

The Journal of Agriculture of the University of Puerto Rico

In continuation of The Journal of the Department of Agriculture of Puerto Rico

Published by THE AGRICULTURAL EXPERIMENT STATION, Rio Piedras, P. R.

Published Quarterly; January, April, July and October of each year.

MELVILLE T. COOK, EDITOR

VOL. XXII

OCTOBER 1938

No. 4

PUGILLUS FUNGORUM VENEZUELENSIS

RAEAEEL A. TORO⁽¹⁾

Since the publication of Chardon & Toro's Mycological Explorations of Venezuela (1), in which the number of known species of Venezuelan fungi was raised to a little over 1100, there have appeared a few short papers dealing with this subject. Sydow (4) adds seven new species in a revision and addition to his former *Fungi Venezuelani*; the author (5) adds three, and Kern (2), four, in their respective reports of the expedition of Kern and Toro in 1934. Linder (3) presents the results of his studies of several members of the Imperfecti collected by Chardon & Toro in 1932.

The present paper represents an attempt to identify some of the specimens which were collected in the course of the several trips to Venezuela.

IRENE LARVIFORMIS (P. Henn.) Stev., *Annal. Myc.* **25**: 425. 1927.

Meliola larviformis P. Henn. *Hedwigia* **43**: 362. 1904.

Appendiculella larviformis (P. Henn.) v. Höhn., *Sitz. K. Akad. Wien.* **128**: 556. 1919.

This is one of the few species of the group *Meliolinae* which show extreme pathogenesis in the host tissue. It forms brown necrotic lesions, surpassing the boundaries of the fungus colony. Another characteristic of this species is its susceptibility to epipathogens. None of the colonies examined were free from either *Helminthosporium* or *Calonectoria* sp.

On *Acalypha macrostachya* Jacq.

La Cumbre, road to Ocumare, Aragua, Chardon & Toro No. 692. July 25, 1932.

⁽¹⁾ Contribution No. 9, from the Department of Botany and Plant Pathology, College of Agriculture and Mechanic Arts, Mayagüez, P. R. Published with the authorization of the Dean.

IRENINA DALECHAMPIAE Stev., Annal. Myc. 25:449. 1927.

This species was hitherto only known from Ecuador. It may be also present in Colombia as this second collection comes from the Venezuelan llanos.

On *Dalechampia scandens* L.

Hacienda Santa Bárbara, El Palmar, Bolívar, H. Soltero, No. 1545, Nov. 8, 1932.

MELIOLA PITHECOLOBII Stev. & Tehon., Myc. 18:9. 1926.

Our specimen agrees with the description of the species. Some of the setae merge in their length with that of *M. Meibomia* Stev. & Tehon and a closer study may reveal that both are identical.

On *Pithecolobium* sp.

Upata, Bolívar, H. Soltero No. 1539. Nov. 5, 1932.

MELIOLA SAPINDACEARUM Speg., Rev. Argentina Hist. Nat. 1:29. 1891.

This species has been previously reported from Venezuela on other hosts.

On *Sapindus saponaria* L.

Heda. El Recreo, San Fernando de Apure. H. Soltero No. 1567. Dec. 1, 1932.

***Schiffnerula paraparensis* sp. nov.**

Fungus epiphyllous, forming loose, irregularly distributed, blackgray, superficial colonies, often covering the whole surface of the leaf; mycelium brown pellucid, septate, nearly straight, 6-7 μ thick; hyphopodia alternate, one per cell, round, entire, about 10 μ in diameter; sarciniform conidia, dark, four celled, globose; fusiform conidia brown, transversely septate: fruit bodies few, subglobose, same color as the mycelium, at first parenchymatous and of elongate cells, later without cellular structure, sometimes breaking irregularly and exposing a clear hyaline substance, 60-80 μ in diameter; asci ovoid, 8-spored, few in number, 36-45 μ in diameter, spores two celled, unequally septate, one cell round, the other conical slightly constricted, thick walled, light olivaceous, 20 \times 10 μ . (Plate I. Figs., 5-6-8).

Plagulae semper epiphyllae, tenues, irregulariter densiusculeque sparsae, superficialiae, atro-griseae, plus minus effusae et magnam folii partem occupantes; mycelium ex hyphis plerumque rectiusculis, remotiusculis septatis pellucide bruneis constans; hyphopodia alternantia, continua, leves globosa; conidia sarciniformes 4-cellularia, fuliginea; conidia fusiformes brunneae, septata; perithecia pauca, subglobosa, mycelio concoloribus, contexto primum parenchymatico dein superne anhystris per aetatem irregulariter disrupta, stratum interius diaphanum hyalinum relinquentia; asci ovoboidis octoni, pauci; spores uniseptatae, loculis plerumque parum inaequalis.

A folia viva *Bursera tomentosa* Tr., y Planch, Prope Parapara, ad vias, Chardon et Toro No. 712. (*Typus*). July 27, 1932.

The species is closely related to *Schiffnerula pulchra* (Sacc) Pet. with which it has many points of similarity, such as the shape and form of the young perithecia and the possession of two different types of conidia. It may be said it is a parallel species which has developed under different environmental conditions.

The systematic position of the genus *Schiffnerula* v. Hohn. has been amply discussed by Petrak (Ann. Myc 26: 395. 1928). However, he based his conclusions not on examination of the type species; but on other material referred to that species. The same is true with respect to the genus *Questieria* Arnaud which he considers a synonym, differing from *Schiffnerula* v. Hohnel in the possession of Sarcinella-like bulbils.

The author was fortunate to study both, the type of *Schiffnerula*, *S. mirabilis* v. Hohn and of *Questieria*, *Q. pulchra* (Sacc.) Arn., and to compare these with the specimens examined by Petrak (Elmer No. 2007 from Borneo and Rabh. Fung. Europ. No 2149). In the case of *S. mirabilis* v. Hohn, on *Passiflora foetida* (Schiffner No. 2723, Urwald von Depoek, Buitenzorg, Java), type of the genus, the general characters are as described by Petrak for the Borneo material. However, there is also present some conidia resembling a brown *Fusarium*, which are probably the structures referred to by V. Hohnel (Fragm. z. Myk. 330. 1909) when he mentions "sitzenden querge-theilten condien". These are also figured in the original package. No such conidia are mentioned by Petrak, but they are described and figured by Arnaud (Les Asterinees I. pag. 188 et. pl. XLI. fig. B. 1918) for *Questieria pulchra* (Sacc) Arn. as "spores ressemblant a celles des Fusarium. . .". In addition to this type of conidia there is in Arnaud's (Desm. Pl. Crypt. de France No. 404) and our, material (but not in v. Hohnel's) a second form. This is of the *Sarcinella*-type, four celled, dark brown bulbils surrounded by a hyaline, gelatinous-like substance. Thus, this *Sarcinella*-form represents the only difference between *Questieria* Arn. and *Schiffnerula* v. Hohnel. But such form is not always constant, as *Questieria monotheca* (Pat. & Gaill) Arn., the first species described under the genus, do not possess said conidia.

In view of these facts we are inclined to agree with Petrak and consider *Questieria* a synonym of *Schiffnerula*. The presence of the bulbils of the *Sarcinella*-type in *S. pulchra*, in our material, and in several other akin forms, can be best explained, using Arnaud's (l. c. pg. 189) own words, as "un moyen de résister aux conditions défavorables d'un climat différent de celui on l'on recontre habituellement".

ANTIMANOVA GRISLEAE Syd., *Annal. Myc.* 28 : 170. 1930.

Myocopron Guiscafrei Toro *Monog. Univ. Porto Rico.* 2 : 94. 1934.

An examination of the type of *Antimonova* at the Farlow Herbarium, Harvard University, show that our previous determination belongs to this genus and that the host is also the same. Therefore, both are corrected here.

On *Grislea secunda* Loeffl. Chardón and Guiscaféré No. 560, Knoop's Park, Los Teques.

ASTERINA ECHIONOSPORA v. Hohn. *Sitz. del K. Akad. Wiss. in Wien.* 119 : 440. 1910.

Our specimen agrees in general characters with the type from Ceylon (Thwaites No. 497) on *Canejera Rheedii*. The echinulation of the unequally septate spores is typical. This is the first report of the species in America. (Plate I, Figs. 4-7.)

On *Ximenia americana* L.

Road Beyond Petare, Chardón and Toro No. 461, July 8, 1932.

Kerniomyces gen. nov.

Mycelium superficiale nullum; stromata sparsa, omnino superficialia, dimidiato-scutata, membrana basali distincta nulla, strato tegente convexulo reticulato-plectenchymatico plus minus intense olivaceo-brunneo, plica tenui lineari-formi simplici rima longitudinali aperta praedita; asci numerosi, clavati, octoni; stratis plus minus crassis contextis separati; sporae elongato fusoidae, septa transversalis divisae, hyalinae.

Est Myriangella Zimm. thyriothecia linearia longitudinalis dehiscentibus.

A mycologo præclaro F. D. Kern, in Collegi Pennsylvaniensis Professori, de estudio Flora Tropicalis impirmis merito.

This interesting fungus gives, at first sight, the impression of a *Lembosia* devoid of superficial mycelium. The character of the fruit body and the absence of mycelium places the fungus in the Hemisphaeriaceae. Shear and Clements (*Gen. Fung.* pg. 99. 1931) include in this Family *Hadotia* Maire which possess long fusoid, multiseptate spores and longitudinally dehiscing fruit bodies. An examination of Maire's drawings and discussi on (*Bull. Soc. Sc. Nancy III: 16: 177, Fig. 2, 1906*) shows clearly that his, is an Hysteriaceous form, related to the type of *Lophodermium* occuring on grasses. Moreover, his illustration shows that the fungus is subcuticular and not superficial, as mentioned in the text. Another genus with spindle shaped

spores but sub-cuticular perithecia is *Moesziella* Pet. In this genus, the fruit bodies are borne in a collective stroma and dehiscence is not always longitudinal. Also *Phychopellis* Syd. is a *Mycrothyrium* Desm, opening by long slits. *Stigmatophragma* Tehon & Stout has also a subcuticular ascoma; *Schizothyrium* Desm has two celled spores while *Phragmothyriella* v. Hoehn., as pointed out by the author (Mycol. 19 : 71. 1927) is a synonym of *Myriangella* Zimm, and possess a round thyriotheceium.

Type species the following:

***Kerniomyces costi* sp. nov.**

Colonies amphigenous, widely separate, 2.5–5 mm. in diameter grayish black, not shiny, smooth; evident superficial mycelium absent; thyriotheceia lineal, longitudinally dehiscent, lembosioide, rarely y-shaped by confluency, margin entire, composed of olivaceous brown, septate cells which form a close network, aperture 40–80 μ wide; exposing the contents which are hyaline when fresh, brownish when dry, 123–138 \times 176–274 μ ; asci numerous, ellipsoid, tuncate above, short pedicellate, 8-spored, somewhat bent, separated by a thick-gelatinous, paraphysoid tissue which is hyaline-olivaceous at first brownish with age, 58–68 \times 18–26; spores filiform, distributed in two rows or somewhat inordinate, thin walled, 3–4 septate, not constricted, hyaline, 29–37 \times 4–6 μ . (PLATE I, FIGS. 1–2–3.)

Plagulae amphigenae irregulariter laxeque disperseae, atrogriseae, tenues; mycelium superficiale nullum; thyriotheceia densiuscule distributa, semper exacte lembosioidea, linearia, recta vel curvata, haud raro in forma signi Y confluentia, rima angusta longitudinali aperta; asci ellipsoidei, antice late rotundati, postice brevissima stipitati, octoni, spora distichae vel fasciculatae, clavulatae, hyaline, ad septa non constrictae.

Ad folia viva *Costus macrostachys* H. B. K., Toro No. 93, prope Ocumare de la Costa ad vias, Dec. 1930.

LITERATURE CITED

1. Chardon, C. E. & R. A. Toro—Mycological Explorations of Venezuela. Monog. Univ. of Puerto Rico series B. No. 2, 349 p., 1934.
2. Kern, F. D.—Additions to the Uredinales of Venezuela. Mycologia 30 : 537–552. 1938.
3. Linder, D. H.—New Venezuelan Fungi Imperfecti. Mycologia 29 : 656–664. 1937.
4. Sydow, H.—Fungi Venezuelani-Additamentum. Anal. Myc. 33 : 85–100. 1935.
5. Toro, R. A.—Novedades Criptogámicas de Venezuela. Acad. Cienc. Fis. Mat. y Nat. Caracas, p. 1–15, 1935.

EXPLANATION OF PLATE

Kerniomyces Costi gen. et. sp. nov.

Fig. 1. Photomicrograph of the thyriotheceum.

Fig. 2. The gelatinous matrix in fruit body. Note the ascus with multi-septate spores imbedded in it.

Fig. 3. Photograph of a piece of the leaf of *Costus macrostachys* showing a number of the fruiting bodies.

Asterina echinospora v. Hohn.

Fig. 4. Leaf of *Ximensia americana* showing distribution of fungus.

Fig. 7. Fruit body of *Asterina echinospora*.

Shiffnerula paraparencis sp. nov.

Fig. 5. High power microphotograph of mycelium and bulbils. Note the Fusarium-like brown spore.

Fig. 6. Leaf of *Bursera tomentosa* showing the moldy appearance of fungus.

Fig. 8. Low power microphotograph of mycelium, hyphopodia, bulbils and conidia.

PLATE XIII

