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Fungi Exotici: XII

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Source: *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)*, Vol. 1911, No. 5 (1911), pp. 223-226

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

Stable URL: <http://www.jstor.org/stable/4118392>

Accessed: 26-06-2016 20:30 UTC

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p. 683, the wood is said to be equal in beauty and similar in character to that of other eastern maples, and is more valued than any other native hardwood in British Columbia and Washington. The largest tree known to Mr. Elwes in this country is growing at Boynton, in Yorkshire. When measured a few years ago it was 70 feet high and 6 feet in girth, and had been planted about 60 years.

This species may be distinguished from others by means of its large sycamore-like leaves, which are sometimes 9 inches across, and by its hairy fruits. The pendulous racemes of fruits are sometimes very conspicuous, for they are from 6 to 9 inches long, and the wings are frequently red in colour. Fertile seeds are borne on trees at Kew. *A. macrophyllum* is likely to thrive under similar conditions to the common sycamore, and as its wood is apparently quite equal in quality, there would appear to be no reason to doubt of its proving a commercial success, providing it thrives satisfactorily under forest conditions. It could be grown as a pure wood or as a mixture with beech or silver fir for a companion. Planting might be done at 4 feet apart.

XXVI.—FUNGI EXOTICI: XII.

(With Plate.)

G. MASSEE.

Eleven new fungi are here described from material sent to the Royal Botanic Gardens from the Malay Peninsula, Tropical Africa, Natal and Queensland. Of those described the *Puccinia* appears to be the most serious as it is a destructive disease of the Lemon grass at Entebbe, Uganda.

AGARICACEAE.

Clitocybe egregia, Massee.

Pileus carnosus, convexo-umbilicatus, siccus, pallido-ochraceus, centro obscuriore, fibrillis fuscis centro praesertim virgatus, margine lobato primitusque involuto, 25–30 cm. latus. *Lamellae* decurrentes, subdistantes, perangustae, crassiusculae, subfurcatae, acie integra, albae, aetate brunneo-tinctae. *Stipes* cylindricus, apice basique subincrassatus, fartus, glaber, albido-griseus, 25–35 cm. longus, 3–4 cm. crassus, basi fusiformi-radicatus. *Sporae* ellipticae, hyalinae, $8 \times 5 \mu$. *Caro* firma, pallida.

SINGAPORE. On the ground, *Ridley*, 89.

The genus *Clitocybe* includes some of the largest known agarics, but the present species far exceeds in size those previously described. *C. egregia* is most nearly allied to *C. maxima*, the latter being distinguished by the deeply infundibuliform, glabrous pileus, much shorter stem, paler colour and smaller spores.

USTILAGINACEAE.

Ustilago trichopterygis, *Massee*. (Figs. 15-17.)

Sori olivaceo-atrici, compacti, dein pulverulenti, ovarium implectentes. *Sporae* ellipsoideae vel globosae, episporio levissimo, fuligineo-olivaceae, $4.5 \times 3.5\mu$ vel $3.5-4.5\mu$ diametro.

TROPICAL AFRICA. N. Nigeria: Lokoja, in ovaries of *Trichopteryx hordeiformis*, Stapf. *J. M. Dalziel*, 276.

Resembling *Ustilago olivacea*, Tul., in habit and in general appearance, but distinguished by the much smaller, smooth spores.

Ustilago virens, *Cooke*.

SUMATRA. Indragiri: on rice, *Ridley*, 11,252. Coll. *C. Curtis*.

Ustilago polytriadis, *Massee*.

Sori ovaria tantum implectentes ac ea globose turgentes, friabiles, cito pulverulenti, aterrimi. *Sporae* globosae vel mutua pressione obtuse angulatae, $15-16\mu$ diam., atro-fuligineae, opacae, leves vel vix subrugulosae.

MALAY PENINSULA. Malacca: in the ovaries of *Polytrias praemorsa*, Hack.

Resembling *Ustilago australis*, Cooke, in general appearance, and habit, but differing in the larger and darker coloured spores.

Ustilago vastatoria, *Massee*.

Sori bases pedunculorum folia vaginasque nondum evolutas infestantes, eaque saepe majusculè distendentes, primo epidermide tenui tecti, dein nudi ac pulverulenti, fusco-atrici. *Sporae* subglobosae, intense subopace fuligineae, episporio minutissime denseque papilloso, $15-17\mu$ diam.

TROPICAL AFRICA. Baghirmi, N., between Massema and Abongher, on *Panicum* sp., *Chevalier*, 9638.

Somewhat resembling *Ustilago hypodytes*, Fr., in habit, but distinguished by the much larger spores.

UREDINACEAE.

Puccinia cymbopogonis, *Massee*.

Maculae epiphyllae, rubescentes vel fulvescentes, indeterminatae. *Acervuli* hypophylli, minuti, lineares, erumpentes, superficiales, pulverulenti, saepius densissime gregarii et totum folium occupantes, cinnamomei. *Uredosporae* sphaeroideae vel ovatae, episporio incrassato minutissime striatulo intense cinnamomeo, $20-23\mu$ diametro. *Teleutosporae* ovatae, medio constricto-1-septatae, episporio tenui apice valde incrassato brunneo, $30-36 \times 20-22\mu$, pedicello hyalino apice fuscescente suffultae.

TROPICAL AFRICA. Uganda: Entebbe, on *Cymbopogon citratus*, Stapf. *R. Fyffe*.

This appears to be a very destructive parasite. The Lemon grass was taken from a plot in the Botanic Gardens, Entebbe, and practically every leaf was destroyed.

Puccinia pulvinata, *Massee*.

Maculae nullae. *Acervuli* hypophylli vel amphigeni, concentrice vel areolatim in centro densius dispositi, pulvinato-prominuli, compacti, intense cinnamomei dein grisei et subpulverulenti,

0.5 mm. diametro. *Teleutospore* late ellipsoideae, subinde subgloboseae, medio subconstricto-1-septatae, episporio tenui apice incrassatulo, pallide melleae, $50 \times 35\mu$, pedicello longiusculo hyalino vel pallidissime fusciscente suffultae.

NATAL. Tabamhlope, 1520 m., on leaves of *Osyridocarpus natalensis*, DC. Wood, 10,527.

This fungus occurred on the leaves of the specimen bearing *Aecidium osyridocarpi*, Mass., but there is no evidence to show that the two are forms of the life-cycle of one species.

The spores of the *Puccinia* germinate in situ, the numerous germ-tubes giving a hoary and slightly pulverulent appearance to the acervuli or sori. The secondary spores are broadly elliptical and measure $12-14 \times 9\mu$.

Aecidium osyridocarpi, Masee. (Figs. 11-14.)

Pseudoperidia densissime gregaria, late ramulis foliisque distortis ac contorto-gyrosis insidentia, erumpentia, cylindracea, ore lacero-fimbriato albido, contextu cellulis elongato-hexagonis crasse tunicatis. *Spore* globosae vel e mutua pressione angulosae, episporio tenui minutissime verruculoso hyalino protoplasmate aureo-flavescente repletae, $18-20\mu$ diam.

NATAL. Tabamhlope, 1520 m., on branches and leaves of *Osyridocarpus natalensis*, DC. Wood, 10,527.

Pseudoperidia densely crowded, causing much contortion of the shoots and leaves attacked, and in this respect closely resembling *Aecidium ornamentale*, Kalchbr., met with on *Acacia horrida*, Willd., at the Cape.

SPHAERIACEAE.

Balansia sessilis, Masee. (Figs. 8-10.)

Stromata sessilia, globulosa, subtus plus minus angustata, dura, extus atra ac minutissime punctulata, intus albida, 1.5-2.5 mm. diam. *Perithecia* in stromatis capitulis peripherica, densissime constipata, oblongo-ovata. *Asci* cylindricei, tunica ad apicem rotundata valde incrassata, $200-220 \times 10-12\mu$, basi leniter attenuati, aparaphysati. *Spores* filiformes, paene longitudine ascorum, hyalinae, multiguttulatae dein multiseptatae.

MALAY PENINSULA. Johor: Batu Pahat, on the inflorescence of a species of *Ichnanthus*. Ridley, 10,988.

Most closely allied to *Balansia trinitensis*, Cooke and Masee; differing in the absence of a concave *Ephelis*, or conidial condition, in the sessile stromata, and in the longer asci and spores. The inflorescence is evidently attacked by the fungus while yet enclosed in the sheath, as the branches of the normally much branched and widely spreading inflorescence, are all bound together by a general stroma, and the inflorescence emerges as a simple spike. All the species are parasitic on grasses. The genus has a wide geographical range, extending from S. America, through Africa, to New Pomerania.

Balansia asperata, Masee. (Figs. 1-7.)

Stromata stipitata, hemisphaerica vel subglobosa, infra umbilicata, asperata, extus atra, 1 mm. diam. *Stipes* cylindricus, lignoso-carnosulus, duriusculus, extus ater, sub lente minuteque squamulosus, circa 2 mm. longus. *Perithecia* in stromatis capitulis

peripherica, densissime constipata. *Asci* cylindranei, 100–120 × 7–8 μ , basi attenuati. *Sporae* filiformes, longitudine ascorum, hyalinae, multiseptatae.

MALAY PENINSULA. Johor: Mount Austin, on the inflorescence of *Ichnanthus pallens*, Munro. *Ridley*, 12,508.

In this species the ovary of the host is converted into a black sclerotium, which produces a single, stipitate, ascigerous stroma. Allied to *Balansia Jungeri*, P. Henn., but much smaller in every part.

Gibbera tinctoria, *Massee*.

Perithecia epiphylla, densissime aggregato-constipata, crustam atram superficiem foliorum obtegentem efficientia, globosa, purpureo-atra, rugulosa, ostiolo papillulato donata, 0.5 mm. diam., contextu minutissime parenchymatico sordide purpureo. *Asci* cylindraneo-clavati, apice crassiuscule tunicati, basi attenuato-pedicellati, 80 × 7–8 μ . *Sporae* oblique distichae, ellipsoideae, utrinque rotundato-truncatae, 1-septatae, dilutissime flavae, 11–12 × 5–6 μ .

TROPICAL AFRICA. Rhodesia: on leaves of *Monotes glaber*, Sprague. *Allen*, 734.

This species was first detected by my colleague, Mr. T. A. Sprague, B.Sc., on phanerogamic material sent to Kew for determination. Differs from *Gibbera Vaccinii*, Fr., in the much smaller, and relatively narrower spores, and in the dingy purple colour of the tissue of the perithecium. When treated with a dilute solution of potassic hydrate a brilliant purple colouring matter is liberated.

HYPHOMYCETES.

Hainesia aurantiaca, *Massee*.

Acervuli subcutanei, sparsi, vix pulvinati, parvuli, 0.5–1 mm. diametro, saepe confluentes, laete aurantiaci, dein pallescentes. *Sporulae* ellipticae, utrinque latissime rotundatae, hyalinae, saepe curvulae, 10–12 × 3–3.5 μ , in sterigmatibus e strato prolifero fusco exurgentibus filiformes, hyalinae, solitariae, acrogenae.

QUEENSLAND. On the pericarp of *Endiandra insignis*, Bailey.

Distinguished from its nearest ally, *Hainesia rhoina*, Ell. and Sacc., by its clear orange colour and somewhat larger sporules.

EXPLANATION OF FIGURES.

Figs. 1–7. — *Balansia asperata*.

Figs. 8–10. — *Balansia sessilis*.

Figs. 11–14. — *Aecidium osyridocarpi*.

Figs. 15–17. — *Ustilago trichopterygis*.

XXVII.—THE RAISED TURF SYSTEM OF PLANTING BOG-LAND.

(With Plates.)

W. DALLIMORE.

The successful planting of wet, boggy land is one of the most difficult problems the forester has to deal with, and when such conditions prevail at a high elevation and an unsatisfactory climate has also to be considered, the planter finds full scope for his abilities.