

Taxonomic notes on the Ustilaginales III.

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With 1 Textfig.

In studying collections of *Ustilaginales* from tropical Africa and Australia, a number of species were found to be previously undescribed and others require nomenclatural changes. Most of these collections were made available for study through the courtesy of Dr. S. P. Wiltshire and Dr. M. B. Ellis of the Commonwealth Mycological Institute, to whom the writer is deeply indebted. Acknowledgement is also made to Dr. F. Petrak for preparing the Latin diagnoses included here.

Herbaria where the specimens are located are referred to according to the following abbreviations: BPI = Mycological Collections, Bureau of Plant Industry, U.S. Department of Agriculture; BR = Jardin Botanique de l'Etat, Brussels; CMI = Commonwealth Mycological Institute, Kew; FL = Herbarium Universitatis Florentinae.

Tilletia hyparrheniae sp. nov. (Fig. 1, A and B).

Sori in ovariiis tumefactis, oblongis, utrinque attenuatis, usque 1 cm longis, 1.5—2 mm. crassis, membrana matricis persistente brunneola, primum clausa, postea in apice dehiscente inclusi; spora globosae vel ovoideae, 19.5—31.5 μ diam., obscure olivaceae, in maturitate fere opacae, verruculis truncatis, usque 3 μ longis praeditae; cellulae steriles ellipsoideae vel ovoideae, 13.5—45 μ diam., pariete 3—4.5 μ crasso.

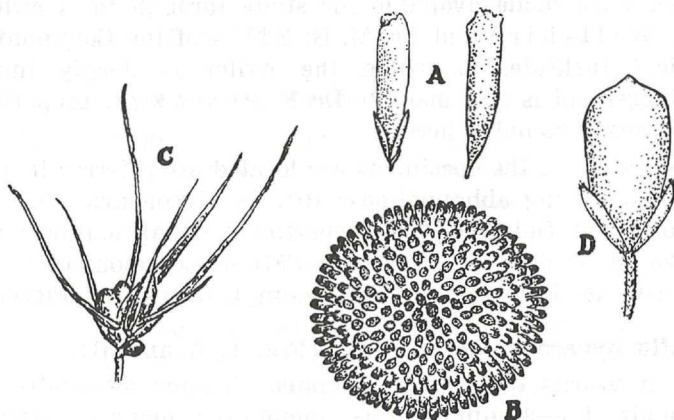
Sori in ovaries, oblong, with tapering ends, about 1 cm. long and 1.5—2 mm. diam., each enclosed by a brownish, rather thick, persistent membrane of host origin, which later dehisces at the apex permitting the spores to escape. Spores spherical to oval, 19.5—31.5 μ diam., dark olive brown and opaque when mature, immature ones present in different stages of development, varying from pale to deep olivaceous brown, densely ornamented with truncate projections up to 3 μ long, without enveloping hyaline membrane. Sterile cells globose to ellipsoid or ovoid, hyaline, 13.5—45 μ diam., wall 3—4.5 μ thick.

On *Hyparrhenia subplumosa* Stapf, Musaia, Sierra Leone, 15 Dec. 1946, F. C. Deighton M 2553, type, (CMI 11370).

***Ustilago andropogonis-tectorum* sp. nov.**

Sori in inflorescentiis omnino destructis, elongatis, saepe curvulis vel flagelliformibus evoluti; sporae sub epidermide in textura hypharum sporigenarum oriundae, globosae vel ovoideae, $7.5-10.5 \cong 7-9.5 \mu$, episporio tenuissimo, olivaceo, subtilissime et dense echinulato.

Sori destroying the whole young floral shoots, transforming each into an elongate, somewhat curved, whip-like structure; spore-mass developed under the epidermis, under which a layer of sporogenous hyphae is present at earlier stages. Spores predominantly spherical to oval, $7.5-10.5 \cong 7-9.5 \mu$; episporium very thin, olivaceous brown, under higher magnifications appearing very finely but densely echinulate.



On *Andropogon tectorum* Schum., Hill Station, Sierra Leone, 27 July 1941, F. C. Deighton M 2302, type (CMI 10966); Nigeria, 1936, J. West 69 (CMI 44426).

This fungus was erroneously reported by West¹⁾ as *Ustilago amadelpha* Syd. and Butl.

***Ustilago deformis* sp. nov. (Fig. 1, C).**

Sori inflorescentias iam in statu juvenili destruentes, paniculas in tumores ovoideos, piriformes, lanceolatos vel omnino irregulares, usque 5 mm longos, membrana matricis tenui inclusos, partim foliorum vaginis obfectos mutantes; sporae globosae, ovoideae vel ellipsoideae, $8.5-10.5 \mu$ diam. vel $9.5-11.5 \cong 7-9 \mu$, episporio ca. 0.5μ crasso, obscure olivaceo, subtiliter echinulato.

Sori destroying the inflorescence at a very early stage of development, transforming each aborted panicle into a tumor-like structure,

¹⁾ West, J. A preliminary list of plant diseases in Nigeria. Kew Bull. 1938: 1-7. 1938.

ovoid, pyriform, lanceolate, or irregular in shape, up to 5 mm. long, partially concealed by the leaf sheath, covered with a thin membrane of host origin. Spores spherical, ovoid, or ellipsoid, 8.5—10.5 μ diam., or 9.5—11.5 \Rightarrow 7—9 μ ; epispore about 0.5 μ thick, deep olivaceous brown, minutely echinulate.

On *Sporobolus patulus* Hack., summit of Picket Hill, Sierra Leone, 18 Nov. 1951, T. S. Jones, type (CMI 48887).

Ustilago delicatus sp. nov.

Sori in ovariiis paniculas inflorescentiae infectae omnes destruentes, 1—1.5 μ longi, columella centrali tenui rigidula brevissime ramulosa praediti, primum membrana matricis tenui induti; sporae quoad formam et magnitudinem variabiles, globosae, ellipsoideae, piriformes, oblongae vel parum irregulares, 6.5—8 μ diam. vel 6.5—9.2 \Rightarrow 5.5—8 μ ; episporio ca. 0.5 μ crasso, levi, pallide rubro brunneo.

Sori in ovaries, destroying all the spikelets in an infected panicle, forming a black, dusty spore mass, surrounding a fine, rigid, rudimentarily branched columella. 1—1.5 mm. in length, each covered at first with a delicate membrane of host tissue. Spores varying in shape and size, globose to ellipsoid, pyriform, elongate, or somewhat irregular, 6.5—8 μ diam., or 6.5—9.2 \Rightarrow 5.5—8 μ ; epispore about 0.5 μ thick, smooth, light reddish brown; endospore vacuolate.

On *Tricholaena delicatula* Stapf and Hubb., Nyangu, Belgian Congo, Jan. 1914, H. Vandyerst 3230, type (BR 1313); Taka, Belgian Congo, Jan. 1914, H. Vandyerst 3382 (BR 1314).

This fungus was labelled as *Ustilago tricholaena* P. Henn. var. *congoensis* Beeli, but was published as *U. tricholaena*²⁾ which is a member of *Sphacelotheca* and is not related with this fungus in any way.

Ustilago rhynchelytri sp. nov.

Sori in ovariiis columella centrali, rigidula, brevissime ramulosa praediti, membrana matricis tenui inclusi, parte basali sporis immaturis hyalinis repletae; sporae rubescenti-brunneae, subglobosae, ellipsoideae vel ovoideae, interdum subirregulares, 9—14 \Rightarrow 7—10 μ , subtiliter sed manifeste echinulatae.

Sori in the ovaries, each forming a black spore-mass surrounding a fine, rigid, rudimentarily branched columella, covered with a delicate membrane of host origin; basal part of a sorus usually compact, filled with hyaline, immature spores. Spores when mature medium reddish brown, subglobose to ellipsoid or ovoid, occasionally slightly irregular, 9—14 \Rightarrow 7—10 μ , finely but evidently echinulate.

²⁾ Beeli, M. Notes mycologiques. I. Bull. Jard. Bot. Bruxelles 8: 1—22. 1922.

On *Rhynchelytrum repens* (Willd.) Hubb., Lilongwe, Nyasaland, 5 April 1951, G. J a c k s o n, type (CMI 49714).

Macroscopically this species is not distinguishable from *Ustilago delicatus*.

***Ustilago sorghi-stipoidei* sp. nov.** (Fig. 1, D).

Sori in ovariiis, spicas singulas in paniculis tantum inficientes, piriformes, apicem versus attenuati, 10—15 \Rightarrow 5—7 mm., membrana matricis crassiuscula, obscure brunnea, postea superne disrumpente inclusi; sporae globosae vel subglobosae, quoad magnitudinem variae, plerumque 8.5—14.5 μ , raro usque 18 μ diam.; episporio obscure brunneo, spinuloso, spinulis usque 1.5 μ longis.

Sori in ovaries, infecting sporadic spikelets in a panicle, pyriform, with a tapering apex, 10—15 mm. long and 5—7 mm. diam., each enclosed by a thick, persistent, deep brown membrane of host origin, which later dehisces at the apex. Spores spherical to subspherical, variable in size, usually 8.5—14.5 μ diam., rarely extremely large ones attaining 18 μ diameter; epispore deep olivaceous brown, distinctly spinulose, spines up to 1.5 μ long.

On *Sorghum stipoides* Gardner et Hubb., Katherine, Northern territory, Australia, 24 April 1947, S. T. B l a k e, type (CMI 43753).

***Ustilago spinulosa* sp. nov.**

Sori in ovariiis late ellipsoidei, 1—1.5 mm. longi, extus membrana matricis, intus membrana fungilli ipsius prosenchymatica oblecta, postea in cellulas subglobosas, 6—9 μ diam. metientes dilabente inclusi; sporae globosae vel ellipsoideae, oblongae vel subirregulares, 7.5—12 μ diam. vel 7.5—12 \Rightarrow 7—10.5 μ ; episporio ca. 0.7 μ crasso, olivaceo, distincte spinuloso, spinulis usque 1 μ longis.

Sori in ovaries, broadly ellipsoid, 1—1.5 mm. in length, each covered with a membrane of host tissue, inside of which is a thin prosenchymatic membrane of fungus origin, breaking up in later stages of development into globoid to subgloboid cells, 6—9 μ diam. Spores spherical to ellipsoid, rarely oblong to somewhat irregular, 7.5—12 μ diam. or 7.5—12 \Rightarrow 7—10.5 μ ; epispore approximately 0.7 μ thick, medium to deep olivaceous brown, distinctly spinulose, spines up to 1 μ long.

On *Sporobolus patulus* Hack., summit of Picket Hill, Sierra Leone, 18 Nov. 1951, T. S. J o n e s, type (CMI 48887).

Ustilago sporoboli-indici Ling, Imp. Myc. Inst. Myc. Papers 11: 7. 1945.

Syn. *Entyloma sporoboli* Castel. et Gran. Nuo. Giorn. Bot. Ital. n. s. 57: 253. 1950.

On *Sporobolus indicus* R. Br. var. *laxus* Nees, Mai Felasi, Seraé, Eritrea, 24. Oct. 1938, F. Di Martino, type of *E. sporoboli* (FL).

Sorosporium eulaliae sp. nov.

Sori in ovariis spiculas omnes inficientes, ellipsoideo-fusifor-
mes, ca. 5 mm longi, primum membrana matricis inclusi, ea denique
disrupta sporarum massam minutissime granulosam denudatam
praebentes; sporae compositae in maturitate evanescentes, globosae,
oblongae vel irregulares, opacae, $33-90 \rightleftharpoons 30-75 \mu$; articuli subangu-
losi, subglobosi, ellipsoidei vel oblongi, exteriores obscure rubescenti-
brunnei ad superficiem verruculosi, $9-15 \rightleftharpoons 8-12 \mu$ metientes, interio-
res pallidiores, leves vel indistincte verruculosi, ceterum similes, in-
timi subhyalini vel pallide brunneoli, leves, $7.5-11 \rightleftharpoons 7.5-9 \mu$.

Sori in ovaries, infecting all the spikelets in a raceme, fusiform-
elliptical, around 5 mm. long, each clothed with a brownish false
membrane, which later lacerates into stripes exposing a dark gran-
ular spore mass surrounding an inconspicuous short filament of
host origin. Spore balls evanescent at maturity, globose to oblong, or
irregular, opaque, $33-90 \rightleftharpoons 30-75 \mu$. Spores frequently subangular,
sometimes subspherical to ellipsoid or elongate; the peripheral ones
dark reddish brown, verruculose on the exposed surface, $9-15 \rightleftharpoons$
 $8-12 \mu$; the inner ones medium reddish brown, smooth or indistinctly
verruculate, similar in size; while those at the innermost part of a
spore-ball subhyaline or pale brownish, smooth $7.5-11 \rightleftharpoons 7.5-9 \mu$.

On *Eulalia trispicata* (Schult.) Henrard, north of Mackay, Queens-
land, Australia, 21 Aug. 1941, R. F. Langdon, type (CMI 43721).

Sorosporium monocymbii (Syd.) comb. nov.

Syn. *Sphacelotheca monocymbii* Syd. Ann. Myc. 37: 200. 1939.

Sori in ovaries, destroying all the spikelets in an inflorescence,
ellipsoid, about 2 mm. long, partially concealed by glumes, each
surrounding a short, inconspicuous columella, covered with a thin,
pallid false membrane which breaks up into hyaline, thick-walled
cells, $9-18 \rightleftharpoons 8-16.5 \mu$, globose to oval, often strongly compressed
even into stellate form; sometimes each sorus involving the paired
spikelets, destroying all floral organs including glumes, surrounding
a part of the rhachis and the pedicels; spore-mass at earlier stages
agglutinated into a carbonaceous body, becoming dusty later. Spore
balls variable in shape and size, chiefly subglobose to oblong, $60-$
 $130 \rightleftharpoons 45-80 \mu$, often coalescing into larger and irregular mass, opaque,
evanescent. Spores globose to broadly ellipsoid, mostly somewhat
angled due to compression, $7.5-10.5 \rightleftharpoons 7.5-9.5 \mu$; epispore about
 0.5μ thick, light reddish brown, uniformly colored, apparently smooth,
but appearing very finely echinulate under higher magnifications.

On *Monocymbium ceresiiforme* (Nees) Stapf, near Kabala, Sierra Leone, 16 Nov. 1930, F. C. Deighton, type (BPI).

Sorosporium nyalalandicum sp. nov.

Sori in ovariis, inconspicui, partim e glumis prominuli, ellipsoidei, usque 2 mm. longi, primum membrana falsa inclusi, ea denique disrupta sporarum massam obscuram praebentes; sporae compositae opacae, persistentes, globosae vel ellipsoideae, oblongae vel angulosae, $30-112.5 \rightleftharpoons 30-67.5 \mu$; articuli subglobosi vel late ellipsoidei, plus minusve angulosi, $8.5-14.5 \rightleftharpoons 7.5-10.5 \mu$, modice vel obscure rubescenti-brunnei plus minusve aequaliter colorati, leves, extimi tantum minutissime punctati.

Sori in ovaries, inconspicuous, partially exposed between glumes, ellipsoidal, about 2 mm. in length, each covered with a thin false membrane which later flakes away disclosing a dark spore-mass surrounding a simple slender filament of host tissue. Spore balls opaque, persistent, globose to ellipsoid, oblong, or less often angular, $30-112.5 \rightleftharpoons 30-67.5 \mu$. Spores mostly somewhat angular, varying from subglobose to broadly ellipsoid, $8.5-14.5 \rightleftharpoons 7.5-10.5 \mu$, medium to deep reddish brown, more or less uniformly colored, smooth except the outermost spores which appear punctate on free surface under higher magnifications; endospore vacuolate.

On *Panicum* sp., Palombe Plains, Nyasaland, 20 July 1951. G. Jackson, type (CMI 49707).

Sorosporium urelytri sp. nov.

Sori in ovariis, partim e glumis prominuli, lineares, usque 6 mm longi, membrana ex hyphis fungilli ipsius prosenchymatice contextis composita inclusi, ea denique dilabente sporarum massam obscuram matricis relictum filiformem, ad apicem saepe furcatum circumdantem praebentes; sporae compositae mox dilabentes, in maturitate evanescentes, obscurae, subglobosae, ellipsoideae vel irregulares, $45-110 \rightleftharpoons 40-82 \mu$; articuli modice rubescenti-brunnei, plus minusve aequaliter colorati, globosi vel ovoidei, interdum ellipsoidei, e mutua pressione saepe plus minusve angulosi, $10-14 \rightleftharpoons 9-12.5 \mu$, plerumque $11-12.5 \mu$ diam.; episporio ca. 0.8μ crasso, levi.

Sori in the ovaries, partially exposed between glumes, linear, up to 6 mm. in length, each enclosed by a brownish fungous membrane of prosenchymatic tissue, which later flakes away disclosing a dusty dark spore mass surrounding a slender filament of host remnant, often forked at the tip. Spore balls readily separable, evanescent at maturity, dark, subglobose to ellipsoid, or irregular, $45-110 \rightleftharpoons 40-82 \mu$. Spores medium reddish brown, more or less uniformly colored, globose to oval, occasionally ellipsoid, mostly

somewhat angled due to compression, 10—14 \Rightarrow 9—12.5 μ , mostly 11—12.5 μ diam.; epispore about 0.8 μ thick.; smooth; endospore usually vacuolate.

On *Urelytrum giganteum* Pilger, Mendi-Yei boundary, Anglo-Egyptian Sudan, 4 May 1938, J. G. Myers 9003, type (CMI 25276); à la Grelo Section, Belgian Congo, July 1931, P. Quarre 2593 (CMI 36152).

On *Urelytrum stapfianum* Hubb., Angola, no date, Gossweiler 9518 (CMI 25277); Kela, Lalange Plateau, Angola, 3 Jan. 1931, Gossweiler (CMI 36153).

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Zeitschrift/Journal: [Sydowia](#)

Jahr/Year: 1953

Band/Volume: [7](#)

Autor(en)/Author(s): Ling Lee

Artikel/Article: [Taxonomic notes on the Ustilaginales III. 151-157](#)