

Fungi from palms. XVIII¹. *Appendicospora coryphae*, a new name for *Apiosporella coryphae*

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Hyde, K. D. (1995). Fungi from palms. XIX. *Appendicospora coryphae*, a new name for *Apiosporella coryphae*. - *Sydowia* 47 (1): 31-37.

The new ascomycete genus *Appendicospora* is introduced for *Apiosporella coryphae*. Ascospores are provided with basal bifurcate appendages. Asci are clavate, early deliquescing and lacking an apical apparatus. *Appendicospora* is distinguished from *Apiospora*.

Keywords: *Apiospora*, *Apiosporella*, *Appendicospora*, palm fungi, *Pseudomassaria*.

Apiosporella coryphae Rehm was described by Rehm (1913b), but Saccardo (1926) placed it in the genus *Apiospora* Sacc., as *A. coryphae* (Rehm) Sacc. I have examined the type material of *Apiosporella coryphae* and consider it to differ from the type species of *Apiospora*, *A. montagnei* Sacc., in several important aspects, summarised in Tab. 1. Because the generic name *Apiosporella* is not available for nomenclature reasons (see below) *Appendicospora* gen. nov. is introduced to accommodate it.

Taxonomy

Appendicospora K.D. Hyde, gen. nov.

Ascomata substrato immersa, subepidermalia, lenticularia, periphysata, ostiolata. Asci 8-spori, clavati, unitunicati, sine apparatusu apicali, deliquescentes. Ascosporae 2-3-seriatae, clavatae, hyalinae, 1-septatae, cellulis inaequalibus, appendiculatae. Typus generis: *Appendicospora coryphae* (Rehm) K. D. Hyde.

E t y m o l o g y . - From the Latin *Appendix* meaning 'appendage', and *spora*.

A s c o m a t a immersed in host tissue, clustered under slightly raised areas which are irregular in outline; in vertical section

¹ XVII in *Nova Hedwigia* (in press).

lenticular, immersed, with a central periphysate ostiole. - *Peridium* composed of hyaline, flattened cells. - *Paraphyses* difficult to distinguish, as gelatinous remnants. - *Asci* 8-spored, clavate, peduncle short or lacking, unitunicate, lacking an apical apparatus, deliquescing early and releasing ascospores. - *Ascospores* 2-3-seriate, clavate, hyaline, unequally 2-celled, with appendages at one end.

Type species: *Appendicospora coryphae* (Rehm) K.D. Hyde.

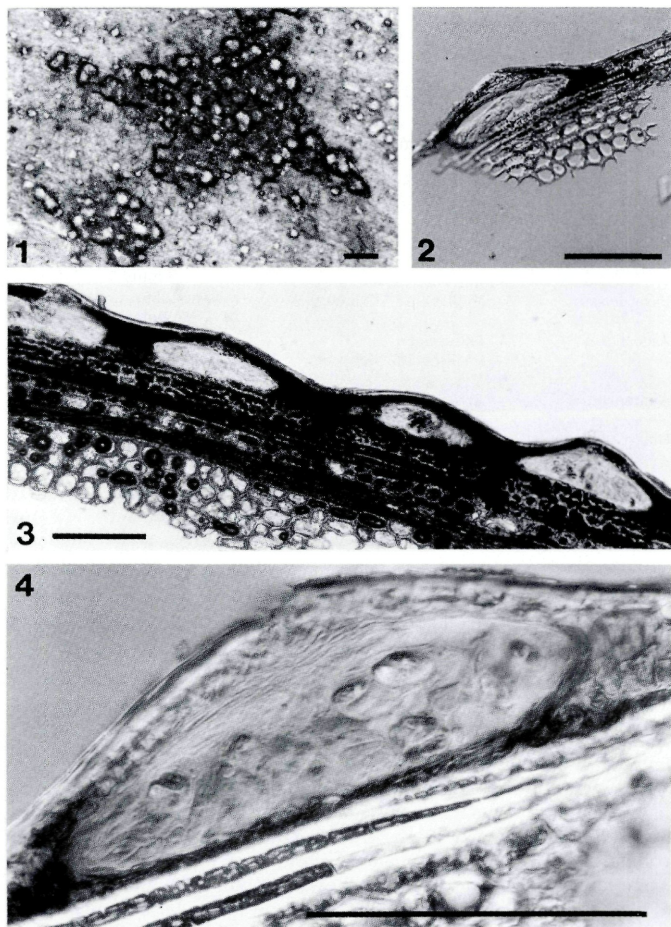
Appendicospora coryphae (Rehm) K. D. Hyde, comb. nov. - Figs. 1-11.

- = *Apiosporella coryphae* Rehm, Phil. J. Science, Sect. C. Botany 8: 399. 1913.
- = *Apiospora coryphae* (Rehm) Sacc., Syll. Fung. 24: 915. 1926.
- = *Microthyrium elatum* Rehm, Phil. J. Science, Sect. C. Botany 8: 254. 1913 (holotypus non vidi).

Ascomata immersed in the host tissue (subepidermal) under slightly raised areas, irregular in outline, up to 10 μm , comprising clusters of separate, but closely gregarious ascomata which are individually light brown in the middle and dark at the periphery (Fig. 1); in vertical section 140-180 μm diam, 40-60 μm high, lenticular, with a central periphysate ostiole (Figs. 2-4). - *Stromatic tissues* above ascomata comprising epidermal cells and cuticle containing brown intracellular hyphae, below comprising host cells containing brown intracellular hyphae (Fig. 3). A wedge of vertically orientated palisade-like cells occur at the periphery of the ascomata in the hypodermis. - *Peridium* to 6 μm wide, comprising a few layers of hyaline, flattened cells (Fig. 4). - *Paraphyses* difficult to distinguish with only gelatinous remains or strips. - *Asci* 36-45 x 12-14 μm , 8-spored, clavate, peduncle short or lacking, thin-walled, unitunicate, lacking an apical apparatus, deliquescing early and releasing spores, developing from the base and lower sides of the ascomata (Figs. 9-11). - *Ascospores* 10-15 (-18) x 5-8 μm , 2-3-seriate, clavate, hyaline, unequally 2-celled, the smaller cell ca half that of the larger cell, not constricted at the septum, with a bifurcate (moustache-shaped) appendage on the basal smaller cell (Figs. 5-8).

Material examined - PHILIPPINE ISLANDS, Prov. Laguna, Los Baños, on dead rachides of *Corypha elata*, Jan 30 1913, C. F. Baker 769, S (holotype of *Apiosporella coryphae*), also C. F. Baker 53, S (as *Microthyrium elatum*).

Appendicospora is introduced as a new genus to accommodate *Apiosporella coryphae* described by Rehm (1913b). The taxon differs from *Apiospora* Sacc. in several respects (Tab. 1), particularly in the ascospores being provided with a bifurcate appendages. There are parallel cases in which appendage morphology has been used in the

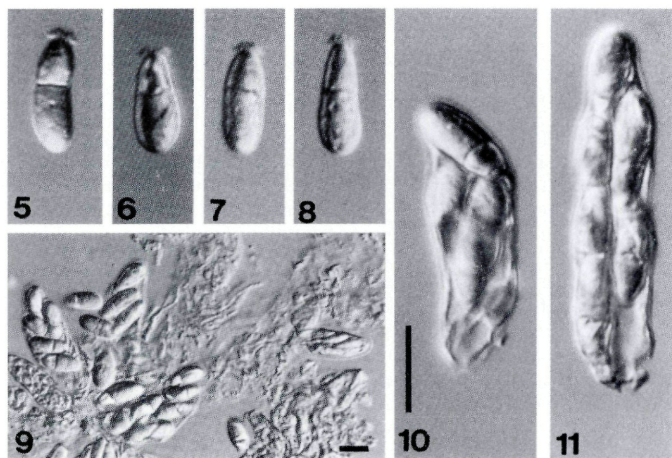


Figs. 1-4. *Appendicospora coryphae*. - 1. Clustered ascomata on surface of host. - 2-4. Sections through ascomata. Note the upper and lower stromata (2, 3) and peridium comprising elongate hyaline cells (4). - Bars: 1 = 1 mm; 2-4 = 100 μ m.

Tab. 1.— Differences between *Apiospora* and *Appendicospora*.

	<i>Apiospora montagnei</i> Sacc.	<i>Appendicospora coryphae</i> (Rehm) K. D. Hyde
Ascomata	Immersed, darkened, linear Globose Ostiole central, vertical	Immersed in stroma Lenticular Ostiole central, vertical
Peridium	Elongate angular brown-walled cells	Hyaline flattened cells
Asci	Clavate No visible apical apparatus	Clavate No visible apical apparatus
Paraphyses	Hypha-like, filamentous	Gelatinous remains only?
Ascospores	1-2-seriate Lacking appendages	2-3-seriate Basal bifurcate appendage
Anamorph	<i>Arthrinium</i>	Unknown
Host	Gramineae	<i>Corypha</i> (Palmae)
Known distribution	Cosmopolitan	Tropical

delimitation of genera. In the Halosphaeriaceae ascomata are similar, asci are thin-walled and deliquesce early, while in most species ascospores are hyaline and two-celled. However, species in the Halosphaeriaceae are assigned to different genera on the basis of their appendage structure (Jones & al., 1986; Jones & Moss, 1987). On the other hand, both appendaged and non-appendaged ascospores are scattered throughout the Xylariaceae. For instance, in *Anthostomella zongluensis* K. D. Hyde, the ascospores are surrounded by a layered mucilaginous sheath, in *A. sulcigena* (Mont.) Sacc. they are provided with ends caps of mucilage, whilst in *A. baileyi* S. Francis ascospores lack mucilage or appendages (Hyde, 1995). The basal bifurcate appendages on the ascospores of *Apiosporrella coryphae* are unique in comparison to species in *Apiospora*, which lack appendages or may be surrounded by a mucilaginous sheath (Hino, 1961; Samuels & al., 1981; Kirk, 1991). Other differences include the linear organisation of the globose ascomata which are immersed under darkened regions in *Apiospora montagnei*, as compared to the lenticular ascomata which are clustered under slightly raised darkened areas, irregular in outline, in *Apiosporrella coryphae* (Fig. 1). A comparison between *Appendicospora coryphae* and *Apiospora montagnei* is given in Tab. 1. *Arthrinium* anamorphs are reported for *Apiospora* species on bamboo in New Zealand (Samuels & al., 1981), however, the



Figs. 5–11. Interference contrast micrographs of *Appendicospora coryphae*. – 5–8. Apiospores with basal moustache-shaped appendage. – 9. Squash illustrating asci and gelatinous remains of possible paraphyses. – 10, 11. Clavate asci with thin unitunicate walls and lacking a pedicel and apical apparatus. – Bars = 10 μ m (Figs. 5–8 and 11 same scale as 10).

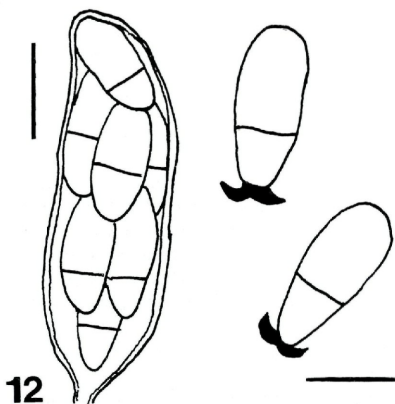


Fig. 12. Diagrammatic representation of ascus and ascospores of *Appendicospora coryphae*. – Bars = 10 μ m.

bamboo in New Zealand (Samuels & al., 1981), however, the anamorph of *Appendicospora* is presently unknown.

Microthyrium elatum Rehm (1913a) was also collected in Los Baños on *Corypha elata* by Baker at the same time and is identical to *Appendicospora coryphae*. Rehm (1913a) lists Baker No 28 as the holotype of *Microthyrium elatum*, but the only material available at S under this name is numbered Baker 53. The description of *Microthyrium elatum* was published before that of *Apiosporella coryphae*. The material of *M. elatum* that I have examined is not the holotype. The holotype of *Apiosporella coryphae* is therefore chosen to represent *Appendicospora coryphae*. The holotype of *M. elatum* is not at S and appears to be lost or mislabelled.

The first use of *Apiosporella* was by Höhnelt (1909) who introduced it without diagnosis to accommodate apiosporous species of *Didymella* Sacc. It was later validated by Theissen (1917), but is a homonym of *Apiosporella* Speg. which was introduced by Spegazzini (1910) for a Coelomycete (*A. macrospora* Speg.) now placed in *Apiocarpella* Syd. & P. Syd. (Sutton, 1980). *Apiosporella* was introduced for a third time by Spegazzini (1912), also for a coelomycete which is now assigned to *Asteromella* Pass. & Thüm. (Sutton, 1980).

Apiosporella was proposed by Höhnelt (1909) to accommodate apiosporous species of *Didymella*. Of the six names mentioned by Höhnelt (1909), two (*A. rhodophila* Sacc., *A. rosae* Oudemans) are facultative synonyms of *Pseudomassaria sepincolaeformis* (De Not.) Arx. Theissen (1917) validated the name *Apiosporella* and chose *A. sepincolaeformis* (De Not.) Theissen as the type. This species is now considered a species of *Pseudomassaria* Jacz. and the generic name *Apiosporella* is also considered a synonym of *Pseudomassaria* (Barr, 1976).

Apiospora Sacc. (Lasiosphaeriaceae), *Apiothyrium* Petr. and *Pseudomassaria* (Hyponectriaceae) should be compared with *Appendicospora*. The three genera are characterised by the presence or absence of a stroma, or clypeus, and by ascomatal orientation. Ascumata of species of *Apiospora* and *Pseudomassaria* are orientated perpendicular to the host epidermis. *Apiospora* species produce elongate stromata, while *Pseudomassaria* species lack a stroma, instead forming a clypeus at times (Barr, 1976). *Apiothyrium* have ascumata with their axes horizontal to that of the host surface, and with lateral beaks.

Of the ascomycetes described from palms with apiospores, only *Apiosphaeria indica* Bose (1975) is well illustrated. Other taxa as *Apiosporella coryphae* Rehm (1913b), are provided with short Latin descriptions and give little indication of the true identity of the fungus.

Acknowledgments

I am grateful to the Queensland Department of Primary Industries, Northern Australian Quarantine Strategy and Australian Quarantine and Inspection Service for laboratory facilities and Ceri Pearce for technical assistance. Bonnie To is thanked for typing the manuscript.

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(Manuscript accepted 6th January 1995)

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Autor(en)/Author(s): Hyde Kevin D.

Artikel/Article: [Fungi from palms. XVIII. Appendicospora coryphae, a new name for Apiosporella coryphae. 31-37](#)