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Fungi Exotici: X

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Source: *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)*, Vol. 1910, No. 1 (1910), pp. 1-6

Published by: Springer on behalf of Royal Botanic Gardens, Kew

Stable URL: <http://www.jstor.org/stable/4115015>

Accessed: 26-06-2016 20:22 UTC

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ROYAL BOTANIC GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

No. 1.]

[1910.

I.—FUNGI EXOTICI: X.

(WITH PLATE.)

G. MASSEE.

The majority of the new fungi, described in the following pages, have been received from the West Indies. A few are from Tropical Africa and elsewhere. *Marasmius scandens* is a parasite on Cacao in West Africa, and causes considerable damage to the plants. Another new fungus of interest is *Diplodia rapax*, which appears to be parasitic on the branches and roots of *Hevea brasiliensis*; this fungus was received almost simultaneously from Singapore and from West Africa. Two of the fungi described may be parasitic on insects, viz.: *Scleroderris gigaspora*, on scale insects on the leaves of the orange tree, and *Septocylindrium suspectum* on the bodies of "Frog-hoppers." Both these fungi require investigation under natural conditions as, if their true parasitism should be established, they may prove to be of some economic importance.

AGARICACEAE.

Amanita calabarica, *Massee*.

Pileus carnosus, e convexo-hemispherico explanatus, glaber, siccus, margine striatus, luride alutaceus, aetate maculatus vel rimoso-areolatus, 6-7 cm. latus. *Lamellae* confertae, postice attenuato-liberae, albae, ventricosae, confertae, acie fimbriata, lamellulae numerosae subrotundatae. *Sporae* hyalinae, ellipsoideae, $7 \times 5 \mu$. *Stipes* sursum attenuatus, cavus, albidus, subglaber, 5-6 cm. longus, deorsum 2 cm. crassus; annulus ampliatus, apicalis, persistens, supra striatus, subtus flocculosus.

SOUTHERN NIGERIA. Old Calabar; on the ground in the Botanic Station, *J. H. Holland*, 48, with coloured fig.

Marasmius scandens, *Massee*.

Pileus minutissimus, circa 1 mm. latus, conchatus, albidus, resupinatus, pulverulentus, postremo striatus. *Lamellae* 3-5, angustissimae, interstitiis venosae. *Sporae* hyalinae, ellipsoideae, $4-5 \times 3 \mu$. (Figs. 15-18.)

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Fungi Exotici.

[To face page 1.

TROPICAL AFRICA. Gold Coast; on branches of cacao tree, collected by Mr. A. E. Evans, Travelling Instructor; comm. *W. S. D. Tudhope*.

This fungus is not uncommon on indigenous species of *Cola*, and is supposed to have passed from the native plants to the cultivated cocoa, which suffers considerably from its presence.

The white cord-like mycelium extends along the surface of the branches, and produces at intervals the minute, resupinate pilei. Allied to *Marasmius aleurites*, Berk. & Cke.

Galera Burkillii, Masee.

Pileus carnosio-membranaceus, 1-1.5 cm. diametro, campanulatus, rigidulus, glaber, incarnatus, umbone versus saturatior, margine erecto acuto tenuissimo, ac majusculè striatus. *Lamellae* confertae, strictae, angustae, adnexae, ex albo ochraceae, acie dentatae. *Sporae* ellipsoideae, utrinque obtusissimae, ochraceae, 12-15 × 10-12 μ . *Stipes* farctus, aequalis, glaber, pallidus, 5-6 cm. longus, 1.5 mm. crassus.

INDIA. Darjeeling, Sureil; on the ground, *I. H. Burkill*, 32200.

Readily distinguished amongst known species of *Galera* by the brightly coloured pileus and large spores. Allied to *Galera tener*, Fr.

SPHAERIACEAE.

Xylaria Pattersonii, Masee.

Stromata erecta, gregaria vel sparsa; stipites glabri, atri, 1-2 cm. alti, basi mycelio atro fibroso vestiti; clavulae cylindraceo-clavulatae, apiculatae, nigrae, ruguloso-verrucosae, circiter 1 cm. longae. *Asci* cylindricei, sursum rotundati, deorsum in pedicello longiusculo attenuati, octospori. *Sporae* oblique monostichae, brunneae, ellipsoideae, ad latera subinaequilaterali-cymbiformae, 11-12 × 5-6 μ . (Figs. 6-8.)

WEST INDIES. St. Vincent; on decayed fallen branches, *W. H. Patterson*.

Allied to *Xylaria aspera*, Masee; differing in the apiculate club, glabrous stem and larger spores.

Ophiobolus calathus, Masee.

Perithecia laxè gregaria, primo cortice immersa dein erumpenti-semiexserta, sphaeroideo-depressa, atro-olivacea, glaberrima, ostiolum cylindraceum longissimum gerentia. *Asci* fusoides, deorsum breve attenuato-stipitati, 155-160 × 15-16 μ , octospori. *Sporae* cylindraceae, utrinque obtusatae, hyalinae, aseptatae, rectae vel curvulae, 72-76 × 5 μ . (Figs. 19-21.)

WEST INDIES. Trinidad; on dead wood, *J. H. Hart*.

A fine well-marked species, allied to *Ophiobolus sarmenti*, Pass., but distinguished by the much longer ostiolum and erumpent perithecia.

Sordaria crustosa, Masee.

Perithecia densissime aggregato-confluentia, plagulas orbiculares 3-5 cm. longas atras efficientia, atra, glabra, contextu indistincto fuligineo opaco; ostiolo crassiusculo papillato. *Asci* cylindricei,

postice attenuato-pedicellati, octospori. *Sporae* ellipticae, atro-olivaceae, $25-28 \times 14-15 \mu$, basi tantum appendiculo hyalino persistente $50 \times 5-6 \mu$ longo auctae. (Figs. 9-12.)

CHINA. Szechuen; on dung of some herbivorous animal, *J. W. Brooke*.

A very distinct species, the closely crowded perithecia forming large orbicular crustose patches on dung. Allied to *Sordaria appendiculata*, Niessl., which differs in the villose perithecium, and the much shorter spore appendage.

DISCOMYCETACEAE.

Scleroderris gigaspora, *Massee*.

Ascomata gregaria, innato-superficialia, cylindraceo-turbinata vel e pressione mutua difformia, sessilia, extus sordide fusca, glabra, disco concavo 1 mm. diametro. *Asci* cylindracei, sursum obtusati, deorsum breve attenuato-stipitati, octospori, $250-280 \times 22-25 \mu$, paraphysibus tenuibus apice ramosis hyalinis obvallati. *Sporae* vermiformes, rectae vel leniter flexuosae, multiseptatae, hyalinae, $150-160 \times 7-8 \mu$. (Figs. 1-5.)

WEST INDIES. Trinidad; occurring in clusters on scale insects—*Mytilaspis citricola*—on orange leaves, *J. H. Hart*.

Whether the *Scleroderris* is parasitic on the scale insects or not, can only be determined by experiments under circumstances where fungus and insect are available in a living condition, and in quantity. Allied to *Scleroderris seriata*, Rehm., and to *S. virescens*, Mass., but distinguished from both by the very much longer asci and spores, and by the habitat.

UREDINACEAE.

Puccinia sclerolaenae, *Massee*.

Sori plus minusve dense gregarii, plerumque hypophylli, maculis lutescentibus insidentes, diu epidermide coriacea atque crassiuscula tecti, vix prominuli, atro-fuliginei, magnitudine ludentes. *Teleutosporae* oblongae seu ovato-subclavatae, medio parce constrictae, apice saepius plus vel minus apiculatae, pallide cinnamomeae, $40 \times 30 \mu$; pedicello crassiusculo, $120 \times 4 \mu$.

In iisdem soris teleutosporiferis adsunt uredosporae globosae, minutissimae, echinulatae, pallide fulvescentes, $15-18 \mu$ diametro.

AUSTRALIA. Queensland; on living leaves of *Sclerolaena biflora*, R. Br., *F. M. Bailey*.

Not closely allied to any known species. The teleutospore sori are variable in size and form, and are somewhat persistent, being protected by the coriaceous epidermis of the host.

MELANCONIACEAE.

Diplodia rapax, *Massee*.

Perithecia 3-7 aggregata, globosa, atra, primo tecta, dein erumpentia, rugulosa, glabra, $160-180 \mu$ diametro, ostiolo minuto vix stromatis superficiem attingente donata. *Sporae* aerogenae, ellipticae, utrinque obtusae, medio 1-septatae, haud constrictae, opace fuligineae, $32-35 \times 15-16 \mu$. (Figs. 13-14.)

SINGAPORE. On living branches and roots of *Hevea brasiliensis*, Muell.-Arg., *H. N. Ridley*.

TROPICAL AFRICA. Gold Coast, Aburi; on living branches of *Hevea brasiliensis*, Muell.-Arg., *A. E. Evans*.

This fungus appears to be a true parasite on Para rubber trees. A curious and unexplained point is, that specimens were received at Kew for determination, almost at the same date, from Singapore and from the Gold Coast. It is just possible that the fungus has been conveyed along with the seed, as it is difficult to realise that the same species of fungus can have adapted itself to rubber trees in two distant countries, and within so short a period of time.

Mr. H. N. Ridley, F.R.S., has noted the occurrence of this fungus as a parasite on Para rubber cultivated in Perak (*Agric. Bull. Straits and Federated Malay States*, July, 1909).

Hendersonia microspora, *Massee*.

Perithecia dense gregaria, saepius plagulas majusculas formantia, erumpentia, globulosa, atra, ostiolo minutissimo vix papillato contextu indistincto donata. *Sporulae* elliptico-cylindraceae utrinque obtusatae, 3-5-septatae, fuligineae, $6-7 \times 3.5 \mu$, sterigmatibus subconoideis suffultae.

WEST INDIES. Trinidad; on dead or fading leaves of *Oncidium luridum*, Lindl., *J. H. Hart*.

Perithecia crowded and forming large patches on the leaf. Allied to *Hendersonia magnoliae*, Sacc.

HYPHOMYCETACEAE.

Gloeosporium citri, *Massee*.

Maculae amphigenae, numerosissimae, minutae, primo fuscae dein albido-arescentes, postremo frustulatim deciduae ac folium perforatum relinquentes. *Acervuli* subcutanei, lenticulares, vix perspicui, $40-50 \mu$ diametro. *Sporulae* cylindraceae, utrinque rotundato-clavatae, hyalinae, $14-17 \times 5-6 \mu$, in cirrhus salmonicolores protrudentes.

WEST INDIES. Trinidad; on fallen orange leaves, *J. H. Hart*.

This fungus occurred in abundance on orange leaves sent to Kew for the purpose of investigating a parasite attacking scale insects present on the leaves. All known species of *Gloeosporium* are parasites, and it is probable that in the present instance the *Gloeosporium* attacked the living leaves and brought about their early fall.

Septocylindrium suspectum, *Massee*.

Sporodochia amphigena, densiuscule sparsa, albida, aetate grisea, applanata, hyphae repentes, laxe ramosim intricatae, hic inde ramulos simplices erectos emittentes. *Conidia* cylindracea, 3-5-septata, breve catenulata, hyalina vel dilutissime roseo tincta, $35-45 \times 5-6 \mu$.

WEST INDIES. Trinidad; on the dead bodies of "Frog-hoppers" attached to leaves, twigs, &c., *F. Evans*.

This fungus is found in profusion on the bodies of dead "Frog-hoppers," and it is supposed that it occurs as a parasite, and might be utilised as a means of reducing the numbers of these destructive insects. Such a supposition, however, can only be confirmed or refuted by inoculation experiments conducted in those localities where host and supposed parasite occur in quantity.

***Sterigmatocystis corolligena*, Massee.**

Hyphae steriles effusae, repentes; fertiles simplices, erectae, apice vesiculoso-inflatae, globosae. *Conidia* catenulata, basidiis verticillato-ramosis suffulta, globosa, flavida, verrucosa, 5–6 μ diametro, capitulum sulphureum formantia.

INDIA. Manipur; growing on the corolla of a species of *Impatiens*, comm. Sir J. D. Hooker.

The present very interesting species was detected on the fleshy corolla of a species of *Impatiens* from Manipur, by Sir Joseph D. Hooker. In general structure and appearance it approaches most closely to *Sterigmatocystis sulphurea*, Fres., differing in the globose, warted conidia.

***Hartiella*, Massee; gen. nov.**

Stroma teretiusculum, rigidum, erectum, apice capitate-conidio-phorum, ex hyphis coalitis conflatum. *Conidia* in hypharum apicibus 1-septata, ellipsoidea, colorata, solitaria.

Differs from *Arthrosporium* and *Atractium* in the 1-septate conidia, and from *Symphyosira* in the conidia being solitary, and not concatenate.

***Hartiella coccinea*, Massee.**

Stroma verticale, clavatum vel rarissime ramosum, coccineum, 1 mm. alt. *Conidia* ellipsoidea, 1-septata, glabra, coccinea, 7–9 $\times$ 4–5 μ .

WEST INDIES. Trinidad; on shell of cacao pod, J. H. Hart.

This beautiful little fungus, when seen under a pocket-lens, suggests a sheaf of wheat. The colour throughout is bright red.

***Macrosporium lanceolatum*, Massee.**

Acervuli epiphylli, nigro-olivacei, dense aggregati ac matricis superficiem totam velutino-puberulam efficientes; hyphae cylindraceae, erectae, flexuosae, deorsum atro-olivaceae, sursum sensim dilutiores, septatae, 80–120 $\times$ 7–8 μ . *Conidia* lanceolata, 5–7-septata, loculis centralibus 1–2 verticaliter septatis olivaceis, episporio crasso laevi donata, 60–70 $\times$ 14–17 μ .

TROPICAL AFRICA. Mozambique; on leaves of *Agave rigida*, Mill., W. H. Johnson.

A very distinct species, forming dusky-olive, minutely velvety patches on the leaves. The conidia are distinctly lanceolate, and the central cell alone is sparingly vertically septate. Allied to *Macrosporium concentricum*, Winter.

DESCRIPTION OF FIGURES.

Fig. 1.—*Scleroderma gigaspora*, growing on *Mytilaspis citricola*, on an orange leaf. Nat. size.

„ 2.—Ascophores $\times$ 30.

„ 3.—Ascus containing 8 spores $\times$ 400.

„ 4.—Free spore $\times$ 400.

„ 5.—Fungus and scale insects on an orange branch. Nat. size.

„ 5a.—*Mytilaspis citricola*, $\times$ 20.

„ 6.—*Xylaria Pattersonii*. Ascophores. Nat. size.

„ 7.—Ascus containing spores $\times$ 400.

Fig. 8.—Free spores $\times 400$.

„ 9.—*Sordaria crustosa*, on dung. Nat. size.

„ 10.—*Perithecia* $\times 40$.

„ 11.—Ascus containing spores $\times 400$.

„ 12.—Free spores $\times 400$.

„ 13.—*Diplodia rapax*, on branch of *Hevea brasiliensis*. Nat. size.

„ 14.—Spores $\times 400$.

„ 15.—*Marasmius scandens*. Nat. size.

„ 16.—Under surface of pileus $\times 20$.

„ 17.—Upper surface of pileus $\times 20$.

„ 18.—Spores $\times 400$.

„ 19.—*Ophiobolus calathus*, $\times 100$.

„ 20.—Ascus containing spores $\times 400$.

„ 21.—Free spores $\times 400$.

II.—FORESTRY NOTES.

W. DALLIMORE.

During the last week of November a tour was made through some of the wooded country in the north east of England, with the combined object of obtaining material for the Forestry Museum and observing the behaviour of various trees growing under forest conditions in different soils and at varying altitudes. The time was spent between 5 estates, viz., Raby Castle, Haydon Bridge, Alnwick Castle, Chatsworth and Wortley, whilst a visit was also paid to Rotherham, where notes were made on the condition of trees exposed to the adverse influence of smoke and other atmospheric impurities.

Before entering on a detailed description of the work done on the estates visited on this occasion, it may not be out of place to allude to certain general considerations and reflections induced by similar visits to localities in various parts of the country where trees are cultivated under forest conditions.

General condition of Plantations.—Broadly speaking, woods up to 20 years of age are found to be in good condition, but many older ones are suffering from over-thinning and over-aged trees. Owners, estate agents and foresters are enthusiastic over forestry matters, but much uphill work is necessary to counterbalance the effects of neglect and injudicious manipulation in bygone years.

Deteriorating Trees.—In many parts of the country well suited for the purpose, sentiment is allowed to interfere too much with practical forestry to admit of its being conducted on sound business principles. For instance, plantations are frequently found to be composed of trees which have arrived at, or passed, their prime, and which will never be of more value than they possess at the present moment; yet for more or less sentimental reasons these trees are allowed to remain year after year. From a practical point of view such plantations ought to be cut over by degrees, so