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Some additional species of *Scolecostigmina*

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Abstract: BRAUN, U. 1999: Some additional species of *Scolecostigmina*. Schlechtendalia **3**: 33-42.
Types and other collections of 16 species of the genus *Stigmina* s.lat. have been re-examined. 12 specimens are assigned to *Scolecostigmina. Stigmina caricicola* is placed in the new genus *Dictyorostrella* gen. nov., *St. lautii* should be retained in *Stigmina* s.str., *St. rauvolfiae* is a synonym of *Cercostigmina liebenbergiae* (≡ *Pseudocercospora liebenbergiae*), and *St. triumfettae* is placed in *Cercostigmina.*

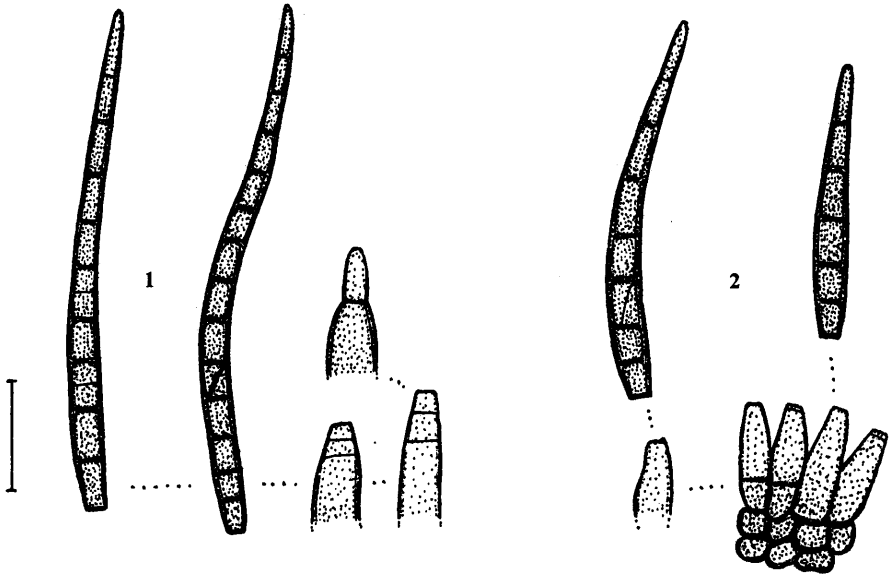
Zusammenfassung: BRAUN, U. 1999: Some additional species of *Scolecostigmina*. Schlechtendalia **3**: 33-42.
Typusmaterial und andere Kollektionen von 16 Arten der Gattung *Stigmina* s.lat. sind untersucht worden. 12 Arten werden zu *Scolecostigmina* gestellt, *Stigmina caricicola* wird in der neuen Gattung *Dictyorostrella* gen. nov. untergebracht, *St. lautii* bleibt bei *Stigmina* s.str., *St. rauvolfiae* ist ein Synonym von *Cercostigmina liebenbergiae* (≡ *Pseudocercospora liebenbergiae*) und *St. triumfettae* wird in die Gattung *Cercostigmina* überführt.

Hughes (1952) and Ellis (1959, 1971, 1976) strongly widened the generic concept of *Stigmina* Sacc. Sutton & Pascoe (1989) discussed the heterogeneity of *Stigmina* s.lat. and confined this genus to a few species closely allied to *St. platani*, the type species, which are characterized by having foliicolous conidiomata and non-scolecosporous, distoseptate conidia. Furthermore, they reintroduced *Thyrostroma* Höhn. for *Stigmina*-like, usually caulicolous hyphomycetes with pulvinate sporodochia and non-scolecosporous, often muriform, euseptate conidia. Braun (1993) introduced the new genus *Cercostigmina* for *Pseudocercospora*-like species of *Stigmina* s.lat., which are, however, *Mycosphaerella* anamorphs. *Lecanostictopsis* (Sutton & Crous 1997) and *Xenostigmina* (Crous 1998) are two additional, new *Stigmina*-like genera. Braun (in Braun, Mouchacca & McKenzie 1999) introduce the new genus *Scolecostigmina* for *Stigmina*-like hyphomycetes with scolecosporous, predominantly transversely euseptate conidia [type species: *Scolecostigmina mangiferae* (Koord.) U. Braun & Mouch. (≡ *Cercospora mangiferae* Koord., *Stigmina mangiferae* (Koord.) M.B. Ellis)]. The differentiation between „phragmosporous" and „scolecosporous" is often difficult. Transitional shapes are common. Hence, the generic circumscription of *Scolecostigmina* should be altered to: „conidia phragmo- to scolecosporous".
Based on the new generic concept within the *Stigmina* complex, it is necessary to re-examine and reassess most species of *Stigmina* s.lat. Type material and other collections of the following taxa have been studied (arrangement of the species alphabetically, based on the epitheta):

1. ***Scolecostigmina afzeliae*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 1

Bas.: *Stigmina afzeliae* M.B. Ellis, Mycol. Pap. 111: 39 (1967).
Ref.: ELLIS (1976: 123-124, Fig. 86A).
Material examined: on leaves of *Afzelia africana*, Guinea, IRF Kindia, 10 Jan. 1964, J. Kranz 607, holotype (IMI 105020c)
The conidia are scolecosporous, thick-walled, transversely 10-25-euseptate, occasionally with very few intermixed oblique eusepta or transverse distosepta, smooth or almost so.

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Figs. 1-2: 1 – *Scolecostigmina afzeliae*; 2 – *S. beshirii*; conidiophores, fascicles of conidiophores (in 2); scale = 20 µm; U. Braun del.

2. ***Scolecostigmina beshirii*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 2

Bas.: *Stigmina beshirii* M.B. Ellis, Mycol. Pap. 72: 38 (1959).
Ref.: ELLIS (1976: 132-133, Fig. 90B).
Material examined: on leaves of *Allophyllus* sp., Sudan, Nertetti (Darfur), 26 Oct. 1953, B. Beshir, holotype (IMI 61919).
The conidia are scolecosporous, thick-walled, smooth to wrinkled, 3-12-euseptate, occasionally with few intermixed oblique or longitudinal septa or very few distosepta. Mature conidia are distinctly rostrate.

3. ***Stigmina caricicola*** U. Braun & Melnik

Braun & Melnik (1996) placed this fungus in *Stigmina* s.lat., but *St. caricicola* does not fit with the new generic concept of the *Stigmina* complex. Since the conidia are muriform and euseptate, this species seems to be allied to *Thyrostroma*, but mature conidia are verruculose and rostrate (*Alternaria*-like). Furthermore, this fungus is ecologically distinct by being foliicolous and saprobic. Muriform conidia are also known in *Stigmina* s.str., but the species of this genus are characterized by having non-rostrate, distoseptate conidia. The conidia in *Xenostigmina* are also muriform and often short rostrate, but the conidiophores are frequently branched and the conidiogenous cells proliferate percurrently as well as sympodially. Rostrate

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conidia are not uncommon in *Stigmina*-like hyphomycetes, e.g. in *Scolecostigmina* spp., but the beaks are gradually formed at the apex. The beaks in mature conidia of *St. caricicola* are, however, unique by being abruptly set up. On account of the peculiar characteristics of *St. caricicola*, it is justified to assign this species to a new genus.

Dictyorostrella U. Braun **gen. nov.**

(Etym.: Dictyo + Rostrella = derived from „dictyosporae" and the deminutive form of „rostrum").

Hyphomycetes. Foliicola. Mycelium immersum. Sporodochia amphigena, dispersa, punctiformia, erumpentia, atro-brunnea vel nigra. Stromata bene evoluta, immersa, deinde erumpentes. Conidiophora macronematosa, mononematosa, dense fasciculata, ex cellulis stromatibus formata, non-ramosa, brunnea, levia. Cellulae conidiogenae integratae, terminales vel separatae, monoblasticae, determinatae vel percurrentes, brunneae, ad apicem plus minusve truncatae, annellidicae. Conidia solitaria, holoblastica, muriformia, plurieuseptata, crassitunicata, brunnea, verruculosa, ad apicem abrupte rostrata, ad basim truncata vel obconice truncata, non-incrassata, non-fuscata; secessio schizolytice.

Sp. typ.: *Dictyorostrella caricicola* (U. Braun & Melnik) U. Braun (≡ *Stigmina caricicola* U. Braun & Melnik).

Hyphomycetes. Foliicolous. Mycelium immersed. Sporodochia amphigenous, scattered, punctiform, erumpent, dark brown to black. Stromata well-developed, immersed, later erumpent. Conidiophores macronematous, mononematous, densely fasciculate, arising from stroma cells, unbranched, brown, smooth. Conidiogenous cells integrated, terminal or separate (conidiophores reduced to conidiogenous cells), monoblastic, determinate or percurrent, annellidic, brown, apex more or less truncate. Conidia solitary, holoblastic, muriform, plurieuseptate, thick-walled, brown, verruculose, apically abruptly rostrate, truncate to obconically truncate at the base, hila unthickened, not darkened; secession schizolytic.

Dictyorostrella caricicola (U. Braun & Melnik) U. Braun **comb. nov.** Fig. 3

Bas.: *Stigmina caricicola* U. Braun & Melnik, Mikol. i Fitopatol. 30(3): 7 (1996).
Material examined: on leaves of *Carex macrocephala*, Canada, B.C., Vancouver, Wreek Beach, 18 Aug. 1994, V.A. Melnik, holotype (DAOM) and isotype (HAL); on leaves of *Carex macrocephala*, Russia, Far East, Primorskiy Kray, Lazovskiy nature reserve, river Kievka, 24 June 1986, leg. O.K. Govorova, det. V.A. Melnik (LE 200987).

The material from the Far East of Russia represents the second collection of this species.

4. ***Scolecostigmina combreti*** (J. Kranz) U. Braun **comb. nov.** Fig. 4

Bas.: *Stigmina combreti* J. Kranz, Sydowia 20: 212 (1968).
Ref.: ELLIS (1976: 117-118, Fig. 83E).

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Material examined: on leaves of *Combretum ghaselense*, Guinea, Kindia, 1 Jan. 1964, J. Kranz, holotype (IMI 140917).

This species possesses transversely pluriseptate, scolecosporous, thick-walled, wrinkled conidia (rarely with few intermixed distosepta).

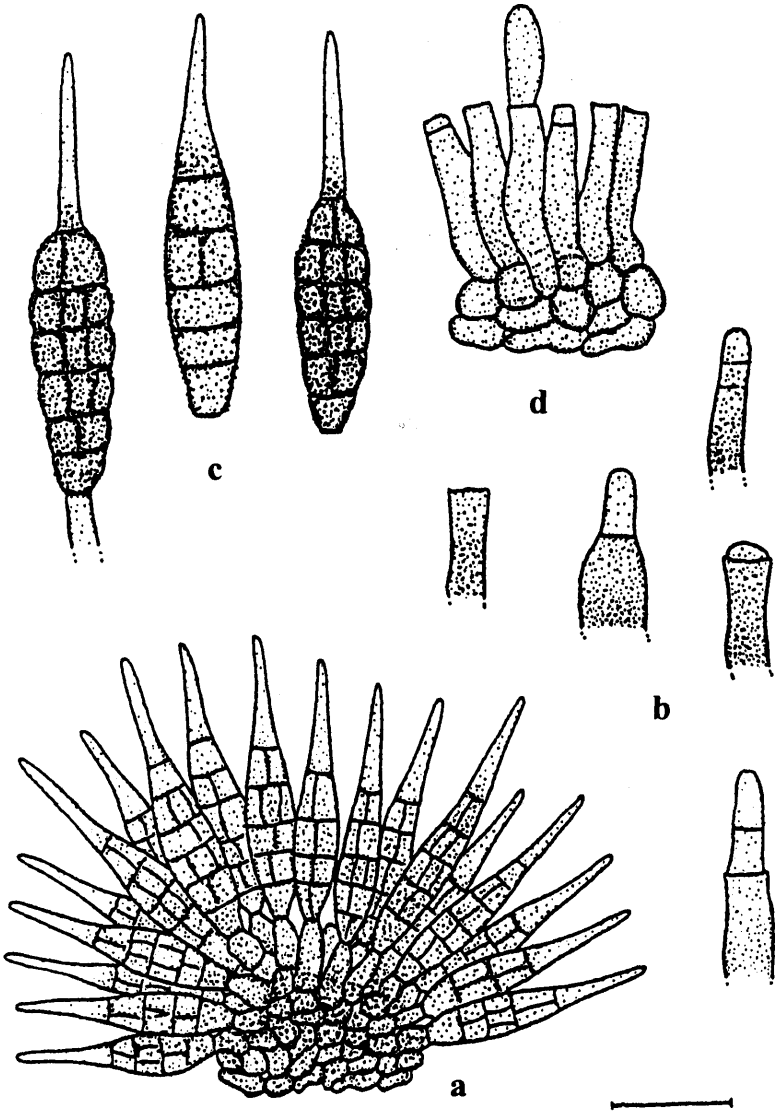


Fig. 3: *Dictyorostrella caricicola*; a - sporodochium, b - conidiophores, c - conidia, d - part of sporodochium; scale = 20 µm; U. Braun del.

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5. ***Scolecostigmina combreticola*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 5

Bas.: *Stigmina combreticola* M.B. Ellis, Mycol. Pap. 131: 8 (1972).
Ref.: ELLIS (1976: 117-118, Fig. 83D).
Material examined: on leaves of *Combretum mossambiense*, Zambia, S. of Senanga, 24 July 1961, A. Angus, holotype (IMI 110341).

The conidia are scolecosporous, smooth, thick-walled, transversely pluriseptate, occasionally with few longitudinal or oblique septa, rarely with few intermixed distosepta.

6. ***Scolecostigmina crotonicola*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 6

Bas.: *Stigmina crotonicola* M.B. Ellis, More Dematiaceous Hyphomycetes: 121, Kew 1976.
Ref.: ELLIS (1976: 121-122, Fig. 85B).
Material examined: on leaves of *Croton gratissimum*, Zambia, South Province, Victoria Falls, 29 Apr. 1969, A. Angus, holotype (IMI 119824).

The scolecosporous conidia are smooth, thick-walled, pale to medium olivaceous brown and possess 4-10 transverse eusepta.

7. ***Scolecostigmina fici-elasticae*** (Kapoor) U. Braun **comb. nov.** Fig. 7

Bas.: *Stigmina fici-elasticae* Kapoor, Trans. Br. Mycol. Soc. 51: 332 (1968).
Ref.: ELLIS (1976: 128-129, Fig. 88B).
Material examined: on leaves of *Ficus mysorensis*, India, Bangalore, Nandi Hills, 31 Jan. 1973, B. Sutton (IMI 174812); on leaves of *Ficus elastica*, India, W. Sikkim, 6 Apr. 1962, J.N. Kapoor, holotype (IMI 126694).

The conidia are phragmosporous, thick-walled, almost smooth to loosely verrucose, and have 3-7 transverse eusepta.

8. ***Scolecostigmina fici-mysorensis*** (Muthappa) U. Braun **comb. nov.** Fig. 8

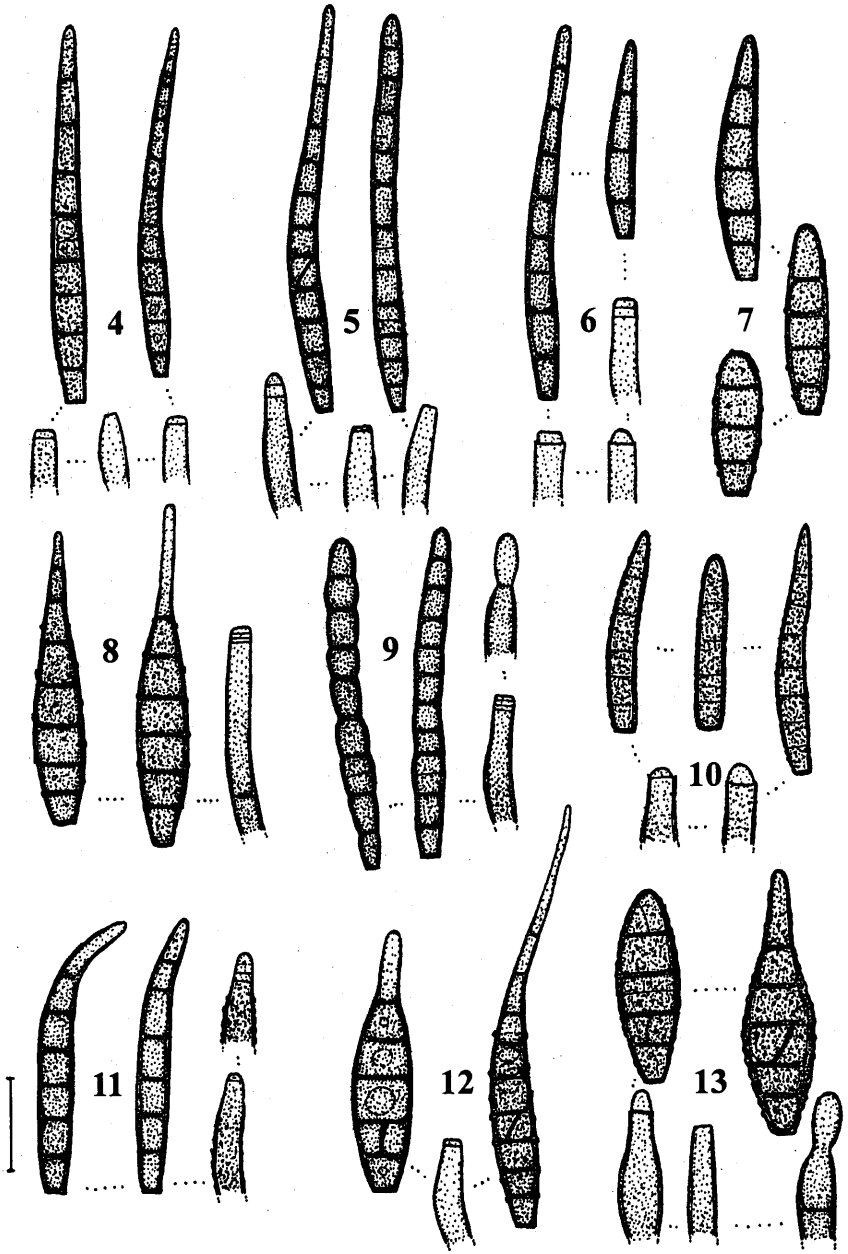
Bas.: *Stigmina fici-mysorensis* Muthappa, Trans. Br. Mycol. Soc. 61: 602 (1973).
Ref.: ELLIS (1976: 128-129, Fig. 88C).
Material examined: on leaves of *Ficus mysorensis*, India, Mysore, Chikmagulur, 1971, B.N. Muthappa, holotype (IMI 160986).

The conidia are phragmosporous to scolecosporous, thick-walled, loosely verrucose, and transversely plurieuseptate, occasionally with a few oblique septa.

9. ***Scolecostigmina kranzii*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 9

Bas.: *Stigmina kranzii* M.B. Ellis, More Dematiaceous Hyphomycetes: 126, Kew 1976.
Ref.: ELLIS (1976: 126-127, Fig. 87A).

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Figs. 4-13: 4 – *Scolecostigmina combreti*; 5 – *S. combreticola*; 6 – *S. crotonicola*; 7 – *S. fici-elasticae*; 8 – *S. fici-mysorensis*; 9 - *S. kranzii*; 10 – *Stigmina lautii*; 11 – *Scolecostigmina maculata*; 12 – *S. phaeocarpa*; 13 – *S. pilostigmatis*; conidiophores, conidia; scale = 20 µm; U. Braun del.

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Material examined: on leaves of *Piliostigma thonningii*, Ethiopia, Bako Shoa, Sept. 1971, J. Kranz, holotype (IMI 164008).

The conidia are scolecosporous, pale to medium dark brown, thick-walled, transversely pluriseptate, occasionally with a few intermixed distosepta.

10. ***Stigmina lautii*** B. Sutton, Mycol. Pap. 132: 113 (1973) Fig. 10

Ref.: ELLIS (1976: 119-120, Fig. 84C).
Material examined: on needles of *Picea mariana*, Canada, Manitoba, Gods Lake Narrows, 10 July 1969, W. Crawfort, holotype (IMI 145725).

Although *St. lautii* is phragmo- to scolecosporous, it cannot be assigned to *Scolecostigmina* since the conidia are distoseptate. The coarsely verrucose-rugose conidia are rather *Lecanostictopsis*-like, but the latter genus is also characterized by having euseptate conidia. *St. lautii* should be retained in *Stigmina* s.str.

11. ***Scolecostigmina maculata*** (Cooke) U. Braun **comb. nov.** Fig. 11

Bas.: *Clasterosporium maculatum* Cooke, Grevillea 31: 117 (1876).
≡ *Stigmina maculata* (Cooke) Hughes, Mycol. Pap. 49: 11 (1952).
Ref.: ELLIS (1976: 128-129, Fig. 88A).
Material examined: on leaves of *Ficus cordifolia*, India, Col. Hobson [616], holotype (K); on *Ficus bengalensis*, India, A.P., Sri Tirumala Hills, Apr. 1997, G. Bagyanarayana (HAL).

Mature conidia are phragmo- to scolecosporous, thick-walled, pigmented, smooth, transversely 2-6(-10)-euseptate, occasionally with a few intermixed distosepta, rostrate, frequently curved throughout or only with a curved beak.

12. ***Scolecostigmina phaeocarpa*** (Mitter) U. Braun **comb. nov.** Fig. 12

Bas.: *Cercospora phaeocarpa* Mitter, Ann. Mycol. 35: 239 (1937).
≡ *Stigmina phaeocarpa* (Mitter) M.B. Ellis, Mycol. Pap. 72: 59 (1959).
Ref.: ELLIS (1976: 124, Fig. 86B).
Material examined: on leaves of *Bauhinia* sp., Sudan, Zalingei, 25 Oct. 1955, B. Beshir (IMI 61971); on leaves of *Bauhinia variegata*, India, Jabalpur, Adhartal, Sept. 1964, Hasija (IMI 110517).

The conidia are scolecosporous, rostrate, pigmented, thick-walled, smooth, wrinkled or loosely verrucose, transversely (1-)4-9(-12)-euseptate, occasionally mixed with a few distosepta or with one or two oblique or longitudinal septa.

13. ***Scolecostigmina pilostigmatis*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 13

Bas.: *Stigmina pilostigmatis* M.B. Ellis, Mycol. Pap. 72: 37 (1959).
Ref.: ELLIS (1976: 124-125, Fig. 86F).

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Material examined: on leaves of *Pilostigma thonningii*, Sudan, Wad Medani, 4 Nov. 1961, R. Firman (IMI 91510); on leaves of *Pilostigma thonningii*, Zambia, Lusaka, 13 June 1957, A. Angus, holotype (IMI 70926).

The conidia are phragmo- to slightly dictyosporous, pigmented, thick-walled, wrinkled-verrucose, transversely 4-6-euseptate, occasionally with few intermixed distosepta and one or two oblique or longitudinal septa. Since the conida are predominantly transversely euseptate, *St. pilostigmatis* is assigned to *Scolecostigmina*.

14. ***Stigmina rauvolfiae*** M.B. Ellis, More Dematiaceous Hyphomycetes: 116, Kew 1976 Fig. 14

= *Cercospora liebenbergii* Syd., Ann. Mycol. 33: 235 (1935).
≡ *Pseudocercospora liebenbergii* (Syd.) Deighton, Mycol. Pap. 140: 15 (1976).
≡ *Cercostigmina liebenbergii* (Syd.) Crous & U. Braun, Mycotaxon 57: 281 (1996)
Material examined: on leaves of *Rauvolfia caffra*, South Africa, Schagen, Nelspruit, June 1939, Liebenberg, holotype of *St. rauvolfiae* and isolectotype of *C. liebenbergii* (IMI 37995).

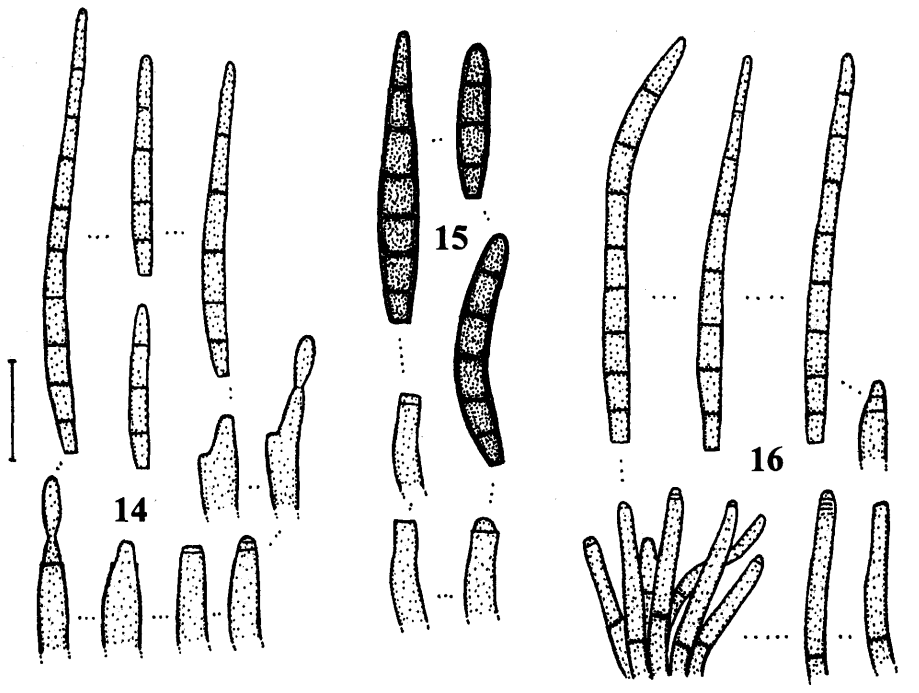
On account of thin-walled conidiophores and *Pseudocercospora*-like, thin-walled conidia, this species must be excluded from *Stigmina*. *Cercospora liebenbergii* and *Stigmina rauvolfiae* are obligate synonyms, based on the same type material. Crous & Braun (1994) examined type material of *C. liebenbergii*, deposited at PRE, and some additional collections and re-allocated this species to *Cercostigmina* since the conidiogenous cells proliferate percurrently. The collection from PRE was considered to be the holotype, but has to be classified as syntype, which is selected here to serve as lectotype, so that the syntype material at IMI becomes an isolectotype. Deighton (1976), based on material from IMI, assigned *C. liebenbergii* to *Pseudocercospora*. The re-examination of this material showed that the proliferations of the conidiogenous cells are predominantly percurrent, but some sympodial proliferations have also been observed. Since the proliferations in most collections are consistently percurrent and in a few other specimens at least predominantly percurrent, this species is tentatively retained in *Cercostigmina*. Examinations of additional collections are necessary to solve the problem of the generic affinity of this species.

15. ***Scolecostigmina sudanensis*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 15

Bas.: *Stigmina sudanensis* M.B. Ellis, Mycol. Pap. 72: 47 (1959).
Ref.: Ellis (1976: 127-128, Fig. 87F).
Material examined: on leaves of *Ficus* sp., Sudan, Yabus, 17 Dec. 1956, Tarr, holotype (IMI 68654).

The conidia are phragmo- to scolecosporous, thick-walled, pigmented, smooth, and transversely 3-9-euseptate.

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Figs. 14-16: 14 – *Cercostigmina liebenbergii*; 15 – *Scolecostigmina sudanensis*; 16 – *Cercostigmina triumfettae*; conidiophores, fascicle (in 16), conidia; scale = 20 µm; U. Braun del.

16. ***Cercostigmina triumfettae*** (M.B. Ellis) U. Braun **comb. nov.** Fig. 16

Bas.: *Stigmina triumfettae* M.B. Ellis, More Dematiaceous Hyphomycetes: 133, Kew 1976.
Ref.: ELLIS (1976: 133, Fig. 90D).
Material examined: on leaves of *Triumfetta* sp., Kenya, lake Kabete, May 1960, Nattrass 3130, holotype (IMI 81001).

Leaf spots amphigenous, angular-irregular, 1-8 mm diam., sometimes confluent and larger, brown, margin indefinite or with a narrow dark marginal line, usually surrounded by a diffuse yellowish halo. Caespituli amphigenous, punctiform to subeffuse, olivaceous to dark brown. Mycelium internal. Stromata small to well-developed, 10-70 µm diam., brown, intraepidermal, on the lower leaf surface origin often substomatal. Conidiophores in small (hypophyllous) to large (epiphyllous) fascicles, more or less dense, arising from stromata, erumpent, occasionally emerging through stomata, erect, straight, subcylindric, short conidiophores often conical, long conidiophores flexuous, but not or hardly geniculate-sinuous, simple, 10-50 x 3-7 µm, 0-2-septate, thin-walled, smooth, pale olivaceous to olivaceous brown, medium brown in mass, conidiogenous cells integrated, terminal, monoblastic, determinate to percurrent, annellations

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0-3, fine, not very conspicuous, without thickened, darkened scars. Conidia solitary, acicular-subulate, subcylindric-obclavate, 50-140 x 3-5.5 µm, 3-10-septate, subhyaline, pale yellowish to olivaceous, smooth, apex subacute to subobtuse, base truncate to slightly obconically truncate, hilum neither thickened nor darkened.

This species is *Pseudocercospora*-like, with thin-walled, fasciculate conidiophores, inconspicuous, fine annellations, and relatively narrow, thin-walled, pale, scolecosporous conidia, but on account of consistently percurrent proliferations of the conidiogenous cells, it has to be placed in *Cercostigmina*.

Acknowledgments:
I wish to convey my thanks to the curators of the herbaria cited in this paper for allowing me to examine types and other collections in their keeping.

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