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FUNGI FROM THE GALAPAGOS AND OTHER PACIFIC COASTAL ISLANDS

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Botanists and other members of expeditions from the California Academy of Sciences to the Galapagos Islands, Revillagigedos Islands, Guadalupe Island, Cocos Island, and some points on the west coast of Central America, have made certain collections of fungi. The greater number of collections were made by Mr. John Thomas Howell, botanist for the Templeton Crocker Expedition in 1932. Dr. Alban Stewart made a number of collections with the expedition to the Galapagos Islands, 1905-06, and Dr. H. L. Mason made a few collections on the Revillagigedos and Tres Marias Islands in 1925. These collections have been studied and such as could be determined are herewith reported.

Relatively few fungi have been collected from these Pacific coastal islands, since reports on the floras have dealt almost entirely with other groups of plants.


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*Favolus cibaris* Mont.
*Fomes lucidus* Fr.
*Schizophyllum alneum* Schroet.

Such other collections as may have been made I have not found reported, and it is of interest to record here the material that has been under study. Seventy-five species have been identified, and these are from collections distributed as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galapagos Islands</td>
<td>59</td>
</tr>
<tr>
<td>Revillagigedos Islands</td>
<td>18</td>
</tr>
<tr>
<td>Cocos Island</td>
<td>8</td>
</tr>
<tr>
<td>Tres Marias Islands</td>
<td>5</td>
</tr>
<tr>
<td>Guadalupe Island</td>
<td>3</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>4</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>5</td>
</tr>
<tr>
<td>Lower California</td>
<td>1</td>
</tr>
</tbody>
</table>

These records extend very considerably the known range of a number of species, and three species are reported as new.

The writer wishes to express his appreciation to the mycologists who have given aid and suggestions in this study, especially to Dr. G. B. Cummins, Dr. C. J. Humphrey, Dr. G. W. Martin, Dr. J. H. Miller, Dr. L. W. Miller, Dr. J. A. Stevenson, and Dr. E. M. Wakefield.

Specimens of the material here reported are deposited in the herbarium of the California Academy of Sciences, San Francisco, and with the exception of species for which material was very limited, a complete set is deposited in the herbarium of the University of California at Berkeley. Specimens determined, as noted in the text, by the above named mycologists were in almost all cases retained by them as a part of their collections. Duplicate material will be available for distribution to a limited number of interested students from a goodly number of the collections.

A small number of collections remain as yet undetermined, and may be reported at a later date by students to whom they have been submitted.
MYXOMYCETES


Diachæa leucopoda Rost., Sluzowce Monografia, 190, 1875. On living leaves, Abingdon Island, Galapagos, Sept. 4, 1906, Stewart No. 8526.


ASCOMYCETES

DOTHIDIALES

Phyllachoraceæ


Phyllachora Acalyphæ Bonar, new species

Figure 1

Macule amphigenæ, superne atrobrunnææ, inferne olivaceææ, marginibus angustis viridibus, orbiculares, 1–2 mm. diam., dein confluentes; stromata minuta, in maculis medii, subepidermalia, punctiformia, atra, plerumque hypophylla; loculi 4–12 in quoque stromate, sepe lateraler applanati, membrana stromatica ad epidermidem lateraque crassa, atra, intus obscolescente, 80–125 μ lati, 125–150 μ longi, poro aperti; asci fusoido-clavati, octospori, 70–80 x 10–12 μ, sporidiis oblique uniseriatis vel biseriatis; sporidia navicularia, hyalina, continua, 19–22 x 5–6 μ; paraphyses filiformes, simplices vel ramose.

Spots amphigenous, blackish brown above, olivaceous below, with a narrow green border, circular, 1–2 mm. diameter, or becoming confluent; stromata minute, central in spots, subepidermal, punctiform, black, mostly hypophyllous; locules 4–12 in a stroma, often laterally flattened, with heavy black tissue toward leaf surface and on sides, scarcely developed on inner side, 80–125 μ wide x 125–150 μ high, opening by a pore; asci fusoid-clavate, 8-spored, 70–80 x 10–12 μ, spores obliquely uniseriate to biseriate; spores navicular, hyaline, 1-celled, 19–22 x 5–6 μ; paraphyses filiform, simple or branched.

Phyllachora Acalyphae Bonar, new species. Left, section through leaf showing stroma and locules; middle, ascus and paraphyses; right, ascospore.


Spots somewhat larger than those reported on Scleria from Brazil. The spores are slightly wider than stated in the original record, but the occasional obpyriform spores reported by Rehm are regularly found with the obtuse end occupying the distal end of the ascus.

Sphäriales

Sphäriaceae


Our material varies slightly from Rehm's characterization of the species in that the ostiole is of a distinctly lighter shade than the perithecial wall. However, this character does not seem sufficient to warrant a different name.

Pleosporaceae

Leptosphaeria Phoradendri Bonar, new species

Figure 2

Perithecia amphigena, in foliis dense disposita in zonulis remotis vel confluentibus, maculis manifestis nullis, subepidermalia, cuticula tecta, punctulata, atra, late pyriformia, circum ostiolum pariete crasse carbonaceo, alibi membranaceo et paulum carbonaceo, 250-300 μ diam.; asci basilares, octospori, ampullacei, stipite brevo angustoque, parietibus ad apicem incrassatis, 150 x 30 μ; ascosporidia crebra, 3-4-seriata, in asco basilaria, ellipsoido-cylindracea, 3-septata, ad septum medium paulo constricta, castanea, 37-50 x 10-12 μ; paraphyses multæ, copiose ramosæ, irregulares, anastamosantes, hyalinae.
Status conidicus pycnidia exhibens specie similia peritheciorum in foliis; pycnidia amphigena, dispersa, subepidermalia, globosa, ostiolo poroideo erumpentia, 150–225 μ diam., pariete carbonaceo, superne incrassato, inferne membranaceo; conidia copiosa, bacilliformia, hyalina, continua, 6–9 x 0.75–1 μ; conidiophora simplicia vel ramosa, quam conidia longiora.

Fig. 2. Leptospharia Phoradendri Bonar, new species.
A. Section showing structure and position of perithecium in leaf; below, detail of ascus, paraphyses, and ascospore.
B. Section showing structure and position of pycnidium in leaf; below, conidiospores and conidia.

Periticia amphigenous, thickly scattered over leaves in small isolated or confluent areas, not forming evident spots; subepidermal, remaining covered by cuticle, punctate, black, broadly pyriform, wall heavy carbonaceous around ostiole, membranaceous and slightly carbonized below, 250–300 μ diameter; asci basal, flask-shaped, with short narrowed stipe, walls thickened toward apex, 150 x 30 μ; ascospores crowded, 3–4 seriate, basal in ascus, ellipsoid-cylindric, 3-septate, slightly constricted at median septum, chestnut brown, 37–50 x 10–12 μ; paraphyses numerous, much branched, irregular and anastomosed, hyaline.

Conidial stage forming pycnidia similar to perithecia in appearance on leaves; pycnidia amphigenous, scattered, subepidermal, globoid, erumpent by poroid ostiole, 150–225 μ diameter; wall carbonized, thickened above, membranaceous below; conidia abundant, bacilliform, hyaline, 1-celled, 6–9 x 0.75–1 μ; conidiophores simple or branched, longer than conidia.


Clypeosphariaceae

This organism was originally named *Pleospora vitrispora* Cke. and Hk. from dead twigs from California. Many of the perithecia are located in elliptic elevations on the surface of the wood, the surrounding tissue being eroded away. This corresponds to the illustrations given by Berlese of the original material. The ascospores are variable in size and septation with age.

**Diatrypaceae**

*Diatype microstega* Ell. and Ev., N. Amer. Pyren., 574, 1892. On dead wood, Socorro Island, March 26, 1932, *Howell*. Formerly reported from a collection by Harkness from San Francisco Bay Region, California.

**Xylariaceae**


*Xylaria* sp. Five collections of *Xylaria* by Mr. Howell, from Indefatigable Island, Galapagos, were found to be sterile and not determinable as to species.
BASIDIOMYCETES

Ustilaginales


Uredinales


Uredo Scalesiae Bonar, new species

Uredia amphigena, dispersa, minuta, disciformia, pulverulenta, fusca, epidermide folii rupta inconspicua; sporidia subglobosa, sepe lateraliter applanata, 18–24 x 20–26 μ, pariete cinnamomeo, 1–2.5 μ crasso, subtilissime verruculosos, poris 2, subæquatorialibus, in lateribus applanatis dispositis; paraphyses plurimae, cum sporidiis internmixtae, elongato-clavatæ, 80–100 μ longæ, apicibus usque ad 5 μ diam. tumefactis.

Uredia minute, scattered, amphigenous, discoid, pulverulent, chocolate brown, ruptured epidermis inconspicuous; urediospores asymmetric globoid, often flattened laterally, 18–24 x 20–26 μ, wall cinnamon brown, 1–2.5 μ thick, very finely ver-
rucose, pores 2, subequatorial, borne on the flattened sides; paraphyses very numerous, intermixed with the urediospores, elongate clavate, 80-100 μ long, the tips swollen to 5 μ diameter.

_Type:_ No. 261371, C. A. S. Herb. On leaves of _Scalesia gummifera_ Hooker f., west side of Albemarle Island, 20 miles north of Iguana Cove, Galapagos, May 22, 1932, Howell. This species seems close to _Puccinia anomala_ Syd., but the abundant paraphyses are distinctive in this species on _Scalesia._


**Auriculariales**

_Auriculariaceae_


**Dacromycetales**

_Dacromycetaceae_


**Agaricales**

_Thelephoraceae_


Clavariaceae


Hydnaceae


Polyporaceae


Agaricaceæ


**Montagnites argentina** Speg., Fg. Arg. novi r crit., 160, 1899. Lower California, Mexico, Cape San Lucas, Aug. 7, 1932, Howell.


**Tubaria** sp. Near Fortuna, Indefatigable Island, Galapagos, May 12, 1932, Howell.

**GASTEROMYCETES**


**Bovistella** sp. Near Academy Bay, Indefatigable Island, Galapagos, May 4, 1932, Howell.


