Necrotrophic fungi from Kenyan endemic and rare plants

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Descriptions of four previously unknown fungi detected on collections of necrotic leaves of rare and endangered plant species from Kenya are given: *Cercospora extensa* on *Lobelia gibberoa* (Campanulaceae), *Cercosporella euphorbiacearum* on *Zimmermannia ovata* (Euphorbiaceae), *Phaeoramularia isolonae* on *Isolona cauliflora* (Annonaceae) and *Scolecostigmina lageniformis* on *Milletia oblata* subsp. *teitensis* (Leguminosae). In addition, three collections of the *Cercospora apii* aggregate from indigenous Kenyan plants are described and discussed.

Keywords: Ascomycota, hyphomycetes, necrotrophs, conservation, Kenya.

Many microfungi are likely to be rare and threatened with extinction, primarily due to destruction of the plants on which they depend for nutrition and habitat. As support for taxonomic investigation of microfungi has been and continues to be inadequate, especially in tropical countries, it is difficult to assess whether fungal species that have been detected are in fact rare or merely underrecorded. We are addressing this problem in Kenya, with the support of the UK Government's Darwin Initiative, by collecting and studying fungi which are associated with plant species that are themselves rare or endangered. If these fungi are restricted to their known host plants, they must by definition be threatened at least to the same degree as the plant host. This paper reports on seven fungal taxa, four of which are new to science.

Material and methods

Collections were dried between newspaper in plant presses. Material from leaf spots and dead plant portions was examined using a dissecting microscope. Fungal colonies were squashed and mounted in both water and lactofuchsin, and examined using bright-field, phase contrast and Nomarski interference optics. Slides and dried reference material have been deposited in the mycology re-

ference collections of the University of Nairobi [**NAI(M)**] and CABI Bioscience (**IMI**).

Taxonomy

Cercospora apii aggregate

There has been widespread discussion over the last fifty years as to the taxonomic status of a large cluster of taxa centred on *Cercospora apii* Fresen. (Johnson & Valleau, 1949; Sobers, 1968; Ellis, 1971). Most evidence now points to the aggregate being plurivorous, despite description of a plethora of supposedly host-specific taxa both before and after this controversy ignited. Molecular data are still sparse, but Stewart & al. (1999) found identical ITS1 and ITS2 sequences for three strains of *C. apii* and several other 'species' from unrelated hosts, and RFLP analysis of rDNA of strains from a wider range of hosts also proved invariable (Siboe, unpublished data).

Although we believe that strains of the *Cercospora apii* aggregate associated with indigenous plants in undisturbed forest regions of Kenya are likely to be genetically isolated, we refrain from providing separate names for the three collections described below. Once the systematic framework is clear, their description as new species or infraspecific taxa may be desirable.

Cercospora apii s. lat. on *Piper capense*. – Fig. 1.

Lesions poorly differentiated. – Colonies amphigenous, effuse, olivaceous brown, with small crowded tufts of conidiophores. – Mycelium immersed. – Basal stroma 20–40 µm diam., ± pulvinate, composed of thick-walled dark brown *textura angularis*, with many cells. – Conidiophores 130–145 µm long, 4–6 µm wide at the base, mostly 4- to 7-septate, well differentiated from vegetative hyphae, fasciculate but not synnematous, straight or flexuous, often geniculate, rarely branched, olivaceous brown, smooth. – Conidiogenous cells derived from terminal cells of the conidiophores with little differentiation, ± cylindrical, proliferating sympodially, with conspicuous scars. – Conidia 160–250 × 3–4 µm, hyaline, narrowly obclavate to acicular, 5- to 20-septate, smooth, thin-walled and often flexuous, truncate at the base, with a thickened hilum.

Host species. – *Piper capense* L.f. (Piperaceae). This is a widespread species throughout eastern and southern Africa, which was targeted as a relative of *P. guineense* Schum. & Thonn., which has a very restricted distribution in Kenya (Beentje, 1994).

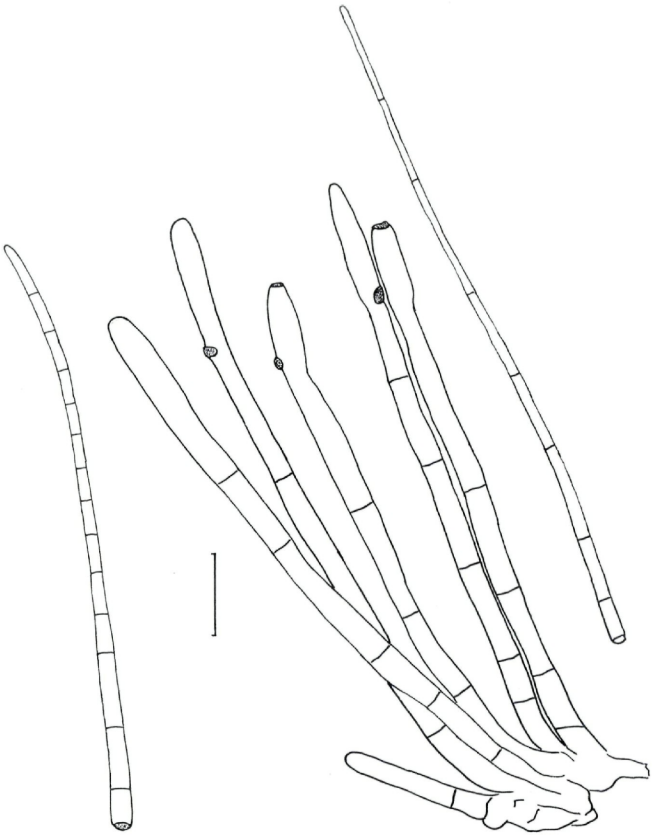

Fig. 1. – *Cercospora* sp. on *Piper capense*, conidiophores and conidia. – Bar = 20 µm.

Material examined. – KENYA: Gakoe Forest, 11 km from Kieni Forest Station towards Thika along the Naivasha – Thika road, on forest edges next to a tea plantation, on dead attached leaves of *Piper capense*, 14 Jun. 1999, G. M. Siboe (NAI(M) 1293).

This is the first record of a true species of *Cercospora* on a *Piper* host, after the redisposition of *Cercospora piperina* J.M. Yen, *C. piperis* Pat. and *C. piperis-muricata* J.M. Yen to *Pseudocercospora* Speg. (Deighton, 1976; Yen & Lim, 1980).

Cercospora apii s.lat. on *Impatiens* spp. – Fig. 2.

Lesions circular, brown to tan, necrotic, with a raised dark brown or reddish-purple border. – Colonies amphigenous, effuse, greyish, with small crowded tufts of conidiophores. – Mycelium immersed. – Basal stroma 20–40 µm diam., ± pulvinate, composed of thick-walled dark brown *textura angularis*, with many cells. – Conidiophores 80–115 µm long, 4–5 µm wide at the base, well differentiated from vegetative hyphae, fasciculate in groups of up to 20 but not synnematous, straight or flexuous, often geniculate, unbranched, olivaceous brown, smooth. – Conidiogenous cells derived from terminal cells of the conidiophores with little differentiation, ± cylindrical, proliferating sympodially, with conspicuous scars. – Conidia 75–215 × 2.5–5 µm, tapering to 1–1.5 µm wide at the apex, hyaline, acicular, 8- to 25-septate, smooth, thin-walled and often flexuous, truncate at the base, with a conspicuous dark thickened hilum.

Host species. – *Impatiens* spp. (Balsaminaceae): *I. engleri* subsp. *pubescens* Grey-Wilson is endemic to Ngangao Forest in the Taita Hills, Kenya. *I. fischeri* Warb. is endemic to Kenya, and restricted to wet highland forests at 2000–3000 m alt. in the Aberdares National Park and Gakoe Forest. *I. hoehnelii* T.C.E. Fr. is also endemic to Kenyan forests, in upper levels between 1500 and 3470 m alt., and is common in the Cherangani ranges (Agnew & Agnew, 1994; Grey-Wilson, 1982).

Material examined. – KENYA: Taita Hills, Ngangao Forest, 50 m into the forest from the western side (forest station side) along the nature trail towards Mugamboni road to the east, on living leaf of *Impatiens engleri*, 18 Mar. 1999, G. M. Siboe (NAI(M) 1244); Cherangani Hills, on living leaf of *Impatiens hoehnelii*, 23 Jul. 1997, G. M. Siboe 61 (NAI(M) 3917); Naivasha – Thika Road, 7 km from Kieni Forest Station, 50 m along a track into the forest, on living leaves of *Impatiens fischeri*, 14 Jun. 1999, G. M. Siboe (NAI(M) 1294).

No species of *Cercospora* has previously been reported on these plant species, although there is a specimen in **IMI** from Kenya on an unidentified species of *Impatiens* which probably belongs here, and which was referred to as *C. nojimae* Togashi & Katsuki (Kung'u & Boa, 1997). A comparison of *Cercospora* species recorded on members of the Balsaminaceae is given in Tab. 1. All of these fall morphologically in the *Cercospora apii* complex, and variation in spore dimensions is not convincingly significant. We note in particular that *Cercospora fukushiana* (Matsuura) W. Yamam. and *C. balsaminiana* J. M. Yen & Lim may be synonyms because the distinctions (epigenous versus amphigenous fruiting, and conidiophores with differing

Tab. 1. – Comparison of *Cercospora* species with hyaline, acicular, truncate conidia with a conspicuous scar at the base, on hosts in *Balsaminaceae*.

***Cercospora* species**	**Host plant**	**Conidiophores**	**Conidia**	**Reference**
Cercospora sp.	*Impatiens engleri*, *I. fischeri*, *I. hoehnelii*	80–115 × 4–5 µm, fasciculate (clusters of up to 20)	75–215 × 2.5–5 µm, tapering to 1–5 µm, 8- to 25-septate	This paper
C. nojimae Togashi & Katsuki	*Impatiens* sp.	25–40 × 2.5–4 µm	50–90 × 2.5–4 µm	Chupp (1954)
C. fukushiana (Matsuura) W. Yamam.	*Impatiens balsamina*	10–120 × 4–6 µm	30–140 (–230) × 3–4.5 µm	Chupp (1954)
	Impatiens spp.	50–120 × 4–6 µm	30–180 × 3–4 µm	Ellis (1976)
C. balsaminiana J. M. Yen & Lim	*Impatiens balsamina*	15–40 × 4.5–6 µm	60–310 × 2.5–4.5 µm	Yen & Lim (1980)

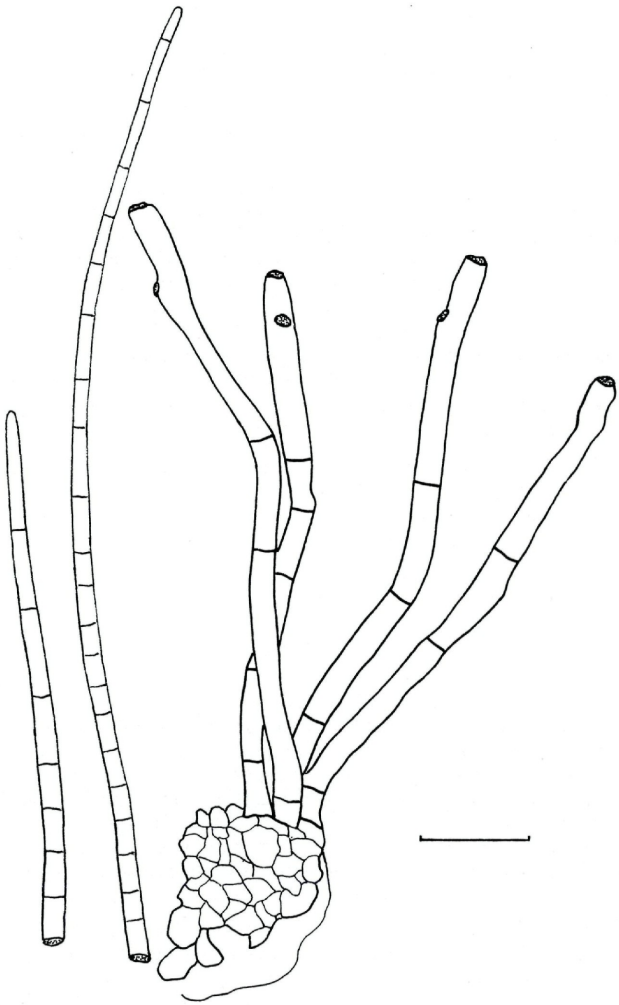

Fig. 2. – *Cercospora* sp. on *Impatiens*, conidiophores and conidia. – Bar = 20 µm.

septation) used by Yen & Lim (1980) to separate the two species are likely to be environmentally influenced.

Cercospora sp. on *Leptactina platyphylla*. – Fig. 3.

Lesions large, ± circular, brown to olivaceous or tan, necrotic. – Colonies amphigenous, effuse, greyish, with small crowded tufts of conidiophores. – Mycelium immersed. – Basal stroma 20–40 µm diam., ± pulvinate, composed of thick-walled dark brown *textura angularis*, with many cells. – Conidiophores 20–50 µm long, 4–5 µm wide at the base, well differentiated from vegetative hyphae, fasciculate but not synnematous, straight, sometimes geniculate, unbranched, non-septate, olivaceous brown, smooth. – Conidiogenous cells derived from terminal cells of the conidiophores with little differentiation, ± cylindrical, proliferating sympodially, with conspicuous scars. – Conidia 70–150 × 3–4 µm, tapering to 1–2 µm wide at the apex, hyaline, acicular, 3- to 15-septate, smooth, thin-walled and often flexuous, truncate to conico-truncate at the base, with a conspicuous dark thickened hilum.

Host species. – *Leptactina platyphylla* (Hiern) Wernh. (Rubiaceae). This has a disjunct distribution in Kenya, being known from Kakamega Forest in western Kenya and the Shimba Hills region in the far south east (Beentje, 1994).

Material examined. – KENYA: Kwale, Shimba Hills National Park, Makadara Forest, on leaves of *Leptactina platyphylla*, 28 Mar. 1999, G. M. Siboe (NAI(M) 4374).

A number of *Cercospora* species have been reported on leaves of Rubiaceae, especially from SE Asia and the Indian subcontinent. Some (e.g. *C. coffeicola* Berk. & Cooke) appear to be widespread throughout the tropics (Mulder & Holliday, 1974; Ellis, 1976), and the fungus on *Leptactina* is not reliably separable from this 'species' on morphological grounds. There is a possibility that it may be an invasive species from surrounding agriculture, but it was not present on other members of the Rubiaceae (including wild *Coffea* species) in the vicinity of the collection site. Our fungus is compared with descriptions of *Cercospora* species with hyaline, acicular conidia reported on Rubiaceae in Tab. 2.

Cercospora extensa G. Siboe, P. F. Cannon & P. M. Kirk, **sp. nov.** – Fig. 4.

Coloniae effusae, fumosae vel olivaceae, amphigenae. Mycelium immersum, stromata multicellularia. Conidiophora 300–600 µm longa, 4–6 µm lata, macronematosa, fascicularia, non synnematosa, flexuosa, geniculata, parce ramosa,

Tab. 2.– Comparison of *Cercospora* species with hyaline, acicular conidia with a conspicuous scar at the base, on hosts of the *Rubiaceae*.

Cercospora species	Host plant	Conidiophores	Conidia	Reference
Cercospora sp.	*Leptactina platyphylla*	20–50 × 4–5 µm, fasciculate, geniculate	70–150 × 3–4 µm, base conico-truncate	This paper
C. coffeicola Berk. & M. A. Curtis	*Coffea arabica*	50–90 × 4–6 µm, fasciculate	50–100 × 3–4.5 µm, base truncate	Ellis (1976)
C. oldenlandiae Hansf.	*Borreria sinensis*, *Oldenlandia* sp.	30–100 × 4–5 µm, fasciculate	40–80 × 3–4.5 µm, base truncate	Chupp (1954)
C. oldenlandiicola Govindu & Thirumalachar	*Oldenlandia* sp.	10–20 × 3–7 µm	21–78.5 × 2–3 µm, base truncate	Govindu & Thirumalachar (1955)
C. *diodiae-virginiana* G.F. Atk.	*Diodia virginiana*	40–250 × 4.5–6 µm, fasciculate	20–350 × 2.5–4 µm, base truncate	Chupp (1954)
C. paederiicola Y.L. Guo	*Paederia scandens*	30–215 × 4–6 µm, fasciculate	70–365 × 3–5 µm, base truncate	Guo (1991)
C. borreriae-strictae Bagyan., Jagad. & U. Braun	*Borreria stricta*	30–140 × 3–6 µm, fasciculate	50–250 × 2–4 µm, base truncate	Bagyanarayana *et al.* (1991)
C. adiniana R.K. Srivast., S. Narayan & A.K. Srivast.	*Adina cordifolia*	103–173 × 2.5–4.5 µm, fasciculate	34–245 × 2–3 µm, base truncate	Srivastava *et al.* (1994)
C. adinae T.S. Ramakr. & K. Ramakr.	*Adina cordifolia*	15–50 × 4–7 µm, sometimes branched	54–84 × 4–7 µm, base truncate	Ramakrishnan & Ramakrishnan (1947)
C. pentatis R.C. Rajak	*Pentas lanceolata*	72–350 × 5–8 µm, fasciculate	60–175 × 4–6 µm	Rajak (1980)

brunnea vel olivacea, laevia, ad 20-septata. Cellulae conidiogenae cylindricae, in conidiophoris incorporatae, sympodiales, cicatricibus conspicuis instructae. Conidia 80–210 × 3–4 µm, 10- ad 17-septata, hyalina, acicularia, basi truncata, hilo crasso instructa.

Typification. – KENYA: Taita Hills, eastern side of Ngangao Forest along the nature trail to Kwanyiro village from the forest station, on living leaves of *Lobelia gibberoa*, 19 Mar. 1999, G. M. Siboe, NAI(M) 1265.

Etymology. – *extensa*: in reference to the extended conidiophores of the fungus.

Lesions poorly differentiated, somewhat paler than the surrounding leaf tissue but still green. – Colonies amphigenous, effuse, greyish to olivaceous brown, with small crowded tufts of conidiophores. – Mycelium immersed. – Basal stroma 30–45 µm diam., ± pulvinate, composed of thick-walled dark brown *textura angularis*, with many cells. – Conidiophores 300–600 µm long, 4–6 µm wide at the base, to *ca* 20-septate, well differentiated from vegetative hyphae, in dense fascicles but not synnematous, mostly flexuous, sometimes geniculate, rarely branched, brown or olivaceous brown, smooth. – Conidiogenous cells derived from terminal cells of the conidiophores with little differentiation, ± cylindrical, proliferating sympodially, with conspicuous scars. – Conidia 80–210 × 3–4 µm, hyaline, ± acicular but usually tapering gradually from near the base to the apex, 10- to 17-septate, thin-walled and often flexuous, truncate at the base, with a thickened hilum.

Host species. – *Lobelia gibberoa* Hemsl. (Campanulaceae subfam. Lobelioideae). This is a widespread species within Kenya, but with a distribution restricted to forest margins, secondary forests, and swamp forests or riverine forests at 1200–3000 m alt. (Beentje, 1994).

No species of *Cercospora* has previously been recorded associated with species of *Lobelia* in Africa, and the arborescent taxa of the host are systematically isolated (Knox & Palmer, 1998). Species on other members of the Campanulaceae are unlikely to be comparable as *Lobelia* is itself taxonomically isolated, separated from other genera at least at subfamily rank (Mabberley, 1987) and often given its own family (e.g. Beentje, 1994). The nutrition of this species appears to be at least partially biotrophic and we consider, therefore, that it is likely to be host-limited. Its primary distinguishing feature is its conspicuously extended conidiophores, longer than might be

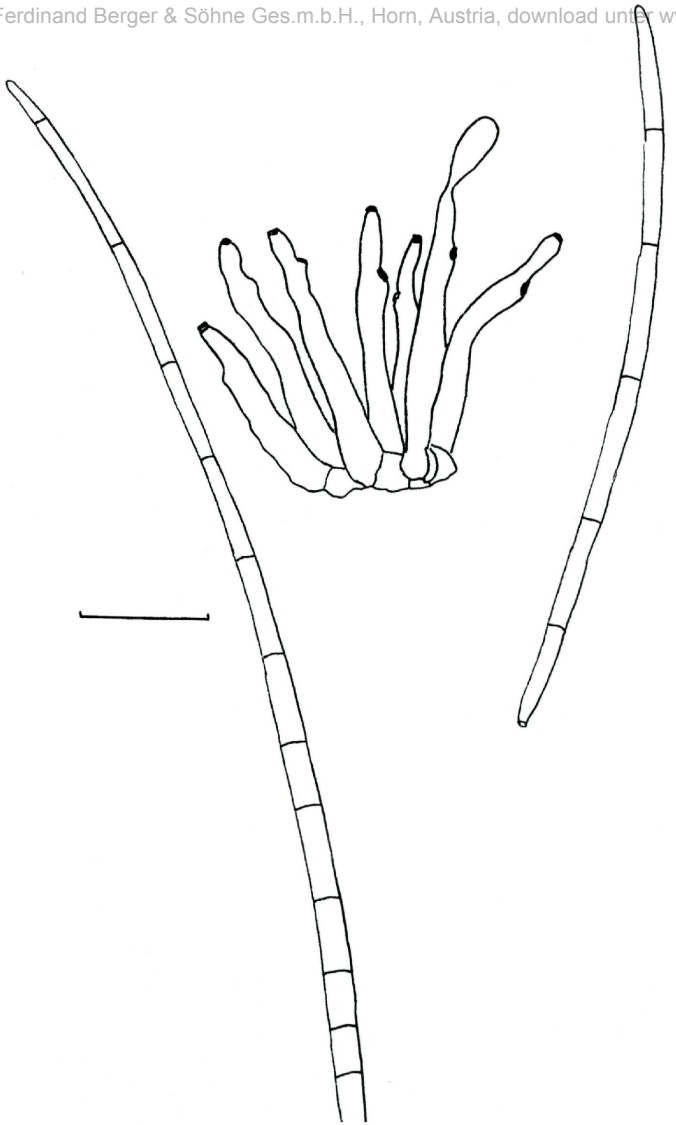

Fig. 3. – *Cercospora* sp. on *Leptactina platyphylla*, conidiophores and conidia. – Bar = 20 µm.

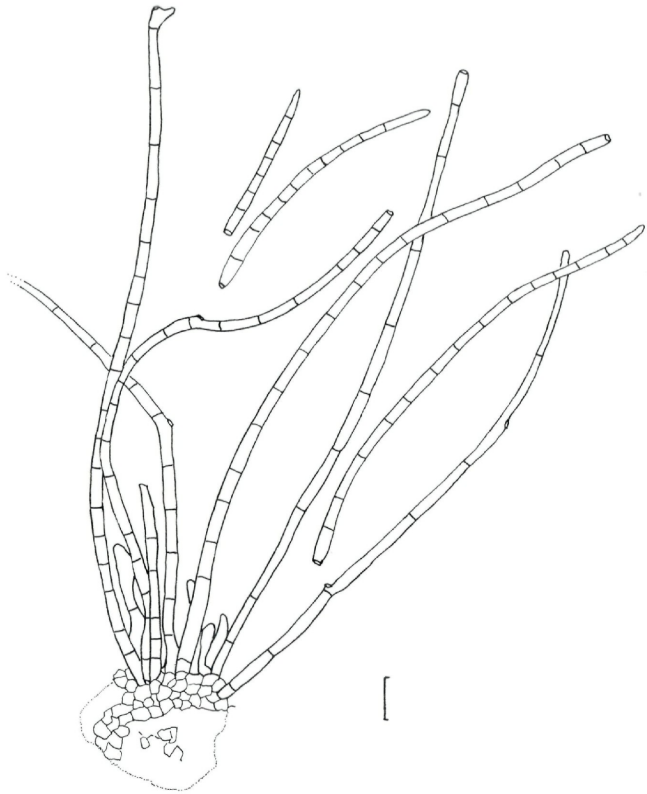

Fig. 4. – *Cercospora extensa*, conidiophores and conidia. – Bar = 20 µm.

expected due to environmental conditions. Only one other species of *Cercospora* has been associated with *Lobelia*, *Cercospora lobeliae* Kellerman & Swingle (reported from Brazil and the USA on *Lobelia amoena* Michx., *L. spicata* Lam. and *L. syphilitica* L.; Chupp, 1954). This has conidiophores only one fifth to one half the length of those of *C. extensa*, though quoted conidial dimensions (50–175 × 3–4.5 µm) are comparable.

Cercosporella euphorbiacearum G. Siboe & J. C. David, **sp. nov.** – Fig. 5.

Coloniae effusae, velutinae, plerumque epiphyllae, cineraceae vel brunneolae. Mycelium primarium immersum, mycelium secundarium superficiale, hyalinum, aggregationes conidiophorum gerens. Conidiophora 10–20 µm longa, 3–4 µm lata, recta, plerumque non-septata, laevia, hyalina. Cellulae conidiogenae in conidiophoris incorporatae, sympodiales, subcylindricae, cicatricibus incrassatis sed non pigmentatis (ut per microscopium refractae apparent) praeditae. Conidia (10–) 14–31 × 2–3 µm, subcylindrica vel obclavato-cylindrica, uni- ad triseptata, hyalina, laevia.

Typification. – KENYA: Taita Hills, Ngangao Forest, about 500 m from the forest station on the western side of the forest along the west-east nature trail through the forest, on leaves of *Zimmermania ovata*, 19 Sep. 1999, G. M. Siboe 187 (NAI(M) 4379).

Etymology. – *euphorbiacearum* – derived from the host family Euphorbiaceae.

Lesions greyish to pale olivaceous brown, ± circular to irregular, with a darkened margin, mostly towards the leaf margin. – Colonies mostly epiphyllous, effuse, velvety, greyish-white to pale brown. – Primary Mycelium immersed, secondary mycelium superficial, septate, branched, colourless, forming small hyphal mats bearing clusters of conidiophores. – Conidiophores 10–20 µm long, 3–4 µm wide at the base, mostly aseptate, not well differentiated from secondary mycelium, arising terminally or as lateral branches from the secondary mycelium, ± sub-hyaline, smooth. – Conidiogenous cells derived from terminal cells of the conidiophores with little or no differentiation (often indistinguishable), ± cylindrical, proliferating sympodially, slightly geniculate, conidiogenous loci thickened but not pigmented (refractive). – Conidia (10–) 14–31 × 2–3 µm, hyaline, ± cylindrical or slightly obclavate-cylindrical, tapering towards both ends, widest point usually somewhat below the centre, the apex acute and the base truncate with a slightly thickened but unpigmented scar, 1- to 3-septate, ± straight, smooth.

Host species. – *Zimmermannia ovata* E.A. Bruce (Euphorbiaceae). This species is endemic to the drier parts of Ngangao Forest in the Taita Hills (Beentje, 1994), and its conservation status has been formally considered to be vulnerable.

This fungus belongs in the genus *Cercosporella* because of its more or less colourless mycelium, conidiophores and conidia, and the

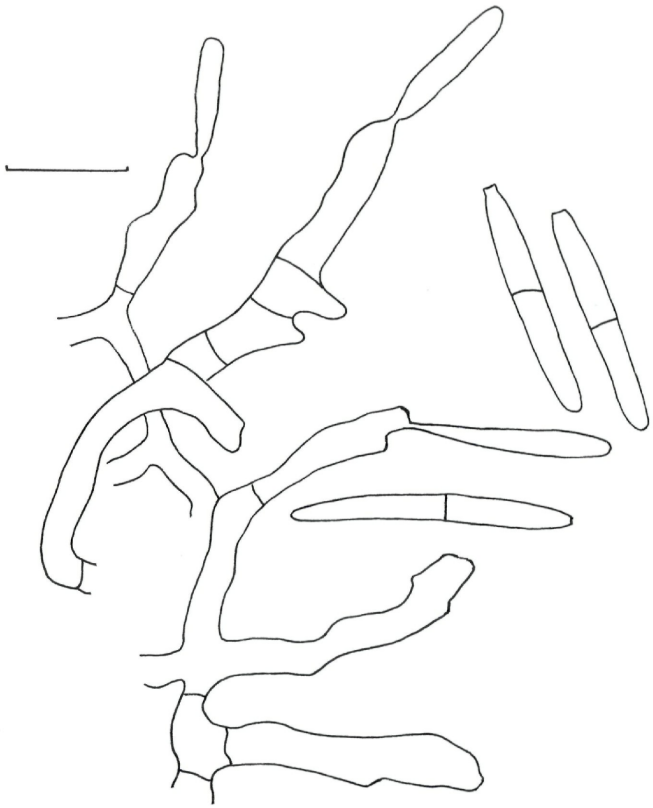

Fig. 5. – *Cercosporella euphorbiacearum*, conidiophores and conidia. – Bar = 10 µm.

presence of thickened and unpigmented conidiogenous scars and conidial hila. It can be assigned to *Cercosporella* subgen. *Pseudovellosiella* Braun (1995) because it has superficial secondary mycelium from which the conidiophores arise. One other species of *Cercosporella* has been reported from the Euphorbiaceae, *C. pseudoidium* Speg., which was described from leaves of *Manihot* in Brazil. This fungus was transferred to *Mycovellosiella* (Braun, 1993) and subsequently accepted as a species of *Cercosporella* (Braun, 1995)

belonging in subgen. *Pseudovellosiella*. Although these species closely resemble *Mycovellosiella* they are distinct in that in *Mycovellosiella* the condiophores arise as short lateral outgrowths of the vegetative mycelium as an adaptation to their close association with leaf hairs. Species of *Mycovellosiella* are generally pigmented although one species, *M. abscondita* Deighton (1974), is sub-hyaline. This species, found amongst the leaf hairs of *Triumfetta*, is in all other respect a typical *Mycovellosiella*. The two species of *Cercosporella* on Euphorbiaceae can, apart from the host, be separated on conidial dimensions; *C. pseudoidium* has conidia (4–) 5–6 µm wide whereas in *C. euphorbiacearum* they are 2–3 µm wide.

Phaeoramularia isolonae G. Siboe, P. M. Kirk & P. F. Cannon, **sp. nov.** – Fig. 6.

Coloniae effusae, olivaceae, amphigenae. Mycelium immersum. Conidiophora 120–200 (–250) µm longa, 3–4 µm lata ad basim, numerosa, macronematosa, mononematosa, fascicularia parce ramosa, recta vel flexuosa, brunnea, laevia. Conidia 30–70 × 3–4 µm, subcylindrica vel filiformia, 2- ad 7-septata, subhyalina, aliquando catenata.

Typification. – KENYA: Kwale, Shimba Hills National Park, Makadara Forest, on living leaves of *Isolona cauliflora*, 21 Sep. 1999, G. M. Siboe (NAI(M) 4384).

Etymology. – *isolonae* – in reference to the host genus *Isolona*.

Lesions ± circular, poorly differentiated, greyish to dark brown. – Colonies amphigenous, effuse, greyish to olivaceous brown, with small crowded tufts of conidiophores. – Mycelium immersed. – Basal stroma hardly developed. – Conidiophores 120–200 (–250) µm long, 3–4 µm wide at the base, 2- to 5-septate, well differentiated from vegetative hyphae, in dense fascicles but not synnematous, mostly flexuous and sometimes intertwining, loosely branched, brown, smooth or faintly roughened. – Conidiogenous cells derived from terminal cells of the conidiophores with little differentiation, ± cylindrical, proliferating sympodially, with conspicuous darkened scars. – Conidia 30–70 × 3–4 µm, pale brown to subhyaline, ± cylindrical, occasionally catenate, 2- to 7-septate, thin-walled, ± straight, smooth, the ends rounded.

Host species. – *Isolona cauliflora* Verdc. (Annonaceae). This species has a highly restricted distribution, known only from the Shimba Hills in south-eastern Kenya and the neighbouring Usambara Mountains in Tanzania (Verdcourt, 1971; Beentje, 1994). Its

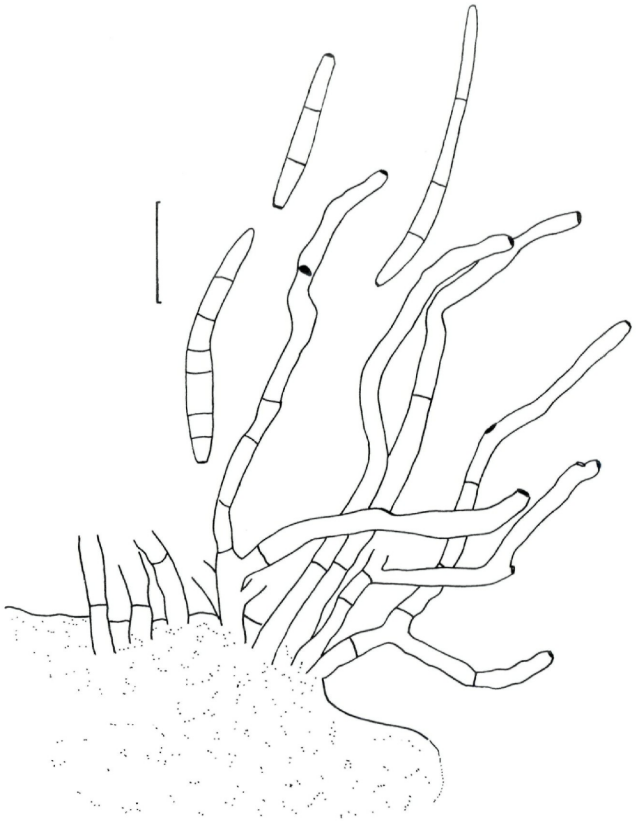

Fig. 6. – *Phaeoramularia isolonae*, conidiophores and conidia. Note conidium with scar at each end indicating catenation. – Bar = 20 µm.

conservation status has been determined as vulnerable, due to threats of deforestation.

No species of *Phaeoramularia* has previously been recorded on a member of the Annonaceae (Deighton, 1976, 1979; Ellis, 1976; Hsieh & Goh, 1990; Braun, 1998), and no *Cercospora*-like fungus has been described from that host family which might be confused with the one described here. The most similar appears to be *Pseudocerco-*

spora aethiopicae Deighton (on *Xylopia aethiopica* A. Rich. from Sierra Leone; Deighton, 1979), but that species has a well-developed basal stromatic cushion, much shorter conidiophores which are slightly denticulate and not cicatrized, and flexuous conidia.

Scolecostigmina lageniformis G. Siboe, P. M. Kirk & P. F. Cannon, **sp. nov.** – Fig. 7.

Coloniae fuscae vel nigrae, epiphyllae. Mycelium immersum. Stromata immersa, pseudoparenchymatosa. Conidiophora 10–30 × 4–6 µm, macronematosa, mononematosa, sporodochialia, lageniformia, olivacea, annellata. Cellulae conidiogenae monoblasticae, in conidiophoris incorporatae, percurrentes. Conidia 20–100 × 8–14 µm, solitaria, obclavata, rarius clavata, recta, sigmoidea vel geniculata, ad basim truncata, 5- ad 15-septata, interdum 1–2 septis longitudinalibus instructa.

Typification. – KENYA: Taita Hills, Ngangao Forest, Kwanyiro village, on a farm at the edge of the forest, on living leaves of *Millettia oblata* subsp. *teitensis*, 19 Sep. 1999, G. M. Siboe (NAI(M) 4383).

Etymology. – *lageniformis:* lageniform, in reference to the flask-shaped conidiophores.

Colonies brown to black, epiphyllous, forming on circular to angular brown lesions. – Mycelium immersed. – Stroma immersed, inconspicuous, composed of a small cluster of pseudoparenchymatous cells. – Conidiophores 10–30 × 4–6 µm, well differentiated from vegetative mycelium, sporodochial, lageniform, olivaceous brown, proliferating percurrently with up to 4 annellations. – Conidia 20–100 µm long, 8–14 µm wide at the broadest part, 4–8 µm wide at the base, 5- to 15-septate, sometimes with 1–2 longitudinal or oblique septa, solitary, dry, acrogenous, simple, mostly obclavate, a few ± clavate; straight, curved, sigmoid or geniculate, truncate at the base, occasionally rostrate with a pale apical cell.

Host species. – *Millettia oblata* subsp. *teitensis* Gillet. This is a vulnerable species, endemic to Taita Hills in moist evergreen forest, 1400–1850 m alt.

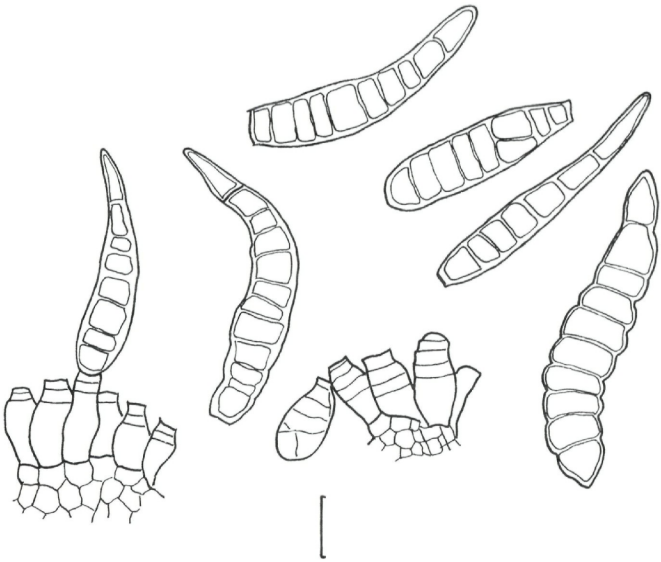

Fig. 7. –*Scolecostigmina lageniformis*, conidiophores and conidia. – Bar = 10 µm.

Scolecostigmina lageniformis is quite different from other species of *Stigmina sensu lato* reported on *Millettia* (*S. bahraichiae* A. K. Singh & Kamal, 1985; *S. millettiae* M. B. Ellis, 1972) because of the short lageniform rather than cylindrical conidiophores and the long curved, sigmoid conidia which are often rostrate with a hyaline apical cell. The conidia approximate to those of *S. piliostigmatis* M. B. Ellis (1959, 1976), which occurs in Sudan and Zambia on *Piliostigma*, a caesalpinioid legume close to *Bauhinia* (Brenan, 1967). The conidiogenous cells of that species, however, are elongate and ± cylindrical rather than short and lageniform. The conidiophores of *S. lageniformis* are smooth and this character separates it from *S. mangiferae* (Koord.) U. Braun & Mouch., the type species of *Scolecostigmina* (Braun et al., 1999).

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