

Fungi from palms. IV. *Palmicola archontophoenicis* gen. et sp. nov.

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Hyde, K. D. (1993). Fungi from palms. IV. *Palmicola archontophoenicis* gen. et sp. nov. – *Sydowia* 45(1): 15–20.

The new monotypic genus *Palmicola*, best placed in the Lasiosphaeriaceae, is described from *Archontophoenix alexandrae*. The saprophyte forms a darkened stroma under the host surface in which numerous ascomata develop around a central pore. Ascospores are filiform and multiseptate.

Keywords: Lasiosphaeriaceae, palm fungi, *Palmicola*.

Of the ca. 700 species of ascomycetous fungi described from palms, only few have been recently described with good illustrations (Samuels & Rossman, 1987; Hyde & Nakagiri, 1989; Hyde, 1992). The purpose of this series of papers is to redescribe and illustrate some of these taxa. The collection of fresh material, desirable for photomicrography, has resulted in new taxa being found. One taxon, collected on *Archontophoenix*, cannot be accommodated in any previously described genus. It has numerous ascomata developing around a single central pore, unitunicate asci with a refractive apical apparatus and scoliospores.

Palmicola Hyde, gen. nov.

Ascomata immersa in stromatibus nigris, horizontalia, connexa in catervis valsoideis. Ostiola periphysata coadnata porum communem centralem formantia. Paraphyses filiformes, septatae et angustatae. Asci 8-spori, cylindrici, unitunicati, pedunculati, apparatu subapicali praediti. Ascosporae multiseriatae, filiformes, hyalinae, septatae extremis tumidae.

Ascomata developing under large blackened areas of the host surface, clustered around a common central pore and with several clusters in each darkened area. Individual ascomata with axis horizontal to the host surface, with necks leading to the common central pore, surrounded by a darkened stroma, comprising host cells and darkened fungal hyphae. – Peridium thin, comprising thin-walled compressed brown-walled cells fusing at the outside with hyaline palisade-like fungal cells which fill the spaces between the clustered as-

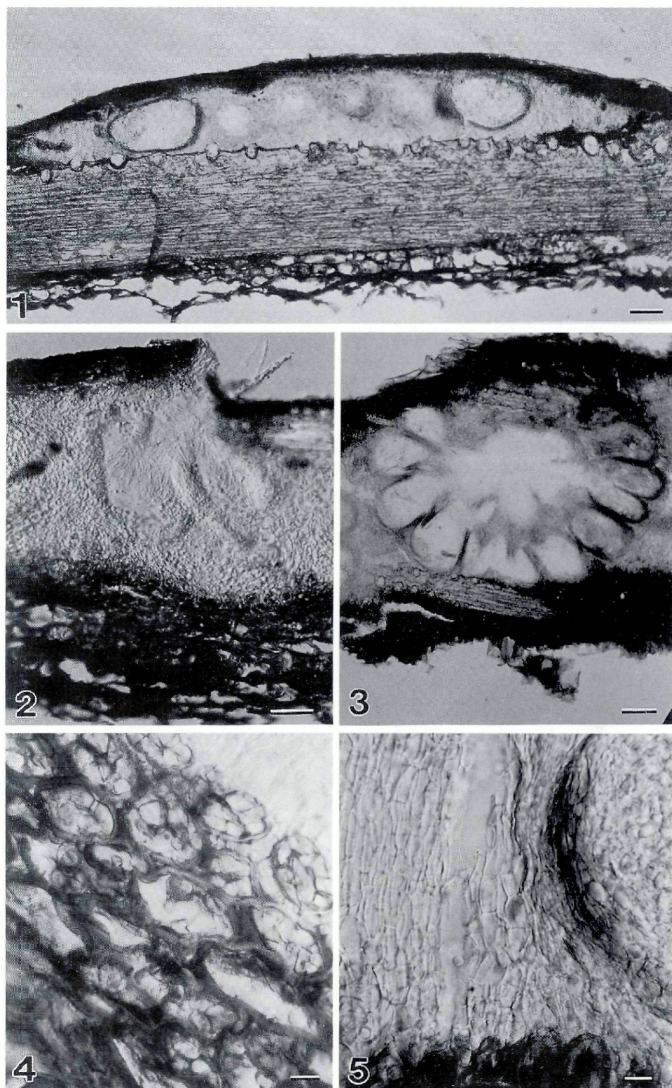
comata. – *Paraphyses* hyphae-like, filamentous, septate and tapering distally. – *Asci* 8-spored, cylindrical, unitunicate, pedunculate, apically rounded with a subapical ring and canal-like structure at the tip. – *Ascospores* multiseriate, filiform, hyaline, septate with weakly swollen sticky ends.

Type species. – *Palmicola archontophoenicis* Hyde.

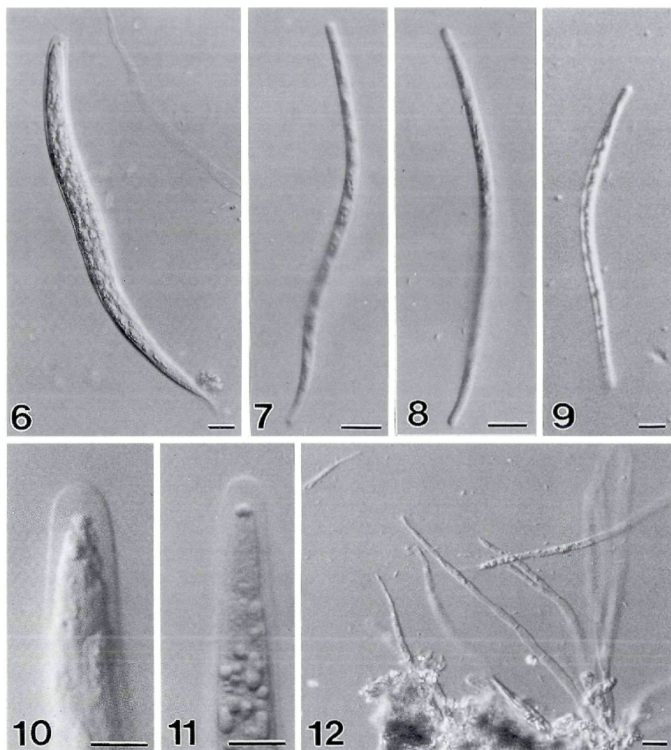
Palmicola archontophoenicis Hyde, sp. nov. – Figs 1–15.

Ascomata immersa in stromatibus nigris (ca 4 x 2 cm), horizontalia, connexa in catervis valsoideis, 200–320 µm longa, 140–176 µm diametro. Ostiola periphysata coadnata porum communem centralem formantia. Paraphyses 8 µm diam, filiformes, septatae et angustatae. Asci 130–180 x 9–13 µm, 8-sporei, cylindrici, unitunicati, pedunculati, ad apicem rotundi et apparato apicali praediti, 1.5–2.0 µm alto, 2.5–3.0 µm diam. Ascosporae 96–124 x 3.5–4 µm, multiseriatae, filiformes, hyalinae, 5-septatae, extremis tumidae.

Ascomata developing under blackened areas (ca. 4 x 2 cm) on fallen host rachids, some groups coalescing to form large blackened areas or others joined by blackened pitting. Ascomata clustered around a common central pore, with ca 14 ascomata in each cluster and several clusters in each darkened area. Individual ascomata with axis horizontal to the host surface, base at the outside, and necks leading to the central pore. Ascomata 200–320 µm long and 140–176 µm diam., in a darkened stroma which occurs above and below the ascomata. – *Upper stroma* comprising 2–4 layers of angular host cells; the uppermost layer ca. 12 µm thick, very dark brown, of host cells filled with small, thick-walled, angular, brown fungal cells (ca. 5–6 µm diam.); the lower portion (ca. 20 µm thick) light brown, of host cells filled with thick-walled, angular, brown fungal cells (ca. 8 µm diam). Area between clustered ascomata filled with vertical, hyaline, thin-walled, palisade-like fungal cells, fusing above and below with the brown stroma. Cells of outer region of palisade-like layer are very thick-walled. Stroma beneath and at the sides brown, comprising rounded host cells filled with rounded, brown, thin-walled fungal cells. A further area of elongate host cells with brown walls, probably due to fungal association, occurs below the lower stromatal region. – *Peridium* ca. 20 µm thick, comprising 3–4 rows of compressed, thin-walled, light-brown cells, which are ca. 16 µm long, fusing at the outside with the hyaline, palisade-like cells. Central pore periphysate with paraphyses in a gel. – *Paraphyses* 8 µm wide at base, hypha-like, filamentous, septate and tapering distally. – *Asci* 130–180 x 9–13 µm, 8-spored, cylindrical, unitunicate, pedunculate, apically rounded, with a J-, refractive, subapical ring and canal-like structure at the tip; ring 1.5–2.0 µm high, 2.5–3.0 µm diam. – *Ascospores*



Figs. 1-5. - Interference contrast micrographs of *Palmicola archontophoenicis*. - 1, 2. - Vertical section through ascomata. Note the stromata and clustered ascomata. - 3. Horizontal section illustrating arrangement of ascomata with a central pore. - 4. Stromata beneath and at the sides of the fruiting structure comprising rounded host cells filled with rounded, brown, thin-walled fungal cells. - 5. Palisade-like cells and peridium. - Bars 1-3 = 100 μ m; 4, 5 = 10 μ m.

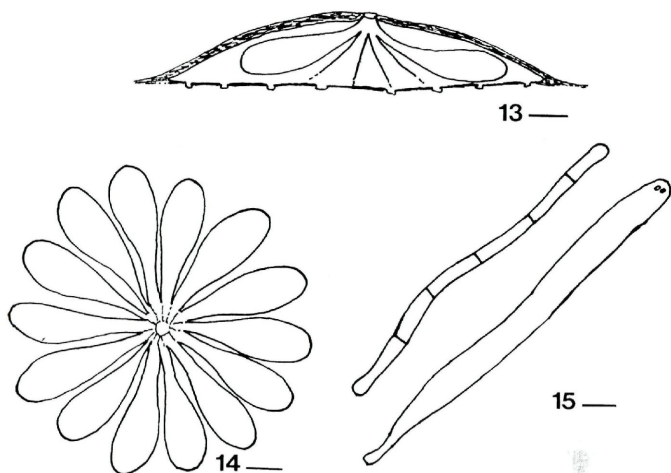


Figs. 6–12. – Interference contrast micrographs of *Palmicola archontophoenicis*. – 6. Immature ascus. – 7–9. Ascospores. – 10, 11. Asci with apical ring. – 12. Paraphyses. – Bars = 10 μ m.

96–124 \times 3.5–4 μ m, multiseriate, filiform, hyaline, 5-septate, with truncate slightly swollen ends which appear to be sticky.

Material examined. – AUSTRALIA: North Queensland, Freshwater Creek State Forest, on basal sheath of fallen rachid of *Archontophoenix alexandrae* (F. v. Mueller) H. A. Wendland & Drude, Feb 1992, K. D. Hyde 1062 (BRIP 20437, Holotype); same host and site, June 1992, K. D. Hyde 1500 (BRIP 20438).

The closest genera to *Palmicola* are *Ophioceras* Saccardo (Conway & Barr, 1977) and *Linocarpon* H. Sydow & P. Sydow (Hyde,



Figs. 13–15. – Diagrammatic representation of ascomata of *Palmicola archontophoenicis*. – 13. Vertical section through stroma illustrating arrangement of ascomata with a central pore. – 14. Horizontal view of arrangement of ascomata with central pore. – 15. Ascus and ascospore. – Bars 13, 14 = 100 μ m; 15 = 10 μ m.

1992). Similarities include scolecospores and wide paraphyses which taper distally. The ascus structure is also similar to *Linocarpon*, being cylindrical with a peduncle, but less so to *Ophioceras*, in which the ascus lacks a peduncle. Unlike *Linocarpon*, ascospores in *Palmicola* are septate, as in *Ophioceras*. However, the valsoid nature of the ascomata with a single central pore is unique to *Palmicola*. A similar, valsoid configuration of the ascomata is found in *Myelosperma* H. Sydow & P. Sydow, a monotypic genus with *M. tumidum* H. Sydow & P. Sydow from *Cocos nucifera* L. in Sri Lanka (Arx & Müller, 1954). This genus is distinct from *Palmicola* as the ascospores are ellipsoidal, one-celled and surrounded by a distinct mucilaginous sheath.

Palmicola archontophoenicis is described to include fungi with ascomata grouped in a ring around a central pore within a blackened stroma which occurs above and below groups of several clustered ascomata (Figs. 1–5). The axis of the ascomata is horizontal to the host surface (Figs. 1, 3) and the paraphyses are wide, but taper distally (Fig. 12). Asci are unitunicate with a refractive subapical ring (Figs. 6, 10, 11), while ascospores are filiform, hyaline, septate and with slightly

swollen truncate ends (Figs. 7–9). The spore tips appeared to possess a slimy sheath or cap as they became attached to glass slides in squash preparations. A thin mucilaginous layer was apparent in some cases, but this requires confirmation under the SEM. The genus can be placed in the the Lasiosphaeriaceae.

Acknowledgments

I am grateful to Dr. J. L. Alcorn for his comments on the draft manuscript and the Australia Quarantine Inspection Service and Northern Australian Quarantine Strategy for laboratory facilities.

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(Manuscript accepted 17th November 1992)

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Band/Volume: [45](#)

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

Artikel/Article: [Fungi from palms. IV. *Palmicola archontophoenicis* n.gen. et spec. 15-20](#)