Fungi from palms. XXXII.\(^1\) *Arecomyces* gen. nov., with seven new species

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*Arecomyces* gen. nov. is introduced to accommodate *Physalospora*-like species on palms with unicellular, hyaline, ovoid, ellipsoidal, or ellipsoid-fusiform ascospores which are surrounded by a mucilaginous sheath; broad cylindrical asci with a refractive apical ring; and ascomata which are immersed under a clypeus or pseudostroma. *Arecomyces frondicola* is designated the generic type and six other new species are described. The taxa are illustrated with interference light photomicrographs and compared with other related genera.

Keywords: Hyponectriaceae, *Arecomyces*, Palmae, rachis.

A group of fungi that I have frequently collected on palms has hyaline, unicellular ascospores surrounded by a mucilaginous sheath, broad cylindrical asci with a nonamyloid, discoid, refractive apical ring, and ascomata immersed under a clypeus or pseudostroma. The group has affinities with genera placed in the Hyponectriaceae, although the species cannot be accommodated in any described genus. Members of the Hyponectriaceae (*Familia incertae sedis sensu* Hawksworth & al., 1995) are commonly associated with palms and include *Apioclypea* K. D. Hyde, *Linocarpon* Syd. & P. Syd., *Oxydothis* Syd. & P. Syd. and *Pemphidium* Mont. The taxonomic placement of these genera in the Hyponectriaceae is rather speculative and they could also be considered appropriate candidates for other families, such as the Amphisphaeriaceae. Members of the Xylariales (Amphisphaeriaceae, Clypeosphaeriaceae, Xylariaceae) are also common on palms and include *Anthostomella* Sacc., *Astrocystis* Berk. & Broome, *Capsulospora* K. D. Hyde, *Fasciatispora* K. D. Hyde and *Nipicola* K. D. Hyde (Hyde, 1992a, 1995, 1996a, 1996b; Hyde, Fröhlich & Taylor, 1996, Læsøe & Spooner, 1994). This group from palms, is however, different from all of these genera, or other genera in these families and therefore a new genus *Arecomyces* is introduced to

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accommodate taxa in this group. It is probably best referred to the Hyponecrtiaeae (sensu Hawksworth & al., 1995).

Some ascomycete genera with hyaline ascospores and unitunicate cylindrical asci with nonamyloid refractive apical rings include Annulatascus K. D. Hyde, Glomerella Spauld. & H. Schrenk, Lasiosphaeria Ces. & De Not., Physalospora Niessl. and Plectosphaerella Kirschst. In Annulatascus (Lasiosphaeritiaeae) the ascral ring is relatively massive and the ascospores are minutely ornamented and have sheaths or appendages (Hyde, 1992b). In Glomerella (Phyllachoraceae) ascomata are normally immersed in diseased leaf tissue, the ascral ring is inconspicuous and the ascospores are ellipsoidal (CMI Descript. 315, 1971; Uecker, 1994). In Lasiosphaeria the ascomata are superficial, while ascospores are mostly cylindrical (Hilber & Hilber, 1983). In Plectosphaerella ascomata are relatively small (90–130 μm diam) and found in diseased leaf tissue, the ascospores are ellipsoidal and biseriate (Uecker, 1993). These genera appear to be unrelated to Arecomyces. There are no recent treatments of Physalospora, although Arx & Müller (1954) illustrate the type species P. alpestris Niessl. and Barr (1970) discuss several species from north America. In Physalospora a stroma or clypeus is lacking, asci are cylindro-clavate and relatively large, and spores are longer than 20 μm (Barr, 1970; Hanlin, 1990). Arecomyces can be distinguished from Physalospora as the ascomata are immersed in a clypeus or pseudostroma, the asci are broadly cylindrical with relatively distinct apical rings, and the ascospores are relatively small (less than 20 μm long). Physalospora has recently been placed in the Hyponectriiaeae (Barr, 1990; Hawksworth & al., 1995), and because of the similarities between that genus and Arecomyces, this new genus is probably also best included there. It differs from species of Hyponectria Sacc., in which the ascomata are immersed and thickened above by an inconspicuous clypeus and rarely more than 200 μm diam., and the ascospores are smooth-walled and lack a wide mucilaginous sheath (Barr, 1977). Species of Arecomyces are presently only known from palms.

Arecomyces is also similar to Phomatospora Sacc. in that the ascomata are immersed, the asci are cylindrical and with an apical ring, and the ascospores are unicellular, hyaline and uniseriate in the ascus. However, unlike Phomatospora in which the ascospores are usually striate and appendaged, the ascospores of Arecomyces are smooth or echinate and surrounded by a mucilaginous sheath. The asci in Phomatospora are also long cylindrical as compared to broadly cylindrical in Arecomyces and the apical ring differs; cylindrical in Phomatospora, and discoid in Arecomyces. The paraphyses in Phomatospora are also much wider than those in Arecomyces, which are narrow and embedded in a gelatinous matrix. Phomatospora is presently included
# Tab. 1 – Synopsis of Arecomyces species. All measurements in μm.

<table>
<thead>
<tr>
<th>A. bruneiensis</th>
<th>A. dicksonii</th>
<th>A. epigeni</th>
<th>A. frondicola</th>
<th>A. hedgerii</th>
<th>A. sekoyae</th>
<th>A. tetrasporus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ascii</strong></td>
<td></td>
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<tr>
<td>105–129 x 11-15, 8-spored</td>
<td>57–75 x 6-7.5, 8-spored</td>
<td>82–92 x 7-8, 8-spored</td>
<td>94–120 x 11-15, 8-spored</td>
<td>100–115 x 9-10, 8-spored</td>
<td>91–122 x 7.5-9, 8-spored</td>
<td>62–75 x 8-12, (2-)4-spored</td>
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<tr>
<td><strong>Ascospores</strong></td>
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<tr>
<td>15–19 x 6.5–8, lenticular, echinulose, with a sheath</td>
<td>7.5–10 x 4.5–6, oblong ellipsoidal, smooth, with a sheath</td>
<td>12–16 x 4–4.5, fusiform with tapered ends, echinulose, sheath wavy in outline</td>
<td>12.5–14 x 5–7, ellipsoid-fusiform, echinate, with a sheath</td>
<td>8.5–12.5 x 5–6.5, ovoid, smooth, with a sheath</td>
<td>12.5–15 x 5–7.5, lunate, smooth, sheath lacking</td>
<td>13–17 x 5–6.5, ellipsoid, echinulose, with a sheath</td>
</tr>
<tr>
<td><strong>Host</strong></td>
<td>Daemonorops</td>
<td>Jessenia</td>
<td>Eugeissona, Oraniopsis</td>
<td>Arenga, Calamus, Elaeis, Licuala, Oncosperma, Oraniopsis</td>
<td>Jessenia</td>
<td>Jessenia</td>
</tr>
<tr>
<td><strong>Distribution</strong></td>
<td>Brunei</td>
<td>Ecuador</td>
<td>Australia, Brunei</td>
<td>Ecuador</td>
<td>Ecuador</td>
<td>Ecuador</td>
</tr>
</tbody>
</table>
in the *Pleurotremataceae* (Barr, 1994) or *ascomycetae incertae sedis* (Hawksworth & al., 1995).

Material has been deposited in the herbarium of The Department of Ecology and Biodiversity, University of Hong Kong (HKU). All measurements given in this paper were made from material mounted in water. A synopsis of the species in *Arecomyces* is given in Tab 1.

**Taxonomy**

*Arecomyces* K. D. Hyde, gen. nov.


**Typus generis.** - *Arecomyces frondicola*.

**Etymology.** - In reference to the palm host.

Ascomata visible as slightly raised darkened discs or minute black dots or immersed under a pseudostroma on the host surface; in section ellipsoidal or subglobose, immersed under a clypeus or pseudostroma, ostiolate, papillate, solitary or gregarious. - Peridium hyaline or brown, comprising several layers of compressed or globose fungal cells. - Paraphyses hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix. - Asci (2–4–8 spored, broadly cylindrical, pedicellate, thin-walled, unitunicate, apically truncate (or rounded), with a discoid, nonamyloid apical ring. - Ascospores uniseriate or overlapping uniseriate, ellipsoidial, broadly fusiform, ellipsoidial-fusiform or ovoid, unicellular, hyaline, smooth-walled or echinate, surrounded by a mucilaginous sheath.

**Type species.** - *Arecomyces frondicola*.

**Key to *Arecomyces* species**

1. Asci (2–)4-spored .............................................. *A. tetrasporus*
2. Ascospores asymmetric, 12.5–15 x 5–7.5 μm, lacking a mucilage sheath, developing under a blackened pseudostroma .. *A. sekoyae*
3. Ascospores symmetric ........................................ 3
3. Ascospores lenticular, 15–19 x 6.5–8 μm .......... *A. bruneiensis*

3. Ascospores oblong ellipsoidal, lenticular or ovoid, mostly less than 15 μm long .................................................. 4

4. Ascospores mostly 12–16 μm long ........................................... 5

4. Ascospores mostly less than 12 μm long .................................................. 6

5. Ascospores 12.5–14 x 5–7 μm, sheath regular in outline .................. .......................... *A. frondicola*

5. Ascospores 12–16 x 4–4.5 μm, sheath wavy in outline .. *A. epigeni*

6. Ascospores oblong ellipsoidal, 7.5–10 x 4.5–6 μm, clypeate ................. .......................... *A. dicksonii*

6. Ascospores ovoid, 8.5–12.5 x 5–6.5 μm, developing under a reddish-brown pseudostroma .......................... *A. hedgerii*

1. *Arecomyces bruneiensis* K. D. Hyde, sp. nov. – Figs. 1–12.

Ascomata sub clypeo immersa, 260–420 μm diam, 200–250 μm alta, subglobosa, solitaria vel gregaria, ostiulata, papillata. Ascii 105–129 x 11–15 μm, 8-spored, cylindrical, breviter pedicellati, unitunicati, ad apicem truncati, apparato apicali, 4 μm diam, 1 μm alto praediti. Ascosporeae 15–19 x 6.5–8 μm, uniseriatae, late fusiformes vel lenticulares, unicellulares, hyalinae, echinulosae, tunica gelatinosa praeditae.

**Holotype.** – BRUNEI DARUSALAM, Temburong, Kuala Belalong, Field Studies Centre, on rachis of *Daemonorops* sp., June 1993, K. D. Hyde 1728 (HKU(M)1728).

Ascomata visible as minute black ostiolar dots on the host surface; in section 260–420 μm diam, 200–250 μm high, irregularly subglobose, immersed under a clypeus, solitary or gregarious, ostiolum central (Fig. 1). – **Peridium** up to 12 μm wide, comprising 3–4 layers of brown-walled, elongate fungal cells (Fig. 2). – **Papilla** short, occasionally erumpent above the host surface, surrounded by a blackened clypeus, clypeus comprising host cells and pale brown fungal hyphae, periphyses not seen (Fig. 1). – **Paraphyses** up to 4 μm wide, hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix (Fig. 1). – **Asci** 105–129 x 11–15 μm, 8-spored, cylindrical, short pedicellate, thin-walled, unitunicate, apically truncate, with a non amyloid, discoid, refractive apical ring, 4 μm diam, 1 μm high (Figs. 3–5). – **Ascospores** 15–19 x 6.5–8 μm, overlapping uniseriate, lenticular, unicellular, hyaline, minutely echinulose and surrounded by a mucilaginous sheath (Figs. 6–12).

**Known host.** – *Daemonorops.*

**Known distribution.** – Brunei.

Other material examined. – BRUNEI DARUSALAM, Temburong, Kuala Belalong, Field Studies Centre, on rachis of *Daemonorops* sp., June 1993, K. D. Hyde 1788 (HKU(M)1788).

2. *Arecomyces dicksonii* K. D. Hyde, sp. nov. – Figs. 13–21.

Ascomata sub clypeo immersa, 250–300 μm diam, 150–200 μm alta, subglobosa, solitaria vel gregaria, ostioluta, papillata. Asci 57–75 x 6–7.5 μm, 8-spori, cylindrici, breviter pedicellati, unitunicati, ad apicem truncati, apparato apicali 3 μm diam, 0.6–1 μm alto praediti. Ascosporeae 7.5–10 x 4.5–6 μm, uniseriatae, oblonge ellipsodeae, unicellulares, hyalinae, laeves, tunica gelatinosa praeditae.

Etymology. – In honour of Gordon Dickson of the British Mycological Society for organising the expedition to Ecuador, where this species was collected.

Holotypus. – ECUADOR, Rio Cuyabeno, Cuyabeno, on *Jessenia* sp., Aug 1993, K. D. Hyde E12 (HKU(M)2641. Syntype at the Biology Department, Catholic University, Quito, Ecuador).
Ascomata visible as raised black areas, up to 250 μm diam, on the host surface; in section 250–300 μm diam, 150–200 μm high, subglobose, immersed under a clypeus and surrounded by a pale brown pseudostroma composed of host cells and pale brown fungal hyphae (textura intricata), solitary or gregarious, ostiolum central (Fig. 13–15). Peridium up to 10 μm wide, comprising a few layers of brown walled compressed fungal cells (Fig. 14). Papilla short, erumpent through the host surface, black, surrounded by a halo of white tissue and outer blackened clypeus, periphyses not seen (Fig. 13). Paraphyses up to 3 μm wide, hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix. Asc 57–75 x 6–7.5 μm, 8-spored, cylindrical, short pedicellate, thin-walled, unitunicate, apically truncate, with a non amyloid, discoid, refractive apical ring, 3 μm diam, 0.6–1 μm high (Fig. 16). Asco spores 7.5–10 x 4.5–6 μm, overlapping uniseriate, oblong ellipsoidal, one-celled, hyaline, smooth, surrounded by a wide mucilaginous sheath (Figs. 17–21).
Known hosts. — Jessenia.
Known distribution. — Ecuador.

This species differs from *A. hedgerii* in which the ascomata develop under a reddish brown pseudostroma.


Ascomata sub clypeo immersa, 420–500 µm diam, 160–200 µm alta, subglobosa vel ellipsioidea, solitaria vel gregaria, ostioluta, papillata. Asci 82–92 x 7–8 µm, 8-spored, late cylindrici, breviter pedicellati, unitunicati, ad apicem truncati, apparato apicali J-, 3 µm diam, 1.5–2 µm alto praediti. Ascosporeae 12–16 x 4–4.5 µm, 1(–2)-seriatae, fusiformes, hyalinae, unicellulares, echinulosae, tunica gelatinosa praeditae.

Etymology. — From the Latin *epigenous* meaning „developing on the surface“.

Holotypus. — AUSTRALIA, north Queensland, Mt Lewis, on rachis of *Oraniopsis* sp., Aug 1992, K. D. Hyde 1529 (HKU(M)1529).

Ascomata visible as raised black conical areas, up to 300 µm diam, with lighter coloured centres, on the host surface; in section 420–500 µm diam, 160–200 µm high, subglobose or ellipsoidal, immersed under a blackened clypeus and surrounded by a pale brown pseudostroma composed of host cells and pale brown fungal hyphae (*textura intricata*), solitary or mostly gregarious, ostiolum central (Figs. 22–26). — Peridium 10–20 µm wide, comprising several layers of brown-walled fungal cells in the form of *textura angularis* (Fig. 24). — Papilla periphysate, umbilicate, white region around neck caused by lack of blackened fungal tissue of clypeus in this region (Fig. 26). — Paraphyses up to 4 µm wide, hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix (Fig. 27). — Asci 82–92 x 7–8 µm, 8-spored, broad cylindrical, short pedicellate, thin-walled, unitunicate, apically truncate, with a non amyloid, discoid, refractive apical ring, 3 µm diam, 1.5–2 µm high (Figs. 27, 28). — Ascospores 12–16 x 4–4.5 µm, 1(–2)-seriatae, fusiform with tapered ends, unicellular, hyaline, echinulose, surrounded by a mucilaginous sheath. Sheath wavy in outline and wider in the centre than at the ends (Figs. 29, 30).

Known hosts. — *Eugeissona, Oraniopsis*.
Known distribution. — Australia, Brunei.


4. *Arecomyces frondicola* K. D. Hyde, sp. nov. – Figs. 31–43.

Ascomata sub clypeo immersa, 250–350 μm diam, 120–150 μm alta, lenticularia, solitaria vel gregaria, ostiolata, papillata. Asci 94–120 x 11–15 μm, 8-spori, cylindrici, breviter pedicellati, unitunicati, ad apicem truncati, apparato apicali 5 μm
diam, 1 μm alto praediti. Ascosporae 12.5–14 x 5–7 μm, uniseriatae, late fusiformes, unicellulares, hyalinae, echinulose, tunica gelatinosa praeditae.

**Etymology.** – From the Latin *frondicola* meaning „dwelling on leaves“.


Ascomata visible as raised, faintly darkened, or blackened, shiny areas, up to 300 μm diam, on the host surface (Fig. 31); in section 250–350 μm diam, 120–150 μm high, lenticular, immersed under a clypeus and surrounded by a dark pseudostroma composed of host cells and brown fungal hyphae (*textura intricata*), solitary or gregarious, ostiolum central (Figs. 32, 33). – **Peridium** up to 14 μm wide, comprising 1–3 layers of hyaline or pale brown-walled compressed fungal cells (Fig. 34). – **Papilla** short, occasionally protruding slightly above the host surface, surrounded by the blackened clypeus, periphyses not seen. – **Paraphyses** up to 5 μm wide, hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix (Fig. 35). – **Asci** 94–120 x 11–15 μm, 8-spored, cylindrical, short pedicellate, thin-walled, unitunicate, apically truncate, with a non amyloid, discoid, refractive apical ring, 5 μm diam, 1 μm high (Figs. 36–38). – **Ascosporae** 12.5–14 x 5–7 μm, overlapping uniseriate, ellipsoid-fusiform, unicellular, hyaline, echinulose, surrounded by a wide mucilaginous sheath (Figs. 39–43).

**Known hosts.** – *Arenga, Calamus, Elaeis, Licuala, Oncosperma, Oraniopsis.*

**Known distribution.** – Brunei Darussalam, Malaysia.


5. *Arecomyces hedgerii* K. D. Hyde, sp. nov. – Figs. 44–53.

Ascomata in stromate ferrugineo immersa, 300–350 μm diam, 100–130 μm alta, ellipsoidae, solitaria vel gregaria, ostioluta, papillata. Asci 100–115 x 9–10 μm, 8-spori, cylindrici, breviter pedicellati, unitunicati, ad apicem rotundati, apparato apicali 4 μm diam, 1–1.5 μm alto praediti. Ascosporae 8.5–12.5 x 5–6.5 μm, uniseriatae, ovoideae, unicellulares, hyalinae, laeves, tunica gelatinosa praeditae.

**Etymology.** In honour of John Hedger of the British Mycological Society for organising the expedition to Ecuador, where this species was collected.
Holotypus. – ECUADOR, on rachis of Jessenia sp., Aug 1993, K. D. Hyde E85a (HKU(M)2685. Syntype at the Biology Department, Catholic University, Quito, Ecuador).

Ascomata immersed under a very slightly raised reddish brown area on the host surface; in section 300–350 μm diam, 100–130 μm high, ellipsoidal, immersed under a superficial reddish brown stroma comprising fungal cells in the form of textura globulosa (Figs. 44–46), and surrounded by a pale brown pseudostroma composed of host cells and pale brown fungal hyphae (textura intricata), solitary or gregarious, adjacent ascomata separated by a region of vertically orientated light brown walled palisade-like cells (Fig. 46), ostiolum central. – Peridium up to 10 μm wide, comprising a few layers of brown walled compressed fungal cells (Fig. 46). – Papilla short, erumpent through the host surface, periphyses not seen. – Paraphyses up to 3 μm wide, hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix (Fig. 47). – Asci 100–115 x 9–10 μm, 8-spored, cylindrical, short pedicellate, thin-walled, unitunicate, apically rounded, with a non amyloid, discoid, refractive apical ring, 4 μm diam, 1–1.5 μm high (Figs. 48–50). – Ascospores 8.5–12.5 x 5–6.5 μm, uniseriate, ovoid, unicellular, hyaline, smooth, surrounded by a wide mucilaginous sheath (Figs. 51–53).

Known host. – Jessenia.

Known distribution. – Ecuador.

6. Arecomyces sekoyae K. D. Hyde, sp. nov. – Figs. 54–68.

Ascomata in stromate immersa, 400–600 μm diam, 150–200 μm alta, ellipsoida, gregaria, ostiolata, papillata. Asci 91–122 x 7.5–9 μm, 8-spori, cylindrici, breviter pedicellati, unitunicati, apicem rotundati, apparato subapicali 4 μm diam, 1.5 μm alto praediti. Ascosporeae 12.5–15 x 5–7.5 μm, uniseriatae, lunatae, unicellulares, hyalinae, laeves.

Etymology. – Named after the people of the Cuyabeno region in Ecuador, ‘the Sekoya’.

Holotypus. – ECUADOR, Cuyabeno, on rachis of Jessenia sp., Aug 1993, K. D. Hyde E78 (HKU(M)2682. Syntype at the Biology Department, Catholic University, Quito, Ecuador).

Ascomata immersed under very slightly raised dark brown to black areas, up to 50 x 5 μm, on the host surface (Fig. 54); in section 400–600 μm diam, 150–200 μm high, ellipsoidal, surrounded by a pale brown pseudostroma composed of host cells and pale brown fungal hyphae (textura intricata), gregarious (Fig. 55), adjacent ascomata separated by a region of vertically orientated light brown-walled palisade-like cells (Fig. 56), ostiolum central. – Peridium up to 12 μm

wide, comprising a few layers of pale brown-walled elongate fungal cells (Fig. 56). — *Papilla* short, slightly erumpent through the host surface, periphyses not seen (Fig. 57). — *Paraphyses* up to 4 μm wide, hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix (Fig. 63). — *Ascii* 91–122 x 7.5–9 μm, 8-spored, cylindrical, short pedicellate, thin-walled, unitunicate, apically rounded, with a non amyloid, discoid, refractive subapical ring, 4 μm diam, 1.5 μm high (Figs. 58–62). — *Ascospores* 12.5–15 x 5–7.5 μm, uniseriate, lunate, unicellular, hyaline, smooth, lacking a sheath (Figs. 64–68).
**Known host.** – *Jessenia*.

**Known distribution.** – Ecuador.

7. *Arecomyces tetrasporus* K. D. Hyde, sp. nov. – Figs. 69–78.

Ascomata sub clypeo immersa, 300 μm diam, 150 μm alta, subglobosa, solitaria vel gregaria, ostiolata, papillata. Asci 62–75 x 8–12 μm, (2–)4-spori, late cylindrici, breve pedicellati, unitunicati, ad apicem truncati, apparato apicali 4 μm diam,

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1.5 μm alto praediti. Ascosporae 13–17 x 5–6.5 μm, uniseriatae, ellipsoidae, unicellulares, hyalinae, echinuloseae, tunica gelatinosa praeditae.

**Etymology.** – From *tetraspora* in relation to the asci containing mostly 4 spores.

**Holotypus.** – ECUADOR, Cuyabeno, on rachis of *Phytelephas* sp., Aug 1993, K. D. Hyde E119 (HKU(M)2714. Syntype at the Biology Department, Catholic University, Quito, Ecuador).

Ascomata visible as small black ostiolar dot on the host surface; in section 300 μm diam, 150 μm high, subglobose, immersed under a clypeus and surrounded by a pale brown pseudostroma composed of host cells and pale brown fungal hyphae (*textura intricata*), solitary or gregarious, ostiolum central (Fig. 69). – Peridium up to 10 μm wide, comprising a few layers of brown-walled compressed fungal cells (Fig. 70). – Papilla short, occasionally protruding slightly above the host surface, surrounded by the blackened clypeus, periphyses not seen (Fig. 69). – Paraphyses up to 4 μm wide, hypha-like, filamentous, irregular, septate, numerous and embedded in a gelatinous matrix (Fig. 74). – Asci 62–75 x 8–12 μm, (2–) 4-spored, broad cylindrical, short pedicellate, thin-walled, unitunicate, apically truncate, with a non amyloid, discoid, refractive apical ring, 4 μm diam, 1.5 μm high (Figs. 71–74). – Ascospores 13–17 x 5–6.5 μm, overlapping uniseriate, ellipsoidal, unicellular, hyaline, echinulose and surrounded by a wide mucilaginous sheath (Figs. 75–78).

**Known host.** – *Phytelephas*.

**Known distribution.** – Ecuador.

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