

# Beihefte

zur

## Sydowia

Annales Mycologici, Ser. II.

Herausgegeben

von

F. Petrak (Wien)

### III. Beiheft

A. Chaves Batista & R. Ciferri  
The Chaetothyriales

1962

VERLAG VON FERDINAND BERGER, HORN, N.-Ö., AUSTRIA

# Iconographia Meliolarum

In February 1962 C. J. Hansford's Monograph of the *Meliolineae* will be published as the second Beiheft of *Sydowia*. In this monograph 1814 species will be described on about 806 pages; the genera *Amazonia*, *Meliola*, *Appendiculella* and *Asteridiella* are treated.

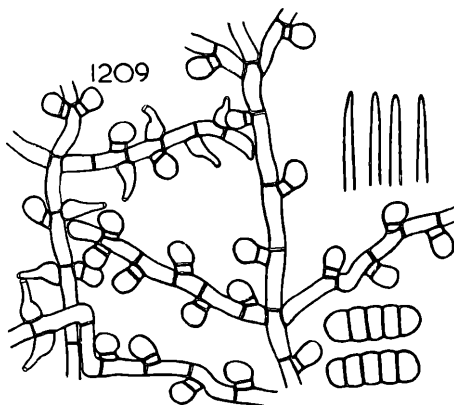
The author has prepared pictures of nearly all the species described, showing all the details necessary for identification as hyphopodia, tips of bristles of mycelium, spores, etc. The pictures are of special value as nearly all of them have been drawn after the type specimens, many of them being difficult to obtain.

The publisher of *Sydowia* now publishes the text of the monograph. Publication of figures will only be possible if a sufficient number of persons interested in them would be prepared to subscribe in advance for the illustrations. These would be published in three parts, each part of 100 plates, each plate with 6 figures. Providing 200 subscriptions could be obtained, each part will cost about 250 Austrian Shillings (about 10.— \$ = 3/10/- £). The proof print of fig. 1209 inserted below gives an idea of the high standard of the illustrations.

The publisher and the editor want to draw the attention of all mycologists to the fact that the author has spent nearly twenty years in carefully preparing the monograph and the illustrations and that the use of the work would be greatly facilitated by having the illustrations published simultaneously.

Publisher:  
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Editor:  
**Dr. F. Petrak**  
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*Meliola Groteana* Syd.

An den

**Verlag Ferdinand Berger**

**Horn, NÖ.**  
Austria

# Iconographia Meliolarum

Im Februar 1962 ist die von Dr. C. J. Hansford verfaßte Monographie der Meliolineen als 2. Beiheft der *Sydowia* erschienen. Sie umfaßt 806 Druckseiten, auf denen 1814 Arten beschrieben werden, die sich auf die Gattungen *Amazonia*, *Meliola*, *Irenopsis*, *Appendiculella* und *Asteridiella* verteilen. Zu dieser Monographie gehören fast ebenso viele Abbildungen, auf denen alle für die Bestimmung wichtigen Einzelheiten — Verzweigung der Myzelhyphen mit den Hyphopodien, Spitzen der Myzelborsten und Sporen — dargestellt werden. Da fast alle Figuren nach Präparaten von Originalexemplaren gezeichnet wurden, sind sie besonders wertvoll, zumal sehr viele Meliolineentypen für Vergleichszwecke nicht oder nur schwer zu erhalten sind.

Der *Sydowia*-Verlag bringt jetzt den Text der Monographie heraus, könnte aber den Druck der dazu gehörigen Abbildungen nur dann durchführen, wenn sich eine hinreichend große Zahl von Interessenten finden würde, die im Voraus auf das Abbildungswerk subscribieren. Die *Iconographia* würde in 3 Lieferungen zu je 100 Tafeln mit je 6 Figuren auf jeder Tafel erscheinen, die unter der Voraussetzung, daß sich ca. 200 Subskribenten melden, je ca. 250 ö. S = \$ 10 kosten würden. Auf dem umseitig stehenden Probedruck von Fig. 1209 ist die sorgfältige, naturgetreue Darstellung klar zu erkennen.

Verlag und Herausgeber richten an alle Interessenten die dringende Bitte, das Erscheinen der Meliolineen-*Iconographie*, an deren Herstellung der Verfasser ca. 20 Jahre lang gearbeitet hat, durch Subskription auf das Werk zu ermöglichen und diesbezüglich den Verlag ehestens verständigen zu wollen.

Der Verlag  
**Ferdinand Berger**  
Horn, N.Ö. Austria

Der Herausgeber  
**Dr. F. Petrak**  
Wien II., Zirkusgasse 52

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Verlag—Publisher

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# An die Abonnenten und Mitarbeiter der „Sydowia“

Die bis jetzt erschienenen Jahrgänge der unter dem Titel „Sydowia“ neu herausgegebenen, von H. Sydow begründeten „Annales mycologici“ dürften den Beweis dafür erbracht haben, dass sie ihre Bedeutung als internationale mykologische Zeitschrift behaupten konnten. Dem Wunsche einiger Mitarbeiter entgegenkommend, haben wir uns entschlossen, folgende Neuerung einzuführen: Damit die einlangenden Manuskripte so schnell als möglich veröffentlicht werden, wird die Zeitschrift vom 12. Jahrgang an alljährlich in 2—3 Heften herauskommen, die in ca. 6- oder 4-monatlichen Intervallen erscheinen werden.

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Der Preis für den Jahrgang beträgt 40 Schw. Fr.

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Der Herausgeber:

**Dr. F. Petrak**

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Issued March, 10, 1962

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VERLAG VON FERDINAND BERGER, HORN, N.-Ö., AUSTRIA

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Institute of Mycology – University of Recife.  
Publication Nr. 158

By

**A. Chaves Batista & R. Ciferri**

1962

VERLAG VON FERDINAND BERGER, HORN, N.-Ö., AUSTRIA

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- Xanthoxylum rhoifolium*  
*Ainsworthia xanthoxylis*  
*Xymalos*  
*Ceramothyrium parenchimaticum*  
*Xylopi*  
*Phaeochaetia setosa*  
*Xylopi brasiliensis*  
*Gilmania xylopi*  
*Vitalia multisetulata*  
*Xylopi frutescens*  
*Chaetothyrium* sp.
- Yucca*  
*Dennisiella babingtonii*

Berger & Söhne Ges.m.

## Introduction

The family *Chaetothyriaceae* was raised by Hansford, C. G., in 1946, in the light of the studies of Bitancourt, A. A., 1936, on type material of *Chaetothyrium guaraniticum* Speg.

Now the characteristics of this family are reduced to contain only fungi of hyaline mycelium, in accordance with its genus type; some genera are fragmented into other new genera to maintain the best definition on their taxonomic delimitation, while other genera are transferred to another family.

The first rough idea of taxonomic interest about the relative position of mycelium and perithecia is to be attributed to Theissen and Sydow, discriminating, among the Capnodiaceae family, the tribes Eu-Capnodieae Th. & Syd. and Chaetothyriaceae Theiss. (See Ann. Mycol. vol. XV, p. 471—472, 1917).

A progressive step has been taken by Bitancourt (Arq. Inst. Biol. S. Paulo, vol. VII, pag. 7—12, 1936) who effected a thorough revision of the Spegazzinian type of the genus *Chaetothyrium*, *C. guaraniticum* Speg.

He observed that the perithecia are found beneath the mycelial pellicle, which is adherent to the outer wall of the upper part of these fruiting bodies. The mycelium pellicle is then lying on the leaf surface like a cloth covering a solid body.

A further step was the full validation of this characteristic made by Hansford (I. M. I. Myc. Pap. N. 15, pag. 139—159, 1946) instituting the *Chaetothyriaceae* family with five genera: *Chaetothyrium*, *Setella*, *Microcallis*, *Phaeosaccardinula* and *Actinocymbe*.

Bitancourt's revision of the Spegazzinian type of the genus *Chaetothyrium* stated that the mycelium is hyaline, not visible under small magnification. The ascocarp is perithecial, unilocular, ostiolate and paraphysate, but it is surrounded by mycelial reticular tissue, not well defined, made according to up of almost loose hyaline hyphae ("subicle" of some authors).

The same kind of hyphae, bound in strands, are connecting the perithecia and some scattered setae, while the remaining mycelium is made up of a thin net of hyphae.

This peculiar characteristic has been clearly expressed by Hansford, in the description of the family as a "thin pellicle on loose network over the host leaf"; but he included in this family fungi having subhyaline to olivaceous hyphae, evidently with the purpose of

putting together all the fungi with perithecia developed beneath the mycelial pellicle.

During many years, we had occasion to study abundant material pertaining to the *Chaetothyriaceae* family, and, in our opinion, the establishment of this family is fully justified.

But, by widening the family to include species with dematiaceous, as a rule fumagineous mycelium, the *Chaetothyriaceae* include heterogeneous elements, having in common the perithecial development under the mycelial pellicle.

One group of species presents hyaline to subhyaline, relatively thin mycelium, sparingly or confusedly septate, not or very slightly narrow at the septa, as a rule firmly adhering to the leaf surface (the leaf cuticle, in some portion of the vegetative hyphae, may be swollen).

The interperithecial infertile mycelium, may be composed of loose, interlaced hyphae, or of delicate, reticulate-vermiculate strands. It is not evident under small magnification. The same mycelial pseudo-tissue is found on and around the perithecia, obscuring its true structure, and forming a kind of "subicle" with a mucous-evanescent peripheral portion.

The perithecial wall is relatively thin, composed of an outer part build up by one to a few layers of parenchymatous cells and an inner part of more or less differentiated layers of hyphae.

Another group of species possesses full dematiaceous mycelium, brown to blackish in color, relatively thick, clearly and densely septate, as a rule narrowed at the septa up to a full dematioid or toruloid shape. This mycelium never adheres to the leaf surface, also in correspondence to the sterile hyphae. The leaf cuticle is not altered in any way. In addition, this kind of mycelium is not rarely mucous or slimy, and, in any case, is apt to absorb moisture. The interperithecial sterile mycelium may be loose or aggregate in strand or forming a pellicle, and, in any case, it is well evident also under small magnification. It is easy to separate this mycelium from the leaf. The same strands or pellicle cover the perithecium, completely obscuring its structure when forming a continuous pellicle; the perithecia however, are developed beneath the mycelial pellicle.

In our opinion, this discrimination fully agrees with the distinction of three families; *Chaetothyriaceae*, with hyaline mycelium, *Phaeosaccardinulaceae* and *Euceramiceae* having dark mycelium with uni- or plurilocular perithecia.

So delimited, the *Chaetothyriaceae* family includes the genus *Chaetothyrium* as typified by *C. guaraniticum* and the genera *Recifea* Bat. & Cif., *Ciferriusia* Bat., *Sphaerochaetia* Bat. & Cif., *Microcalliomyces* Bat. & Cif., *Ainsworthia* Bat. & Cif., *Treubiomyces* v. Hoehn. emended and *Batistaella* Ciferri.

The problem of the characterization of the family *Phaeosaccardinulaceae* with the genus *Phaeosaccardinula* P. Henn., is more delicate.

Hansford does not mention the nature of the mycelium, translating the diagnosis of Saccardo's Sylloge, with a few modifications. The type species (*P. diospyricola* P. Henn.) possesses "sub-fuscous, simple hyphae". The second species of the same genus, *P. ficicola* P. Henn., is described as having "hyphis radiantibus ramosis, septatis, hyalinis vel fuscis"

Theissen and Sydow (l. c. pag. 480) considered *Phaeosaccardinula* as having dematioid mycelium, but there is no indication of a personal revision of the type specimen.

The three species referred by the same mycologists (*P. malloti* (Rehm) Theiss.; *P. butleri* (Syd.) Theiss. & Syd. and *P. indiae* (Syd.) Theiss. & Butl. possess black or dull-brown mycelium.

To sum up, it appears justified to take out from *Chaetothyriaceae* Hansf. all the fungi having dematioid mycelium and transferring them to the new families *Phaeosaccardinulaceae*, with the genus *Phaeosaccardinula* as the type, having perithecia unilocular, and *Euceramiaeae*, with the genus *Euceramia* as the type, having perithecia plurilocular.

A few word about the systematic position of the above quoted families are to be added.

The *Phaeosaccardinulaceae* as well as the *Euceramiaeae* families, so defined, fully pertains to the sooty molds group in relation to the complete epiphytic life, notwithstanding the morphology and quite distinct origin of their perithecia. These two families and the *Chaetothyriaceae* are ascribed, then, to the new order, Chaetothyriales.

In addition, *Phaeosaccardinulaceae* may possess a pycnidial stage, either with elongate or spherical pycnidia, in common with the member of the *Capnodiaceae* family. Also in common with *Capnodiaceae*, the *Phaeosaccardinulaceae* and *Euceramiaeae* may be associated with insects and their secretions or not.

The systematic position of the order Chaetothyriales, appears to be parallel to the order Capnodiales both orders deriving from Pseudosphaeriales (incl. Dothideales). The evolution line in Chaetothyriales we suppose to come from the hyaline mycelium in *Chaetothyriaceae* to the subhyaline or dull mycelium in *Phaeosaccardinulaceae* and *Euceramiaeae*.

The asci, judging from Bitancourt's revision of *Chaetothyrium guaraniticum* and from the results of our study with several genera of the families *Phaeosaccardinulaceae* and *Euceramiaeae*, are normally unitunicate, in accordance with Luttrell's statement; however, as an exception, a few species have bitunicate asci; the discharge of the spores has not been observed.

In conclusion, according to our point of view, the *Chaetothyriaceae*



family, as defined by Hansford, *sensu stricto*, is fully justified to include all fungi with superficial hyaline mycelium, the perithecia of which develop beneath a mycelial network or pellicle.

The new family *Phaeosaccardinulaceae* will comprehend all sooty-molds fungi with dull, dematioid mycelium, having perithecia unilocular developed beneath the mycelial pellicle.

The new family *Euceramiaceae* should be distinguished from *Phaeosaccardinulaceae* for having in common the perithecia developed beneath a mycelial pellicle; they, however, are plurilocular.

These three families are ascribed to the new order *Chaetothyriales* having the family *Chaetothyriaceae* as the type.

The affinity of the order with Pseudosphaeriales results from the strands of pseudoparaphysoides (namely, the remaining of hyphae filling the perithecia, after the differentiation of ascogenous hyphae), having a tendency to grow from the top to the bottom of the ascocarp.

### Chaetothyriaceae. Hansf.

#### Hyaline mycelium.

Key to the Genera of the Family *Chaetothyriaceae*.

*Hyalodidymae* Spores one-septate, hyaline.

A — Mycelium not setose; perithecia setose *Recifea* Bat. & Cif.

AA — Mycelium and perithecia setose *Microcalliomyces* Bat. & Cif.

*Hyalophragmiae* Spores 2- or more transversally septate, hyaline.

A — Mycelium not setose

B — Perithecia not setose *Ciferriusia*. Bat.

BB — Perithecia setose *Sphaerochaetia* Bat. & Cif.

AA — Mycelium setose

B — Perithecia setose *Chaetothyrium* Speg.  
emend. Bitanc.

BB — Perithecia not setose *Almeidaea* Cif. & Bat.

*Hyalodictyae* Spores muriform, hyaline

A — Perithecia and mycelium not setose *Ainsworthia* Bat. & Cif.

AA — Perithecia and mycelium setose *Treubiomyces* V. Höhn.

*Phaeodictyae* Spores muriform, dark.

A — Perithecia and mycelium not setose.

B — Asci paraphysate *Wiltshirea* Bat. & Peres

BB — Asci paraphysate *Batistaella* Cif.

AA — Perithecia setose; mycelium not setose *Marceloa* Bat. & Peres

*Scoleosporeae* Spores hyaline, transversally septate, thread- or worm-like, with ratio of dimensions at least 10 : 1.

Mycelium and perithecia not setose *Limaciniella* Stev.

#### *Ainsworthia* Bat. & Cif. n. gen.

Dedicated to Dr. G. C. Ainsworth, British mycologist.

Mycelium pelliculosum, hyalinum vel sub-hyalinum, non setosum,

non hyphopodium. Perithecia ob pellicula mycelica tecta, non setosa, pseudo ostiolata. Asci 1-tunicati, aparaphysati. Ascospores muriformes, hyalinae.

Typus: *A. xantoxylii* Batista & Costa.

**Ainsworthia morindae** (Stev.) Bat. n. comb.

Syn: *Phaeosaccardinula morindae* Stevens in Bern. P. Bishop Mus. Bul. 19 : 59, 1925.

Mycelium thinly pelliculose, hyaline to subhyaline, the hyphae irregularly branched and composed of oblong and cylindrical cells, not setose, nor hyphopodiate. Perithecia developed beneath the mycelial pellicle, globose, membranous gelatinous, dark-brown,

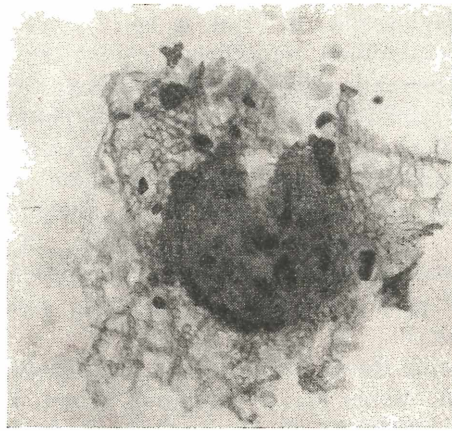


Fig. 1. *Ainsworthia smilacina* Bat. et Vit.

pseudo-ostiolate, about 220  $\mu$  diam, without setae. Asci ovoid, 8-spored, numerous, 44  $\times$  30  $\mu$ , aparaphysate. Ascospores ellipsoid to oblong, muriform, 4-transversally septate, 1-longitudinal septum, not constricted, hyaline, 27  $\times$  10  $\mu$ .

On *Morinda citrifolia* — Ohau, Hakipuu, June 6, 1925.

Est *Ainsworthia* per mycelium et perithecia non setosa et per ascosporos muriformes.

**Ainsworthia negeriana** (Sacc. & Syd.) Cif. & Bat. n. comb.

Syn.: *Tephrosticta negeriana* Sacc. & Syd. ap. Sydow. Ann. Mycol., II: 162 (1904).

Mycelium as a delicate subicle, without setae, ash grey; Perithecia globose-hemispheric, then collapsed, glabrous, 160—200  $\mu$  diam., with a not papillate, apical pore, 20  $\mu$  diam. Asci clavate, short stipitate, with rounded top, 65—75  $\times$  11—13  $\mu$ , 8-spores. Ascospores

distichous, ellipsoid-oblong, obtuse to acute, 3-septate, hyaline, with a broken longitudinal septum,  $12-14 \times 5 \mu$ .

On *Litsea* — Chile.

*Ainsworthia seaveriana* (Toro) Bat. & Cif. n., comb.

Ex.: *Phaeosaccardinula seaveriana* Toro in *Mycologia*, XVII: p. 145, 1925.

Mycelium amphigenous, effuse, ash-olivaceous, hyphae subhyaline, septate, constricted, cells  $7-23 \times 6-8 \mu$ . Perithecia globose-flattened, black, glabrous,  $168-200 \mu$  in diam.; asci clavate, 4-spores, sessile,  $60-70 \times 22-30 \mu$ ; ascospores ellipsoid, muriform, 4-7 transverse septa, 2-4 longitudinal septa,  $39-45 \times 16-18 \mu$ , hyaline.

On *Erythrina* — Porto Rico.

*Ainsworthia smilacina* Bat. & Vital, n. sp.

Mycelium epiphyllous, superficial, pelliculose, thin, subhyaline to yellowish, hyphae reticulate, septate, not constricted, with cylindrical cells,  $6-17.5 \times 5-7.5 \mu$ , not setose, nor hyphopodiate. Perithecia developed beneath the mycelial pellicle globose-depressed,  $152-186 \mu$  diam., rare, brownish, pseudo-ostiolate, membranous, the walls having subglobose to polygonal cells,  $4-9 \mu$  wide, not setose. Fig. 1. Asci subglobose, 8-spores, 1-tunicate, sessile,  $22-27.5 \mu$ , aparyphsate. Ascospores clavate to ellipsoid, polystichous, 3-4 transversally septate with 1-longitudinal septum, hyaline,  $15-17.5 \times 5-7.5 \mu$ , Fig. 1 & 2.

Associated with *Hormiscium* sp. and *Trichopeltinaceae*.

On leaves of *Smilax* sp. — Olympus, Ohau, Hawaii, June, 24, 1921. Leg. F. L. Stevens. Type no. 6667, Herbarium University of Illinois.

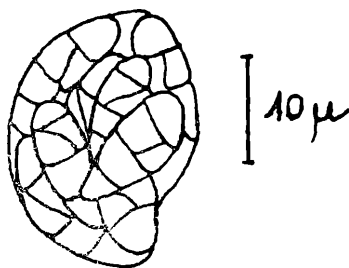


Fig. 2. *Ainsworthia smilacina* Bat. et Vit. — Ascus.

Obs.: This specimen was designated as the type of *Phragmocarpia smilacina* Mendoza, which we have not found.

Mycelium epiphyllum, superficiale, pelliculosum, tenue, subhyalinum vel flavidum, ex hyphis reticulatis, septatis, non constrictis, ex cellulis  $6-17.5 \times 5-7.5 \mu$ , non setosis, non hyphopodiatis compositum. Perithecia ob pelliculam

mycelicam tecta, globose-depressa, 152–186  $\mu$  diam., rara, brunnescentia, pseudo-ostiolata, membranosa, subparenchymatica, ex cellulis polygonalibus vel subglobosis, 4–9  $\mu$  diam., non setosis, efformata. Asci sub-globosi, 8-sporei, 1-tunicati, sessiles, 22–27.5  $\mu$ , aparaphysati. Ascosporeae clavatae, vel ellipsoideae, polystichae, 3–4 transversaliter septatae, 1-longitudinaliter septatae, hyalinae, 15–17.5  $\times$  5–7.5  $\mu$ .

*Ainsworthia xanthoxyli* Bat. & Costa, n. sp.

Colonies superficial, epiphyllous, brownish at the naked eye, single, scattered, small, rounded, about 0.5 mm diam. Mycelium superficial, thinly pelliculose, not setose nor hyphopodiate, composed of a few hyaline to subhyaline, septate hyphae, little constricted, with cylindrical cells from 4.5 to 13.5  $\times$  1.5–3.3  $\mu$ . Perithecia developed beneath the mycelial pellicle, globose-flattened, scattered, not setose brownish, 118–145  $\mu$  in diam., 78.5–100  $\mu$  in height, pseudo-ostiolate,

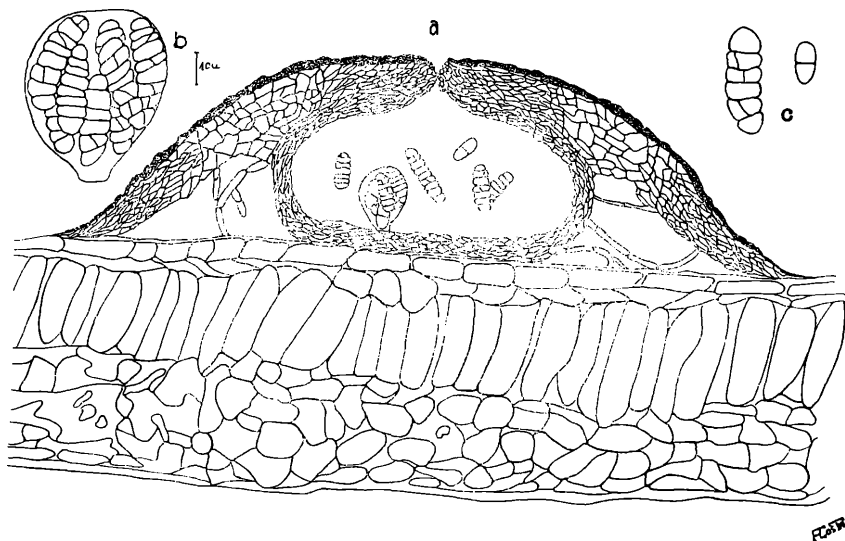


Fig. 3. *Ainsworthia xanthoxyli* Bat. et Costa. — a. Histological cut showing the perithecium beneath the mycelial pellicle. — b) Ascus. — c) Spores.

semitranslucent; perithecial wall membranous, pseudoparenchymatic, of 5 to 7 layers, 14 to 20  $\mu$  in thickness at the top, 8–12  $\mu$  thick at the base, made up of cylindrical and polygonal cells, 3.5–11.5  $\times$  1–3.5  $\mu$ . Asci subglobose to clavate, 6–8-sporei, one tunicate, sessile to short pedicellate, 30–48  $\times$  15–30  $\mu$ , aparaphysate. Ascosporeae cylindraceae, at first 1-transversally septate, then with 5 to 8 transversal septa and 1 to 4 longitudinal septa, constricted, hyaline, 25–35  $\times$  7.5–10  $\mu$ , polystichous, Fig. 3.

On live leaves of *Xanthoxylum rhoifolium* Lam. Victoria. Leg. S. J. Silva, 24. 6. 56. Typus 5663, Institute of Mycology, University of Recife. Dets. A. Chaves Batista and Carlos Amaral Costa.

This species appears to be distinct from *D. ficina* for having smaller perithecia, shorter asci, and ascospores with larger number of septa both transversal and longitudinal, besides the hyaline condition of the mycelium.

Coloniae superficiales, epiphyllae, brunneolae, sparsae, minutae, 0,5 mm diam., rotundatae, Mycelium superficiale, pelliculosum, ex hyphis hyalinis vel subhyalinis, septatis, parvum constrictis, ex cellulis cylindraceutis, 4,5–13,5 × 1,5–3,3 μ, non setosis, exhyphopodiatis compositum. Perithecia sub pellicula mycelii oriunda, globosé-depressa, sparsa, non setosa, brunnea 118–145 μ diam., 78,5–100 μ alt., pseudostiolata, cum parietibus semitranslucidis, membranosis, pseudoparenchymaticis, 5–7 stratosis, 14–20 μ cr, ex cellulis cylindraceutis vel polygonalibus, 3,5–11,5 × 1–3,5 μ compositis. Asci subglobosi vel clavati, 6–8-spori, 1-tunicati, sessiles vel brevi-stipati, 30–48 × 15–30 μ aparaphysati. Sporae cylindraceutae, ab initio 1-septatae, dein 5–8 transversaliter septatae et 1–4 longitudinaliter septatae constrictae, hyalinae, 25–35 × 7,5–10 μ, polystichae.

Also on *Artocarpus incisa* — associated with immature *Trichomerium*. Rosario, Puerto Rico. F. L. Stevens, 11–14–913. Spec. 13315, Inst. Mycol. Univ. Recife and in The Fungus National Collections, U.S.A.

Also on *Ilex glabra*, associated with *Allosoma quercifoliae* Bat. & Nasc., Newfield, N. J., 1882, Det. A. C. Batista & M. L. Nascimento, sp. 14278, I.M.U.R.

Equally found on leaves of *Andromeda ferruginea*, Green Cove Springs — Florida, Leg. Dr. Geo Martin, Det. A. C. Batista & M. L. Nascimento, spec. no. 14282, I.M.U.R., associated with *Linospora ferruginea* and *Allosoma quercifoliae* Bat. & Nasc.

Also found on *Quercus laurifolia*, Green Cove Springs, Florida, Leg. Dr. Geo Martin, Det. A. C. Batista & M. L. Nascimento, 19. 7. 1958, sp. no. 14276, I.M.U.R., associated with *Allosoma quercifoliae* Batista & Nasc., n. sp. type.

Also on *Lucuma mammosa* Gaertu, Rincon, Cuba, Leg. Charles & Ballou, 7. 3. 1927, Det. A. C. Batista & G. Peres, 18. 5. 1958, sp. no. 13347, I.M.U.R., associated with *Phaeosaccardinula caucasica*, var. *artocarpi*, Bat., Nasc. & Cif. and *Trichomerium abhorrentis* Bat.

### **Almeidaea Cif. & Bat. n. gen.**

Typus: *A. vermispora* (Hansf.) Cif. & Bat., n. comb.

Mycelium pelliculosum. Hyphae hyalinae vel subhyalinae, cum seta simplici, fusca. Perithecia sub pellicula mycelica oriunda, globosa, pseudo-ostiolata non setosa; asci 8-spori; sporae cylindraceutae vel elongatae pluri-transversaliter septatae, hyalinae.

Dedicated to Brazilian mycologist for medical fungi Prof. Floriano de Almeida, of São Paulo, Brazil).

### **Almeidaea vermispora (Hansf.) Cif. & Bat. n. comb.**

Syn. *Chaetothyrum vermisporum* Hansf. in Comm. Mycol. Inst. Mycol. Pap. n. 15, p. 151, 1946.

Mycelium amphigenous, pelliculose, brownish, hyphae hyaline to subhyaline, 2,5–3 μ thick, reticulate; mycelial setae erect, straight, simple, brown, septate, 180–200 × 5–7 μ. Perithecia blackish-

brown, globose-depressed, 120–160  $\mu$  diam., 80  $\mu$  high, pseudo-ostiolate, walls 7  $\mu$  thick, 2–3 layered. Asci ovoid to ellipsoid, nodose-stipitate, 8-spores, 60  $\times$  30  $\mu$ , aparaphysate. Ascospores vermiform, 15–17 septate, not constricted, 35–50  $\times$  5–6  $\mu$ , hyaline, Fig. 4.

On leaves of *Canthus*, *Ventilago*, *Hugonia*-Uganda.

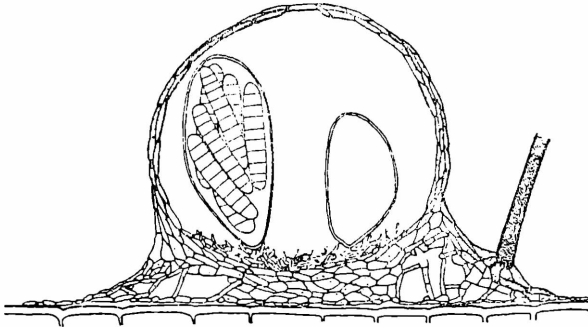


Fig. 4. *Almeidaaea vermispora* (Hansf.) Cif. et Bat.

*Almeidaaea mysorensis* (Hansf.) Bat. & Cif., n. comb.

Syn.: *Chaetothyrium mysorensis* Hansf. Hansf. & Thirum. in *Farlowia*, 3: 301, 1948.

Mycelium epiphyllous, effuse, pelliculose, reticulate, almost invisible, hyphae hyaline, 2–3  $\mu$  wide. Perithecia globose, 150–210  $\mu$ .

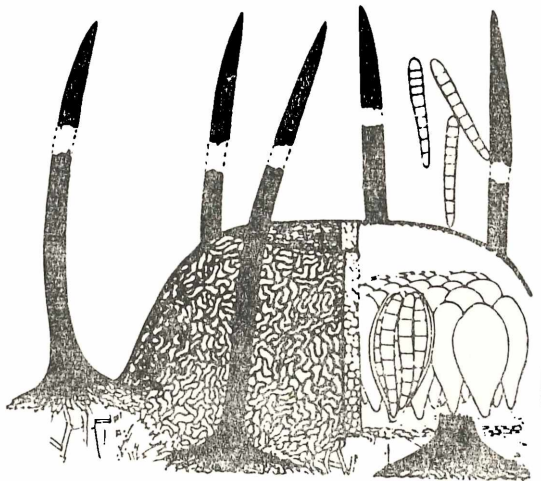


Fig. 5. *Almeidaaea mysorensis* (Hansf.) Bat. et Cif.

diam., developed beneath the mycelial pellicle; setae around the perithecia, erect, black, straight, 200  $\times$  8–10  $\mu$ , acute; asci clavate, 8-spores 55–60  $\times$  20–25  $\mu$ , aparaphysate; ascospores cylindric-

clavate, 7–9 transverse septate, not constricted, hyaline,  $40-50 \times 5 \mu$ , Fig. 5.

On *Salacia*, India.

### **Batistaella Ciferri, n. gen.**

Mycelium tenuiter pelliculosum, subhyalinum, non setosum, nec hyphopodiatum. Perithecia pellicula mycelica oblecta, non setosa. Asci paraphysati. Ascospores coloratae, transversaliter et longitudinaliter pluriseptatae.

Typus: *B. coumae* (Bat. & Vital) Ciferri.

Eximio mycologo brasiliensi Dr. Augusto Chaves Batista dicatum.

### **Batistaella canthii** (Hansf.) Cif., nov. comb.

Syn.: *Phaeosaccardinula canthii* (Hansf.) Hansf.

*Saccardinula canthii* Hansf. in Proc. Linn. Soc. Lond. CLIII, pag. 52, 1941 Comm. Mycol. Inst. Myc. Pap. no. 15, 154, 1946.

Mycelium almost invisible, thinly pelliculose, hyphae subhyaline, reticulate, septate,  $3 \mu$  thick. Perithecia / globose, brown,  $180-240 \mu$  in diam.,  $150 \mu$  high, pseudo-ostiolate, not setose. Asci ellipsoid to ovoid, 8-spores, sessile,  $100 \times 50 \mu$ . Ascospores cylindric to fusoid, 10–15 transverse septate, 1-longitudinal septum in many cells, yellowish, pink in mass,  $50-80 \times 12-15 \mu$ .

On *Plectronia*, *Ventilago*, *Alchornea*, *Casearia*-Uganda.

### **Batistaella coumae** (Batista & Vital) Cif. n. comb.

Syn.: *Phaeosaccardinula coumae* Bat. & Vital in Ann. Soc. Biol. Pern. t. XIII, p. 110, 1955.

Mycelium epiphyllous or amphigenous, thin pelliculose, hyphae subhyaline, reticulate. Perithecia scattered, globose, brown,  $170-235 \mu$  in diam., pseudo-ostiolate. Asci 8-spores, ellipsoid to ovoid, pedicellate,  $62.5-97.5 \times 30-42.5 \mu$ , paraphysate. Ascospores ellipsoid, muriform, 7–13-transversally septate with many longitudinal septa, fuscous,  $42.5-75 \times 17.5-22.5 \mu$ .

On *Couma* — Brazil.

### **Chaetothyrium** Speg. emend. Bitancourt.

Mycelium very thin, in colonies almost invisible to thinly pelliculose, hyaline to subhyaline, hyphae parallel to reticulate, composed of elongate cells. Mycelial setae erect, dark, scattered, and present also over the perithecia. Perithecia scattered, subglobose, dark, formed below the mycelial pellicle, pseudo-ostiolate, with setae on the covered membrane. Asci cylindric to ovate, basal, 8-spores, paraphysate. Ascospores phragmoseptate, hyaline.

Type: *C. guaraniticum* Speg. in Fung. Guaran. II: no. 123,

1888 — A. A. Bitancourt, in Arch. Inst. Biol. São Paulo, vol. 7, p. 5—22, 1936.

*Chaetothyrium concinnum* Syd. in Ann. Myc. XXIV: 343—346, 1926.

Mycelium superficial, epiphyllous, slightly pelliculose, spread, hyaline, hyphae reticulate-branched, 2—3  $\mu$  thick, septate; mycelial setae scattered, 100—500  $\mu$  in height, 7—12  $\mu$  wide, brown-blackish, erect, curved, acuminate. Perithecia developed beneath the mycelial

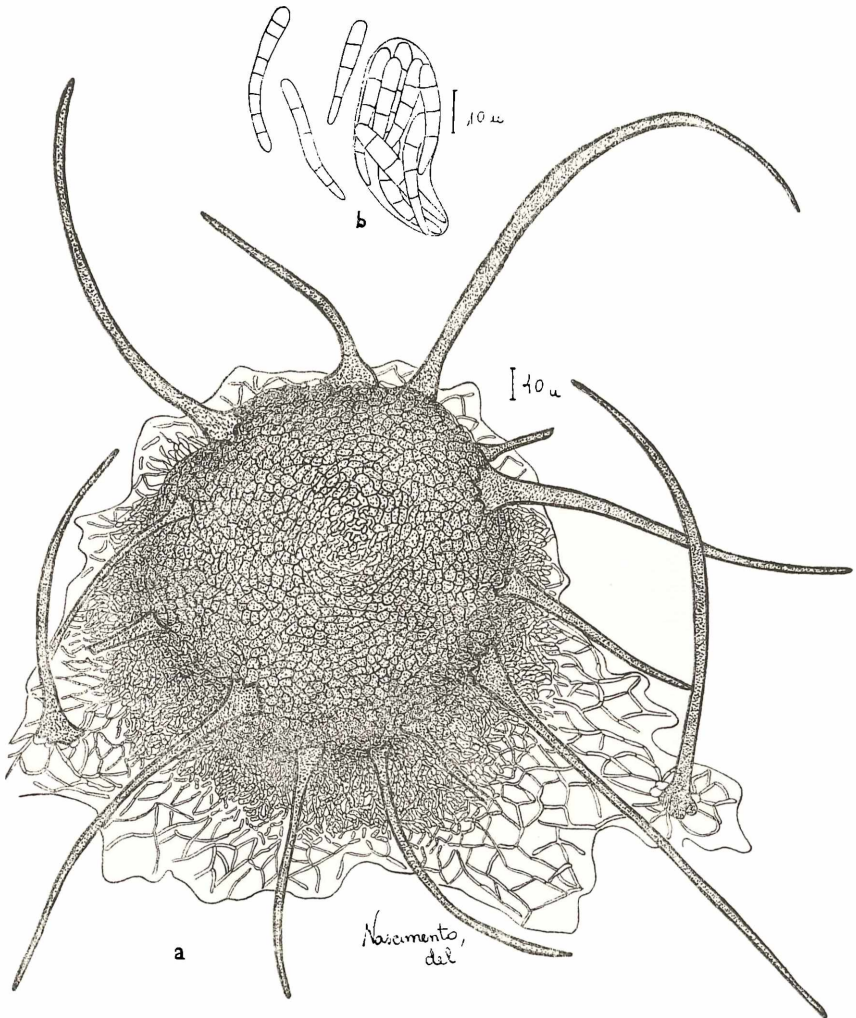


Fig. 6. *Chaetothyrium concinnum* Syd. — a) Perithecium and mycelium, both setae. — b) Ascus and ascospores.



pellicle, globose-depressed 180—248  $\mu$  diam., 150—210  $\mu$  in height, brown-blackish, gregarious, pseudo-ostiolate, membranous, subparenchymatic, the walls made up of subglobose cells, 3.5—10  $\times$  3—8  $\mu$ , in several layers. The perithecial setae are 10—12 scattered at the margins of the perithecia, erect, straight or curved, blackish-brown, opaque, 150—500  $\mu$  in height, 18—24.5  $\mu$  diam. at the base, 2.5—15  $\mu$  wide at the top, rigid. Fig. 6. Asci clavate, sessile or short stipitate, 8-spores, 1-tunicate, 46—63  $\times$  18—25  $\mu$ , paraphysate. Ascospores clavate-fusoid, 3—8-septate, little constricted or not, parallel or polystichous hyaline, 15—38  $\times$  4.5—6  $\mu$ . Fig. 6.

On leaves of *Casearia silvestris* — Grecia, Costa Rica. Leg. H. Sydow, 12. 1. 1925.

This redescription is derived from the examination of Sydow's type generously lent to us by Instituto Botanico e Crittogami, Università de Pavia, Italy. No. 635, Sydow, Fungi exotici exsiccati. The characteristics of this fungus agrees well with those of the family Chaetothyriaceae.

It is associated with *Merismella concinna* Syd. and *Stigmopeltella costaricana* Syd.

*Chaetothyrium guaraniticum* Speg. (sensu Bitancourt) in Fungi Guaranit. II no. 123 — Syll. Fung. IX. pag. 1061, 1891 — A. A. Bitancourt, in Arch. Inst. Biolog. São Paulo, 7: p. 7, 1936.

Mycelium almost invisible to the naked eye, hyphae parallel, hyaline to subhyaline, reticulate, pelliculose around the perithecia; mycelial setae scattered, straight, rigid, erect, black, 380  $\times$  5—10  $\mu$ . Perithecia developed beneath the mycelial pellicle, subglobose, dark-olivaceous, 100—150  $\mu$  diam., setose, pseudo-ostiolate, unilocular; asci cylindric to clavate, shortly stipitate, 8-spores, 40—50  $\times$  10—15  $\mu$ , paraphysate, Ascospores oblong-fusoid, 3-septate, hyaline, 15—19  $\times$  5—5.5  $\mu$ . Fig. 7.

On unknown host — Guarapí — Paraguay.

*Chaetothyrium mangiferae* Mendoza ap. Stevens F. L. in Bernice P. Bishop. Mus. Nr. 19, p. 56, 1925.

Mycelium superficial, epiphyllous, spread, pelliculose, hyphae reticulate, subhyaline, composed of cylindrical cells, 7.7—17.5  $\times$  2.5—6  $\mu$ ; mycelial setae scattered, continuous, black-brown, acuminate, 22.5—50  $\times$  6—8.5  $\mu$ . Perithecia developed beneath the mycelial pellicle, globose-depressed, 67—125  $\mu$  diam., numerous, disperse, brown, pseudo-ostiolate, membranous, subparenchymatic, the walls made up of subglobose cells, 3.5—5.5  $\mu$  diam.; perithecial setae identic with the mycelic setae. Asci ellipsoid, 4—8-spores, 2-tunicate, sessile, 32.5—47  $\times$  15—17.5  $\mu$  paraphysate. Ascospores cylindro-clavate, 3—8-septate, polystichous, hyaline, 14.5—20  $\times$  4—6  $\mu$ . Fig. 8.

On leaves of *Mangifera indica* L. — Ohau, Honolulu, June, 6, 1921, Leg. F. L. Stevens.

This specimen, no. 6652, Herbarium of University of Illinois, is the type of the species, and from their study we now re-describe this fungus. It is associated with *Deslandesia honoluluense* Bat. & Vital, *Microxyphium columnatum* Bat., Cif. & Nasc., and *Tripospermum* sp.

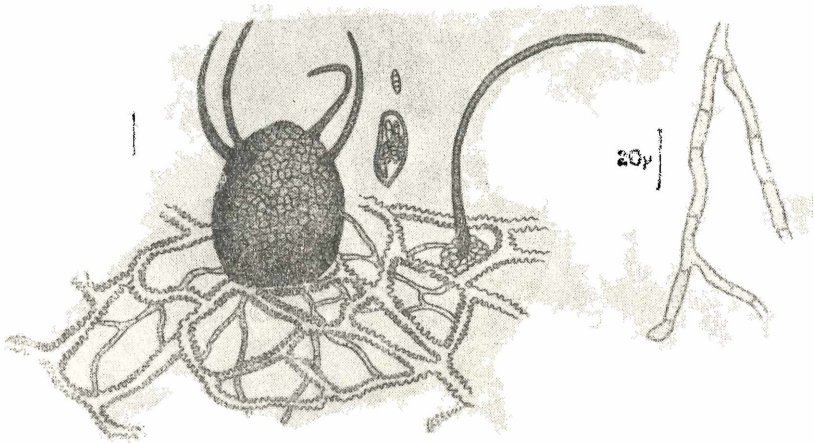


Fig. 7. *Chaetothyrium guaranicum* Speg.

*Chaetothyrium pongamiae* Harris ap. Stevens & Pierce — Indian Jour. Agric. Sci. III, part 5, p. 912, 1933.

Mycelium epiphyllous, pelliculose, thin, subhyaline, reticulate, hyphae with cylindrical cells,  $6.5-17 \times 2.5-4 \mu$ ; mycelial setae scattered, blackish, curved, acuminate,  $100-150 \times 5-10 \mu$ . Perithecia developed beneath the mycelial pellicle, globose-depressed,  $272-340 \mu$  diam., brownish, setose, with identical mycelical setae, translucent membranous, the walls having polygonal cells,  $2.5-8 \mu$  wide, pseudo-ostiolate,  $10-12.5 \mu$  diam. Asci ellipsoid, 8-spores, sessile,  $40-50 \times 20-22.5 \mu$ , aparaphysate. Ascospores cylindro-clavate, 3-5-septate, hyaline, polystichous,  $21-25 \times 6.5-7.5 \mu$ , Fig. 9.

On leaves of *Pongamia glabra*. Leg. Hubert Harris, Bombay, Poona, India, 1932. Spec. no. 6656, Herbarium University of Illinois.

This re-description we made in collaboration with Dr. A. Fernandes Vital from the study of the type lent to us through the courtesy of The University of Illinois.

*Chaetothyrium straussiae* Mendoza. ap. Stevens, in Bernice P. Bishop. Mus. 19, p. 56, 1925.

Colonies epiphyllous, effuse, grayish; mycelium superficial

thinly pelliculose, reticulate, hyphae hyaline to subhyaline, septate, not constricted, with cells  $8-15 \times 2.5-5 \mu$ ; mycelial setae scattered, erect, continuous, blackish-brown, curved, acuminate,  $112-195 \times$

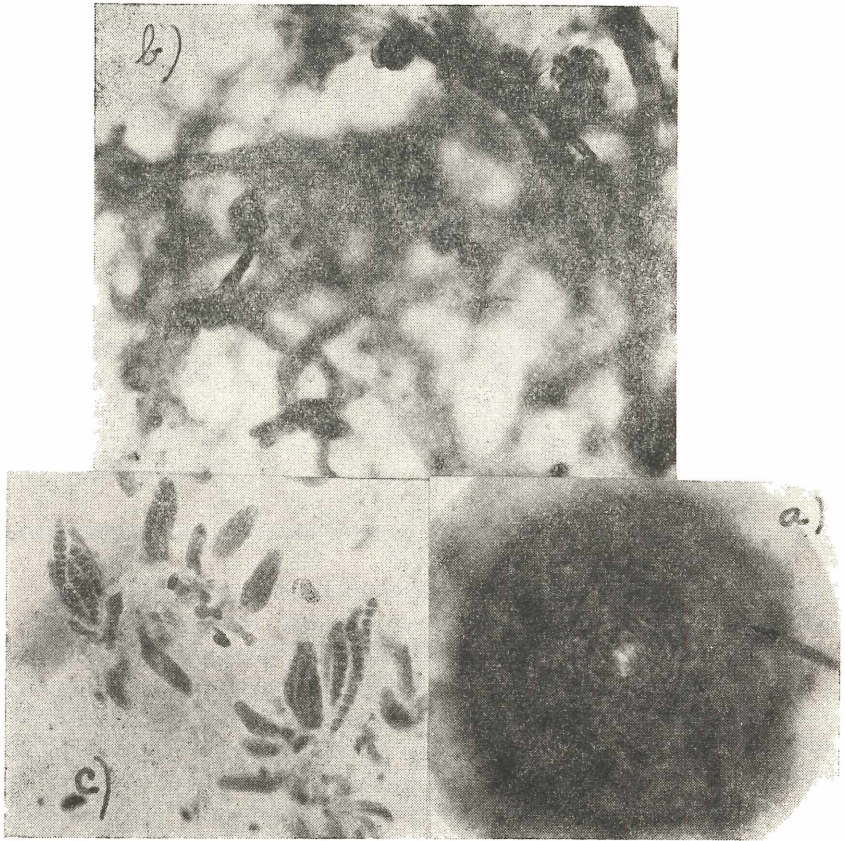


Fig. 8. *Chaetothyrium mangiferae* Mendoza. — a) Perithecium setose. — b) Mycelium setose. — c) Ascus.

$5-7.5 \mu$ . Perithecia subglobose, developed beneath the mycelial pellicle,  $123-195 \mu$  diam., brown, unilocular, pseudo-ostiolate, membranous, the walls composed of subglobose cells  $3.5-10 \mu$  diam., with setae on the covered membrane equal to the mycelial setae. Asci cylindrical-clavate, 1-tunicate, sessile, 8-spores,  $47.5-62.5 \times 13-15 \mu$ , aparaphysate. Ascospores elliptic-fusoid, 3-transverse septate, not constricted irregularly distichous, hyaline,  $12.5-17.5 \times 5-6.5 \mu$ , Fig. 10.

On leaves of *Straussia mariniana*, Wahiawa, Ohau, Hawaii, Coll. by F. L. Stevens, May 31, 1921, Type 5668, and on leaves of

*Vismia* sp. *Iumatum* ari — Hawaii, coll. by G. L. Stevens, July 7, 1922, British Guyana, no. 6657, Herbarium University of Illinois.

This is a re-description of the species through examination of the type by A. Chaves Batista & A. Fernandes Vital, for which we are indebted to The University of Illinois.

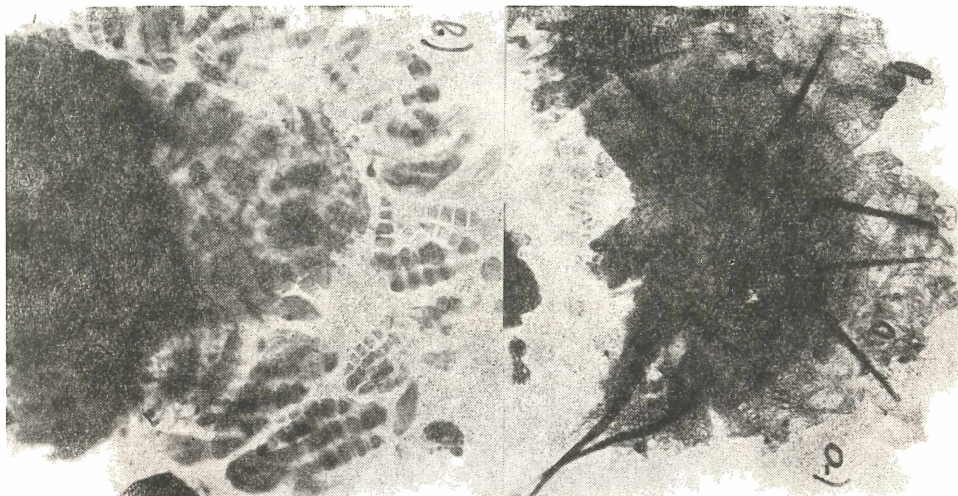


Fig. 9. *Chaetothyrium pongamiae* Harris. — a) Perithecium setose. — b) Asci and spores.

#### Excluded species.

*Chaetothyrium ugandensis* Hansf. in Comm. Myc. Inst. Mycol. Pap. no. 15, p. 146, 1946.

Mycelium hypophyllous, superficial, very thin, effuse, brownish, hyphae subhyaline to olivaceous, septate, much branched,  $1-3 \mu$  wide, with erect setae like conidiophores, scattered, septate, blackish-brown, up to  $300 \mu$  long,  $6 \mu$  wide at the base, simple, apex much branched, each branch producing one apical conidia, continuous,  $4-7 \times 2.5-3 \mu$  possibly, also, catenulate conidia, subhyaline. Perithecia subglobose,  $130-150 \mu$  diam.,  $90-110 \mu$  in high, pseudoostiolate, glabrous or setose, brown, with walls  $10-15 \mu$  in thickness, 2-4 layered. Asci clavate, sessile or nodose-pedicellate, 8-spored,  $50 \times 15 \mu$ . Ascospores clavate, 3-septate,  $20 \times 5 \mu$ , hyaline.

On *Canthus* — Uganda.

Conidiferous "setae"

This species must be considered as doubtful until a revision of the specimen type is made, because of the presence of conidiferous setae.

In any case it is not *Chaetothyrium* in our sense.

*Chaetothyrium dictyosporum* Petr. in Medd. Göteborgs Bot. XVII:  
p. 133. 1947. On *Ficus*-China.

*Chaetothyrium punctiforme* Rick in Broteria, V: p. 40, 1906.  
It is probably an *Aphanostigme*.

Other *Chaetothyrium*, not identified.

*Chaetothyrium* sp.

On leaves of *Musa* sp., Ponce, Porto Rico, Leg. A. A. Helbes, 17. 22. 1903,  
Det. A. C. Batista & M. L. Nascimento, 6. 4. 1957, sp. no. 11152, I.M.U.R.,  
associated with *Tripospermum* sp.

Also found on *Bunchosia costaricensis* Rose, San Miguel, El Salvador,  
Leg. P. C. Standley, 24. 2. 1922, Det. A. C. Batista & M. L. Nascimento,  
15. 4. 1957, sp. no. 5277, I.M.U.R.

Also on *Xylopia frutescens* Aubl., Beberibe, Pernambuco, Leg. Severino  
José da Silva, Det. A. C. Batista, 19. 5. 1956, sp. no. 5587, I.M.U.R., asso-  
ciated with *Phycopsis nascimentoi* Bat. n. sp. and *Tripospermum* sp.

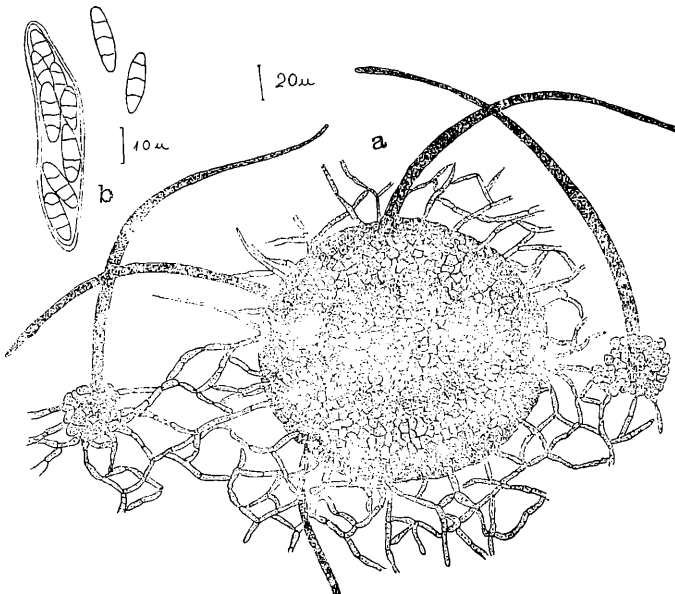


Fig. 10. *Chaetothyrium straussiae* Mendoza. — a) Perithecium and mycelium setose. — b) Ascis and spores.

Equally found on *Araliaceae*, Los Boscas, Puerto Rico, Leg. F. L. Stevens,  
30. 12. 1913, Det. A. C. Batista & M. L. Nascimento, 20. 4. 1958, sp. no.  
13096, I.M.U.R., 20. 4. 1958, associated with *Atichia* sp.

Also on *Didymopanax morototoni* Dechu & Planch, Leg. Severino José  
da Silva, Det. A. C. Batista & M. L. Nascimento, 4. 2. 56, sp. no. 5308,  
I.M.U.R., associated with *Phaeoxyphiella morototoni* Bat. n. gen. n. sp., *Tricho-*  
*merium didymopanax* Bat. & Nasc. n. sp., *Microoxyphium* A e B, *Podoxy-*  
*phium didymopanax* Bat. & Nasc. n. sp. and *Phragmoxyphium didymopanax*  
Bat. n. gen. nov. sp.

Also on *Miconia* sp., Cabo, Pernambuco, Brazil, Leg. Albino F. Vital, Det. A. C. Batista & H. S. Maia, 17. 12. 955, sp. no. 5069, I.M.U.R., associated with *Asterina miconifoliae* Bat. & Maia n. sp.

**Ciferriusia** Bat. n. gen. \*)

Mycelium pelliculosum, superficiale, non hyphopodiatum, ex hyphis rectis, parallele-reticulatis, hyalinis vel sub-hyalinis compositum. Setae mycelicae nullae. Perithecia pellicula mycelica ob tecta, epiphylla, pluriasca, unilocularia, sine setis. Asci paraphysati, 2-tunicati. Ascosporae transversaliter pluriseptatae, hyalinae.

Typus. *C. psychotriae* Bat.

**Ciferriusia orientalis** Bat. & Costa, n. sp.

Colonies amphigenous, scattered, punctiform; mycelium pelliculose, scanty, hyaline to subhyaline, composed of reticulate hyphae, little branched, not constricted, indistinctly septate, 1–2.5  $\mu$  thick,

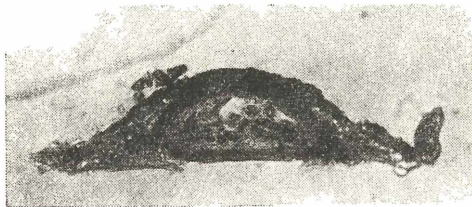


Fig. 11. *Ciferriusia orientalis* Bat. et Costa.

not setose, nor hyphopodiate. Perithecia subglobose to globose-depressed, developed beneath the mycelial pellicle, 90–180  $\mu$  diam., 50–65  $\mu$  high, glabrous, Fig. 11 membranous, pseudo-ostiolate, 7–10  $\mu$  diam., brownish; the perithecial walls are 5–11  $\mu$  in thickness in the upper part and 8–14  $\mu$  thick in the lower part, composed of 5 to 10 layers of cylindrical cells, brownish to hyaline from the outer side to the inner side, Fig. 12, the cells being 4–8.5  $\times$  1–2.5  $\mu$ . Asci clavate to subcylindric, 4–8 spores, sessile, 2-tunicate, 40–58  $\times$  10–13  $\mu$ ; paraphyses filiform, septate, simple to branched, longer than the asci, 1–1.5  $\mu$  thick. Ascospores cylindrical to clavate, 3-transversally septate, not constricted, hyaline, monostichous to polystichous, 15–21  $\times$  4–5  $\mu$ . Fig. 11 & 12.

On leaves of unknown host, associated with *Porinia epiphylla* (Lichen.) Leg. A. D. E. Elmer, July, 1916. Irosim, Island of Luzon — Philippines. Type 16599, in Herbarium Bogoriense — Bogor, through the courtesy of Miss S. M. Tjitrasoma. Present also *Phragmoscutella pulcherrima* var. *octospora* Bat. & Costa.

\*) Dedicated to Prof. R. Ciferri, Italian mycologist, collaborator in the study of Brazilian fungi in the Institute of Mycology, University of Recife.

Coloniae rarae, sparsae, punctiformes. Mycelium pelliculosum, hyalinum vel subhyalinum, ex hyphis reticulatis, superficialibus, parvum ramosis, non constrictis,  $1-2.5 \mu$  cr, non setosis, hyphopodiatum compositum, Perithecia sub pellicula mycelica, subglobosa vel globose-depressa,  $90-180 \mu$  diam.,  $50-65 \mu$  alt., glabra, membranosa, pseudo-ostiolata,  $7-10 \mu$  diam., brunnescentia, cum parietibus  $5-11 \mu$  cr. in superiore parte,  $8-14 \mu$  cr. in basali parte,  $5-10$  stratosi, ex cellulis cylindraceis,  $4-8.5 \times 1-2.5 \mu$  efformatis. Asci clavati vel subcylindracei,  $4-8$  spori, sessiles, 2-tunicati,  $40-58 \times 10-13 \mu$ , cum paraphysibus filiformibus, septatis, simplicibus, vel ramosis,  $1-1.5 \mu$  cr. Sporae cylindricae vel clavatae, 3-transversaliter septatae, non constrictae, hyalinae, monostichae vel polystichae,  $15-21 \times 4-5 \mu$ .

### *Ciferriusia psychotriae* Bat. n. sp.

Plagulae not distinct. Free mycelium rare, pelliculose, reticulate, composed of straight hyphae, branched, indistinctly septate and subhyaline  $2-3 \mu$  diam. Mycelial setae absent. Perithecia epiphyllously

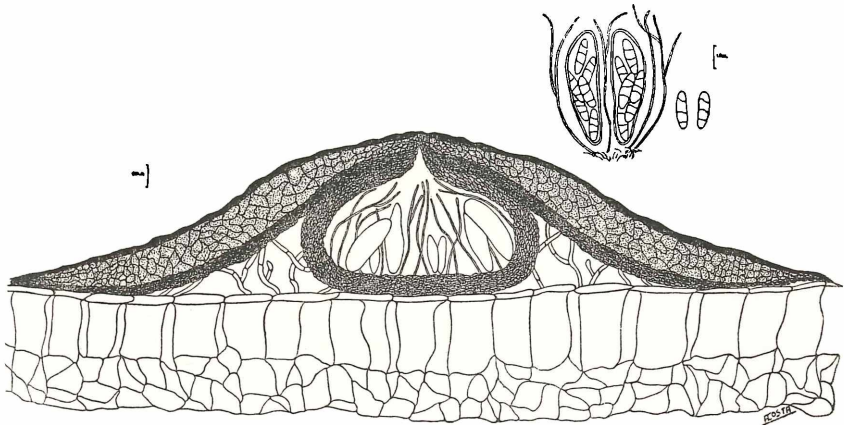


Fig. 12. *Ciferriusia orientalis* Bat. et Costa. — Details of the perithecial structure; asci, paraphyses and ascospores.

scattered, sub-globose, collapsed, depressed,  $59-80 \mu$  high and  $115-160 \mu$  diam., developed underneath a mycelial pellicle that has  $50 \mu$  of length, uniloculous, ostiolate, brown to black, Fig. 13, Walls are membranous with a pseudo-parenchymatic structure,  $12-24 \mu$  thick composed of 2-3 layers of polygonal cells which measure from  $4.5-10 \mu$  in diam., without setae. Asci — 8 spores, sessile,  $27-30 \times 8.5 \mu$ . paraphysoides present. Ascospores elliptic to cylindric with rounded poles, 2-3 septate, not constricted, polystichous, hyaline,  $7-9.5 \times 3.5-5.5 \mu$ . Fig. 13.

On live leaves of *Psychotria sp.* Iputinga. Leg. Regina M. Rocha Batista. 26. 10. 55. Type 2995. Institute of Mycology, University of Recife.

Plagulae indistinctae. Mycelium liberum pelliculam usque 50  $\mu$  efformans, reticulatum, ex hyphis rectis, ramosis 45° vel 90° angularibus parum constrictis, subhyalinis, indistincte septatis, 2–3  $\mu$  cr. efformatum, sine setis mycelialibus. Perithecia epiphylla, sparsa, subglobosa, collapsa-depressata, 59–80  $\mu$  alt. et 115–160  $\mu$  diam., setosa, atro-brunnea, sub pellicula evoluta, uniloculata et ostiolata; parietes membranosas et pseudo-parenchymaticas, 12–14  $\mu$  cr., 2–3 stratosas habentia, ex cellulis polygonalibus 4.5–10 in long. diam., con-



Fig. 13. *Ciferriusia psychotriae* Bat.

strictas. Asci ellipsoidei vel cylindracei, sessiles, 27–30  $\times$  8.5  $\mu$  paraphysati. Sporae ellipsoideae prope apicem rotundati, 2–3 septati, polystichi, haud constricti, hyalini, 7–9.5  $\times$  3.5–5.5  $\mu$ .

Also on *Citrus aurantium* L., Iputinga, Recife, Leg. Regina M. Rocha Batista, Det. A. C. Batista & M. L. Nascimento, 9. 1. 1956, sp. no. 5192, I.M.U.R., associated with *Phaeosaccardinula citrina* Bat. n. sp., *Hormiscium* sp., *Tripospermum fructigenum* (Rabenhorst ex Sacc. & Trotter) Hughes and *Capnodium* sp.

On leaves of *Pogonophora schomburgkiana* Miers ex Benth, Casa Forte, Recife, Leg. Osvaldo Soares da Silva, Det. A. C. Batista & H. S. Maia, 22. 5. 55, spec. no. 2207, I.M.U.R.

#### *Ciferriusia spathodeae* Bat. & Matta n. sp.

Mycelium pelliculose, hyaline, around the perithecia, 70–90  $\mu$  wide, with few free hyaline or subhyaline, straight, septate and not constricted hyphae, with cylindrical cells, 11–13  $\times$  4–6  $\mu$ , not setose, nor hyphopodiate. Perithecia developed beneath the mycelial pellicle, Fig. 15, scattered, subglobose, Fig. 14, 122.5–200  $\mu$  wide, 120–180  $\mu$  in height, blackish-brown, glabrous, pseudo-ostiolate, membranous,



pseudo parenchymatic, the walls in 5 to 10 layers, 35–43  $\mu$  thick on the top, 20–25  $\mu$  wide on the lower part, composed of subglobose cells, 5.5–12  $\times$  4–9  $\mu$ , Fig. 16. Asci clavate, short pedicellate, 4–8 spores, 1-tunicate, 36–56  $\times$  11–16  $\mu$  paraphysate. Ascospores falcoid, 8–10 transversally septate, pluriguttulate, hyaline, 42–54  $\times$  4–6  $\mu$  parallelly disposed. Fig. 14–16.

On leaves of *Spathodea campanulata* associated with *Limacinia capnodioides* (Thuem.) Sacc., *Microxyphium spathodiae* Bat. & Matta, *Ceratosporella bicornis* (Morgan) v. Höhn, *Triposporium elegans*

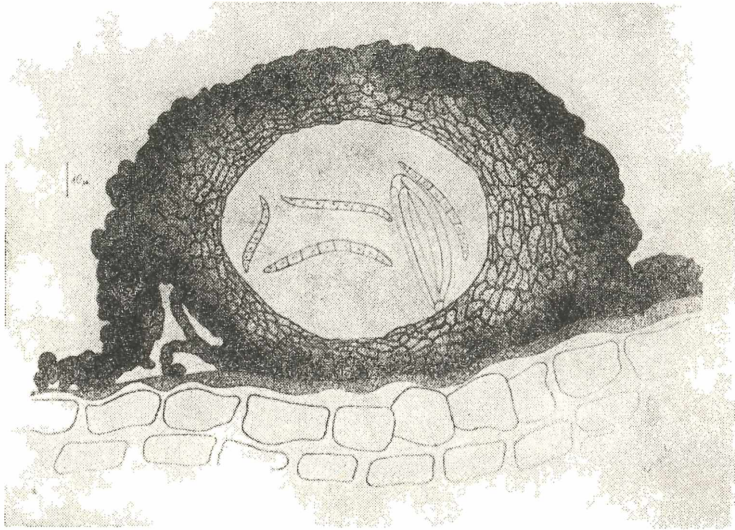


Fig. 14. *Ciferriusia spathodeae* Bat. et Matta.

Corda and *Tripospermum fructigenum* (Rab. ex Sacc. & Trotter) Hughes — Ondina, Bahia Leg. Eurico A. F. da Matta, 3. 3. 957. Type, 11396, Institute of Mycology, University of Recife.

Mycelium pelliculosum, hyalinum, perithecis circumdantibus, cum raris hyphis liberis, hyalinis vel subhyalinis, rectis, septatis, non constrictis, ex cellulis cylindraceutis, 11–13  $\times$  4–6  $\mu$ , non setosis, haud hyphopodiatis, compositum. Perithecia pellicula mycelica obtecta, sparsa, subglobosa, 122.5–200  $\mu$  diam., 120–180  $\mu$  alt., atrobrunnea, glabra, pseudo ostiolata; cum parietibus membranosis, pseudoparenchymaticis, 5–10 — stratosi, 35–43  $\mu$  cr. in area superiore, 20–25  $\mu$  cr. in area basali, ex cellulis subglobois 5.5–12  $\times$  4–9  $\mu$  efformatis. Asci clavati, curto-pedicellati, 4–8-spores, 1-tunicati, 36–56  $\times$  11–16  $\mu$ , paraphysati. Ascospores falciformes, 8–10-transversaliter septatae, multiguttulatae, hyalinae, 42–54  $\times$  4–6  $\mu$  parallele dispositae.

***Ciferriusia womersleyi* (Hansf.) Bat. n. comb.**

Syn.: *Chaetothyrium womersleyi* Hansf. in Proc. Linn. Soc. New South Wales, LXXXI, part I: 23, 1956.

Epiphyllous. Mycelium pelliculose spread, of hyaline hyphae,

irregularly branched, having cells of  $8-20 \times 2-4 \mu$ , not setose, nor hyphopodiate. Perithecia developed beneath the mycelial pellicle, brown-black, smooth, globose-flattened,  $250 \mu$  diam.,  $80-100 \mu$  in

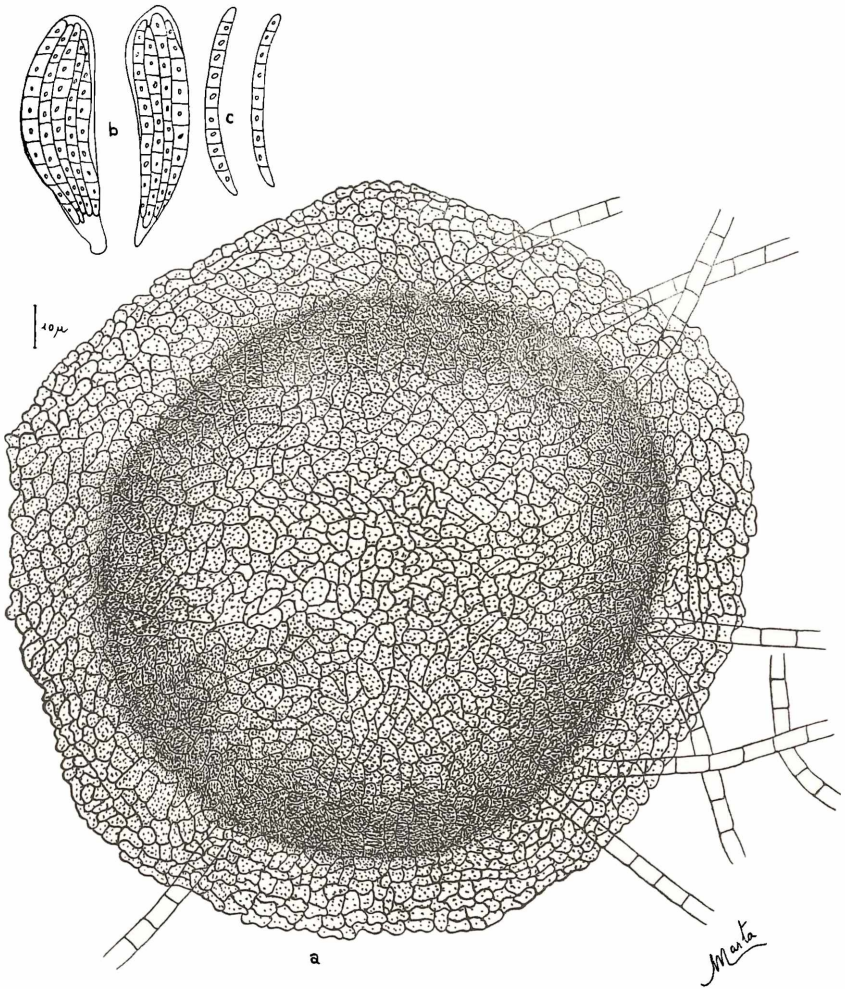


Fig. 15. *Ciferriusia spathodeae* Bat. et Matta. — a) Perithecia under a frontal view. — b) Asci. — c) Spores.

height, the walls pseudo-parenchymatic in 1–2 layers. Asci clavate, 2-tunicate, short stipitate or subsessile, 8-spored,  $80-40 \mu$ , paraphysate. Ascospores cylindrical, having attenuate ends, transversally, 9–14 septate, not constricted, hyaline,  $50-65 \times 6-7 \mu$ .

On leaves of *Syzygium* sp. Lal. New Guinea, Womersley.  
Setis absentibus, est *Ciferriusia*.

*Limaciniella* Mendoza emend. Bat.

Mycelium scanty, superficial, hyaline, pelliculose, hyphae lengthened not constricted, not hyphopodiate, not setose, hyaline, Perithecia developed beneath the mycelial pellicle, subglobose to globose-depressed, membranous, pseudo-ostiolate, brownish, glabrous. Asci 4—8 spored, 2-tunicate, paraphysate. Ascospores scolecoidal, transversally pluri-septate, hyaline.

Type: *L. psidii* Mendoza in Bernice P. Bishop Mus. Bul. 19: 58, 1925.

*Limaciniella luzonensis* Bat & Costa n. sp.

Colonies epiphyllous, minute, brown with whitish margin. Mycelium superficial hyaline to subhyaline, pelliculose, composed of reticulate hyphae, branched with lengthened cells,  $17-123 \times 1-1.5 \mu$ ,

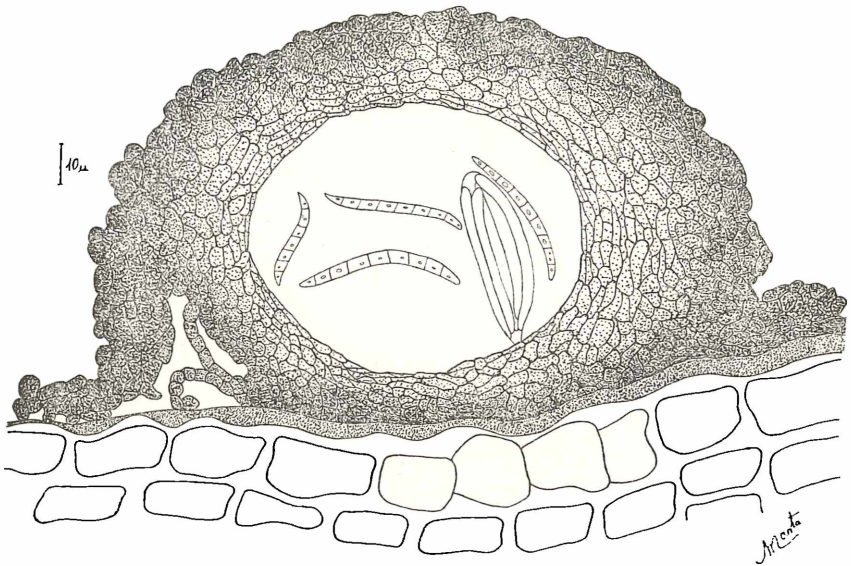


Fig. 16. *Ciferriusia spathodeae* Bat. et Matta. — Perithecium seen under a longitudinal cut, being evident its mycelial origin.

not setose, nor hyphopodiate, hyaline. Perithecia developed beneath the mycelial pellicle, Fig. 17, superficial, subglobose to globose-depressed,  $225-360 \mu$  wide,  $100-160 \mu$  in height, pseudo-ostiolate, membranous, semitransparent, brownish, glabrous; the perithecial walls are pseudoparenchymatic to prosenchymatic,  $11-22.5 \mu$  in thickness, composed of 6—10 layers of cylindrical cells, each one of  $1-2.5 \mu$  wide. Asci ellipsoid-lengthened, 4—6 spores, sessile to short stipitate, 2-tunicate,  $117-150 \times 15-22.5 \mu$ ; paraphyses filiform, numerous, branched, septate, longer than the asci, hyaline,  $1-2 \mu$

thick. Ascospores scolecoidal, (ratio 10:1) acute at both ends, 6–11 transversally septate, not constricted, hyaline,  $62.5-83 \times 5-7.5 \mu$ , polystichous Fig. 17 and 18.

On leaves of *Costus* sp. collected on the Island of Luzon, Philippine, April 1916. Type. Specimen no. 15855, Herbarium Bogoriense, Bogor. — For the study of this specimen we are indebted to Miss S. M. Tjitrasoma, of the Herbarium Bogoriense.

Plagulae epiphyllae, punctiformes, brunneae in area centrali, hyalinae in marginibus. Mycelium superficiale, hyalinum vel subhyalinum, pelliculosum, ex hyphis reticulatis, hyalinis, ramosis, ex cellulis elongatis,  $17-123 \times 1-25 \mu$ , non setosis, non hyphopodiatis compositum. Perithecia sub pellicula myceliana evoluta, subglobosa vel globose-depressa,  $225-360 \mu$  diam.,  $100-160 \mu$  alt., pseudo-ostiolata, membranosa, semitranslucida, brunnescentia, glabrata, cum parietibus pseudo-parenchymaticis vel subprosenchymaticis,  $11-25 \mu$  cr., 6–10, stratosis, ex cellulis cylindraceutis,  $1-2.5 \mu$  diam., efformata. Asci ellipsoide-elongati, 4–6-spore, sessiles vel non, 2–6 uncati,  $117-150 \times 15-22 \mu$ . Paraphyses filiformes, numerosae, ramosae, septatae, hyalinae,  $1-2 \mu$  cr. Sporae scolecoideae, ad polos acutatae, 6–11 transversaliter septatae, non constrictae, hyalinae,  $62.5-83 \times 5-7.5 \mu$ , polystichae.

*Limaciniella psidii* Mendoza in Stevens, Bernice P. Bishop Mus. Bul. 19: 58, 1925.

Mycelium superficial, thinly pelliculose, hyaline to straw-colored, hyphae irregularly branched, having cylindrical cells, not setose, nor hyphopodiate. Perithecia developed beneath the mycelial pellicle, globose-depressed, membranous, pseudo-ostiolate, brownish to reddish-brown, glabrous, about  $200 \mu$  diam. Asci ellipsoid, 8-spores,  $68 \times 14 \mu$ ; paraphyses. filiform, hyaline. Ascospores scolecoidal, acute at both ends, 6–8 transversally septate, about  $50 \times 4 \mu$ , hyaline.

On *Psidium guajava* L., Kanai, Hawaii, June, 1925.

**Marceloa** Bat. & Peres n. gen.\*)

Mycelium thinly pelliculose, hyaline, not hyphopodiate nor setose.

Perithecia globosa, developed beneath the mycelial pellicle, brown, membranous, astomous, setose.

Asci 1-tunicate, not paraphysate.

Ascospores cylindraceuto-*vermiform*, many transversally septate and 1 or more longitudinally septate, dark.

Type: *M. africana* nobis.

Mycelium pelliculosum, tenue, hyalinum, non hyphopodiatum, haud setosum, Perithecia globosa, pelliculam mycelicam ob tecta, brunnea, embranosa, astoma, setosa. Asci 1-tunicati, paraphysati. Ascosporae cylindraceuto-*vermiformes*, transverso-longitudinaliter pluriseptatae, olivaceae vel brunneae.

**Marceloa africana** Bat. & Peres n. sp.

Mycelium epiphyllous, superficial, thinly pelliculose, hyaline, composed of very branched and indistincte septate, hyphae,  $1-2 \mu$

\*) In homage to Dr. Marcelo Gonçalves Peres, Brazilian microbiologist.

diam., not setose nor hyphopodiate. Perithecia globosa, developed beneath the mycelial pellicle, scattered, rare, 190–270  $\mu$  diam., brown, astomous, membranous, pseudoparenchymatic, the walls

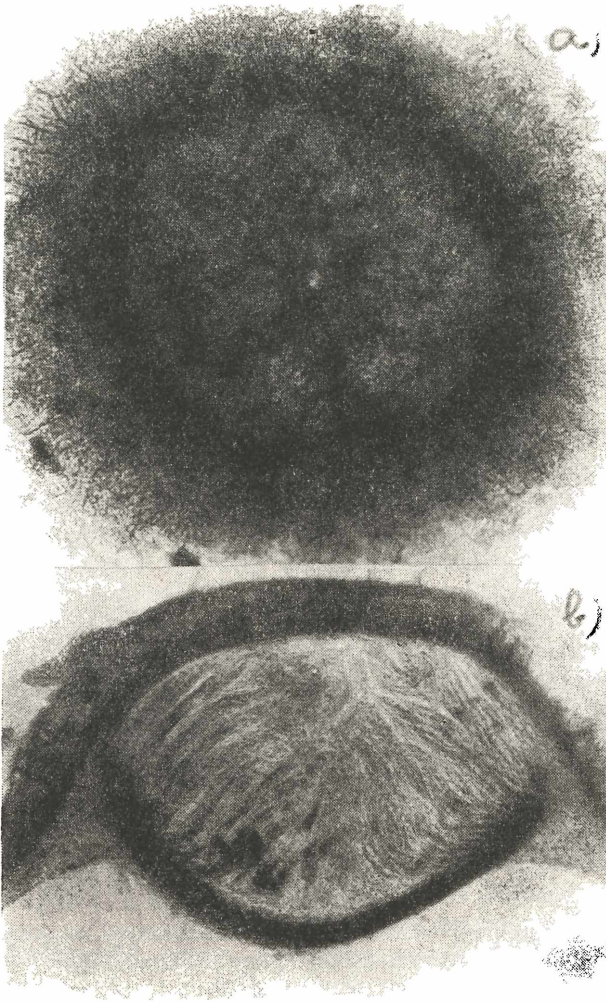


Fig. 17. *Limaciniella luzonensis* Bat. et Costa. — a) Frontal view of a perithecium. — b) Longitudinal cut of a perithecium.

made of polygonal cells  $5-9 \times 3-8 \mu$ , setose. The setae are numerous, straight, flexuous, not branched, septate, brownish, acute, 190–290  $\mu$  in height, 4–9  $\mu$  wide at the base and 3–4  $\mu$  wide on the apex, Fig. 19. Asci ellipsoid to ovoidal, 1-tunicate, sessile, 8-spored,  $70-105 \times 32-68 \mu$ , not paraphysate. Ascospores cylindraceo-vermiform,

olivaceous, 18—21 transversally septate and 1 or more longitudinally septate, polystichous,  $70-95 \times 9-14 \mu$ . Fig. 19.

On leaves of *Microdesmis puberula* associate with *Micropeltis pleiocarpae* Hansf. var. *triseptatae* nobis. Camaroes. Africa Occid. A. Möller, 7/1903. Type, in Herb. Univ. Padua, Italia, ex Herb. P. A. Saccardo.

Mycelium epiphyllum, superficiale, tenuiter pelliculosum, hyalinum, ex hyphis irregulariter ramosis et indistincte septatis,  $1-2 \mu$  diam., non setosis, haud hyphopodiatis, compositum. Perithecia globosa, pelliculam mycelicam ob tecta, sparsa, rara,  $190-270 \mu$  diam., brunnea, astoma, setosa, membranosa, cum parietibus pseudoparenchymaticis, ex cellulis polygonalibus,  $5-9 \times 3-8 \mu$ , efformatis. Setae myceliales numerosae, rectae, flexuosae, non ramosae, brunnescentes, septatae, acutae,  $190-290 \mu$  alt.,  $5-9 \mu$  basaliter diam., et  $3-4 \mu$  apicaliter diam. Asci ellipsoidei vel ovoidei, 1-tunicati, sessiles, 8-sporei,  $70-105 \times 32-68 \mu$ , aparaphysati. Ascosporae cylindraceo-vermiformes, olivaceae, 18—21 transversaliter septatae, 1— pro more longitudinaliter septatae, polystichae,  $70-95 \times 9-14 \mu$ .

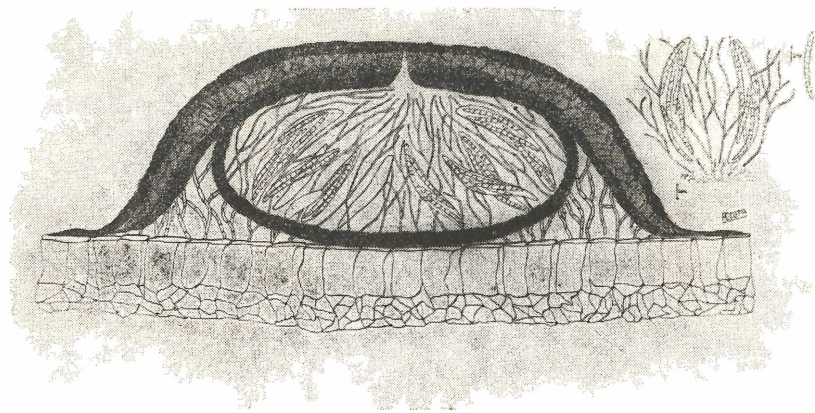


Fig. 18. *Limaciniella luzonensis* Bat. et Costa. — Perithecium developed beneath the mycelial pellicle; asci paraphyses and Spores.

### **Microcalliomyces** Bat. & Cif. n. gen.

Mycelium tenue, pelliculosum, hyalinum vel subhyalinum, setosum, non hyphopodiatum. Perithecia pellicula mycelica ob tecta, setosa; asci pseudo-paraphysati; ascosporae 1-septatae, hyalinae.

Typus: *M. amadelpa* (Syd.) Batista & Ciferri in Ann. Myc. XXIV, pl 342, 1926.

This genus appears quite distinct in the *Chaetothyriaceae* family for the presence of setae both in mycelium and perithecia, the ascospores being 1-septate and hyaline.

### **Microcalliomyces amadelpa** (Syd.) Bat. & Cif. n. comb.

Syn. *Microcallis amadelpa* Syd. in Ann. Mycol. XXIV: p. 342, 1926.

Hyphophyllous; mycelium pelliculose, hyaline, hyphae, reticulate,

2—3  $\mu$  thick; perithecia developed beneath the mycelial pellicle, 250—400  $\mu$  diam., 25—30  $\mu$  in height, brown-olivaceous, pseudo-ostiolate; setae on the mycelium and on the perithecia, erect, blackish-brown, septate, obtuse, 130—170  $\mu$  in height, 5—7  $\mu$  at the base,

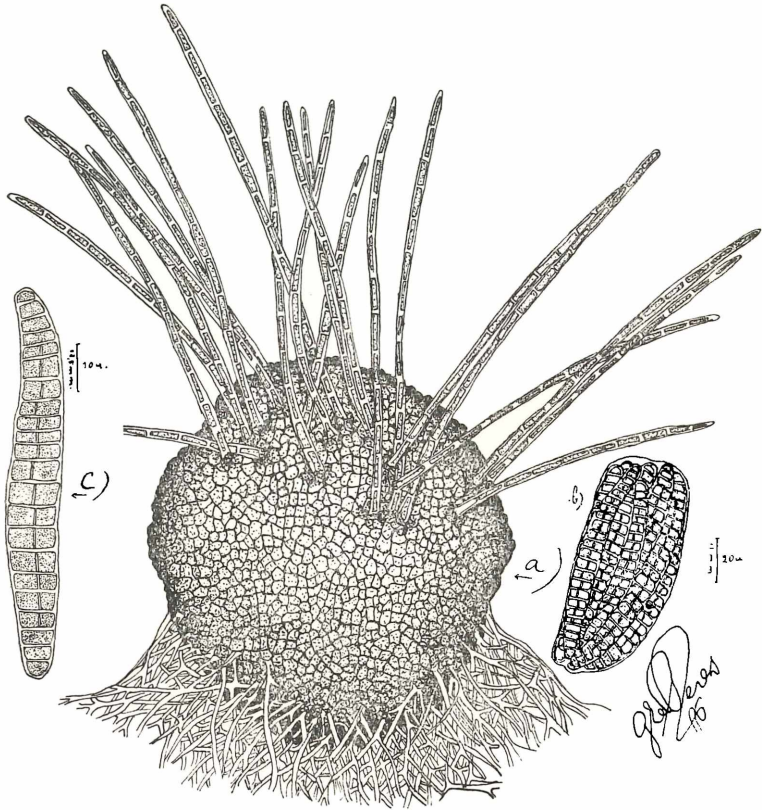


Fig. 19. *Marceloa africana* Bat. et Peres. — a) Setose perithecium and mycelial pellicle. — b) Ascus. — c) Spore.

2  $\mu$  at the apex; asci oblong-ellipsoid, 25—33  $\times$  11—16  $\mu$ ; paraphysoides numerous; ascospores oblong-clavate, 1-septate, 9—12  $\times$  3.5—4  $\mu$  hyaline.

On *Phoebe*, *Roupala* — Costa Rica.

**Recifea** Bat. & Cif. \*)

Mycelium tenue, pelliculosum, hyalinum, non setosum, non hyphopodium. Perithecia pellicula mycelica obtecta, setosa; asci aparaphysati; ascosporae 1-septatae, hyalinae.

\*) Ob Recife, Pernambuco, Brasiliae urbs.

Typus: *R. scutiae* (Hansf.) Batista & Ciferri n. comb.

We have not studied the single species ascribed to this genus, so that the interpretation of the short and stout appendice like warts, on the perithecium, indicated by Hansford are of doubtful judgment. They are described as continuous or uniseptate, so that we suppose these warts are, really, young, or abortive, perithecial setae.

**Recifea scutiae** (Hansf.) Bat. & Cif. n. comb.

Syn.: *Microcallis scutiae* Hansf. in Proc. Linn. Soc. London, 157 sess. p. 191, 1944—1945.

Hyphophyllous. Mycelium thin pelliculose, scarcely visible, hyphae hyaline, 2—3  $\mu$  thick. Perithecia globose-depressed, blackish-brown, developed beneath the mycelial pellicle, 100 $\times$ 80  $\mu$ , pseudoostiolate, superior walls 6—10  $\mu$  in thickness, with some conoid warts, continuous to 1-septate, erect, 20 $\times$ 5—10  $\mu$ . Asci clavate ellipsoid, 8-spores, sessile, 30—40 $\times$ 12—15  $\mu$ . Ascospores clavate, 1-septate, 15—17 $\times$ 2—3  $\mu$ , hyaline, Fig. 20.

On *Scutia* Uganda.

**Sphaerochaetia** Bat. & Cif. n. gen.

Syn.: *Zukalia* Sacc. (our sense).

Mycelium tenuissimum, ex hyphis hyalinis, non setosis, non hyphopodiatis, compositum. Perithecia globosa, sub pellicula mycelica oriunda, fusca, setosa. Asci 2-tunicati aparaphysati; ascosporae pluri-transverse-septatae, hyalinae.

Typus.: *S. loganiensis* (Sacc. & Berl.) Bat. & Cif. n. comb.

**Sphaerochaetia dominicanum** (Cif.) Bat. & Cif. n. comb.

Syn. *Chaetothyrium dominicanum* Cif. in Sydowia, Ann. Myc. X p. 133, 1956.

Mycelium epiphyllous, little developed, hyaline to subhyaline, composed of septate hyphae, 2—3  $\mu$  diam. Perithecia formed beneath a mycelial pellicle, globose-depressed, 100—180  $\mu$  diam., scattered, pseudoostiolate, 10—18  $\mu$  diam. setae on the perithecia, irregularly radiate, yellowish to brownish, simple, rigide, 20—60 $\times$ 3—4  $\mu$ . Asci oblong-clavate, sessile to substipitate, 2-tunicate, 8-spores, 40—55 $\times$ 15—30; paraphysoids not distinct. Ascospores ellipsoid to clavate, straight or curved, 3—5 transversally septate, hyaline, 10—17 $\times$ 5—8  $\mu$ .

On leaves of *Eupatorium odoratum* L. Valle del Cibao, prov. Santiago, Palmarejo, Dominicana. Leg. R. Ciferri & E. L. Ekman, 21—11—930.

**Sphaerochaetia erysiphoides** (Speg.) Bat. & Cif. nov. comb.

Syn.: *Zukalia erysiphoides* Speg. in Fung. Guaran. II, pag. 49 Syll. Fung. IX, p. 432, 1891.



Mycelium hyphophyllous, subarachnoideous, olivaceous, not dense, hyphae ramose-intricate, sub-hyaline, 2–5  $\mu$  wide, setose; perithecia globose, 100–120  $\mu$  diam., subaggregate, membranous; setae on the perithecia, base subfasciculate, divaricate, 150–220  $\times$  4–6  $\mu$ , fuscous; asci cylindraceous, wide tunicate, 8-spored, short pedicellate, 80–90  $\times$  18–20  $\mu$ , paraphysate; ascospores cylindric fusoid, 7-septate, constricted, hyaline, 40–45  $\times$  5  $\mu$ .

On *Cupania* — Brazil.

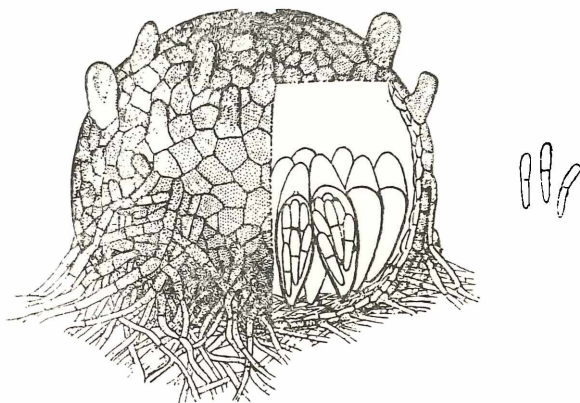


Fig. 20. *Recifea scutiae* (Hansf.) Bat. et Cif.

***Sphaerochaetia loganiensis*** (Sacc. & Berl.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium loganiensis* (Sacc. & Berl.) Theiss. & Syd.

*Zukalia loganiensis* Sacc. & Berl. Syll. Fung. IX: 431.

Epiphyllous. Mycelium thin, effuse, hyphae septate, thin branched, subhyaline; perithecia globose, astomous, 130–140  $\mu$  diam., blackish,

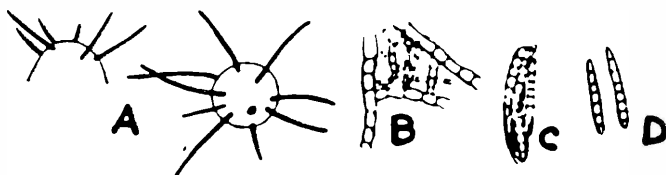


Fig. 21. *Sphaerochaetia loganiensis* (Sacc. et Berl.) Bat. et Cif.

with divergent septate, fuliginous setae; asci fusoid clavate, 40–50  $\times$  18  $\mu$ ; ascospores fusoid-clavate, not constricted, 7–8-septate, hyaline, 28–32  $\times$  7–8  $\mu$ , Fig. 21.

On *Smilax* sp. — Australia.

**Treubiomyces** v. Höhn. emend. Bat. & Cif.

Syn.: *Chaetomeris* Clem.

Mycelium superficial, thinly membranous, setose, hyphae hyaline, reticulate; perithecia globose-flattened, dark, pseudo-ostiolate, developed beneath the mycelial pellicle, setose; asci 8-spored, aparaphysate; ascospores muriform, hyaline.

Type: *T. pulcherrimus* v. Höhn. in *Fragm. Mycol.* VIII, 1909; *Syll. Fung.* XXII: 495, 1913, Clements & Shear, *The Genera of Fungi*, p. 254, 1931.

*Treubiomyces pulcherrimus* v. Höhn. reval. Bat. & Cif.

Syn.: *Chaetomeris pulcherrima* (Höhnel) Clem.

Mycelium epiphyllous, pelliculose, hyaline, hyphae 3–6  $\mu$  thick, reticulate, setose. Perithecia globose-flattened, 300  $\mu$  in diam., pseudo-

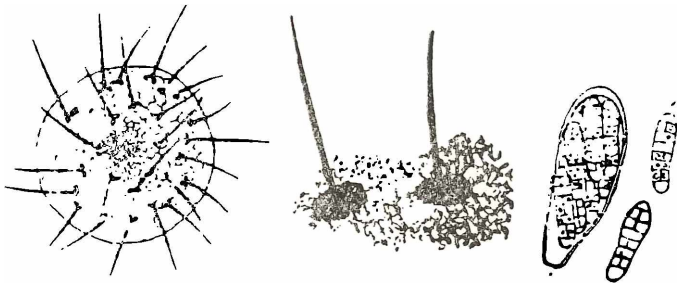


Fig. 22. *Treubiomyces pulcherrimus* v. H. — From v. Höhnel *Sitz b. Ak. Wiss. Wien, Math. Nat. Kl.* 118. Abt. I: 1181 (1909).

ostiolate, yellowish-brown, with setae analogous to the mycelial setae, rigid, acute, 120–200  $\times$  8–9  $\mu$ . Asci clavate, 8-spores, 60–70  $\times$  25–28  $\mu$ , aparaphysate; ascospores cylindrical-oblong, hyaline, 7-transverse septate, many longitudinal septa, 34–38  $\times$  8–9  $\mu$ , Fig. 22.

On *Ficus* — Java.

**Wiltshirea** Bat. & Peres n. gen. \*)

Mycelium pelliculous, hyaline, without setae and hyphopodia. Perithecia developed beneath the mycelial pellicle, subglobose, pseudo-ostiolate, membranous, brown, glabrous. Asci 8-spores, not paraphysate. Ascospores muriform, brown.

Type: *W. quercifoliae* Bat., Peres & Nasc. n. sp.

Mycelium pelliculosum, hyalinum, non setosum nec hyphopodiatum. Perithecia pellicula mycelica obtecta, sub-globosa, pseudo-ostiolata, membranosa, brunnea, glabrata. Asci 8-spores habentes, aparaphysati. Ascosporae muriformes, brunneae.

\*) In homage to Dr. S. P. Wiltshire, formerly Director Commonwealth Mycological Institute, England.

*Wiltshirea quercifoliae* Bat., Peres & Nasc. n. sp.

Mycelium superficial, epiphyllous, pelliculous, hyaline, devoid of hyphopodia and setae and composed of subrectis, septate and constricted hyphae, irregularly branched, ( $45-90^\circ$ ), having cells of  $9.5-22 \times 2.5-5 \mu$ . Perithecia superficial, developed beneath the

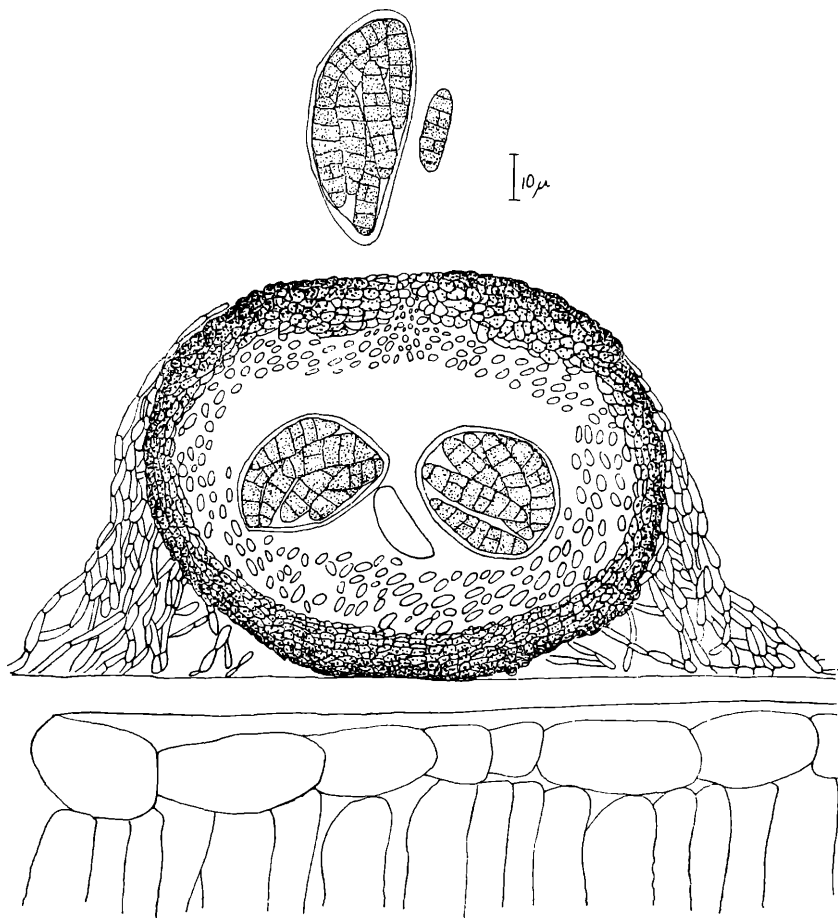


Fig. 23. *Wiltshirea quercifoliae* Bat., Peres. et Nasc. — Perithecium, ascus and spores.

mycelial pellicle, glabrous, sub-globose, depressed, scattered, membranous, brownish  $133-180 \mu$  diam., pseudo-ostilate,  $56-81 \mu$  in height; the walls are  $17-41 \mu$  diam., sub-parenchymatic, made of polygonal cells,  $4.5-8 \times 3-5.5 \mu$ , Fig. 23. Asci ovoidal or subglobose, 8-spores, 2-tunicate, sessile, aparaphysate,  $30-50 \times 17-28 \mu$ . Ascospores cylindrical, obtuse, transversally, 7-septate, with 1-longitudinal septum, polistichous, brownish,  $22-28 \times 6-7 \mu$ . Fig. 23.

On leaves of *Quercus laurifolia*. Crescent City, Fla. Geo. Martin, 3-1880. Type, no. 205 in Herb. Acad. Nat. Sci. Philadelphia, U.S.A., under the name of *Saccardia martinii* S. & E.

Mycelium superficiale, epiphyllum, pelliculosum ex hyphis hyalinis, irregulariter ramosis, septatis, constrictis, ex cellulis  $9,5-22 \times 2,5-5 \mu$ , non hyphopodiatis nec setosis, compositum. Perithecia pellicula mycelica tecta, superficialia, glabrata, subglobosa, dein colapso-depressa,  $133-180 \mu$  diam., pseudo-ostiolata,  $56-81 \mu$  alt., membranosa, brunnescentia; cum parietibus  $17-41 \mu$  cr., plurimum stratosis, ex cellulis polygonalibus,  $4,5-8 \times 3-5,5 \mu$ , efformatis. Asci ovoidei vel subglobosi, 8-sporos continentes, 2-tunicati, sessiles,  $30-50 \times 17-28 \mu$ , aparaphysati. Ascosporae cylindratae, obtusae, 7 transversaliter septatae, 1-longitudinaliter septatae, polystichae, brunnescentes,  $22-28 \times 6-7 \mu$ .

### Phaeosaccardinulaceae Bat. & Cif. n. fam.

Type.: *Phaeosaccardinula* P. Henn.

Fungi epiphytic, associated with insects or not. Superficial mycelium olivaceous or blackish-brown, pelliculose or in a loose network, formed by septate hyphae with cells lengthened or not, of cruciform or irregular branching generally reticulate, little constricted at the septa, with or without erect setae, not hyphopodiate. Perithecia superficial, although developed beneath the mycelial pellicle, which is adherent to the outer walls of the perithecia; perithecia flattened-globose, subglobose, or conoid, brown to blackish, not shield-shaped or dimidiate, not radiate, unilocular, pseudo-ostiolate with an apical pore visible or not; the enveloping mycelial pellicle may produce setae on the apex of the perithecia, scattered, or localized around the base of the perithecia; thus the setae may be considered of remote mycelial origin. Asci developed basally, generally clavate or ellipsoid, sessile or subsessile, few in number, successively ripening, 2-8 spores, with or without paraphysoids. Ascospores hyaline or dark, septate or continuous.

Pycnidia of the family *Asbolisiaceae*, of different shapes and with various types of pycnidiospores, may be associated with the mycelium of the *Phaeosaccardinulaceae*, but there is not any proof that they are related to the ascigerous development of the perfect fungus. The same is true of some *Dematiaceae*, as *Triposporium*, *Tripospermum*, *Helminthosporium*, and others.

### Key to the Genera of the Family *Phaeosaccardinulaceae* *Hyalodidymae*

Spores 1-septate, hyaline.

A — Mycelium not setose

B — Perithecia not setose . *Hansfordina* Bat.

BB — Perithecia setose . *Microcalliopsis* Bat. & Cif.

- AA — Mycelium setose  
 BB — Perithecia not setose . *Kanousea* Bat. & Cif.  
 BBB — Perithecia setose . *Microcallis* Syd.

*Phaeodidymae*

Spores 1-septate, dark

- A — Mycelium and perithecia not setose *Fraseria* Bat.

*Hyalophragmiae*

Spores transversally x-septate, hyaline.

- A — Mycelium not setose  
 B — Perithecia not setose . *Ceramothyrium* Bat. & Maia  
 BB — Perithecia setose . *Phaeochaetia* Bat. & Cif.

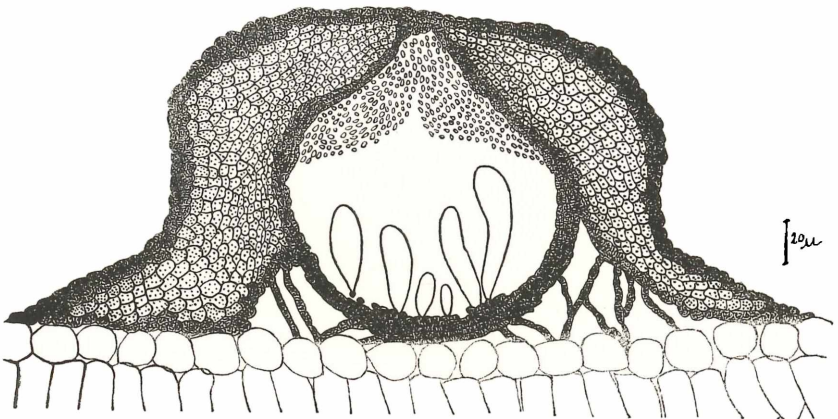
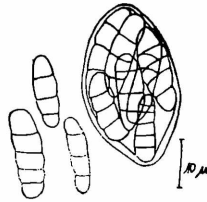


Fig. 24. *Ceramothyrium boedijnii* (Hansf.) Bat., Nasc. et Cif. — Longitudinal section of a perithecium, ascus and spores.

- AA — Mycelium setose  
 B — Perithecia not setose . *Dennisiella* Bat. & Cif.  
 BB — Perithecia setose *Vitalia* Cif. & Bat.

*Phaeophragmiae*

Spores transversally x-septate, dark.

- A — Mycelium not setose  
 B — Perithecia not setose . *Globoa* Bat. & Maia.  
 BB — Perithecia setose . *Setella* Syd.
- AA — Mycelium setose  
 BB — Perithecia setose . *Gilmania* Bat. & Cif.

*Hyalodictyae*

Spores muriform, hyaline

- A — Mycelium not setose  
     B — Perithecia not setose . *Deslandesia* Bat.  
     BB — Perithecia setose . *Mycostevensonia* Bat. & Cif.  
 AA — Mycelium setose; perithecia not setose . *Shanoriella* Bat. & Cif.

*Phaeodictyae*

Spores muriform, dark

- A — Ascospores not mucronate; mycelium and perithecia not setose . *Phaeosaccardinula* P. Henn. (Hedw. p. 66, 1905).  
     B — Asci paraphysate subgenus *Euphaeosaccardinula*  
     BB — Asci not paraphysate subgenus . *Aparaphysella*  
 AA — Ascospores mucronate; mycelium and perithecia not setose . *Teichosporina* Arnaud

*Scoleosporeae*

(Spores worm- or thread-like, continuous or septate, their length at least 10 x their width)

- A — Spores hyaline, transversally x-septate; mycelium and perithecia not setose . *Scolecobonaria* Bat.  
 AA — Spores dark, transversally x-septate; mycelium and perithecia not setose; asci not paraphysate . *Skoteinospora* Bat.

*Ceramothyrium* Bat. & Maia

Type: *C. paiveae* Bat. & Maia.

This genus and most of its species has been fully described in Atti, Inst. Bot. Crittog. Univ. Pavia, Italy, ser. 5, XIV: 23—52, 1957. We now add a few other species not previously studied.

*Ceramothyrium biseptatum* (Sacc.) Bat. & Maia

Syn.: *Limacinia biseptata* Sacc. in Att, Inst. Bot. Lab. Crittog. Univ. Pavia ser. 5, XVI: 32, 1957.

The type species, on *Macaranga tanarins*, Mt. Maquiling, Los Banos, Prov. Lagune, Philippines, Jan. 1914, Fungi Malayana, C. F. Baker, no. 150 we have examined through the courtesy of the Università de Pavia. — Also on *Macaranga*, Los Banos, Philippines, Leg. C. F. Baker, 10: 1. 1914, Det. A. Chaves Batista, 28. 2. 1957, sp. no. 10928, I.M.U.R., associated with *Microxyphium* sp.

*Ceramothyrium boedijnii* Bat., Nasc. & Cif. n. sp.

Mycelium epiphyllous, black, thin pelliculose, glabrous, not

hyphopodiate, hyphae brown, reticulate, branched, with cylindrical cells,  $15-20 \times 6-7 \mu$ . Perithecia developed beneath the mycelial pellicle, globose-depressed, black, until  $140 \mu$  diam.,  $60-70$  in height, pseudo-ostiolate, smooth, Fig. 24. Asci clavate, sessile, 8-spores,  $40-60 \times 18-25 \mu$ , paraphysate. Ascospores clavate to subfusoid, 3 transversally septate, hyaline,  $15-20 \times 5-7 \mu$ . Fig. 24.

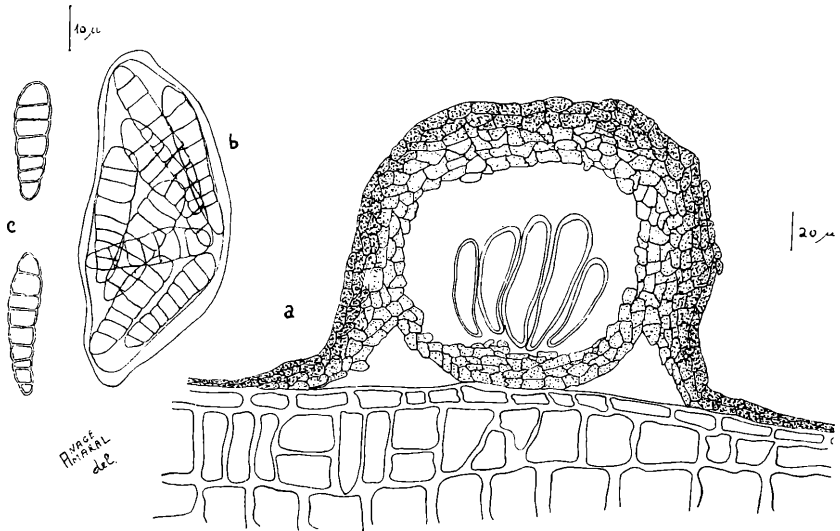


Fig. 25. *Ceramothyrium calycanthi* Bat. — a) Perithecium. — b) Ascus. — c) Spores.

On leaves of indet. *Rubiaceae* Bantam. G. Karang, Indonesia, Boedijn, 1330. Also on *Theobroma cacao* Keravat, New Britain, Leg. D. Shaw, 12. 956. Spec. Wari, 7767 and 13021, Inst. Micol. Univ. Recife.

Est *Ceramothyrium* per ascostromata glabrata, pellicula mycelica tecta et ascosporos hyalinos, 3-transversaliter septatos et mycelium haud setosum.

Hansford, in Sydowia, Ann. Mycol. X: 99, 1956 described *Chaetothyrium boedijnii* Hansf. which really is now understood as one species of *Phaeochaetia*. The specimen which he kindly sent to us possess so *Ceramothyrium* and *Phaeochaetia* being the original description of Hansford correspondent to our *Ceramothyrium*, less the setae.

### *Ceramothyrium calycanthi* Bat. n. sp.

Epiphyllous. Free pelliculose mycelium, irregularly reticulate, having straight hyphae, branched, light-brown, septate, constricted, the cells being  $6.5-12.5 \times 4-5.5 \mu$ , not setose nor hyphopodiate. Perithecia developed beneath the mycelial pellicle, Fig. 25, isolate

globose-depressed, 165–205  $\mu$  wide, 110–155  $\mu$  in height, olive-brown, glabrous, pseudo-ostiolate, membranous, the walls in 4 to 6 layers, 35–40  $\mu$  in thickness, composed of subglobose and polygonal cells, 7.5–14.5  $\times$  6.5–11  $\mu$ . Asci ellipsoid to sub-globose, 2-tunicate, sessile, 8-spores, 44–66  $\times$  29.5–37  $\mu$ , aparaphysate. Ascospores clavate, 6–10 transversally septate, little constricted, polystichous, hyaline, 24.5–37  $\times$  6.5–9.5  $\mu$ . Fig. 25.

On leaves of *Calycanthus* sp. associated with *Trichomerium didymopanicis* Bat., Nasc. & Cif. and *Dictyarthrinopsis costaricensis* Bat. — Georgia, U.S.A. Leg. C. L. Shear. Type, 11084, Institute of Mycology, University of Recife and isotype in The National Fungus Collections, U.S.A.

This material has been sent to us by our friend Dr. John A. Stevenson, Apr. 1, 1957.

Epiphyllum. Mycelium pelliculosum, irregulariter reticulatum, ex hyphis ramosis, brunnescentibus, septatis, constrictis, ex cellulis 6.5–12.5  $\times$  4–5.5  $\mu$ , non setosis, haud hyphopodiatis compositum. Perithecia sub pellicula myceliana oriunda, isolata, globoso-depressa, 165–205  $\mu$  diam., 110–155  $\mu$  alt., olivaceo-brunnea, glabrata, pseudo-ostiolata, cum parietibus 4–6 stratosi, 35–40  $\mu$  cr, membranosis, ex cellulis subglobosis vel polygonalibus, 7.5–14.5  $\times$  6.5–11  $\mu$ , efformatis. Asci ellipsoidei vel subglobosi, 2-tunicati, sessiles, 8-sporei, 44–66  $\times$  29.5–37  $\mu$ , aparaphysati. Ascosporeae clavatae, 6–10 transversaliter septatae, parum constrictae, polystichae, hyalinae, 24.5–37  $\times$  6.5–9.5  $\mu$ .

### *Ceramothyrium coffeanum* Bat. & Nasc. n. sp.

Colonies brownish-black, epiphyllous, spread to effuse, superficial. Mycelium pelliculose, brownish-composed of dense branched, septate and constricted hyphae having cylindrical cells, 7.5–18  $\times$  3–7  $\mu$ . Hyphopodia and setae null. Ascostromata brownish, developed beneath the mycelial pellicle superficial, subglobose, depressed, glabrous, membranous, pseudo-ostiolate, 110–112  $\mu$  in height, 110–140  $\mu$  diam., gregarious, single to confluenti, loculum subglobose, 68–100  $\times$  61–85  $\mu$ . The walls are subparenchymatic, 12–19.5 in thickness and made of polygonal cells, 3.5–11  $\times$  2.5  $\mu$ . Asci elliptical to clavate, 2-tunicate, sessile to short pedicelate, 8-spored, aparaphysate, 41–50  $\times$  13–17  $\mu$ . Ascospores ellipsoidal, hyaline, transversally, 3-septate, not constricted, distichous, 12–16  $\times$  4–6  $\mu$ .

On leaves of *Coffea robusta* — Goroka — New Guinea. Leg. D. Shaw. Spec. Wari, 7769, cotype South Australia. Type, 12798, Institute of Mycology, University of Recife.

Plagulae atro-brunneae, epiphyllae, effusae, superficiales, efformatae. Mycelium pelliculosum, ex hyphis septatis, denseque ramosis, brunnescentibus et ex cellulis cylindraceis, constrictis, 7.5–18  $\times$  3.7  $\mu$ , non setosis, haud hyphopodiatis, compositum. Ascostromata brunnescentia, pellicula mycelica tecta, superficialia, subglobose sed colapso-depressa, glabrata, membranosa, 110–140  $\mu$  diam., 100–112  $\mu$  alt., pseudo-ostiolata; loculum subglobosum, 68–100  $\times$  61–85  $\mu$ ; parietes subparenchymatici, 12–19.5  $\mu$  cr ex cellulis polygonalibus, 3.5–11  $\times$  2.5–3  $\mu$ , efformati. Asci ellipsoidei vel ellipsoideo-clavati, 2-tunicati,



sessiles vel curto-stipitati, 8-spori,  $41-50 \times 13-17 \mu$ , aparaphysati. Ascosporae ellipsoideae, 3-septatae, haud constrictae, distichae, hyalinae,  $12-16 \times 4-6 \mu$ .

Esse especimen fôra identificado por C. G. Hansford como *Chaetothyrium boedijnii* Hansf.

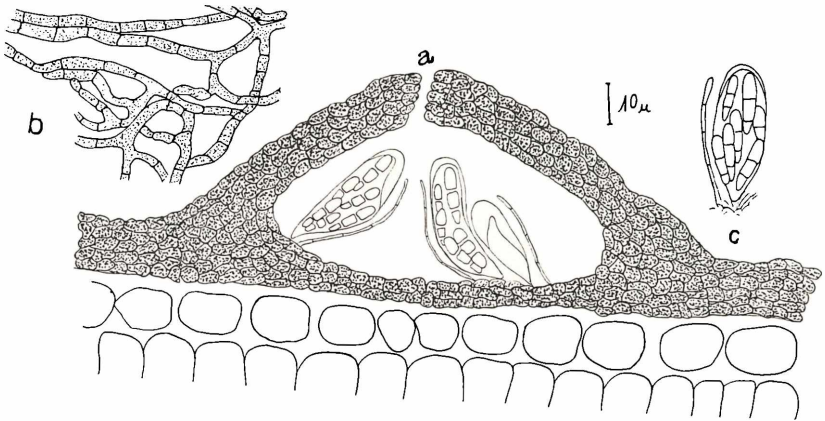


Fig. 26. *Ceramothyrium europaeum* (v. H.) Bat. var. *myrciae* Bat. et Vital. — a) Perithecium seen under a longitudinal cut. — b) Mycelial hyphae. — c) Asci and paraphysoid.

*Ceramothyrium europaeum* (v. Höhn) Bat. var. *myrciae* Bat. & Vital n. var.

Mycelium epiphyllous, superficial, pelliculous, spread, black, having brown and septate hyphae, little constricted or not, profusely branched, without hyphopodia or setae, the cells being  $5-12.5 \times 3.5-6 \mu$ . Perithecia scattered or gregarious, globose-conoidal to globose-depressed,  $125-215 \mu$  of diam.,  $57.5-67.5 \mu$  in height, developed beneath the mycelial pellicle, superficial, glabrous, black, membranous, pseudo-ostiolate  $12.5-22.5 \mu$  diam.; the superior wall is blackish-brown, prosenchymatic,  $15-20 \mu$  thick; the inferior wall is brownish, bad defined in structure,  $2.5-5 \mu$  thick, Fig. 26. Asci cylindric-clavate,  $30-42.5 \times 12.5-17.5 \mu$ , sessile, 8-spores, bitunicate; paraphysoid filiform, simple, septate,  $1-5 \mu$  diam. Ascospores cylindric-clavate, 2-septate, slightly constricted or not, hyaline, polystichous,  $15-20 \times 4-6 \mu$ . Fig. 26.

On *Myrcia paniculata* — Porto Rico. Leg. J. A. Stevenson, 26. 7. 914. Type no. 11371, Institute of Mycology, University of Recife, isotype no. 2116 a, in Herbarium of John A. Stevenson.

A typo differt ascis majoribus, pseudo-paraphysatis et ascosporis 2-septatis, hyalinis.

Acknowledgement is made to Dr. J. A. Stevenson for the donation of this specimen now studied.

**Ceramothyrium parenchymaticum** (Doidge) Bat. n. comb.

Syn.: *Zukalia parenchymatica* Doidge in Trans. Roy. Soc. South Africa, VIII, p. 114, 1920.

*Phragmothyriella parenchymatica* (Doidge) Doidge in Bothalia, II, part IV, p. 206, 1927.

Mycelium epiphyllous, superficial, pelliculose, yellowish-brown, hyphae branched, 3.5–5  $\mu$  thick, not setose, nor hyphopodiate. Perithecia developed beneath the mycelial pellicle, scattered, globose-

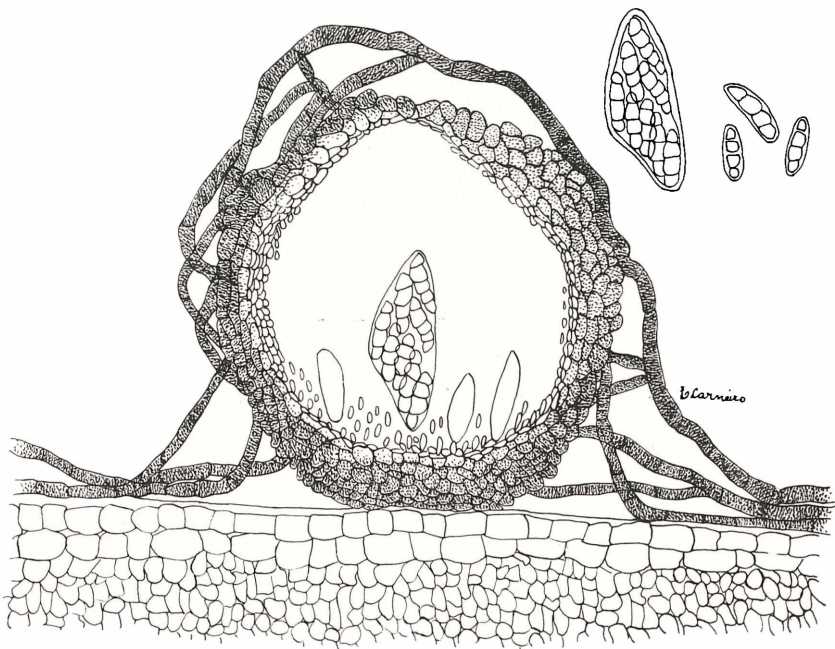


Fig. 27. *Ceramothyrium parenchymaticum* (Doidge) Bat. — Perithecium, ascus and spores.

depressed, 300–400  $\mu$  wide, about 170  $\mu$  in height, fuscous, unilocular, Fig. 28. Asci ellipsoid to ovoidal, pedicellate, 50–60  $\times$  20–30  $\mu$ . Ascospores ellipsoid, 5–7 transversally septate, 30–40  $\times$  8–10  $\mu$ , hyaline or yellowish. Fig. 27.

On leaves of *Xylamos* — South Africa.

Also on leaves of *Didymopanax morototoni* associated with *Trichomerium didymopanaxis* Bat. Nasc. & Cif. Las Vegas — Cuba — F. L. Stevens, 5–7–913. Spec. 13336, Inst. Myc. Univ. Recife.

**Dennisella** Bat. & Cif. n. gen.\*)

Mycelium pelliculosum, ex hyphis subhylinis vel olivaceis vel

\*) Dedicated to Dr. R. W. G. Dennis, British Mycologist.

brunneis, setosis, non hyphopodiatis, compositum. Perithecia globosa vel globoso-depressa, sub-pellicula mycelii oriunda, pseudo-ostiolata, atro-brunnea, non setosa. Asci 8-spori, aparaphysati. Ascosporae pluri-transversaliter septatae, hyalinae.

Typus — *D. babingtonii* (Berk. & Desm.) Bat. et Cif.

Key to the Species of the Genus *Dennisiella*.

- A — Mycelial setae septate
  - B — Perithecia 92—210  $\mu$  diam.;  
ascospores 3—6 transversally septate, 14—23  $\times$   
5—7  $\mu$ . *D. babingtonii*
  - BB — Perithecia 67—135  $\mu$  diam.;  
ascospores 3-septate, 17—  
23  $\times$  6—7  $\mu$ . *D. theae*
  - BBB — Perithecia 726  $\mu$  diam.;  
ascospores 3—4 septate,  
30—33  $\times$  7—8  $\mu$ . *D. caucasica*
- AA — Mycelial setae continous
  - C — Perithecia 220—230  $\mu$   
diam.; ascospores 4—5  
transversally septate  
19.5—22.5  $\times$  6—7.5  $\mu$  *D. setosicola*

***Dennisiella babingtonii*** (Berk. & Desm.) Batista & Ciferri n. comb.  
Syn.: *Chaetothyrium babingtonii* (Berk. & Desm.) Keissler (sensu  
Dennis & M. B. Ellis).

Syn.: *Strigula babingtonii* Berk. in English Bot. vol. IV, pag. 2957,  
1849 — Jour. Hort. Soc. vol. IV, p. 243—260, 1849.

*Capnodium footi* Berk. & Desm. in Trans. British. Myc. Soc.  
XXXV, 199, 1952.

Mycelium epiphyllous, pelliculose, thin, blackish or grayish, setose, generally effuse, hyphae subhyaline to olivaceous, 2—3  $\mu$  in diam., reticulate; setae erect, straight, sharply, more or less bulbous at the base, acute, 80—210  $\times$  6—8  $\mu$ . Perithecia globose, olivaceous to black, 92—210  $\mu$  in diam., with walls in several layers, 30—50  $\mu$  thick, glabrous, developed from the mycelial pellicle. Asci 8-spores, cylindric, 40—63  $\times$  13—17  $\mu$ , aparaphysate. Ascospores fusoid, 3—6-septate, 14—23  $\times$  5—7  $\mu$ , hyaline, Fig. 28.

On *Arundinaria*, *Buxus*, *Eleagnus*, *Fagus*, *Ligustrum*, *Mercurialis*, *Phyllyrea*, *Prunus*, *Rhododendron*, *Populus*, *Yucca*, *Pelargonium*, *Psidium* — World wide.

**Dennisiella caucasica** (Woronich.) Bat. & Cif. comb. nov.

Syn.: *Zukalia caucasica* Woronich. in Syll. Fung. XXIV: 380, 1926.

Mycelium crustaceo-membranous, effuse, epiphyllous, hyphae brownish, reticulate or crucially branched, composed of cells from  $18-28 \times 6-10 \mu$ ; perithecia subglobose,  $276 \mu$  diam.; membranous,

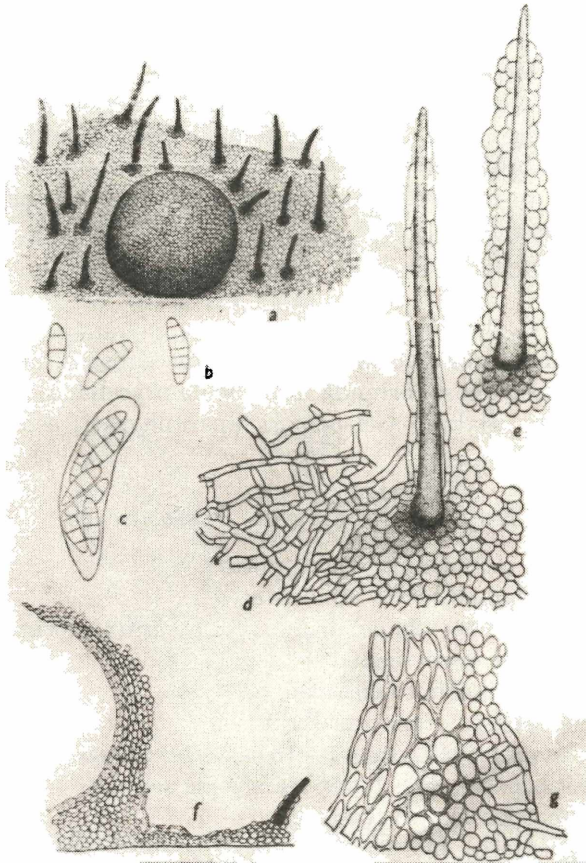


Fig. 28. *Dennisiella babingtonii* (Berk. et Desm.) Bat. et Cif.

pseudo-ostiolate, setae around the base,  $100-150 \times 7-10 \mu$ , septate, brown; asci ovoid, 8-spored,  $60-75 \times 30-45 \mu$ , aparaphysate; ascospores fusoid, 3-4-septate,  $30-33 \times 7-8 \mu$ , hyaline.

On *Taxus* — Russia.

**Dennisiella setosicola** (Woronich.) Bat. & Cif. comb. nov.

Syn.: *Zukalia setosa* Woronich. in Syll. Fung. XXIV p. 381, 1926.

Mycelium epiphyllous, pelliculose, ash-colored, hyphae brownish

to hyaline, reticulate, 3—4  $\mu$  wide, with erect setae, blackish-brown, acute, 180—230  $\times$  6  $\mu$ ; perithecia globose, pseudo-ostiolate, 220—230  $\mu$  diam.; asci 8-spores, oblong or cylindric, 60—70  $\times$  15—18  $\mu$ , paraphysate. Ascospores fusoid, 4—5-septate, 19.5—22.5  $\times$  6—7.5  $\mu$ , hyaline.

On leaves of *Prunus*, *Rhododendron* — Russia.

**Dennisiella theae** (K. Sawada) Batista & Ciferri comb. nov.

Ayn.: *Zukalia theae* in *Mycologia*, 9: 170, 1917.

Mycelium black, hyphae brown, branched, septate, 3—6  $\mu$  wide; perithecia globose, black, 67—135  $\mu$  diam.; setae around the perithecia, 6—8, blackish-brown, septate, 70—100  $\times$  4  $\mu$ ; asci 8-spores, clavate, 68—90  $\times$  13—16  $\mu$ ; ascospores clavate or ellipsoid, 3-septate, 17—23  $\times$  6—7  $\mu$ , hyaline.

On *Thea* — Formosa.

**Deslandesia** Bat. n. gen.\*)

Mycelium membranaceum, fuscum, non setosum, non hyphodiatum. Perithecia globosa, oriunda in pellicula myceliana, atro-brunnea, pseudo-ostiolata, glabra; asci 8-sporei, paraphysati; asosporae muriformes, hyalinae.

### Key to Species of *Deslandesia*

- A — Asci evanescent; ascospores transversally 10—15 septate, 40—56  $\times$  16—20  $\mu$  . *D. javanica* var. *cyperi*
- AA — Asci not evenescent
  - B — Asci cylindric to clavate
  - C — Ascospores transversally 13—22-septate, 50—98  $\times$  7—13  $\mu$ . . *D. roseospora*
  - CC — Ascospores with fewer transverse septa
  - D — Ascospores transversally 7—15-septate, 44—76  $\times$  8—12  $\mu$ . . *D. longispora*
  - DD — Ascospores transversally up to 7-septate.
  - E — Ascospores transversally 2—3 septate, 12—15  $\times$  6—7.5  $\mu$ . . *D. honoluluensis*
  - EE — Ascospores transversally 4—6-septate, 16.5—25.5  $\times$  7.5—9  $\mu$ . . *D. pacifica*
  - EEE — Ascospores transversally 5—7-septate, 28—35  $\times$  10—13  $\mu$  *D. ficina*.
  - EEEE — Ascospores transversally 3—5-septate, 17.5—25  $\times$  6—7.5  $\mu$  . *D. ficina* var. *microspora*
- BB — Asci globoid to elliptic

\*) Dedicated to Dr. Josué Deslandes, Brazilian phytopathologist.

- F — Ascospores up to 25  $\mu$  long.,  
transversally 3–5-septate .*D. paulensis* var. *malloti*
- FF — Ascospores over 25  $\mu$  long.
- G — Perithecia less than 100  $\mu$  diam.,  
ascospores 40–50  $\times$  10–16  $\mu$  . .*D. javanica*
- GG — Perithecia more than 200  $\mu$  diam.
- H — Perithecia 200–230  $\mu$  diam.,  
ascospores transversally 6–  
7-septate, 28–45  $\times$  7–12  $\mu$  .*D. javanica* var. *harana*
- HH — Perithecia 250–300  $\mu$  diam.,  
ascospores transversally 3–9-  
septate, 25–30  $\times$  7–9  $\mu$  .*D. paulensis*

***Deslandesia ficina* (Syd.) Bat. n. comb.**

Syn.: *Tephrosticta ficina* Syd. in Philipp. Jour. Sci. VIII: 271, 1913.

Syn.: *Phaeosaccardinula ficina* (Syd.) Hansf. in Comm. Myc. Inst.

Mycol. Pap. no. 15, p. 156, 1946.

Mycelium epiphyllous, thinly pelliculose, hyphae subhyaline to fuscous, 4–7  $\mu$  thick. Perithecia globose-flattened, 140–190  $\mu$  in

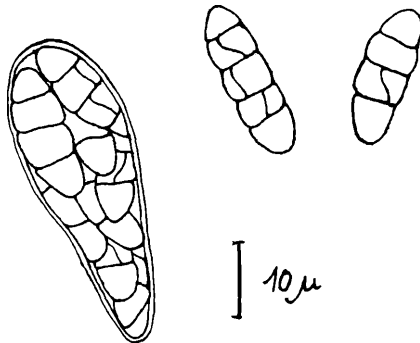


Fig. 29. *Deslandesia ficina* (Syd.) Bat. var. *microspora* Bat. et Vit. — Ascus and spores.

diam., black, glabrous, pseudo-ostiolate. Asci clavate, 8-spores, 50–65  $\times$  17–22  $\mu$ , aparaphysate. Ascospores ellipsoid-oblong, muriform, with 5–7 transversal septa, hyaline, 28–35  $\times$  10–13  $\mu$ . We have studied what appears to be the type through the courtesy of Prof. Lee Bonar, The University of California, U.S.A.

The specimen, no. 528.221, was labeled as *Tephrosticta ficina* Syd. n. sp., Los Banos, Philippines, Coll. C. F. Baker, Jan. 1913. On *Ficus* sp. — Also found on leaves of *Coffea liberica*. Buitenzorg, Indonesia. Spec. no. 11.110, Institute of Mycology, University of Recife, and in The National Fungus Collections, U.S.A.

***Deslandesia ficina* (Syd.) Bat. var. *microspora* Bat. & Vital n. var.**

Mycelium epiphyllum superficial, pelliculose, thin, brownish,

not setose, nor hyphopodiate, composed of reticulate and constricted hyphae, with cells  $10-15 \times 4-5 \mu$ . Perithecia globose-depressed, developed beneath the mycelial pellicle,  $150-190 \mu$  diam. Fig. 30., pseudo-ostiolate, single, scattered, brown, not setose; the perithecial walls are pseudoparenchymatic, made up of subglobose to polygonal cells,  $2.5-8 \mu$  diam. Asci ellipsoid to clavate, 8-spores, sessile to short pedicellate, 2-tunicate,  $47.5-52.5 \mu$ , aparaphysate, Fig. 29. Ascospores cylindraceous, muriform, 3-5 transversally septate, constricted, hyaline, polistichous,  $17.5-25 \times 6-7.5 \mu$ .

On *Psidium guayava* — Type, 6661, Herbarium of The University of Illinois, associated with *Microxyphium columnatum* Bat., Cif. & Nasc., *Phaeochaetia ilicifoliae* Bat. & Nasc., *Atichia glomerulosa* (Ach.) Flot. *Triposporium* sp. and *Tripopermium*. Note: This specimen was labeled Hawaiian Fungi Coll. F. L. Stevens — *Limaciniella psidii* Mendoza n. gen. n. sp. — Type — *Psidium guayava* — Wanea, Kauai, Fig. 29.

There is also a manuscript note of Petrak who, before us, had found no reference to Mendoza's species.

A typo recedit ascosporis minoribus,  $17.5-25 \times 6-7.5 \mu$ , 3-5 septatis. In foliis *Psidii guayavae*.

#### **Deslandesia honoluluensis** Bat. & Vital n. sp.

Mycelium epiphyllous, superficial, pelliculose, not setose, nor hyphopodiate, brownish, hyphae septate constricted, with cells  $5-17 \times 2.5-5 \mu$ . Perithecia developed beneath the mycelial pellicle, globose-depressed,  $160-180 \mu$  diam., pseudo-ostiolate, brownish, Fig. 32, scattered, membranous, sub-parenchymatic, the walls having polygonal cells,  $2.5-12.5 \mu$  wide, Fig. 33. Asci cylindro-clavate to ellipsoid, 6-8 spores, 2 tunicate, sessile,  $32.5-35 \times 20-22.5 \mu$ , aparaphysate. Ascospores ellipsoid, 2-3 transversally septate, 1-longitudinal septum (less frequently) polistichous, hyaline,  $12-15 \times 6-7.5 \mu$ . Fig. 30-32.

On leaves of *Mangifera indica* L. associated with *Chaetothyrium mangiferae* Mendoza and *Microxyphium columnatum* Bat., Cif. & Nasc. Olympus, Ohau, Honolulu, Leg. F. S. Stevens, June, 6, 1921, Type, 6652, Herbarium University of Illinois.

Mycelium epiphyllum, superficiale, pelliculosum, brunnescente, ex hyphis septatis, constrictis et ex cellulis  $5-17 \times 2.5-5 \mu$ , non setosis, non hyphopodiatas, compositum. Perithecia pellicula mycelica tecta, globose-depressa,  $160-180 \mu$  diam., sparsa, pseudo-ostiolata, brunnescentia, membranosa, sub-parenchymatica, ex cellulis polygonalibus,  $2.5-12 \mu$  diam. efformata. Asci cylindro-clavati vel ellipsoidei, 6-8 spori, 2-tunicati, sessiles,  $32.5-35 \times 20-22.5 \mu$ , aparaphysati. Ascospores ellipsoideae, 2-3 transversaliter septatae, 1-longitudinaliter septatae, polystichae, hyalinae,  $12-15 \times 6-7.5 \mu$ .

Also identified on *Umbellularia californica* — La Honda, California J. S. Boyce, Nov. 17, 1912. Spec. no. 11257, Inst. Myc. Univ.

of Recife and in the National Fungus Collections, U.S.A. Equally found on *Heteromeles arbutifolia* Honda, San Mateo, California, J. S. Boyce, Nov. 17, 1912. Spec. no. 11285, Inst. Myc. Univ. of Recife, and in The National Fungus Collections U.S.A.

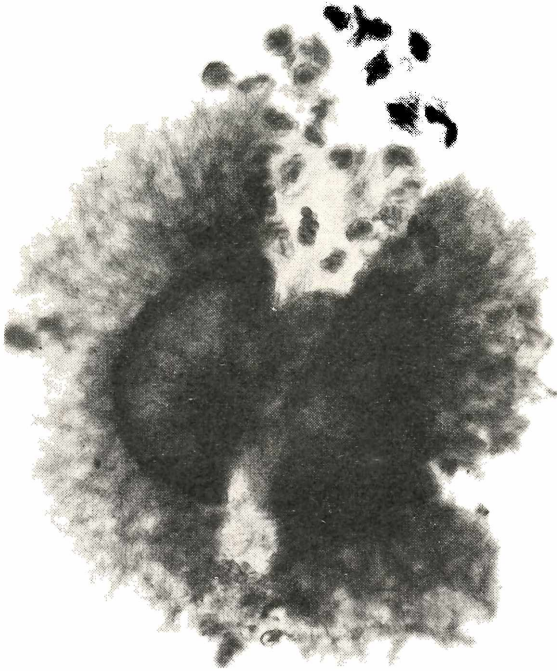


Fig. 30. *Deslandesia honoluluensis* Bat. et Cif.

***Deslandesia javanica* (Zimm.) Bat. & Cif. n. comb.**

Syn.: *Limacinula javanica* (Zimm.) Sacc. & D. Sacc.

Syn.: *Capnodium javanicum* Zimm. in Zentralbl. f. Bakter. VIII: 151, 1902.

Syn.: *Limacinia javanica* (Zimm.) Sacc. & D. Sacc. in Syll. Fung. XVII: 558, 1905.

Syn.: *Phaeosaccardinula javanica* (Zimm.) Yamamoto Ann. Phytopath. Soc. Japan, X: 262, 1940.

Syn.: *Chaetothyrium javanicum* (Zimm.) Boedijn. in Comm. Mycol. Inst. Myc. Pap. no. 15, pag. 154, 1946.

Mycelium epiphyllous, crustaceous, not setose, black, hyphae septate, constricted, bown, Perithecia globose, 100—160  $\mu$  diam., free, sessile, pseudo-ostiolate, papillate, black, glabrous; asci 8-spores, sessile, aparaphysate; ascospores ovoid, muriform, 40—50  $\times$  10—16  $\mu$  hyaline, Fig. 34.



The perithecia, judging from Hansford's picture (loc. cit.), appear as formed beneath the mycelial pellicle. The type was not available for our study.

On *Coffea Java*.

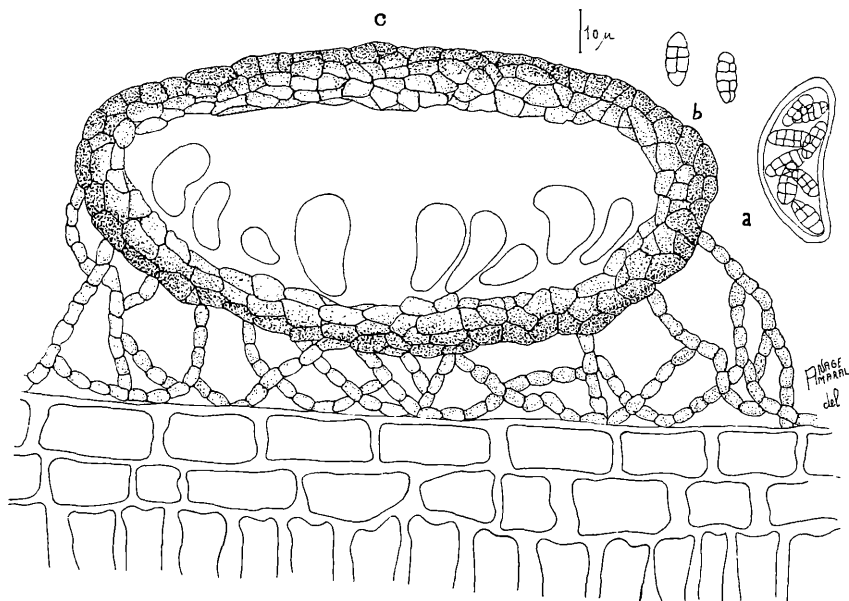


Fig. 31. *Deslandesia honoluluensis* Bat. et Vital — a) ascus. — b) Spores. — c) Perithecium under a longitudinal cut.

*Deslandesia javanica* (Zimm) Bat. & Cif. var. **cyperi** (Bat.) Bat. n. comb.

Mycelium epiphyllous, superficial, membranous, black, not setose, hyphae blackish-brown, 4–8  $\mu$  thick, branched, constricted. Perithecia superficial, free, globose, 148–212  $\mu$  diam.; pseudo-ostiolate, not setose; perithecial walls composed of globose cells, 4–12  $\mu$  in diam.; asci evanescent. Ascospores oblong-ellipsoid, muriform, 10–15 transversal septate 40–56  $\times$  16–20  $\mu$ , hyaline.

On *Cyperus* — Brazil.

*Deslandesia javanica* (Zimm.) Bat. & Cif. var. **harana** (Trotter) Cif. & Bat., n. comb.

Syn.: *Meliola citricola* K. Hara in Jour. Agric. Soc. Shidzuoka Prefect. No. 263, p. 8, 1919.

*Meliola harana* Trotter in Syll. Fung. XXIV: 337, 1926.

*Limacinia harana* Trotter ibidem, pag. 338.

*Capnophaeum citricolum* (Hara) Sawada.

*Phaeosaccardinula citricola* Hara.

Mycelium superficial, hyaline at first, then dull brown, at first  $-3\ \mu$  then  $4-7\ \mu$  wide. Perithecia globose-depressed,  $200-230\ \mu$  m., subparenchymatic, dull brown, pseudo-ostiolate, ostiole,  $-20\ \mu$  diam., Fig. 35. Asci globose to ellipsoid, 8-spores, 2-tunicate,



Fig. 32. *Deslandesia honoluluensis* Bat. et Vital.

st pedicellate,  $40-70 \times 30-40\ \mu$ , apearaphysate. Ascospores ellipsoid to subfusoid, 6-7 transverse septate to muriform,  $28-45 \times 12$ , hyaline, Fig. 33-34.

Also found on *Mangifera indica* L. Wasney's Crown Mt. St. Thomas, Nov. 30, 1925, associated with *Chaetabolisia lalcata* Miller & Garbari, *Heptaster-hughesii* Cif. Bat. & Nasc., *Triposporium stelligerum* Zimm., *Antennariella* sp. *Microoxyphium* sp. and *Cephalosporium viciae* Zimm Spec. nol 11266, Inst. Myc. Univ. of Recife and in the International Fungus Collections, U.S.A. (sent to us by Dr. J. A. Stevenson).

On *Citrus* sp. Japan.

***Deslandesia longispora*** (Yam.) Bat. & Cif. n. comb.

∴ *Phaeosaccardinula longispora* Yam. in Ann. Phytopath. Soc. of Japan, XXI, 169, 1956.

Colonies epiphyllous, spread, thinly crustaceous. fuscous; myce-

lium having irregularly branched hyphae, septate, constricted, with subcylindrical cells,  $9-16 \times 2.5-3.5 \mu$ , brownish, not setose, nor hyphopodiate. Perithecia scattered, globose-depressed, pseudo-ostio-late, black,  $196-252 \mu$  diam., mammilar, pseudo-parenchymatic,

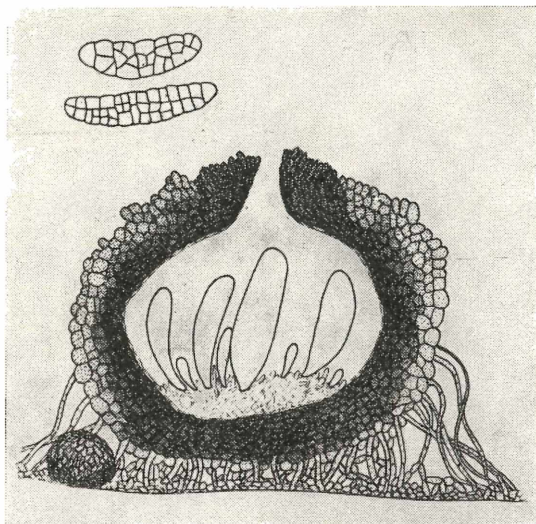


Fig. 33. *Deslandesia javanica* (Zinum.) Bat. et Cif.

developed beneath the mycelial pellicle. Asci clavate, 2-tunicate, short pedicellate, 8-spores  $83-101 \times 23-30 \mu$  aparaphysate. Ascospores clavate to cylindric, little curved, 7-15 transversally septate, 1-3 longitudinally or obliquely septate, little constricted, hyaline,  $44-76 \times 8-12 \mu$ .

On *Citrus maxima* — Formosa. Yamamoto, 19/3/942. Type.

#### ***Deslandesia pacifica* Bat. & Nasc. n. sp.**

Mycelium superficial, pelliculose, olivaceous to brownish, not setose, nor hyphopodiate, little expanded, composed of hyphae with cylindrical and constricted cells,  $7.5-24.5 \times 3.5-6.5 \mu$ , reticulately disposed. Perithecia subglobose, developed beneath the mycelial pellicle,  $145-165 \mu$  wide,  $93-110 \mu$  in height, membranous, brown, the walls are  $14.5-17 \mu$  thick in 3 to 4 layers, glabrous. Asci clavate, 8-spores, 2-tunicate, sessile,  $36.5-55 \times 18-22 \mu$ , aparaphysate. Ascospores clavate-fusoidal, polystic, 4-6 transversally septate, with 1 longitudinal septum, constricted, hyaline,  $16.5-25.5 \times 7.5-9 \mu$ . Fig. 35.

Type, in the National Fungus Collection, U.S.D.A. Beltsville, Md. as specimen 974 Herbário Criptogamico, San Jacinto, D. F.

Maxico, on *Citrus sp.* and determined as *Capnodium sp.* (*Cf. C. citri* Penz.) by M. Zenteno, May 17, 1947.

Mycelium superficiale, pelliculosum, olivaceum vel brunneum, non setosum, hyphopodiatum, ex hyphis reticulatis et cellulis  $7.5-24.5 \times 3.5-6.5 \mu$  compositum. Perithecia subglobosa, pellicula mycelica obtecta,  $145-165 \mu$  diam.,  $93-110 \mu$  alt., membranacea; ex parietibus brunneis, 3-4 stratois,

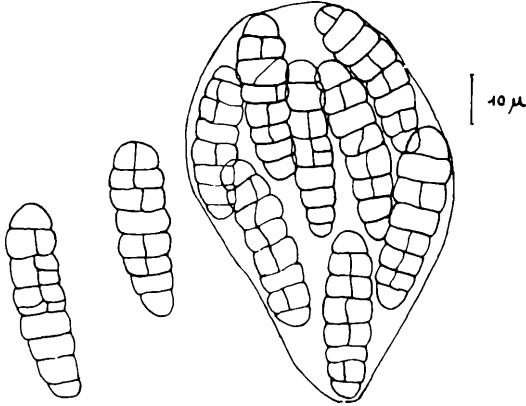


Fig. 34. *Deslandesia javanica* var. *harana* Cif. et Bat. — Ascus and Spores.

$14.5-17 \mu$  cr. non setosis, efformata. Asci clavati, 8-sporei, 2-tunicati, sessiles,  $36.5-55 \times 18-22 \mu$ , aparaphysati. Sporae clavate-fusoideae, polystichae, 4-6 transversaliter septatae, 1-longitudinaliter septatae, constrictae, hyalinae,  $16.5-25.5 \times 7.5-9 \mu$ .

***Deslandesia paulensis* (Rehm) Bat. & Cif. n. comb.**

Syn.: *Zukaliopsis paulensis* Rehm in Ann. Mycol. V: 522, 1907.

Mycelium epiphyllous, hyphae yellowish to olivaceous, lengthened,  $4 \mu$  thick, not setose; perithecia globose, blackish,  $250-300 \mu$  in diam., Fig. 38, Asci 8-spores ovoid,  $40-45 \times 20-20 \mu$ ; ascospores oblong-ellipsoid, muriform 3-9 transversal-septate, hyaline,  $25-30 \times 7-9 \mu$ , Fig. 39.

What appears this same fungus we have found with the following characteristics: Mycelium amphigenous, but chiefly hypophyllous, thin, membranous, spread, blackish, not setose, nor hyphopodiate, having brownish hyphae,  $2.5-7.5 \mu$  diam., little constricted or not constricted. Perithecia developed beneath the mycelial membrane, globose-depressed, brown, soft,  $115-220 \mu$  diam.,  $95-180 \mu$  in height, glabrous, pseudo-ostiolate, the superior wall is  $17.5-32.5 \mu$  wide having several layers of roundish brown cells,  $3-7.5 \mu$  diam., the inner wall is hyaline with lengthened cells,  $3-6 \times 2-3 \mu$ . Asci ellipsoid, sessile or short pedicellate, 6-8-spored, 2-tunicate,  $40-57.5 \times 22-25 \mu$ , aparaphysate. Ascospores oblong-ellipsoid, 4-7 transversally septate, muriform, hyaline,  $23-30 \times 7.5-11 \mu$ . Fig. 36.

On Davilla, Brazil.

On leaves of *Genipa americana* associated with *Cercospora genipae* Rangel. Paulista, Pern. Leg. Severino Pires, 2-11-957. Spec. no. 12442, Institute of Mycology, University of Recife. Det. A. Chaves Batista & A. Fernandes Vital.

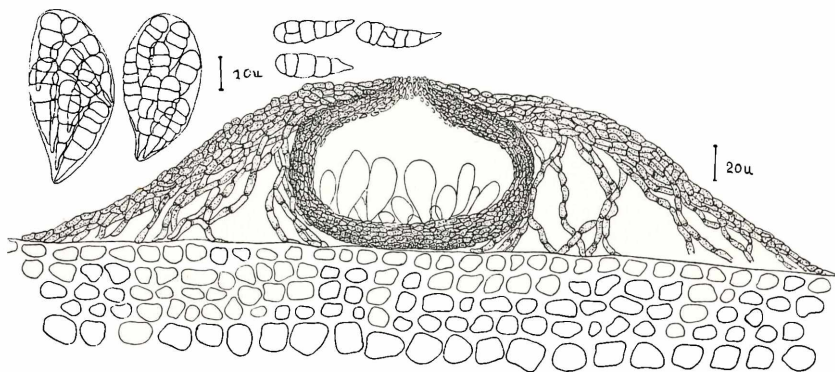


Fig. 35. *Deslandesia pacifica* Bat. et Nasc. — Perithecium fully ripe under the mycelial pellicle, asci and spores.

*Deslandesia paulensis* var. **malloti** (Rehm) Bat. & Cif. n. comb. Syn.: *Limacinula malloti* Rehm in Philipp. Journ. of Sci. VIII: 295, 1913.

*Phaeosaccardinula malloti* (Rehm) Theiss. Ann. Mycol. XV: 480, 1917.

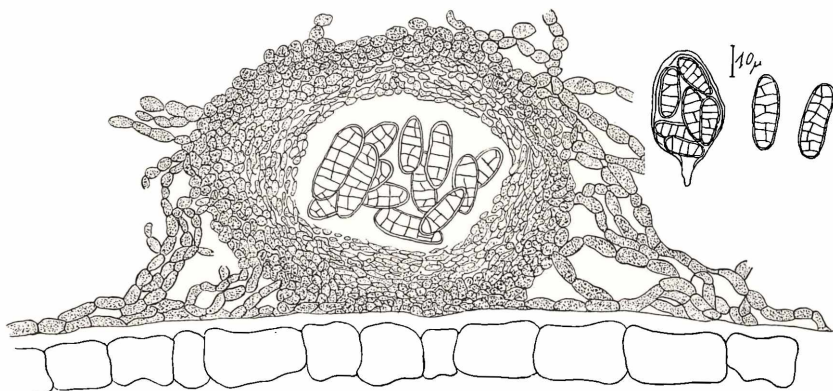


Fig. 36. *Deslandesia paulensis* (Rehm) Bat. — Perithecium under a longitudinal section; ascus, spores.

*Chaetothyrium hawaiiense* Mendoza in Bernice P. Bishop Mus. No. 19, p. 56, 1926.

Mycelium epiphyllous, membranous, hyphae fuscous, 6-7  $\mu$  thick, not setose. Perithecia globose, Fig. 40, gregarious or not, 200  $\mu$

in diam., glabrous, black, pseudo-ostiolate; asci 8-spores, ovoid,  $50 \times 20-25 \mu$ , paraphysate; ascospores oblong, muriform 3-5 transverse septate,  $20-24 \times 10-12 \mu$ , hyaline, Fig. 37-38

On *Mallotus* — Philippines.

On *Morinda* — Hawaii.

We have examined what appears to be the type, under Rehm's: Ascomycetes 2075, *Limacinula malloti* Rehm. Ad folia *Malloti philippinensis*. Los Banos. Philipp. Ins. 3. 1913 — C. F. Baker, through the courtesy of The New York Botanical Garden.

This specimen has pelliculose and brown mycelium composed of constricted hyphae with cells from  $6.5-12.5 \times 6.5-9 \mu$ . The perithecia develop beneath the mycelial pellicle, being globose-depressed,  $150-220 \mu$  diam., brown, pseudo-ostiolate, the walls having polygonal to subglobose cells,  $6.5-13.5 \times 5.5-10 \mu$ . Asci 8-spores, sessile, ovoid to ellipsoid,  $44-53 \times 21-31 \mu$ , paraphysate. Ascospores oblong to cylindrical, muriform, 3-5 transversally septate, hyaline, polystichous,  $20-24.5 \times 6.5-10 \mu$ .

The specimen of Mendoza, labeled as *Chaetothyrium hawaiiense* entirely agrees with this variety. It has the no. 6651, in the Herbarium University of Illinois. For the examination of the fungus we are indebted to that University.

Parallely we found what appears to be this fungus in one specimen from the Herbarium of The University of California, no. 528216, also on *Mallotus philippinensis*, coll. in Philippines, March 25, 1913, C. F. Baker and determined as *Limacinula malloti* Rehm.

In another specimen, Rehm Ascomycetes, also no. 2075 and labeled as *Limacinula malloti* Rehm, on leaves of *Mallotus philippinensis*, Los Banos, Philipp., 3/1913, C. F. Baker we found asci  $50-73 \times 22-26.5 \mu$  and ascospores  $19-31 \times 7-11 \mu$ , with 7 transverse septa.

### ***Deslandesia roseospora* (v. Höhn) Bat. & Cif., n. comb.**

Syn.: *Limacinula roseospora* v. Höhn, Sitzungsber. Akad. Wiss. Wien, CXVIII, p. 39 (1909) — See Hansford, I.M.I, Pap. N. 15, p. 154 (1946) — Fraser, Proc. Sinn. Soc. N.S.W., LXI, p. 283 (1936).

Mycelium scant, effuse, hyphae septate, reticulate, with cylindrical cells from  $7-10 \times 3-4 \mu$ , not setose brown-black. Perithecia globose-flattened,  $160-300 \mu$  diam.,  $120-150 \mu$  in height, dark brown, pseudo-ostiolate, and developed beneath the mycelial pellicle, Fig. 39. Asci oblong-cylindric, to clavate, 8-spores, sessile  $60-100 \times 12-28 \mu$ , paraphysate. Ascospores  $50-98 \times 7-13 \mu$ , cylindrical to subfusoid, 13-22 transversally septate and with several longitudinal septa, hyaline to pink. Fig. 39.

On unknown host plant, Brazil, and on *Sideroxylon* and *Eudian-  
dra*, Australia.

**Fraseria** Bat. nov. gen. \*)

Mycelium superficiale, effusum, non setosum, haud hyphopodi-  
atum, ex hyphis subhyalinis vel brunnescentibus compositum.

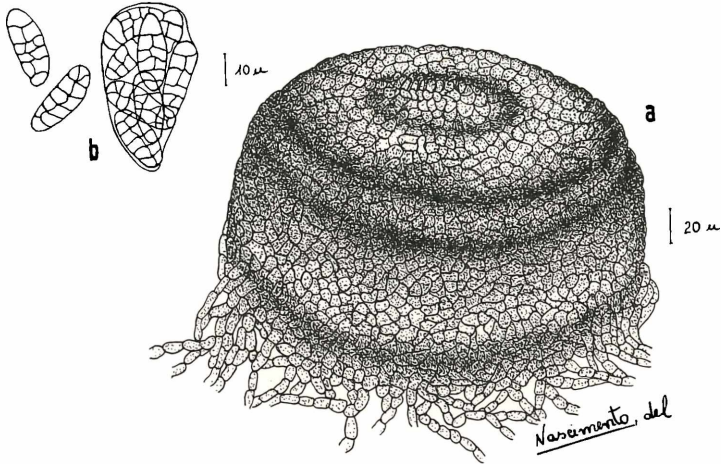


Fig. 37. *Deslandesia paulensis* var. *malloti* (Rehm) Bat. et Cif. — a) Perithe-  
cium. — b) ascus and spores.

Perithecia globoidea, evoluta sub pellicula mycelica, brunnea, pseudo-  
ostiolata, non setosa, pseudo-parenchymatica. Asci 8-spори, अपара-  
physati. Ascosporae 1-septatae, olivaceae.

Typus: *F. oleae* (Hansf.) Bat.

**Fraseria oleae** (Hansf.) Bat. n. comb.

Ex.: *Microcallis oleae* Hansf. Proc. Linn. Loc. Lond. pars. 3, 157  
sess. p. 191, 1945.

Amphigenous, effuse or not. Mycelium superficial, blackish,  
hyphae brownish, flexuose, reticulate, 2.5–3.5  $\mu$  thick. Perithecia  
globose-depressed, 60–120  $\mu$  in diam., 50–60  $\mu$  high, glabrous,  
olivaceous, pseudo-parenchymatic, walls composed of cells from  
5–10  $\times$  5–6  $\mu$ . Asci ovoid, 8-spores, 35–45  $\times$  18–25  $\mu$ . Ascospores  
conglobate, oblong, 1-septate, olivaceous, 12.5–14  $\times$  4.5–5.5  $\mu$ .

On *Olea* — South Africa.

**Gilmania** Bat. & Cif. n. gen. \*\*)

Typus: *G. buchenaviae* (Bat. & H. Lima) Batista n. comb.

Mycelium superficiale in subiculum circulare, ex hyphis cylindra-

\*) Dedicated to Dr. L. Fraser, Australian mycologist.

\*\*) Dedicated to mycologist Dr. J. C. Gilman, of Iowa State College,  
U.S.A.

ceis, septatis, rectis, brunneis, non hyphopodiatis, setosis, compositum. Ascostromata globoidea vel pyriformia, sessilia, uniloculata, multi-setosa, atra. Asci 8-spори, aparaphysati, Ascospорae transversaliter pluri-septatae, coloratae.

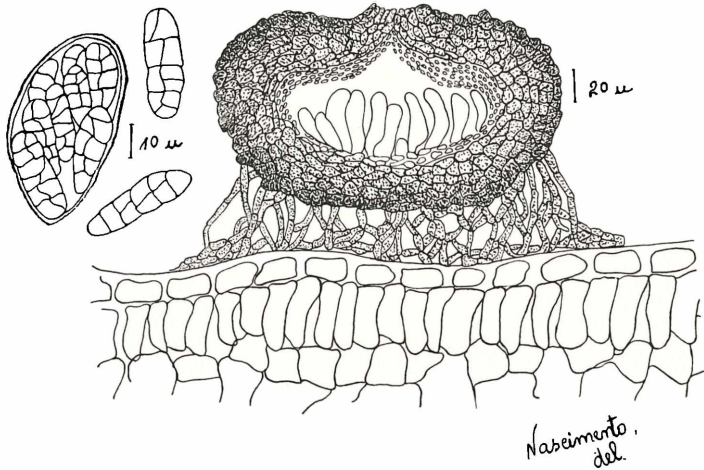


Fig. 38. *Deslandesia paulensis* var. *malloti* (Rehm) Bat. et Cif. — Longitudinal section of a parithecium; ascus and spores.

#### Key to Species of the Genus *Gilmania*.

- A — Ascospores 70—80  $\mu$  long., asci 90—100  $\times$  16—18  $\mu$ ; mycelial setae up to 1500  $\mu$  long. *G. xyphopaga*
- AA — Ascospores 31—50  $\mu$  long., asci 35—50  $\times$  16—20  $\mu$ ; mycelial setae up to 500  $\mu$  long. *G. buchenaviae*
- AAA — Ascospores 26—37  $\mu$  long., asci 41—68  $\times$  15—20  $\mu$ ; mycelial setae up to 55  $\mu$  long. *G. xylopii*
- AAAA — Ascospores 21—30  $\mu$  long., asci 41—60  $\times$  11.5—16  $\mu$ ; mycelial setae up to 238  $\mu$  long. *G. sawadai*

#### *Gilmania buchenaviae* (Bat. & H. Lima) Nat. n. comb.

Ex.: *Setella buchenaviae* Batista & H. Lima in Ann. Soc. Biol. Pern. t. XIII, no. 1, p. 57, 1955.

Mycelium epiphyllous, scanty, pelliculose, superficial, hyphae olivaceous to brown, 2.5—4  $\mu$  thick; mycelial setae erect, black, 400—500  $\times$  10  $\mu$ , acute or 5 to 6 branched on the apex. Perithecia globose, 100—205  $\mu$  in diam., unilocular, submembranous, pseudo-ostiolate, black, ornate with erect setae, Fig. 40, black, septate, straight, not branched, 12—35  $\times$  2.5—3  $\mu$ . Asci ellipsoid, 8-spores,



sessile,  $35-50 \times 16-20 \mu$ , aparaphysate. Ascospores clavate cylindrical or cylindrical-fusoid, 3-7-septate, olivaceous,  $31-50 \times 5-6 \mu$ .

On *Buchenavia* — Brazil. Fig. 40.

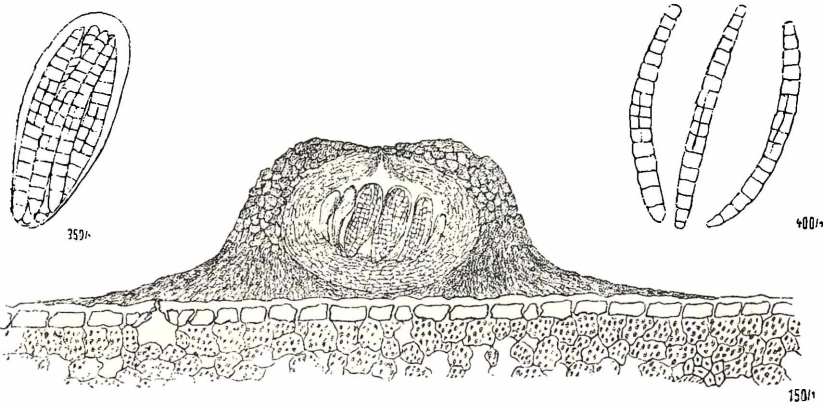


Fig. 39. *Deslandesia roseospora* (v. Höhn.) Bat. et Cif. — Longitudinal section of a perithecium; ascus and spores. — From. v. Höhn. Sitzb. Akad. Wiss. Wien, Math. Nat. Kl.

***Gilmania sawadai*** (Yam.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium sawadai* Yam. in Ann. Phytopath. Soc. of Japan, XXI: 167, 1956.

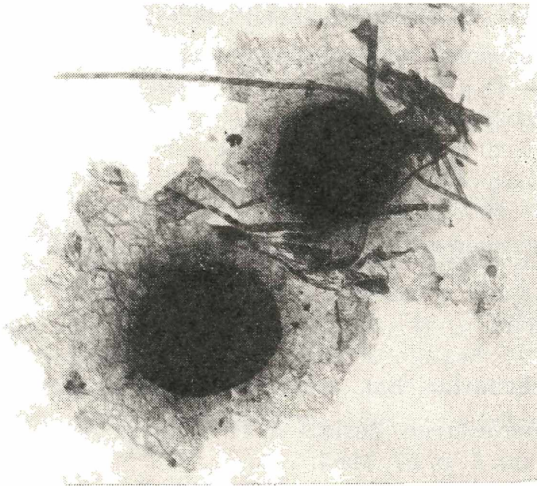


Fig. 40. *Gilmania bucheraviae* (Bat. et Lima) Bat.

*Chaetothyrium strigosum* (Sawada) Yam. in schad.

*Hypocapnodium strigosum* Sawada nom. seminud. in Stud. Citrol. III: 225, 1929; Descri. Cat. Form. Fung. V: 22, 1931.

Epiphyllous. Mycelium spread, thinly crustaceous, brown, the hyphae irregularly branched, anastomosing, septate, constricted, with oblong or subcylindrical cells,  $6-18.5 \times 2.5-4.5 \mu$ , without hyphopodia. Mycelial setae abundant, straight or curved, opaque,  $84-238 \times 3-7 \mu$ . Perithecia scattered or subgregarious, globose-depressed, subcoriaceous, brown, pseudo-ostiolate,  $120-182 \mu$  diam., developed beneath the mycelial pellicle. Perithecial setae numerous,  $25-53$ , simple, straight or curved, blackish-brown,  $84-210 \times 5-7 \mu$ . Asci clavate to cylindric-clavate, (2-tunicate?) short pedicellate, 8-spores,  $41-60 \times 11.5-16 \mu$ , aparaphysate. Ascospores clavate, 3-5-transversally septate, not constricted, at first hyaline, then slightly colored,  $21-30 \times 5-7 \mu$ .

On *Citrus maxima*, Formosa, Prov. Taihoku, Seisiryo, Leg. W. Yamamoto, 15/3/942. Type.

Also on *Euphobia sp.* loc. cit.

### **Gilmania xylopieae** Bat., Nasc. & Cif. n. sp.

Mycelium superficial, epiphyllous, pelliculose, brown, not hyphopodiatae, hyphae brownish, lengthened, opposite branched in an angles of  $45-90^\circ$ , septate, little constricted, composed of cylindrical cells from  $11-17 \times 3.5-5.5 \mu$ ; mycelial seate much scattered when far from the perithecia, erect, simple, septate, spiny, obtuse,  $50-55 \mu$  in height and  $7-7.5 \mu$  wide, brown to blackish. Perithecia developed beneath the submycelial pellicle, superficial, subglobose to obpyriform,  $82-165 \times 110-154 \mu$ , Fig. 44, gregarious, blackish-brown, unilocular, pseudo-ostiolate, membranous, with subparenchymatic walls composed of polygonal cells,  $6.5-15.5 \times 5.5-11 \mu$ ; the outer layer is covered with many setae of mycelial origin; the setae are brown, erect, straight or curved, simple, septate, spiny, obtuse,  $50-80 \times 5-7.5 \mu$ . Asci ellipsoid, sessile, 8-spores, bitunicate,  $41-68 \times 15-20 \mu$ , aparaphysate. Ascospores fusoid with rounded ends, 3 septate, constricted, at first hyaline then brownish, distichous to polystichous, guttulate,  $25.5-36.5 \times 8-11.5 \mu$ . Fig. 41.

On living leaves of *Xylopiea brasiliense* Spreng. Jaboatão. Leg. Severino José da Silva, 19. 5. 56. Type 5590, Institute of Mycology, University of Recife.

Mycelium epiphyllum, superficiale, effusum, pelliculosum, brunneum, ex hyphis elongatis, brunnescentibus, opposita ramosis,  $45-90^\circ$ , sptatis, parum constrictis, ex cellulis cylindraceutis,  $11-17 \times 3.5-5.5 \mu$ , non hyphopodiatis, compositum. Setae myceliales erectae, simplices, septatae, spinescentes, rarae, atro-brunneae,  $50-55 \times 7-7.5 \mu$ . Perithecia sub pellicula mycelica evoluta, superficialia, subglobosa vel obpyriformia,  $82-165 \mu$  diam.,  $110-154 \mu$  alt., gregaria, atro-brunnea, uniloculata, pseudo-ostiolata; ex parietibus membranaceis, subparenchymaticis, ex cellulis polygonalibus,  $6.5-15.5 \times 5.5-11 \mu$ , setis mycelialibus vestitis; setae erectae, rectae vel curvatae, septatae, brunneae, spinescentes, obtusae,  $50-80 \times 5-7.5 \mu$ . Asci ellipsoidei, sessiles, 8-sporei, bitunicati,  $41-68 \times 15-20 \mu$ , aparaphysati. Ascosporeae fusoidae, ad polos

rotundatae, 3-septatae, constrictae, primo hyalinae dein brunneae, distichae vel polystichae, guttulate,  $25-36.5 \times 8-11.5 \mu$ .

**Gilmania xiphopaga** (Viegas) Bat. n. comb.

Syd.: *Setella xyphopaga* Viegas in Bragantia, IV pag. 40, 1944.

Hypophyllous. Mycelium composed of brown hyphae, cylindric, septate, straight,  $6-7 \mu$  diam., with black seta,  $1-1.5$  mm in high, acute, radiate. Ascostroma globoid, black, unilocular,  $280-300 \mu$  in

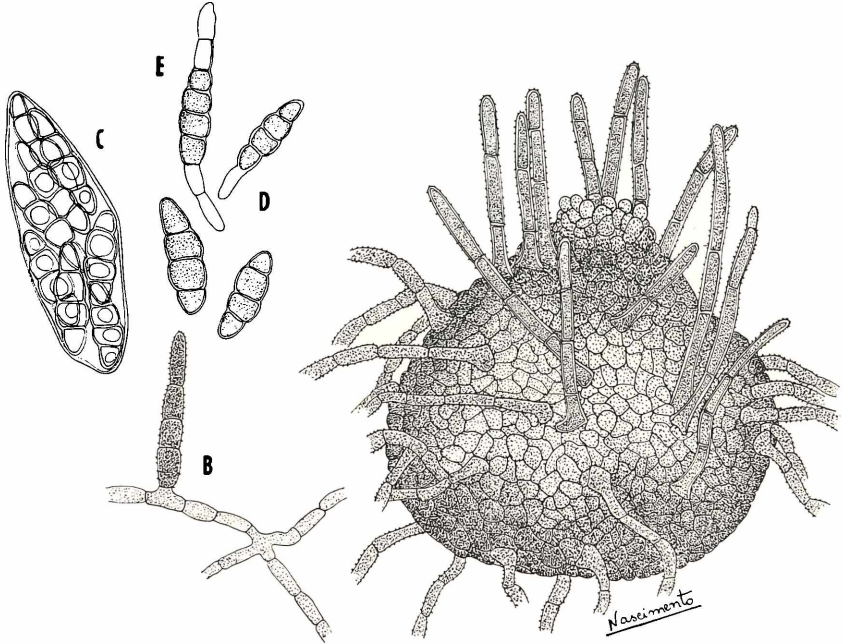


Fig. 41. *Gilmania xylopieae* Bat. Nasc. et Cif. — A) Perithecium with setae of mycelial origin. — B) Mycelium and mycelial setae. — C) Asci. — D) Spores. — E) Ascospores under germination.

height,  $180-200 \mu$  wide, setose, carbonaceous. Asci fusoid, 8-spores,  $90-100 \times 16-18 \mu$  Ascospores fusoid, pluriseptate,  $70-80 \times 5-6 \mu$ , colored.

On undet. plant — Brazil.

**Globoa** Bat. & Maia n. gen.

Mycelium superficial, membranous, brownish — black, with branched septate and constricted hyphae, not setose nor hypophodiate. Perithecia developed beneath the mycelial pellicle, globose to globoid, pseudo-ostiolate, membranous, glabrous, brown to brownish-black. Asci 2-tunicate, 8-spores, apophysate. Ascospores cylindrical, many transversally septate, brown.

Type: *G. toddaliae* nobis n. sp.

Mycelium superficiale, membranous, brunneum vel atro-brunneum, ex hyphis irregulariter ramosis, septatis, constrictis, non setosis, haud hyphopodiatis, compositum. Perithecia pellicula mycelica ob tecta, globosa, pseudo-ostiolata, membranosa, glabrata, atrobrunnea. Asci 2-tunicati, 8-sporei, aparaphysati. Ascosporeae cylindricae, pluritransversaliter septatae, brunneae.

**Globoa toddaliae** Bat. & Maia n. sp.

Mycelium superficial, membranous, blackish-brown, hyphae irregularly branched, septate, constricted, having oblong cells,  $16-21.5 \times 2.5-3 \mu$ ; hyphopodia and setae absent. Perithecia developed beneath the mycelial pellicle, globose to sub-globose, membranous,

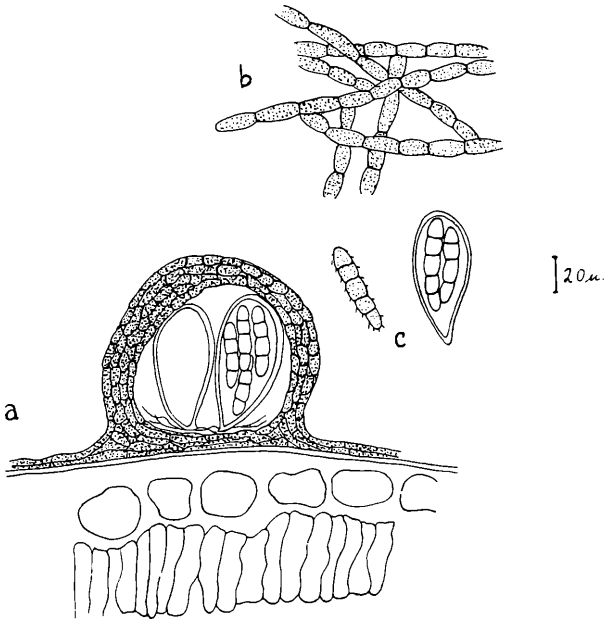


Fig. 42. *Globoa toddaliae* Bat. et Maia. — a) Perithecium developed beneath the mycelial pellicle. — b) Mycelial hyphae. — c) Ascus and spore.

sessile, brown, glabrous,  $120-145 \mu$  diam.,  $100-110 \mu$  in height, pseudo-parenchymatic, the walls being  $19-21.5 \mu$  diam., and composed of cells of  $8-9.5 \times 5.5-7 \mu$  diam., Fig. 42. Asci clavate, sessile to short pedicellate, 2-tunicate, 8-spores, aparaphysate,  $57-67.5 \times 24-27 \mu$ . Ascospores brownish, 3-4 septate, slightly constricted, polystichous,  $32.5-43 \times 5.5-6.5 \mu$ , slightly spiny. Fig. 42.

On leaves of *Toddalia asiatica* associated with *Asterina* sp. Entebbe Road — Uganda — Leg. C. G. Hansford, 2/1931. Type, 1456, Herb. Mycologist. Dep. Agric. Uganda.

Note: Under question mark, C. G. Hansford had admitted this fungus as *Limacinia*.

Mycelium superficiale, membranous, atro-brunneum, ex hyphis irregu-

lariter ramosis, septatis, constrictis, ex cellulis 16—21.5 × 2.5—3 μ, non hyphopodiatis, non setosis, compositum. Perithecia pellicula mycelica ob tecta, sparsa, globosa vel subglobosa, brunnea, glabrata, 120—145 μ diam., 100—110 μ alt., pseudo-ostiolata, 13.5—16 μ diam., pseudo-parenchymatica, cum parietibus 2—3 stratosis, 19—21.5 μ cr. ex cellulis sub globosis 8—9.5 × 5.5—7 μ, efformata. Asci clavati, sessiles vel curtopedicellati, 2-tunicati, 8-sporei, aparaphysati, 57—67.5 × 24—27 μ. Ascosporeae cylindraceae 3—4-transversaliter septatae, parum constrictae, parumque spinescentes, brunnescentes, 32.5—43 × 5.5—6.5 μ.

### **Hansfordina** Bat. n. gen. \*)

Mycelium pelliculosum, superficiale, ex hyphis reticulatis, olivaceis, non setosis, non hyphopodiatis, compositum. Perithecia oriunda subpellicula mycelica, globoidea, pseudo-ostiolata, non setosa; asci octospori, aparaphysati; sporae 1-septatae, hyalinae.

Typus: *H. nuxiae* (Hansf.) Batista comb. nov.

#### Key to the Species of the Genus *Hansfordina*.

- |                              |                     |
|------------------------------|---------------------|
| A — Ascospores 17—20 μ long  | . <i>H. nuxiae</i>  |
| AA — Ascospores 10—11 μ long | . <i>H. tonduzi</i> |

### **Hansfordina nuxiae** (Doidge) Bat. n. comb.

Syn.: *Limacinia nuxiae* Doidge in *Bothalia* II. p. 240, 1929.

*Microcallis nuxiae* (Doidge) Hansf. *Comm. Myc. Inst. Mycol. Pap.* 15, p. 142, 1946.

Hyphophyllous. Mycelium superficial, pelliculous, olivaceous, hyphae, 2.5—3.5 μ thick, reticulate, not setose, nor hyphopodiate. Perithecia developed beneath the mycelial pellicle, globose, 50—60 μ diam., aggregate up to 20, pseudo-ostiolate, glabrous, olivaceous. Asci ovoid to subglobose, 8-spores, nodose-pedicellate, 30—37 × 16—17 μ. Ascospores clavate, 1-septate, conglobate, 12—20 × 3.5—5 μ, hyaline, (according to Hansford, l. c.).

In Doidge's description the ascospores are 3-septate and 17—20 × 3.5—5 μ.

On *Nuxia* — South Africa.

### **Hansfordina tonduzi** (Speg.) Bat. n. comb.

Syn.: *Capnodinula tonduzi* Speg. in *Bol. Ac. Nac. Cienc. Corboda*, 23, p. 189, 1919.

Mycelium subpelliculous, blackish, neither setose, nor hyphopodiate; perithecia globoid, 75 μ diam., pseudo-ostiolate, olivaceous-black, not setose; asci cylindric-clavate, 8-spores, 25—30 × 10 μ, aparaphysate; ascospores subclavate, 1-septate, hyaline, 10—11 × 2.5—3 μ.

On *Vitis* — Costa Rica.

\*) In honor of the British Mycologist Dr. C. G. Hansford who established the family Chaetothyriaceae.

**Kanousea** Bat. & Cif. n. gen. \*)

Mycelium pelliculosum, tenue, superficiale, hyalinum vel flavo-brunneum, non hyphopodiatum, ex hyphis rectis, reticulatis et setis mycelialibus, erectis, atrobrunneis, compositum. Perithecia globosa oriunda in pellicula mycelica, brunnea, pseudo-ostiolata, membranacea; setae peritheciales nullae. Asci octospori, paraphysati. Ascosporeae 1-septatae, hyalinae.

Typus: *K. consociata* (Syd.) Bat. & Cif. n. comb.

Key to Species of *Kanousea*

A — Ascospores 10—13 × 3.5—4.5 μ	. <i>K. consociata</i>
AA — Ascospores 20—22 × 7—8 μ	. <i>K. macarangae</i>
AAA — Ascospores 37—45 × 8—10 μ	. <i>K. megalospora</i>

**Kanousea consociata** (Syd.) Bat. & Cif. n. comb.

Syn.: *Microcallis consociata* Syd. in Ann. Mycol. XXIV: p. 341, 1926.

Hypophyllous; mycelium pelliculose, scarcely visible, hyphae reticulate, yellowish to hyaline, 2-2.7 μ thick. Perithecia developed beneath the mycelial pellicle, 180—220 μ diam., 25—30 μ in high, pseudo-ostiolate, surrounded by erect hyphae, 22 × 3—4 μ; asci ellipsoid, ovoid to clavate, 8-spores, subsessile, 25—32 × 13—17 μ (rarely up to 40 μ high); paraphysoids numerous. Ascospores oblong-clavate, conglobate, 1-septate, 10—13 × 3.5—4.5 μ, hyaline.

On *Phoebe*, *Roupala* — Costa Rica.

Est *Kanousea* per mycelium setosum et perithecia glabra, cum ascosporis 1-septatis, hyalinis.

**Kanousea Macarangae** (Hansf.) Bar. & Cif. n. comb.

Syn.: *Microcallis macarangae* Hansf. in Proc. Linn. Soc. London, 156 sess. part. 2, p. 111, 1943—1944.

Hypophyllous. Mycelium ashy-brown, superficial, pelliculose, hyphae subhyaline to olivaceous, 2—3.5 μ thick, reticulate, with scattered setae, erect, simple, blackish-brown, 150 × 3—4 μ, septate, obtuse. Perithecia developed beneath the mycelial pellicle, globose-depressed, 100—160 μ wide, 70 μ in height; walls 8 μ in thickness, pseudo-ostiolate. Asci ellipsoid, 8-spores sessile, 55—60 × 25 μ; paraphyses filiform, simple, hyaline. Ascospores clavate, 1-septate, hyaline, 20—22 × 7—8 μ.

On leaves of *Macaranga monandra* — Entebbe Road, Uganda. Leg. Hansford, no. 3167.

Peritheciis non setosis est *Kanousea*.

\*) Dedicated to mycologist Dr. Bessie Kanouse, of the University of Michigan, U.S.A.

**Kanousea megalospora** (Petr. & Cif.) Bat. & Cif. n. comb.

Syn.: *Microcallis megalospora* Petr. & Cif. in Ann. Myc. XXX, p. 203, 1932.

On *Anacardium* sp. — Rep. Dominicana.

Mycelium hypophyllous, effuse, hyphae reticulate, yellowish to olivaceous brown, 2.5–4  $\mu$  thick, with numerous setae, straight or curved, septate, olivaceous black, 200–350  $\times$  7–9  $\mu$ . Perithecia globose-flattened, 110–180  $\mu$  in diam., pseudo-ostiolate, olivaceous-brown, not setose. Asci clavate to ellipsoid sessile, 60–90  $\times$  30–44  $\mu$ , with paraphysoides. Ascospores oblong-cylindric to fusoid, 1-septate, 37–45  $\times$  8–10.

Peritheciis non setosis est *Kanousea* .sp.

**Microcalliopsis** Bat. & Cif. n. gen.

Mycelium superficial, pelliculose, brownish, hyphae reticulate-branched, not setose, not hyphopodiate. Perithecia developed beneath the mycelial pellicle, brownish-black, pseudo-ostiolate, setose. Asci paraphysate. Ascospores ellipsoid, 1-septate, hyaline.

Typus: *M. schizostachyl* (Hansf.) Bat. & Cif. n. comb.

Est *Hansfordina* cum peritheciis setosis.

Key to Species of *Microcalliopsis*.

- A — setae 90  $\mu$  long, ascospores 15–18  $\times$  5–6  $\mu$ . .*M. schizostachyi*  
AA — setae 10–25  $\mu$  long, ascospores 19–23  $\times$   
3.5–5  $\mu$  .*M. rutideae*

**Microcalliopsis rutideae** (Hansf.) Bat. & Cif. n. comb.

Syn.: *Microcallis rutideae* Hansf. in Proc. Linn. Soc. London, 158: p. 40, 1945–1946.

Mycelium pelliculose, hyphae hyaline to brownish, 1.5–3  $\mu$  thick. Perithecia developed beneath the mycelial pellicle, globose-depressed, blackish-brown, 50–100  $\mu$  in high, 50–80  $\mu$  wide, with clavate setae, brown, 1–2-septate, 10–25  $\times$  7–10  $\mu$ . Asci ellipsoid, 8-spores, sessile, 43–15  $\mu$ ; paraphyses filiform, continuous, hyaline, 1  $\mu$  thick. Ascospores clavate-cylindric, 1-septate, 19–23  $\times$  3.5–5  $\mu$ , hyaline.

On *Rutidea* — Uganda.

**Microcalliopsis schizostachyi** (Hansf.) Bat. & Cif. n. comb.

Syn.: *Microcallis schizostachyi* Hansf. Sydowia, Ann. Mycol. X: 97, 1956.

Mycelium epiphyllous, pelliculose, spread, brownish, hyphae septate, having cylindrical cells, 10–15  $\times$  7–9  $\mu$ , branched, not setose, nor hyphopodiate. Perithecia developed beneath the mycelial

pellicle, brownish-black, globose-depressed, about  $90\ \mu$  in height and  $60\ \mu$  wide membranous, pseudo-ostiolate; the walls are in several layers,  $12\ \mu$  thick. Perithecial setae  $5-15$  disposed in circle, erect, straight, simple, septate, brownish-black,  $90-7\times 9\ \mu$ . Asci sessile or not, ellipsoid, 8-spores,  $50\times 15\ \mu$ , paraphysate. Ascospores ellipsoid, 1-septate, hyaline,  $15-18\times 5-6\ \mu$ .

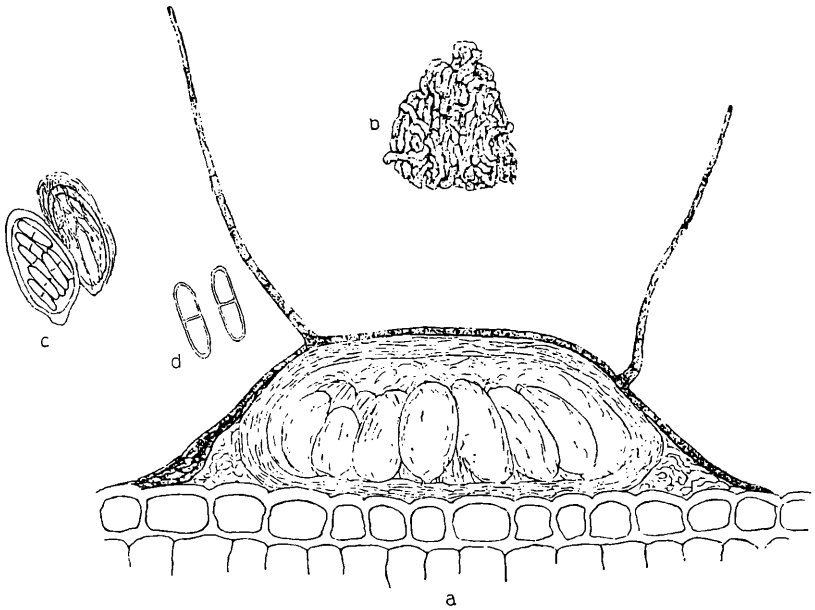


Fig. 44. *Microcallis phoebes* Syd. — From Sydow. *Annal. Mycol.* XXIV. 339, 1926.

On leaves of *Schizostachium* sp. G. Boender, Indonesia, Boedijn, 1170. Typus.

### *Microcallis* Syd.

Superficial mycelium olivaceous-brown, scarcely visibly, hyphae reticulate-branched with long setae erect, septate, brown. Perithecia flattened-globose, covered with thin mycelial pellicle, olivaceous-brown, setose. Asci clavate, subsessile, 8-spored; paraphysoids present; ascospores oblong-clavate, 1-septate, hyaline.

Type *M. phoebes* Syd. in *Ann. Mycol.* XXIV, p. 337, 1926.

### Key of the Species of the Genus *Microcallis*

- A — Ascospores  $13.5-16\times 3.5-5\ \mu$ ; setae  $200-500\ \mu$  long . *M. ceibae*
- AA — Ascospores  $15-20\times 5-6.5\ \mu$ ; setae  $150-230\ \mu$  long . *M. phoebes*



*Microcallis ceibae* Bat. & H. Lima in Ann. Soc. Biol. Pern. XIII, p. 191, 1955.

Mycelium hypophyllous, thinly pelliculose, almost invisible, hyaline to yellowish-brown; hyphae 1.5–2.2  $\mu$  thick, straight, reticulate; many mycelial setae, scattered, erect, simple, straight, obtuse, septate, blackish-brown, 200–500  $\times$  4–5  $\mu$ . Perithecia globose, 75.5–92  $\mu$  in diam., membranous, blackish-brown, pseudo-ostiolate, ornate with numerous setae, Fig. 43, curved, septate, brown, 45.5–85  $\times$  3.5–5.5  $\mu$ . Asci ovoid, 8-spores, short pedicellate, 38–40  $\times$  20–23  $\mu$ , paraphysate. Ascospores clavate-cylindric, 1-septate, hyaline, 13.5–16  $\times$  3.5–5  $\mu$  Fig. 43, 45.

On leaves of *Ceiba pentandra* (L.) Gaertn, Benot Velho, Vitoria, Pernambuco, Brazil. Leg.: Severino José da Silva. Det. A. Chaves Batista and I. H. Lima, 24. 3. 1955, sp. no. 1091 IMUR, associated with *Eremotheca ceibae* Bat. & H. Lima n. sp.

Also on *Inga marginata* Willd. Dois Irmãos, Recife, Pernambuco. Leg. Osvaldo Soares da Silva. Det. A. Chaves Batista & I. H. Lima, 29. 5. 1955, no. 2351, I.M.U.R.

*Microcallis phoebes* Syd. in Ann. Mycol. XXIV: pag. 338, 1926.

On *Phoebe* — Costa Rica.

Hypophyllous, pelliculose; hyphae branched-reticulate, septate, olivaceous to blackish-brown, 2.5–3.5  $\mu$  thick; mycelium setae scattered, rigid, septate, curved, dark-brown, obtuse, 150–230  $\mu$  high, 5  $\mu$  wide at the base and 2.5  $\mu$  at the apex. Perithecia developed beneath the mycelial pellicle, globose-depressed, 70–150  $\mu$  diam., 35–50  $\mu$  in high, pseudo-ostiolate (“gleboseque dissoluta” in the original diagnosis), olivaceous-brown; the superior walls 5–7  $\mu$  in thickness, with setae analogous to the mycelial setae; asci clavate to ellipsoid, 8-spores, sessile, 35–50  $\times$  12–18  $\mu$ ; paraphysoids filiform, 1  $\mu$  diam. branched; ascospores oblong-clavate, 1-septate, 15–20  $\times$  5–6.5  $\mu$ , hyaline, Fig. 44.

Hansford, (The Foliicolous Ascomycetes etc. pag. 141, 1946), suggests that the perithecia are too flat, and there may be some mistakes in the description. Certainly the fungus is a member of the Chaetothyriaceae family, as the original illustration shows, and not a Micropeltaceae. The type has not been available. After the research of Bitancourt (Arch. Inst. Biol. São Paulo, pags. 5–22) 1936 the genus *Chaetothyrina* Speg. has been emended, and then confirmed the validity of the species *Microcallis phoebes* Syd., *M. consociata* Syd., *M. amadelpa* Syd. and *M. megalospora* Petrak & Cif., considered as “*nomina nuda*” by Petrak & Sydow (1934. Annotation).

*Mycostevensonia* Bat. & Cif. n. gen.

Typus: *M. funtumiae* (Hansf.) Bat. & Cif. n. comb.

Mycelium pelliculosum, non setosum, non hypophodiatum,

superficiale, ex hyphis hyalinis vel brunneis, septatis, compositum. Perithecia evoluta sub pellicula mycelica, globose-depressa, pseudo ostiolata, atrobrunnea, setosa. Asci 8 spori, aparaphysati. Ascosporae muriformes, hyalinae.

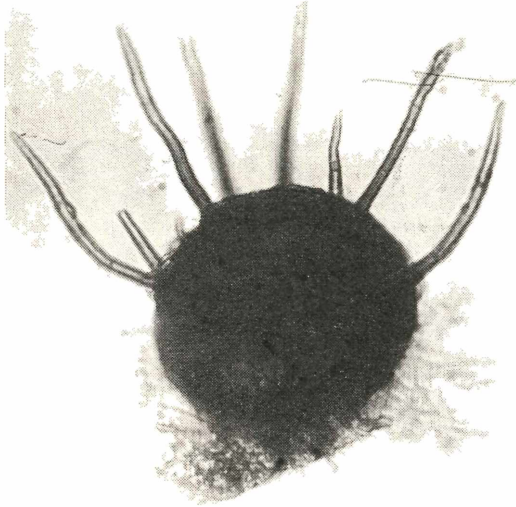


Fig. 43. *Microcallis ceibae* Bat. et Lima.

Key of Species of the Genus *Mycostevensonia*

- A — Ascospores with 20—30 transversal septa,  
110—120 × 13  $\mu$  *M. funtumiae*
- AA — Ascospores with 10—16 transversal septa,  
50—80 × 12—15  $\mu$  *M. canthii*
- AAA — Ascospores with 3—5 transversal septa,  
20 × 10  $\mu$  *M. jasmini*

***Mycostevensonia funtumiae* (Hansf.) Bat. Cif. n. comb.**

Syn.: *Phaeosaccardinula funtumiae* (Hansf.) Hansford

*Actinopeltis funtumiae* Hansford in Proc. Linn. Soc. Lond. CLIII,  
p. 17, 1941 — Comm. Mycol. Inst. Mycol. Pap. no. 15, p. 155, 1946.

On *Funtumia*, *Posquicia*, *Ventilago*, *Casearia*, *Jaundea*, *Hugonia*,  
Uganda.

Mycelium epiphyllous, thinly pelliculose, hyphae hyaline to yellowish-brown, septate, 2—4  $\mu$  thick, superficial, not setose. Perithecia globose-flattened, 200—250  $\mu$  in diam., 100—150  $\mu$  high, pseudo-ostiolate, dark-brown, ornate with straight, dark-brown

setae, simple, septate, obtuse,  $300 \times 6-7 \mu$ , with walls about  $30 \mu$  thick. Asci ellipsoid, 8-spores,  $130-40 \mu$ , paraphysate. Ascospores vermiform, 20-30 transverse septa, 1-2 longitudinal septa in several cells, hyaline,  $110-120 \times 13 \mu$ , Fig. 46.

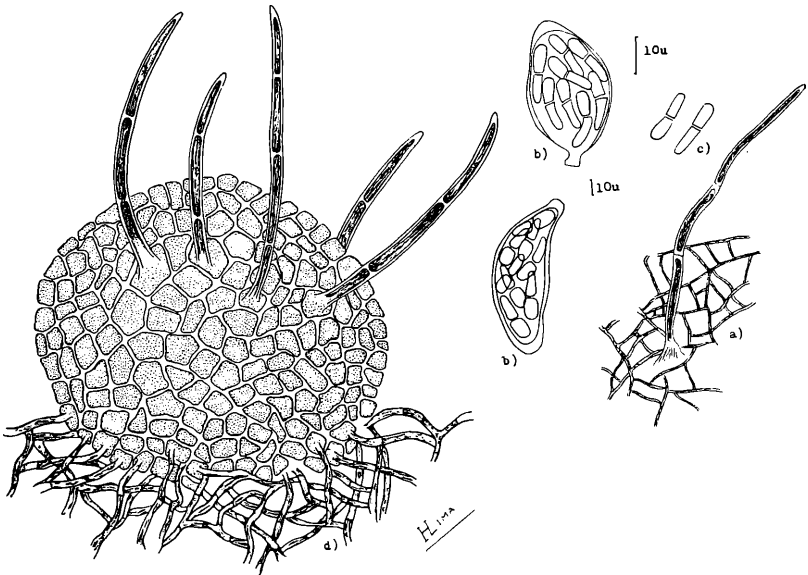


Fig. 45. *Microcallis ceibae* Bat. et Lima. — a) Mycelial setae. — b) Asci. — c) Ascospores. — d) Perithecium.

***Mycostevensonia jasmini* (Hansf.) Bat. & Cif. n. comb.**

Syn.: *Phaeosaccardinula jasmini* Hansf. in Proc. Lin. Soc. Lond. 157 th sess. Part. 3, p. 191, 1944-1945.

On *Jasminum* — Uganda.

Hypophyllous. Hyphae brownish, reticulate,  $2-3 \mu$  thick; mycelium not setose. Perithecia conoid, black,  $150 \mu$  in diam., pseudo-ostiolate, walls about  $25 \mu$  in thickness, setose, 1-4 setae,  $100 \times 4-5 \mu$ , blackish-brown, septate, or glabrous. Asci ellipsoid, 8-spored, subsessile,  $60 \times 30 \mu$ , paraphysate. Ascospores muriform, 3-5 transversally septate, 1-longitudinal septum, brown,  $20 \times 10 \mu$ , Fig. 47.

***Phaeochaetia* Bat. & Cif. n. gen.**

Typus: *P. clavatispora* (Syd.) Bat. & Cif. n.

Syn.: *Triposporiopsis* Yam. in Ann. Phytopath. Soc. Japan, 19: p. 55, 1954.

Mycelium pelliculosum, fuscum, non setosum, non hyphopodiatum. Perithecia pellicula mycelica obtecta, globoso-setosa; asci 8-sporei, ascosporeae hyalinae, phragmoseptatae.

Key to the Species of the Genus *Phaeochaetia*

A) Ascospores with 4–9 transversal septa; Setae not fasciculate.

B) Setae septate, basally reflexed; Ascospores  $32-46 \times 5-7 \mu$

*P. strigosa*

BB) Setae septate, but not basally reflexed;

Ascospores  $16-21 \times 3.5-4.5 \mu$

*P. woronichini*

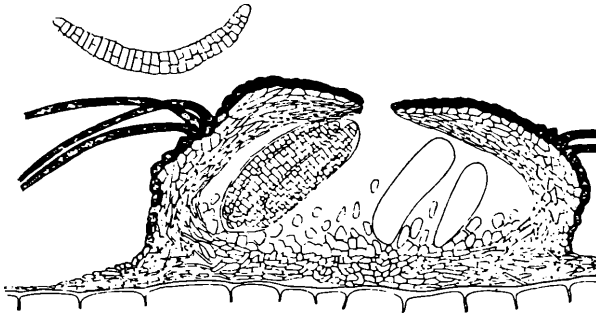


Fig. 46. *Mycostevensonia funtmiriae* (Hansf.) Bat. et Cif. — Perithecium under a longitudinal section; spore.

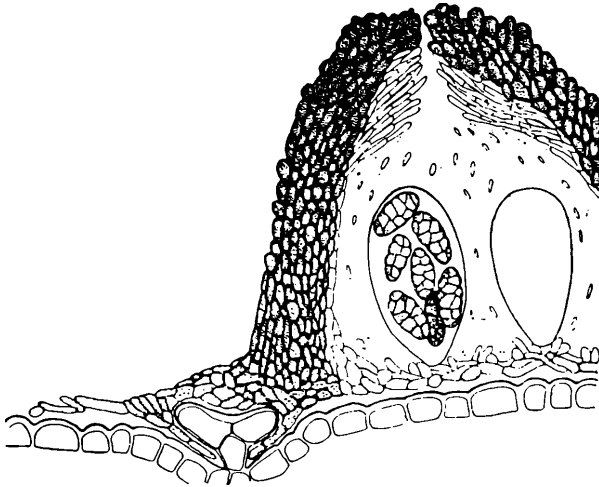


Fig. 47. *Mycostevensonia jasmini* (Hansf.) Bat. et Cif.

AA) Ascospores with 2–7 transversal septa

D) Setae continuous

E) Ascospores  $24-26 \times 5-6 \mu$

*P. clavatispora*

EE) Ascospores  $17.5-29 \times 5.5-7.5 \mu$

*P. clavatispora*  
var. *globosa*

EEE) Ascospores  $30-45 \times 5-6 \mu$

*P. clavatispora*

EEEE) Ascospores  $22-44 \times 5.5-6.5 \mu$ .

*P. clavatispora*  
var. *gardeniae*

- DD) Setae septate or not; Ascospores  $16-23 \times 3-5 \mu$  *P. setosa*
- AAA) Ascospores with 3 transversal septa
- F) Setae septate
- G) Ascospores  $27-35 \times 6-9 \mu$  *P. petchii*
- GG) Ascospores  $30-37 \times 5-6.5 \mu$  *P. anonicola*
- GGG) Ascospores  $17.5-22.5 \times 5-6.5 \mu$  *P. psidii*
- GGGG) Ascospores  $20 \times 6-7 \mu$  *P. syzigii*
- FF) Setae continuous
- H) Ascospores  $22-25 \times 4-5 \mu$  *P. rosea*
- HH) Ascospores  $25-30 \times 7-9 \mu$  *P. acalyphae*
- HHH) Ascospores  $13-21 \times 4.5-5 \mu$  *P. echinulata*
- HHHH) Ascospores  $17.5-19 \times 3.5-4.5 \mu$  *P. ilicifoliae*
- HHHHH) Ascospores  $20-24 \times 3.5-5 \mu$  *P. capense*
- AAAA) Ascospores 2-3 transversally septate; Setae septate; Ascospores  $20-24 \times 6-7 \mu$  *P. spinigera*

**Phaeochaetia acalyphae** (Hansf.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium acalyphae* Hansf. in: Comm. Mycol. Inst. Myc.

Pap. no. 15, p. 147, 1946.

On *Acalypha* — Uganda.

Mycelium epiphyllous, superficial, thinly pelliculose, not setose; hyphae subhyaline to yellow-olivaceous, flexuose,  $3 \mu$  thick. Perithecia scattered, globose, olivaceous — black,  $120-150 \mu$  diam., pseudo-ostiolate, walls  $13-20 \mu$  thick, setose, with setae simple, erect,  $120 \times 6 \mu$ . Asci clavate, short stipitate, 8-spores,  $60-30 \mu$ . Ascospores clavate-fusoid, 3-septate,  $25-30 \times 7-9 \mu$ , hyaline.

**Phaeochaetia anonicola** (Hansf.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium anonicola* Hansf. in Comm. Mycol. Inst. Myc.

Pap. no. 15, p. 149, 1946.

On *Anona* — Uganda.

Mycelium epiphyllous, brown, pelliculose; hyphae olivaceous, nearly straight, reticulate, septate,  $2.5-4 \mu$  thick. Perithecia subglobose, blackish-brown, pseudo-ostiolate, sessile,  $100-230 \mu$  diam., ornate with numerous setae, blackish-brown, simple, septate, straight,  $50-90 \times 6-7 \mu$ ; perithecial walls  $8-15 \mu$  thick. Asci ovoid to ellipsoid, 8-spores, nodose-stipitate,  $55-80 \times 20-28 \mu$ , aparaphysate. Ascospores fusoid, 3-septate,  $30-37 \times 5-6.5 \mu$ , hyaline to yellowish.

**Phaeochaetia arbutifoliae** Bat., Cif. & Nasc. n. sp.

Mycelium epiphyllous, superficial, spread, blackish-brown, hyphae made up to cylindric and constricted cells,  $5.5-14.5 \times 3-6 \mu$ , branched, not setose, nor hyphopodiate. Perithecia subglobose,  $90-110 \mu$

diam., developed beneath the mycelial pellicle, gregarious, blackish-brown, pseudo-ostiolate, membranous, the walls subparenchymatic, 2-layers, the outer dark, the inner hyaline,  $17-24.5 \mu$  thick, composed of polygonal cells,  $5.5-12.5 \times 4-8 \mu$ ; the basal wall is in one layer,

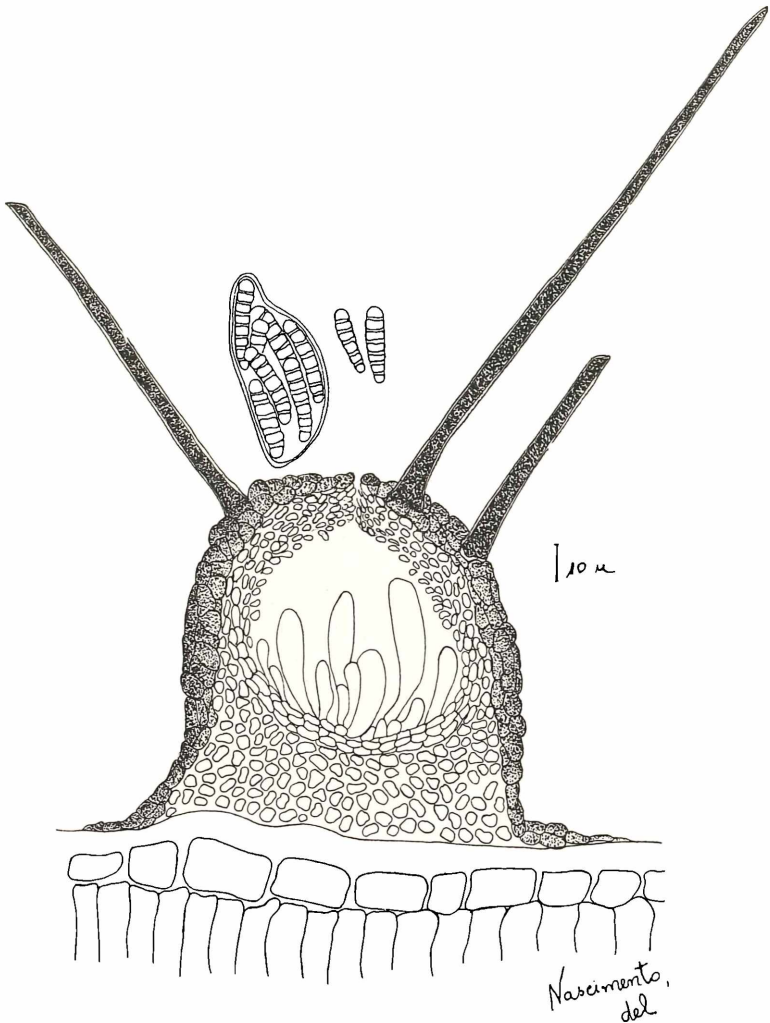


Fig. 48. *Phacochaetia arbutifoliae* Bat. Cif. et Nasc. — Perithecium setose, ascus and spore.

$24-31 \mu$  thick. Setae scattered on the perithecia, continuous, erect, acuminate, blackish-brown, opaque,  $165-270 \times 6-7.5 \mu$ . Asci ellipsoid, 8-spores, 2-tunicate, sessile,  $50-54 \times 14-20 \mu$ , aparaphysate. Ascospores clavate-cylindric, 4-7 transversally septate, constricted, polystichous, hyaline,  $13-16.5 \times 4-4.5 \mu$ . Fig. 48.

On leaves of *Photinia arbutifoliae* Lindl. Sonoma County — Calif. H. E. Parks, April, 20, 1931. Type no. 756704, Herbarium of The University of California. Associated with *Fumagospora gaultheriae* Bat. & Vital, *Chaetabolisia californiana* Bat., Cif. & Nasc. and *Trichomerium atronitidum* (Miller & Bonar) Cif. & Bat.

The specimen was labeled as:

*Capnodium heteromeles* Cke. & Hk.

*Vertioxore atronitidum* Miller & Bonar

*Phaeosaccardinula anomala* (Cke. & Hk.) Miller & Bonar.

Mycelium epiphyllum, superficiale, effusum, atrobrunneum, ex hyphis cylindraceis, constrictis,  $5.5-14.5 \times 3-6 \mu$  ramosis, non setosis, non hyphopodiatis, compositum. Perithecia subglobosa,  $90-110 \mu$  diam., pellicula mycelica oriunda, gregaria, atro-brunnea, pseudo-ostiolata, cum parietibus membranosis, subparenchymaticis  $17-24.5 \mu$  cr., 2-stratosis, ex cellulis polygonalibus  $5.5-12.5 \times 4-8 \mu$  efformatis et cum pariete basali 1-stratosa,  $24-31 \mu$  cr. Setae peritheciales effusae, erectae, continuae, acuminatae, atro-brunneae, opacae,  $165-270 \times 6-7.5 \mu$ . Asci ellipsoidei, 8-sporei, 2-tunicati, sessiles,  $50-54 \times 14-20 \mu$ , aparaphysati. Ascosporae clavate-cylindraceae, 4-7 transversaliter septatae, constrictae, polystichae, hyalinae,  $13-16.5 \times 4-4.5 \mu$ . — In follis *Photinae arbutifoliae* Lindl. Sonoma County, Calif. H. E. Parks, April 20, 1931. Typus no. 756704, ex Herbario Univ. Californiae.

We have also found this fungus on leaves of *Hakea saligna* Botanical Garden of Coimbra-Portugal, coll. by Moller. This specimen, C. Róumeguère, Fungi selecti exsiccati, was labeled as no 4843, *Capnodium mesnerianum* Thum. For the study of this fungus we are indebted to The University of Pavia, Italy.

Also on leaves of *Mangifera indica* L., Maricao, Puerto Rico, Leg. F. L. Stevens, 1913, Det. A. C. Batista & M. L. Nascimento, 15. 5. 1958, spec. no. 13333, I.M.U.R., associated with *Chaetabolisia falcata* Miller & Bonar.

**Phaeochaetia capensis** (Doidge) Bat. n. comb.

Syn.: *Aithaloderma capense* Doidge in Bothalia, 2: part IV, p. 239, 1927.

*Chaetothyrium capense* (Doidge) Hansf. in Bothalia, V p. 192, 1950.

On *Schotia* — London.

Mycelium superficial, epiphyllous, pelliculose, black or olivaceous, hyphae fuscous-olivaceous, reticulate, composed of cells about  $30 \mu$  long, and  $3-12 \mu$  thick. Perithecia scattered, conoid,  $100-120 \mu$  diam., black, pseudo-ostiolate, setose, with parenchymatous structure and cells  $4-5 \mu$  diam.; the setae are  $24-30 \times 6-6.5 \mu$ , continuous, curved, acuminate. Asci ovoid to subclavate, 8-spores,  $30-37 \times$

10–12  $\mu$ , aparaphysate. Ascospores 3-septate, slightly constricted, hyaline, 20–24  $\times$  3.5–5  $\mu$ . Fig. 49.

We have also found this fungus on *Magnolia glauca*, associated with *Trichomerium pelliculosum* and Asbolisiaceae; the specimen has been from Ellis & Everhart's collection, coll. in Florida, 1883, Dr. Geo Martin and lent to us by The New York Botanical Garden, under the label "1545. *Capnodium pelliculosum* Berk & Rav."

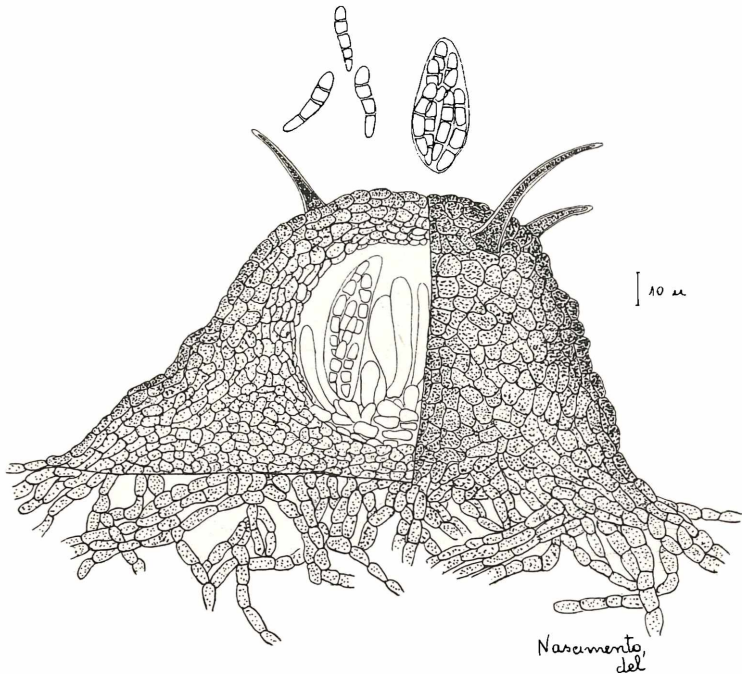


Fig. 49. *Phaeochaetia capensis* (Doidge) Bat. — Perithecium, ascus and spores.

Also found in one specimen of unknown host, associated with *Chaetasbolisia falcata* Miller & Bonar. Isl. of Madeira. Leg. Prof. C. Torrend, S. J. 1910. Ex Herb. P. A. Saccardo, sub *Capnodium salicinum*.

***Phaeochaetia clavatispora* (Syd.) Bat. & Cif. n. comb.**

Syn.: *Chaetothyrium clavatisporum* (Syd.) Hansf. Comm. Mycol. Inst. Mycol. Pap. no. 15, 150, 1946.

*Aithaloderma clavatisporum* Syd. Ann. Mycol. XI: p. 257, 1913.

*Ixora*, *Psidium*, *Acrostichum* — Philippine Islands.

Mycelium epiphyllous, superficial, effuse, thinly pelliculose, olivaceous to black, hyphae 4–6  $\mu$  wide. Perithecia conoid, 60–90  $\mu$  diam., brown to blackish, pseudo-ostiolate, Fig. 53, with erect setae



10–20 × 3.5–5  $\mu$ , olivaceous, brownish, continuous, walls 6–8  $\mu$  diam. Asci 8-spores, subclavate, shortly stipitate, 30–36 × 14–20  $\mu$ , aparaphysate. Ascospores clavate, conglobate, 3–5-septate, hyaline, 24–26 × 5–6  $\mu$ ; associated with *Microxyphium*. Fig. 50.

Obs.: The specimen on *Psidium guajava* collected in the Philippine.

Islands and deposited in the Herbarium of University of California, under number 203383, entirely agrees with the original description of Sydow. We have examined this specimen through the courtesy of Prof. Lee Bonar, Univ. of California.

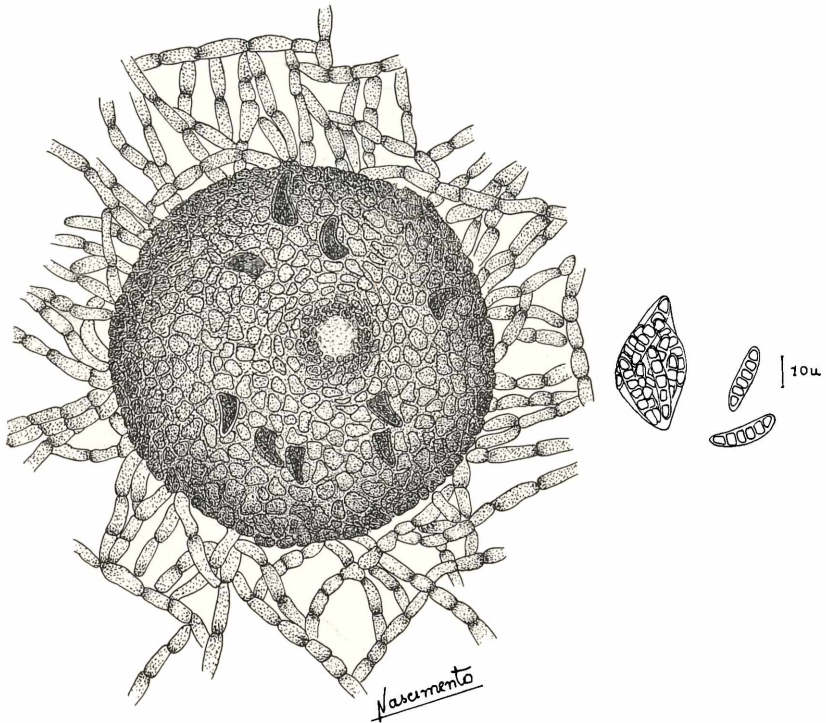


Fig. 50. *Phaeochaetia clavatispora* (Syd.) Bat. et lif. — Perithecium, ascus and spores.

We have seen the same fungus in one specimen of The Herbarium of The University of Illinois, no. 6625, det. by Sydow, Sept. 1913, as *Aithaloderma clavatisporum*, and collected in Los Banos, Philippines (Fungi Malayana, C. F. Baker).

We have also examined the two following Sydow's specimens: "Fungi Malayana, C. F. Baker, no. 2 suppl. *Aithaloderma clavatisporum* Syd. on *Ixora coccinea*; Mount Maquiling, Los Banos, Laguna, Philippines, Apr. 1914, and "Fungi Malayana, C. F. Baker, no. 2 suppl. 2, *Aithaloderma clavatisporum* Syd. on *Psidium guajava*, Mount

Maquiling, Los Banos, Laguna, Philippines, Sept. 1913" Both are *Phaeochaetia* being the last one associated with *Microxyphium*.

Also on leaves of *Cestrum laurifolium*, Mayaguez, Puerto Rico, Leg. F. L. Stevens, 15. 6. 915, spec. no. 13373, I.M.U.R.

Also found on *Psychotria chlorotica* Müll, Arg., Paulista, Pernambuco, Leg. A. F. Vital, Det. A. C. Batista, 26. 8. 1957, spec. no. 11466, I.M.U.R., associated with *Phragmoxyphium psychotriae* Bat. n. sp., *Phaeosaccardinula caucasica* (Woronich) Hansford, v. *artocarp*i, Bat., Cif. & Nasc., *Phaeochaetia clavispора* (Speg.) Bat. & Cif. var. *gardeniae* Bat. & Nasc.

Likewise found on *Cupania* sp., Paulista, Pernambuco, A. C. Batista, 2. 9. 1957, spec. no. 11677, I.M.U.R.

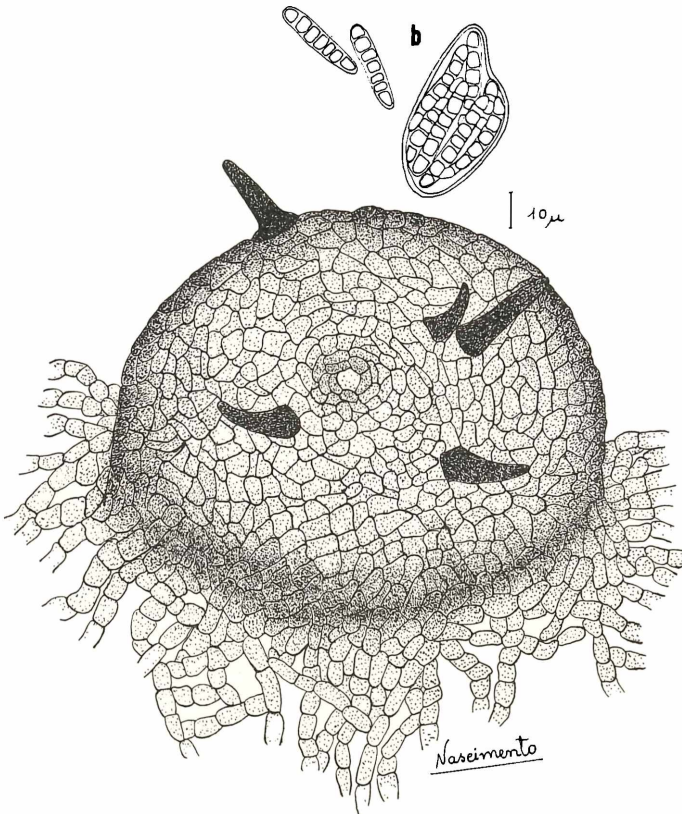


Fig. 51. *Phaeochaetia clavatispora* var. *globosa* Bat., Nasc. et Cif. — a) Perithecium and pellicula mycelium. — b) Ascus and Ascospores.

*Phaeochaetia clavatispora* (Syd.) Bat. & Cif. var. **globosa** Bat., Nasc. & Cif. n. var.

Mycelium epiphyllous, blackish-brown, spread, not setose, nor hypophodiate, composed of constricted and branched hyphae with

cylindrical cells  $4.5 \times 4.5 - 5.5 \mu$ . Perithecia globose  $125 - 150 \mu$  diam., developed beneath the mycelial pellicle, gregarious, blackish-brown, pseudo-ostiolate, setose, the setae being continuous, blackish, straight or incurvate, acuminate,  $17 - 30 \times 6 - 7.5 \mu$ , Fig. 54. Asci ellipsoid to pyriform, 2-tunicate, sessile, 6-8-spores,  $30 - 50 \times 17 - 23 \mu$ , aparaphysate. Ascospores cylindric-fusoid, 2-6-septate, constricted, poly-stichous, hyaline,  $17.5 - 29 \times 5.5 - 7.5 \mu$ . Fig. 51.

On leaves of *Mallotus philippinensis* — Los Banos, Philippines Ins., 3, 1913, C. F. Baker, associated with *Deslandesia paulensis* (Rehm.) Bat. var. *malloti* Bat. & Cif. In the Herbarium of The New York Botanical Garden.

A typo recedit peritheciis majoribus et sporis 2-6-septatis.

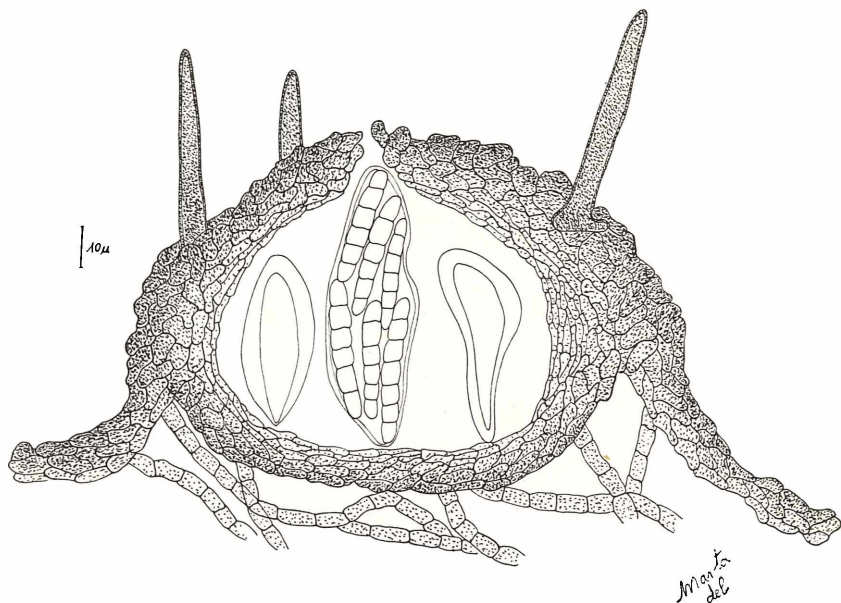


Fig. 52. *Phaeochaetia clavispورا* var. *gardeniae* Bat. et Nasc.

***Phaeochaetia clavispورا*** (Speg.) Bat. & Cif. n. comb.

Syn.: *Zukalia clavispورا* Fung. Puigg. no. 224.

On unknown host. — Brazil.

Mycelium amphigenous, effuse, pelliculous, hyphae opposite, branched,  $5 - 6 \mu$  wide, olivaceous; perithecia ovoid, setose, astomous, gregarious,  $150 - 180 \mu$  diam.; asci clavate,  $80 \times 20 \mu$ , aparaphysate; ascospores cylindric-clavate, 3-5-septate,  $30 - 45 \times 5 - 6 \mu$ , constricted subhyaline.

Identified also on *Miconia laevigata* (L) P. in association with *Ciferrioxypium giganteum* Bat. & Nasc. and *Naetrocybe diospyri*

Bat. & Maia. Arecibo Road — Puerto Rico. Leg. F. L. Stevens, 6/1/915. Espec. no. 7217, Herb. Univ. Illinois and 13077, Inst. Micologia, Univ. do Recife.

*Phaeochaetia clavispota* (Speg.) Bat. & Cif. var. *gardeniae* Bat. & Nasc. n. var.

Mycelium superficial, blackish-brown, epiphyllous, pelliculose, not setose, nor hyphopodiate, hyphae septate, composed of subglobose to cylindrical cells,  $5.5-15.5 \times 5-6.5 \mu$ .

Perithecia developed beneath the mycelial pellicle, subglobose,  $150-182 \mu$  wide,  $110-150 \mu$  height, blackish-brown, setose, pseudo-ostiolate, Fig. 55 & 56. membranous, subparenchymatic, the walls having subglobose to polygonal cells,  $5-15 \times 3-8 \mu$ . The setae are blackish-brown, continuous, 11 to 15 in number, erect, rigid, rotund at the end,  $80-170 \times 6-7.5 \mu$ . Asci ellipsoid, 1-tunicate, 8 spores,  $44-61 \times 15-22 \mu$ , paraphysate. Ascospores clavato-fusoid, 5-7 transversally septate, constricted, polystichous, hyaline,  $22-44 \times 5.5-6.5 \mu$ . Fig. 52-53.

On *Gardenia jasminoides* — Nugenb. Miss, March, 3, 1909, Coll. by P. H. Hulbard. Specimen from The National Fungus Collection, Beltsville, Md., det. as *Capnodium* sp. Type.

Also identified on *Mallotus philippinensis*, Los Banos, Philippines. Coll. C. F. Baker, March 25/1913, associated with *Deslandesia paulensis* var. *malloti* (Rehm) Bat. & Cif.

Likewise found on leaves of *Psychotria marckgravii* Spreng. associated with other fungi, including some of the family Capnodiaceae and Asbolisiaceae. Paulista, J. S. Pires, 19/8/57. Inst. Micol. Univ. Recife.

Also on *Psychotria chlorotica* associated with *Phragmoxyphium psychotriae* Bat., *Phaeochaetia clavatispora* var. *setoseptata* Bat. and *Phaeosaccardinula caucasica* var. *artocarpi* Bat. Paulista, Pern. Leg. Dr. A. F. Vital, 26/8/57. Spec. no. 11465, Inst. Micol. Univ. Recife.

A typo recedit ascis minoribus et ascosporis 5-7 septatis. In foliis *Gardeniae jasminoidis*.

***Phaeochaetia echinulata*** (Yam.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium echinulatum* Yam. in Ann. Phytopath. Soc. of Japan, XXI: 4, 167 1956.

Epiphyllous. Mycelium superficial, thinly crustaceous, brown, spread, composed of irregularly branched hyphae, anastomosing, little spiny, the cells being oblong or cylindrical,  $7-15 \times 3-4.5 \mu$ , without hyphopodia. Mycelial setae abundant, simple, black, continuous, straight or curved,  $168-322 \times 7-8 \mu$ . Perithecia subgregarious, globose-depressed, pseudo-ostiolate, subcoriaceous, glabrous, black,  $170-238 \mu$  diam., developed beneath the mycelial pellicle. Asci subcylindric to elliptic-cylindric, short pedicellate, (2 tunicate ?)

8-spores,  $46-65 \times 11-14 \mu$ , aparaphysate. Ascospores oblong to ellipsoid-oblong, (3-septate?) not constricted, hyaline,  $13-21 \times 4.5-5 \mu$ .

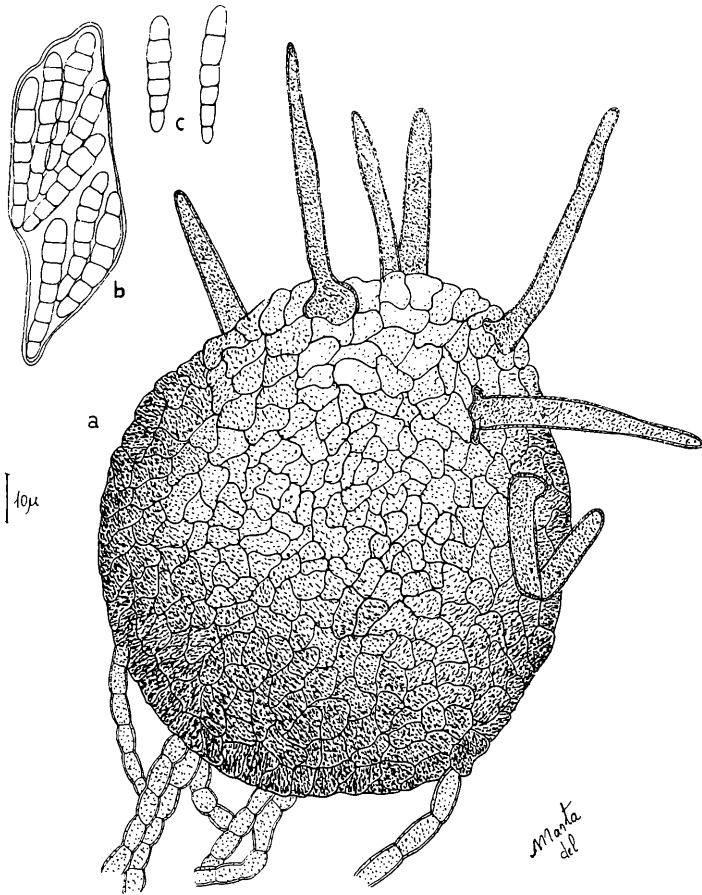


Fig. 53. *Phaeochaetia clavispورا* var. *gardeniae* Bat. et Nasc. — a) Perithecium setose. — b) Ascus. — c) Spores.

On *Citrus maxima* — Formosa, Prov. Taihoku, Sniten, Leg W. Yam. 16/3/941, Type.

Also on *Ardisia*, *Euphobia*, *Itea*, *Lasianthys*, *Phyllostachyum*, *Styrax* (loc. cit).

#### ***Phaeochaetia ilicifolii* Bat. & Nasc. n. sp.**

Mycelium epiphyllous, superficial, blackish-brown, pelliculose, effuse, dense, hyphae brown, septate, constricted, composed of cylindrical cells,  $5.5-11 \times 2-4.5 \mu$ , not setose, nor hyphopodiate.

*Perithecia gregarious*, superficial, developed beneath the mycelial pellicle, subglobose, 90–135  $\mu$  diam., blackish-brown, setose, the setae being 8 to 25 in number, continuous, acuminate, blackish, 35–100  $\times$  7–10  $\mu$ ; the perithecial walls are subparenchymatic, made up of polygonal to subglobose cells, 5.5–9  $\times$  4–5.5  $\mu$ , Fig. 57. Asci

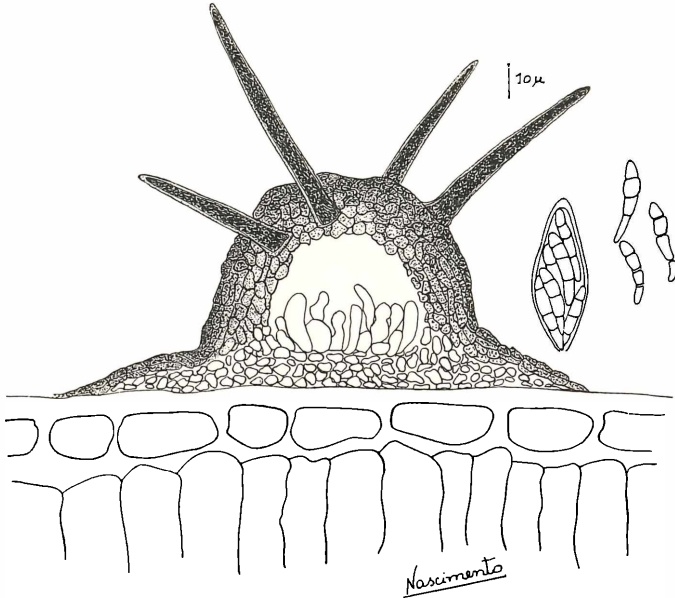


Fig. 54. *Phaeochaetia ilicifolii* Bat. et Nasc. — Perithecium, ascus and ascospores.

ellipsoid, 8-spores, 2-tunicate, sessile, 30–40  $\times$  12–16  $\mu$ , aparaphysate. Ascospores clavate-fusoid, transversally 3-septate, constricted, hyaline, distichous to polystichous, 17.5–19  $\times$  3.5–4.5  $\mu$ .

Type, on dahon — *Ilex cassine* L.-Coll. by Arthur S. Rhoads, Febr. 5, 1944, in Deep Creek, between de Leon Springs and Barberville, Volusia Co. Florida. Fig. 54.

This specimen was lent to us through the courtesy of Dr. J. A. Stevenson, of the National Fungus Collection, Beltsville, Md. U.S.A.

Mycelium epiphyllum, superficiale, atro-brunneum, pelliculosum, effusum, ex hyphis densis, brunneis, septatis, constrictis, ex cellulis cylindraceutis, 5,5–11  $\times$  2–4,5  $\mu$ , non setosis, non hyphopodiatis, compositum. Perithecia superficialia, gregaria, sub pellicula mycelica evoluta, sub-globosa, 90–135  $\mu$  diam., atrobrunnea; setae peritheciales 8–25, continuae, acuminatae, atrae, 35–100  $\times$  7–10  $\mu$ ; parietes peritheciales subparenchymatici, ex cellulis polygonalibus vel subglobosis, 5,5–9  $\times$  4,5–5,5  $\mu$ , eformati. Asci ellipsoidei, 8-sporei, 2-tunicati, sessiles, 30–40  $\times$  12–16  $\mu$ , aparaphysati. Ascosporeae clavate-fusoideae, 3-transversaliter septatae, constrictae, hyalinae, distichae vel polystichae, 17,5–19  $\times$  3,5–4,5  $\mu$ .

We have identified this same fungus in one specimen lent to us by The University of Pavia, Italy, on *Hakea saligna*. Coimbra, Portugal, Leg. P. G. Mesnier, 1877, det. as *Capnodium mesnierianum* (Thüm.) Associated with *Chaetasbolisia californiana* Bat., Cif. & Nasc.

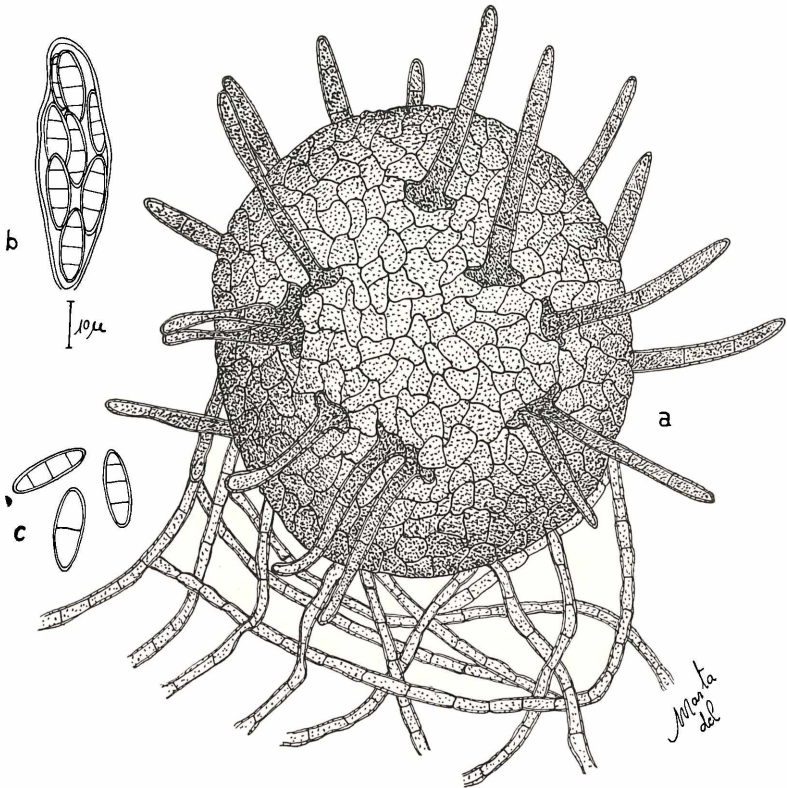


Fig. 55. *Phaeochaetia spinigera* (v. H.) Bat. et Cif. — a) Perithecium and mycelium. — b) Ascus. — c) Spores.

***Phaeochaetia patchii* (Hansf.) Bat. & Cif. n. comb.**

Syn.: *Chaetothyrium patchii* Hansf. in Proc. Linn. Soc. London, vol. 158: p. 40, 1945—1946.

On *Citrus* — Ceylon.

Amphigenous. Mycelium pelliculose, thin, hyphae brownish, 5—10  $\mu$  thick, cross-branched, reticulate. Perithecia developed beneath the mycelial pellicle, globose-depressed, 180—250  $\mu$  wide, 100—150  $\mu$  in high, walls 9—12  $\mu$  in thickness, pseudo-ostiolate, ornate with radiant setae, erect, black, septate, subacute, 100  $\times$  6—10  $\mu$ . Asci ellipsoid, sessile, 8-spores, 100  $\times$  25  $\mu$ , aparaphysate. Ascospores fusoid, 3-septate, hyaline, to chlorino-hyaline, 27—35  $\times$  6—9  $\mu$ .

**Phaeochaetia psidii** (Bern) Bat. & Cif., n. comb.

Syn.: *Trichomerium psidii* Bat. in Mycop. & Mycol. Appl. V.: 2—3, 149, 1951.

*Trichomerium guajavae* (Bern.) Bat. & Cif. (Wrong by a lapse). in Ann. Soc. Biol. Pern. tom. XIII: 2, p. 117, 1954.

On *Murraya*, *Psidium*.

Mycelium epiphyllous, superficial, pelliculose, black, not setose, hyphae lengthened, brown, reticulate, made up of cells from  $12.5-17.5 \times 3.5-10 \mu$ . Perithecia developed beneath the mycelial pellicle, globose, black, pseudo-ostiolate, membranous,  $125-235 \mu$  diam., walls sub-parenchymatic, 1—2 layers, composed of subglobose cells,  $8-15.5 \mu$  wide; setae completely surrounding the perithecia, erect, straight or curved, septate, blackish, obtuse,  $70-125 \times 5-7.5 \mu$ . Asci ellipsoid, 8-spores, sessile,  $40-57.5 \times 15-20 \mu$ , aparaphysate. Ascospores fusoid, 3-septate, hyaline,  $17.5-22.5 \times 5-6.5 \mu$ .

This species is distinct from *Phaeochaetia setosa* (Zimm.) Bat. & Cif. in its morphological proportions, the perithecia and the larger setae; the asci and the ascospores are slightly different.

**Phaeochaetia rosea** (Hansf.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium roseum* Hansf. in Proc. Linn. Soc. London, 156 sess. part. 2, p. 111, 1943—1944.

On *Jasminum* — Uganda.

Superficial mycelium hypophyllous, pelliculous, hyphae sub-hyaline to olivaceous  $3-4 \mu$  thick, reticulate, not setose. Perithecia developed beneath the mycelial pellicle, globose-depressed, blackish-brown,  $140-180 \mu$  wide,  $70-100 \mu$  in height, ornate with numerous erect, olivaceous, continuous setae,  $50 \times 4-5 \mu$ , walls  $5-8 \mu$  thick. Asci cylindric to ellipsoid, 8-spores,  $70 \times 12-15 \mu$ , aparaphysate. Ascospores clavate-fusoid, 3-septate,  $22-25 \times 4-5 \mu$ , hyaline.

**Phaeochaetia setosa** (Zimm.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium setosum* (Zimm.) Hansf. in Reinwardtia, 3: (1). 1945.

*Antennaria setosa* Zimm. in Cbl. Bakt. II, Abt. 8, 151, 1902.

*Limacinia setosa* (Zimm.) Sacc. & Trott. in Syll. Fung. XVII: 577, 1905.

*Hypocapnodium setosum* (Zimm.) Speg. in Physis, 4: 287, 1918.

*Aithaloderma setosum* (Zimm.) Boedijn in Bull. Jard. Bot. Buitenz. III, 11: 227, 1931.

*Capnodium guajavae* (Bern.) Sacc. & Trott. in Bull. Dep. Agr. Ind. Neerl. 11: 21, 1907.

*Limacinia guajavae* (Bern.) Sacc. & Trott. in Syll. Fungi. XXII: 63, 1913.



*Aithaloderma longisetosum* H. & P. Syd. in Ann. Mycol. XII: 545, 1914.

On *Saccharum*, *Psidium*, *Tetracera*, *Hydrangea*, *Coffea*, *Tachia*, *Philodendron*, *Xylopia*, *Murraya*, *Artocarpus*, *Morus*, *Euphorbia*, *Adiantum*, *Mangifera*, *Anacardium*, *Cupania* — *Manilkara* — *Citrus*, *Chrysophyllum*, *Elaeocarpus*, *Mimusops*. General geographic distribution.

Mycelium superficial, epiphyllous, pelliculose, black, smooth, hyphae composed of cells  $5-12 \times 3-6 \mu$ , constricted; perithecia subglobose,  $60-100 \mu$  diam., pseudo-ostiolate, black, surrounded on the apex by setae, about 5 to 9, erect, straight,  $100 \times 6 \mu$ , continuous or septate, blackish. Asci fusoid, 8-spores, sessile,  $40-55 \times 12-17 \mu$  paraphysate. Ascospores subclavate, 3-4-septate, hyaline, slightly constricted,  $16-23 \times 3-5 \mu$ .

**Phaeochaetia spinigera** (v. Höhn.) Bat. & Cif. n. comb.

Syn.: *Limacinia spinigera* v. Höhn. in S. B. Akad. Wiss. Wien. Abt. I, 116: p. 100, 1907.

*Hypocapnodium mikanun* Hara in Path. Agr. Plant. p. 557, 1930 and Fungi I, no. 2: 15, 1931.

*Hypocapnodium quercifolium* Hara, in Fungi I, no. 2: 17, 1931.

*Hypocapnodium citri* Sawada in Stud. Citrol. III: 254, 1929; idem, Descr. Cat. V 21, 1931.

*Chaetothyrium spinigerum* (v. Höhn.) Hansf. Reinwardtia, vol. 3, part. 1, p. 114, 1954.

*Chaetothyrium spinigerum* (v. Höhn.) Yam. in Jour. Soc. Trop. Agric. Formosa, XIII: 221, 1941.

*Triposporiopsis spinigera* (v. Höhn.) Yam. Ann. Phytopath. Soc. Japan, 19: p. 55, 1954; idem, XXI: 168, 1956.

Mycelium superficial, epiphyllous, spread, thin membranous, having hyphae  $4-6 \mu$  wide, septate, irregularly branched, brownish; some hyphae are subhyaline. Perithecia scattered, globose-depressed,  $80-140 \mu$  diam, Fig. 58, dark-brown, walls composed of angular cells,  $10-15 \mu$  diam., one-layered,  $6-8 \mu$  thick, setose with up to 3 straight, erect septate, brown setae, arising from the base and sides, obtuse, 2-4-septate  $70 \times 6-8 \mu$ . Asci clavate-ellipsoid, 8-spores, sessile,  $60 \times 15 \mu$ , paraphysate. Ascospores fusoid, 2-3-seriate, 2-3-septate, constricted at the middle septum, hyaline,  $20-24 \times 6-7 \mu$ . Fig. 55.

On *Ficus* — Sunda. On *Citrus*, *Coffea*, *Cyclobalanopsis*, *Dendrocalamus*, *Euphorbia*, *Gardenia*, *Glochidion*, *Holarrhena*, *Leleba*, *Murraya*, *Photinia*, *Phyllostachys*, *Psidium*, *Quercus*, *Sapindus*, *Thea* — Formosa, Yamamoto, 1956, loc. cit.

Also on leaves of *Cupania* sp. Paulista, Pernambuco, Leg.

A. Chaves Batista, 2. 9. 1957. Spec. 11677, Institute of Mycology University of Recife.

**Phaeochaetia strigosa** (Fraser) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium strigosum* Fraser in Proc. Linn. Soc. N. S. Wale., vol. LXI, p. 288, 1936.

On *Wilkiea*, *Eugenia*, *Pleiococcus* — Australia.

Mycelium superficial, effuse, thin, hyphae smoky-brown, cylindrical, constricted at the septa, Perithecia globose-flattened,  $200-400 \times 150-200 \mu$ , pseudo-ostiolate, dark-brown, developed beneath the mycelial pellicle with the walls ornate with numerous setae of mycelial origin; the setae are smoky-brown, 1-2-septate, obtuse, up to  $300 \mu$  high and reflected over the basal portions of the perithecia. Asci clavate, 8-spores, bitunicate,  $90-95 \times 20-30 \mu$ , aparaphysate. Ascospores cylindrical, 7-9 transversally septate, hyaline,  $32-46 \times 5-7 \mu$ .

**Phaeochaetia syzigii** (Hansf.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium syzigii* Hansf. in Comm. Mycol. Inst. Mycol. Pap. p. 148. 1946.

On *Syzigium* — South Africa.

Mycelium superficial, epiphyllous, pelliculose, not setose, hyphae straight or sinuous, blackish-brown,  $5-10 \mu$  thick, little constricted, reticulate. Perithecia globose, blackish,  $260 \mu$  diam.,  $200 \mu$  in height pseudo-ostiolate, setose, setae erect, septate, simple, straight, rigid,  $200 \times 7-9 \mu$ ; perithecial walls  $200 \mu$  thick, 3-4 layered. Asci ellipsoid or subcylindric, 8-spores, nodose-stipitate,  $70 \times 20 \mu$ . Ascospores fusoid, 3-septate,  $20 \times 6-7 \mu$ , hyaline or subhyaline.

**Phaeochaetia variabilis** (Toro) Bat. n. comb.

Syn.: *Chaetothyrium variabilis* Toro in Mycologia, XIX, 2: 79, 1927.

Mycelium epiphyllous, spread, light-brown, membranous, hyphae septate,  $5-7 \mu$  wide, not setose. Perithecium developed beneath the mycelial membrane, globose,  $90-130 \mu$  diam., brownish-black, pseudo ostiolate; perithecial setae 1-7 for each perithecium, straight, continuous, acute, black,  $75-112 \times 5-7 \mu$ . Asci clavate to ellipsoid, sessile, 2-tunicate, 8-spores,  $40-45 \times 22-24 \mu$ , aparaphysate. Ascospores clavate, 4-5 transversally septate, not constricted, hyaline,  $16-18 \times 5-6 \mu$ .

On leaves of *Wedelia reticulata* D. C. Santiago, no. 260. Dominica, 1926.

**Phaeochaetia woronichinii** Cif. & Bat., nov. nom.

Syn.: *Aithaloderma hederiae* (Pat.) Woron. var. *caucasicum* Woron. Ann. Mycol. vol. XXIV, p. 247, 1926. (*Chaetothyrium caucasicum* Woron. preoccupied).

On *Hedera* — Transcaucasia.

Mycelium pelliculose, with lengthened, septate cells, olive-brown, irregular, a network covering the ascocarps. Perithecia round to

ovate, 65–100  $\mu$  diam., with 1-septate setae, 3–15 in number, 30–130  $\times$  4–7  $\mu$ . Fig. 56. Asci ellipsoidal, without paraphyses, 33–40  $\times$  13–16  $\mu$ . Ascospores hyaline, ovoid-lengthened, with rounded ends, 5–7 transversally septate, 16–21  $\times$  3.5–4.5  $\mu$ . Fig. 56.

According to Woronichin it is possible that this species is the same described by Patouillard as *Acanthostigma* (?) *hederae*.

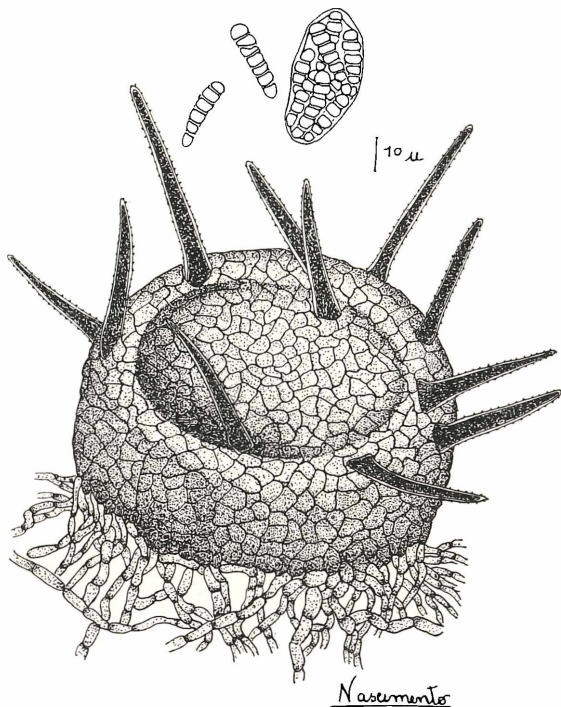


Fig. 56. *Phaeochaetia woronichinii* Cif. et Bat. — Perithecium, ascus and spores.

What appears to be the same fungus, we found in one specimen of The National Fungus Collection, Beltsville, Md, labeled as *Capnodium* sp. on *Miconia* sp. Monserrate, Colombia, coll. H. Garcia B., March 12, 1937, det. A. J. Watson.

The characteristics of the material are the following: Mycelium epiphyllous, superficial, spread, brown, pelliculose, thin, composed of hyphae dense branched, septate, constricted, with cylindrical cells, 7–12.5  $\times$  3–6.5  $\mu$ . Perithecia developed beneath the mycelial pellicle, globose-depressed, pseudo-ostiolate, 120–143  $\mu$  wide, 93–121  $\mu$  in height, blackish-brown, setose, the setae continuous, blackish, 49–90  $\times$  5–6  $\mu$ , rough, acuminate, 10 to 15 each perithecium; the perithecial walls are membranous, subparenchymatic, made up of polygonal cells, from 5.5–9  $\times$  3–5.5  $\mu$ . Asci ellipsoid, 8-spores, 3-tunicate,

sessile,  $34-44 \times 14-22 \mu$ , paraphysate, Ascospores clavate-cylindric, 5-7 transversally septate, constricted, hyaline,  $17-23 \times 4.5-5.5 \mu$ , polystichous.

Another specimen akin to this fungus we found on *Eugenia jambos* coll. in the Republic of Haiti by George V. Nash, 1903 and labeled as *Apiosporium*. This specimen which we examined — through the courtesy of The New York Botanical Garden, has the following characteristics.

Mycelium pellicular, not setose, nor hyphopodiate, blackish-brown, spread, composed of septate and constricted hyphae with cylindric cells,  $5.5-11 \times 2.5-5.5 \mu$ . Perithecia developed beneath the mycelial pellicle, subglobose,  $110-127 \mu$  diam., blackish-brown, pseudo-ostiolate, membranous, subparenchymatic, the walls with subglobose to polygonal cells,  $4-8 \times 2.5-5.5 \mu$ , setose, the setae far from the pseudo-ostiole, 1-2, acuminate, blackish brown, continuous,  $22-25 \mu$  in length. Asci ellipsoid to pyriform, 2-tunicate, sessile, 4-7 spores,  $36.5-44 \times 17-19.5 \mu$ , paraphysate. Ascospores cylindric-fusoid, 2-8-septate, constricted, polystichous, hyaline,  $16.5-25 \times 3.5-6.5 \mu$ .

It is associated with *Naetrocymbe scoriadea*.

*Phaeochaetia* sp.

Syn.: *Chaetothyrium boedijnii* Hansf. in Sydowia, Ann. Myc. X (1-6): 99, 1956.

This species is poor represented in our specimen; so that we cannot study it satisfactorily. The description of Hansford corresponds to our *Ceramothyrium boedijnii* devoid setae.

*Phaeochaetia* sp.

On *Phillypea latifolia*, A. C. Bat., M. L. Nascimento & R. Ciferri, 22. 1. 57, sp. no. 6001, I.M.U.R., associated with *Scolecoxyphium formosum* Bat., Nasc. & Cif., n. sp. and *Chaetasbolisia microglobulosa* Bat. & Nasc.

Also on *Cocus nucifera* L., Palawan, Phillipines, A. C. Batista, M. L. Nascimento & R. Ciferri, spec. no. 5991, I.M.U.R., associated with *Scolecoxyphium formosum* and *Chaetasbolisia*.

**Phaeosaccardinula** P. Henn. (1905).

Syn.: *Phaeopeltis* Clem. 1909.

*Tephrosticta* (Sacc. & Syd.) Syd. as sub genus — 1904.

*Capnites* Theiss. 1916.

Type *P. diospyricola* P. Henn. in Syll. Fung. XVII: pag. 873, 1905.

Mycelium superficial, pelliculose, fuscous to blackish, not setose; setose; perithecia globose-depressed, dark, pseudo-ostiolate, paren-

chymatous, not setose; asci various, 8-spores; ascospores oblong-cylindric, muriform, fuscous.

Key to the subgenera of the Genus *Phaeosaccardinula*

- A) Asci with true paraphyses Subg. *Eu-Phaeosaccardinula*  
 AA) Asci devoid of true paraphyses Subg. *Aparaphysella*

Key to the Species of the subgenus *Eu-Phaeosaccardinula*.

- A — Asci not evanescent, up to 8-spores  
     B — Asci with 2–3 ascospores; ascospores  
         13–23  $\mu$  wide, with 12–18 transverse  
         septa. *P. musicola*  
     BB — Asci with 4–8 ascospores  
         C — Ascospores 18–43  $\mu$  in length,  
             with 7–8 transversal epta. *P. samoensis*  
         CC — Ascospores 35–60  $\mu$  in length,  
             with 7–13 transversal septa *P. diospyricola*  
 AA — Asci evanescent, 4-spored *P. pipericola*

Key to Species of subgenus *Aparaphysella*.

- A — Asci with up to 6 spores  
     B — Asci one-spores; ascospores transversally  
         9–13-septate, 56–78  $\times$  15–20  $\mu$  *P. monosporica*  
     BB — Asci usually containing more than one  
         spore  
         C — Ascospores more than 60  $\mu$  long. *P. gigantospora*  
         CC — Ascospores less than 60  $\mu$  long  
             D — Ascospores with 4–7  
                 transversally septa *P. epicarpa*  
         DD — Ascospores with more  
             than 10 transversally septa  
             E — Ascospores brown, transversally  
                 7–12-septate, 40–50  $\times$  15–20  
                     *P. guajavae*  
             EE — Ascospores subhyaline, trans-  
                 versally 12–30-septate, 27–56  $\times$   
                     10.5–21.5  $\mu$  *P. guajavae*  
                         var. *citrina*  
             EEE — Ascospores yellowish, transver-  
                 sally 7–14-septate, 41.5–66  $\times$   
                     12–17  $\mu$ . *P. vera*  
 AA — Asci 8-spores (exceptionally 6–8-spores)  
     F — Ascospores 30–60  $\mu$  long

- G — Asci 8-spores, deliquescent,  
80—120  $\mu$  long; ascospores  
5—8-septate transversally *P. ceibae*
- GG — Asci 6—8-spores, less than 80  $\mu$  long  
H — Ascospores 42—60  $\mu$  long, transversally  
8—15-septate. *P. cupularis*
- HH — Ascospores 30—45  $\times$  5—9  $\mu$ , transver-  
sally 8—11-septate *P. caucasica*
- HHH — Ascospores 30—45  $\times$  11—16.5  $\mu$ , trans-  
versally 5—11-septate *P. caucasica*  
var. *artocarpi*
- FF — Ascospores 25—33  $\mu$  long  
I — Asci more than 60  $\mu$  long and less  
than 25  $\mu$  wide; perithecia  
smooth, 27—150  $\mu$  diam. *P. dematiae*
- II — Asci less than 60  $\mu$  long and more  
than 25  $\mu$  wide; perithecia some-  
what tuberculate, 135—205  $\mu$   
diam. *P. butleri*
- FFF — Ascospores 10—20  $\mu$  long  
FFF — Ascospores 10—20  $\mu$  long  
F — Asci 25—36  $\times$  17—23  $\mu$ ; peri-  
thecia 80—120  $\mu$  diam. *P. hyphaenes*
- JJ — Asci 30—68  $\times$  11—17  $\mu$ ; peri-  
thecia 112—184  $\mu$  diam. *P. anomala*

*Phaeosaccardinula anomala* (Cke. & Hk.) Miller & Bonar in  
Univ. Calif. Publ. Botan. 19 p. 410, 1941.

Syn.: *Asterina anomala* Cke. & Hk. in part. Grevilles 9: 87, 1881.

*Meliolopsis heteromeles* Cke. & Hk., Grevillea 13: 21, 1884.

*Zukalia heteromeles* (Cke. & Hk.) Sacc. Syll. Fung. IX: 342, 1891.

*Meliola heteromeles* (Cke. & Hk.) Berl. & Vogl. (The North Amer.

Pyrenom — Ellis. & Everh. pag. 48, 1892.

*Dimerosporium anomalum* (Cke. & Hk.) in part loc. cit. p. 35.

*Chaetasterina anomala* (Cke. & Hk.) Theiss. & Syd., in part for

Calif. mat. Ann. Nat. Mus. Wien. 23: 102, 1909. c

*Chaetothyrium anomala* (Cke. & Hk.) Theiss. & Syd., in part

Ann. Mycol. XV: 477, 1917.

*Chaetothyrium heteromeles* (Cke. & Hk.) Theiss., in part Ann.

Mycol., 15: 477, 1917.

On *Photinia*, *Umbellularia*, *Lithocarpus* — U.S.A.

Mycelium epiphyllous, superficial, hyphae lightbrown; perithecia  
globose-flattened, 112—184  $\mu$  in diam., pseudo-ostiolate, brown;

asci 8-spores,  $30-68 \times 11-17 \mu$ , aparaphysate; ascospores fusoid, muriform, subhyaline,  $10-18 \times 3-6 \mu$ .

Also on *Lithocarpus densiflora*, Herb. Univ. of California, H. E. Parks, 2. 7. 56, sp. no. 5672, I.M.U.R., in association with *Chaetobolisia falcata* Miller & Bonar.

Likewise found on *Photinia arbutifolia* Lind, Herb. Univ. of California, H. E. Parks, 2. 7. 56, spec. no. 5675, I.M.U.R., associated with *Trichomerium atronitidum* (Miller & Bonar) Ciferri & Bat. and *Vertixore atronitidum* Miller & Bonar.

*Phaeosaccardinula butleri* (Syd.) Theiss. & Syd.

Syn.: *Limacinula butleri* Syd. in Ann. Mycol. IX: pag. 383, 1911. — Syll. Fung. XXIV 386, 1926. — Ann. Soc. Biol. Pern. t. XIII, no. 2, 108, 1955.

On *Artocarpus* — India and Brazil.

Mycelium epiphyllous, effuse, crustaceo-membranous, brownish, hyphae  $5-7.5 \mu$  thick. Perithecia globose-flattened,  $135-205 \mu$

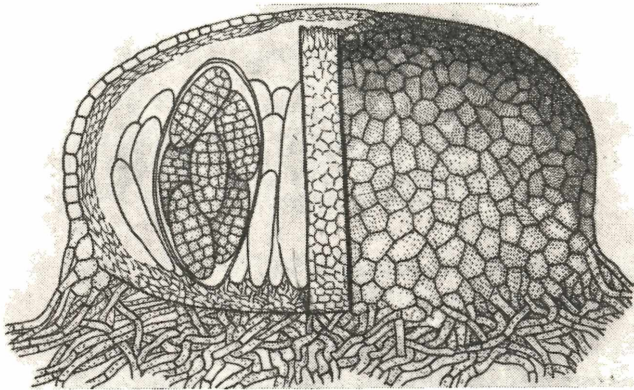


Fig. 58. *Phaeosaccardinula butleri* Syd. — Perithecium, mycelium and asci.

in diam., membranous, pseudo-ostiolate, blackish-brown; asci ellipsoid to clavate, 8-spores,  $47.5-60 \times 27.5-35 \mu$ , aparaphysate. Ascospores ellipsoid, muriform, 5-7 transversally septa, subhyaline,  $25-32.5 \times 7.5-10 \mu$ . Associated with *Microxyphium* with pycnidia cylindric or bottle-shaped,  $205-382.5 \times 28-39 \mu$ . Pycnidiospores continuous, hyaline,  $2.5-4 \times 2 \mu$ , Fig. 58.

Also on *Artocarpus integrifolia* L., Páú Ferro, São Lourenço, Pernambuco, A. C. Batista & A. F. Vital, 9. 5. 1955, spec. no. 2147, I.M.U.R., associated with *Tripospermum fructigenum* (Rabenh. ex Sacc. & Trotter) Hughes.

*Phaeosaccardinula caucasica* (Woronich.) Hansf.

Syn.: *Limacinula caucasica* Woronichin in Bull. of Appl. Bot. vol. VIII, p. 793. — Syll. Fung. XXIV, p. 387, 1926. — Comm. Mycol. Inst. Myc. Pap. no. 15, p. 154, 1946.

On *Taxus* — Russia.

Mycelium capnodiaecous, hyphae 3–4  $\mu$  thick, not setose, not

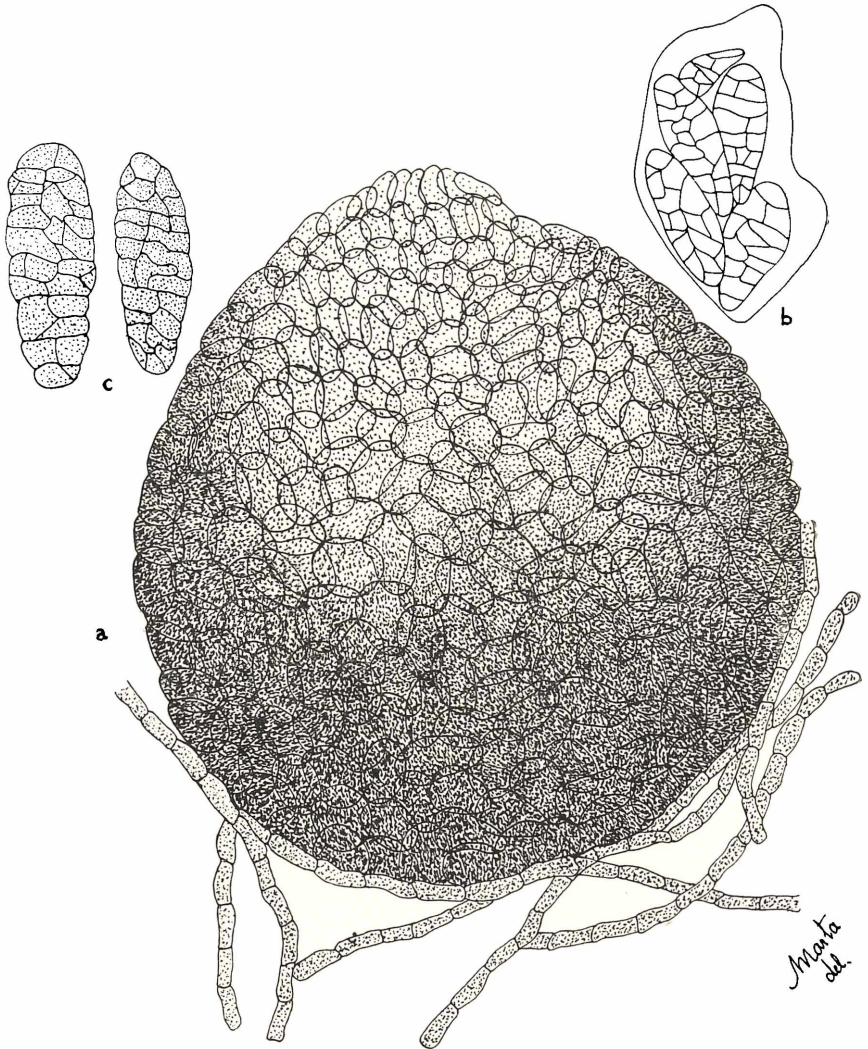


Fig. 58. *Phaeosaccardinula caucasica* var. *artocarpi* Bat. Nasc. et Cif. — a) Perithecium and mycelial hyphae. — b) Ascus. — c) Spores.

hyphopodiate; perithecia globose, ostiolate, 220–230  $\mu$  in diam., not setose; asci oblong-ovoid, 45–75  $\times$  18–30  $\mu$  aparaphysate;



ascospores fusoid,  $30-45 \times 5-9 \mu$ , muriform with 8-11 transverse or obliquely septa dull. Associated with pycnidia of *Microxyphium* 540-650  $\mu$  high, 25-35  $\mu$  in diam.

Also on *Byrsonima sericea* D. C. Dois Irmãos, Recife, Leg. Osvaldo S. da Silva, spec. no. 11821, I.M.U.R., Det., A. C. Batista, in association with *Microxyphium byrsonimae* Bat. n. sp., type, *Microxyphiospis byrsonimae* Bat. n. sp., type, *Septonema* sp., *Antennariella bahiensis* Bat., *Phragmoxyphium psychotriae* Bat.

*Phaeosaccardinula caucasica* var. **artocarpi** Bat., Nasc. & Cif., n. var.

Colonies epiphyllous, spread, blackish-brown, mycelium pelliculose, hyphae dematioid, brownish to olivaceous, sub-reticulate, septate, constricted, made up of oblong cylindrical cells,  $11.5-21 \times$

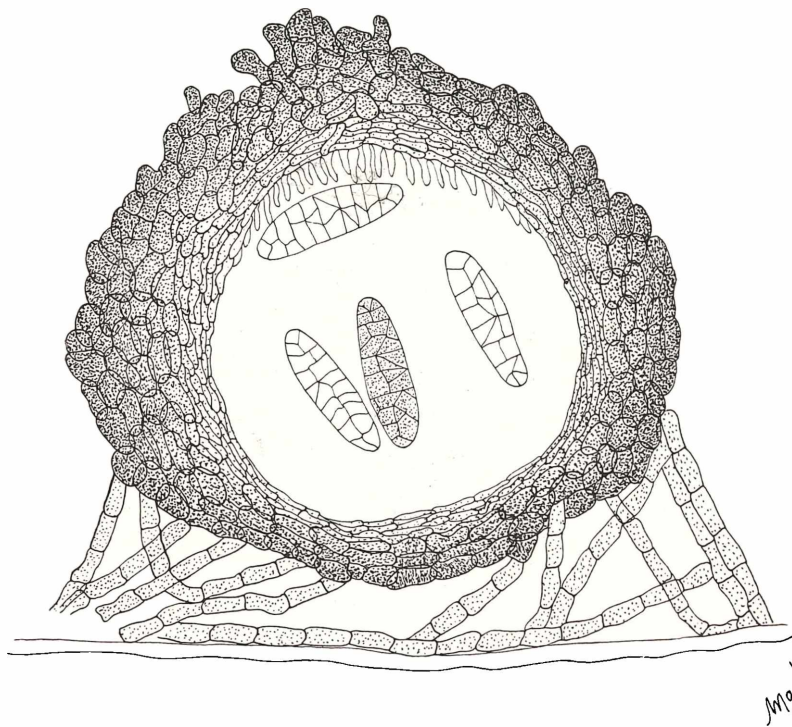


Fig. 59. *Phaeosaccardinula caucasica* var. *artocarpi* Bat., Nasc. et Cif. — Perithecium under a longitudinal cut.

4-6.5  $\mu$ , not setose nor hyphopodiate. Perithecia scattered, single to gregarious, globose-depressed, 155-265  $\mu$  diam., blackish-brown, not setose, Fig. 62, and developed beneath the mycelial pellicle; perithecial walls subparenchymatic, Fig. 63, membranous, in several layers, the

outer wall composed of polygonal cells,  $4-10.5 \times 2.5-9 \mu$ . Asci ellipsoid or ovoidal, about 20 for each perithecium, sessile, 1-tunicate, 8-spores,  $54-81 \times 19-27 \mu$ , aparaphysate. Ascospores oblong, cylindrical to cylindric-clavate, at first hyaline, then yellowish-brown, muriform, with 5-11 transversal septa, polystichous, little constricted,  $30-45 \times 11-15.6 \mu$ . Fig. 58-60.

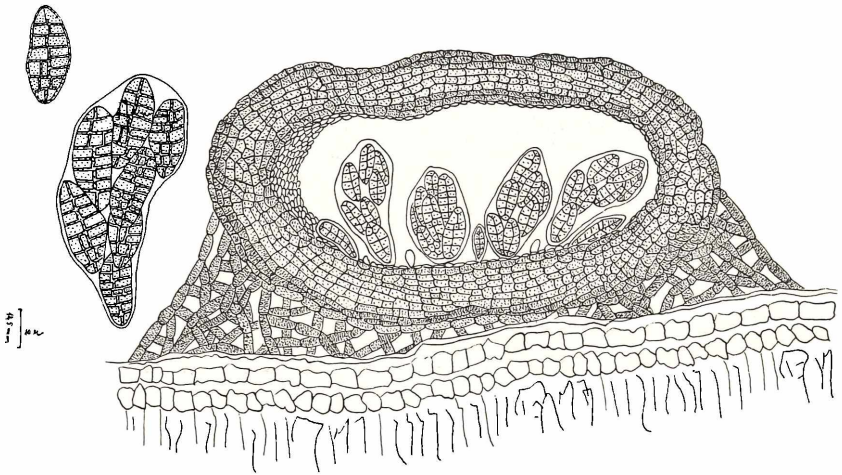


Fig. 60. *Phaeosaccardinula caucasica* var. *artocarpi* Bat., Nasc. et Cif. — Perithecium, asci and spores.

On leaves of *Artocarpus integrifolia* L. Recife. Leg. S. J. da Silva, 10. 3. 56. Spec. no. 5361, Institute of Mycology, University of Recife.

Associated with some *Asbolisiaceae*, apparently without any methagenetical relation.

A specie differt ascosporis majoribus ( $11-17 \mu$  latis), longitudinaliter pluriseptatis.

We also found this variety associated with *Antennellina hawaiiensis* Mendoza, *Microxyphium* sp. and *Tripospermum* sp. on *Tabebuia* sp. Specimen no. 6628, Herbarium University of Illinois.

Equally found on *Psychotria chlorotica* associated with *Phaeochaetia clavispora* var. *gardeniae* Bat. & Nasc., *P. clavatispora* var. *setoseptata* Bat. and *Phragmoxyphium psychotriae* Bat. Paulista, Pern. Spec. no. 11468, Inst. de Micol. Univ. do Recife.

Also found on leaves of *Byrsonima sericea* D. C. associated with *Antennariella bahiensis* Bat., *Septonema* sp., *Phragmoxyphium psychotriae* Bat. *Microxyphiopsis byrsonimae* Bat. n. gen. n. sp. and *Microxyphium byrsonimae* Bat. n. sp. Dois Irmãos, Recife, Leg. Osvaldo Soares da Silva, 3/9/57. Spec. in Inst. Myc. Univ. of Recife.

Idem, on *Lucuma mammosa* Gaert. associated with *Trichomerium*

*abhorrentis* Bat. and *Ainsworthia xanthoxylii* Bat. & Costa. Rincon — Cuba, Charles & Ballou, March 7, 1927. Spec. no. 13345, Ins. Myc. Univ. Recife, and in The Fungus National Collections, U.S.A.

***Phaeosaccardinula ceibae* (Petr. & Cif.) Bat. & Cif. n. comb.**

Syn.: *Chaetothyrium ceibae* Petr. & Cif. in Sydowia, Ann. Myc. X: 132, 1956.

Mycelium brownish-black, little dense, composed of cylindrical and septate brown hyphae, 2–5  $\mu$  thick and oblong and catenulate brown cells, 5–25  $\times$  3–10  $\mu$ . Perithecia developed beneath the mycelial pellicle, brownish-black, 150–300  $\mu$  diam., ovoid to pyriform, the walls being in several layers. Asci clavate to obcylindrical, 8-spores, deliquescent, 80–120  $\times$  25–35  $\mu$ , paraphysate. Ascospores ellipsoid to subcylindrical, at first hyaline then brownish, 5–8 transversally septate, 1–2 longitudinal septum, 35–55  $\times$  10–18  $\mu$ .

On leaves of *Ceiba pentandra* (L.) Gaertn. Valle del Cibao, prov. Santiago, Hato del Hyaque, Dominicana. Leg. R. Ciferri, 28-1-1931.

*Phaeosaccardinula cupularis* (Patouillard) Hansf. Comm. Mycol. Inst. Mycol. Pap. no. 15, p. 157, 1946.

Syn.: *Limacinula cupularis* Pat. in Bull. Soc. Mycol. France, XXXIV: 89, 1918.

On unknown host — Madagascar.

Mycelium blackish-brown, membranous, hyphae brown, cylindrical, 5–8  $\mu$  thick; perithecia globose-flattened, 250–300  $\mu$  in diam., black, pseudo-ostiolate; asci ovoid-clavate, 6–8-spored, 75  $\times$  33  $\mu$ , paraphysate; ascospores oblong, muriform, 8–15 transverse-septate, red-olivaceous, when ripe, 42–60  $\times$  16–20  $\mu$ .

*Phaeosaccardinula dematia* Miller & Bonar in Univ. Calif. Publ. Botan. 19, no. 12, pag. 411, 1941.

On *Baccharis*, *Sequoia*, *Umbellularia*, *Abies* — U.S.A.

Mycelium superficial, epiphyllous, membranous, black, hyphae brown, branched, straight-walled; perithecia developed beneath the mycelial pellicle, globose-flattened, 27–150  $\mu$  in diam., not setose, somewhat tuberculate, pseudo-ostiolate, blackish; asci 8-spores, ventricose, long-stipitate, 62–98  $\times$  10–23  $\mu$ , paraphysate; ascospores biserial ellipsoid-fusoid, 5–6-cells, muriform, 26–33  $\times$  7–12.5  $\mu$  brown. Associated with Asbolisiaceae.

Also found on *Baccharis pilularis* D. C., Contra Costa County, Wildcat Canyon, Herb. Univ. of California, 9. 3. 55, Spec. no. 1609, I.M.U.R.

Also on *Umbellularia californica* Nutt, Big. Sur, Monterey County, Herb. Univ. of California, 15. 3. 1955, Spec. no. 1671, I.M.Z.R.

*Phaeosaccardinula diospyricola* P. Henn. in Hedwigia, pag. 66, 1905. Syll. Fung. XVII: 873, 1905. Comm. Myc. Inst. Myc. Pap. no. 15, p. 154, 1946.

On *Diospyrus* — Brazil.

Epiphyllous. Perithecia globose-flattened, 230—300  $\mu$  in diam., surrounded by hyphae fuscous, simple, pseudo-ostiolate. Asci ovoid or clavate, 55—75  $\times$  35—40  $\mu$ , paraphysate. Ascospores long cylindric, 7—13 septate, interrupted muriform, 35—60  $\times$  7—10  $\mu$ , fuscous.

*Phaeosaccardinula epicarpa* Bat. & Nasc. & Cif. n. sp.

Mycelium effuse, superficial, blackish-brown, pelliculose, composed of cylindric hyphae with subglobose cells, constricted, 9—17  $\times$  3.5—

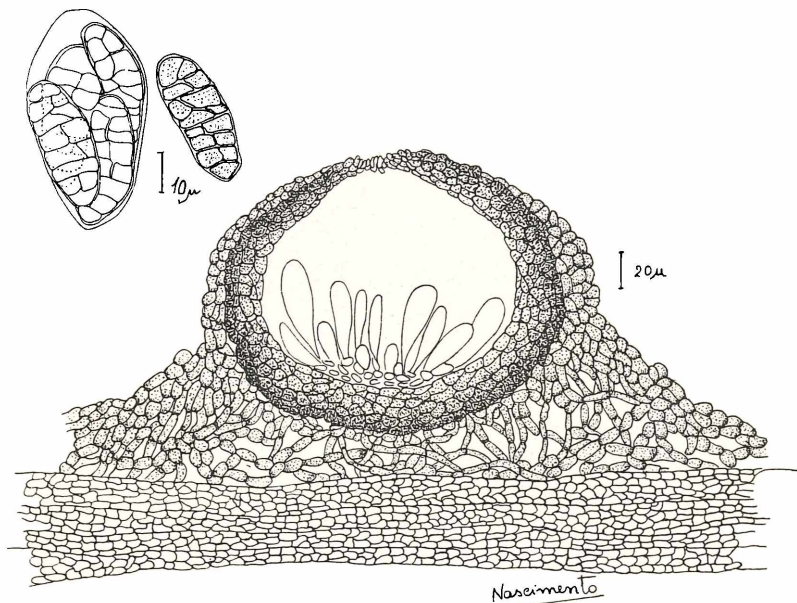


Fig. 61. *Phaeosaccardinula epicarpa* Bat. Nasc. et Cif. — Perithecium and mycelial pellicle; ascus and spores.

4.5  $\mu$  and cylindrical cells, 11—22  $\times$  8.5—12  $\mu$ , brown, not setose, not hyphopodiate. Perithecia gregarious, developed beneath the mycelial pellicle, Fig. 65, subglobose, 220—260  $\mu$  wide, 175—187  $\mu$  in height, with pseudo-ostiole, glabrous, membranous, blackish-brown, not setose; perithecial walls pseudoparenchymatic, in 3 to 5 layers being the outer layer made up of polygonal cells, 8—15  $\times$  6—12  $\mu$ . Asci ellipsoid, 4—6 spores, 1-tunicate, sessile, 58—74  $\times$  29—34  $\mu$ , paraphysate. Ascospores ellipsoid, muriform, with 4—7 transversally septa also interrupted or not, straight not, constricted,

polistichous at first hyaline, then yellowish-brown,  $34-50 \times 15-16 \mu$ .  
Fig. 61.

Type, on epicarp of *Citrus grandis*.

The National Fungus Collection, U.S.D.A. Beltsville, M. D. collected in New York City, by K. I. Petsch, March 19, 1928 and det. by A. J. Bruman as *Capnodium* sp.

Mycelium effusum, superficiale, pelliculosum, brunneo-nigrum, ex hyphis biformibus, cylindraceis, cellulis subglobosis intermixtis,  $9-17 \times 3.5-4.5 \mu$ , et ex cellulis cylindraceis  $11-22 \times 9-12 \mu$ , compositum, glabrum, sine hypho-

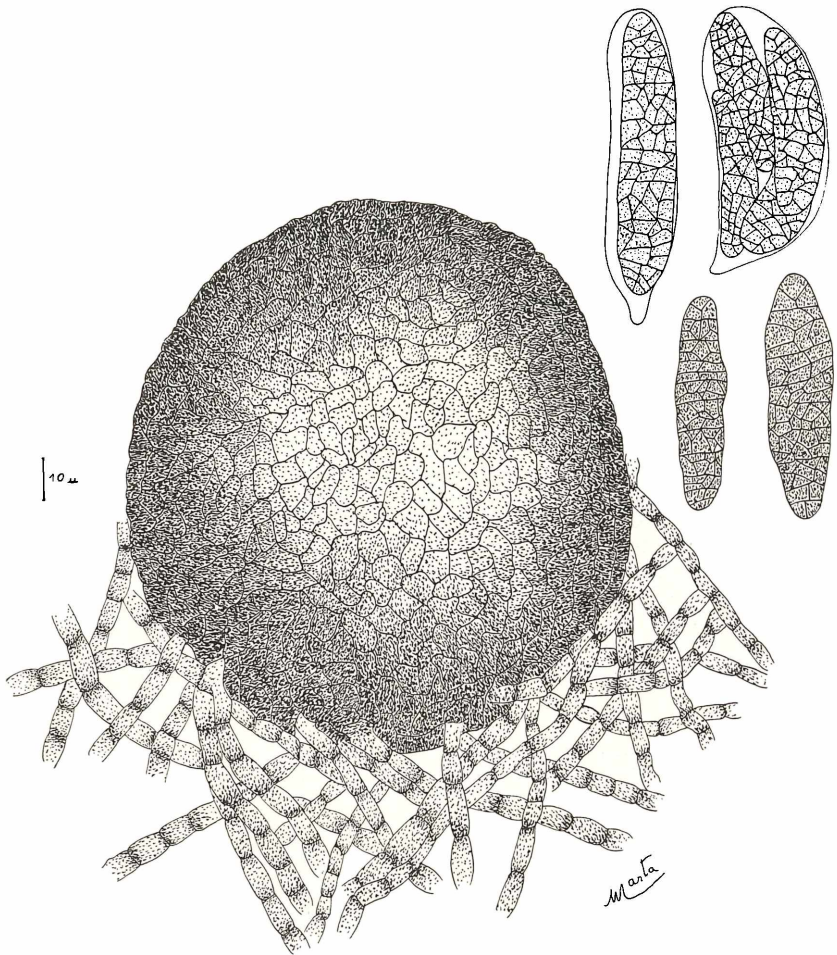


Fig. 62. *Phaeosaccardinula gigantospora* Bat. et Matta. — Perithecium, ascus and spores.

diis. Perithecia gregaria, pellicula mycelica obtecta, sub-globosa,  $220-260 \mu$  diam.,  $175-187 \mu$  alta, pseudo-ostiolata, glabra, membranaceae, brunneo-nigra; parietes pseudoparenchymatici 3-5 stratosi e cellulis polygonalibus

8—15×6—12  $\mu$  compositi. Asci ellipsoidei 4—6 spori, 1-tunicati, sessiles, 58—74×29—34  $\mu$ , aparaphysati. Ascosporae ellipsoideae 4—7 muriformes, transversaliter septatae, ad septa non constrictae, primo hyalinae, dein flavo-brunneae, 35—40×15—16  $\mu$ .

***Phaeosaccardinula gigantospora* Bat. & Matta n. sp.**

Mycelium epiphyllous superficial, membranous, blackish-brown, spread, composed of brown, branched and septate, little constricted,

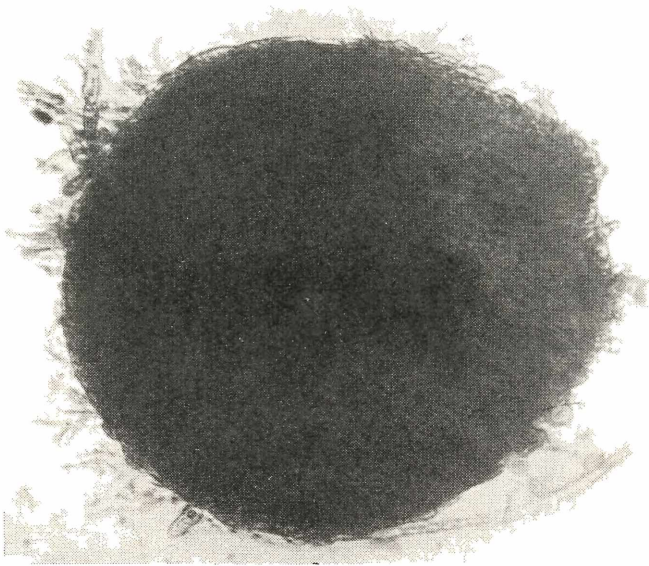


Fig. 63. *Phaeosaccardinula gigantospora* Bat. et Matta. — Full ripe perithecium detached of the mycelial pellicle.

hyphae, which have subcylindrical cells, 27—46.5×7—20  $\mu$ , not setose nor hyphopodiate. Perithecia scattered, globose Fig. 66, or globose depressed, 120—325  $\mu$  in height, 125—350  $\mu$  wide, developed beneath the mycelial membrane, Fig. 67, blackish, membranous, pseudo-ostiolate, glabrous, pseudo-parenchymatic, the walls made up of 6—10 layers of oblong cells, 15—19×5—13  $\mu$ ; in the young perithecia the walls are 66—87  $\mu$  diam., but in full ripe perithecia these walls may have only 25—30  $\mu$  in thickness. Asci ellipsoid, sessile or short pedicellate, 1—4-spores, 2-tunicate, 110—155×25—38  $\mu$ , aparaphysate. Ascospores cylindric to ellipsoid, subhyaline at first, then brownish, 12—22 transversally septate with many vertical septae, 68—118×27—39  $\mu$ , little constricted or not, Fig. 62—64.

On leaves of *Manilkara sapodilla* (L.) Gilly, associated with several fungi. Rodov. Salvador-Feira, km. 16, Leg. Eurico A. F. da Matta, 28/1/957. Type, 11378, Institute of Micology, University of Recife.

Mycelium epiphyllum, superficiale, membranaceum, atro-brunneum, effusum, ex hyphis brunneis, ramosis, septatis, constrictis, ex cellulis subcylindraceis,  $27-46,5 \times 7-20 \mu$ , non setosis, haud hyphopodiatis, compositum. Perithecia

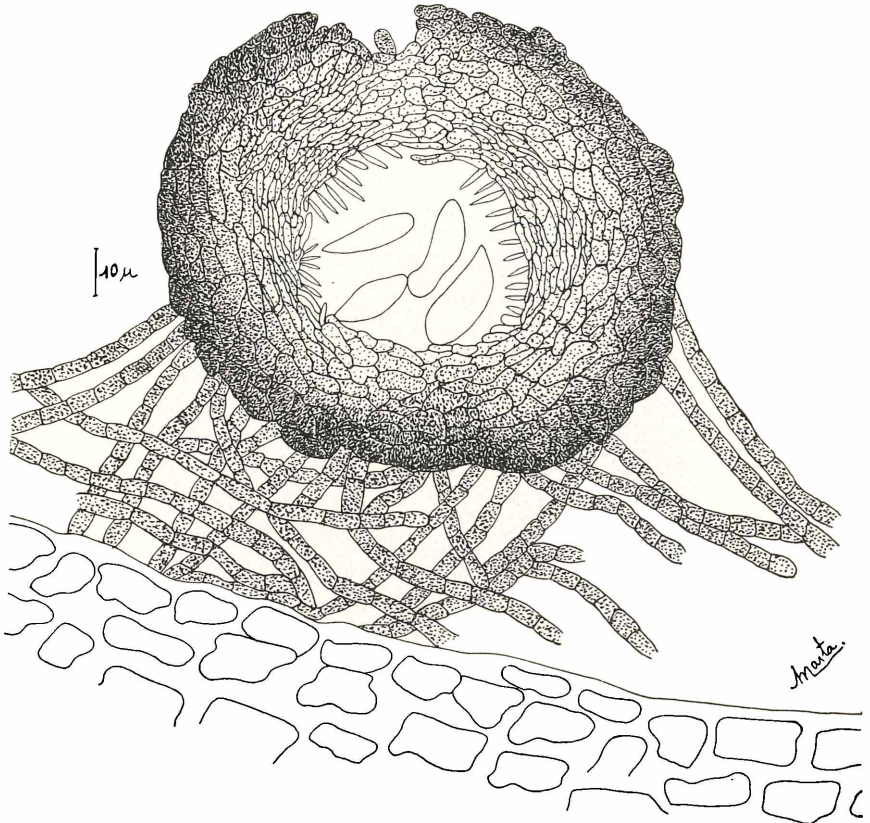


Fig. 64. *Phaeosaccardinula gigantospora* Batt. et Matta. — Perithecium seen under a longitudinal cut.

thecia sparsa, globosa, vel globose-depressa,  $120-325 \mu$  alt.,  $125-350 \mu$  diam., membrana mycelica tecta, atra, pseudo-ostiolata, glabrata, membranosa, pseudoparenchymatica, cum parietibus 6–10 stratosi,  $25-30 \mu$  cr. ad maturitatem, ex cellulis oblongis,  $15-19 \times 5-13 \mu$ , efformatis. Asci ellipsoidei, sessiles vel curto stipitati, 1–4-sporei, 2-tunicati, 1–4 sporei,  $110-155 \times 25-38 \mu$ , aparaphysati. Ascosporeae cylindraceae vel ellipsoideae, primo subhyalinae dein brunnescentes,  $12-22$  transversaliter septatae, pluri-verticaliter septae,  $68-118 \times 27-39 \mu$ , parum constrictae vel non.

*Phaeosaccardinula guajavae* Batista & Vital in Ann. Soc. Biol. Perm. t. XIII, no. 2, p. 111, 1955.

On *Psidium* — Brazil.

Mycelium epiphyllous, effuse, grayish to blackish, pelliculose, hyphae brown,  $3.5-10 \mu$  thick. Perithecia globose-flattened,  $125-$

240  $\mu$  in diam., unilocular, pseudo-ostiolate, walls in 2–3 layers. Asci ellipsoid, 2–7-spores, 75–97.5  $\times$  40–45  $\mu$ , aparaphysate. Ascospores ellipsoid-cylindric, muriform, 7–12 transversally septate, brown, 40–50  $\times$  15–20  $\mu$ .

Associated with pycnidia *Microxyphium*, 100–225  $\times$  12.5–17.5  $\mu$ ; pycnidiospores ellipsoid, continuous, hyaline, 3–4  $\times$  1.5–2  $\mu$ .

*Phaeosaccardinula guajavae* var. **citrina** Batista, n. var.

A specie differt ascosporae 12–30 transversaliter septatae, longitudinaliter multo septatae. — In foliis vivis *Citri aruranti*i cult., Recife, Pernambuco, Brazil.

Mycelium epiphyllous, blackish, crustaceous to pelliculose, not setose, effuse, composed of brown hyphae septate, constricted, with cells from 10–24.5  $\times$  3–5.5  $\mu$ ; irregularly branched, dense reticulate.

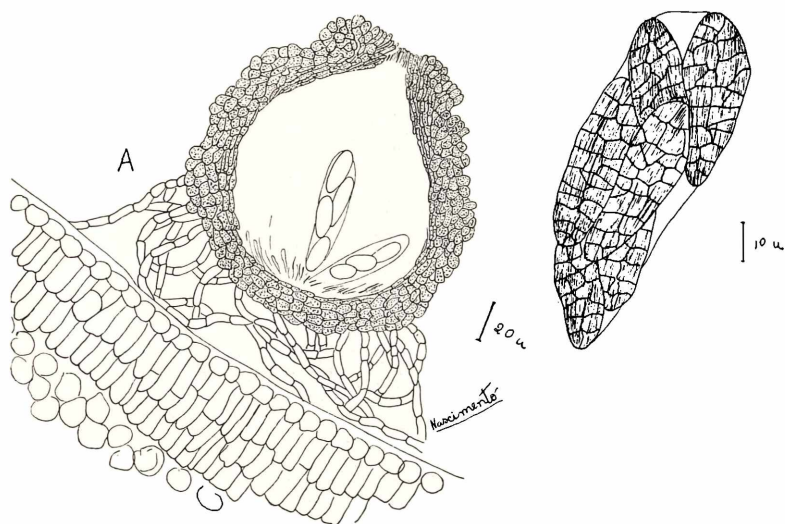


Fig. 65. *Phaeosaccardinula guajavae* var. *citrina* Bat., Nasc. et Cif. — A) Perithecium and mycelium. — B) Ascus.

Perithecia developed beneath the mycelial pellicle, Fig. 69, subglobose to globose depressed, glabrous, 165–240  $\mu$  diam., 130–200  $\mu$  in height when ripe, blackish-brown, pseudo-ostiolate, membranous, subparenchymatic; walls 21.5–35  $\mu$  in thickness, outer layer with polygonal cells, 5–15  $\times$  3.5–13  $\mu$ . Asci ellipsoid, 2–6-spores, 1-tunicate, sessile, aparaphysate, 73–90  $\times$  21.5–38  $\mu$ . Ascospores ellipsoid, muriform, 12–30 transversally septate, little constricted, polistichous, subhyaline, 27–56  $\times$  10.5–21.5  $\mu$ . Fig. 65.

On leaves of *Citrus aurantium* associated with *Ceramothyrium* and *Capnodium* with *Orthezia insignis* Douglas. Leg. Severino nosé



da Silva, Vitoria, 9. 1. 56. Spec. no. 5188, Institute of Mycology, University of Recife, Brazil. Also on *Cocos nucifera* no. 5567.

*Phaeosaccardinula hyphaenes* (P. Henn.) Hansf.

Syn.: *Pleomeliola hyphaenes* P. Henn. in Engl. Bot. Jahrb. p. 46, 1903. Syll. Fung. XVII: p. 554, 1905. Comm. Myc. Inst. Myc. Pap. no. 15, p. 154, 1946.

On *Hyphae* — Zanzibar, Afrika.

Mycelium pelliculose, hyphae branched, brown, 3–4  $\mu$  thick; perithecia subglobose, 80–120  $\mu$  in diam., brown, membranous, pseudo-ostiolate; asci ovoid, 8-spores, 25–36  $\times$  17–23  $\mu$ , aparaphysate; ascospores oblong-cylindric, 4–5 transversally septate, with interrupted longitudinal septum, 10–15  $\times$  3.5–4.5  $\mu$ , fuscous.

***Phaeosaccardinula monosporica* Bat. & Cif. n. sp.**

Mycelium epiphyllous, superficial, thinly membranous, blackish,

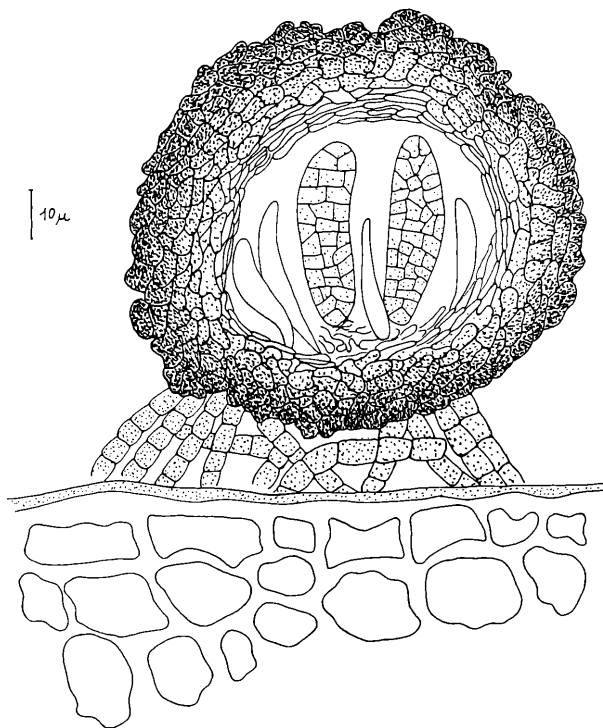


Fig. 66. *Phaeosaccardinula monosporica* Bat. et Cif. — Perithecium under a longitudinal cut.

oblong or subcylindrical cells, 10–11  $\times$  3–4  $\mu$ , not setose, nor hypho-spread, composed of dark-brown branched and septate hyphae, with

podiate. Perithecia at first developed beneath the mycelial pellicle, scattered, globose, 145–210  $\mu$  diam., Fig. 71, blackish-brown, membranous to coriaceous, glabrous, pseudo-ostiolate; their walls are pseudo-parenchymatic, in 4–6-layers, 17–23  $\mu$  thick, having oblong or subcylindrical cells, 6–11  $\times$  5–8  $\mu$ , Fig. 72. Asci ellipsoid, 1-tunicate, 1 spores, 61–96  $\times$  15–17  $\mu$ , aparaphysate. Ascospores ellipsoid, muriform, 9–13 transversally septate, brownish, 56–78  $\times$  15–20  $\mu$ . Fig. 66–67.

On leaves of *Manilkara sapodilla* (L.) Gilly associated with *Capnocrinum capsuliferum* (Rehm) Bat. & Cif., *Leptoxyphium bahiensis* Bat., *Septonema toruloideum* C. & E., *Antennariella bahiensis* Bat.

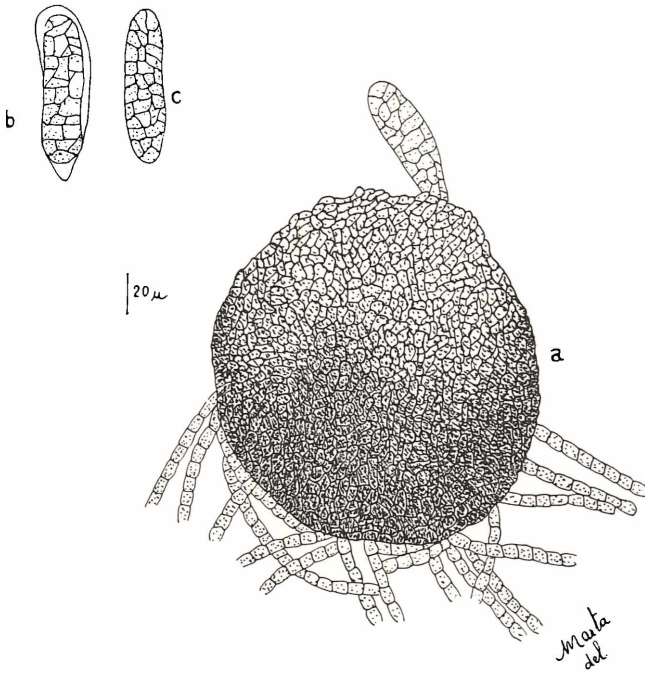


Fig. 67. *Phaeosaccardinula monosporica* Bat. et Cif. — a) Perithecium. — b) Ascus. — c) Spore.

and *Podoxyphium azevedoi* Bat., Nasc. & Cif. Leg. Dr. Eurico A. F. da Matta. Ondina, Salvador, Bahia, 25. 5. 956. Type, 11405, Institute of Mycology, University of Recife.

Mycelium epiphyllum, superficiale, tenuiter membranosum, effusum, atrum, ex hyphis brunneis, ramosis, septatis, ex cellulis oblongis vel subcylindraceutis, 10–11  $\times$  3–4  $\mu$ , non setosis, haud hyphopodiatis, compositum. Perithecia ab initio pellicula mycelica tecta, sparsa, globosa, 145–210  $\mu$  diam., atro-brunnea, membranosa vel coriacea, glabrata, pseudo-ostiolata cum parietibus pseudoparenchymaticis, 4–6-stratosis, 17–23  $\mu$  cr., ex cellulis oblongis vel subcylindraceutis, 6–11  $\times$  5–8  $\mu$ , efformatis. Asci ellipsoidei, 1-tunicati,

1-spori,  $61-96 \times 15-17 \mu$ , aparaphysati. Ascosporae ellipsoideae, muriformes, 9-13-transversaliter septatae, brunnescentes,  $56-78 \times 15-20 \mu$ .

*Phaeosaccardinula musicola* Bat. in An. IV Cong. Nac. Soc. Bot. Brasil, p. 81, 1953.

On *Musa* — Brazil.

Mycelium epiphyllous, not setose, black, pelliculose, effuse, hyphae brownish-black constrictive with cells of  $5.5-19 \mu$  irregularly branched, sub-reticulate,  $4-7.5 \mu$  thick. Perithecia globose-depressed, black abundant, scattered, membranous,  $170-230 \mu$  in diam., not setose,

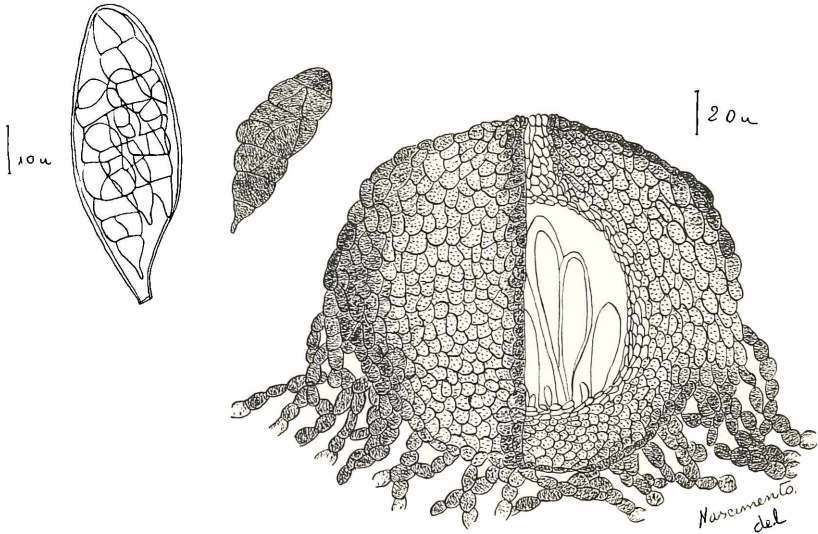


Fig. 68. *Phaeosaccardinula samoensis* v. Höhn. — a) Perithecium. — b) Ascus and spore.

parietal cell round,  $3.5-7.5 \mu$ . Asci basal ellipsoid, 2-3 spores, sessile,  $57-95 \times 30-42 \mu$ , paraphysate, paraphyses to  $50 \mu$  long. Ascospores ellipsoid, rotund, little constricted, muriform,  $38-53 \times 13-23 \mu$ , dull.

Also on leaves of *Musa sapientum* L. Casa Amarely, Recife, Leg. Albino F. Vital, sp. no. 149, I.M.U.R., Det. A. Chaves Batista, 29. 11. 52.

Also found on *Artocarpus integrifolia* L. Jaboatão, Pernambuco, Leg. Eugenio Wanderley, spec. no. 1214, I.M.U.R. Det. Albino F. Vital, 19. 1. 1955.

*Phaeosaccardinula pipericola* Bat. & Vital in Ann. Soc. Biol. Pern. t. XIII: no. 2, pag. 115, 1955.

On *Piper* — Brazil.

Mycelium epiphyllous, rarely hyphophyllous, grayish-brown, pelliculose, hyphae septate, brownish,  $3-10 \mu$  thick. Perithecia

globose-flattened, 170—210  $\mu$  in diam., dark-brown, pseudo-ostiolate. Asci evanescent, 4 spores, cylindric, then ellipsoidal, sessile about 58—65  $\times$  30—38  $\mu$ , with paraphyses. Ascospores ellipsoid, muriform, 7—12 transversally septate, fuscous, 35—58  $\times$  12.5—15  $\mu$ . Associated with pycnidia of *Microxyphium*, 230—260  $\times$  15—32.5  $\mu$ ; pycnidio-spores ellipsoid, continuous, hyaline, 1—2.5  $\times$  1  $\mu$ .

Also found on leaves of *Piper nigrum* Instituto Agronômico do Norte, Belém, Pará Leg. A. Fernandes Vital, spec. no. 2280, I.M.U.R. Det. A. C. Batista & A. Fernandes Vital, 25. 5. 55, in association with *Phaeosporangium constricta* Bat. & Vital n. sp. and *Triposporium* sp.

Equally found on *Jambosa malaccensis* D. C., Recife, Pernambuco, Leg. Severino José da Silva, spec. no. 5312, I.M.U.R. Det. A. C. Batista & M. L. Nascimento 24. 2. 56, associated with *Septonema trichomericola* Bat. & Nasc. and *Trichomerium jambosae* Bat. & Nascimento.

### *Phaeosaccardinula samoensis* v. Höhn.

Syn.: *Limacinula samoensis* v. Höhn. in Fragm. Z. Mycol. III in Sitzb. K. Ak. d. Wissensch. Wien. Bd. CXVI, Abt. I, p. 101, 1907.

*Phaeosaccardinula permixta* (Syd.) Hansf. in Comm. Mycol. Inst. Myc. Pap. no. 15, pag. 154, 1946.

*Chaetothyrium permixtum* Syd. in Ann. Mycol. XXIV 348, 1926.

On *Phoebe*, *Casearia*, *Ocotea*, *Philodendron*, *Roupala* — Costa Rica, Dominica., Samoa.

Mycelium epiphyllous, capnodiaceous; thinly pelliculose, yellowish to brown, branched, 2.5—5  $\mu$  thick; perithecia dull-brown pseudo-ostiolate, sessile spheroidal or globose-flattened, underpellicular, black, glabrous, 170—300  $\mu$  in diam.; 90—120  $\mu$  high; asci clavate, 45—60 up to 110  $\times$  24—35  $\mu$ , 4—8-spore, subparaphysate; ascospores with 7—8 transversally septa, 1 longitudinally at first light, then dull, oblong or ellipsoid, 18—43  $\times$  7—14  $\mu$ , Fig. 68.

*Chaetothyrium permixtum* Syd. is a highly variable species, and, in our opinion, it is no other but the older *Phaeosaccardinula samoensis* v. Höhn. It is clearer from the figure of von Höhnel (see Theissen and Sydow in Ann. Mycol., vol. XV, pag. 479, 1917) rather than from the description of von Höhnel.

From fig. 4 of the same paper it appears that the pycnidia are produced at the top of some erect hyphae. Unfortunately, there is no description of the pycnidia stage.

This same fungus we have found on *Eupatorium* sp. from Puerto Rico, associated with *Hormiscium* sp. Leg. F. L. Stevens, 15—12—913. Spec. no. 6019 from the Private Herb. of F. L. Stevens, and 13073, Instituto de Micologia, Univ. do Recife. The spores of this specimen are 1 to 2 longitudinal septate.

**Phaeosaccardinula vera** Bat. & Cif. n. sp.

Superficial mycelium epiphyllous, thinly pelliculose, effuse, brown, not setose or hyphopodiate, with hyaline to brownish hyphae, densely branched, formed by cylindrical cells,  $7-19 \times 4-8 \mu$ , septate little constricted. Perithecia scattered or gregarious, superficial,

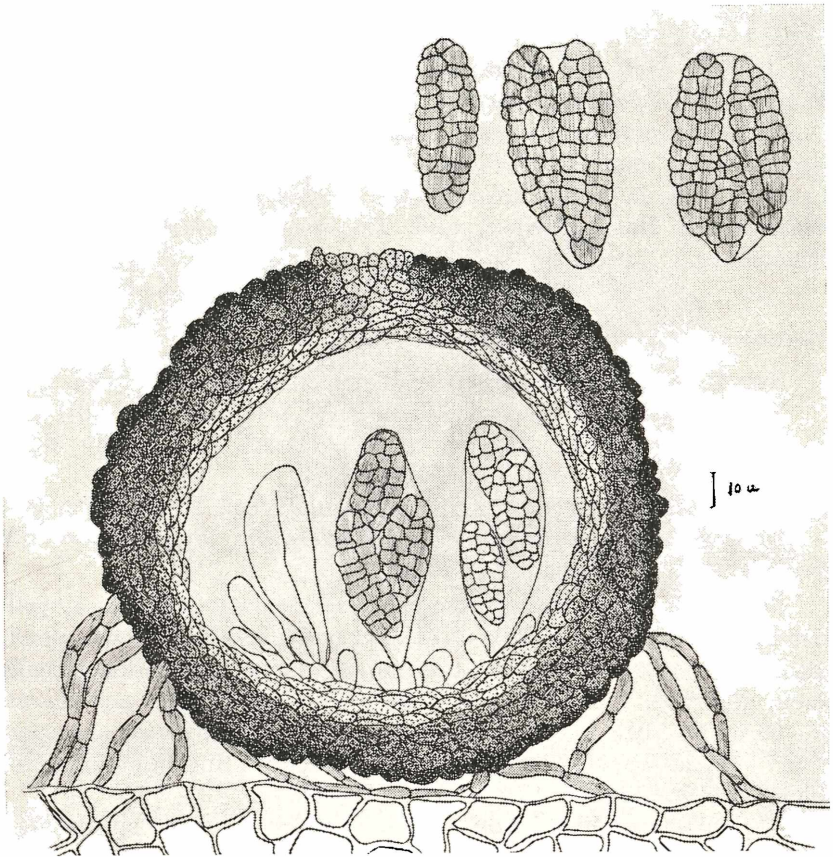


Fig. 69. *Phaeosaccardinula vera* Bat. et Cif. — Perithecium under a longitudinal cut, asci and spores.

developed beneath the mycelial pellicle, depressed globose,  $137.5-195 \mu$  in diam.,  $110-154 \mu$  high, pseudo-ostiolate, glabrous, blackish-brown, membranous, with walls from  $32-42 \mu$  in diam., made up of four distinct layers of polygonal to subglobose cells,  $6.5-14.5 \times 3.5-10 \mu$ . Fig. 74; the inner layers are distinct subhyaline. Asci ellipsoid, 2-3-spores, one-layered, sessile,  $61-73.5 \times 24.5-36 \mu$ , paraphysate. Ascospores cylindrical to ellipsoid, muriform,  $7-14$

transversally septate, slightly constricted. subhyaline at first, then yellowish,  $41.5-66 \times 12-17 \mu$ . Fig. 69.

On leaves of *Psidium guajavae* L. — Casa Amarela, Recife. Leg. Severino José da Silva, 4. 4. 56. Type 5398, Institute of Mycology, University of Recife. Associated with other Capnodiaceae fungi.

Also found on *Clidemia* sp., associated with *Microcyphium cylindricum* (ex Yamamoto) Bat. & Cif. — Rio Piedras, Porto Rico. Bruce Fink, 11-24-1915. Spec. no. 11225, Institute of Mycology, University of Recife.

Mycelium epiphyllum, pelliculosum, effusum, brunneum, non setosum, non hyphopodiatum, ex hyphis hyalinis vel brunnescentibus, denseque ramosis, septatis, constrictis, ex dellulis cylindraceutis,  $7-19 \times 4-8 \mu$ , compositum. Perithecia sparsa vel gregaria, superficialia in mycelica pellicula evoluta, globose-depressa,  $137.5-195 \mu$  diam.,  $110-154 \mu$  alt., pseudo-ostiolata, glabrata, atro-brunnea, membranosa cum parietibus  $32-42 \mu$  cr., ex cellulis polygonalis vel subglobosis,  $6.5-14.5 \times 3.5-10 \mu$  efformatis. Asci ellipsoidei, 2-3-sporei, sessiles,  $61-73.5 \times 24.5-36 \mu$ , aparaphysati. Sporae cylindraceutae vel ellipsoideae, 7-14 transversaliter septatae, muriformes, parvum constrictae, subhyalinae dein flavidae,  $41.5-66 \times 12-17 \mu$ .

Also on *Psidium guajava* Raddi, Pina, Recife, Pernambuco, Leg. E. Maciel, sp. no. 2521, I.M.U.R. Det., A. Ch. Batista & A. F. Vital, 7. 7. 1955, in association with *Trichomerium guajavae* (Bern.) Bat. & Cif., *Aschersonia turbinata* Berk. *Tripopermium* sp. and *Helminthosporium* sp.

### **Scolecobonaria** Bat. n. gen.

Typus: *S. lithocarpi* (Miller & Bonar) Bat. n. comb.

Mycelium pelliculosum, ex hyphis olivaceis vel brunneis, non setosis, non hyphopodiatis, compositum. Perithecia globosa vel globoso-depressa, a pellicula mycelica oriunda, non ostiolata. atro-brunnea, membranosa, non setosa. Asci 6-8-sporei, aparaphysati. Ascosporeae cylindro-elongatae, multitransversaliter septatae, hyalinae.

### **Scolecobonaria filiformis** (Yam.) Bat., n. comb.

Syn.: *Limacinia filiformis* Yam. in Ann. Phytopath. Soc. of Japan. XXI: 170, 1956.

Epiphyllous. Mycelium spread, thin crustaceous, mucilaginous. fuscous, having irregularly branched hyphae, brown, septate. constricted with oblong or subcylindrical cells,  $14-23 \times 3-7 \mu$ . not setose. Perithecia scattered or subgregarious. developed beneath the mycelium, globose-depressed,  $187-272 \mu$  diam.,  $115-168 \mu$  in height. subcoriaceous, dark-brown, not setose. Asci clavate, 2-tunicate. short pedicellate, 8-spores,  $58-85 \times 18-23 \mu$ , aparaphysate. Ascospores cylindric-lengthened, parallel. straight or curved, 5-13 transversally septate, not constricted, hyaline,  $46-76 \times 4-6 \mu$ .

On *Citrus maxima* — Formosa. Taihoku Leg. W Yamamoto, 11. 9. 938 — type.

**Scolecobonaria lithocarpi** (Miller & Bonar) Bat., n. comb.

Syn.: *Limacinia lithocarpi* Miller & Bonar in A Study of Perisporiaceae etc. Univ. Calif. Publ. Bot. vol. 19: no. 12, p. 409, 1941.

Mycelium epiphyllous, superficial, pelliculose, hyphae at first olivaceous then brownish, made up of cylindric or oblong cells  $7.5 \times 12 \times 2-4.5 \mu$ , constricted, not setose nor hyphopodiate. Perithecia

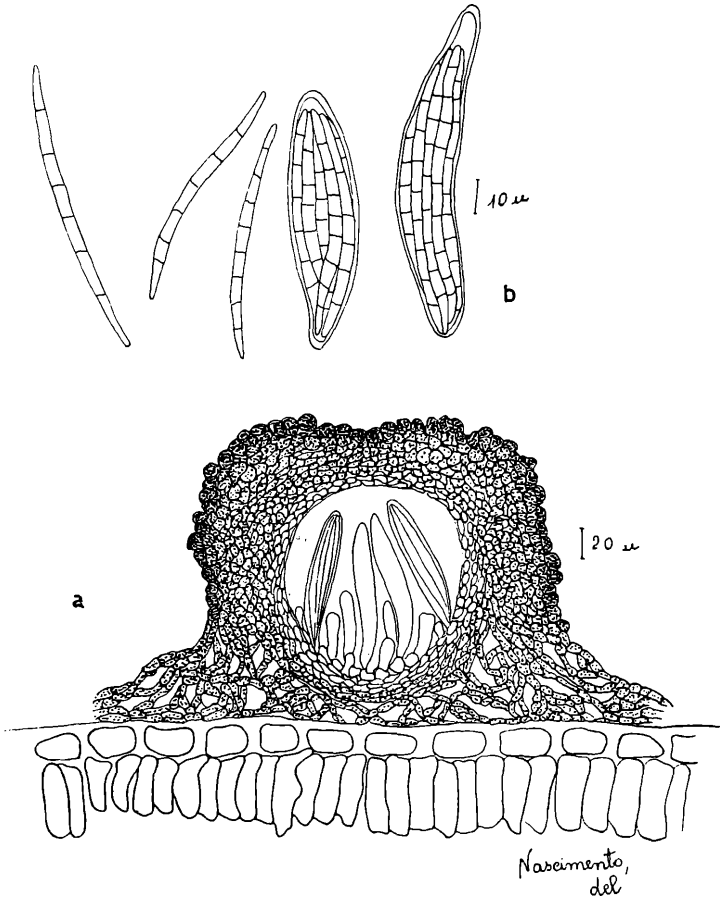


Fig. 70. *Scolecobonaria lithocarpi* (Miller et Bonar) Bat. — a) Perithecium developed beneath the mycelial pellicle. — b) Asci and ascospores.

gregarious, subglobose or globose depressed,  $175-220 \mu$  diam.,  $115-180 \mu$  in height, glabrous, blackish-brown, developed beneath the mycelial pellicle, membranous subparenchymatic, the walls composed of 2-3 layers  $37-62 \mu$  thick, having polygonal cells of  $3.5-10 \times 2.5-8 \mu$ . Asci subcylindric to ellipsoid, 2-tunicate, sessile, 6-8-spores,  $55-87 \times 12-20 \mu$ , aparaphysate. Ascospores cylindric-

lengthened, 6–12 transversally septate, often curved,  $40-66 \times 3-6 \mu$ , hyaline, parallel. Fig. 70.

On living leaves of *Lithocarpus densiflorus* (H. & A.) Rehd —

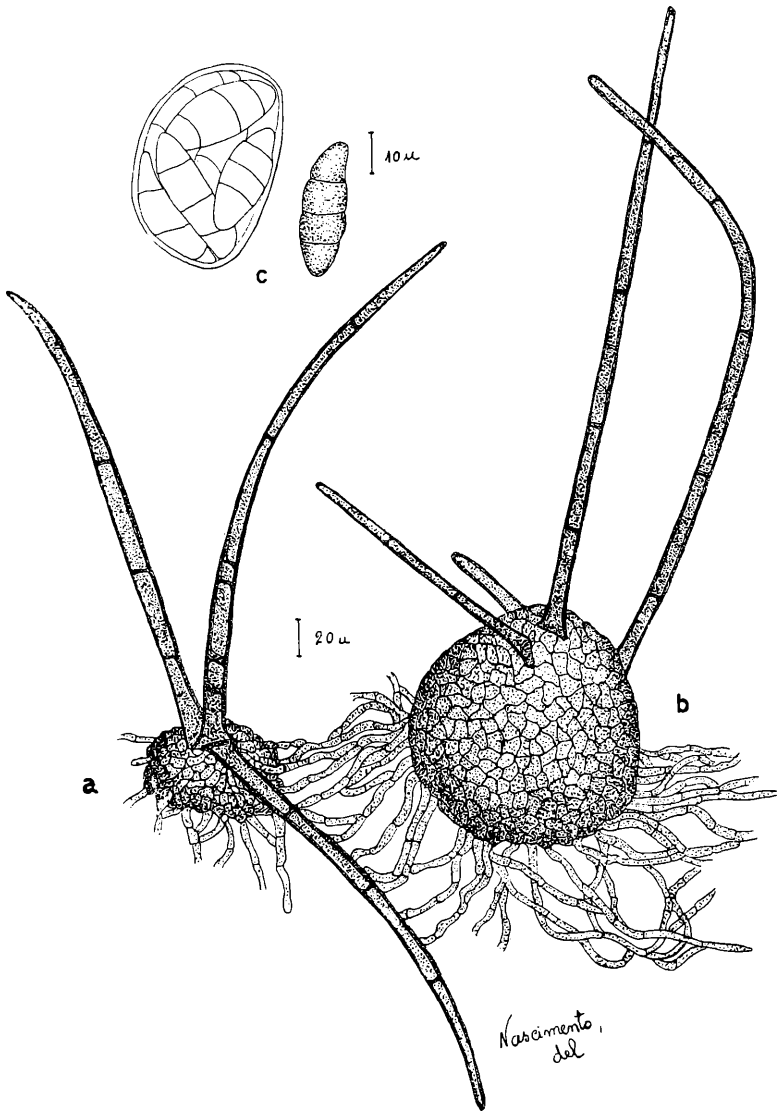


Fig. 71. *Setella disseminata* Syd. — a) Perithecial primordium. — b) Ripe perithecium and scanty mycelium. — c) Ascus and spore.

Von Duzen River, near Alton, Humboldt Co., Calif. March 1931, H. E. Parks 3575 type.

This is a redescription of the fungus based on the examination



of Miller & Bonar's cotype. This study was made possible through the courtesy of Prof. Lee Bonar, who kindly lent us his material.

Est *S. lithocarpī* characteribus diversis a *Limacinia* et typus ut n. genus.

### *Setella* Syd.

Type: *S. disseminata* Sydow.

Mycelium scant to almost invisible. Perithecia superficial, globose to conoid, submembranous, dark, with one or more long seta on the apex, astomous; asci 4–8-spored, aparaphysate; ascospores oblong-ellipsoid, many transversally septate.

*Setella disseminata* Syd. in Ann. Mycol. XIV pag. 359, 1916; Ann. Mycol. XV p. 477, 1917.

Colonies epiphyllous, scattered, rarely hypophyllous, superficial, blackish-brown. Mycelium superficial, slightly brown, scanty, radially disposed, hypha reticulate-branched, septate, with lengthened cylindrical cells.  $18.5-25 \times 3.5-5 \mu$ , not constricted, without setae and hyphopodia. Perithecia subglobose or conoid,  $45-110 \mu$  diam., Fig. 76. olivaceous or blackish-brown, astomous, submembranous, subparenchymatic, the walls made up of polygonal cells,  $7.5-15 \times 4.5-14 \mu$ . setose; the setae are 1 to 10, restricted to the top of the perithecia.  $220-440 \mu$  in length,  $-12 \mu$  wide at the base, erect, straight, rarely curved, attenuate, septate, blackish. Asci ovoid or oblong, 2-tunicate. sessile. 4–8-spores,  $40-65 \times 20-30 \mu$ , aparaphysate. Ascospores ellipsoid to oblong, 3-septate, not constricted, at first hyaline then brown,  $20-31 \times 9-13 \mu$ , distichous or tristichous. Fig. 71.

On leaves of *Schizostachyum acutiflorum* — Los Banos, Philippines, Leg. S. A. Reyes, 25–10–913; on leaves of *Gigantochloa scribneriana* — Los Banos, Philippines, Leg. C. F. Baker, 1–12–913; on *Bambusa*, Laguna, Luzon, Philippines, Leg. M. Ramos, Nov. 1915, and on *Bilbergia*, Paraguay.

This redescription was possible through the loan of the specimen n. 208241, from The Herbarium of The University of California sent to us through the courtesy of Prof. Lee Bonar.

The specimen collected by M. Ramos, Nov. 1915, Province of Laguna, Luzon, Philipp. and det. by Sydow, on *Bambusa* agrees well with the characteristics of the previously described species with the exception of the setae which are more abundant, from 1 to 10. So, the character setae must be amplified in the genus diagnosis, as we did.

*Setella halophila* Fisher in Proc. Roy. Soc. Vict. New South Wales. 62: p. 129–131, 1950.

On leaves of *Aegiceras* — Australia.

Mycelium membranous, blackish, hyphae of two types: with isodiametric cells  $5-7 \mu$  wide, constricted, and with lengthened cells.

3—5  $\mu$  wide, not constricted. Perithecia globoid, 60—100  $\mu$  diam., blackish, with 2—7 bristle-like appendages, 17.5—37.5  $\mu$  long. Asci ellipsoid, 30  $\times$  10  $\mu$ , evanescent, aparaphysate. Ascospores ellipsoid, 3-transversally septate, 10—12.5  $\times$  3—7.5  $\mu$ . Fig. 72.

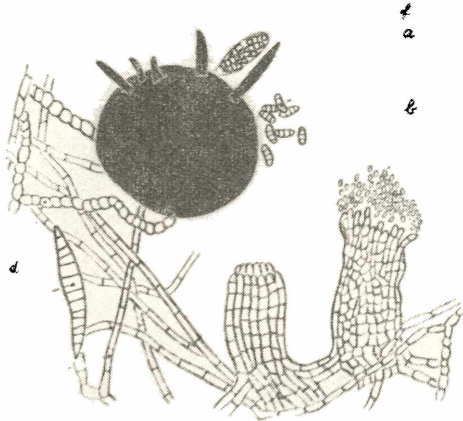


Fig. 72. *Setella halophila* Fish. — a) Ascospores. — b) Pycnidiospores of *Microxyphium columnatum*. — c) Coudium of *Dermatiaceous* fungus. — d, e) Mycelial hyphae. — f) Bristle-like appendage. — From E. E. Fisher in Proc. Roy. Soc. Victoria LXII: 130, 1950.

This fungus is described in association with *Dematiaceae* and *Asbolisiaceae*, probably *Microxyphium columnatum* Batista, Cif. & Nasc.

#### ***Shanoriella* Bat. & Cif. n. gen.\*)**

Typus: *S. theae* (Syd. & Butl.) Batista & Ciferri, n. comb.

Mycelium crustaceo-membranosum, effusum, atro-brunneum, superficiale, ex hyphis septatis, fuscis, haud hyphopodiatis, setosis, compositum. Perithecia globose-depressa, oriunda in pellicula mycelica, glabra, pseudo-ostiolata, atro-brunnea. Asci 8-spори, aparaphysati. Ascospores muriformes, hyalinae.

#### ***Shanoriella celastri* (Doidge) Bat. & Cif. n. comb.**

Syn.: *Treubiomyces celastri* Doidge in *Bothalia*, 2: p. 239, 1927.

On *Celastrus* sp. — South Afrika.

Epiphyllous, producing round to irregular fuscous spots, 3—5 mms. diam. Mycelium superficial, as network of pale greyish torulose hyphae, 3—5  $\mu$  diam., mycelial setae scattered, black, erect, straight or curved,

\*) Dedicated to the North American mycologist Dr. Leland Shanor from Urbana, Ill.

170—240 × 5—8  $\mu$ . Perithecia globose-flattened, developed beneath the mycelial pellicle, smooth, 160—240  $\mu$  diam., pseudo-ostiolate, about 18  $\mu$  diam., the walls being formed by several layers of cells, 8—10  $\mu$  diam. Asci clavate, fasciculate, 2-tunicate, 8 spores, 50—70 × 20—27  $\mu$ , aparaphysate. Ascospores oblong to subclavate, muriform, 5—7 transversally septate, slightly constricted, hyaline, 27—30 × 7—8.5  $\mu$ .

**Shanoriella theae** (Syd. & Butl.) Bat. & Cif. n. comb.

Syn.: *Limacinula theae* Syd. & Butl.

*Phaeosaccardinula theae* (Syd. & Butl.) Theiss.

*Capnites theae* (Syd. & Butl.) v. Höhn. in Ann. Mycol. IX: pag. 386, 1911. Syll Fung. XXIV: p. 386, 1926.

On *Camelia*.

Mycelium epiphyllous, crustaceo-membranous, effuse, black, hyphae septate, fuscous, 5  $\mu$  thick; mycelial setae simple, acute, black, 130 × 8  $\mu$ . Perithecia globose-flattened, 150—225  $\mu$  in diam., pseudo-ostiolate, glabrous, blackish-brown. Asci ovoid, 8-spores. Ascospores muriform, 5-transversally septa, 1-longitudinal septum, hyaline, 25—33 × 9—11  $\mu$ .

This species, under the name *Limacinula theae* has been assigned as synonymous with *Phaeosaccardinula javanica* (Zimm.) Yamamoto, in Ann. Phytopath. Soc. Japan, X, p. 262, 1940.

**Skoteinospora** Bat. n. gen.

Type — *S. coccolobae* Bat. n. sp.

Mycelium superficial, membranous, brownish-black, hyphae irregularly branched, septate, constricted, not setose, nor hyphopodiate. Perithecia developed beneath the mycelial membrane, globose to pyriform, glabrous, pseudo-ostiolate, brownish-black. Asci 2—8-spore, bitunicate, aparaphysate. Ascospores cylindraceous, lengthened, 10:1 the relation between the length and the width, olivaceous to brown, many transversally septate.

Mycelium superficiale, membranous, atro-brunneum, ex hyphis irregulariter ramosis, septatis, constrictis, non setosis, haud hyphopodiatis, compositum. Perithecia sub pellicula mycelica oriunda, globosa vel pyriformia, glabrata, pseudo-ostiolata, atro-brunnea. Asci 2—8-spore, bitunicati, aparaphysati. Ascosporeae cylindraceae, elongatae, pluri transversaliter septatae, olivaceae vel brunneae.

**Skoteinospora coccolobae** Bat. n. sp.

Colonies black, epiphyllous, spread, loose-membranous, covering entirely the leaves surface. Mycelium superficial, brownish-black, membranous, composed of dense and irregularly branched hyphae, septate, constricted, having oblong cells, 8—16 × 3—7  $\mu$ , not setose,

or hyphopodiate. Perithecia developed beneath the mycelial membrane, globose to pyriform, scattered, 130–270  $\mu$  diam., 100–170  $\mu$  height, pseudo-ostiolate, brownish-black, membranous, with sub-

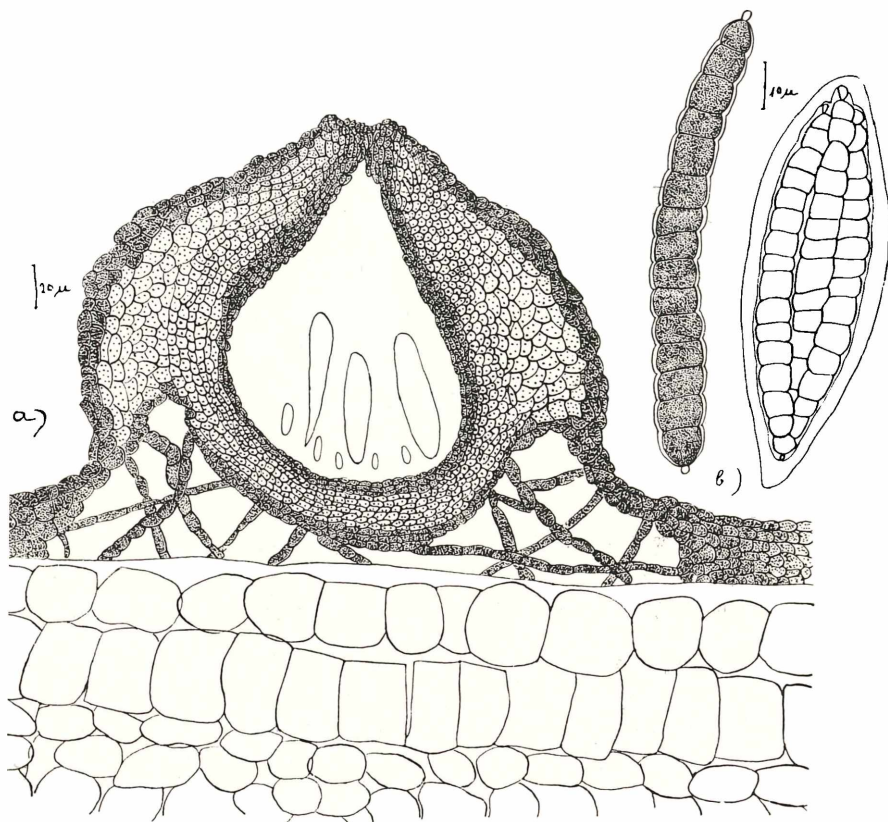


fig. 73. *Skoteinospora coccolobae* Bat. — a) Perithecium under a longitudinal cut. — b) Ascus and spore.

arenchymatic walls, 13.5–40  $\mu$  in thickness, and in several layers of polygonal cells, 11–21.5  $\times$  10.5–11.5  $\mu$ ; the fertile area of the perithecia is about 80–165  $\mu$  in diam. and 45–150  $\mu$  in height. Asci ellipsoid, short pedicellate, 2-tunicate, 2–8 spores, 65–110  $\times$  19–3  $\mu$ , paraphysate. Ascospores cylindrical-lengthened, 13–15 septate, livaceous, 62–105  $\times$  5–8  $\mu$ , with apiculate ends 2–3  $\times$  1–2  $\mu$ , fig. 73.

On leaves of *Coccoloba peltigera* Meissn. Caruaru. Pe. Leg. Dr. Lpaminondas de Barros Correia, 25. 3. 1958. Tipo, 13020, Institute of Mycology, University of Recife.

Plagulae atrae, epiphyllae, effusae, membranosae, Mycelium superficiale, atro-brunneum, membranosum, ex hyphis denseque et irregulariter

ramosis, septatis, constrictis, ex cellulis oblongis,  $8-16 \times 3-7 \mu$ , non setosis, haud hyphopodiatis, compositum. Perithecia pellicula mycelica tecta, globosa vel pyriformia, sparsa,  $130-270 \mu$  diam.,  $100-170 \mu$  alt., pseudo-ostiolata, atro-brunnea, membranosa; loculum  $80-165 \mu$  diam. et  $45-150 \mu$  alt., cum parietibus subparenchymaticis,  $13.5-40 \mu$  cr. pluri *stratosis*, ex cellulis polygonalibus,  $11-21.5 \times 10.5-11.5 \mu$ , efformatis. Asci ellipsoidei, curto-stipitati, 2-tunicati, 2-8-sporei,  $65-110 \times 19-33 \mu$ , aparaphysati. Ascosporeae cylindraceo-elongatae,  $13-15$  transversaliter septatae, olivaceae,  $62-105 \times 5-8 \mu$ , ad polos apiculatae,  $2-3 \times 1-2 \mu$ .

**Teichosporina** (Arnaud) Cif. & Bat. n. comb. in Ann. Sc. Nat. Agric.

Montpellier, ser. 2, vol. X, p. 324. 1911 (as subgenus).

Type: *T. salicis* Arn. under the subgenus.

Mycelium fumagoid, pelliculose, not setose; perithecia developed beneath the mycelic pellicle, spheric, sessile, glabrous; ascospores phaeodictyous, with a shortly mucronate; apical thorn hyaline.

*Teichosporina* has been described by Arnaud as subgenus of *Teichospora*. In our system it possesses a generic rank in the family Phaeosacardinulaceae.

**Teichosporina hemisphaerica** (Bat.) Bar. n. comb.

Syn.: *Chaetomeris hemisphaerica* Bat. in Mycop. et Mycol. Appl. vol. V, fasc. 2-3, p. 153, 1951.

Mycelium epiphyllous, superficial, blackish-brown, membranous, composed of irregularly branched, brown, septate and constricted hyphae, having oblong to cylindrical cells,  $14-17 \times 5.5-8 \mu$ , not setose, nor hyphopodiate. Perithecia hemisphaerica, developed beneath the mycelial pellicle,  $228-285 \mu$  diam., blackish-brown, pseudo-ostiolate, glabrous, pseudo-parenchymatic, the walls being formed by subglobose cells,  $5.5-11.5 \mu$  diam. Asci clavate, 2-tunicate,  $56-64.5 \times 28-36.5 \mu$  pedicellate, until  $28 \mu$  long. umbellate disposed, 8-spores, aparaphysate. Ascospores cylindro-fusoid, slightly dark, muriform, with 6-transversally septa, and 1 longitudinal septum,  $30-35 \times 8-11 \mu$ , and mucronate at both ends.

On leaves of *Polyscias gneifoylei* Bailey associated with other fungi — Sois Irmãos — Recife — Type, 1169, Inst. Pesq. Agron., 1950.

**Teichosporina salicis** (Arnaud) Cif. & Bat. n. comb.

Syn.: *Teichospora salicis* Arn. in Ann. Sc. Nat. Agric. Montp. ser. 2, vol. X, p. 324, 1911 as subgenus.

*Limacinula salicis* (Arn.) Sacc. & Trotter in Sylloge Fung. XXIV pag. 387, 1926.

On *Salix* — France.

Mycelium fumagoid, not setose; perithecia  $200 \mu$  diam., globose sparse, black, found on a fumagoid subicle. Asci clavato-cylindric, aparaphysate, 8-spores. Ascospores ellipsoid-fusoid, brown. with a

port hyaline, acute appendix, with 3 transversal septa and 1 longitudinal, narrowed at the septa,  $25-30 \times 8-10 \mu$  with the typical, hyaline, acute, thorny.

This species has been named by Arnaud as: *Teichospora (Teichosporina) salicis*. It is unrelated to *Morfea salicis* (Roll. & Fautr.) Cif. & Bat.

**Italia** Cif. & Bat. n. gen. \*)

ypus: *V ekmanii* (Ciferri) Cif. & Batista, n. comb.

Mycelium effusum, ex hyphis brunneis, septatis, setosis, non rhopodiatis, compositum. Perithecia atro-brunnea, sub pellicula mycelica oriunda, globose-depressa, setosa; asci bitunicati, 8-sporei, paraphysati; ascosporae, 3 pro more transversaliter septatae, hyalinae.

### Key to Species of *Vitalia*.

- A — Ascospores always with more than 3 transverse septa
  - B — Perithecial setae fasciculate; ascospores with 7—9 transverse septa,  $32-47.5 \times 5-6.5 \mu$  *V setofasciculata*
  - BB — Perithecial setae septate, but not fasciculate; ascospores with 3—6 transverse septa,  $23-37 \times 3-8 \mu$  *V mangiferae*
- A — Ascospores with 1—3 (rarely 4) transverse septa
  - C — Setae either continuous or septate; ascospores  $15-20 \times 5-7.5 \mu$  *V cercopiae*
  - CC — Setae continuous (rarely septate in *V plumierae*)
    - D — Perithecia more than 200  $\mu$  diam.; ascospores  $34-49 \times 14.5-19.5 \mu$  *V plumierae*
    - DD — Perithecia less than 200  $\mu$  diam.
      - E — Perithecia less than 100  $\mu$  diam.; ascospores  $19-25.5 \times 4-4.5 \mu$  *V diospyricola*
  - EE — Perithecia reaching more than 100  $\mu$  diam.
    - F — Perithecial setae not reaching 100  $\mu$  in length
      - G — Ascospores 1—2-septate,  $9-12 \times 3-4.5 \mu$  *V phormicola*
    - GG — Ascospores 2—3-septate,  $15.5-23 \times 4.5-7.5 \mu$  *V averrhoae*
  - FF — Perithecial setae reaching more than 100  $\mu$  in length

\*) Dedicated to Brazilian mycologist Dr. A. Fernandes Vital, Institute Mycology-Recife.

H — Setae to 165  $\mu$  long; perithecia up to 190  $\mu$  diam.; ascospores transversally 1—4-septate, 14—22  $\times$  5.5—6.5  $\mu$

*V. jaboatonensis*

HH — Setae 73—185  $\mu$  long; perithecia over 200  $\mu$  diam.; ascospores 3-septate, 14—16.5  $\times$  4  $\mu$

*V. bauhiniae*

HHH — Setae 160—275  $\mu$  long; perithecia 112—200  $\mu$  diam.; ascospores transversally 3-septate, 10—20  $\times$  4—8  $\mu$

*V. tapirirae*

These 2 appear *V. ekmani*  
synonymous

CCC — Setae septate

I — Ascospores more than 16  $\mu$  long *V. multisetulata*

II — Ascospores less than 16  $\mu$  long *V. rickiana*

### **Vitalia averrhoae** Bat. n. sp.

Superficial mycelium epiphyllous, pelliculous, blackish-brown, in plagulas 2—5 mm diam.; hyphae straight-walled, septate, not constricted or very little constricted, brownish, composed of cylindrical cells, 8.5—20  $\times$  5—8.5  $\mu$ , not hyphopodiate; setae on the mycelium scattered, continuous, brownish, 12—20  $\times$  3—5  $\mu$ . Perithecia developed beneath the mycelial pellicle, subglobose, Fig. 79, blackish-brown, single or gregarious, 80—112  $\mu$  diam., pseudo-ostiolate, with subparenchymatic walls, membranous, 10—17  $\mu$  cr., made up of polygonal cells, 6—11  $\times$  3.5—9  $\mu$ ; setae on the perithecia pellicle, numerous, brownish, erect, straight, continuous, 26—75  $\times$  5—7.5  $\mu$ . Asci ellipsoid, 8-spores, 1-tunicate, sessile, 41—64  $\times$  13.5—20  $\mu$ , aparaphysate. Ascospores fusoid, 2—3 septate, not or little constricted, polystichous, hyaline, 15.5—23  $\times$  4.5—7.5  $\mu$ , Fig. 74—75.

On leaves of *Averrhoa carambola* with the insect *Orthezia* sp. Recife. Leg. A. Ch. Batista, 21. 4. 56. Type 5467, Institute of Mycology, University of Recife.

Mycelium epiphyllum, superficiale, atro-brunneum, in plagulis 2—5 mm diam., ex hyphis elongatis non vel parum constrictis, septatis, ex cellulis cylindraceutis, 8.5—20  $\times$  5—8.5  $\mu$ , non hyphopodiatis, compositum. Perithecia in pellicula mycelica evoluta, subglobosa, 80—112  $\mu$  diam., atro-brunnea, isolata vel gregata, pseudo-ostiolata, cum parietibus subparenchymaticis, membranaceis, 10—17  $\mu$  cr., 2—3 stratis, ex cellulis polygonalibus, 6—11  $\times$

3.5–9  $\mu$ , efformatis. Setae in perithecii pellicula numerosae, brunnescentes, erectae, rectae, continuae, 26–75  $\times$  5–7.5  $\mu$ . Asci ellipsoidei, 8-sporei, 1-tunicati, sessiles, 41–64  $\times$  13.5–20  $\mu$ , aparaphysati. Sporae fusioideae, 2–3 septatae, non vel parum constrictae, polystichae, hyalinae, 15.5–23  $\times$  4.5–7.5  $\mu$ .

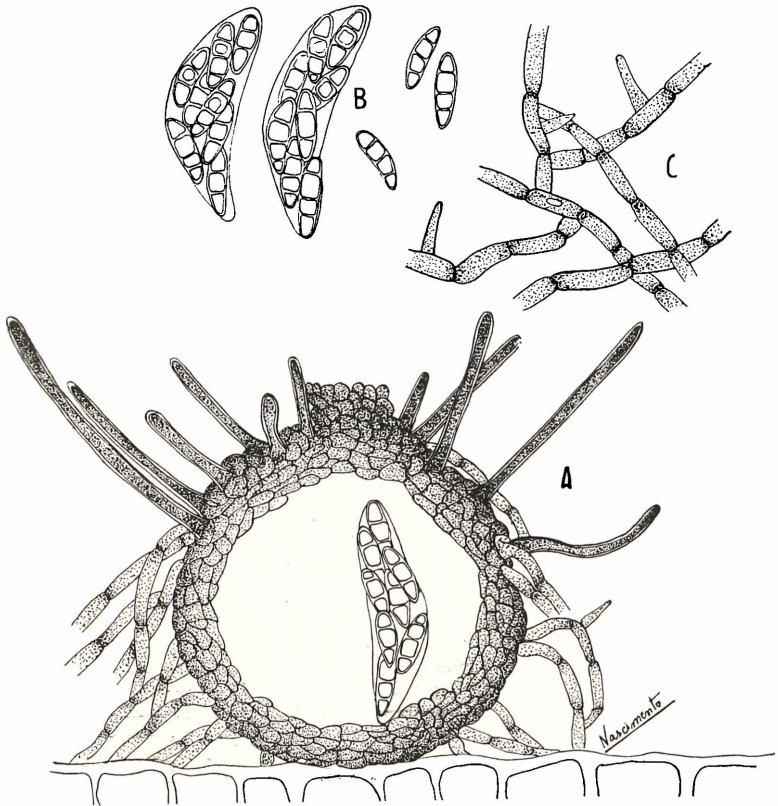


Fig. 74. *Vitalia averrhoae* Bat. — A) Perithecium and setae developed from the mycelic pellicle. — B) Asci and spores. — C) Mycelic hyphae and setae.

***Vitalia bauhiniae* (Bat. & H. Lima) Bat. n. comb.**

Syn.: *Chaetothyrium bauhiniae* Bat. & H. Lima in Ann. Soc. Biol. Pern. t. XIII, no. 1, p. 187, 1955.

On *Bauhinia*, Brazil.

Mycelium epiphyllous, thinly pelliculose, hyphae olivaceous-brown, 2.5–3  $\mu$  thick, with many, scattered setae, curved, continuous, blackish-brown, acute, 73–185  $\times$  5–6  $\mu$ . Perithecia developed beneath the mycelial pellicle, Fig. 81, globose, 225–330  $\mu$  in diam., unilocular, blackish-brown, membranous, ornate with erect setae, continuous, blackish-brown, acute, 95–180  $\times$  5–6  $\mu$ . Asci evanescentes. Ascospores fusoid, 3-septate, hyaline, 14–16.5  $\times$  4  $\mu$ .



**Vitalia cecropiae** Bat., Vital & Cif. n. sp.

Mycelium epiphyllous, effuse, thin pelliculose, dense reticulated, crucially branched, hyphae straight not constricted, brownish, with lengthened cells,  $15-37.5 \times 3.5-7.5 \mu$ , not hyphopodiate, but setose; setae erect, distant from the perithecium, straight, blackish-brown, simple acute, continuous,  $57-72.5 \times 3.5-5 \mu$ , scattered, generally

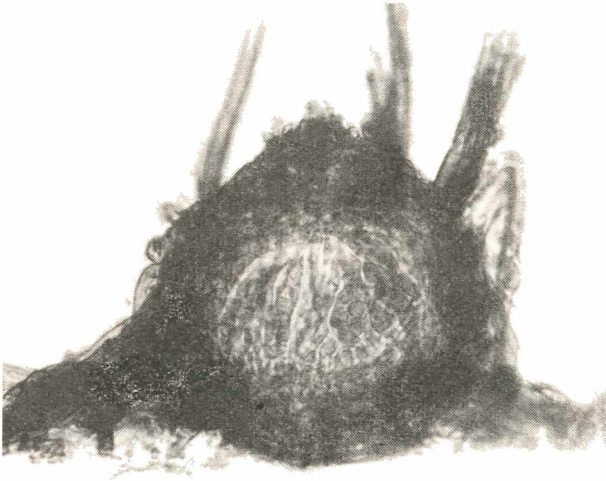


Fig. 75. *Vitalia averrhoae* Bat. — Perithecium under longitudinal section.

covered with one mycelic plate of constricted hyphae, Fig. 82 b. Perithecia developed beneath the mycelial pellicle, globose or globose-conoid, Fig. 83, abundant,  $70-123 \mu$  in diam.,  $70-130 \mu$  high, yellowish-brown, membranous, indistinctly ostiolate, loosely scattered, covered with numerous cylindrical mycelial setae Fig. 82 a, 84 e 85, brown, 0-3-septate, simple,  $30-65 \times 4-6.5 \mu$ ; the perithecial walls are in 2-4 layers, with round or polygonal cells,  $6-11 \mu$  in greater diam., Figs. 82 & 83, Asci elliptic or obclavate, 8-spores, sessile,  $32-57 \times 10-18.5 \mu$ , paraphysate. Ascospores fusoid, rotund, 1-3-septate (generally with 2 septa) hyaline, constricted,  $15-20 \times 5-7.5 \mu$  distichous. Fig. 76-79.

On leaves of *Cecropia peltata*. Casa Amarela, Recife. Leg. A. Fernandes Vital, 29. 3. 56. Type 5392, Institute of Mycology, University of Recife.

Mycelium epiphyllum, effusum, pelliculosum, ex hyphis dense reticulatis, decusso atro-ramosis rectis, parum constrictis, brunnescentibus, non hyphopodiatis, et ex ellulis elongatis,  $15-37.5 \times 3.5-7.5 \mu$ , compositum; setae myceliales erectae, atro-brunneae, continuae, sparsae, acutae,  $57-72.5 \times 3.5-5 \mu$ , lamina myceliali obtectae. Perithecia globosa vel globoso-conoidea sub myceliali pellicula efformata,  $70-123 \mu$  diam.,  $70-130 \mu$  alt., brunnescentia, astoma vel

*indistincte ostiolata*8 perithecia setis mycelialibus tecta, setis autem cylindraceis, brunneis, 0–3-septatis, haud ramosis,  $30-65 \times 4-6.5 \mu$ , cum peritheciarum parietibus 2–3 stratis et cellulis 6–11 long. diam. Asci ellipsoidei vel obclavati, 8-sporei, sessiles,  $32-57 \times 10-18.5 \mu$ , aparaphysati. Sporae

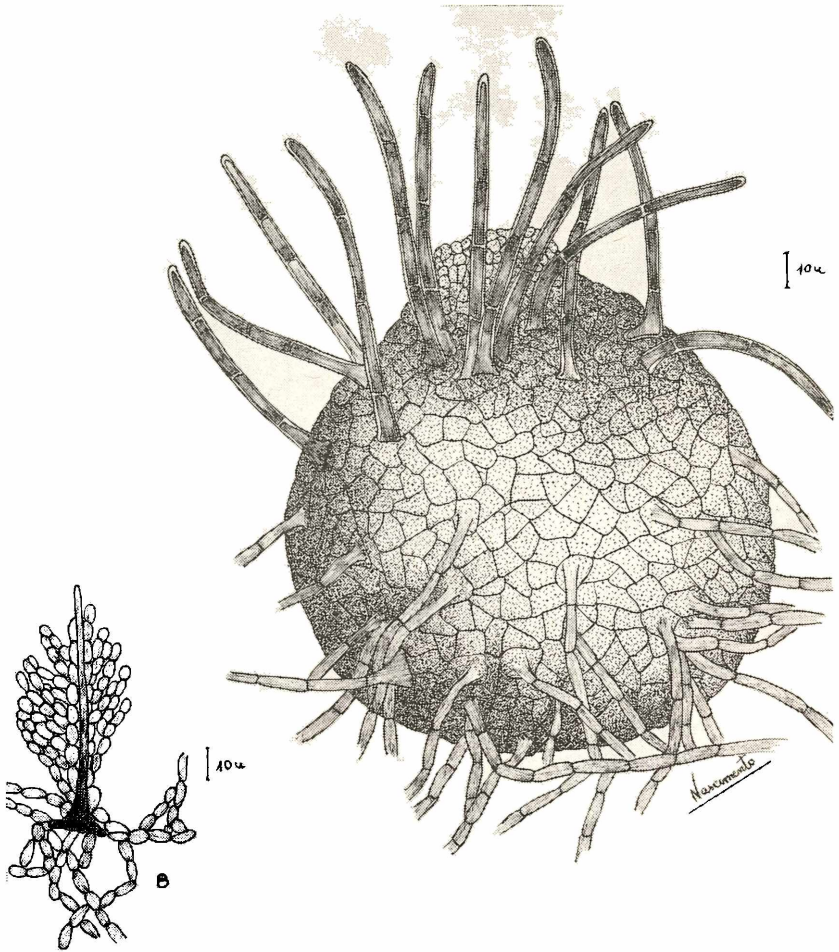


Fig. 76. *Vitalia cecropiae* Bat. Vital et Cif. — a) Perithecium setose. — b) Mycelial setae.

fusoideae, rotundatae, 1–3 septatae (2), hyalinae, constrictae,  $15-20 \times 5-7.5 \mu$ , distichae.

Also on leaves of *Pisonia inermis*, Bat., Vital & Cif., São Lourenço, Pernambuco, Leg. Oswaldo Soares da Silva. Spec. no. 11430, I.M.U.R.. A. Chaves Batista, 12. 8. 957.

**Vitalia diospyricola** Bat. & Maia & Cif. n. sp.

Superficial mycelium epiphyllous, brown, pelliculose, hyphae elongate, reticulate, made up of cylindrical cells,  $12.5-20 \times 4-5.5 \mu$ , not hyphopodiate; setae erect, continuous, blackish-brown, straight or not,  $22.5-35 \times 6.5-7.5 \mu$ . Perithecia developed beneath the

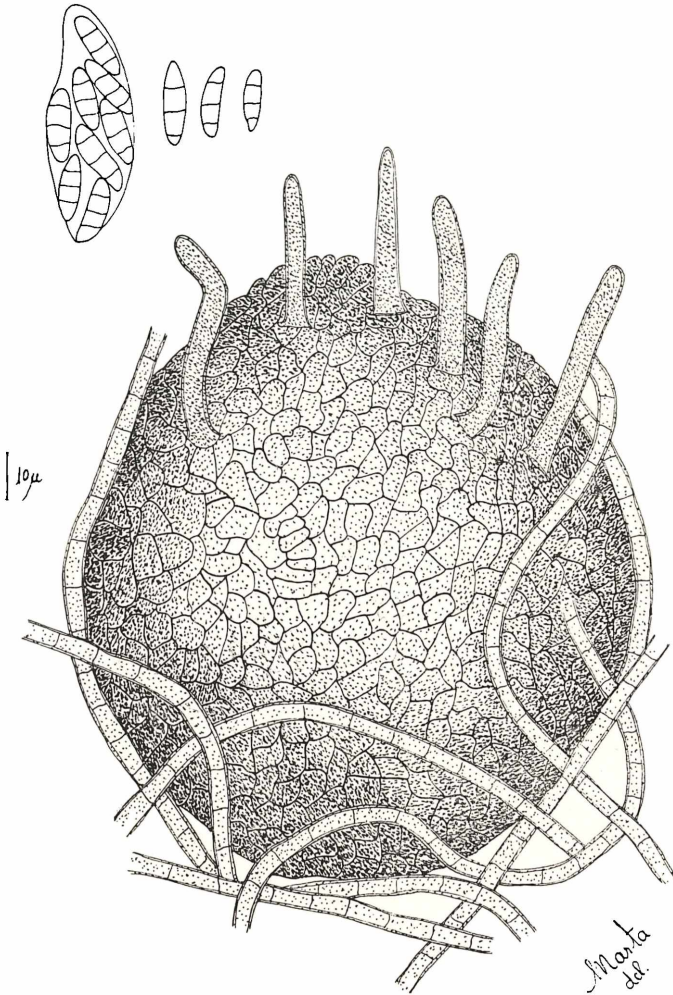


Fig. 77. *Vitalia cecropiae* Bat. Vital et Cif. — Another view of the perithecium; ascus and spores.

mycelial pellicle, subglobose,  $54-95 \mu$  in diam., membranous, with pseudoparenchymatic walls, brownish, pseudo-ostiolate,  $8-16 \mu$  diam.; setae over the perithecia, simple, continuous, blackish, recurvate or straight,  $30-38 \times 6-9 \mu$ , Fig. 86. Asci ellipsoid or subglobose, 4–8-spores, sessile, bitunicate,  $34-47 \times 12.5-15.5 \mu$ , paraphysate.

Ascospores clavate-fusoid, 1—3-septate, little constricted, distichous or polystichous, hyaline,  $19-25.5 \times 4-4.5 \mu$ . Pycnidia developed also beneath the mycelial pellicle, subglobose,  $67.5-76 \mu$  in diam., brown, setose, ostiolate,  $13-17 \mu$  diam.; pycnidiospores cylindrical, continuous, hyaline,  $2-3.5 \times 1-1.5 \mu$ . Fig. 80.

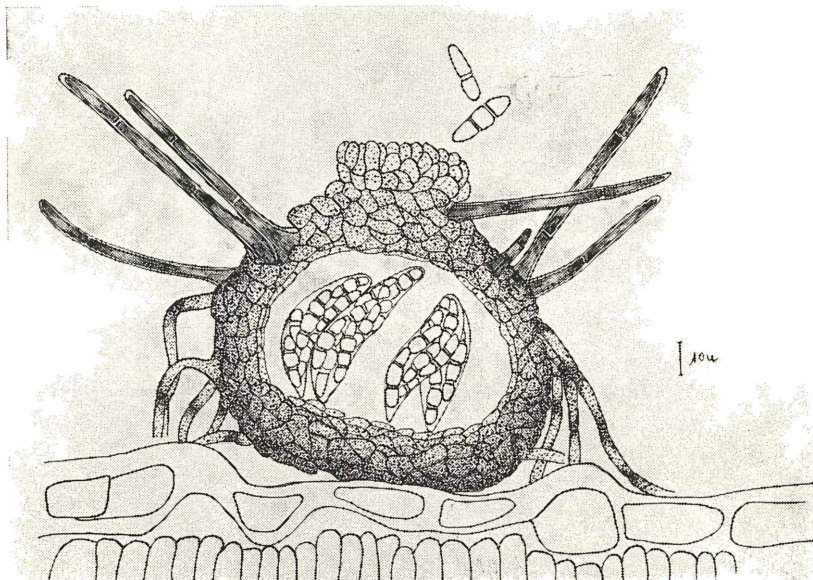


Fig. 78. *Vitalia cecropiae* Bat. Vital et Cif. — Histological view of a ripe perithecium.

On leaves of *Diospyros philippensis* (Desr.) Guerke associated with *Capnodium*. Espinheiro, Recife. Leg. Severino José da Silva, 21. 4. 56. Type 5458, Institute of Mycology, University of Recife.

Mycelium epiphyllum, brunneum, pelliculosum, ex hyphis elongatis, reticulatis, ex cellulis cylindræis,  $12.5-20 \times 4-5.5 \mu$ , non hyphopodiatis, compositum; setae erectae, continuae, atro-brunneae, rectae vel non,  $22.5-35 \times 6.5-7.5 \mu$ . Perithecia evoluta in pellicula mycelica, subglobose,  $54-95 \mu$  diam., membranosa, pseudo-ostiolata,  $8-16 \mu$  diam., ex parietibus pseudo-parechymaticis, efformata. Setae in pelliculis perithecialibus simplices, continuae, atrae,  $30-38 \times 6-9 \mu$ . Asci ellipsoidei vel subglobosi, 4—8-sporei, sessiles, 2-tunicati,  $34-47 \times 12.5-15.5 \mu$ , aparaphysati. Sporae clavate-fusoideae, 1—3-septatae, parum constrictae, hyalinae, distichae vel polystichae,  $19-25.5 \times 4-4.5 \mu$ . Pycnidia evoluta in mycelica pellicula, subglobose,  $67.5-76 \mu$  diam., setosa, ostiolata,  $13-17 \mu$  diam., brunnea; pycnidiosporae cylindræae, continuae, hyalinae,  $2-3.5 \times 1-1.5 \mu$ .

*Vitalia ekmanii* (Petr. & Cif.) Bat. & Cif., n. comb.

Syn.: *Chaetothyrium ekmanii* Petrak & Ciferri in Ann. Mycol. XXX, no. 3/4, pag. 170, 1932.

*Chaetothyrium tapiriae* Batista in An. IV Congr. Nac. Soc. Bot. Brasil, p. 76, 1953.

On *Faramea*, R. Dominiceae — On *Tapiria* — Brazil.

Mycelium hyphophyllous, hyphae reticulate, 2—3.5  $\mu$  thick, yellowish-brown or subhyaline, with numerous rigid setae, blackish-brown, 160—230  $\times$  6.5—8  $\mu$ . Perithecia globose-flattened, 80—200  $\mu$

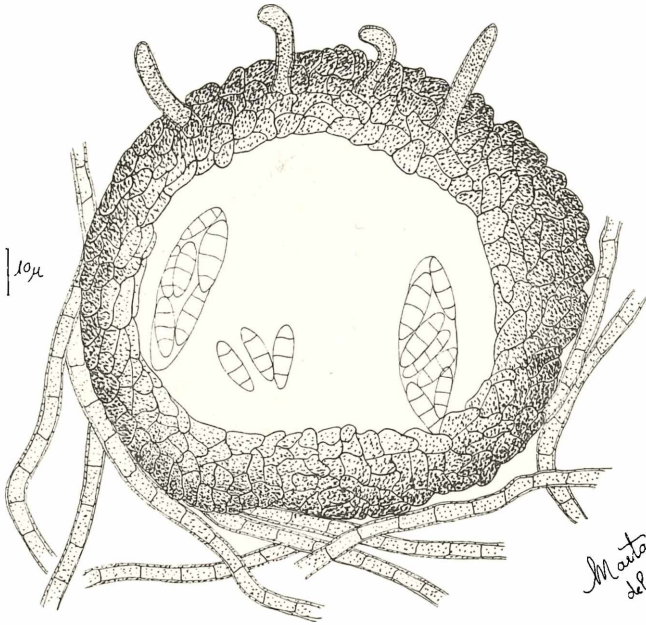


Fig. 79. *Vitalia cecropiae* Bat. Vital et Cif. — Perithecium under longitudinal cut.

in diam., pseudo-ostiolate, ornate with similar mycelial setae, 90—130  $\times$  6—7.5  $\mu$ ; asci clavate, sessile, 4—8 spores, 38—50  $\times$  12—15  $\mu$ , with paraphysoids; ascospores oblong-ellipsoid to fusoid, hyaline, 3-septate, 10—16  $\times$  4.5—6.5  $\mu$ . Fig. 81.

We have studied the specimen no. 227 of R. Ciferri Mycoflora Domingensis exsiccata, determined by F. Petrak as *Chaetothyrium permixtum* Syd. and collected at Puerto Plata, Rep. Dominicana by R. Ciferri, 19. 3. 1930, on *Cordia sulcata* D. C.

The characteristics of this specimen as described below, agree entirely with *V ekmanii*.

The mycelium is pelliculose, olivaceous to brownish, superficial, hypophyllous, composed of cylindrical hyphae, constricted, irregularly branched, with cells from 6.5—16.5  $\times$  2—4.5  $\mu$ . The mycelial setae are erect, continuous, blackish-brown, curved, acuminate, 110—165  $\times$  4.5—6.5  $\mu$ . Perithecia subglobose, developed beneath the mycelial pellicle. blackish-brown, gregarious, 160—190  $\mu$  wide, 110—145  $\mu$  in

height, pseudo-ostiolate, membranous, subparenchymatic, with walls 22—27  $\mu$  thick, made up of polygonal cells, 4.5—14.5  $\times$  4—10  $\mu$ . Perithecial setae in number of 16—21 for each perithecium and equal to the mycelial setae, Fig. 89 (87). Asci ellipsoid, 2-tunicate, sessile,

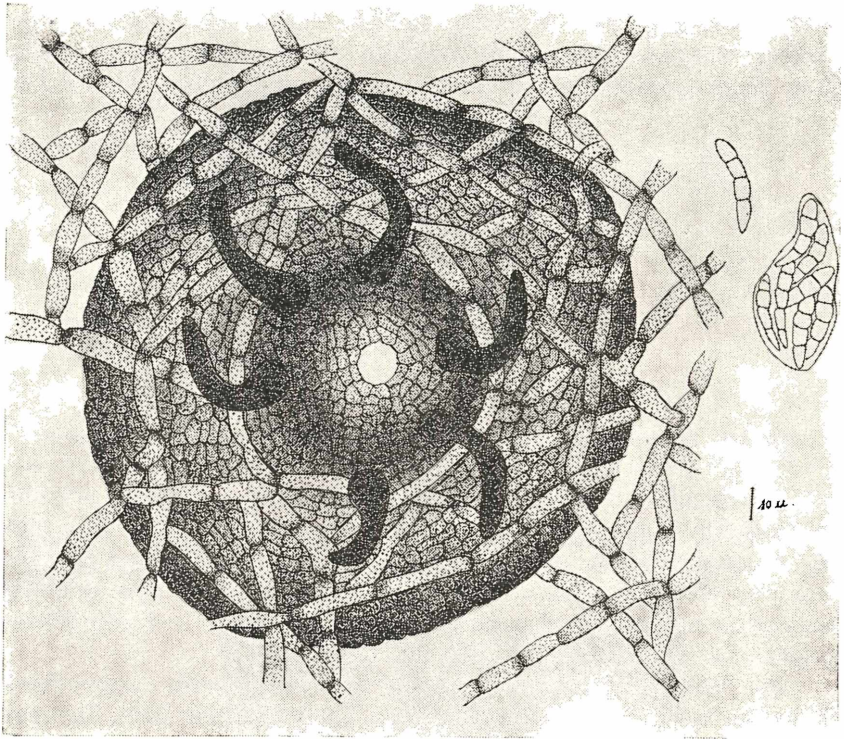


Fig. 80. *Vitalia diospyricola* Bat. Maia et Cif. — Perithecium setose, asci and spore.

8 spores, 49—54  $\times$  10—15  $\mu$ , aparaphysate, Fig. 88. Ascospores ellipsoid, 3-septate, not constricted, distichous, hyaline, 12—14  $\times$  4—5  $\mu$ .

We have also found this fungus on fern leaves, coll. by Heller, in Porto Rico; spec. from New York Botanical Garden, formerly Ellis Collection no. 6351, labeled as *Apiosporium*.

Also identified on leaves of *Dryopteris* sp. La Palma, San José, coll. by P. C. Standley, March 17, 1924. This specimen has the number 3893, in the National Fungus Collection, U.S.A. as Plants of Costa Rica, associated with *Hormiscium* sp. 1. 3. 957, spec. no. 10948, I.M.U.R.

### *Vitalia jaboatonensis* Bat., Nasc. & Cif. n. sp.

Mycelium epiphyllous, superficial, effuse, thin pelliculose, oli-

vaceous, hyphae lengthened, flexuose, reticulate, made up of cylindrical cells,  $5.5-13.5 \times 2-5 \mu$ ; mycelial setae scattered, erect, flexuous, simple, continuous, numerous, acute, blackish-brown,  $112-165 \mu$  long,  $6-7.5 \mu$  wide at the base, sometimes covered with mycelic hyphae. Perithecia globose, then depressed,  $140-190 \mu$  in diam., formed beneath the mycelial pellicle, brownish, Fig. 82, gregarious, membranous, pseudo-ostiolate, walls pseudoparenchymatic, outer layer composed of subglobose to polygonal cells  $5.5-11 \times 2.5-9 \mu$ ; perithecial setae numerous, Fig. 82; they are erect, flexuous, about 25 for each perithecium, continuous, brownish,  $44-150 \mu$  high,  $10-12 \mu$  diam., at the base,  $2-3.5 \mu$  diam., on the apex. Asci ellipsoid, 8-spores, bitunicate, sessile,  $34.5-44.5 \times 13-16.5 \mu$ , paraphysate. Ascospores ellipsoid to fusoid, rotund, 1-4-septate, not constricted, hyaline,  $14-22 \times 5.5-6.5 \mu$ . Fig. 82.

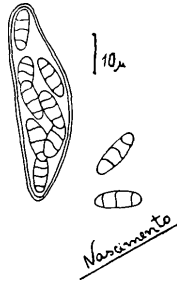


Fig. 81. *Vitalia ekmanii* (Petr. et Cif.) Bat. et Cif. — Ascus et spores.

On leaves of unknown host associated with Capnodiales. Jaboatão. Leg. Severino José da Silva, 19. 5. 56. Type 5595, Institute of Mycology, University of Recife.

Mycelium epiphyllum, superficiale, effusum, tenue, pelliculosum, ex hyphis olivaceis, elongatis, reticulatis, ex cellulis cylindraceis, non constrictis,  $5.5-13.5 \times 2-5 \mu$ , et ex setis mycelialibus sparsis, simplicibus, continuis, atro-brunneis, acutis, curvatis,  $121-165 \times 6-7.5 \mu$  in basaliter diam., compositum. Perithecia evoluta in pelliculam mycelica, globose-depressa,  $140-190 \mu$  diam., brunneae, pseudo-ostiolata, cum parietibus membranaceis, pseudo-parenchymaticis, ex cellulis subglobosis vel polygonalibus,  $5.5-11 \times 2.5-9 \mu$  efformatis; setae myceliales in perithecis evolutatae, erectae, curvatae, circa 25 per perithecium, brunneae,  $44-150 \mu$  alt. continuae,  $10-12 \mu$  in basaliter diam. Asci ellipsoidei, 8-sporei, bitunicati, sessiles,  $34.5-44.5 \times 13-16.5 \mu$ , paraphysati. Ascosporeae ellipsoideae vel fusioideae, 1-4 septatae, non constrictae, hyalinae,  $14-22 \times 5.5-6.5 \mu$ .

***Vitalia mangiferae*** (Bat. & H. Lima) Bat. n. comb.  
Syn.: *Chaetothyrium mangiferae* Bat. & H. Lima in Ann. Soc. Biol. Pern. t. XIII, no. 1, p. 53, 1955 (non Mendoza).  
On *Mangifera* — Brazil.  
Mycelium epiphyllous, thinly pelliculose, blackish-brown, effuse,

hyphae straight, flexuose, olivaceous-brown, 4–8  $\mu$  thick, reticulate; mycelial setae scattered, erect, septate, acute, brown to black, 100–250  $\times$  4–9  $\mu$ , Fig. 91, *Perithecia globose*, 120–180  $\mu$  in diam., deve-

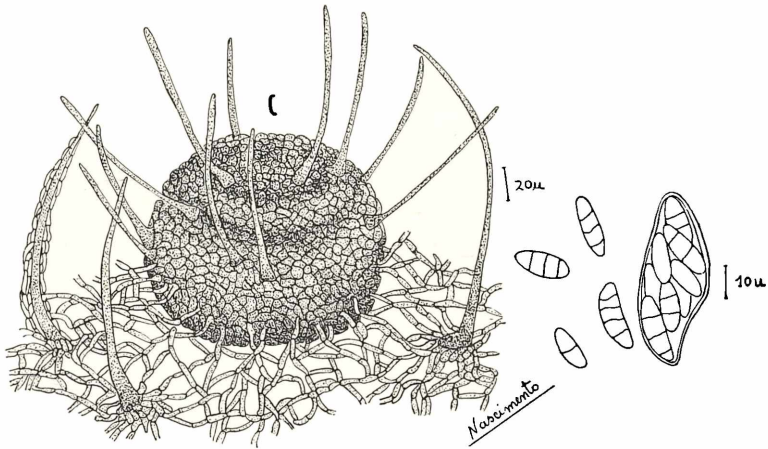


Fig. 82. *Vitalia jaboatonensis* Bat. et Nasc. — A) Mycelium pelliculose. — B) Mycelial setae covered with micelic hyphae. — C) Perithecium setose. — D) Ascus and spores.

ioped beneath the mycelial pellicle, pseudo-ostiolate, blackish-brown, ornate with curved setae, scattered, septate, blackish-brown, acute,

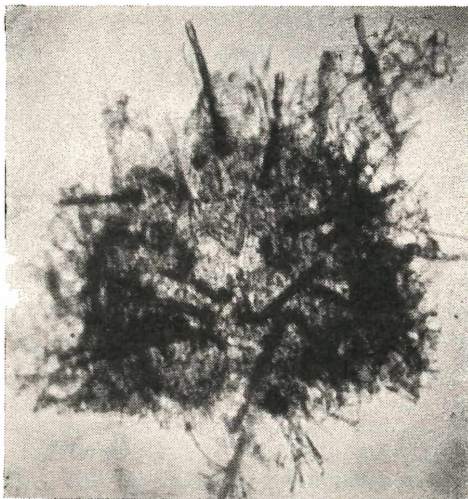


Fig. 83. *Vitalia mangiferae* Bat. et Nasc.

65–120  $\times$  3–4  $\mu$ . Asci ellipsoid, 8-spores, 23–50  $\times$  8–20  $\mu$ . Ascospores fusoid, 3–6-septate, 23–37  $\times$  3–8  $\mu$ , hyaline. Fig. 83–84.



**Vitalia multisetulata** Bat. Nasc. & Cif. n. sp.

Mycelium superficial, epiphyllous, pelliculose, olivaceous to brownish, reticulate, hyphae elongate or not, septate, made up of cylindrical and little constricted cells, from  $4.5-14 \times 2-4.5 \mu$ ; mycelial setae gregarious, erect, curved, continuous, blackish-brown,  $85-105 \mu$  high,  $8.5-10.5 \mu$  at the base and  $1-2.5 \mu$  at the apex. Perithecia

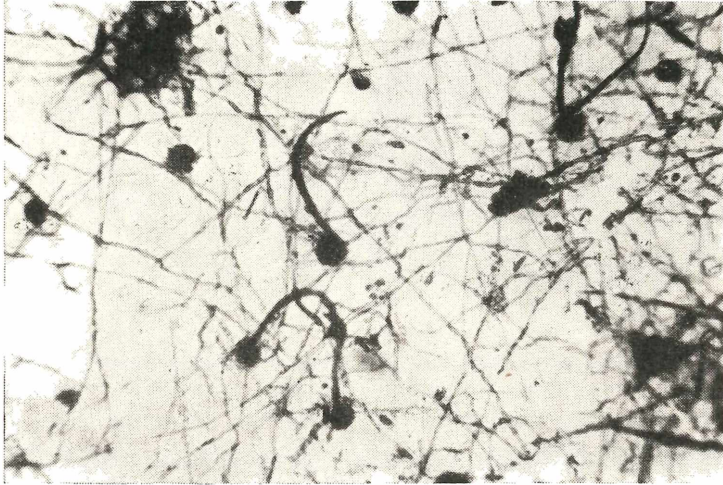


Fig. 84. *Vitalia mangiferae* (Bat. et Lima) Bat.

globose-flattened,  $80-122 \mu$  in diam., developed beneath the mycelial pellicle, Fig. 92, superficial, scattered, membranous, pseudo-ostiolate, brownish, with walls 2-3-stratose; outer layer composed of polygonal cells,  $6.5-9 \times 2-5.5 \mu$ , subparenchymatic and ornate with many thin setae, blackish-brown, straight or curved, septate, simple, apex obtuse,  $37-110 \times 2-3.5 \mu$ . Asci ellipsoid, 8-spores, sessile, bitunicate,  $45-56 \times 12-15 \mu$ , aparaphysate. Ascospores cylindrical-fusoid, 3-septate, constricted, distichous, hyaline,  $16.5-19 \times 5.5-6 \mu$ . Fig. 85.

On living leaves of *Xylopia brasiliense* Spreng. associated with *Setopsis* and *Atichia*. Jaboatão. Leg. Severino José da Silva. 19. 5. 56. Type 5591, Institute of Mycology, University of Recife.

Mycelium epiphyllum, superficiale, pelliculosum, olivaceum vel brunnescens, reticulatum, ex hyphis elongatis vel non, septatis, parum constrictis, ex cellulis cylindraceutis,  $4.5-14 \times 2-4.5 \mu$ , et setis mycelialibus gregariis erectis, simplicibus, atro-brunneis, curvatis, continuis,  $85-105 \mu$  alt.,  $8.5-10 \mu$  basaliter diam.,  $1-2.5 \mu$  apicaliter diam., non hyphopodiatis, compositum. Perithecia globose depressa,  $80-122 \mu$  diam., sub pellicula mycelica oriunda, superficialia, sparsa, membranacea, brunnescentia, pseudo-ostiolata, cum parietibus 2-3 stratosis, sub-parenchymaticis, ex cellulis  $6.5-9 \times 2-5.5 \mu$  efformata; setae peritheciales in pellicula myceliana evolutae, numerosae, atro-brunneae, rectae, vel incurvatae, septatae, simplices, obtusae,  $37-110 \times 2-3.5 \mu$ . Asci

ellipsoidei, sessiles, 8-sporei, bitunicati,  $45-56 \times 12-15 \mu$ , aparaphysati. Sporae cylindraceo-fusoideae, 3-septatae, constrictae, distichae, hyalinae,  $16.5-19 \times 5.5-6 \mu$ .

**Vitalia phormicola** Bat., Nasc. & Cif. n. sp.

Superficial mycelium epiphyllous, effuse, thin pelliculous, blackish-brown, hyphae straight-walled, reticulate, septate, not constricted, olivaceous, composed of cylindrical cells,  $7-22 \times 2.5-4.5 \mu$ , not hyphopodiate; setae on the mycelium, rare, erect, continuous, blackish, up to  $90 \mu$  high by  $5-7 \mu$ . Perithecia developed beneath the mycelial

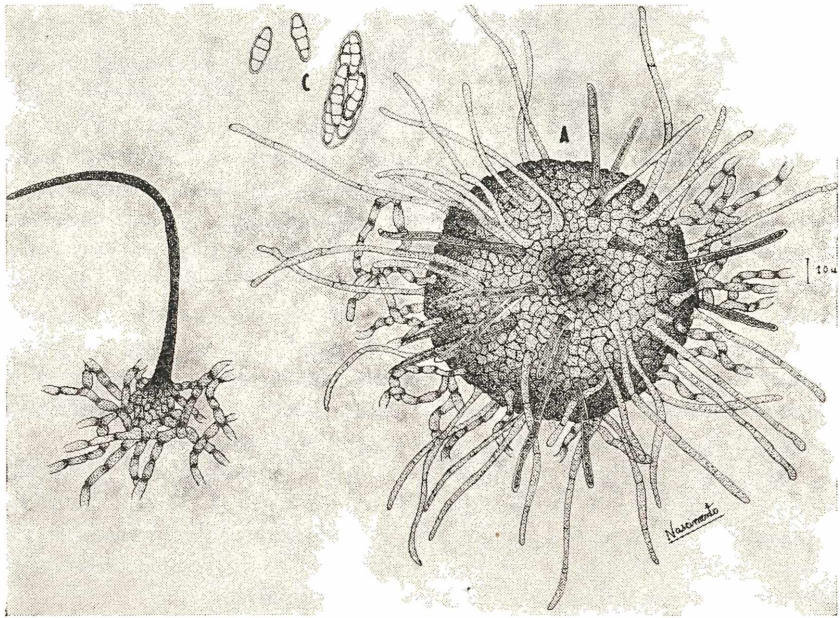


Fig. 85. *Vitalia multiseptulata* Bat. Nasc. et Cif. — A) Perithecium with mycelic hyphae. — B) Mycelium and mycelial setae. — C) Ascus and spores.

pellicle, globose or subglobose,  $83-110 \mu$  in diam.,  $85-120 \mu$  high, gregarious or not, blackish-brown, pseudo-ostiolate, membranous with subparenchymatic walls,  $12-20 \mu$  cr, made up of polygonal cells,  $5-10 \times 3.5-5 \mu$ , setose. Setae on the perithecial pellicle, erect, blackish, continuous, or 1-2 septate, incurvate, obtuse,  $22-86 \times 5-7 \mu$ , numerous, Fig. 93, Asci ellipsoid, 2-tunicate, 8-spores, sessile,  $31-41 \times 6.5-10 \mu$ , aparaphysate. Ascospores fusoid, 1-2-septate, not constricted, monostichous to polystichous, hyaline,  $9-12 \times 3-4.5 \mu$ . Fig. 86.

On leaves of *Phormium tenax*. Dois Irmãos, Recife. Leg. Severino José da Silva, 21. 4. 56. Type 5466, Institute of Mycology, University of Recife.

Mycelium epiphyllum, superficiale, effusum, pelliculosum, atrobrunneum, ex hyphis elongatis, reticulatis, septatis, non constrictis, olivaceis, ex cellulis cylindraceutis,  $7-22 \times 2.5-4.5 \mu$ , non hyphopodiatis, compositum. Setae myceliales raras, erectas, continuas, atrae, usque  $90 \times 5-7 \mu$ . Perithecia in pelliculam mycelicam evoluta, globosa vel subglobosa,  $83-110 \mu$  diam.,  $85-120 \mu$  alt., gregaria vel non, atro-brunnea, pseudo-ostiolata, cum parietibus membranosis, subparenchymaticis,  $12-20 \mu$  cr., ex cellulis polygonalibus,  $5-10 \times 3.5-5 \mu$ , efformata. Setae peritheciales, erectae, atrae, continuas vel 1-2 septatae incurvatae, obtusae,  $22-86 \times 5-7 \mu$ . Asci ellipsoidei, 2-tunicati, 8-spores, sessiles,  $31-41 \times 6.5-10 \mu$ , aparaphysati. Sporae fusioideae, 1-2-septatae, non constrictae, monostichae vel polystichae, hyalinae,  $9-12 \times 3-4.5 \mu$ .

### **Vitalia plumierae** Bat. & Matta n. sp.

Mycelium superficial, epiphyllous, thin membranous, dark brown, spread; hyphae irregularly branched, but lengthened, septate, little constricted having cylindrical cells,  $27-41 \times 10-12 \mu$ , not setose nor hyphopodiate. Perithecia developed beneath the mycelial membrane, scattered, globose-conoid to globose-depressed,  $260-330 \mu$  diam.,  $249-350$  in height, dark-brown, membranous, pseudo-ostiolate, pseudo-parenchymatic, the walls composed of sub-globose and polygonal cells,  $14.5-17 \times 10-14.5 \mu$ , setose, Fig. 87. Perithecial setae numerous, 8-30 in number, scattered, cylindrical, straight or curved, rarely septate, brownish, obtuse,  $40-110 \times 7-17 \mu$ . Asci ellipsoid, 2-tunicate, sessile, 4-8-spores,  $73-88 \times 24.5-29 \mu$ , aparaphysate. Ascospores fusoid, at first 1-septate, then 3-septate, little constricted or not, hyaline,  $34-49 \times 14.5-19.5 \mu$ , polystichous, Fig. 87.

On leaves of *Plumiera tricolor* — Campo Gonçalo Muniz, Salvador, Bahia. Leg. Eurico A. F. Matta, 10-2-957. Zype, 11360, Institute of Mycology, University of Recife. Associated with *Tripospermum roupalae* (Syd.) Hughes, *Atichia glomerulosa* (Ach.) Flot., *Astragoxylum plumieriae* nobis, and *Calyptra plumieriae* nobis.

Mycelium epiphyllum, superficiale, tenuiter membranous, brunneum, effusum, ex hyphis irregulariter ramosis, elongatis, septatis, parum constrictis, ex cellulis cylindraceutis,  $27-41 \times 10-12 \mu$ , non setosis, haud hyphopodiatis, compositum. Perithecia mycelio tecta, sparsa, globose-conoidea vel globose-depressa,  $260-330 \mu$  diam.,  $240-350 \mu$  alt. brunnea, pseudo-ostiolata; paries membranous, pseudo-parenchymaticus, ex cellulis sub-globosis vel polygonalibus  $14.5-17 \times 10-14.5 \mu$ , setosis, efformatus. Setae peritheciales numerosae, 8-30, sparsae, cylindricae, obtusae, rare septatae, brunnescentes,  $40-110 \times 7-17 \mu$ . Asci ellipsoidei, 2-tunicati, sessiles, 4-8 spores,  $73-88 \times 24.5-29 \mu$ , aparaphysati. Ascospores fusioideae, primo 1-septatae, dein 3-septatae, parum constrictae vel non, hyalinae, polystichae,  $34-49 \times 14.5-19 \mu$ .

### **Vitalia rickiana** (Theiss.) Bat. & Cif. n. comb.

Syn.: *Chaetothyrium rickianum* Theiss. in Ann. Mycol. XI: p. 493, 1913; Ann. Mycol. XV p. 474, 1913; Syll. Fung. XXIV p. 379, 1926.

*Chaetothyrium fusisporum* Fraser in Proc. Linn. Soc. N. S. Wales, vol. LXI, p. 283, 1936.

On *Acacia*, *Cryptocarya*, *Doryphora*, *Dodonaea*, *Synoum*, *Syn-carpia*, *Tylophora*, *Smilax*, *Bachhousia*, *Pleiococca*, *Rhipogonum*, *Ceratopetalum*, *Bosistoa*, *Eudiandra*, *Wilkiea*, Australia.

Mycelium epiphyllous, pelliculose, brownish, hyphae 3–5  $\mu$  thick; setae septate, 150–240  $\mu$  high, 6  $\mu$  wide at the base; perithecia

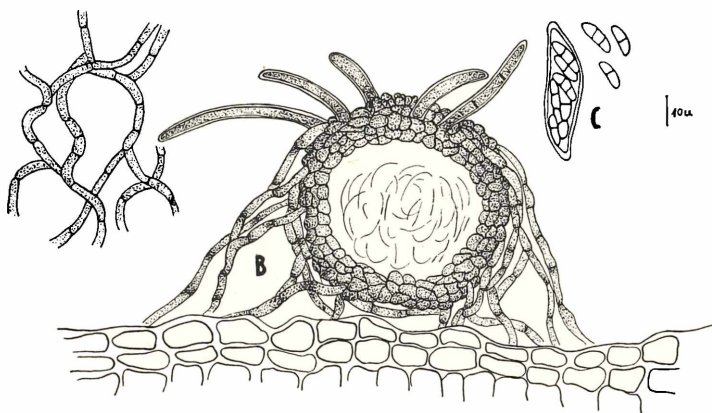


Fig. 86. *Vitalia phormicola* Bat. Nesc. et Cif. — A) Mycelium. — B) Histological cut of a perithecium. — C) Ascus and spores.

setose developed beneath the mycelial pellicle, globose-depressed, 150–250  $\mu$  diam., 100–150  $\mu$  high, pseudo-ostiolate; mycelial setae around the perithecia; asci cylindric-clavate or oblong, 50–65  $\times$  10–16  $\mu$ , 8-spores, bitunicate, aparaphysate; ascospores fusiform to ellipsoid, 3-septate, hyaline, 11–16  $\times$  3–4  $\mu$ , Fig. 88.

***Vitalia setofasciculata* Bat., Vital & Cif. n. sp.**

Mycelium superficial epiphyllous. thin pelliculose, almost invisible, widely effuse, grayish, reticulate, hyphae indistinctly septate, 1.5–3.5  $\mu$  thick, with rare brownish setae, similar to the perithecial setae. Perithecia entirely superficial globose-flattened, 170–200  $\mu$  wide, 100–125  $\mu$  in height, brownish, formed below the mycelial pellicle, Fig. 97, scattered, pseudoparenchymatic, membranous, pseudo-ostiolate, upper walls, 10–20  $\mu$  in thickness, continuous with the pellicle, made up of cells subglobose, 5–8.5  $\mu$  diam., unilocular; the perithecia are completely covered with mycelial setae grouped in numerous fascicles, Fig. 98, the setae are erect, straight or curved, simple, cylindrical, obtuse, brownish, septate, fasciculate aggregate in 7 to 10 elements, each setae being 70–225  $\times$  4–6.5  $\mu$ . Asci clavate to ellipsoid, thickened at the apex, sessile, 8-spored, 42.5–62.5  $\times$

22.5—27.5  $\mu$ , aparaphysate. Ascospores cylindric, 7—9 septate, not constricted, parallel, hyaline, 32—47.5  $\times$  5—6.5  $\mu$ . Fig. 89—90.

On leaves of *Centella asiatica* (L.) Urban. Dois Irmãos, Recife. Leg. Osvaldo Soares da Silva, 19. 5. 56. Type 5592, Institute of Mycology, University of Recife.

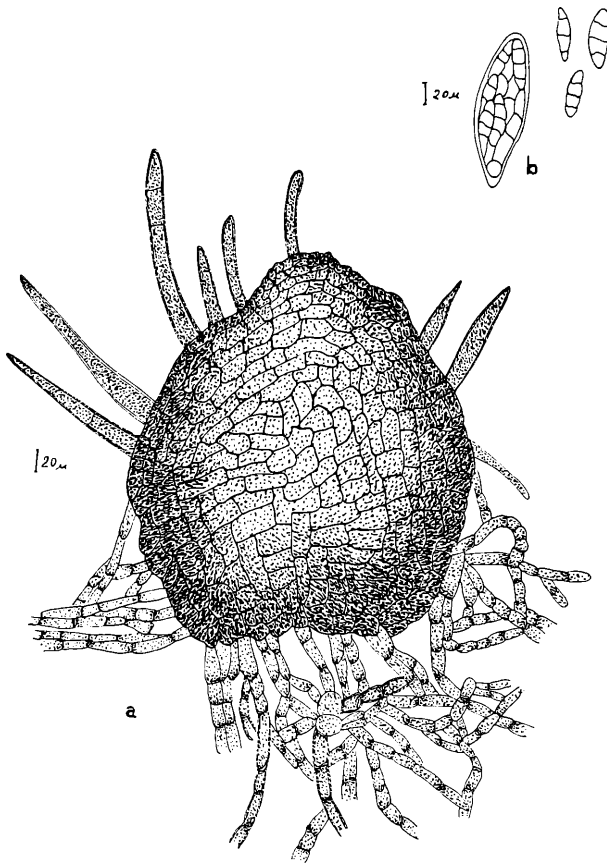


Fig. 87. *Vitalia plumierae* Bat. et Matta. — a) Perithecium setose. — b) Ascus and spores.

This species is allied to *Chaetothyrium mysorensis* Hansf. but its fasciculate and brownish setae over the perithecia distinguish it very well, besides some other slight discrepancies.

We have found this species also on *Styrax ferrugineus* collected at Araxá, Minas Gerais, Brazil. It is associated with *Parmularia hankei* (Nees) Rehm and *Chondropodiola spagazzinii* Petrak & Sydow.

For the examination of this material we are indebted to The University of Michigan, U.S.A.

*Mycelium epiphyllum*, tenue, pelliculosum, effusum, cinereum ex hyphis reticulatis, 1.5–3  $\mu$  diam., superficialibus, rare setosis, compositum. Perithecia globose-depressa, brunnea, uniloculata, superficialia, 170–200  $\mu$  diam., 100–125  $\mu$  evoluta in pellicula mycelica, sparsa, pseudo-ostiolata; paries superior 10–20  $\mu$  cr., ex cellulis subglobosis, 5–8.5  $\mu$  diam., setae in fasciculis vestentes-perithecia, simplices, obtusae, brunnescentes, 70–225  $\times$  4–6.5  $\mu$ . Asci clavati vel ellipsoidei, sessiles, 8-sporei, 42.5–62.5  $\times$  27.5  $\mu$ , aparaphysati. Sporae cylindraceae, 7–9 septatae, non constrictae, parallelae, hyalinae, 32–47.5  $\times$  5–6.5  $\mu$ .

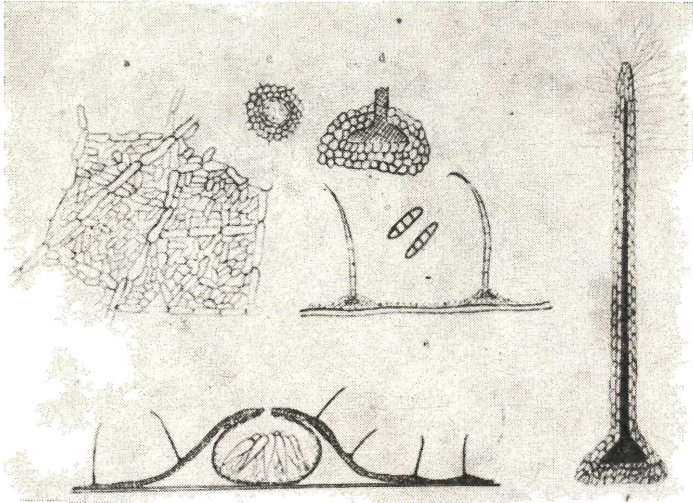


Fig. 88. *Vitalia rickiana* (Theiss.) Bat. et Cif. — From Theissen. *Annal. Mycol.* XV: 476, 1918.

### **Euceramiaceae** Bat. & Cif. n. fam.

*Mycelium* dematioid membranous. Perithecia globose, developed beneath the mycelial pellicle, brown to black, plurilocular and glabrous. Type: *Euceramia* Bat. & Cif.

The family Euceramiaceae appears to be more complex than the Phaeosaccardinulaceae, possessing plurilocular ascocarps. This statement is based on the idea that the plurilocular Chaetothyriaceous ascocarp follows the formation of the unilocular ascocarp in the order Chaetothyriales. So, accepting the parallel evolution of the ascocarp in this order, we understand that it occurs as it happens with the mycelium of the Hyphomycetes; the development of these fungi gradually passes from the hyaline mycelium of the Chaetothyriaceae to the subhyaline and dark mycelium of the Phaeosaccardinulaceae and Euceramiaceae, the last one having plurilocular ascocarp.

### **Euceramia** Bat. & Cif. n. gen.

Superficial mycelium pelliculose, not setose nor hyphopodiate,

hyphae branched, septate. Stromatic perithecia developed beneath the mycelial pellicle, globular, plurilocular, membranaceous, pseudo-ostiolate, glabrous, dull. Asci ellipsoid, 1-tunicate, 4–8 spores, sessile-

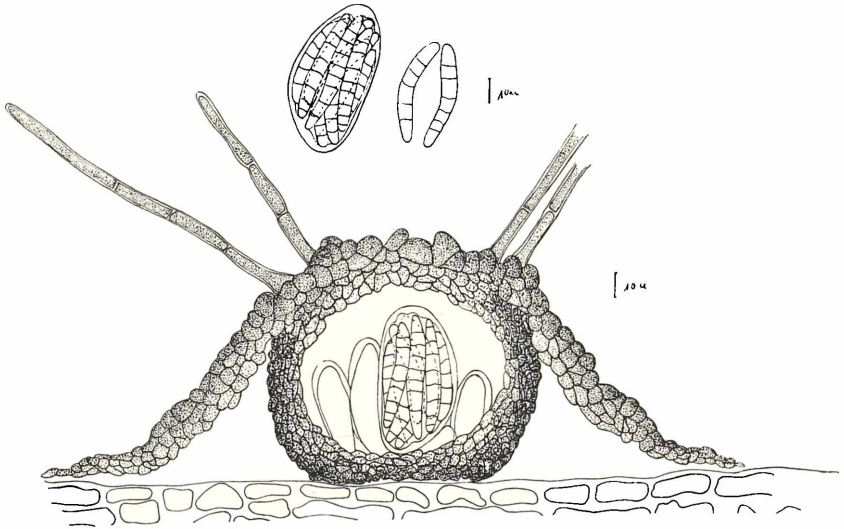


Fig. 89. *Vitalia setofasciculata* Bat., Vital et Cif.

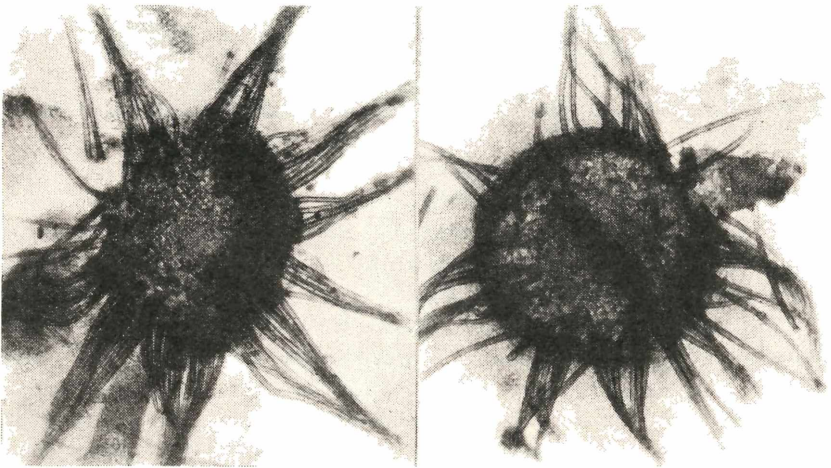


Fig. 90. *Vitalia setofasciculata* Bat., Vital et Cif. — Fascicles of setae over the perithecium.

pseudoparaphysoids septate, hyaline. Sporae clavate-fusoid to cylindrical, pluriseptate, hyaline.

Mycelium epiphyllum, superficiale pelliculosum, ex hyphis septatis, ramosis, reticulatis, capnodiaceis, non setosis, non hyphopodiatis, brunneis, compositum. Perithecia stromatica, subpelliculosa mycelica evoluta, pluriloculata, mem-

branacea, pseudo-ostiolata, glabra, brunnea. Asci ellipsoidei, 1-tunicati, 4 spori, sessiles, pseudoparaphysioidea, septata, hyalina. Sporae clavate-fusoideae vel cylindratae, pluriseptatae, hyalinae. Typus *E. palmicola* Bat. & Cif.

This genus is pertaining to the monotypic family Euceramiaceae, which we discussed in the introductory part of this monograph. The mycelium is fully fumiginous in shape and texture, forming a more

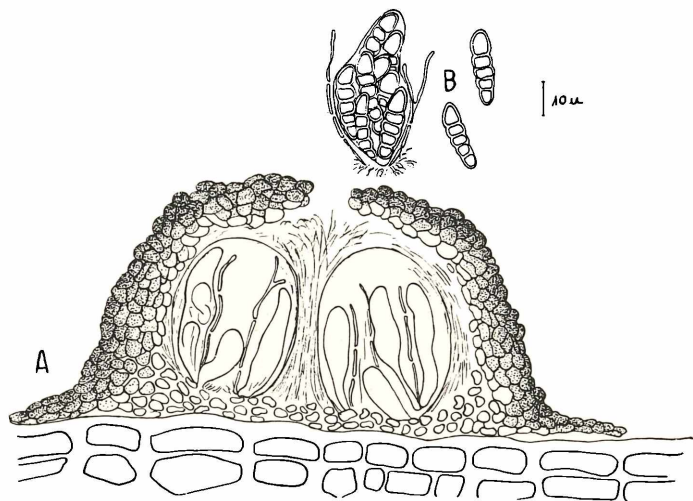


Fig. 91. *Euceramia palmicola* Bat. et Cif. — A) Superficial stromatic perithecium, bilocular. — B) Ascus and spores.

or less continuous mycelial pellicle, beneath which the ascocarps are developed. These characteristics are, then, in full agreement with the feature of the Phaeosaccardinulaceae family. The structure of the ascocarps is unusual for the sooty-molds.

#### *Euceramia palmicola* Bat. & Cif. n. sp.

Superficial mycelium pelliculose brown, epiphyllous, not hyphopodiate, not setose, hyphae straight-walled or constricted, septate, composed of cylindrical cells,  $4-13.5 \times 3-5.5 \mu$ . Perithecia gregarious, membranaceous, stromatic, formed beneath the mycelial pellicle, globose-conoid,  $73.5-135 \mu$  wide,  $56-73.5 \mu$  high, bi or pluriloculate, each locule  $39-50 \mu$  high,  $26-37 \mu$  wide, separated by strong layer of paraphysoids; pseudo-ostiolate, Fig. 100, subparenchymatic, walls  $20-24.5 \mu$  cr., composed of polygonal cells from  $5-12.5 \times 6-7 \mu$  brown. Asci ellipsoid or pyriform, several for each locule, 1-tunicate, 8-spores, sessile,  $31-49 \times 18-25 \mu$ ; paraphysoids filiform, septate, branched or not, hyaline,  $1-1.5 \mu$  diam. Ascospores clavate-fusoid, 4-5-septate, constricted. epispore distinct, hyaline,  $18-22 \times 6-7.5 \mu$ . Fig. 91.



Associated with some Capnodiaceae and with *Septonema longisporum* Bat. which, in many cases, through their conidiophores, give the impression of mycelial setae. On leaves of *Cocos nucifera*. Vitoria. Leg.: Prof. Washington Amorim, 1. 5. 1956. Type 4572, Institute of Mycology, University of Recife.

Mycelium epiphyllum, pelliculosum, brunneum, superficiale, ex hyphis constrictis vel non, septatis, brunneis, efformatum, et ex cellulis cylindraceutis,  $4-13.5 \times 3-5.5 \mu$ , non setosis, non hyphopodiatis compositum. Perithecia

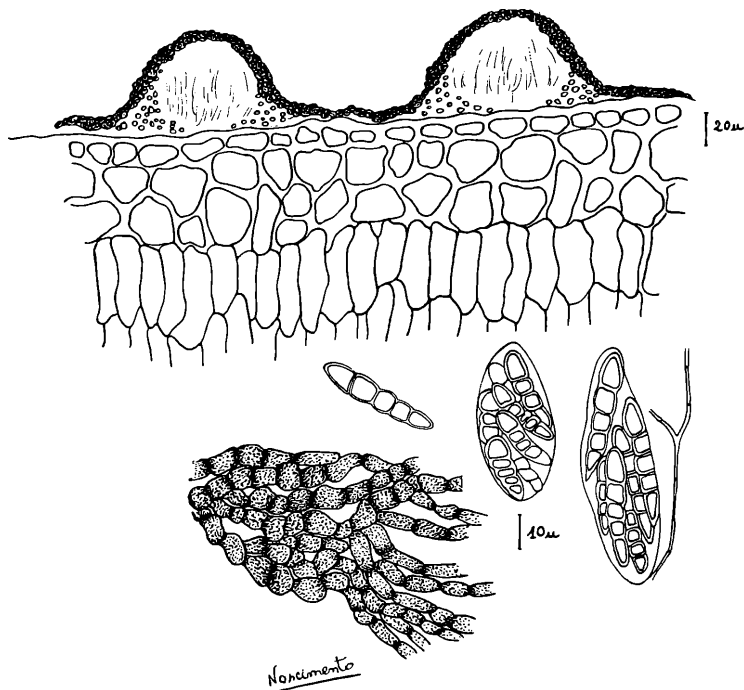


Fig. 92. *Euceramia palmicola* var. *macrasca* Bat. et Cif. = Upper-Sketch of two ascocarps covered by the mycelial pellicle. — Lower = Detail of the mycelium.

gregaria, membranacea, stromatica, sub pellicula myceliana evoluta, globoso-conoidea  $73.5-135 \mu$  diam.,  $56-73.5 \mu$  alt., bi, vel pluriloculata, pseudo-ostiolata, cum parietibus subparenchymaticis,  $20-24.5 \mu$  cr brunneis, ex cellulis polygonalibus,  $5-12.5 \times 6-7.5 \mu$  efformatis. Asci ellipsoidei vel pyriformes, 1-tunicati, 8-sporei, sessiles,  $31-49 \times 18-25 \mu$ ; cum paraphysibus filiformibus, septatis, ramosis vel non, hyalinis,  $1-1.5 \mu$  diam. Sporae clavato-fusoideae, 4-5-septatae, constrictae hyalinae,  $18-22 \times 6-7.5 \mu$ .

*Euceramia palmicola* var. *macrasca* Bat. & Cif. n. var.

Superficial mycelium thin pelliculose, brown, epiphyllous, not setose, not hyphopodiate, hyphae straight-walled, reticulate, not constricted, composed of short cylindrical cells  $10.5-15.5 \times 6.5-$

7.5  $\mu$ . Perithecia stromatic developed beneath the mycelial pellicle, Fig. 101, globose-conoid, uni or pluriloculate, 78—225  $\mu$  in diam. and 60—82.5 high, not setose, membranaceous, blackish-brown, pseudo-ostiole 11—22.5  $\mu$  diam. with walls 12.5—15  $\mu$  cr. at the top. formed by polygonal or subglobose cells, 7.5—10  $\times$  5—7.5  $\mu$ , Fig. 102. Asci ellipsoi, 4—8-spores, 1-tunicate, sessile, 79—96  $\times$  33.5—40  $\mu$ ; paraphysoids filiform, septate, hyaline, simple, 1—2  $\mu$  Spores clavate-fusoid, 3—5-septate, constricted, hyaline, polystichous, 17.5—20  $\times$  4—5.5  $\mu$ . Fig. 92.

On leaves of *Psidium guajavae* Raddi associated with several Asbolisiaceae. Casa Amarely, Recife. Leg.: Severino José d Silva 21. 4. 56. Type 5461, Institute of Mycology, University of Recife. This specimen agrees with the type species, with the exception of a few minor characteristics; so, we are distinguishing it as a variety.

A typo recedit peritheciis usque 225  $\mu$  alt.; ascis etiam 4-wpored, majoribus: 79—96  $\times$  22.5—40  $\mu$ ; ascosporis usque 7.5  $\mu$  latis.

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