INSTITUTE OF MYCOLOGY - UNIVERSITY OF RECIFE - PERNAMBUCO (BRAZIL)
PUBLICATION N. 23

CERAMOTHYRIUM A NEW GENUS OF THE FAMILY PHAEOSACCARDINULACEAE

A. CHAVES BATISTA and H. da SILVA MAIA

Estratto dagli *Atti dell' Istituto Botanico e Laboratorio Crittogamico dell' Università di Pavia* - Vol. XIV - 1956

Pavia - Prem. Tipografia Succ. FUSI - Via L. Spallanzani, 27 - Tel. 21.638

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In the study of the sooty-mold fungi, which we have been carrying on since a long time, we felt the necessity of maintaining the family Chaetothyriaceae based on the genus *Chaethothyrium* Speg., on the light of the investigation of the type species made by BITANCOURT (see Arq. Inst. Biol. San Paulo, vol. VII, pags. 5-22, 1936). This group of fungi is characterized by hyaline to subhyaline mycelial pellicle beneath which the perithecia are developed.

The fungi with fumagineous mycelium, having in common with the Chaetothyriaceae the development of the perithecia beneath the mycelial pellicle, have been transferred to the new family Phaeosaccardinulaceae (see BATISTA & CIFERRI - A revision of the order Chaetothyriales, in press).

The Phaeosaccardinulaceae is characterized by superficial and pelliculose, dark mycelium, setose or not, beneath which the perithecia are formed. The type of this family (*Phaeossaccardinula* P. Henn.) is a phaeodictyosporesous species.

Following the concept of this new family we are proposing the new genus *Ceramothyrium* to contain the fungi analogous to *Chaetothyrium* but with the mycelial pellicle made by fumagineous mycelium and devoid of setae.

To this new genus *Ceramothyrium* we are adding some new species as well as transferring all the species of fungi that we have found in complete agrement with this genus.

The analogies and differences between the two genera are summarized as follows:

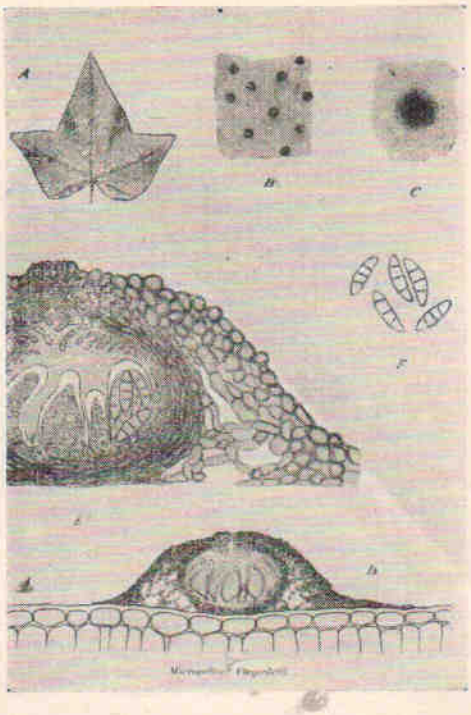


Fig. 1. - *CERAMOTHYRIUM FLAGEOLETII* (Sacc.) Bat. & Maia.

A - Scattered perithecia on a leaf. B - Enlarged view of a perithecium. C - An isolated perithecium. D - Perithecium developed beneath the mycelial pellicle; E - Details of a perithecium and mycelial pellicle; F - Ascospores.

Reproduction of a classical plate from G. ARNAUD - Les Asterinées V, Ann. Epiphyties, pl. XIV, 1930 (as *Micropeltis? flageoletii*).

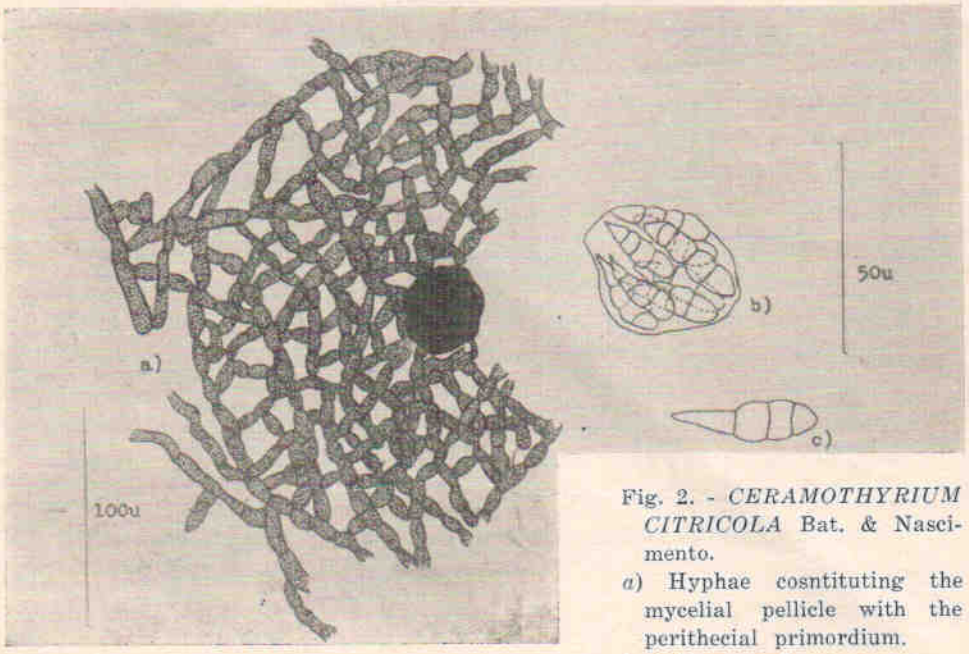


Fig. 2. - *CERAMOTHYRIUM CITRICOLA* Bat. & Nascimento.

a) Hyphae cosntituting the mycelial pellicle with the perithecial primordium.

b-c) Ascus and ascospores.

CHAETOTHYRIUM	*CERAMOTHYRIUM*
Mycelium	
Hyaline to subhyaline, thinly pelliculose.	Fumagineous, not so thinly pelliculose.
Mycelial setae	
Present; spread or around the perithecia.	Lacking.
Perithecia	
Formed beneath the myceliel pellicle.	Formed beneath the mycelial pellicle.
Perithecial setae	
Present.	Lacking.
Ascospores	
Hyaline, transversely septate.	Hyaline, transversely septate.

In view of the discrepancies observed, the genus *Ceramothyrium* appears quite distinct from *Chaetothyrium;* therefore, we present the following diagnose:

CERAMOTHYRIUM Batista & Maia, n. gen.

Mycelium superficial, easily detached, olivaceous to brown-blackish, in small, effuse, thin pelliculose to membranaceous colonies, composed of septate and slightly constricted hyphae, reticulate to irregularly branched, not setose, nor hyphopodiate. Perithecia subglobose to globose-flattened, yellowish-brown to brown, pseudo-ostiolate, unilocular, membranous to subcarnose, developed beneath the mycelial pellicle. Asci 8-spored. Ascospores transversely septate, hyaline.

Type: *Ceramothyrium paiveae* Batista & Maia.

Mycelium superficiale, olivaceum vel atrobrunneum in plagulas tenues vel non, pelliculam tenuem efformantes, secedentes, ex hyphis septatis, parvum constrictis, reticulatis vel irregulariter ramosis, non setosis, exhyphopodiatis compositum. Perithecia pelliculae myceliali subposita, subglobosa vel globose-depressa, pseudo-ostiolata vel poro praedita haud nitidula, brunneo-flavidula vel brunnea, unilocularia, non setosa, membranosa vel subcarnosa. Asci 8-spori. Ascosporae transversaliter septatae, hyalinae.

Typus: *C. paiveae* Batista & Maia.

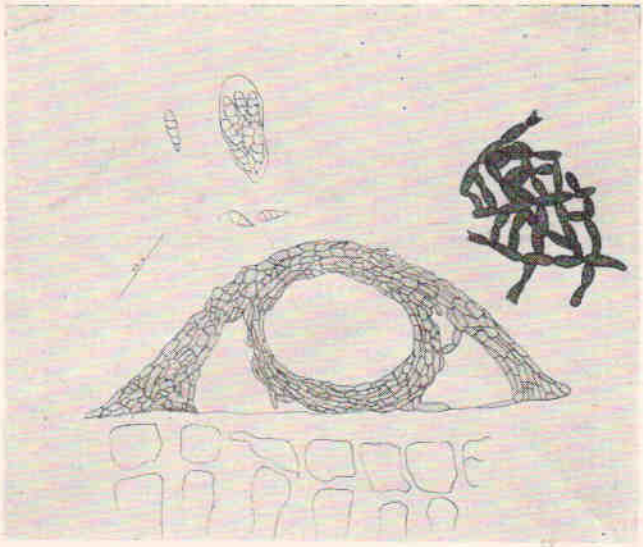


Fig. 3. - *CERAMOTHYRIUM PAIVEAE* Bat. & Maia. Drawings of on the imbricate perithecia. Asci and ascospores. Mycelic hyphae

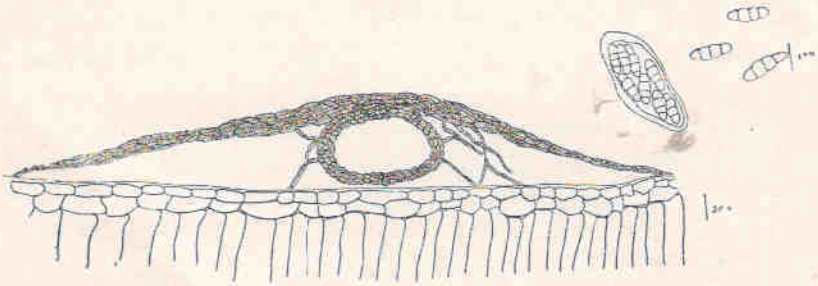


Fig. 4. - *CERAMOTHYRIUM PAIVEAE* Bat. & Maia. Drawing of a perithecium, ascus and ascospores.

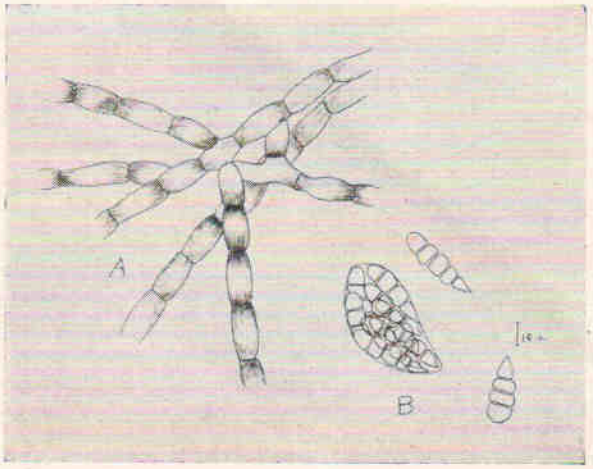


Fig. 4. - *CERAMOTHYRIUM CITRICOLUM* Bat. & Nascimento. Datalis of *a*) Mycelic hyphae and *b*) Asci and ascospores.

KEY OF THE SPECIES OF THE GENUS CERAMOTHYRIUM

A - Ascospores 40-60 μ long
- B - Ascospores 3-septate; asci to 30 μ in width . *C. anacardii*
- BB - Ascospores 6-9-septate; asci to 20 μ in width .
  - C - Ascospores 35-42 x 7-9μ . . . . *C. cinereum*
  - CC - Ascospores 50-58 x 5-6 μ . . . . *C. globosum*
- BBB - Ascospores 9-13-septate; asci up to 30 μ in width . . . . . *C. depressum*

AA - Ascospores 20-40μ long
- D - Ascospores very irregular in width (3-11 μ) . *C. citricolum*
  - E - Ascospores 6-9-setate . . . . *C. peltatum*
  - EE - Ascospores with 1-9 transversal seta .
    - F - Ascospores with 3-7 transversal septa; asci up to 52 μ long . . . .
      - G - Asci 27-38 x 16-29 μ, ascospores 5-8 in width . . . . . *C. aurantii*
      - GG - Asci 44-52 x 10-14 μ; ascospores 4 μ widht . . . . . *C. paraensis*
    - FF - Ascospores with 1-7 transversal septa; asci 50-75 x 20-28 μ . . . *C. philodendri*
    - FFF - Ascospores with 3-5 transversal septa . . . . . .
      - H - Asci 30-45 μ long . . . *C. exilis*
      - HH - Asci 48-59 μ long . . *C. gustaviae*

AAA - Ascospores up to about 20 μ long
- I - Ascospores with 4-6 transversal septa . . *C. griseolum*
- II - Ascospores with 1-3 transversal septa . .
  - J - Perithecia 90-100 μ diam.; asci 90-100 μ long; ascospores 2-septate . . . *C. biseptatum*
  - JJ - Perithecia 300-500 μ diam.; asci shorter, 50-55 μ long; ascospores septate . . *C. gymnopogonis*
  - K - Asci shorter
  - KK - Asci 42-50 μ long; ascospores 16-21 μ long . . . . . *C. europaeum*
    - L - Asci 50-60 μ long; ascospores 14 μ long . . . . . *C. flageoletii*
      - M - Asci 30-43 μ long . . . *C. paiveae*
      - MM - Asci less than 30 μ in lenght
        - N - Ascospores longer
        - NN - Asci globose; perithecia 50-75 μ in diam . . *C. erysiphinum*
          - O - Asci clavate-fusoid; perithecia 100-121 μ in diam . . . *C. cordiae*

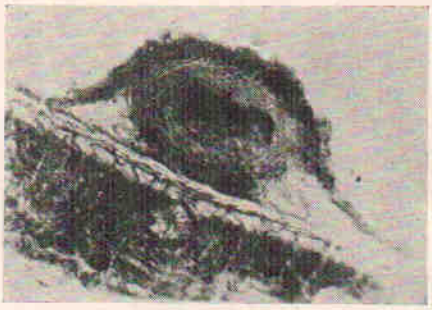


Fig. 5. - *CERAMOTHYRIUM CORDIAE* Bat. & Vital
Ripe perithecia developed under the mycelial pellicle.

450 X

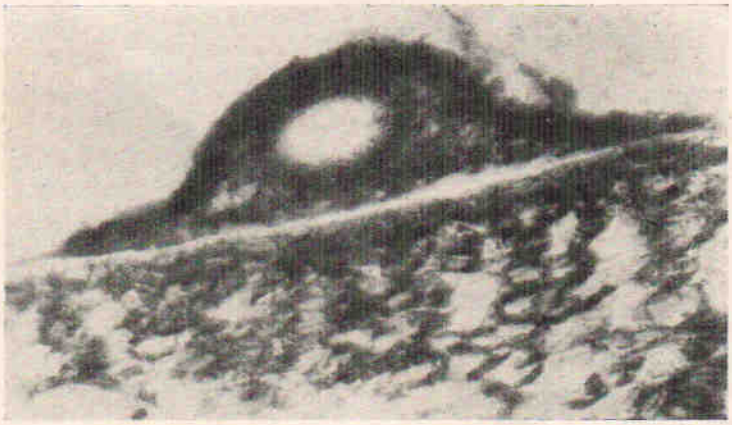


Fig. 6. - *CERAMOTHYRIUM GRISEOLUM* (Fras.) Bat.
An unripe perithecium.

Fig. 7. - *CERAMOTHYRIUM CORDIAE* Bat. & Uid.
Asci with ascospores from a crushed parithecium

450 X

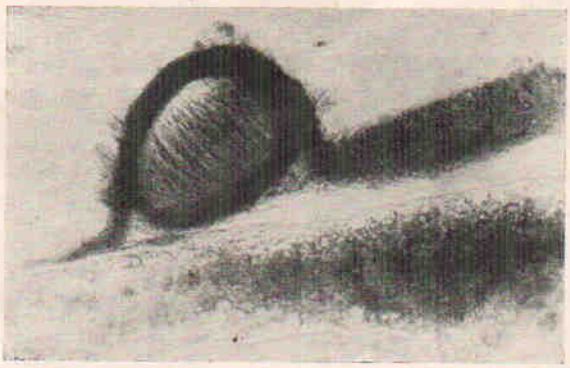


Fig. 8. - *CERAMOTHYRIUM GUSTAVIAE* Bat. & H. Lima.
Perithecium full with asci under the mycelial pellicle.

450 x

CERAMOTHYRIUM ANACARDII (Hansf.) Batista & Maia, n. comb.

Syn.: *Limacinia anacardi* Hansford
in Proc. Linn. Soc. London, Sess. 153, pag. 17 (1941)

Chatethyrium anacardi Hansford
in I.M.I. Pap. n. 15, pag. 150 (1946)

on *Anacardium* - Uganda

Epiphyllous, delicate, effuse, dull-brown colonies, mycelic hyphae light-brown, 2.5-3 μ thick, almost straight, irregularly ramose, frequently parallel, not clearly septate. Perithecia sparce, globose, thin-walled, smooth, 200-250 μ diam., dull-brown, superficial. Asci abundant, ellipsoid sub-clavate, aparaphysate, about 90x 30 μ, with 8 spores, almost parallel. Ascospores cylindraceous-fusoidal, hyaline, 3-septate, slightly constrict, smooth, almost straight, with rounded tips, 33-50 x 7-9.5 μ without setae and hyphopodia.

CERAMOTHYRIUM AURANTII (P. Henn.) Batista & Maia, n. comb.

Syn.: *Limacina aurantii* P. Henn.
in Hedwigia, pag. 298, 1902; Sacc., Syll. Fung. vol. XVII, pag. 556, 1905

on *Citrus* - Brazil.

Mycelium free, olivaceous, in colonies effuse, crustaceous-membranaceous, composed of light brownish septate. Little constricted, cruciate or irregularly branched, hyphae having cells of 18-30 x 4-7 μ. Pycnidia not observed in our material. Mycelic setae lacking. Perithecia scattered, superficial, sub-globose, yellow-brownish, 112-160 μ diam. with out setae, 92.5-112 μ alt. with an indistinct pore, imbricate underneath the mycelial pellicle, membranous, with pseudo-parenchymatic walls, from 10-40 μ diam. fuscous. Asci of basal origin, upright in position, clavate, with an outside wall wide, 8-spored and sessile, 27-34.7 x 16-29 μ; paraphysoids present. Ascospores fusc-cylindraceous, having roundish tips, polystic, 3-6 septate, constrict, hyaline, 18.9-27 x 5.4-8 μ (Fig. 1).

On living leaves of *Didymopanax morototoni* Decne. & Planch., Boa Viagem, Recife. Leg. Albino F. Vital, 21.6.55. Mat. n. 336, Institute of Mycology, University of Recife.

The brazilian fungus agrees well with the original description of the species, here expanded.

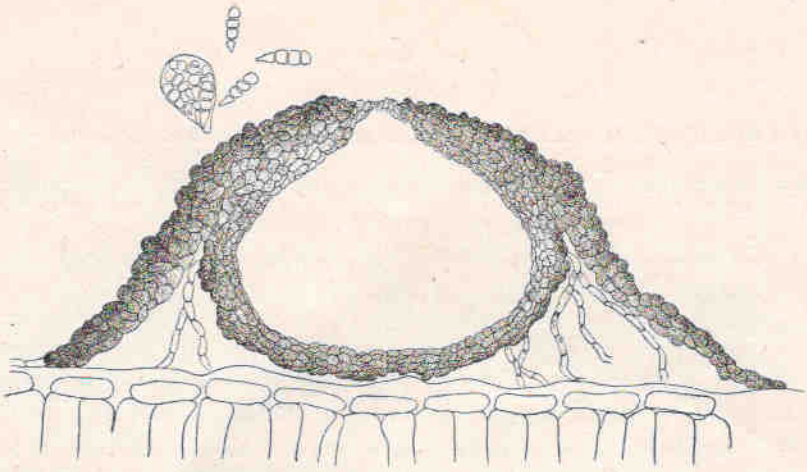


Fig. 9. - *CERAMOTRYRIUM AURANTII* (P. Henn.) Bat. & Maia
Sketch of perithecium, asci and ascospores.

Fig. 10. - *CERAMOTHYRIUM AURANTII* (P. Henn.) Bat. & Maia
Unripe perithecium 450 x

Fig. 11 - *CERAMOTRYRIUM AURANTII* (P. Hen.) Bat. & Maia
Ripe perithecium 450 x

CERAMOTHYRIUM BISEPTATUM (Sacc.) Batista & Maia, n. comb.

Syn.: *Limacinia biseptata* Sacc., Ann. Mycol. vol. XIII, pag. 127 (1915)

Chaetothrium biseptatum Hansf., C.M.I. Myc. Pap. n. 15, pag. 144 (1946).

on *Macaranga* - Philippines

Effuse, usually epiphyllous, thin, brown to olive colonies. Perithecia adnate above with mycelial pellicle, globose or almost so, 90-100 μ diam., 60-90 μ high, sessile on a broad base, dark-brown, not setose, surface sub-parenchymatous, dark-olivaceous, made by angular cells 5-10 μ diam. Wall composed of 1-3 layers of compressed, hyaline, thin-walled, angular parenchyma, with an apical pore, but opening by irregular fracture of the outer, mycelial wall. Asci clavulate, basal, sub-sessile or nodose-stipitate, obtusely rounded at the apex, 90-100 x 9-12, aparaphysate, 8-spored. Ascospores 1-2--seriate, oblong, usually slightly bent, ends obtusely rounded, hyaline, 2-septate,not constricted, finally becoming very pale smoky, 14-16 x 4.5-5.5 μ.

CERAMOTHYRIUM CINEREUM (Fraser) Batista, n. comb.

Ex.: *Chaetothyrium cinereum* Fraser
in Proc. Linn. Soc. N. S. Wales, vol. LXI, parts 5-6 pag. 288, 1936

on *Guisa, Backhousia, Eugenia* - Australia

Mycelium superficial, effuse, not setose, hyphae brownish, reticulate, septate, constricted or not, with cells from 7-12 x 3-4 μ. Perithecia scattered, globose-flattened, about 300 μ diam., 95-125 μ in height, developed beneath the mycelial pellicle, yellowish-brown, not setose. Asci oblong-cylindric, 8-spored, bitunicate, 100-120 x 12-15 μ, aparaphysate. Ascospores cylindraceous 7-septate, not constricted, 35-42 x 7-9 μ, hyaline.

CERAMOTHYRIUM CITRICOLUM Batista & Nascimento, n. sp.

Plagulae epiphyllous, brown to black, effuse. Pelliculous mycelium composed of brown to olivaceous hyphae, septate, constrict, with cells of 15-25.5 x 9-10 μ, sinuous to almost straight, branched at 45° angle in opposition one to the other, intertangled between themselves. Perithecia imbricate underneath the mycelial pellicle, globose, unilocular, 135-250 μ diam., membranous, ostiolate, brown to black, with glabrous walls, of pseudo-parenchymatic nature, 27.5-42 μ thick, formed by poligonal cells, of 8-16 x 5.5-14 μ. The imbricating

Fig. 12. - *CERAMOTHYRIUM CITRICOLUM* Bat. & Nascimento
Perithecium showing the imbricating pellicle.

450 x

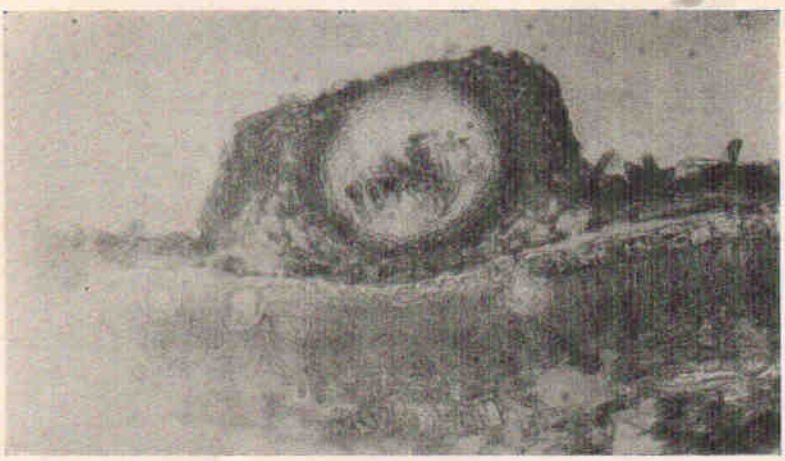


Fig. 13. - *CERAMOTHYRIUM CITRICOLA* Bat. & Nascimento
A ripe perithecium.

450 x

pellicle goes far away from the perithecia for a lenght of 120-200 μ. Asci ellipsoidal, 6-8 spored, 1-tunicate, sessile and aparaphysate, 36-46 x 19-27.5 μ. Ascospores clavate-fusiform, with the top cell hemispheric to oblong and the basal one acuminate, 3-4-septate, constrict, hyaline, polystic 14-30 x 2.5-11 μ.

On living leaves of *Citrus aurantium*, associated with *Phaeosaccardinula*, *Capnodium*, *Tripospermum* and *Orthezia insignis* Douglas.Iputinga, Recife. Leg. Regina M. Rocha Batista, 9.1.56. Type 5192, Institute of Mycology, Universit of Recife.

Plagulae epiphyllae, atro-brunneae, mycelium pelliculosum, ex hyphis brunneo-olivaceis, septatis, constrictis, ex cellulis 15-25.5 x 9-10 μ, subrectis vel sinuosis, opposite ramosis, in agulis 45° reticulatis. Perithecia intus pellicplam ibricata, globosa, uniloculata, 135-250 μ diam., membranosa, ostioalta, brunnea vel atro-brunnea; parietibus glabris, pseudoparenchymaticis, 27.5-42 μ er ex cellulis polygonalibus 8-16.5 x 5.5-14 μ; pelliculis 120-220 μ longis. Asci ellipsoidei, 6-8-spori, haud tunicati, sessiles aparaphysati, 36-47 x 19-25.5 μ. Sporae clavato- fusoideae, cellulae apicales hemisphaericae vel oblongae et cellulae basales acuminatae, elongatae, 3-4-septatae, constrictae, polystichae, hyalinae, 14-30 x 2.5-11 μ. In foliis vivis *Citri aurantii, socia Phaeosaccardinula, Capnodio, Tripospermo,* cum *Orthezia insigni* Douglas. Iputinga, Recife. Leg. Regina M. Rocha Batista, 9.1.56, Institute of Mycology, University of Recife, Prov. Pernambuco, Brazil, Amer. Austr.

CERAMOTHYRIUM CORDIAE Batista & Vital, n. sp.

Pellicle delicate, epiphyllar, fuscous; external mycelium poorly developed, composed of little constricted hyphae, light-brown, branched and reticulate, having cells of 10-25 x 4-7.5 μ; mycelial setae absent. Perithecia scattered or gregarious, globose-depressed to sub-hemispheric, unilocular, light-brown, 84-108 high and 108-121 μ of diam. formed underneath the mycelial pellicle, that goes up to 350 μ in extension, without setae. Apical pore not well defined 8-10 μ diam.; walls of parenchymatic structure, disposed in 2-3 layers, 8-11 μ diam., having a pseudo-membranous nature, parietal cells of 16-27 μ diam. and fuscous. Asci of basal origin, numerous, elliptic 21-27 x 12.1-13-5 μ, sessile, 8-spored, umbelliform. Paraphysoids present. Ascospores clavato-fusiform, with roundish poles, 3-septate, little constricted, polystic and hyaline, 10-13.5 x 4-5.4.

On living leaves of *Cordia rufescens* A.D.C. - Vitória, Pernambuco. Leg. Albino F. Vital, 24.4.1955. Type 1951, Institute of Mycology, University of Recife.

Fig. 14. - *CERAMOTHYRIUM CORDIAE* Bat. & Vital
Unripe perithecium

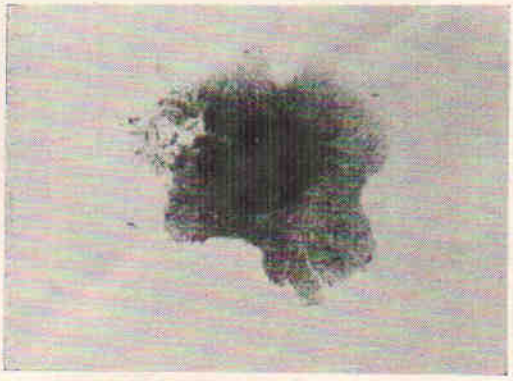


Fig. 15. - *CERAMOTHYRIUM CORDIAE* Bat. & Vital. nov. comb.
Front view of a perithecium with the mycelial pellicle
450 x

Pelliculae tenues, epiphyllae, fuscae, mycelium liberum parce evolutum, brunnescente, parce constrictum, ramosum, ex cellulis 10-25 x 4.7.5 μ, compositum. Setae myceliares nullae. Perithecia globoso-depressa vel subhemisphaerica, unilocularia, non setosa, brunnescentia, 84-108 μ alt. et 108-121 μ diam., pellicula tenue usque 350 μ longa; ostiolo definito vel non, 8-10 μ diam.; parietibus parenchymaticis, pseudo-membranosis, 8-11 μ diam., ex cellulis polyedricis, fuscis, 16-27 μ diam. efformata. Setae peritheciales nullae. Asci basales, numerosi, umbellatim dispositi, 8-spori, sessili, aparaphysati. Sporae clavate-fusoideae, ad polos rotundatae, 3-septatae, parce constrictae, polystichae, hyalinae, 10-13.5 x 4-5.4 μ - In foliis vivis *Cordiae. rufescentis.* Vitoria. Leg. Albino F. Vital, 24.4.55. Typus 1951, Institute of Mycology, University of Recife, Prov. Pernambuco, Brazil, Amer. Austr.

CERAMOTHYRIUM DEPRESSUM (Fraser) Batista, n. comb.

Ex.: *Chaetothyrium depressum* Fraser

in Proc. Linn. Soc. N. S. Wales, vol. LXI, parts 5-6, pag. 289, 1936.

on *Sideroxylon* - Australia

Mycelium effuse, thin pelliculose, reticulate, hyphae yellowish-olivaceous, made by cells from 10-16 x 5-6 μ, constricted, not setose. Perithecia scattered, globose-flattened, 200-350 μ diam., 100-150 μ in height, pseudo-ostiolate, yellowish-olivaceous, developed beneath the mycelial pellicle, not setose. Asci clavate, 8-spored, bitunicate, 90-100 x 28-30 μ, aparaphysate. Ascospores cylindraceous to clavate-cylindric, 9-13-septate, 48-60 x 8-10 μ, hyaline.

CERAMOTHYRIUM ERYSIPHINUM (Syd.) Batista & Ciferri, n. comb.

Ex.: *Zukalia erysiphina* Syd.

in Ann. Mycol. vol. XIV: 259, 1916.

on *Quercus* - Himalaya

Mycelium thin, effuse, not setose, hyphae flexuose, septate, 3-4 μ wide, hyaline; perithecia globose-conic, 50-75 μ diam., olivaceous-brownish, pseudo-ostiolate; asci globose, sessile, 8-spored, 20-28 μ diam., aparaphysate; ascospores clavate, 3-septate, constrict, 12-16 x 3.5-4.5 μ, hyaline.

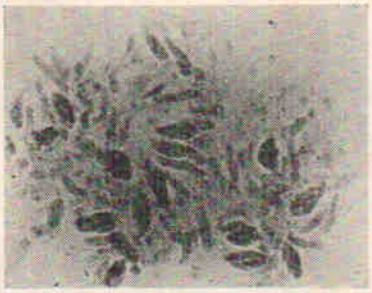


Fig. 16. - *CERAMOTHYRIUM CORDIAE* Bat. & Vital. n. sp.
Asci and ascospores from a crushed perithecium.

450 x

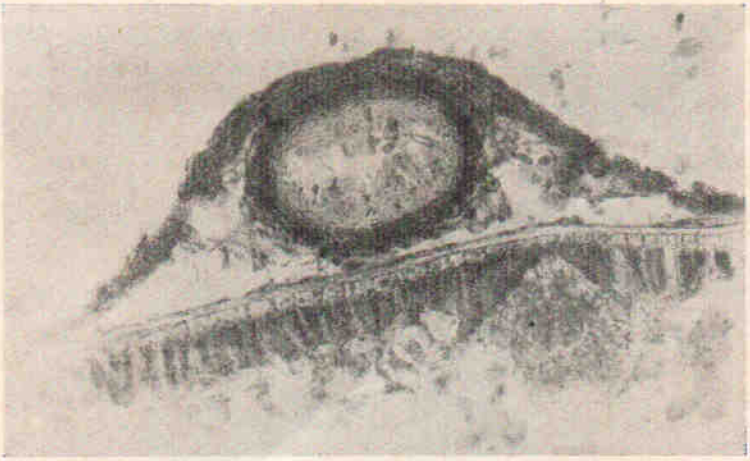


Fig. 17. - *CERAMOTHYRIUM EUROPAEUM* (v. Höhn.) Bat.
An almost ripe perithecium.

450 x

CERAMOTHYRIUM EUROPAEUM (v. Höhn) Batista, n. comb.

Ex.: *Zu alia europaea* v. Höhn.

in Sitzgsb. Akad. Wiss. Wien. CXXII, 1, pag. 283. 1913; Sacc. Syll. Fung. XXIV: pag. 381, 1923

on *Rubus* - Austria

Plagulae effuse, superficial, easily detached, epiphyllous. Mycelium brownish, pelliculous, having hyphae little constricted and septate, with subelliptic cells, 13-34 x 5.5-7 μ, not setose, nor hyphopodiate. Perithecia subglobose, blackish, developed beneath the mycelic pellicle, 150-200 μ diam., with papille of 10-12 μ diam., pseudo-ostiolate, scattered or gregarious; walls in 2-3 layers, 5-8.5 μ thick; asci 8-spored, fusoid-clavate, 42-58 x 8-12 μ, aparaphysate; ascospores oblong-fusoid, 3-septate, constricted, hyaline-clorona-ted, 16-20 x 4.5-5 μ.

Obs.: Our specimen, n° 2207, on *Peponophora schomburgiana* Miers ex Benth, coll. in Casa Forte, Recife, 22.5.55 by Osvaldo Soares da Silva, entirely agrees with the original description.

CERAMOTHYRIUM EXILIS (Syd.) Ciferri & Batista, n. comb.

Ex.: *Limacinia Exilis* Syd.

Ex.: *Limacinia exilis* Syd.

on *Solanum* - Equator

Colonies epiphyllous, scattered, very small, thin, pelliculose, not setose, grayish-brownish, hyphae reticulate branched, yellowish-brown, 2-4 μ diam.; perithecia developed beneath the mycelial pellicle, globose-depressed, 100-160 μ diam., pseudo-ostiolate, ostiole 20 μ diam., membranaceous, olive-brown, walls 10 μ thick, composed of cells 4-10 μ diam.; asci clavate, subsessile, 8-spored, 2-tunicate, 35-45 x 13-17 μ, aparaphysate; ascospores oblong-cylindrical to fusoid-clavate, 3-4-septate, not constricted, hyaline, 18-23 x 4-5.5 μ.

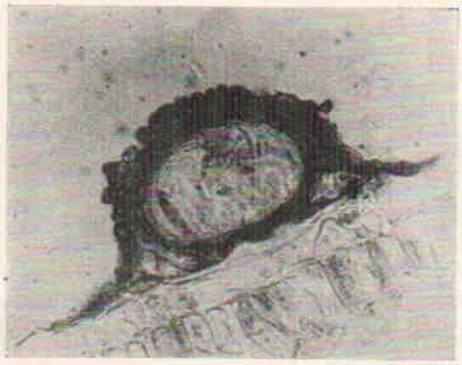


Fig. 18. - *CERAMOTHYRIUM EUROPAEUM* (v. Hoehn.) Bat.
A ripe perithecium imbricated underneath a mycelial pellicle.
450 x

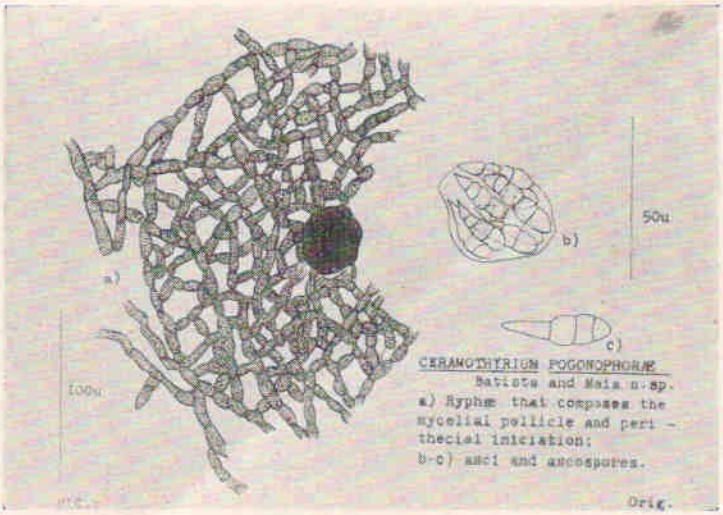


Fig. 19. - *CERAMOTHYRIUM EUROPAEUM* (v. Hoehn.) Bat.
Mycelium with the primordium of the perithecium. Right: asci with ascospores and a single ascospore.
450 x

CERAMOTHYRIUM FLAGEOLETII (Sacc.) Batista & Maia, n. comb.

Syn.: *Micropeltis flageoletii* Sacc.
in Grevillea, vol. XXI, pags. 65-69, 1893

Phragmothyrium flageoletii v. Höhn.
in Sitz. K. Akad. Wiss. Wien. vol. CXXI, pag. 347, 1912.

on *Hedera, Ilex, Myrsine* - France

Perithecia epiphyllous, formed beneath a mycelial pellicle, globose or almost so, light-brown, 300 μ in diam. Asci oblong-elongate, 8-spored, without paraphyses, 50-60 x 14 16 μ. Ascospores oblong or clavate-fusoidal, with 3 transversal septa, hyaline, 14 x 4 μ.

CERAMOTHYRIUM GLOBOSUM (Fraser) Batista, n. comb.

Ex.: *Chaetothyrium globosum* Fraser
in Proc. Linn. Soc. N. S. Wales, vol. LXI, pag. 285, 1936.

on *Wilkiea, Sideroxylon* - Australia

Mycelium superficial, effuse, thinly pelliculose, reticulate, brownish, hyphae cylindrical, slightly constricted, with cells from 4-5 x 5-10 μ; not setose. Perithecia developed beneath the mycelial pellicle, globose-flattened, 200-350 μ wide, 190-250 μ high, olive-brown, pseudo-ostiolate, not setose. Asci clavate, 95-100 x 15-20 μ, bitunicate, 8-spored, aparaphysate. Ascospores cylindraceous 6-9 transverse septate, slightly constricted, hyaline, 50--58 x 5-6 μ.

CERAMOTHYRIUM GRISEOLUM (Fraser) Batista, n. comb.

Syn.: *Chaetothyrium griseolum* Fraser
in Proc. Linn. Soc. N. S. Wales, vol. LXI, parts 5-6 pag. 285, 1936.

on *Dodonea, Ficus, Ceratopetalum, Synoum* - Australia

Chaetothyrium fuscum Fraser
in loc. cit. pags. 286, 1936

on *Tristania, Eugenia, Rapanea, Syncarpia, Synoum* - Australia.

Mycelium superficial, scanty, thinly pelliculose, hyphae reticulate, olive--brownish, cylindrical slightly septate, with cells from 7-10 x 3-3.5 μ, not

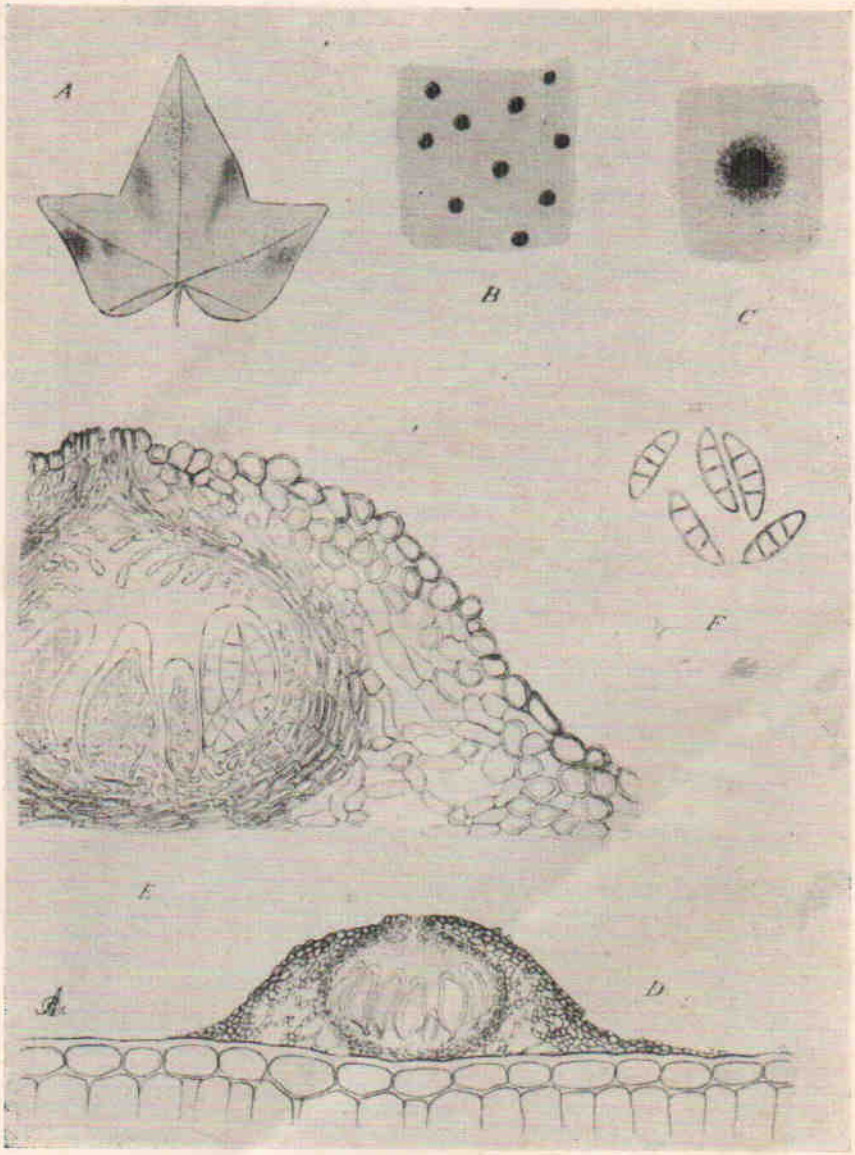


Fig. 20. *CERAMOTHYRIUM FLAGEOLETII* (Sacc.) Bat. & Maia
From a plate of ARNAUD (for the explanation see the fig. 1).

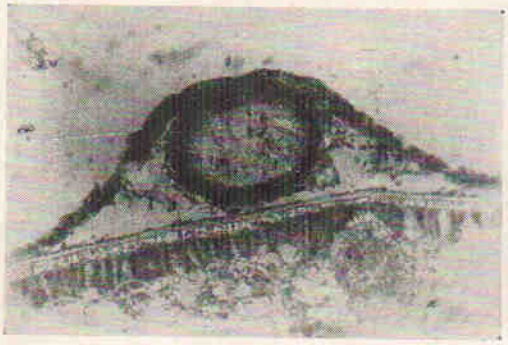


Fig. 21. - *CERAMOTHYRIUM GRISEOLUM* (Fraser) Batista
Unripe perithecium.

450 x

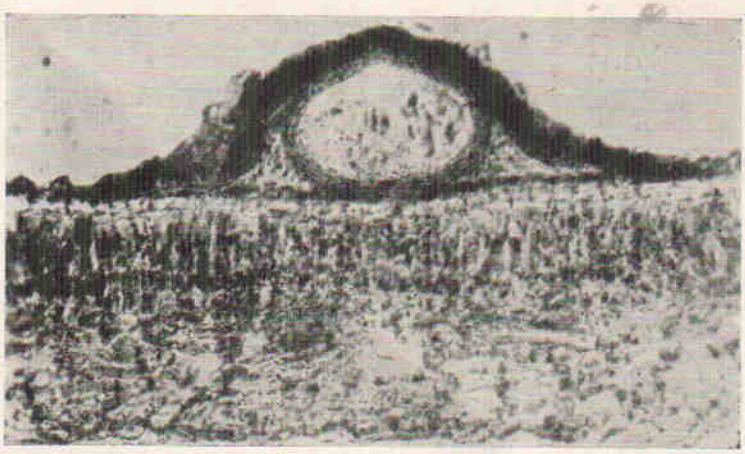


Fig. 22. - *CERAMOTHYRIUM GRISEOLUM* (Fraser) Batista
Ripe perithecium.

450 x

setose, Perithecia globose-flattened, 200-250 x 60-120 μ diam., 80-90 in height, pseudo-ostiolate, developed beneath the mycelial pellicle, greyish-brown, not setose, pseudoparenchymatic, with walls in 2-3 laers, 12.5-17.5 μ thick. Asci clavate, 8-spored, bitunicate, 40-50 x 15-20 μ aparaphysate, or with branched paraphysoids. Ascospores cylindric-fusoid, 4-6-septate, hyaline, 19-25 x 4-5 μ.

It is not *Chaetothyrium* for the presence of dark mycelium, as well as the lack of setae.

The same species has been foud in Brazil (on *Garcinia* sp., Casa Forte, Recife, Leg. A. Fernandes Vital, 18.1.1955, n. 1210).

Our specimen, n° 5608, coll. at Vitoria by S. J. da Silva on leaves of *Aleurites moluccana* entirely agrees with Fraser's diagnose.

CERAMOTHYRIUM GUSTAVIAE Batista & H. Lima, n. sp.

Plagulae epiphyllous, almost invisible without the aid of lens. Mycelium superficial with olivaceous hyphae, septate, having cells from 3 to 7.5 μ by 3 to 6 μ diam., slightly constricted, not hyphopodiate, forming a real pellicle, without setae. Perithecia globose to subglobose, unilocular, 120-125 μ diam., 95-100 μ high, flattened at the top, brown, imbricate under the mycelial pellicle, menmbranous, with circular apical opened pore, 15-18.5 μ diam. Parenchymatic walls with several layers of fuscous cells, 18-25 μ in thickness; the cells are sub-globose, with 3-7.5 μ diam. Asci elliptic, 8-spored, sessile or little pedicellate, 48-59 x 10-13 μ; paraphysoids present. Ascospores clavate-fusoid, 3-5-septate, not constricted, polystic, hyaline, 22-25 x x 3.7-5 μ. On living leaves of *Gustavia augusta* L. associated to *Vizella gustaviae* Batista & H. Lima, n. sp. - Camaragibe, S. Lourenço. Leg Osvaldo Soares da Silva, 23.6.55. Type 2486, Institute of Mycology, University of Recife.

Plagulae epiphyllae parce notatae. Mycelium liberum ex hyphis olivaceis, septatis, ex cellulis 3-7.5 x 3-6 μ, parce constrictis, superficialibus, haud hyphopodiatis, non setosis, reticulatis, in pelliculam compositum. Perithecia globosa vel subglobosa, unilocularia, non setosa, 120-125 μ diam., 95-100 μ alt., collapso-depressa, brunnea, intus pelliculam mycelialem imbricata, ostiolo rotundato, pertuso, 15-18.5 μ diam., ex cellulis fuscis, subglobosis, 3-7.5 μ diam. Asci ellipsoidei, 8-spori, sessiles vel breve-stipitati, 48-59x 10-13 μ, parietibus tenuis; paraphysoidis presentis. Sporae clavato-fusoideae vel cylindraceo-fusoideae, 3-5-septatae, non constrictae, polystichae, hyalinae, 22-25 x 3.7-5 μ. In foliis vivis *Gustaviae augustae* L. socia *Vizella gustaviae* Batista & H. Lima, - Camaragibe, S. Lourenço. Leg. Osvaldo Soares da Silva, 23.6.55. Tpus n° 2486, Institute of Mycology, University of Recife, Prov. Pernambuco, Brazil, Amer. Austr.

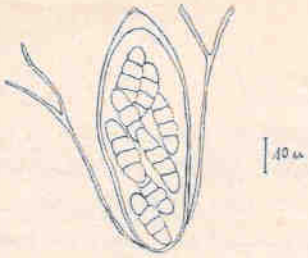


Fig. 23. - *CERAMOTHYRIUM GRUSEOLUM* (Fraser) Batista
Ascus with paraphysoids.

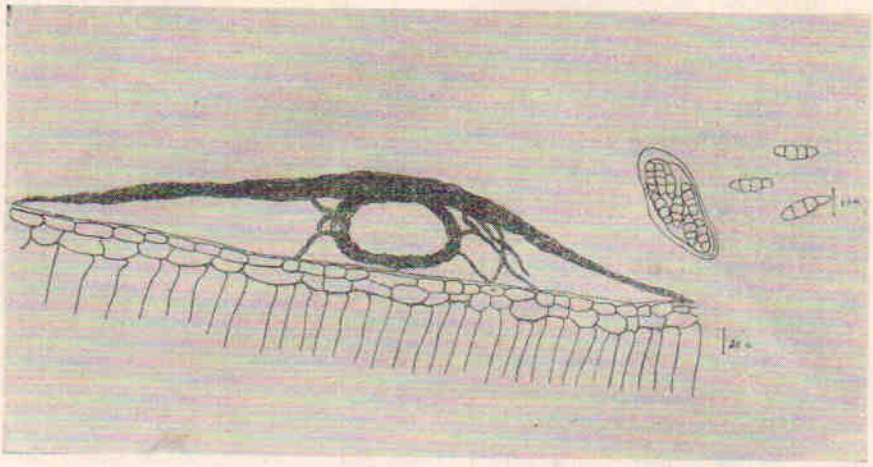


Fig. 24. - *CERAMOTHYRIUM GUSTAVIAE* Bat. & H. Lima
Sketch of a perithecium, with asci and ascospores.

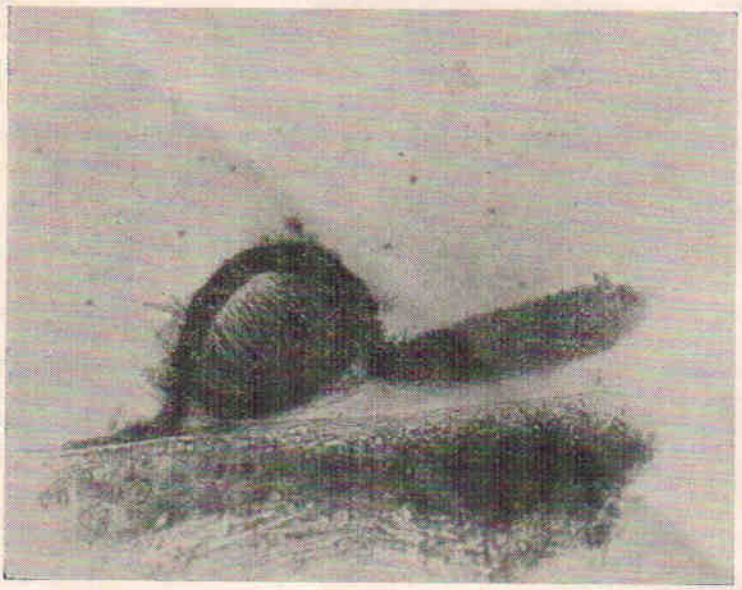


Fig. 25. - *CERAMOTHYRIUM GUSTAVIAE* Bat. & H. Lima
Perithecium full with asci under the mycelial pellicle.

450 x

CERAMOTHYRIUM GYMNOPOGONIS (v. Keissl.) Batista & Ciferri, n. comb.

Ex.: *Zukalia gymnopogonis* v. Keissl.
in Ann. Mycol. vol. VII: pag. 291, 1909.

on leaves of *Gymnopogonium* - Samoa Islands

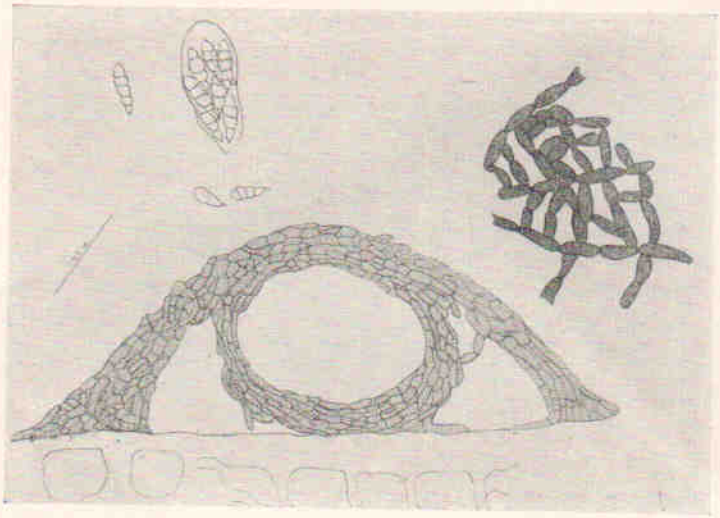
Superficial mycelium epiphyllous, thin, pelliculous, hyphae brownish, septate, rectangularly ramose, 6 μ wide. Perithecia developed beneath the mycelial pellicle, globose, astomous, blackish, 300-500 μ diam.; asci cylindric, short stipitate, 8-spored, 50-55 x 10 μ; ascospores subclavate, 2-septate, not constrict, 15 x 5, hyaline.

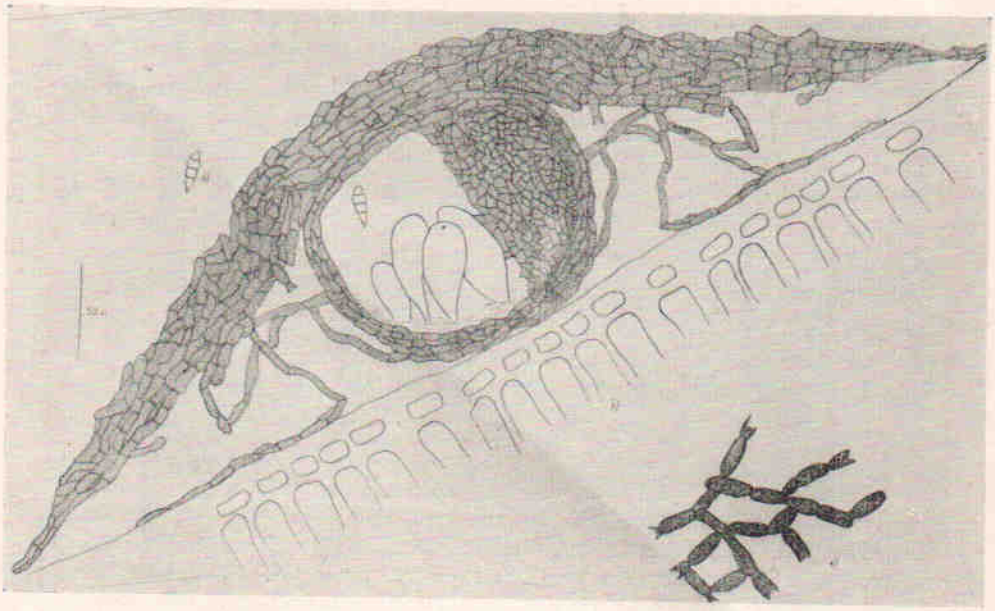
CERAMOTHYRIUM PAIVEAE Batista & Maia, n. sp.

Plagulae thin, epiphyllous, olivaceous to fuscous. Mycelium superficial, scanty, composed of light-brownish hyphae, little constricted, not setose, exhyphodiate, branched, reticulate, having cells from 10-25 x 2.5-5 μ. Perithecia scattered, born under mycelial pellicle, subglobose 57-62.5 μ high and 87.5--92.5 μ diam., not setose, yellow-brownish; surrounding pellicle olivaceous, up to 154 μ in extension; apical pore not well defined; parenchymatic wall, pseudomembranous, in 2-3 layers, 12-15 μ diam., composed of polyhedrical cells. Asci subglobose, numerous, 4-8 spores, sessile, 30-42 x 13-25 μ. Paraphysoids present. Ascospores clavate-fusoid, 1-4-septate, little constricted, with the superior cell roundish and the inferior one spindle-shaped, polystic, subhyaline, 12.5-22 x 3.7-6 μ.

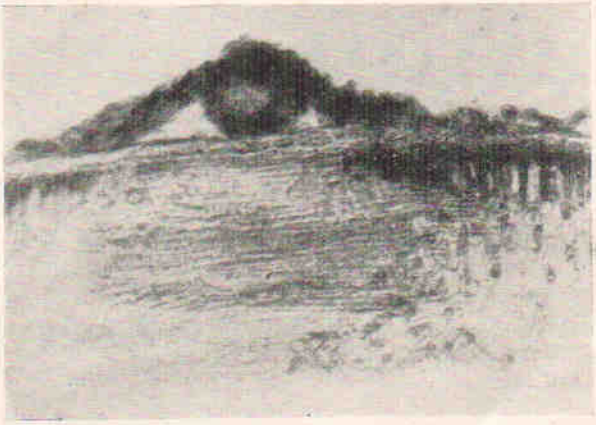
On living leaves of *Paivea langsdorfii* Berg. Camaragibe, S. Lourenço. Leg. Manuel R. Pereira, 6.6.1955. Type n° 2411, Institute of Mycology, University of Recife.

Plagulae tenue, epiphyllae, effusae, olivaceae. Mycelio libero limitato, superficiali, non setoso ex hyphis brunnescentes, pauci constrictis, reticulatis, ramosis, haud hyphopodiatis, ex cellulis, 10-25 x 2.5-5 μ efformato. Perithecia sparsa, in pellicula subposita, subglobosa, 57-62.5 alt. et 87.5-92.5 μ diam., non setosa, brunneo-aurantiaca; ostiolo indefinito; parietibus parenchymaticis, pseudomem branosis, 2-3 stratosis, 12-15 μ diam., ex cellulis polyedricis, brunnescentibus efformatis, pelliculis subhyalinis circumdantibus, usque 154 μ longis. Asci subglobosi, numerosi, 4-8 spori, sessili, aparaphysati, 30-42 x 13-25 μ. Sporae clavato-fusoideae, 1-4 septate, pauci constrictae, cellulae apicali rotundatae et basali acuminatae, polystichae, subhyalinae, 12.5 x 3.7-6 μ. - In





Figs. 26 and 27. - *CERAMOTHYRIUM PAIVEAE* Bat. & Maia
Semi-diagrammatic drawings of the pellicle, perithecium, mycelium and (left of the figures) asci with ascospores and ascospores.



Figs. 28-29-30. - *CERAMOTHYRIUM PAIVEAE* Bat. & Maia
450 x

foliis vivis *Paiveae langsdorfii* Berg. Camaragibe, S. Lourenço. Leg. Manuel R. Pereira, 6.6.55. Typus 2411, Institute of Mycology, University of Recife, Prov. Pernambuco, Brazil, Amer. Austr.

This species has been found also on *Palicourea fastigiata* H. B. K. (Arruda, Recife, Leg. Heles Lacerda, 22.6.1955, N. 2488); on *Inga bahiensis* Spruce (Agua Fria, Recife, Leg. Lidio Alves, 6.6.1955, N. 2412) and on unknown host (Vitoria, Pernambuco, Leg. S.J. da Silva, 31.1.1956, N. 5298).

Ex.: *Zukalia Paraensis* P. Henn.

Ex.: *Zukalia paraensis* P. Henn.
in Ann. Mcol. VI, pag. 490, 1908

on *Anacardium* - Brazil

Mycelium epiphyllous, olivaceous, hyphae ramose, septate, 4-5 μ wide; perithecia subglobose, originated beneath the mycelial pellicle, verrucose, 30-100 μ diam., blackish; asci clavate, 8-spored, 44-52 x 10-14 μ; ascospores clavate, 3-7-septate, hyaline, 20-30 x 3.5-4 μ.

CERAMOTHYRIUM PELTATUM (Fraser) Batista & Ciferri, n. comb.

Ex.: *Chaetothyrium peltatum* Fraser
in Proc. Linn. Soc. N. S. Wales, vol. LXI, parts 5-6, pag. 286, 1936.

on *Eugenia* - Australia.

Mycelium thin, effuse, hyphae constricted at the septa, greyish-brown, with cells from 6-9 x 3-5 μ, not setose. Perithecia globose-flattened, 300-420 x 120--150 μ in height, pseudo-ostiolate, brownish to bluish-grey. Asci clavate, 8-spored, bitunicate, 55-65 x 13-15 μ, aparaphysate. Ascospores cylindraceous, 6-9-septate, hyaline, 28-32 x 4.5-6.5 μ. The bluish-grey colour of the perithecia surrounding mycelial pellicle is considered as characteristic of this species.

CERAMOTHYRIUM PHILODENDRI Batista, n. sp.

Delicate mycelial pellicle, brownish, covering most of the leaf. Mycelium composed of clearly septate hyphae, light-brown, 3.5-5 μ thick, without setae or hyphopodia. Perithecia formed beneath the mycelial pellicle, without setae, brown, membranose, subglobose to depressed, pseudo-ostiolate, 65-90 μ high, 85-125 μ diam., walls made by 2-3 layers, 12.5-17.5 of thickness, external cells

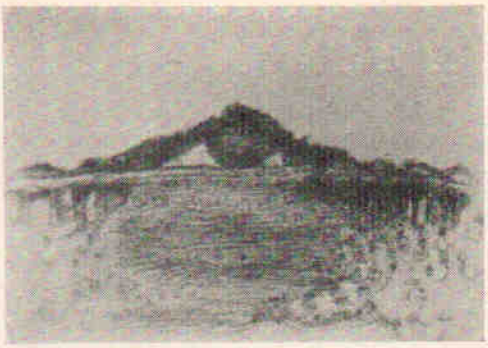


Fig. 31. - *CERAMOTHYRIUM PAIVEAE* Bat. & Maia
Young perithecium.

450 x

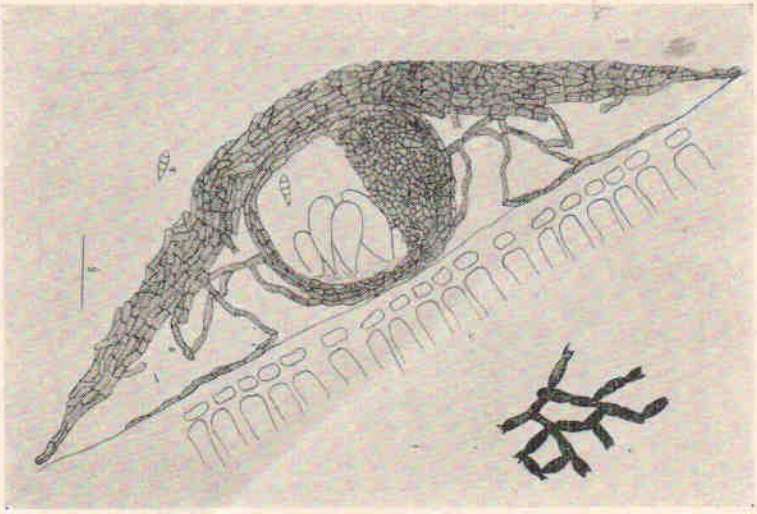
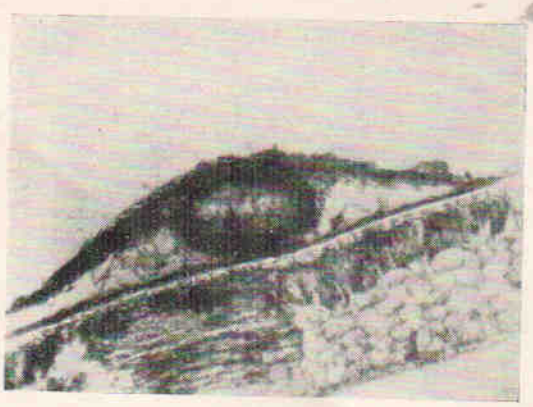


Fig. 32. - *CERAMOTHYRIUM PAIVEAE* Bat. & Maia
Semi-diagrammatic drawing of the imbricate perithecium; left: an ascospore; right: mycelium.



Figs. 33 and 34. - *CERAMOTHYRIUM PAIVEAE* Bat. & Maia
Perithecia deloped under the micelial pellicle.

450 x

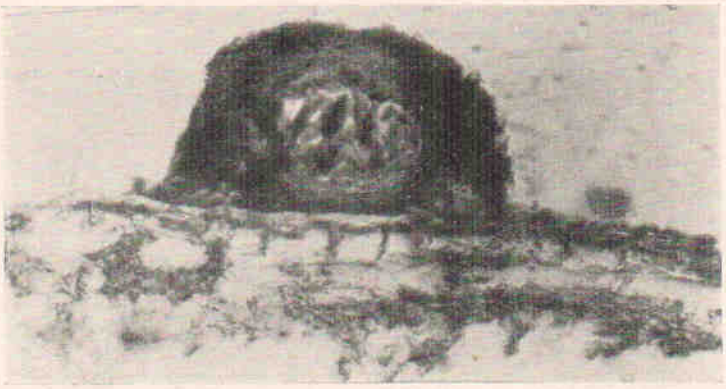


Fig. 35. - *CERAMOTHYRIUM PHILONDENDRI* Bat. & Vital
An unripe perithecium.

450 x

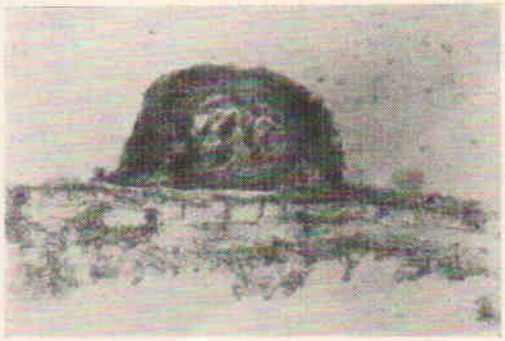


Fig. 36. - *CERAMOTHYRIUM PHILODENDRI* (Vital) comb.
Perithecia formed underneath a mycelial pellicle.

200 x

polygonal, 3-13 μ diam. Asci ellipsoid, umbellate, sessile or short pedicellate, aparaphysate, 8-spored, 50-75 x 20-27.5 μ up to 100 μ long. Ascospores cylindric-clavate, or clavate, with a round end, the opposite angular, 17.5-32.5 x 5--7.5 μ, polystic, 1-7-septate, hyaline.

Mycology, University of Recife. Loc. Dois Irmãos, Leg. Osvaldo Soares da Silva, 18.1.55.

On living leaves of *Philodendron imbe* Schott. Type n°1221, Institute of

Mycelium superficiale, epiphyllum, brunneum, ex hyphis septatis, brunnescentibus, 3-5 μ diam., non setosis, exhyphopodiatis compositum. Perithecia sub pellicula myceliana oriunda, subglobosa vel depressa, 65-90 μ alt. 85-125 μ diam., non setosa, pseudo-ostiolata; parietibus 2-3-stratosis, 12.5-17.5 cr, ex cellulis polygonalibus, 3-13 μ efformata. Asci ellipsoidi, umbellati, sessili vel non, 8-spori, 50-75 x 20-27.5 μ (usque 100 μ alt.). Ascosporae cylindro-clavatae vel clavatae, 1-7-septatae, polystichae, hyalinae, 17.5-32.5 x 5-7.5 μ - In foliis vivis *Philodendri imbe* Schott, Leg. Osvaldo Soares da Silva, Dois Irmãos, 18.1.55. Typus n° 1221, Institute of Mycology, University of Recife, Prov. Pernambuco, Brazil, Amer. Austr.

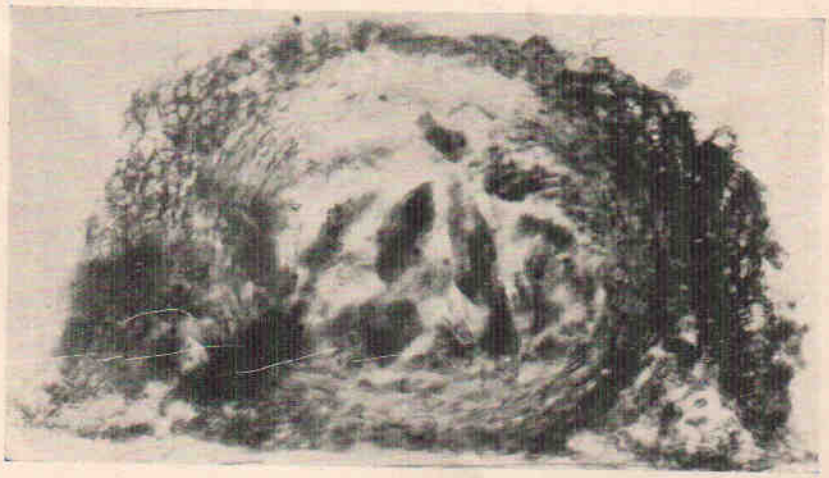


Fig. 37. - *CERAMOTHYRIUM PHILODENDRI* Bat. & Vital
The perithecium underneath the mycelial pellicle.

450 x