

A Reassessment of *Sporidesmium* (Hyphomycetes) and some Related Taxa*

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The paper presents a re-appraisal of the hyphomycete genus, *Sporidesmium* Link and some related taxa. Notwithstanding the valuable stride taken by M.B. Ellis in retrieving this genus and efforts towards bringing together species that are congeneric, the present circumscription of the genus seems unusually broad so that, in time, we have ended up in a heterogeneous assemblage of species under one generic name. A re-appraisal of the genus was therefore urgently needed. Criteria such as euseptation/pseudoseptation of conidia, the nature, regularity and other features of percurrent proliferation of conidiophores, and the presence or absence of conidiophores are considered to be important and of diagnostic value in any such appraisal. In this re-appraisal, the genus *Sporidesmium* is accepted for species congeneric with *S. ehrenbergii* M.B. Ellis which is considered to be congeneric with the type species, *S. atrum* Link: these species have non-hyphopodiate mycelium, simple, non-proliferating conidiophores or conidiophores with irregular percurrent proliferations; the conidia are solitary, gangliar, acrogenous and euseptate. Species with the same features, but with pseudoseptate conidia, are disposed in a new genus *Ellisembia*. Species with conidiophores which are characterised by terminal annellate conidiogenous cells form another group: in this group, those with euseptate conidia are placed in a new genus, *Repetophragma*, and those with pseudoseptate conidia are placed in *Sporidesmiella* Kirk. Species with conidiophores with characteristic lageniform, doliiform or nodose percurrent proliferations form yet another group: species in this group with euseptate conidia are accommodated in a new genus, *Penzigomyces*; for those with pseudoseptate conidia, the genus *Polydesmus* Mont. is suggested as a possible repository. Finally, a few species in *Sporidesmium* in which conidiophores appear to be absent and the conidia that are euseptate are produced directly on simple conidiogenous cells are removed from *Sporidesmium* and placed in a new genus, *Stanjehughesia*. A key to these genera is given and species considered to belong to each of these genera are listed. The following are accepted in the various genera: 26 species in *Sporidesmium*, 12 in *Ellisembia*, 5 in *Stanjehughesia*, 9 in *Repetophragma*, one in *Sporidesmiella*, 13 in *Penzigomyces* and 3 in *Polydesmus*.

Five other *Sporidesmia* are re-disposed on the same or other criteria. *Sporidesmium arengae* Matsushima is placed in a new genus *Acarocybellina*, as *A. arengae* (Matsushima) comb. nov.; *Sporidesmium casuarinae* Matsushima is re-classified in a new genus *Gangliophora* as *G. casuarinae* (Matsushima) comb. nov.; and *Sporidesmium guadalcanalense* Matsushima is placed in a new genus, *Hemicorynesporella* as *H. guadalcanalense* (Matsushima) comb. nov. A *Sporidesmium* sp. (MFC 1572) described, but not named, by Matsushima is assigned to the genus *Janetia* M.B. Ellis as a new species, *J. matsushimae*. The paper also introduces two new species in *Sporidesmium* (*S. matstauashiae* and *S. takashiae*) for *Sporidesmium* spp. described, but not named, by Matsushima.

Key Words: *Sporidesmium*; Hyphomycete, Taxonomy

*The work was carried out as part of the work under the senior scientist scheme.

Introduction

The genus *Sporidesmium* Link (1809) was retrieved and redescribed by Ellis (1958) who, over a period of years, described several species, culminating in the publication of most valuable accounts of these fungi in his "Dematiaceous Hyphomycetes" (1971, pages 116-122) and "More Dematiaceous Hyphomycetes" (1976, pages 76-98). This is the most comprehensive account of *Sporidesmium* yet available.

The type (*Sporidesmium atrum* Link) and some of the classical species were from Europe, mostly on wood. Many taxa described since and compiled in this genus are from the tropics and have been collected on a variety of substrata including some known to be occurring as overgrowths on various fungi. The sixty-four species accepted by Ellis (Ellis 1971, 1976) and the several species described from time to time by various authors in recent years taken together present an extraordinary variety and diversity of features resulting in a broad generic concept that perhaps has outlived its usefulness. There is no denying a great stride was taken when Ellis circumscribed the genus following his study, and his was a genuine attempt to collect within one basket all species that are congeneric. There are undoubtedly innumerable species in the tropics that one might add to the same basket, but one cannot escape noticing the fact that some of these and several now placed in *Sporidesmium* have rather distinctive and diagnostic features that do not necessarily tally with those that characterise *S. ehrenbergii* M.B. Ellis which Ellis (1958) considered to be congeneric with the type species *S. atrum* Link. However, broadening of the generic concept beyond a certain point may eventually lead to a shattering of the clear circumscription that is the logical outcome of elucidation of the generic characters from study of type or authentic material. Clearly, this is not desirable. I believe a re-assessment of *Sporidesmium* is now due and in this paper I have tried to give such an assessment. What is set forth here may open the way for further refinements.

What is Sporidesmium?

In the absence of type material of the type species, *Sporidesmium atrum* Link (Ellis 1958, Hughes 1958), it is difficult, if not impossible, to circumscribe the genus in a precise manner. What is feasible is to rely on the specimen in Persoon's herbarium at Leiden labelled by Ehrenberg '*Sporidesmium fusiforme* Nees ab Essen.—*Sporidesmium atrum* Link var. *teste* Link'. To quote Ellis (1958, p. 16): "Link almost certainly saw a part of this specimen; and in the absence of the type or any authentic collection of *S. atrum* it serves to indicate the characters upon which he based his genus *Sporidesmium*. In 1918, Ehrenberg referred to this specimen on p. 9 of his *Silvae Mycologicae Berolinensis*. It is not *S. fusiforme*, however, and is described in this paper under the name "*Sporidesmium ehrenbergii*".

The diagnostic features of *Sporidesmium ehrenbergii* are: the simple, septate conidiophores and the solitary, gangliar, thick-walled, euseptate conidia. The conidiophore may proliferate percurrently to produce further solitary conidia.

A great many fungi do show such percurrent conidiophore proliferations that are irregular and, perhaps, such *irregular* proliferations have no special taxonomic significance.

Reappraisal: Criteria and Rearrangement

Over a period of years I have often wondered if eu-, or disto-(pseudo-)septation of conidia would merit recognition as a useful diagnostic criterion. Perhaps not, but when we come to deal with a large assortment of taxa as is now the case with *Sporidesmium*, it may not be inappropriate if we give this feature some importance. For example, consider the genus *Drechslera* Ito (and some of its modern segregates) as currently circumscribed, and one notes at once the homogeneity and coherence that pseudo-septation of conidia imparts to the taxa which are accommodated in this genus. Relevant to this discussion is the case of *Sporidesmium scirpicola* Fuckel which has been moved hither and thither and placed in different anamorph genera from time to time about which

Simmons (1989) commented as follows, and I quote: "My notes on the isotype of the anamorph recall a consensual conversation with K. Pirozynski and B. Sutton about 25 years ago to the effect that there was no published genus suitable for the species at that time, and that it and a few similar anamorphs might best be consolidated under a new genus name. My opinion on the point has not changed, although I have in the past wavered toward using an expanded concept of *Drechslera* to accommodate these anamorphs. I speculate that the long-tapered conidium apex, the presence of some constricting eusepta, and the tendency to production of conidial chains have been a combination of characters too miscellaneous for consideration in *Drechslera*, but acceptable, at least superficially, in *Alternaria*. I find the combination of characters unacceptable in either genus". There was thus justification for accommodating *Sporidesmium scirpicola* (currently in *Alternaria*) and a few other taxa in a new genus *NIMBYA* Simmons (Simmons 1989). Returning to *Sporidesmium*, two classical species which are held to be congeneric with *Sporidesmium ehrenbergii*, viz. *S. fusiforme* Nees and *S. vagum* Nees, by Ellis (1958) and Hughes (1958) have conidia that are typically pseudoseptate. And there are several others that are clearly congeneric on this count with *S. fusiforme* and *S. vagum*, but not with *S. ehrenbergii*. At present, they have been kept together in the same basket both by Ellis and by Hughes. Quite clearly, this needs review.

There is considerable variation in the general aspect of conidiophores and conidiophore proliferation, despite the fact that conidiophores are mostly simple and proliferations mostly percurrent. There are species in which the conidiophore does not proliferate at all. In species in which the conidiophore shows percurrent proliferations, one can distinguish distinct types of these proliferations on the basis of special features. In *Sporidesmium ehrenbergii*, these percurrent proliferations, as already noted, are irregular and the accompanying 'annellations' are also irregular. Perhaps one should not attach much

taxonomic significance to such irregular conidiophore proliferations. On the other hand, in some species the annellations are regular and close on each other as in a typical *annellide*. Whether they are true annellides of the *Scopulariopsis* type ultrastructurally and otherwise, I do not know. The conidiogenous cell in these species is certainly very close to, but perhaps not identical with, an annellide such as occurs in a *Spilocaea* or a *Stigmina*. Could these species be segregated from species in which the percurrent proliferations of conidiophores are irregular? Yet another group of species has conidiophores with characteristic doliiform, lageniform, ovoid or subglobose or nodose percurrent proliferations. What is it that contributes to the clearly distinct feature of these proliferations which, for the species in which they occur, seem to be uniform and consistent?

In this assessment of *Sporidesmium*, then, primary attention is being focussed on the euseptate or pseudoseptate nature of the conidium and distinctive features of conidiophore proliferation, in an effort to arrive at a redistribution of the taxa reflecting our present knowledge of this interesting group.

As a result, several taxa treated by Ellis and by Hughes are now redispersed in seven genera, viz., *Sporidesmium* Link, *Polydesmus* Mont., *Sporidesmiella* Kirk, *Stanjehughesia* gen. nov., *Repetophragma* gen. nov., *Penzigomyces* gen. nov., and *Ellisembia* gen. nov.. The following key serves to highlight the main differences on which these genera can be easily distinguished.

Key to the Genera

Conidia euseptate

Conidiophores absent,
conidia on conidiogenous
cells ... *STANJEHUGHESIA*

Conidiophores present

Conidiophore proliferations
none or percurrent and
irregular ... *SPORIDESMIUM*

Conidiophores terminally
annellate ... *REPETOPHRAGMA*

- Conidiophores with lageniform, ovoid, doliform or nodose percurrent proliferations. . . *PENZIGOMYCES*
- Conidia Pseudoseptate
- Conidiophore proliferations none, or percurrent and irregular . . . *ELLISEMBIA*
- Conidiophore terminally annellate . . . *SPORIDESMIELLA*
- Conidiophores with lageniform, Ovoid or doliform percurrent proliferations . . . *POLYDESMUS*

It has not been possible to make this account more comprehensive than what it is. Several taxa need further study before they can be considered. I believe many of the taxa not included here would eventually fall into one or the other genera here recognized, but there are a few taxa in *Sporidesmium*, not dealt with by Ellis (1971, 1976), and some of these are being taken up later in this paper after a consideration of the taxa that are accommodated in the seven genera already mentioned.

The Genera and the Species

SPORIDESMIUM Link 1809 (*Mag. Ges. nat. Freunde*, Berlin 3 p. 41)

The circumscription of the genus *Sporidesmium* Link, in practice, will rest on the features seen in *S. ehrenbergii* M.B. Ellis for which type material exists and this species has been described and illustrated. Apart from the non-hyphopodiate nature of the vegetative mycelium, the key features of this species are its simple, brown, septate conidiophores and the acrogenous, solitary, gangliar, euspetate conidia. The conidiophores may show irregular percurrent proliferations.

The lectotype species of the genus *Podoconis* Boedijn, viz., *P. theae* (Bern.) Boedijn is considered to be a *Sporidesmium* and is a superfluous name (Hughes 1958, Ellis 1958).

The Species

- 1 *S. anglicum* (Grove) M.B. Ellis 1958 *Mycol. Pap.* 70 60-61
- 2 *S. atrum* Link. 1809 *Mag. Ges. naturf. Freunde*, Berlin 3 41 (Type species)

- 3 *S. bombacis* M.B. Ellis 1958 *Mycol. Pap.* 70 80-81
- 4 *S. cajani* M.B. Ellis 1959 *Mycol. Pap.* 72 73-74
- 5 *S. ehrenbergii* M.B. Ellis 1958 *Mycol. Pap.* 70 63-64
- 6 *S. eucalypti* M.B. Ellis & D Shaw 1959 *Mycol. Pap.* 72 74-75
- 7 *S. flagelliforme* Matsushima 1975 *Icones Microfungorum a Matsushima lectorum* p. 137, Pl. 130, 2, 134, 4
- 8 *S. fragillissimum* (Berk. & Curt.) M.B. Ellis 1958 *Mycol. Pap.* 70 55-56
- 9 *S. ghanaense* M.B. Ellis 1958 *Mycol. Pap.* 70 50-51
- 10 *S. hourniense* B.C. Sutton 1980 *Notes R. bot. Gdn Edinb.* 38 (1) 185
- 11 *S. jasminicola* M.B. Ellis 1958 *Mycol. Pap.* 70 83-84
- 12 *S. longirostratum* M.B. Ellis 1958 *Mycol. Pap.* 70 78-79
- 13 *S. macrurum* (Sacc.) M.B. Ellis 1958 *Mycol. Pap.* 70 53-54
- 14 *S. matsutakashiae* Subramanian sp. nov.

Conidiophora solitaria, erecta, septata, 18-24 × 3.5-4.5 μm, fusca, apice truncata conidia solitaria ferentia, interdum per proliferationes axiales conidia addita formantia. Conidia anguste obclavata, apice longe attenuata, basis obconice protrudentia, non vel leviter constricta ad septa, (9)-13-21-septata, 80-145 μm longa, inferne parte crassissima 9.5-14 μm crassa, superne parte elongata 3-4 μm crassa, laevia, inferne atro-fusca, superne parte elongata modice fusca, interdum apice pileo obovato hyalino gelatinoso.

Typus: In folia mortuo *Phoenixis canariensis*, Hachigo Island, Tokyo, Japan, ix, 1970, leg. T. Matsushima, MFC-1665. Description courtesy and ex Matsushima 1975, *Icones Microfungorum a Matsushima lectorum*, p. 141, pl. 119, 2.

This species and *S. takashiae* sp. nov. described later in this paper are both named after my good friend Dr. Takashi Matsushima, on whose collections and descriptions both these species are established.

- 15 *S. njalaense* M.B. Ellis 1958 *Mycol. Pap.* 70 68-69

- 16 *S. paludosum* M.B. Ellis 1958 *Mycol. Pap.* **70** 39-40
- 17 *S. pedunculatum* (Peck) M.B. Ellis 1958 *Mycol. Pap.* **70** 67-68
- 18 *S. penzigii* M.B. Ellis 1961 *Mycol. Pap.* **82** 45-46 [= *Helminthosporium bogoriense* Penz. & Sacc. non *Sporidesmium bogoriense* Penz. & Sacc.]
- 19 *S. raphiae* M.B. Ellis 1958 *Mycol. Pap.* **70** 37-38
- 20 *S. rubi* M.B. Ellis 1958 *Mycol. Pap.* **70** 64-65
- 21 *S. subuliphorum* Matsushima 1975 *Icones Microfungorum a matsushima lectorum* p. 140, Pl. 126, 1-4
- 22 *S. takashiae* Subramanian sp. nov

Conidiophora solitaria, erecta, cylindrica, olivaceo-grisea vel brunneo-grisea, septata, 35-50 × 4-5 µm. Conidia anguste obclavata, 50-120 µm longa, basi truncata, parte crassissima 6-8 µm, sursum ad 1.8-2.2 µm attenuata, 5-10-septata, laevia, frequenter prope basin verruculosa, olivaceo-grisea vel brunneo-grisea sursum pallidiora.

Typus: In ligno putrido arboris latifoliae, Yaku Island, Kagoshima, vii, 1972, leg. Takashi Matsushima, MFC-4121. Description courtesy and ex Matsushima, 1975, p. 142, Pl. 121, 2.

- 23 *S. theae* (Bern.) Hughes 1958 *Can. J. Bot.* **36** 809
- 24 *S. tropicale* M.B. Ellis 1958 *Mycol. Pap.* **70** 58-60
- 25 *S. verrucisporum* M.B. Ellis 1958 *Mycol. Pap.* **70** 57-58
- 26 *Sporidesmium* state of *Eupelte rapanaeae* Hnsf. 1947 *Proc. Linn. Soc. Lond.* **158** 43; Ellis 1958 *Mycol. Pap.* **70** 79-80

That many names he proposed in *Sporidesmium* still remain in *Sporidesmium* is a tribute to the taxonomic judgement of Dr M B Ellis.

ELLISEMBIA gen. nov.

The genus *Ellisembia* is proposed here to accommodate species that are closely similar to *Sporidesmium* as delimited above but differ in having pseudoseptate instead of euseptate conidia. The conidiophores may or may not

proliferate percurrently. It is with pleasure that I name this genus after Dr M.B. Ellis, long time friend whose contributions I hold in the highest esteem and whose friendship I cherish.

ELLISEMBIA Subramanian anamorph gen. nov.

Dematiaceous hyphomycete producing gangliar conidia. Conidiophores simple, mononematous, brown, septate, Conidia solitary, acrogenous, pseudoseptate, dry.

Hyphomycete dematiacea conidia ganglica producentes. Conidiophora simplicia, mononemata, fusca, septata. Conidia solitaria, acrogena, pseudoseptata, sicca.

SPECIES TYPICA: *Ellisembia coronata* (Fuckel) Subramanian comb. nov.
Basionym: *Sporidesmium coronatum* Fuckel 1874 *Symbol. Mycol. Nachtrag* **2** 77 (Jb. nassau. Ver. Naturk. Jahrg. **28**)

The Species

- 1 *E. adscendens* (Berk.) Subramanian comb. nov.
= *Sporidesmium adscendens* Berk. 1840 *Ann. Nat. Hist.* **4** 291
- 2 *E. brachypus* (Ellis & Everh.) Subramanian comb. nov.
= *Helminthosporium brachypus* Ellis & Everh. in Millsp. & Nuttal 1896 *Publ. Field Col. Mus. Mot.* **1** 92
= *Sporidesmium brachypus* (Ellis & Everh.) Hughes 1959 *Can. J. Bot.* **36** 807
- 3 *E. coronata* (Fuckel) Subramanian
- 4 *E. crassispora* (M.B. Ellis) Subramanian comb. nov.
= *Sporidesmium crassisporum* M.B. Ellis 1965 *Mycol. Pap.* **103** 44-45
- 5 *E. dioscoreae* (M.B. Ellis) Subramanian comb. nov.
= *Sporidesmium dioscoreae* M.B. Ellis 1958 *Mycol. Pap.* **70** 25-26
- 6 *E. folliculata* (Corda) Subramanian comb. nov.
= *Helminthosporium folliculatum* (*folliculatum*) Corda 1837 *Icon. Fung* **1** 12

- = *Sporidesmium folliculatum* (Corda)
Mason & Hughes, apud Hughes 1953 *Can.
J. Bot.* 31 609
- 7 *E. fusiforme* (G. & T.F.L. Nees)
Subramanian comb. nov.
= '*Sporidesmium*' *fusiforme* C.G. & T.F.L.
Nees 1818 *Nova Acta Acad Caesar,
Leopold.* 9 230
= *Sporidesmium fusiforme* Nees ex Fries
1832 *Syst. Mycol.* 3 494
- 8 *E. gelatinosa* (Matsushima) Subramanian
comb. nov.
= *Sporidesmium gelatinosum* Matsushima
1971 *Microfungi of the Solomon Islands
and Papua-New Guinea*, Publ. by author,
Kobe, p. 57, fig. 99, pl. 6-1
- 9 *E. macrotricha* (Corda) Subramanian comb.
nov.
= *Helminthosporium macrotrichum* Corda
1837 *Icon. Fung.* 1 13
= *Sporidesmium macrotrichum* (Corda)
Hughes 1958 *Can J. Bot.* 36 808
- 10 *E. opaca* (Cooke & Harkness) Subramanian
comb. nov.
= *Bactrodesmium opacum* Cooke &
Harkness 1884 *Grevillea* 12 No. 64, p. 95
= *Clasterosporium harknessii* Sacc. 1886 *Syll.
Fung.* 4 385
= *Sporidesmium harknessii* (Sacc.) M.B.
Ellis 1958 *Mycol. Pap.* 70 24-25
- 11 *E. uvariicola* (M.B. Ellis) Subramanian
comb. nov.
= *Sporidesmium uvariicola* M.B. Ellis 1958
Mycol. Pap. 70 35-36
- 12 *E. vagum* (C.G. & T.F.L. Nees)
Subramanian comb. nov.
= *Sporidesmium vagum* C.G. & T.F.L. Nees
1825 in Linne, *Species Plantarum*, ed. H
(Willdenow's) 5 2 p. 120
= '*Sporidesmium*' *vagum* C.G. & T.F.L.
Nees 1818 *Nova Acta Acad Caesar
Leopold.* 2 231

STANJEHUGHESIA gen. nov.

There are a few taxa now in *Sporidesmium* in which conidiophores are absent and the conidia are typically produced on simple conidiogenous cells. The conidia are solitary and euseptate. This is a homogeneous group and a new genus is proposed here to take in these species. It gives me pleasure to name this genus after my long time friend Dr S.J. Hughes, whose scholarship and work I hold in

great admiration and respect and whose friendship I cherish.

Stanjehughesia Subramanian anamorph gen. nov.

Dematiaceous hyphomycete producing gangliar conidia. Conidiophores absent. Conidiogenous cells simple. Conidia solitary, acrogenous, dry, euseptate.

Hyphomycete dematiacea conidia ganglica producentes. Conidiophora nulla. Cellulae conidiogenae simplices. Conidia solitaria, acrogena, sicca, euseptata.

TYPE SPECIES: *Stanjehughesia
hormiscioides*
Subramanian. (Corda)

The Species

- 1 *S. caespitulosus* (Ellis & Everh.) Subramanian
comb. nov.
= *Clasterosporium caespitulosum* Ellis &
Everh 1889 *J. Mycol.* 5 70
= *Sporidesmium caespitulosum* (Ellis &
Everh.) M.B. Ellis 1958 *Mycol. Pap.* 70 40
- 2 *S. hormiscioides* (Corda) Subramanian
comb. nov.
= *Sporidesmium hormiscioides* Corda 1838
Icon. Fung. 2 6
- 3 *S. larvata* (Cooke & Ellis) Subramanian
comb. nov.
= *Sporidesmium larvatum* Cooke & Ellis
1878 *Grevillea* 6 86
- 4 *S. nigroaca* (B.C. Sutton) Subramanian,
comb. nov.
= *Sporidesmium nigroacacus* B.C. Sutton 1989
Sydowia 41 341-342
- 5 *S. vermiculata* (Cooke) Subramanian comb.
nov.
= *Clasterosporium vermiculatum* Cooke
1875 *Grevillea* 4 69
= *Sporidesmium vermiculatum* (Cooke)
M.B. Ellis 1958 *Mycol. Pap.* 70 41

REPETOPHRAGMA gen. nov.

Several taxa now disposed in *Sporidesmium* share the unique and invariable feature of an integrated conidiogenous cell with typical and close annellations so that the conidiogenous cell simulates an annellide; the situation is comparable

to what is seen in the genera *Annellophora* Hughes, *Stigmia* Sacc., etc. (Ellis 1971). The conidia are solitary, gangliar and euseptate. They are a homogeneous group of species which is quite distinct from *Sporidesmium*. A new genus *Repetophragma* is proposed here for this cluster of species. The generic name is suggestive of repeated percurrent proliferation of conidiogenous cells and the phragmoconidia that are characteristic.

Refractohilum D. Hawksworth (1977) typified by *R. galligenum* D. Hawksworth has several of these features, but the fungus is clearly moniliaceous and has cymbiform conidia which have a characteristic highly refractive truncate base. It would therefore be unwise to take up this name for the several dematiaceous taxa with which we are concerned here. Two other species, *R. achromaticum* (Sutton) D. Hawksworth and *R. peltigerae* (Keissl.) D. Hawksworth share the features with *R. galligenum*; indeed, the former was disposed by Sutton (1973) in *Sporidesmium* from where it has now been quite appropriately shifted to *Refractohilum*.

REPETOPHRAGMA Subramanian anamorph
gen. nov.

Dematiaceous hyphomycete producing gangliar conidia. Conidiophores brown, simple, septate. Conidiogenous cell integrated, apical, annellate. Conidia acrogenous, solitary, euseptate, truncate at base, dry.

Hyphomycete dematiacea conidia ganglica producentes. Conidiophora fusca, non-ramosa, septata. Cellula conidiogena integrata, apicalia, annellata. Conidia acrogena, solitaria, euseptata, truncata ad basim, sicca.

SPECIES TYPICA: *Repetophragma*
biseptata (M.B. Ellis) Subramanian
comb. nov.

Basionym: *Sporidesmium biseptatum*
M.B. Ellis 1963 *Mycol. Pap.* 93
25-26

The Species

1 *R. aburiense* (M.B. Ellis) Subramanian
comb. nov.

- = *Sporidesmium aburiense* M.B. Ellis 1958
Mycol. Pap. 70 73-74
- 2 *R. afromosiae* (M.B. Ellis) Subramanian
comb. nov.
= *Sporidesmium afromosiae* M.B. Ellis
1963 *Mycol. Pap.* 93 27-28
- 3 *R. biseptata* (M.B. Ellis) Subramanian
- 4 *R. dennisii* (M.B. Ellis) Subramanian comb.
nov.
= *Endophragma dennisii* M.B. Ellis 1976
More Dematiaceous Hyphomycetes p. 142
= *Sporidesmium dennisii* (M.B. Ellis) Kirk
1983 *Trans. Br. mycol. Soc.* 80 462
- 5 *R. filiattenuata* (Matsushima) Subramanian
comb. nov.
= *Sporidesmium filiattenuatum* Matsushima
1983 *Matsushima mycol. Mem.* 3 16
- 6 *R. indica* (Subramanian) Subramanian
comb. nov.
= *Annellophora indica* Subramanian 1956
J. Indian bot. Soc. 35 53-54
= *Sporidesmium indicum* (Subramanian)
M.B. Ellis 1976 *More Dematiaceous*
Hyphomycetes p. 88
- 7 *R. subulata* (Cooke & Ellis) Subramanian
comb. nov.
= *Ceratophorum subulatum* Cooke & Ellis
1889 *Grivillea* 17 no. 83 p. 67
= *Sporidesmium subulatum* (Cooke & Ellis)
Hughes 1951 *Mycol. Pap.* 36 31
- 8 *R. wrolewskii* (Bubak) Subramanian comb.
nov.
= *Clasterosporium wrolewskii* Bubak 1916
Hedwigia 57 337
= *Sporidesmium wrolewskii* (Bubak) M.B.
Ellis 1958 *Mycol. Pap.* 70 74
- 9 *R. zambiense* (Deighton) Subramanian
comb. nov.
= *Sporidesmium zambiense* Deighton 1969
Mycol. Pap. 117 27-30

SPORIDESMIELLA P.M. Kirk 1982
Trans. Br. mycol. Soc. 79 479-481

In *Sporidesmium pseudoseptatum* M.B. Ellis, the conidiogenous cell is integrated and apical and has close and typical annellations as in *Repetophragma*, but the solitary, gangliar conidia are pseudoseptate. Though additional examples with these features are not known, it is appropriate to keep this in a distinct genus.

Sporidesmiella Kirk (1982) was considered as a possible choice for accommodation of this species. The genus *Sporidesmiella* is typified by *S. claviformis* Kirk in which the conidia are clavate and Kirk circumscribed the genus to include species with 'cylindrical, narrowly clavate, obovoid and broadly obovoid or cuneiform conidia' that are 1-5-distoseptate. Also, in the context of re-organizing the genus *Sporidesmium*, he specifically did not dispose *Sporidesmium pseudoseptatum* in *Sporidesmiella*.

Nevertheless, I believe it is appropriate to place *Sporidesmium pseudoseptatum* with its obclavate to subfusiform, 5-8-pseudoseptate conidia tentatively in *Sporidesmiella*.

Sporidesmiella pseudoseptata (M.B. Ellis) Subramanian comb. nov.

= *Sporidesmium pseudoseptatum* M.B. Ellis 1965 *Mycol. Pap.* 103 44-45

PENZIGOMYCES gen. nov.

There are several species in *Sporidesmium* that have conidiophores typically with doliiform, lageniform or nodose percurrent proliferations. These form another somewhat homogeneous and characteristic cluster of species, quite distinct from *Sporidesmium*. A separate genus is proposed here for them. The generic name, *Penzigomyces* commemorates the contributions of the Italian mycologist, O. Penzig who, along with Saccardo, described many tropical species.

PENZIGOMYCES Subramanian anamorph gen. nov.

Dematiaceous hyphomycete producing gangliar conidia. Conidiophores simple, septate, brown, with regular, successive, doliiform, lageniform or nodose percurrent proliferations. Conidia solitary, acrogenous, euseptate, brown, dry.

Hyphomycete dematiacea conidia ganglica producentes. Conidiophora simplicia, septata, fusca, cum proliferationes successivae doliiformis vel lageniformis vel nodosis. Conidia solitaria, acrogena, euseptata, fusca, sicca.

SPECIES TYPICA: *Penzigomyces nodipes* (Penz. & Sacc.) Subramanian comb. nov.

Basionym: *Helminthosporium nodipes* Penz. & Sacc. 1901, *Malpighia* 15 246
= *Sporidesmium nodipes* (Penz. & Sacc.) Hughes 1958 *Can. J. Bot.* 36 809

The Species

- 1 *P. acutispora* (M.B. Ellis) Subramanian comb. nov.
= *Sporidesmium acutisporum* M.B. Ellis 1958 *Mycol. Pap.* 70 51-52
- 2 *P. australiense* (M.B. Ellis) Subramanian comb. nov.
= *Sporidesmium australiense* M.B. Ellis 1976 *More Dematiaceous hyphomycetes* p. 94
- 3 *P. bicolor* (Hughes) Subramanian comb. nov.
= *Podoconis bicolor* Hughes 1953 *Mycol. Pap.* 50 56
= *Sporidesmium bicolor* (Hughes) M.B. Ellis 1958 *Mycol. Pap.* 70 52-53
- 4 *P. coffeicola* (M.B. Ellis) Subramanian comb. nov.
= *Sporidesmium coffeicola* M.B. Ellis 1976 *More Dematiaceous Hyphomycetes* pp. 87-88
- 5 *P. cookei* (Hughes) Subramanian comb. nov.
= *Podoconis cookei* Hughes 1953 *The Naturalist*, Lond. No 846 July-September 1953 p. 121
= *Sporidesmium cookei* (Hughes) M.B. Ellis 1958 *Mycol. Pap.* 70 48-49
- 6 *P. coprophila* (Matsushima) Subramanian comb. nov.
= *Sporidesmium coprophilum* Matsushima 1975 *Icones Microfungorum a Matsushima lectorum* p 137 pl. 128 1-2
- 7 *P. doliiforme* (Minter & Holubova-Jechova) Subramanian comb. nov.
= *Sporidesmium doliiforme* Minter & Holubova-Jechova 1981 *Folia geobot. Phytotoax. bohemoslov.* 16 210
- 8 *P. flagellata* (Hughes) Subramanian comb. nov.
= *Podoconis flagellata* Hughes 1953 *Mycol. Pap.* 50 57
= *Sporidesmium flagellatum* (Hughes) M.B. Ellis 1958 *Mycol. Pap.* 70 54-55
- 9 *P. hamata* (M.B. Ellis) Subramanian comb. nov.

- = *Sporidesmium hamatum* M.B. Ellis 1976
More Dematiaceous Hyphomycetes p. 93
- 10 *P. nodipes* (Penz. & Sacc.) Subramanian
- 11 *P. obovata* (Matsushima) Subramanian
 comb. nov.
 = *Sporidesmium obovatum* Matsushima
 1975 *Icones Microfungorum a Matsushima*
lectorum p. 139 Pl. 117 2-3
- 12 *P. parva* (Hughes) Subramanian comb. nov.
 = *Podocnis parva* Hughes 1953 *Mycol. Pap.*
50 59
 = *Sporidesmium parvum* (Hughes) M.B.
 Ellis 1958 *Mycol. Pap.* **70** 69-70
- 13 *P. uapacae* (M.B. Ellis) Subramanian comb.
 nov.
 = *Sporidesmium uapacae* M.B. Ellis 1958
Mycol. Pap. **70** 77-78

POLYDESMUS Mont. 1845 *Ann. Sci. Nat.*
 III **4** 365

There are a few species in *Sporidesmium* that have conidiophores and conidiogenous cells somewhat similar to those of *Penzigomyces*, but the conidia are not euseptate but pseudoseptate. *Sporidesmium densum* (Sacc. & Roum.), Mason & Hughes, *S. bambusae* M.B. Ellis and *S. pseudobambusae* Kirk belong here. Hughes (1958) considered *S. densum* to be congeneric with *Polydesmus elegans* Durieu & Mont., the type species of the genus *Polydesmus* Mont. Accordingly, *Polydesmus* Mont. is accepted here for *Sporidesmium bambusae* M.B. Ellis and *S. pseudobambusae* Kirk, besides, *S. densum*. The entry on *Polydesmus* Mont. in Ainsworth & Bisby's *Dictionary of the Fungi* (seventh edition, 1983, p. 309) as "? = *Sporidesmium* (Hyphom.) fide Hughes (CJB36: 799, 1958)" is unclear. Pending further study, no formal transfers of *Sporidesmium bambusae* M.B. Ellis and *S. pseudobambusae* Kirk to *Polydesmus* are made here.

SOME RELATED TAXA

In what follows, a few additional taxa now in *Sporidesmium* are taken up for discussion and the revisions proposed here are part of the present effort in the re-assessment of *Sporidesmium*.

ACAROICYBELLINA gen. nov.

Sporidesmium arengae Matsushima was described by Matsushima (1975, p. 136, Pl. 143) on *Arenga engleri* from Ishigaki Island, Japan. This is not a *Sporidesmium*. The simple, brown, septate conidiophores proliferate in characteristic fashion somewhat as in *Acarocybella* M.B. Ellis as typified by *A. jasminicola* (Hansf.) M.B. Ellis (Ellis 1971, pp. 370-372). The conidia are, however, clavate and not obclavate or rostrate as in *Acarocybella*. Holubova-Jechova (1983, *Ceska Mykol.* **37** (1): 14) placed Matsushima's fungus in the genus *Brachysporiella* Batista (Type species, *B. gayana* Batista): the similarity of the morphology of the conidia, i.e. their clavate shape in the two fungi, is quite obvious. However, the peculiar conidiophore proliferation would clearly exclude it from *Brachysporiella*. Matsushima's illustrations indicate a tetric ontogeny for the conidia which would suggest a disposition for this fungus close to *Acarocybella*. For these reasons, *Sporidesmium arengae* Matsushima is accommodated in a new genus, *Acarocybellina*, the name being suggestive of the similarity to, but not identity with, *Acarocybella*.

ACAROICYBELLINA Subramanian anamorph gen. nov.

Dematiaceous hyphomycete producing tetric conidia. Conidiophores simple, erect, septate, brown, producing conidia acrogenously at the tip and successive Y-shaped proliferations. Conidia solitary, obovate to clavate, brown, euseptate, truncate at base, dry.

Hyphomycete dematiacea conidia tetrica producentes. Conidiophora simplicia, erecta, septata, fusca, apice angustata conidia solitaria ferentia, deinde Y-formiter successive prolifera conidia addita formantia. Conidia solitaria, obovata vel clavata, fusca, euseptata, truncata ad basim, sicca.

SPECIES TYPICA: *Acarocybellina arengae*
 (Matsushima) Subramanian comb.
 nov.

Basionym: *Sporidesmium arengae* Mat-
uhima 1975 *Icones Microfungorum a*
Matsushima lectorum, p. 136, Pl. 143
= *Brachysporiella arengae*
(Matsushima) Holubova-Jechova
1983 *Ceska Mykol.* 37 14

Typus lectus in folio mortuo *Arengae*
engleri, Ishigaki Island, Okinawa,
Japan, ii, 1972 leg. T. Matsushima No.
4249.

GANGLIOPHORA gen. nov.

Sporidesmium casuarinae Matsushima was described by Matsushima (1987, p. 29) on *Casuarina equisetifolia* from Taiwan. The distal branching of the conidiophore, the characteristic swelling (corresponding to conidiogenous loci) on the conidiophore, the apical and subapical proliferations all suggest this is not a *Sporidesmium*. Matsushima indicated that disposition of this fungus in *Sporidesmium* is tentative. His comment that *Sporidesmium* itself needs revision is accepted here. The phragmoconidia in this fungus are solitary and each conidium is generally subtended by a swelling and, following detachment of a conidium, percurrent proliferation occurs at the locus of the swelling. A proliferation may sometimes be followed by a second subapical proliferation (see fig. 361 in Matsushima 1987). There is no genus known to me where this taxon can be appropriately placed. Accordingly, a new genus, *Gangliophora*, is proposed here to accommodate it. The generic name is suggestive of the characteristic swellings on the conidiophore.

GANGLIOPHORA Subramanian
anamorph gen. nov.

Dematiaceous hyphomycete producing gangliar conidia. Conidiophore branched sparsely distally, brown, septate, with apical and intercalary swellings, proliferating percurrently once, sometimes a second time subapically. Conidiogenous cells integrated, swollen, apical. Conidia solitary, dry, long, brown, septate.

Hyphomycete dematiacea conidia ganglica producentes. Conidiophora infra simplicia, supra irregulariter pauci-ramosa, terminaliter vel intercalariter inflata, semel proliferata percurrentes, subinde deinde proliferata subapicalis. Cellulae conidiogenae terminaliter in conidiophoris integratae, inflatae. Conidia solitaria, acrogena vel subapicalia, elongata, sicca, fusca, septata.

SPECIES TYPICA: ***Gangliophora casuarinae*** (Matsushima)
Subramanian comb. nov.

Basionym: *Sporidesmium casuarinae*
Matsushima 1987 *Matsushima*
Mycological Memoirs 5 29, figs
36-61

Typus lectus in cortice mortua
Casuarinae equisetifolia Forst.,
Nan-Jen-Shan, Taiwan, 27, iii,
1986, leg. T. Matsushima No. MFC
6T676, Cultura exsiccata (v8JA).

HEMICORYNESPORELLA gen. nov.

Sporidesmium guadalcanalense Matsushima was described by Matsushima on rotten wood of *Celtis* from Honiara, Guadalcanal, Solomon Islands (see Matsushima, 1971, p. 57). This is not a *Sporidesmium*. Matsushima's illustrations (fig. 100, 1-2) and photomicrograph (Pl. 8-1) suggest that this resembles *Hemicorynespora mitrata* (Penz. & Sacc.) M.B. Ellis. Matsushima's illustrations suggest a tetric ontogeny for the conidia of his fungus. However, *Sporidesmium guadalcanalense* is unique in having a characteristically lobed basal cell for the conidiophore, a feature comparable to what is known in *Beltrania* O. Penzig, *Pseudobeltrania* P. Hennings, *Hemibeltrania* Pirozynski and *Beltraniella* Subramanian (see Ellis, 1971). This is a feature not seen in *Hemicorynespora deightonii* M.B. Ellis, the type species of *Hemicorynespora* M.B. Ellis (Ellis 1976).

A new genus, *Hemicorynesporella* is proposed here for *Sporidesmium guadalcanalense* Matsushima.

HEMICORYNESPORELLA Subramanian
anamorph gen. nov.

Dematiaceous hyphomycete producing tretic conidia. Conidiophores simple, erect, septate, brown, arising from a characteristic, lobed basal cell. Conidia solitary, acrogenous, brown, septate, dry.

Hyphomycete dematiacea conidia tretica producentes. Conidiophora simplicia, erecta, septata, fusca, ex typice cellula lobata basalis. Conidia solitaria, acrogena, fusca, septata, sicca.

SPECIES TYPICA: *Hemicorynesporella guadalcanalense*

(Matsushima) Subramanian comb. nov.

Basionym: *Sporidesmium guadalcanalense* Matsushima apud Kobayashi et al. 1971 *Bull. nat. Sci. Mus. Toyko* 14:478, *Microfungi of the Solomon Islands and Papua-New Guinea* p. 57 fig. 100 1-2, Pl. 8-1

Typus lectus in ligno carioso *Celtis* sp., Honiara, Guadalcanal, Solomon Islands, 5, i, 1970, leg. T. Matsushima, MFC-2845.

JANETIA M.B. Ellis 1976 *More Dematiaceous Hyphomycetes* p. 33

Matsushima (1975, p. 141, Pl. 125) described a beautiful fungus (MFC 1572) on dead leaves of *Quercus glauca* from Japan as an undetermined species of *Sporidesmium*. The typical short

conidiogenous cells and the solitary euseptate phragmoconidia indicate that this is best disposed in the genus *Janetia* M.B. Ellis. Accordingly, this is classified here as a new species in that genus. The specific epithet is in honour of my good friend Dr T. Matsushima who has brought up this beautiful fungus.

Janetia matsushimae Subramanian sp. nov.

Conidiophora in hyphis repentibus pallide brunneis vel texturis brunneis stromaticis dense disposita, conica, continua, crassitunicata, atrobrunnea vel atroazurea, 3-9 μm longa, base 2.7-4 μm crassa, conidia solitaria formantia. Conidia anguste obclavata vel cylindrica, apice rotundata, basi anguste truncata, 4-7 euseptata, constricta ad septa. 20-31.5 \times 5-6 μm , ochracea, basi olivacea. Typus in folio mortuo *Quercus glaucae*, Himeji City, Hyogo, Japan, iv. 1967, leg. T. Matsushima No. MFC-1572. Description courtesy and ex Matsushima, 1975, *Icones Microfungorum a Matsushima lectorum* p. 141.

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