RMR Boll. AMER n. 121, anno XL, 2024 (1): 3-14
https://doi.org/10.57624/AMER.2024.1

CLAUDIO ANGELINI, CRISTIANO LOSI

FUNGUS FLORA OF THE DOMINICAN REPUBLIC. IX. SOME UNRECORDED POLYPOROID, CORTICIOID AND CLAVARIOID FUNGI

Abstract

Two polyporoid (Heterobasidion irregulare, Perenniporia inflexibilis), two corticioid (Eichleriella tenuicula, Steccherícium seriatum) and five clavarioid (Clavulinopsis corniculata, Phaeoclavulina eumorpha, Phaeoclavulina flaccida, Phaeoclavulina zippelii, Tremellodendropsis flagelliformis) neotropical fungi all collected in the Dominican Republic are here represented and annotated.

Riassunto

Vengono qui rappresentate con brevi note a commento due specie poliporoidi (Heterobasidion irregulare, Perenniporia inflexibilis), due specie corticioidi (Eichleriella tenuicula, Steccherícium seriatum) e cinque specie clavarioidi (Clavulinopsis corniculata, Phaeoclavulina eumorpha, Phaeoclavulina flaccida, Phaeoclavulina zippelii, Tremellodendropsis flagelliformis) di funghi neotropicali raccolti in Repubblica Dominicana.

Key words *Basidiomycota, Aphyllophorales*, sub-tropical zone, Caribbean.

Introduction

Following our previous contributions to the knowledge of fungi of Dominican Republic (Angelini & Losi 2013a, 2013b, 2014, 2015, 2016, 2018, 2021 and 2023), here are represented other nine records not previously annotated. The collecting and research areas in the Dominican Republic have been described in detail in ours previous works (Angelini & Losi 2013a, 2013b, 2014) and on the website *"Neotropicalfungi – Hongos de la Republica Dominicana"* (*www.neotropicalfungi.com*).

Legend ANGE: Angelini C., personal herbarium, waiting to be deposited in the Herbarium of the National Botanical Garden of Santo Domingo (Dominican Republic - JBSD).

TAXONOMY

POLYPOROID FUNGI

Family ***Bondarzewiaceae*** Kotl. & Pouzar 1957

Basidiomata effused or fan-shaped, rarely stipitate. Hyphal system usually dimitic, clamp connections present or absent but then often present in culture. **Gloeocystidia** present. **Basidiospores** usually ornamented, staining in iodine (Cannon & Kirk 2007).

Genus ***Heterobasidion*** Bref. 1888

Basidiomata perennial, resupinate to pileate. **Hyphal system** dimitic; generative hyphae simple septate, skeletal hyphae dextrinoid. **Basidiospores** hyaline, finely asperulate, non-amyloid.

Heterobasidon irregulare Garbel. & Otrosina

Basidiomata pileate, sessile, single or imbricate, up to 5 × 2 × 1.5 cm. Upper surface glabrous, irregular, with a brown cuticle spreading from the base, white towards the margin. **Pore** surface white to cream, pores circular to angular or often elongated, 3-5 per mm. **Context** up to 1.5 cm thick, corky, azonate, whitish. **Basidiospores** ovoid, broadly ellipsoid to subglobose, thin- to slightly thick-walled, minutely asperulate but mainly smooth under the light microscope, 4.2-5.6 × 3.2-4 μm. **Distribution** in the Neotropics reported from Cuba. **Material studied:** in the hills, growing on the ground trunk of *Pinus caribaea* Morelet. 23 Jan. 2023, Puerto Plata, loc. Pico Isabel de Torres (in Isabel de Torres National Park) DR. *Exiccatum*: ANGE1846 (**Fig. 1**).

Fig. 1. *Heterobasidon irregulare*. ANGE1846. Foto di Claudio Angelini

Family ***Polyporaceae*** Fr. ex Corda 1839

(as definied in Angelini & Losi 2014)

Genus ***Perenniporia*** Murrill

(as definied in Angelini & Losi 2015)

Perenniporia inflexibilis (Berk.) Ryvarden

Basidiomata resupinate, orbicular, effused-reflexed to pileate, solitary or fused to more compound basidiocarps; **pileus** projecting up to 0.5 cm, 2 cm wide, margin slightly undulate, upper surface velutinate-tomentose, somewhat sulcate, ochre-yellow; **pore** surface white to cream, pores round, 6-10 (-12) per mm, dissepiments rather thick. **Hyphal system** trimitic, generative hyphae with clamps, skeletal-binding hyphae predominant, dextrinoid. **Basidiospores** broadly ellipsoid to subglobose, thick-walled, not or weakly dextrinoid,

4-5.6 × 3.2-5 μm. **Distribution** pantropical (Ryvarden 2016). **Material studied:** in the plains, growing on branches on the ground in a man-made wood with deciduous trees, 3 Dec. 2022, Sosua (P.to Plata) DR. *Exiccatum*: ANGE1781 (**Fig. 2**).

Fig. 2. *Perenniporia inflexibilis*. ANGE1781. Foto di Claudio Angelini

CORTICIOID FUNGI

Family *Auriculariaceae* Fr. 1838
(as definied in Angelini & Losi 2023)

Genus *Eichleriella* Bres. 1903

Basidiomata cupulate or resupinate. **Hymenophore** smooth, in some species covered by sterile spines. **Hyphal structure** monomitic (except one dimitic species), hyphae clamped. **Cystidia/gloeocystidia** often present. **Basidia** ellipsoid-ovoid, longitudinally septate, 2- or 4-celled. **Basidiospore** hyaline, cylindrical, distinctly curved (Malysheva & Spirin 2017).

Eichleriella tenuicula (Durieu & Lév.) Spirin & V. Malysheva

Basidiomata resupinate, orbicular and then confluent, arid; **hymenophore** spiny from hyphal pegs, 150-250 × 40-65 μm, erect, tubular, 5-10 per mm, with smooth areas between pegs, upper surface white to dark brown, spines concolorous. Margin narrow, white, smooth or not differentiated, sometimes slightly reflexed. **Hyphal system** dimitic, generative hyphae with clamp-connections, up to 3.2 μm wide; hyphidia nodulose or with few branches. Skeletal hyphae predominant, up to 5 μm wide. **Cystidia** rarely observed, clavate to subfusiform. **Basidia** ellipsoid to obovate, 2-celled, with or mostly without enucleate stalk, 13.6-22 × 8-10.4 μm, with tubular to attenuate sterigmata. **Basidiospore** allantoid to suballantoid, thin-walled,

19-24 × 5.2-7.2 µm. **Distribution** in the Neotropics reported from Brazil, Mexico, Ecuador, Cuba and Guana Island. **Remarks** the species is easily recognizable because of its dimitic structure and 2-celled basidia (Alvarenga *et al.* 2019). **Material studied:** growing on ground branches of "Limoncillo" (*Melicoccus bijugatus* Jacq.) in a hotel garden, 1 Feb. 2022, Sosua (P.to Plata) DR. *Exiccatum*: ANGE1848 (**Fig. 3**).

Fig. 3. *Eichleriella tenuicula*. ANGE1848. Foto di Claudio Angelini

Family ***Bondarzewiaceae*** Kotl. & Pouzar 1957

(see above)

Genus ***Steccherichium*** D.A. Reid 1963

Basidiomata effused-reflexed to pileate, **hymenial surface** aculeate. **Hyphal system** dimitic, generative hyphae with clamps and forming conducting hyphae arising in the context, traversing aculei and projecting slightly at aculei apices, naked, filled with refractive oily contents. **Basidiospores** warted, amyloid.

Steccherichium seriatum (Lloyd) Maas Gest.

Basidiomata pileate, sessile to substipitate, single or fused laterally, pliable, projecting up to 1.5 cm, 2.5 cm wide, margin even to undulate, upper surface concentrically more or less distinctly sulcate and zonate, tomentose to fibrillose, white, cream to brownish; **hymenophore** white to cream, hydnoid, with very crowded subulate spines with acute tips. **Hyphal system** dimitic, generative hyphae thin- to thick-walled, with clamps, 1.6-4 µm wide; conducting hyphae 4-6 µm wide, sometimes slightly moniliform in the apical region. **Basidiospores** ellipsoid, subglobose or ovoid, finely asperulate, 2.6-3.6 × 1.6-2.8 µm, amyloid.

Distribution widespread in the neotropical area. **Material studied:** in the plains, growing on a large branch on the ground in a man-made wood with deciduous trees, 14 Dec. 2022, Sosua (P.to Plata) DR. *Exiccatum*: ANGE1775 (**Fig. 4**).

Fig. 4. *Steccherícium seriatum*. ANGE1775. Foto di Claudio Angelini

CLAVARIOID FUNGI

Family *Clavariaceae* Chevall.
(as definied in Angelini & Losi 2023)

Genus *Clavulinopsis* Overeem
(as definied in Angelini & Losi 2023)

Clavulinopsis corniculata (Schaeff.) Corner

Basidiomata up to 4,5 cm high, solitary to gregarious, mostly branched dichotomously, clear yellow to egg yellow, firm. Branches cylindric with blunt cornute or elongate-subulate and acute apices; stem distinct. **Hyphal system** monomitic; hyphae 2-6.4 µm wide, thin- to slightly thick-walled, with clamps. **Cystidia** none. Scattered unbranched **hyphydia** present. **Basidia** 30-50 × 4-8 µm, with 4 sterigmata up to 7.4 µm long, narrowly clavate, sometimes stalked. **Basidiospores** broadly ellipsoid to subglobose or nearly globose, hyaline, smooth, slightly thick-walled, uniguttulate (rarely multiguttulate), 4.4-5.8 × 4.2-5.2 µm, with prominent apiculus. **Distribution** widespread in the Neotropics (The Global Biodiversity Information Facility). **Material studied:** in the mountains, growing on litter in a mixed forest with *Pinus occidentalis* Sw., 7 Dec. 2016, Jarabacoa (La Vega) DR. *Exiccatum*: ANGE876 (**Fig. 5**).

Fig. 5. *Clavulinopsis corniculata*. ANGE876. Foto di Claudio Angelini

Family *Gomphaceae* Donk 1961

Basidiomata funnel-shaped or club-shaped or coralloid and repeatedly branched, rarely resupinate or hypogeous. **Hyphal system** mostly monomitic, most species with clamp connections. **Basidiospores** ellipsoidal or elongate, hyaline to yellowish-brown, smooth or ornamented usually staining in cotton blue (Cannon & Kirk 2007).

Genus *Phaeoclavulina* Brinkmann 1897

Basidiomata clavarioid. **Clamps** always present. **Basidiospores** brownish, verrucose, subreticulate or reticulate. Terricolous or lignicolous (Begerow *et al*. 2018).

Phaeoclavulina eumorpha (P. Karst.) Giachini

Basidiomata up to 7 × 5 cm, ramarioid, repeatedly branched. Branches cylindrical, mostly dichotomous, cream, yellow, ochre to brown, paler when young. **Stipe** up to 5 cm long, up to 0.5 cm thick, growing from a white mycelial felt. **Hyphal system** monomitic, hyphae hyaline, thin-walled, with clamp connections, ampullate septa present. **Rhizomorph hyphae** 1.6-2.4 µm wide, often encrusted; in **trama** hyphae 2.4-5.6(-8) µm wide, sometimes encrusted, crystal aggregates present. **Basidia** up to 60 µm long and 5.6-7.2 µm wide, clavate, 4-sterigmata. **Basidiospores** 5.6-9 (10.4) × 2.8-4.8 µm, ellipsoid to lacrimoid, verruculose. **Distribution** in the Neotropics reported from Mexico (Gonzáles-Ávila *et al.* 2013). **Material studied:** in the plains, growing on litter in a man-made wood with deciduous trees, 25 Dec. 2020, Sosua (P.to Plata) DR, Loc. Puerto Chiquito. *Exiccatum*: ANGE1460; in the hills, growing on leaf litter in a broad-leaved forest, 16 Jan. 2023, Sosua (P.to Plata) DR, Loc. Cemetery. *Exiccatum*: ANGE1836 (**Fig. 6**).

Fig. 6. *Phaeoclavulina eumorpha*. ANGE1836. Foto di Claudio Angelini

Phaeoclavulina flaccida (Fr.) Giachini

Basidiomata up to 7.5 × 4 cm, ramarioid, repeatedly branched. **Branches** 1-3 mm thick, more or less cylindrical, mostly forked towards the apices, pale yellow, cream, ochre or grey with olivaceous tinges; apices acute, at first white then concolorous with branches. **Stipe** up to 26 × 6 mm, terete to irregularly compressed, olive-brown, arising from extensive mycelial mat and rhizomorphic strands, and almost completely covered with the white mycelium. **Hyphal system** monomitic, hyphae hyaline, thin- to slightly thick-walled, with clamp connections; ampulliform clamps present. **Rhizomorph hyphae** 1-2.4 µm wide, often encrusted. In **trama** hyphae 2.4-12 µm wide. **Basidia** 20-26 × 5.6-8 µm, clavate to narrowly clavate, 4-sterigmata. **Basidiospores** 4.6-6.4 × 2.4-3.6 µm, ellipsoid, comma- to teardrop-shaped, ornamentation of small spines. **Distribution** in the Neotropics reported from Mexico (Gonzáles-Ávila *et al*. 2013). **Remarks** this epithet is used here sensu Giachini & Castellano (2011). **Material studied:** in the plains, growing in the litter in the natural part of the National Botanical Garden of Santo Domingo, 9 Nov. 2017, Santo Domingo (National District) DR. *Exiccatum*: ANGE919 (**Fig. 7**); in the hills, growing on leaf litter in a broad-leaved forest, 26 Nov. 2020, Sosua (P.to Plata) DR, Loc. Cemetery. *Exiccatum*: ANGE1456 (**Fig. 8**).

Phaeoclavulina zippelii (Lév.) Overeem

Basidioma up to 13 × 5 cm, solitary to gregarious on the ground, ramarioid, repeatedly branched, stipitate or substipitate. **Branches** 1-4 mm thick, cylindric, yellowish, pale ochraceous to fuliginous-ochraceous, tips simple or bifid, at first white then concolorous with branches. **Stipe** up to 25 × 4 mm, cylindric, ochraceous, arising from a white mycelial mat and

Fig. 7. *Phaeoclavulina flaccida*. ANGE919. Foto di Claudio Angelini

Fig. 8. *Phaeoclavulina flaccida*. ANGE1456. Foto di Claudio Angelini

Fig. 9. *Phaeoclavulina zippelii*. ANGE839. Foto di Claudio Angelini

Fig. 10. *Phaeoclavulina zippelii*. ANGE1033. Foto di Claudio Angelini

rhizomorphic strands. **Hyphal system** monomitic, hyphae 2-12 µm wide, thin- to slightly thick-walled, with clamp connections. In **trama** hyphae 2-8 µm wide. **Rhizomorph hyphae** 1.6-3.2 µm wide, sometimes encrusted. **Basidia** up to 65 µm long and 10 µm wide, narrowly clavate, with 2 stout sterigmata up to 10 µm long. **Basidiospores** 10.4-14.4 × 6-8 µm (spore-body), echinulate with acute spines up to 2.4 µm tall, ellipsoid to lacrimoid, apiculus pronounced. **Distribution** common tropical species (Corner 1970). **Material studied:** in the mountains, growing on litter in a mixed forest with *Pinus occidentalis*, 7 Dec. 2016, Jarabacoa (La Vega) DR. *Exiccatum*: ANGE839 (**Fig. 9**); *ibidem* 18 Dec. 2017. *Exiccatum*: ANGE1033 (**Fig. 10**).

Family ***Tremellodendropsidaceae*** Jülich 1982

Basidiomata arbuscular with several ranks of branching. **Hyphal system** monomitic, hyphae with clamp connections. **Basidia** long-stalked or elongate, completely or incompletely cruciately septate, with 4 well-developed sterigmata. **Basidiospores** subglobose to ellipsoidal, hyaline, smooth, not staining in iodine, sometimes germinating directly to produce secondary spores (Cannon & Kirk 2007). The family comprises only the type genus:

Genus ***Tremellodendropsis*** (Corner) D.A. Crawford 1954

The genus comes between *Homobasidiomycetes* and *Heterobasidiomycetes* (Corner 1970) with subtremellaceous (Corner 1953) or truly tremellaceous (Crawford 1954) basidia.

Tremellodendropsis flagelliformis (Berk.) D.A. Crawford

Basidiomata up to 5 cm high, solitary to caespitose, branched, whitish, buff to brownish, tough. **Branches** cylindric to flattened, sometimes narrowly flabellate, the tips elongate-subulate

Fig. 11. *Tremellodendropsis flagelliformis*. ANGE875. Foto di Claudio Angelini

or cristate; stem distinct. **Hyphal system** monomitic; hyphae 1.8-6 μm wide, thin- to slightly thick-walled, with clamps. **Cystidia** none. **Basidia** 4-sterigmata, 56-64 × 12-14.4 μm, broad clavate, often rather abruptly clavate, with a narrowed stalk-like part, the apex aseptate to incompletely cruciately septate. **Basidiospores** broadly ellipsoid to subglobose or ovoid, thin- to slightly thick-walled, hyaline, with granular contents, 6.8-11 × 5.6-7.4 μm. **Distribution** seemingly rare in the neotropical area: Brazil (Corner 1970) and Cuba (The Global Biodiversity Information Facility). **Material studied:** in the mountains, growing on litter in a mixed forest with *Pinus occidentalis*, 7 Dec. 2016, Jarabacoa (La Vega) DR. *Exiccatum*: ANGE875 (**Fig. 11**).

Acknowledgments

Claudio Angelini wishes to thank P. Suarez, F. Jiménez, T. Clase, E. Septimo, M.C. Nova (Jardín Botánico Nacional Dr. Rafael M. Moscoso, Santo Domingo, Dominican Republic) for their interest and encouragement in studying fungi of the Dominican Republic and for their active cooperation in providing herbarium material preserved at their institution.

Authors' addresses

Claudio Angelini
Jardin Botanico Nacional Dr. Rafael Ma. Moscoso. Santo Domingo (Dominican Republic),
Via Cappuccini, 78/8, 33170 Pordenone (Italy).
E-mail: claudio_angelini@libero.it

Cristiano Losi
Cannaregio, 3608, 30121 Venezia (Italy).
E-mail: cristianolosi@gmail.com

Literature cited

Alvarenga R.L.M., Spirin V., Malysheva V., Gibertoni T.B. & Larsson K.-H. – 2019: Two new genera and six other novelties in *Heterochaete* sensu lato (*Auriculariales, Basidiomycota*). *Botany* 97: 439-451.

Angelini C. & Losi C. – 2013a: Polyporoid fungi in the Dominican Republic. First part. *Ganodermataceae* & *Hymenochaetaceae. Rivista Micologica Romana, Bollettino AMER* 89: 27-39.

Angelini C. & Losi C. – 2013b: Annotated list of steroid fungi in the Dominican Republic. II. *Bollettino AMER* 90: 31-38.

Angelini C. & Losi C. – 2014: Annotated list of *Polyporaceae* in the Dominican Republic. *III. Rivista Micologica Romana, Bollettino AMER* 91: 31-45.

Angelini C. & Losi C. – 2015: Annotated list of polyporoid fungi in the Dominican Republic. IV. *Rivista Micologica Romana, Bollettino AMER* 96: 3-19.

Angelini C. & Losi C. – 2016: Fungus flora of the Dominican Republic. 5th Part. Other Polyporoid, Corticioid and Stereoid fungi. *Rivista Micologica Romana, Bollettino AMER* 98 (2): 3-22.

Angelini C. & Losi C. – 2018: Annotated list of fungus flora of the Dominican Republic. VI. *Rivista Micologica Romana, Bollettino AMER* 103: 3-22.

Angelini C. & Losi C. – 2021: Fungus flora of the Dominican Republic. VII. Some unreported polyporoid, stereoid and corticioid fungi. *Rivista Micologica Romana, Bollettino AMER, numero speciale (fuori serie)*: 3-33.

Angelini C. & Losi C. – 2023: *Fungus flora of the Dominican Republic. VIII. Some unrecorded polyporoid, corticioid, stereoid and clavarioid fungi. Rivista Micologica Romana, Bollettino AMER, primo numero speciale (fuori serie)*: 3-18.

Begerow D., McTaggart A. & Agerer R. – 2018: *Syllabus of Plant Families. Basidiomycota and Entorrhizomycota*. Borntraeger Science Publishers, Stuttgart.

Cannon P.F. & Kirk P.M. – 2007: *Fungal Families of the World*. CAB International.

Corner E.J.H. – 1953: Addenda *Clavariacea*. III. *Ann. Bot*. 17: 347-368.

Corner E.J.H. – 1970: Supplement to "A monograph of *Clavaria* and allied genera". *Beihefte zur Nowa Hedwigia* 33.

Crawford D.A. – 1954: Studies on New Zealand *Clavariaceae. I. Trans. Roy. Soc. New Zealand* 82: 617-631.

Giachini A.J. & Castellano M.A. – 2011: A new taxonomic classification for species in *Gomphus* sensu lato. *Mycotaxon* 115: 183-201.

Gonzáles-Ávila P., Torres-Miranda A., Villega-Ríos M. & Luna-Vega I. – 2013: Species diversity and ecological patterns of *Phaeoclavulina* species in Mexico with implications for conservation. *North American Fungi* 8: 1-32.

Malysheva V. & Spirin V. – 2017: Taxonomy and phylogeny oh the *Auriculariales* (*Agaricomycetes, Basidiomycota*) with stereoid basidiocarps. *Fungal Biology* 121: 689-715.

Ryvarden L. – 2016: Neotropical polypores. Part 3. *Polyporaceae, Obba - Wrightoporia. Synopsis Fungorum* 36. Fungiflora.