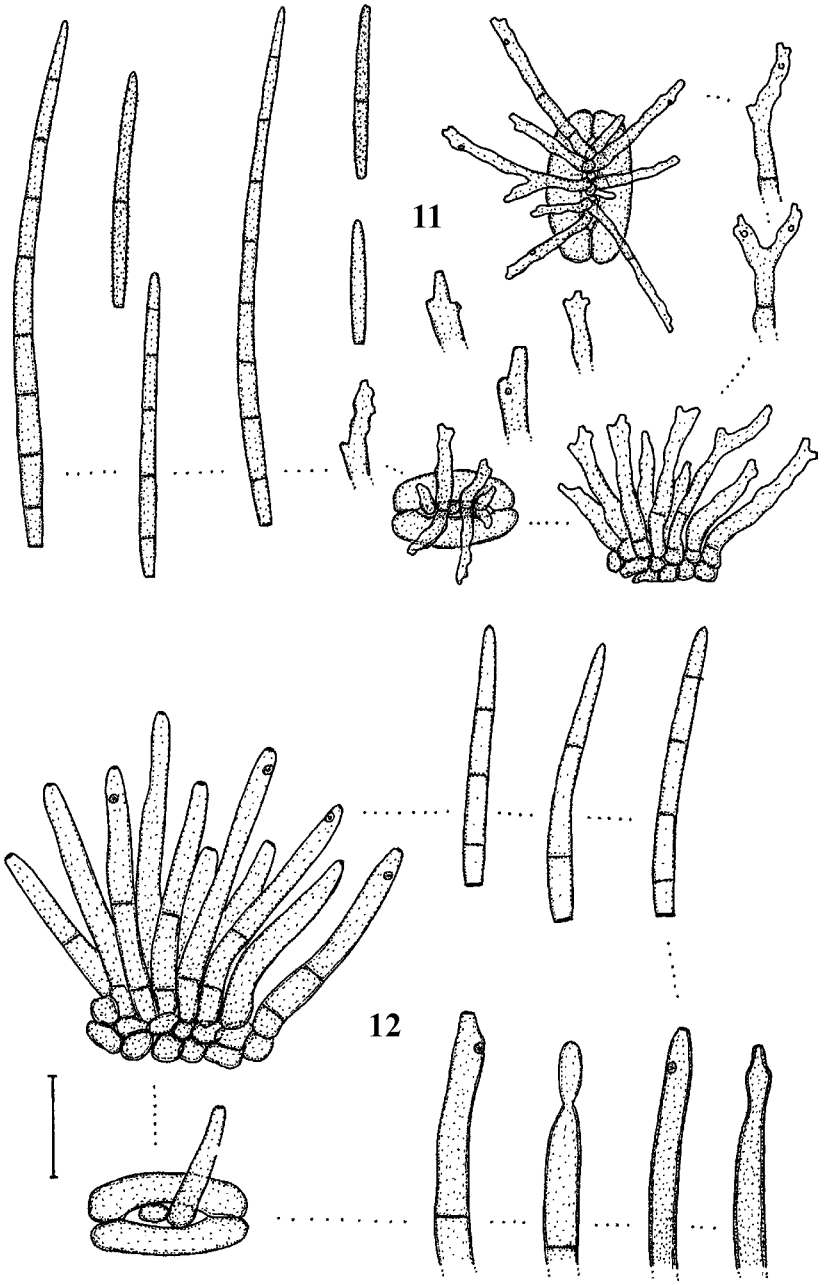
= ***Phaeoisariopsis woodfordiae*** M.K. Khan, R.K. Verma & Kamal, Indian Phytopathol. 45(1): 31 (1992), **syn. nov.**
Material examined: on *Woodfordia fruticosa*, India, U.P., Gorakhpur, 15 Mar. 1988, Kamal, ex herb. GPU 475 (IMI 323230), isotype of *Phaeoisariopsis woodfordiae*. Furthermore, six additional specimens from India, Gorakhpur, U.P. (IMI 238546, 244859, 244890, 246773, 264832, 269838), two from Indian, M.P. (IMI 314111, 335877) and a single collection from Nepal (IMI 291850) have been examined.
The conidiophores are arranged in dense, often almost synnematous fascicles, but the conidial scars are inconspicuous. *Phaeoisariopsis woodfordiae* is morphologically indistinguishable from *Pseudocercospora sydowiana* and must be reduced to synonymy with this species.

22. ***Pseudocercosporella arcuata*** S.K. Singh, P.N. Singh & Bhalla, Mycol. Res. 101(5): 542 (1997)

= ***Pseudocercospora rubi*** var. ***subhyalina*** U. Braun & H.D. Shin, Mycotaxon 58: 164 (1996), **syn. nov.**

Pseudocercosporella arcuata and *Pseudocercospora rubi* var. *subhyalina* are morphologically indistinguishable and belong to a single taxon which resembles *Pseudocercospora rubi* (Sacc.) Deighton. This taxon is, however, well-distinguished from *P. rubi* by having hyaline or subhyaline conidiophores and colourless, more or less cylindrical-vermiform conidia. A separation of the two taxa at generic rank seems to be justified, but the generic affinity is not yet clear and depends on the degree of pigmentation of this very pale species. Additional collections are necessary. At present I prefer to maintain it in *Pseudocercosporella*.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg



Figs 11-12: Conidiophore fascicles, conidiophores, conidia, 11 – *Pseudocercospora populi*, 12 – *Cercospora jamuensis*; scale = 20 µm; U. Braun del.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

23. ***Ramularia scolopendrii*** Fautrey, Rev. Mycol. 14: 176 (1892)

On *Phyllitis scolopendrium*, Germany, Baden-Württemberg, Korntal-Münchingen, garden, March 1999, J. Richter (HAL).

This is the first record of this species from Germany. The conidiophores are formed in small to moderately large fascicles, arising from small substomatal or intraepidermal stromata, 10-25 µm diam., geniculate-sinuous, unbranched, 5-40 x (1-)1.5-4(-4.5) µm, 0-2-septate, hyaline, smooth. The conidia are catenate, occasionally formed in branched chains, ellipsoid-ovoid to fusiform, 4-16 x 1-4 µm, 0(-1)-septate, hyaline, almost smooth to rough-walled.

24. ***Thyrostroma carpophilum*** (Lév.) B. Sutton, Arnoldia 14: 34 (1997)

= ***Passalora* [*Napicladium*] *brunaudii*** Sacc., Michelia 1(5): 537 (1979), **syn. nov.**

Material examined: on *Prunus laurocerasus*, France, P. Brunaud, No. 27 (PAD), holotype of *P. brunaudii*.

The type material of *P. brunaudii* is very poor and consists of a leaf fragment with a single leaf spot with some brown stromata, but without any conidiophores and conidia. Based on the characteristics of the lesion and stromata as well as the original drawing on the envelop and published drawings (Saccardo, Fungi ital., Tab. 787, 1881; Lindau, 1900: 479, Fig. F), this species has to be reduced to synonymy with *Thyrostroma carpophilum*.

25. Brief notes on type collections of some cercosporoid hyphomycetes deposited at IMI

A visit at Egham (CABI Bioscience, UK Centre, herbarium IMI) in September 2000 has been used to re-examine numerous type collections of cercosporoid hyphomycetes. The following species have to be reallocated.

(1) *Cercospora sorghi* var. ***ciccaronei*** (N. Pons) U. Braun **comb. et stat. nov.**

Bas.: *Phaeoramularia ciccaronei* N. Pons, Fitopatol. Venezuel. 6: 2 (1993).
Material examined: on *Sorghum verticilliflorum*, Venezuela, Borburata, Edo. Carabobo, 18 Feb. 1992, C. Rincones (IMI 364371), isotype.

The conidiogenous loci agree well with those of *Cercospora sorghi*. Shape and size of the conidiophores and conidia are also not distinct from the latter species. However, the hyaline or subhyaline conidia in *P. ciccaronei* are occasionally formed in chains. The formation of conidial chains is, however, of little taxonomic importance (Crous et al. 2001). Short conidial chains are not uncommon in species of *Cercospora* s.str. (Crous et al. 2001). Based on *Cercospora*-like scars and hyaline to subhyaline conidia, this species has to be placed in *Cercospora* s.str. On account of the close affinity to *C. sorghi*, it is considered a variety of the latter species.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

(2) ***Pseudocercospora acalyphae*** (Lacy & Thirum.) Raghu Ram, Mallaiah & U. Braun, A monograph of *Cercosporella, Ramularia* and allied genera (phytopathogenic hyphomycetes), Vol. 1: 100, Eching 1995

= ***Phaeoramularia indica*** S.K. Singh, R.K. Chaudhary & Meenu, Mycol. Res. 101(7): 863 (1997), **syn. nov.**
Holotype: on *Acalypha indica*, India, Gorakhpur, U.P., Nov.-Dec. 1994, Kamal (IMI 366370), not seen (this collection could not be traced at IMI).

According to the original description and illustration, this species agrees perfectly with *P. acalyphae*, except that the conidia are occasionally formed in chains, which is, however, not unusual in *Pseudocercospora*.

(3) ***Pseudocercospora adinicola*** (A.K. Kar & M. Mandal) Deighton, Mycol. Pap. 140: 138 (1976)

≡ *Cercospora adinicola* A.K. Kar & M. Mandal, Indian Phytopathol. 26(4): 676 '1973' (1974).
= *Cercocladospora adinae* G.P. Agarwal & S.M. Singh, Proc. Natn. Acad. Sci. India, B, 42(4): 439 (1972), nom. inval.
= ***Mycovellosiella adinae*** Firdousi, A.N. Rai, A.S. Mishra & K.M. Vyas, Indian Phytopathol. 45(4): 451 '1992' (1993), **syn. nov.**
Material examined: on *Adina cordifolia*, India, Bandri, M.P., Feb. 1989, Firdousi (IMI 332690), holotype of *M. adinae*.

M. adinae is a typical *Pseudocercospora* with unthickened, not darkened (at most slightly refractive) conidiogenous loci and agrees well with *P. adinicola*, although the conidiophores and conidia are somewhat shorter and narrower. The conidia are usually formed singly, rarely in short chains, which is not uncommon in *Pseudocercospora* spp. The formation of chains seems to be influenced by environmental conditions, e.g., temperature and air humidity. The differences between *P. adinicola* and *M. adinae* are not sufficient to maintain two different species.

(4) ***Pseudocercospora caudata*** (Kranz) U. Braun **comb. nov.**

Bas.: *Cercospora caudata* Kranz, Sydowia 19(1-6): 73 (1966).
Material examined: on *Ficus* sp., Guinea, Sérédou, Feb. 1962, Camara Farn (IMI 93220), holotype.

Conidiogenous loci and hila are unthickened and not darkened, so that this species must be assigned to *Pseudocercospora*.

(5) ***Pseudocercospora colebrookiicola*** U. Braun **nom. nov.**

Bas.: *Mycovellosiella colebrookiae* K. Bhalla, N. Srivast. & Kamal, Mycol. Res. 100(11): 1334 (1996), non *Pseudocercospora colebrookiae* H.S.G. Rao et al. 1996.
Material examined: on *Colebrookia oppositifolia*, India, Uttar Pradesh, 19 Sep. 1975, Kamal No. 260 (IMI 196989), authentic material.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

Since the loci and hila are neither thickened nor darkened, *M. colebrookiae* pertains in *Pseudocercospora*. It is distinguishable from *P. colebrookiae* by having superficial secondary hyphae with solitary conidiophores. The latter species possesses much longer fasciculate, pluriseptate conidiophores.

(6) ***Pseudocercospora cordiicola*** (J.-M. Yen) J.M. Yen, Gardens' Bull., Singapore, 33: 173 (1980)

≡ *Cercospora cordiicola* J.-M. Yen, Rev. Mycol. 32: 182 (1967).
≡ ***Mycovellosiella cordiicola*** (J.-M. Yen) R.K. Verma & Kamal, Mycol. Res. 93(2): 232 (1989), **syn. nov.**
= *Cercospora cordiae* J.-M. Yen, Rev. Mycol. 29: 216 (1964), homonym, non *C. cordiae* Chupp 1934.
Material examined: on *Cordia cylindristachya*, Singapore, Katung, 24 Apr. 1964, Sun No. 28 (PC), type of *P. cordiicola*; on *Cordia crenata*, India, Sohelwa, U.P., Jan. 1987, R.K. Verma (IMI 313415); on *Cordia myxa*, India, Gorakhpur, U.P., date?, B. Rai (IMI 236012).

Type material as well as collections on which the combination into *Mycovellosiella* was based has been studied. The conidiogenous loci are often denticle-like, occasionally slightly refractive, but neither thickened nor darkened. Hence, this species is correctly placed in *Pseudocercospora*.

(7) ***Pseudocercospora dipterocarpacearum*** U. Braun **nom. nov.**

Bas.: *Pseudocercospora shoreae-robustae* H.S.G. Rao, S. Narayan & Poonam Srivast., J. Living World 4(2): 26 (1997), homonym, non *P. shoreae-robustae* U. Braun 1995.

Rao et al. (1997) described *P. shoreae-robustae* and compared it with *P. shoreae* (Thirum. & Chupp) Deighton, but overlooked the existence of *P. shoreae-robustae* U. Braun (≡ *Pseudocercosporella shoreae* A.N. Rai, B. Rai & Kamal). *P. dipterocarpacearum* differs from the latter species in having much longer, pluriseptate conidiophores and 4-8-septate conidia.

(8) ***Pseudocercospora ficigena*** U. Braun **nom. nov.**

Bas.: *Mycovellosiella moracearum* M.K. Khan & Kamal, Mycotaxon 54: 27 (1995), non *Pseudocercospora moracearum* R.K. Verma & Kamal, 1991.
= *Phaeoramularia moracearum* S.K. Singh, R.K. Chaudhary & Meena, Mycol. Res. 101(7): 864 (1997).
Material examined: on *Ficus religiosa*, India, Gorakhpur, U.P., 1994, Kamal (IMI 366371), holotype of *Phaeoramularia moracearum*.

Due to inconspicuous to subconspicuous (unthickened, but somewhat refractive) conidiogenous loci and hila, this fungus has to be assigned to *Pseudocercospora*. The conidiophores are formed in fascicles as well as singly, arising from creeping hyphae, which have not been described by Singh et al. (1997). *Phaeoramularia moracearum* has

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

also been described on *Ficus religiosa* from the type locality of *Mycovellosiella moracearum*.
Pseudocercospora ficigena is close to *P. angulo-maculae* (A.K. Kar & M. Mandal) W.-H. Hsieh & Goh, but differs in having sparingly septate conidiophores (0-2) and conidia (0-4). The conidiogenous cells are subdenticulate and the conidia are occasionally formed in short chains. *P. fici-religiosae* (Chidd.) U. Braun, Bagyan. & Jagad. on *Ficus religiosa* in India is quite distinct by short aseptate conidiophores arising in dense fascicles from large stromata and subcylindric conidia. *P. gorakhpurensis* H.S.G. Rao, S. Chandra & Kamal (RAO et al. 1995) has been described on *Ficus benghalensis* from India (IMI 330829, holotype examined). *F. benghalensis* is also the type host of *P. angulo-maculae*. *P. gorakhpurensis* is very close to the latter species, but differs in having larger, occasionally branched conidiophores and somewhat shorter conidia. These differences are, however, not sufficient to maintain two separate species:

Pseudocercospora angulo-maculae var. ***gorakhpurensis*** (H.S.G. Rao, S. Chandra & Kamal) U. Braun **comb. et stat. nov.**

Bas.: *Pseudocercospora gorakhpurensis* H.S.G. Rao, S. Chandra & Kamal, Mycol. Res. 99(6): 709 (1995).

RAO et al. (1995) also described *Pseudocercospora ficicola* (IMI 363205, holotype, examined) and compared it with various cercosporoid hyphomycetes on *Ficia* spp. This species must be reduced to synonymy with *Pseudocercospora cladophora* W.-H. Hsieh & Goh which has not been taken into consideration by RAO et al. (1995):

Pseudocercospora cladophora W.-H. Hsieh & Goh, Trans. Mycol. Soc. R.O.C. 2(2): 129 (1987)

= ***Pseudocercospora ficicola*** H.S.G. Rao, S. Chandra & Kamal, Mycol. Res. 99(6): 708 (1995), **syn. nov.**

(9) ***Pseudocercospora haplophragmatis*** (Kamal & R.P. Singh) U. Braun **comb. nov.**

Bas.: *Mycovellosiella haplophragmatis* ('*haplophragmae*') Kamal & R.P. Singh, Indian J. Mycol. Pl. Pathol. 11(1): 2 (1981).
Material examined: on *Fernandoa adenophylla* (≡ *Haplophragma adenophyllum*), India, Gorakhpur, U.P., 14 Mar. 1978, P.K. Singhania (IMI 227030); 14 June 1978, Kamal (IMI 229196); 23 Mar. 1979, B. Rai (IMI 237088), three topotype collections.

The conidiogenous loci and hila are neither thickened nor darkened (at most slightly refractive), so that this species has to be reallocated to *Pseudocercospora*. KAMAL and SINGH (1981) cited 'IMI 212575' as type, but this collection could not be traced at IMI.

(10) ***Pseudocercospora hymenodictyi*** (Petr.) Y.-L. Guo & X.-J. Liu, Mycosystema 5: 103 (1992)

≡ *Cercospora hymenodictyi* ('*hymenodictyonis*') Petr., Sydowia 10: 124 (1956).
≡ *Mycovellosiella hymenodictyi* (Petr.) U. Braun, Mycotaxon 55: 224 (1995).

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

= ***Mycovellosiella gorakhpurensis*** P. Kumar & Kamal, Curr. Sci. 50(3): 137 (1981), **syn. nov.**

Material examined: on *Hymenodictyon excelsum*, Philippines, Luzon, Prov. Bulacan, Santa Maria, Nov. 1924, M.S. Clemens, Reliquiae Petrakianae 1349 (GZU), lectotype of *C. hymenodictyi*, selected here; on *H. excelsum*, India, Gorakhpur, U.P., Feb. 1978, P. Kumar 202 (IMI 228146), holotype of *M. gorakhpurensis*.

The conidiogenous loci of this species are intermediate between *Passalora* (incl. *Mycovellosiella*) and *Pseudocercospora* and range from being inconspicuous to subdenticulate, subconspicuous, i.e., the wall of the locus is unthickened, but somewhat darkened-refractive (Braun 1995). If viewed from above, the scars often appear as minute, somewhat darker circles. Species with scars of this type have often been placed in *Mycovellosiella* and *Passalora*, respectively, but based on new molecular examinations (Crous et al. 2001), it turned out that they have to be referred to *Pseudocercospora*. Type material of *Mycovellosiella gorakhpurensis* has been re-examined and agrees well with *P. hymenodictyi*. Guo and Hsieh (1995) and Guo et al. (1998) described and illustrated Chinese material without superficial mycelium.

(11) ***Pseudocercospora litseigena*** U. Braun **nom. nov.**

Bas.: *Cercospora litseae* Henn., Bot. Jahrb. 31: 742 (1902), non *Pseudocercospora litseae* (A.N. Rai, B. Rai & Kamal) U. Braun, 1995.
= *Mycovellosiella litseae* Meenu, Bhalla & S.K. Singh, Mycol. Res. 100(5): 611 (1996).
Material examined: on *Litsea glauca*, Japan, Tokyo, Komaba, without date, Ikeno No. 117 (B), holotype of *C. litseae*; on *Litsea glutinosa*, India, Gorakhpur, U.P., Jan.-Feb. 1995, Kamal (IMI 367127), holotype of *M. litseae*.

Braun (1995b) examined type material of *C. litseae* and pointed out that this species is identical with *M. litseae*. A careful re-examination of the type collections showed that the scars are unthickened and not darkened, at most somewhat refractive, so that this species has to be reallocated to *Pseudocercospora*.

(12) ***Pseudocercospora malloti-repandi*** (K. Bhalla, S.K. Singh & A.K. Srivast.) U. Braun **comb. nov.**

Bas.: *Mycovellosiella malloti-repandi* K. Bhalla, S.K. Singh & A.K. Srivast., Mycol. Res. 101(12): 1496 (1997).
Material examined: on *Mallotus repandus*, India, Bansi, Siddharthnagar, U.P., Mar. 1996, Kamal (IMI 373100), holotype.

The conidial scars and hila are unthickened and not darkened, at most somewhat refractive. This species is close to *Pseudocercospora bakeriana* Deighton (1976), but differs in having angular, vein-limited lesions and narrower, 2-4-septate conidia.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

(13) *Pseudocercospora mucunae-ferrugineae* (Yamam.) Deighton, Mycol. Pap. 140: 148 (1976)

= ***Mycovellosiella mucunae*** R.N. Khawar, R.P. Singh & R.K. Chaudhary, Mycol. Res. 100(6): 690 (1996), **syn. nov.**
Material examined: on *Mucuna purpurea*, Nepal, Narayangarh, Chitwan, Dec. 1994 (IMI 366205), holotype of *M. mucunae*.

The scars of the conidiogenous cells and hila in *M. mucunae* are unthickened and non-pigmented, at most somewhat refractive, so that this species belongs in *Pseudocercospora*. *M. mucunae* is, however, indistinguishable from *P. mucunae-ferrugineae*.

(14) *Pseudocercospora psidii* (Rangel) R.F. Castañeda & U. Braun, Crypt. Bot. 1: 52 (1989)

= ***Phaeoramularia psidii-guajavae*** S.K. Singh, R.K. Chaudhary & Meenu, Mycol. Res. 101(7): 865 (1997), **syn. nov.**
Material examined: on *Psidium guajava*, India, Gorakhpur, U.P., Nov.-Dec. 1994, Kamal (IMI 366372), holotype.

Phaeoramularia psidii-guajavae agrees very well with *P. psidii* except that the conidia are occasionally formed in short chains, which is, however, not uncommon in *Pseudocercospora* spp. The scars and hila in *P. psidii-guajavae* are unthickened, not darkened, at most somewhat refractive. A few superficial hyphae have been observed.

(15) ***Pseudocercospora solenae-heterophyllae*** (R.K. Verma & Kamal) U. Braun **comb. nov.**

Bas.: *Mycovellosiella solenae-heterophyllae* R.K. Verma & Kamal, Mycol. Res. 93(2): 230 (1989).
Material examined: on *Solena heterophylla*, India, Uttar Pradesh, Oct. 1985, R.K. Verma (IMI 299167), isotype.

The conidiogenous loci are inconspicuous to denticle-like, but unthickened, not darkened, at most slightly refractive, so that this species has to be placed in *Pseudocercospora*.

(16) ***Pseudocercospora tinosporae*** (Kamal, A.S. Moses & R.K. Chaudhary) U. Braun **comb. nov.**

Bas.: *Phaeoramularia tinosporae* Kamal, A.S. Moses & R.K. Chaudhary, Mycol. Res. 94(5): 715 (1990).
Material examined: on *Tinospora cordifolia*, India, Gorakhpur, U.P., 1989, A.S. Moses (IMI 337032), holotype.

The conidiogenous loci and hila are neither thickened nor darkened. Catenate conidia are not uncommon in *Pseudocercospora*. This species is close to *Pseudocercospora menispermacearum* P. Kumar & Kamal, on *Stephania* spp., and *P. rhigiocaryae* (J.-M. Yen & Gilles) J.-M. Yen, on *Rhigiocarya racemifera*, but differs in forming short conidial

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

chains. *Pseudocercospora tinosporicola*, also described on *Tinospora cordifolia* from India, is distinguished by short, aseptate conidiophores and consistently solitary conidia.

(17) ***Stenella cercestis*** (Deighton) U. Braun **comb. nov.**

Bas.: *Cladosporium cercestis* Deighton, Mycol. Res. 94(4): 570 (1990).
Material examined: on *Cercestis congensis*, Sierra Leone, Njala, 25 Apr. 1934, Deighton (IMI 7735), holotype.

This species is characterised by having well-developed verruculose superficial hyphae and slightly thickened, darkened, non-cladosporioid conidiogenous loci and hila, so that it has to be assigned to *Stenella*.

(18) ***Stenella trijugae*** (B. Rai & Kamal) U. Braun **comb. nov.**

Bas.: *Mycovellosiella trijugae* B. Rai & Kamal, Trans. Br. Mycol. Soc. 85(3): 569 (1985).
Material examined: on *Schleichera trijuga*, India, Nishangarha, Feb. 1979, B. Rai (IMI 237117), holotype.

Since the superficial secondary mycelium is distinctly verruculose, this species has to be placed in *Stenella*.

(19) ***Verrucisporota indica*** (Kamal & P. Kumar) U. Braun **comb. nov.** Fig. 7

Bas.: *Passalora indica* Kamal & P. Kumar, Indian Phytopathol. 33(2): 268 '1980' (1981).
Material examined: on *Celastrus paniculata*, India, Gorakhpur, U.P., Dec. 1977, P. Kumar No. 24 (IMI 226993), holotype; on *C. paniculata*, India, Gorakhpur, U.P., 23 Mar. 1979, B. Rai, KR 246 (IMI 237121).

On account of coarsely verrucose-rugose conidia, this species has to be excluded from *Passalora* and placed in *Verrucisporota*.

Acknowledgements:
I wish to convey my thanks to the heads and curators of B, H, HBG, IMI, LE, NY, PAD, S and UC for allowing me to examine type material in their keeping.

Literature:

BRAUN, U. 1985: Taxonomic notes on some powdery mildews (V). Mycotaxon **22**: 87-96.
BRAUN, U. 1987: A monograph of the Erysiphales (powdery mildews). Beihefte zur Nova Hedwigia **89**: 1-700.
BRAUN, U. 1994: Studies on *Ramularia* and allied genera (VII). Nova Hedwigia **58**(1-2): 191-222.
BRAUN, U. 1995a: A monograph of *Cercosporella, Ramularia* and allied genera (phytopathogenic hyphomycetes). Vol. 1. Eching.
BRAUN, U. 1995b: Taxonomic notes on some species of the *Cercospora* complex (VI). Cryptogamie, Mycologie **20**(3): 155-177.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

BRAUN, U. 1998: A monograph of *Cercosporella, Ramularia* and allied genera (phytopathogenic hyphomycetes). Vol. 2. Eching.

BRAUN, U. & SIVAPALAN, A. 1999: Cercosporoid hyphomycetes from Brunei. Fungal Diversity **3**: 1-27.

BRAUN, U. & TAKAMATSU, S. 2000: Phylogeny of *Erysiphe, Microsphaera, Uncinula* (Erysipheae) and *Cystotheca, Podosphaera, Sphaerotheca* (Cystotheceae) inferred from rDNA ITS sequences – some taxonomic consequences. Schlechtendalia **4**: 1-33.

CASTAÑEDA, R.F. & BRAUN, U. 1989: *Cercospora* and allied genera of Cuba (I). Cryptogamic Botany **1**: 42-55.

CHEN, G.-Q., HAN, S.-J., LAI, Y.-Q., YU, Y.-N., ZHENG, R.-Y. & ZHAO, Z.-Y. 1987: Flora Fungorum Sinicorum, Vol. 1, Erysiphales. Beijing.

CHUPP, C. 1954: A monograph of the fungus genus *Cercospora*. Ithaca, New York.

CONSTANTINESCU, O. 1982: Studies on *Cercospora* and similar fungi. II. New combinations in *Cercospora* and *Mycovellosiella*. Cryptogamie, Mycologie **3**: 63-70.

CROUS, P.W., KANG, J.-C. & BRAUN, U. 2001: A phylogenetic redefinition of anamorph genera in *Mycosphaerella* based on ITS rDNA sequences and morphology. Mycologia (in press).

DAVID, J. 1997: A contribution to the systematics of *Cladosporium*. Revision of the fungi previously referred to *Heterosporium*. Mycological Papers **172**: 1-157.

DEIGHTON, F.C. 1976: Studies on *Cercospora* and allied genera VI. *Pseudocercospora* Speg., *Pantospora* Cif. and *Cercoseptoria* Petr. Mycological Papers **140**: 1-168.

ELLIS, M.B. 1971: Dematiaceous Hyphomycetes. Kew.

GRAHAM, J.H. & LUTTRELL, E.S. 1961: Species of *Leptosphaeria* on forage plants. Phytopathology **51**: 680-693.

GUO, Y.-L. & HSIEH, W.-H. 1995: The genus *Pseudocercospora* in China. Mycosystema Monographicum Series No. **2**: 1-388.

GUO, Y.-L., LIU, X.J. & HSIEH, W.-H. 1998: Flora Fungorum Sinicorum, Vol. 9, *Pseudocercospora*. Science Press, Beijing.

HO, H.M., CASTAÑEDA, R.F., DUGAN, F.M. & JONG, S.C. 1999: *Cladosporium* and *Cladophialophora* in culture: descriptions and an expanded key. Mycotaxon **72**: 115-157.

HSIEH, W.-H. & GOH, T.-K. 1990: *Cercospora* and similar fungi from Taiwan. Taipei.

INMAN, A.J., COOK, R.T.A. & BEALES, P.A. 2000: A contribution to the identity of *Rhododendron* powdery mildew in Europe. Journal of Phytopathology **148**: 17-27.

KAMAL & SINGH, R.P. 1981: Fungi of Gorakhpur – XVII. Indian Journal of Mycology and Plant Pathology **11**(1): 1-4.

LINDAU, G. 1900: Hyphomycetes (pp. 415-523). In ENGLER, A. & PRANTL, K.: Die natürlichen Pflanzenfamilien, I. Teil, Abteilung 1**. Leipzig.

NOMURA, Y. 1997: Taxonomical study of Erysiphaceae of Japan. Tokyo.

OND°EJ, M. 1971: Nové a málo známé houby rodu *Fusicladium* Bonorden na topolech a vrbe. ¢eská Mykologie **25**: 165-172.

PANDOTRA, V.R. 1971: A new *Cercospora* leaf spot from Jammu. Indian Journal of Mycology and Plant Pathology **1**(2): 143-144.

RAO, H.S.G., CHANDRA, S. & KAMAL 1995: Additions to *Pseudocercospora* from India. Mycological Research **99**(6): 707-710.

RAO, H.S.G., MOSES, A.S. & SINGH, P.N. 1996: Some new species of *Pseudocercospora* from India. Mycological Research **100**(9): 1971-1974.

RAO, H.S.G., NARAYAN, S. & SRIVASTAVA, P. 1997: New species of *Pseudocercospora* associated with foliar spots in forests flora of Nepal Himalayas. Journal of the Living World **4**(2): 23-32.

SHIN, H.-D. 1988: Erysiphaceae of Korea. Thesis, Major in Plant Pathology, Department of Agricultural Biology, The Graduate School of Seoul National University.

SHIN, H.-D. 2000: Erysiphaceae of Korea. Plant Pathogens of Korea 1. National Institute of Agricultural Sciences and Technology, Suwon, Korea.

©Institut für Biologie, Institutsbereich Geobotanik und Botanischer Garten der Martin-Luther-Universität Halle-Wittenberg

SINGH, S.K., CHAUDHARY, R.K. & MEENU 1997: Some species of *Phaeoramularia* causing leaf spots in north-eastern Uttar Pradesh, India. Mycological Research **101**(7): 863-866.

WANG, Y.-X., WANG, X.-Y., LI, H. & ZHENG, Q.-C. 1997: A new species and two new records of *Ramularia* in China. Mycosystema **16**(4): 250-252.

WU, W., SUTTON, B.C. & GANGE, A.C. 1996: Revision of *Septoria* species on *Hebe* and *Veronica* and description of *Kirramyces hebes* sp. nov. Mycological Research **100**(10): 1207-1217.

YEN, J.-M. 1978: Étude sur les champignons parasites du Sud-Est asiatique. 30: Les *Cercospora* de Formose, III. Bulletin de la Societe Mycologique de France **94**: 49-59.

Address of the author:
Dr. Uwe Braun, Martin-Luther-Universität Halle-Wittenberg, FB Biologie, Institut für Geobotanik und Botanischer Garten, Herbarium, Neuwerk 21, D-06099 Halle/Saale, BR Deutschland.
(e-mail: braun@botanik.uni-halle.de)

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Schlechtendalia

Jahr/Year: 2000

Band/Volume: 5

Autor(en)/Author(s): Braun Uwe

Artikel/Article: Miscellaneous notes on some micromycetes 31-56