



P. Hennings (1898) *Fungi centro-africani*: species collected by G. Schweinfurth in what is now the Republic of South Sudan: A revisit

Mouchacca J and Denetière B

Muséum National d'Histoire Naturelle, Département de Systématique et Evolution (UMR 7205), Case Postale n° 39, 57 rue Cuvier, F-75231 Paris Cedex 05, France. email: mouch@mnhn.fr

Mouchacca J, Denetière B 2013 – P. Hennings (1898) *Fungi centro-africani*: species collected by G. Schweinfurth in what is now the Republic of South Sudan: A revisit. *Mycosphere* 4(3), 496–518, Doi 10.5943/mycosphere/4/3/5

Abstract

A revisit of the publication entitled ‘*Fungi centro-africani*’ by P. Hennings (1898) is presented and the 32 taxa reported are taxonomically re-evaluated. Most specimens were collected by G. Schweinfurth during his third trip (1868-1871) in the wide and politically unsettled region then known as Central Africa. Two additional species were collected by G. Ruhmer further to the north, in present-day Libya. The distribution of these specimens within the current political borders show that 24 species were observed in the recently independent Republic of South Sudan, five in the Democratic Republic of the Congo (Congo-Kinshasa), and one in the Republic of the Sudan. The present document also includes three species collected by G. Schweinfurth but later described by Hennings.

The general layout of this contribution is similar to that of the original publication. Each taxon is introduced with the same name and reference used by Hennings. The nomenclatural status and taxonomic positions are then reviewed following recent information. The current name is cited after the original name whenever a change has occurred. Obligate synonyms are included. Facultative synonyms are sometimes included to elucidate the taxonomic history of the species.

The 35 African taxa treated belong to three major groups: ascomycetes (5 spp.), hetero- (3 spp.), and homobasidiomycetes (27 spp.). Members of the last group generally have fruit bodies sufficiently large to be visible to the unaided eye. Many were described as new species by Hennings. The original names of half these taxa have undergone changes although for a few new designations are still debatable. The binomials of the remaining collections are unchanged. Thus despite over a hundred years since Hennings’ publication and the present revisit, the taxonomic status of some of these taxa still awaits re-assessment in modern terms.

Key words – ascomycetes – basidiomycetes – biodiversity – Central Africa – Congo– fungi – nomenclature – Sudan – taxonomy

Introduction

Hennings (1898) described several new species of fungi based on specimens collected by G. Schweinfurth during his expeditions to the ‘yet politically unsettled territories of Central Africa’. This publication also included a number of known species previously unrecorded for the region. The collections were mostly made in Bahr El-Ghazal Province (River of the Gazelles, in Arabic). The name comes from the graceful animals commonly seen by early Egyptian and Nubian

merchants standing on the termite mounds of the low plains of this vast province. The area now represents the north western region of the new Republic of South Sudan, independent since 2011.

The present paper is an attempt to review the nomenclatural status and the taxonomic positions of taxa reported in Hennings' publication *Fungi centro-africani*. The review relates to the recent survey of fungal taxa having holotypes from the Middle East published by the first author (Mouchacca 1995 --- 2009). The Republic of the Sudan was then regarded as a member of this regional subdivision, although its southern part deviated in its tropical character. The recent division of this state sustains the homogeneity of the Middle East region based on the arid character of its climate.

List of Cited Taxa

Schweinfurth's travels and the merchants' 'zeribas':

The establishment of the City of Khartoum in 1830 by the Egyptian authorities paved the way for the exploration of the eastern central part of the African continent. The Egyptian and Nubian merchants started their inland routes by sailing south up the river Nile. They discovered a sort of channel perpendicular to the mainstream running westerly in the middle of reeds and papyrus between often inundated banks. The channel finally allowed access to the mysterious locality of Mechra' er Ruk, then a point of convergence of ebony and ivory convoys.

On the southern elevated banks of this channel, the merchants gradually established their trading posts or 'zeribas' (animal stables in Arabic). The zeribas are a sort of circular paddock surrounded by a protective palisade. In the former Egyptian province of Bahr El-Ghazal, the principal zeribas were Dem Ziber [or Dem Soliman], normal residence of the governor of the region, Dem Idris [or Ganda], Koulchouk Ali at Waou, and Diour Ghattas [etym.: houses of Mr Ghattas]. In the period 1868-1871, the established zeribas were visited by the German naturalist G. Schweinfurth who travelled southwest as far as Ouellé (Dyé 1902).

Wickens (1972) provided a detailed account of Schweinfurth's third journey to Central Africa. He also established a synopsis of the names of rivers and khors (= streams) crossed by him in this wide region, with Schweinfurth's German spellings of place-names and their corresponding English spellings. The geographic position of the point of crossing of these waterways is also indicated. According to Wickens, it was relatively easy to reconstruct the itinerary of this journey simply by using Schweinfurth's (1873) book entitled 'The Heart of Africa', and the series of papers and maps he published from 1868 to 1872. A map showing the circuit of Schweinfurth's third journey but without indication of the current political borders is available at http://libweb5.princeton.edu/visual_materials/maps/websites/africa/schweinfurth/sch.

Nomenclatural and taxonomic update:

Fungi treated by Hennings (1898) were first segregated according to the localities of collections with respect to present-day political borders in this part of Africa. A fair number proved to be from the recent Republic of South Sudan. A few others were from the close-by Democratic Republic of the Congo (Congo-Kinshasa), the Republic of the Sudan, and even northern Libya; these taxa have been treated separately. Hennings subsequently described three additional species from South Sudan; their taxonomic situation has also been considered.

In the present contribution the names of the fungi of South Sudan are listed in the same sequence as in Hennings' paper. They are also introduced with the same binomials and basic cited references. The nomenclatural status and taxonomic position of each are then updated following present-day information. The accepted current names and associated basic titles are indicated after the original ones. Obligate synonyms are provided. Facultative synonyms are only reported when necessary for understanding the taxonomic history of the fungus. Index Fungorum (= IF.org in the text) and Mycobank (= MB.org) databases were consulted for the preparation of the present document.

Taxa relating to present-day South Sudan:

1 – *Ustilaginaceae*: *Cintractia axicola* (Berk.) Cornu, Ann. Sc. Nat. 1883, p. 279.

Current name: *Cintractia axicola* (Berk.) Cornu, Ann. Sci. Nat., Bot., sér. 6, 15: 279. 1883.

≡ *Ustilago axicola* Berk., Ann. Mag. Nat. Hist., Ser. 2, 9: 200. 1852.

A number of other synonyms are reported by Piepenbring (2000) and by Vanky (2012).

On *Cyperus rotundus*, Grande [in French = large] Zeriba of Ghattas [as Seriba Ghattas], locality of Jur [as Djur: see Wickens 1972], Bahr El-Ghazal Province, 3 July 1852, leg. Schweinfurth no. 2013.

This is the type species of *Cintractia* Cornu. The holotype developed on ‘some scirpoid plant’ [= *Fimbristylis dichotoma*, det. K.Vanky], Dominican Republic, Santo Domingo, coll. M.A. Sallé 74, Herb. Berkeley no. 4745, K !: see Vanky *et al.* (2011). *Cintractia axicola* is known from tropical and subtropical regions around the world (Piepenbring 2000).

2 - *Tolyposporium anthistiriae* Henn., *Hedwigia* 37: 283. 1898, as *nov. sp.*

Current name: *Sporisporium anthistiriae* (Cobb) Vanky, in Vanky & Guo, *Acta Mycol. Sin.*, Suppl. 1: 230. 1986, publ. 1987.

≡ *Tolyposporium anthistiriae* Cobb, Agric. Gaz. New South Wales 3: 1006. 1892 [non *T. anthistiriae* Henn.; a homonym]. Holotype on *Anthistiria ciliate* L. fil. [= *Themeda quadrivalvis* (L.) Kuntze], Australia: New South Wales.

= *Sorosporium anthistiriae* (Cobb) L. Ling, Mycol. Pap. 11: 9. 1945.

= *Tolyposporium anthistiriae* Henn., *Hedwigia* 37: 283. 1898; *nom. inval.*, ICBN Art. 55.

Synonymy fide Vanky *et al.* (2011).

On *Anthistiria* sp. [= *Themeda* sp. fide Vanky *et al.* 2011], in the steppe, Grande Zeriba of Ghattas [as gr. Seriba Ghattas], Jur, Bahr El-Ghazal Province, 30 May 1869, leg. Schweinfurth no. 2439.

Sporisporium anthistiriae (Cobb) Vanky has been reported on *Themeda* spp. from Africa, East Asia and Australia (Vanky *et al.* 2011).

3 – *Thelephoraceae*: *Stereum elegans* Mey. - Esseq., p. 305.

Current name: *Podoscypha elegans* (G. Mey.) Pat., Essai Tax. Hyménomyc.: 71. 1900.

≡ *Thelephora elegans* G. Mey., Prim. Fl. Esseq.: 305. 1818 [non *T. elegans* (Sowerby) Pers., *Mycol. Eur.* 1: 112. 1822; ≡ *Auricularia elegans* Sowerby, Engl. Fungi 4: 195, t. 412:1. 1809].

= *Stereum elegans* (G. Mey.) Fr., *Epicr. syst. mycol.*: 545. 1838 [1836-38].

Among graminaceous plants, Grande Zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 20 May 1869, leg. Schweinfurth *s.n.*

A non-original description was published by Cunningham (1956). Later, Reid (1965) noted that he could not locate the holotype. He therefore proposed the name should be regarded as dubious as the protologue could apply to several species of *Podoscypha* Pat. This taxonomic imbroglio was accentuated by the fact Patouillard (1900) had not explicitly selected a type for his new genus.

Thelephora elegans was proposed by W.B. Cooke (1953) as type species of *Podoscypha*, since it was the first species to be listed along with the original genus description. As this name had been variously interpreted and no type material found, Reid (1965) proposed a better defined taxon: *P. surinamensis* (Lév.) Pat., Essai Tax. Hyménomyc.: 71. 1900 [≡ *Stereum surinamense* Lév., Ann. Sci. Nat., Bot. 2: 209. 1844], as the genus type species.

Podoscypha surinamensis was later regarded as synonymous with *P. nitidula* (Berk.) Pat., in Duss R.P., Enum. Champ. Guadeloupe: 21. 1903 [≡ *Stereum nitidula* Berk., J. Bot., London 2: 638. 1843]. Following Sjökvist *et al.* (2012) and based on molecular data involving several stipitate stereoid basidiomycetes, *P. nitidula* can be expected to be a member of the *Podoscypha s.s.* clade. Their opinion is that morphologically it is a typical *Podoscypha* having small, thin, funnel-shaped basidiocarps with gloeocystidia but no other kinds of cystidia. The fungus is most often found on

the ground and only occasionally reported from trunks. The exact taxonomic interpretation of the name *P. elegans* thus awaits clarification.

4 - *Stereum cyathoides* Henn., *Hedwigia* 37: 284. 1898, as *nov. sp.*

Current name: ***Podoscypha thozetii* (Berk.) Boidin, Rev. Mycol. (Paris) 24: 208. 1959.**

≡ *Stereum thozetii* Berk., J. Linn. Soc., Botany 18: 385. 1881. Holotype from Australia.

= *Stereum cyathoides* Henn., *Hedwigia* 37: 284. 1898.

On soil, Grande Zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 24 Jul. 1869, leg. Schweinfurth no. 2130.

Hennings (1898) regarded this fungus as resembling a small fruitbody of *Thelephora caperata* Berk. & Mont., in Montagne, Ann. Sc. Nat., Bot., sér. 3, 11: 241. 1849: holotype from Bahia, Brazil; now renamed *Cymatoderma caperatum* (Berk. & Mont.) D.A. Reid, Kew Bull. 10: 635. 1955, publ. 1956.

Podoscypha thozetii commonly grows on the ground, perhaps on grass roots, and is rather cosmopolitan (Talbot 1954). A non-original description was provided by Reid (1965). According to the latter, the discovery of a collection from the southern United States and a further gathering from South America [Venezuela no. 9] is of particular interest, since the fungus had not previously been recorded from the New World, despite relatively intensive mycological exploration.

5 - *Cyphella nabambissoënsis* Henn., *Hedwigia* 37: 284. 1898, as *nov. sp.*

Current name: ***Calyprella nabambissoënsis* (Henn.) W.B. Cooke [as *nabambissoënsis*], Beih. Sydowia 4: 41. 1961.**

On soil, close to Abu Samad zeriba, Yabongo [as Mbango: see Wickens 1972], land of the Niam-Niam tribe, at the confluence of Khor Nabambissoo and Khor Bodo [as Boddo], 6 May 1870, leg. Schweinfurth no. 3706. The Abu Samad zeriba was located at the extreme south of the Bahr El-Ghazal Province close to the Congo border (Wickens 1972).

The species has apparently remained undocumented since its transfer to *Calyprella* Quéf. (Young 1996). Data on the distribution of known members of the genus appear relatively poor (Lee *et al.* 2009).

6 – *Clavariaceae: Clavaria schweinfurthiana* Henn., *Hedwigia* 37: 284. 1898, as *nov. sp.*

Current name: ***Clavaria schweinfurthiana* Henn., *Hedwigia* 37: 284. 1898.**

On clay soil, between standing trees, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 20 Jul. 1868, leg. Schweinfurth *s.n.*

Hennings (1898) regarded this species as being close to *Clavaria ligula* Schaeff., *Fung. Bavar. Palat. nasc.* 4: 116. 1774, pl. 171; now *Clavariadelphus ligula* (Schaeff.) Donk, *Meded. Bot. Mus. Herb. Rijksuniv. Utrecht* 9: 73. 1933. However, this African *Clavaria* species has apparently not been re-assessed in modern terms.

7 – *Polyporaceae: Polystictus sanguineus* (Lin.) Mey., Esseq., No. 304.

Current name: ***Pycnoporus sanguineus* (L.) Murrill, Bull. Torrey bot. Club 31(8): 421. 1904.**

≡ *Boletus sanguineus* L., *Sp. pl.*, Edn. 2, 2: 1646. 1763.

= *Polystictus sanguineus* (L.) G. Mey, *Nova Acta R. Soc. Scient. Upsal.*, Ser. 1, 1: 75. 1818.

= *Polyporus sanguineus* (L.) Fr., *Syst. mycol.* 1: 371. 1821.

= *Microporus sanguineus* (L.) Pat., *Essai Tax. Hyménomyc.*: 83. 1900.

= *Trametes sanguinea* (L.) Lloyd, *Mycol. Writ.* 7: 1291. 1924 var. *sanguinea*.

= *Coriolus sanguineus* (L.) G. Cunn., *Bull. N. Z. Dept. Sci. Industr. Res.*, Pl. Dis. Div. 81: 17. 1949.

= *Fabisporus sanguineus* (L.) Zmitr., *Mycena* 1(1): 93. 2001.

= *Trametes cinnabarina* var. *sanguinea* (L.) Pilat, in Kavina & Pilat, *Atlas Champ. Europe (Praha)* 3: 319. 1939.

= *Boletus ruber* Lam., Encycl. Méth. Bot. 1(1): 50. 1783.

On a decaying tree branch, Gurfala [as Gurfola in the text; = Ngulfala: see Wickens 1972], 1 Aug. 1869, leg. Schweinfurth *s.n.*

This white rot saprotrophic basidiomycete occurs on fallen trunks, logs and branches of dead hardwood trees on insolated wood in open areas (Roberts & Ryvarden 2006). It is a common pantropical species, though not localized when originally described. The bracket-like basidiocarps are bright orange-red and easily distinguished in the field. *Pycnoporus sanguineus* is presently being tested for its capacity to produce laccase and cellulolytic enzymes (Litthauer *et al.* 2007).

8 - *Polyporus schweinfurthianus* Henn., *Hedwigia* 37: 285. 1898, as *nov. sp.*

Current name: ***Boletus sp.***, *fide* Bresadola (1916).

Under plant cover in bushy vegetation, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 1 Jun. 1871, leg. Schweinfurth *s.n.*

The species was introduced with the following protologue: *Pileo carnosio sublento, subhemisphaerico depresso vel pulvinato, sinuoso repando, cinereo-brunneo olivascens vel olivaceo-virescens* 10-25 cm *diametro*; *carne* 3-4 cm *crasso*, *pallido flavescente*; *tubulis brevissimis*, 1.5-2 mm *longis*, *ore minuto, punctiformi, flavo-olivascens vel cinerescente*; *stipite subovoideo-bulboso vel obclavato, basi sulcato, ochraceo cinerescente usque ad 14 cm longo*, 9 cm *crasso, farcto, radicato*.

The original specimen was apparently re-examined by Bresadola and identified as *Boletus sp.* (Bresadola 1916: 227). Ryvarden (2012) recently noted that he was unable to locate the holotype.

9 – *Agaricaceae: Cantharellus addaiensis* Henn., *Hedwigia* 37: 286. 1898, as *nov. sp.*

Current name: ***Cantharellus addaiensis* Henn., *Hedwigia* 37: 286. 1898.**

= *Cantharellus floridulus* Heinem. [as *floridula*], Bull. Jard. Bot. Etat Brux. 28: 419. 1958, *sensu* Eyssartier (2001), *non sensu* Heinemann (1966).

= *Cantharellus miniatescens* Heinem., Bull. Jard. Bot. Etat Brux. 28: 393. 1958, *sensu* Ryvarden *et al.* (1994). Both synonymies *fide* Buyck (2012).

Two specimens were reported. On soil, in a bushy area, between the localities of Geer [as Gir] and Aidu [as Addai], Bongoland, 29 July 1869, leg. Schweinfurth no. 2181; under bamboo plants, Aidu, 30 July 1869, leg. Schweinfurth no. 2265. The old zeriba of Ghattas, known as ‘Jur Ghattas’, was at Geer; the larger one known as ‘Jur zeriba of Ghattas’ was at Jur or Djur. Bongoland was the central part of the Bahr El-Ghazal Province and is irrigated by the river Yabongo or Khor Yabongo (Wickens 1972).

The taxonomic history of the fungus long remained obscure due to the absence of authentic material (Eyssartier 2001). Heinemann (1966) had provided a non-original description based on an African specimen he referred to the species: On clay soil, Kipopo, district of High-Katanga, Democratic Republic of the Congo, leg. M.C. Schmitz-Levecq no.104 (BR). According to Eyssartier (2001), the description approximates that of *Cantharellus floridulus* but deviates in having spores that are slightly wider. On the other hand, the protologue of the latter gives spore dimensions rather similar to those of *C. addaiensis*. The fungus described by Heinemann (1966) might thus represent a taxon intermediate between these two species.

Eyssartier & Buyck (1998) re-examined the type specimen of *Cantharellus floridulus*. They decided the species hardly differs from the description of *C. addaiensis* under the microscope. This conclusion was not however supported by Eyi Ndong *et al.* (2011). Based on new collections from Gabon, the latter established a modern description of *C. floridulus*, as an orange-red forest taxon with contrasting whitish gills.

According to Buyck (2012) if the recent interpretation of *Cantharellus floridulus* is accepted, the very similar taxon with nearly concolorous gills that abundantly fruits in the surrounding miombo woodlands corresponds perfectly to Hennings’ diagnosis of *C. addaiensis*.

Buyck then proposed the latter name to designate the species and selected the sequenced collection 'Buyck 98.033' from Tanzania as a neotype. A modern description of *C. addaiensis* could then be published.

Recent observations confirm *Cantharellus addaiensis* is one of the most common species in savannah woodlands, typically growing in large groups; in comparison *C. floridulus* has not yet been found in the savannah vegetation (Buyck 2012). In major databases the former is erroneously listed as matching *C. auriscalpium* Fr., *Elench. fung.* 1: 54. 1828, also reported as *Arrhenia auriscalpia* (Fr.) Fr., *Summa veg. Scand.*: 312. 1849. The synonymy could not however be located in the published literature. The latter taxon is a typical member of the arctic and alpine mycota, commonly encountered in North America, northern Europe, Greenland and Iceland (Barrasa & Rico 2003).

10 - *Coprinus plicatilis* (Curt.) Fr., *Epicr.*: 252.

Current name: *Parasola plicatilis* (M.A. Curtis) Redhead, Vilgalys & Hopple, in Redhead *et al.*, *Taxon* 50: 235. 2001.

≡ *Agaricus plicatilis* M.A. Curtis:Fr., *Fl. Londin.* 1: t. 215 [engraved no. 200]. 1778; *Syst. mycol.* 1: 312. 1821.

= *Coprinus plicatilis* (M.A. Curtis) Fr., *Epicr. syst. mycol.*: 252. 1838 [1836-38].

= *Agaricus crenulatus* O.F. Müller, *Fl. Danic.* 5: tab. 832: 2. 1780.

= *Agaricus pulcher* Pers., *Tent. disp. meth. fung.*: 63. 1797; *nom. nov. superfl.*

= *Coprinus pulcher* (Pers.) Gray, *Nat. Arr. Br. Pl.* 1: 635. 1821.

On decomposing haulms, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 8 July 1869, leg. Schweinfurth no. 2037.

Parasola plicatilis was selected as type species of the new genus *Parasola* Redhead, Vilgalys & Hopple, placed in the family *Psathyrellaceae* (Redhead *et al.* 2001). Species of *Coprinus s.s.* remain in the family *Agaricaceae*. According to Nagy *et al.* (2012) although the protologue of *Agaricus plicatilis* is quite obscure and may apply to any *Parasola* taxon, there is consensus about the interpretation and usage of the name *C. plicatilis* in recent literature. To stabilize the species the illustration provided by Curtis (1781) in his *Flora Londinensis*, i.e. tab. 215, was selected as lectotype and a specimen collected in Hungary as epitype. The preparation by Nagy *et al.* (2012) of a modern description of this *Parasola* will enable its geographical distribution to be circumscribed.

11 - *Lentinus ghattasensis* Henn., *Hedwigia* 37: 286. 1898, as *nov. sp.*

Current name: *Lentinus tigrinus* (Bull.) Fr., *Syst. orb.*: 78. 1825; Pegler D.N., *The Genus Lentinus. A World Monograph*: 45. 1983.

≡ *Agaricus tigrinus* Bull., *Herb. Fr.* 2: 49-96, Tab. 70. 1782. Iconography: l'Agaric Tigré de Bulliard P., *Hist. Champ. Fr.* I: 1-368. 1791.

= *Omphalia tigrina* (Bull.) Gray, *Nat. Arr. Br. Pl.* 1: 613. 1821.

= *Clitocybe tigrina* (Bull.) P. Kummer, *Führ. Pilzk.* ed. 1: 121. 1871.

= *Pocillaria tigrina* (Bull.) Kuntze, *Rev. gen. pl.* 2: 866. 1891.

= *Lentodium tigrinum* (Bull.) Earle, *Bull. New York Bot. Gard.* 5: 434. 1909.

= *Panus tigrinus* (Bull.) Singer, *Lilloa* 22: 275. 1951.

= *Pleurotus tigrinus* (Bull.) Kühner, *Bull. Mens. Soc. Linn. Lyon* 49: 895. 1980.

= *Polyporus gerdai* D. Krüger, in Krüger D. *et al.*, *Fed. Repert.*: 542. 2004.

= *Lentinus ghattasensis* Henn., *Hedwigia* 37: 286. 1898.

Several other synonyms are listed in IF.org & MB.org.

On wood lying on soil, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 20 Sep. 1869, leg. Schweinfurth no. 2430. The species was dedicated to Mr Ghattas, the Coptic merchant that housed G. Schweinfurth in his two zeriba residences during his travels in Central Africa.

The new *Lentinus* was regarded by Hennings (1898) as being close to *L. lepideus* (Fr.) Fr., *Epicr. syst. mycol.*: 390. 1838 [= *Agaricus lepideus* Fr., *Observ. mycol.* 1: 21. 1815]; now renamed *Neolentinus lepideus* (Fr.) Redhead & Ginns, *Trans. mycol. Soc. Japan* 26: 357. 1985.

Lentinus tigrinus is a common wood-decaying basidiomycete that typically has toothed decurrent lamellae and a white spore print. The fungus has a broad, generally Laurasian distribution, but also extends to the tropics in both the New and Old World (Redhead 1988). In addition to the typical agaricoid form, there is also a secotioid form that occurs throughout central and eastern North America. The secotioid form has a membranous web of hyphae, previously termed a veil that encloses the hymenophore, which may become contorted to varying degrees. The secotioid and agaricoid forms are otherwise anatomically very similar (Hibbett *et al.* 1994).

12 - *Lentinus strigosus* Fr., *Epicr.* p. 388.

Current name: ***Lentinus strigosus*** Fr., *Syst. Orb. Veg.* 1: 77. 1825, *nom. nov.* for *L. strigosus* Fr., *Epicr. syst. mycol.*: 388. 1838.

≡ *Agaricus strigosus* Schwein., *Schriften Naturf. Ges. Leipzig* 1: 89. 1822 [non *A. strigosus* Schumach., *Enum. Pl.* 2: 272. 1803; the taxonomic position of the latter is still unclear].

= *Pocillaria frieseana* Kuntze, *Rev. gen. pl.* 2: 867. 1891.

A number of other synonyms are reported in IF.org & MB.org.

On wood, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, July 1869, leg. Schweinfurth *s.n.*

The published combination *Lentinus strigosus* (Schwein.) Fr. is invalid. The specific epithet refers to the hairy caps and stipes of the basidiomes. The species is edible and mostly found clustered on the logs and stumps of deciduous trees (Yamac *et al.* 2008).

Lentinus Fr. was monographed by Pegler (1983). He restricted *Lentinus* to dimitic species, and therefore, transferred the monomitic shiitake fungus, traditionally known as *L. edodes* (Berk.) Singer into *Lentinula* Earle [*Collybieae, Tricholomataceae*: Pegler (1975)]. Pegler also combined *Lentinus* and *Panus* Fr. as subgenera. Subgenus *Lentinus* was restricted to species with ligative hyphae and subg. *Panus* to species with skeletal hyphae. Pegler's taxonomic decisions are presently being reviewed using molecular data (Hibbett & Vilgalys 1991, 1993). However, not all the *Lentinus* species treated by Pegler have yet been re-assessed.

13 - *Marasmius sublanguidus* Henn., *Hedwigia* 37: 286. 1898, as *nov. sp.*

Current name: ***Marasmius sublanguidus*** Henn., *Hedwigia* 37: 286. 1898.

On dry wood, at the confluence of Khor Nabambisso and the River Yabongo [as Mbango], in the land of the Niam-Niam tribe, 6 May 1870, leg. Schweinfurth no. 3706a. On April 29, 1870, Schweinfurth returned to the Sudan from the Congo by crossing Khor Nduku [as Linduku]. From May 1-21, 1870, he remained in Abu Samad zeriba close to Khor Yabongo.

The species was introduced with the following protologue: *Pileo coriaceo-membranaceo, infundibuliformi, radiatim sulcato subplicatoque, pallido, pruinoso subflocculoso 5-7 mm diametro; stipite tereti, farcto, haud corneo, pruinoso, albo, curvato, 2 mm longo, ca. 0,6 mm crasso; lamellis coriaceis, decurrentibus, inaequilongis, pallidis, distantibus, subventricosis, acie incrassatis.* It was regarded by Hennings (1898) as approximating *Marasmius languidus* (Lasch.) Fr., *Epicr. syst. mycol.*: 379. 1838 [= *Agaricus languidus* Lasch., *Linnaea* 3: 385. 1828], now matching *Marasmiellus tricolor* (Alb. & Schwein.) Singer, *Pap. Mich. Acad. Sci.* 32(32): 128. 1946, publ. 1948.

Singer (1964) in the course of his revision of Congolese specimens of *Marasmius* collected by Mme Goossens-Fontana and other Belgian scientists, reported *M. sublanguidus* as being of doubtful position. Following Antonin (2007) the original description also corresponds with some *Marasmiellus* taxa.

14 - *Volvaria speciosa* (Fr.) Sacc., *Syll. Hym.* 1: 661: this binomial is an invalid combination and probably a citation error.

Current name: *Volvopluteus gloiocephalus* (DC.) Vizzini, Contu & Justo, in Justo, Vizzini, Minnis, Menolli, Capelari, Rodriguez, Malysheva, Contu, Ghignone & Hibbett, *Fungal Biology* 115: 15. 2011.

≡ *Agaricus gloiocephalus* DC. [as *gloiocephalas*], in de Candolle & Lamarck, *Fl. franç.*, Edn. 3 (Paris) 5/6: 52. 1815.

= *Agaricus gloiocephalus* (DC.) Fr., *Syst. mycol.* 1: 278. 1821.

= *Volvariopsis gloiocephala* (DC.) Murrill, *N. Amer. Fl.* 10(2): 144. 1917.

= *Volvariella gloiocephala* (DC.) Boekhout & Enderle, *Beitr. Kennt. Pilze Mitteleur.* 2: 78. 1986.

= *Volvaria speciosa* f. *gloiocephala* (DC.) Konrad & Maubl., *Icon. Select. Fung.* 6: 52. 1924.

= *Volvaria speciosa* var. *gloiocephala* (DC.) R. Heim, *Rev. Mycol. (Paris)*, 1(Suppl.): 89. 1936.

= *Volvariella speciosa* var. *gloiocephala* (DC.) Singer, *Lilloa* 22: 401. 1949, publ. 1951.

= *Volvariella speciosa* f. *gloiocephala* (DC.) Courtec., *Docums. Mycol.* 22(no. 88): 40. 1993.

= *Volvaria gloiocephala* (Fr.) Gillet, *Hymenomycètes*: 388. 1876.

= *Agaricus speciosus* Fr., *Observ. mycol.* 2: 1. 1818.

= *Pluteus speciosus* (Fr.) Fr., *Anteckn. Sver. Ätl. Svamp.*: 34. 1836.

= *Volvaria speciosa* (Fr.) P. Kumm., *Führ. Pilzk.*: 99. 1871.

= *Volvariopsis speciosa* (Fr.) Murrill, *N. Amer. Fl.* 10(2): 143. 1917.

= *Volvariella speciosa* (Fr.) Singer, *Lilloa* 22: 401. 1949, publ. 1951.

= *Volvariella gloiocephala* var. *speciosa* (Fr.) Bon, *Docums. Mycol.* 22(no. 88): 40. 1993.

= *Amanita speciosa* Fr., *Observ. mycol.* 2: 1. 1818.

On soil, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 18 Sept. 1869, leg. Schweinfurth *s.n.*

This saprotrophic terrestrial fungus develops in gardens, grassy fields, in or outside forests, and on accumulations of vegetable matter (compost and wood chips). The species is edible and such may account for the various synonyms. It is reported from all continents and following Justo & Castro (2010) molecular data confirm the fungus occurs, at least, in Europe and California. Fresh collections from West Bengal underlines its presence in the Indian subcontinent, growing mostly solitarily upon cow dung mixed with decaying paddy straw or compost heaps (Dutta *et al.* 2011).

Volvopluteus gloiocephalus has recently been selected as the type species of the new genus *Volvopluteus* Vizzini, Contu & Justo (Justo *et al.* 2011). However, this decision has apparently not gained wide acceptance (Horak, pers. comm.).

15 - *Lepiota schweinfurthii* Henn., *Bull. Herb. Boissier* 1: 101. 1893: this reference is a second citation of the name in the same year.

Current name: *Lepiota schweinfurthii* Henn., *Bot. Jahrb. Syst.* 17: 36. 1893: basic reference. Holotype: from ‘*Colonie Eritrea prope Saati*, 14 II, 1892, leg. Schweinfurth’.

= *Lepiota cepaestipes* var. *schweinfurthii* (Henn.) Rick, *Iheringia, Bot.*, ser. 8: 314. 1961; not valid, basionym not cited.

On soil, Jur, Bahr El-Ghazal Province, 14 Aug. 1869, leg. Schweinfurth *s.n.*

Rick (1908) listed the fungus as a synonym of ‘*Lepiota cepaestipes* Sowerby, *Am. Boden, cfr Broteria*, vol. VI, 1907, p. 69’. The correct name of the latter is *L. cepaestipes* (Sowerby:Fr.) P. Kumm., *Führ. Pilzk.*: 136. 1871 [≡ *Agaricus cepaestipes* Sowerby, *Engl. Fungi* 1: pl. 2. 1796], and the present current name is *L. cepaestipes* (Sowerby:Fr.) Pat., *J. Bot. (Morot)* 3: 336. 1889. According to IF.org, the correct spelling of the specific epithet should be ‘*cepistipes*’. *Lepiota schweinfurthii* is thus a valid species but has apparently remained unassessed.

Rick (1908) also reported the following as synonyms of *Lepiota cepistipes*: *L. farinosa* Peck, *Ann. Rep. New York St. Mus. Nat. Hist.* 43: 81. 1890; *L. henningsii* Sacc. & P. Syd., in Saccardo P.A., *Syll. Fung.* 14: 68. 1899, *nom. nov.* for *L. bulbipes* Henn., *Bot. Jahrb. Syst.* 23: 556. 1897; and *L. pluvialis* Speg., *Anales Mus. Nac. Hist. Buenos Air.* 6: 88. 1898, publ. 1899.

16 - *Lepiota zeyheri* Berk., in Fries, *Fungi Natal.*, p. 2.

Current name: *Macrolepiota zeyheri* (Berk.) Singer, *Sydowia* 15: 67. 1961, publ. 1962.

≡ *Agaricus zeyheri* Berk., *J. Bot.*, London 2: 508. 1843.

= *Lepiota zeyheri* (Berk.) Sacc., *Syll. Fung.* 5: 32. 1887.

= *Leucocoprinus zeyheri* (Berk.) Singer, *Ann. mycol.* 41: 167. 1943; invalid, basionym not mentioned.

On soil, land of the Dinka tribe, at Murach Tchik, Bahr El-Ghazal Province, 8 Jun. 1871. On June 4, 1871, Schweinfurth was in the Dinka tribe territory at Jur Ghattas' zeriba (Wickens 1972).

The holotype developed on sandy ground, Uitenhage, Cape Province, January, Zeyher 92 (K). The species is an edible mushroom quite common in the rainy season in open grasslands in South Africa, Congo-Kinshasa and Zambia (Beeli 1932, Pegler 1982). As the fungus has a superb taste, resists insect infestation and has a good shelf life, attempts to cultivate it on a commercial scale are being undertaken (Eicker *et al.* 1989).

Among known members of *Macrolepiota* Singer, *M. zeyheri* is distinguished by its large basidiocarps. Following recent molecular data obtained by Vellinga *et al.* (2003), the genus has to be emended and restricted to taxa with a trichodermal pileus covering, a stipe covering made up of hymeni-trichodermal patches, and spores with a rounded apex with a covered germ pore. More work is thus needed for a final taxonomic disposition of this '*Lepiota* species'.

17 - *Podaxon carcinomalis* (L.) Fr., *Syst. mycol.* III, p. 62.

Current name: *Podaxis carcinomalis* (L.) Fr., *Syst. mycol.* 3: 61. 1829.

≡ *Lycoperdon carcinomale* L., *Fil. Suppl. pl.*: 453. 1782.

= *Scleroderma carcinomale* (L.) Pers., *Syn. meth. fung.*: 151. 1801.

= *Podaxis termitophilus* Jumelle & Perrier, *C. r. Hebd. séances Acad. Sci.*, Paris 144: 275. 1907; *vide* Priest & Lenz (1999).

On soil, at 'Murach Marial', June 1871, leg. Schweinfurth *s.n.* This locality name could not be traced in Wickens' (1972) detailed report on Schweinfurth's travels in Central Africa.

On April 23, 1871, Schweinfurth arrived in Jur and resided in Ghattas' zeriba. On June 4, he left Jur and after three weeks reached Meshra' er Rek (June 26). From there Schweinfurth sailed north to Khartoum, a city he attained nearly six weeks later (August 9). He then retraced his earlier route to Suakein on the Red Sea, and embarked for Europe on September 26, to finally arrive at Messina on November 2, 1871.

The taxonomic history of *Podaxis carcinomalis* was reviewed by Priest & Lenz (1999). They provided a description based on the examination of authentic material collected on termite mounds in South Africa. Only a microscope slide was available for study. The spores measure 12-14 x 8.5-9.5(-10) μm . Similar values were also obtained from the isotype located at UPS. The spores of this species are thus comparatively narrower than spores of *P. pistillaris* (L.:Pers.) Morse; the latter was previously regarded by Morse (1933) as being an earlier name of *P. carcinomalis*.

Also according to Priest & Lenz (1999), the collection of *Podaxon termitophilus* labelled as the type in PC has a date of 1915 which is in conflict with the original description published in 1907. The spores measure 11-13 x 9-10 μm (given as 12 x 9 μm in the type description). The collection matches however the type description and in the absence of any other information must serve as the holotype. *P. termitophilus* is not distinct from *P. carcinomalis* and although having slightly shorter and more globose spores than seen in the type of the latter, these spores fall within the range of that species. *P. carcinomalis* was previously regarded by Morse (1933) as matching *P. pistillaris* but without examination of any authentic material.

18 - *Podaxon ghattasensis* Henn., *Hedigia* 37: 287. 1898, as *nov. sp.*

Current name: *Podaxis ghattasensis* Henn. [as *Podaxon*], *Hedwigia* 37: 287. 1898.

On clay soil, on a small termite nest, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 30 Jun. 1869, leg. Schweinfurth *s.n.*

The species was regarded by Hennings (1898) as approximating *Podaxis elatus* Welw. & Curr., Trans. Linn. Soc., London 26: 288. 1850. The names *P. ghattasensis* and *P. elatus*, presently figure in the list of established or reported synonyms of *P. pistillaris* (L.) Fr. emend. Morse, recently published by Keirle *et al.* (2004).

According to Priest & Lenz (1999), the type material of *Podaxis ghattasensis* is no longer in existence [Dr. Burghard Hein at B, pers. comm.]. The original collection was described from Central Africa and the spores were given as 12-14 x 7.5-8.5 µm. These values are slightly narrower than those of *P. carcinomalis* (L.) Fr., and are more like those of *P. beringamensis* Priest & M. Lenz, Austr. Syst. Bot. 12: 112. 1999. The exact identity of *Podaxon ghattasensis* cannot thus be ascertained.

19 - *Podaxon pistillaris* (L.) Fr., Syst. Myc. III, p. 63.

Current name: ***Podaxis pistillaris*** (L.) Fr. [as *Podaxon*], Syst. mycol. 3: 63. 1829.

≡ *Lycoperdon pistillare* L., Mant. Pl.: 313. 1771.

= *Scleroderma pistillare* (L.) Pers., Syn. meth. fung.: 150. 1801.

= *Podaxis pistillaris* (L.:Pers.) Morse, Mycologia 25: 27. 1933.

In a field with cereals, at 'Kaua (Hellet el Es.) Flora des Bahr el Abiad', 12 Jun. 1869, leg. Schweinfurth *s.n.*

The indication 'bei Kaua (Hellet el Es.) Flora des Bahr el Abiad' is not explicit. Besides the names 'Kaua & Hellet el Es.', could not be located in Wickens (1972). From May 13 - July 21, 1869, Schweinfurth resided at Jur in the main Ghattas' zeriba. From July 21-27, he remained at the other zeriba named Jur Ghattas. This is the older zeriba of Ghattas located a short distance south of the former.

Priest & Lenz (1999) noted that spore measurements given by past authors for *Podaxis pistillaris* have varied considerably. This may partially account for the species having recently been reported with a list of 26 probable and facultative synonyms (Keirle *et al.* 2004). Re-examination of the type material preserved in LINN showed the spores measure 10-14 x 9-12 µm and are deep-red.

The former spore values of the species proved to be identical to the Australian collections of *Podaxis pistillaris* studied by Priest & Lenz (1999) having a spore size of 10-14(-16) x (8-)9-12 µm. In comparison, the collections examined from the United States disclosed a spore range of 11-19 x 10-16 µm, which is comparable with the values given for the same species by Morse (1933). In addition the spores from Australian specimens tend to be more subglobose than those seen from the United States, and have a capillitium that is much darker. It is thus possible the species from the United States is not synonymous with *P. pistillaris*. More work is thus needed to ascertain the taxonomic positions of the several synonyms ascribed to this taxon.

20 – Pyrenomycetes: *Dimerosporium bosciae* Henn., Annuar. del R. Instit. bot. di Roma Vol. VI, Fasc. 2, p. 4.

Current name: ***Hysterostomella bosciae*** (Doidge) Doidge, *Bothalia* 4(4): 869. 1948.

≡ *Cyclothea bosciae* Doidge, *Bothalia* 1(4): 196. 1924.

= *Dimerina bosciae* (Henn.) Theiss., Beih. Bot. Zentralbl., Abt. 2, 29: 65. 1912.

= *Hysterostomina bosciae* (Henn.) Thiess., Verh. Zool-Bot. Ges. Österreich 69: 20. 1917: this combination has apparently remained unnoticed.

= *Hysterostomina bosciae* (Doidge) Bat. & A.F. Vital, Atas. Inst. Micol. Univ. Recife 1: 53. 1960, a superfluous combination.

= *Dimerosporium bosciae* Henn., Annuar. del R. Istit. bot. di Roma 6: 87. 1895, publ. 1896. Holotype: on *Boscia somalensis*, Somalia, East Africa (Hennings 1895, publ. 1896).

On leaves of *Boscia octandra*, Abu Qurun zeriba [as Abu Guru], Jur, 10 May 1869, leg. Schweinfurth no. 1826. The Abu Qurun zeriba was located on the west side of the locality of Jur. The Ghattas zeriba was situated south of Jur at almost the same distance of the former from this locality (Wickens 1972).

This ascomycete produces the rare disease of Mole Spot on *Maerua racemulosa* in South Africa (Crous *et al.* 2000). The genus *Hysterostomina* Thiess. & Syd. was originally described as a counterpart of *Hysterostomella* Speg., which lacked interascal tissue. It is now regarded as a synonym of the latter (Inacio & Cannon 2002). *Hysterostomella* itself is poorly defined and possibly polymorphic, and will be the subject of further monographic treatment.

21- *Meliola clerodendricola* Henn., *Hedwigia* 37: 288. 1898, as *nov. sp.*

Current name: ***Meliola clerodendricola*** Henn., *Hedwigia* 37: 288. 1898.

= *Meliola sakawensis* Henn., *Hedwigia* 43(2): 141. 1904.

= *Meliola sakawensis* var. *longispora* Beeli, Bull. Jard. Bot. Etat Bruxelles 7: 98. 1920.

On leaves of *Clerodendron capitatum* forming a dark crust, Abu Samad zeriba at Sabby [as Ssabi], 8 Dec. 1869, leg. Schweinfurth no. 2753.

This *Meliola* was recently reported on leaves of *Clerodendron macrosiphon* in India, Malaysia, Philippines and Taiwan (Thaug 2006). Two varieties are known: var. *viticis* Hansf., Proc. Linn. Soc., London 153(1): 9. 1941, and var. *micromera* (Syd. & P. Syd.) Hansf., *Sydowia* Beih. 2: 694. 1961. However, their distinction from the species awaits clarification (Thaug 2006).

22 - *Parodiella perisporioides* (Berk. & M.A. Curtis) Speg., *Fung. Arg. Pug.* I, p. 178.

Current name: ***Parodiella perisporioides*** (Berk. & M.A. Curtis) Speg., Anal. Soc. cient. Argent. 9(4): 178. 1898.

≡ *Dothidea perisporioides* Berk. & M.A. Curtis, in Berkeley M.J. *et al.*, J. Linn. Soc., Botany 14: 135. 1874, publ. 1875.

On leaves of *Indigofera endecaphylla*, Bahr El-Ghazal Province, 30 Oct. 1869, leg. Schweinfurth *s.n.* From August 4 - November 17, 1869, Schweinfurth resided at Jur in Ghattas' zeriba (Wickens 1972).

Hughes (1958) regarded *Parodiella perisporioides* as a synonym of *P. hedysari* (Schwein.) S. Hughes, Can. J. Bot. 36: 793. 1958 [≡ *Didymosporium hedysari* Schwein., Schr. naturf. Ges. Leipzig 1: 75. 1822]. However, this proposal has apparently not gained wide acceptance: see IF.org & MB.org.

Arx & Müller (1975) considered the two ascomycetous genera *Diplodiopsis* Henn., and *Pyrenochaetina* Syd., as synonyms of *Parodiella* Speg. They noted that *Parodiella* is not a typical member of the *Stigmataceae*, but is related to *Rosenscheldiella* Theiss. & Syd., and associated with a pycnidial spermatial state. Sutton (1980: 551) subsequently underlined members of *Ascochytopsis* Henn., could represent conidial states of *Parodiella* species.

23 – *Hypocreaceae*: *Epichloë volkensis* Henn., Engl. Ostafrika V, p 32.

Current name: ? ***Nigrocornus scleroticus*** (Pat.) Ryley, Clavicipitalean Fungi:.....: 267-268. 2003.

≡ *Epichloë sclerotica* Pat., J. Bot. (Morot) 4: 65. 1890.

= *Epichloë volkensis* Henn., Pflanzen. Ost-Afrikas Nachbarg., Teil C: 32. 1895.

= *Ophiodothis volkensis* (Henn.) Sacc., in Bresadola G. *et al.*, Bull. Soc. Roy. Bot. Belgique 161, t. D.: 5. 1899.

= *Balansia volkensis* (Henn.) Castell. & Cif., in Castellani E. *et al.*, *Prodr. Mycofl. Afr.* or.....: 20. 1937.

= *Parepichloë volkensis* (Henn.) J.F. White & P.V. Reddy, *Mycologia* 90: 231. 1998.

On the rachis of the spike of *Anthistiria* sp., in the steppe around Grande zeriba of Ghattas, Jur, 21 Sep. 1869, leg. Schweinfurth no. 2410.

Tanaka *et al.* (2002) noted that White and Reddy's (1998) inclusion of this species in *Parepichloë* J.F. White & P.V. Reddy, without determining its molecular phylogenetic relationships with other members of the genus, should be deferred pending further research. White & Reddy had based their decision upon a morphological examination of the holotype.

Ryley (2006) reviewed the taxonomic history of *Epichloë volkensis* and re-examined the following authentic specimens: 'Africa - On *Andropogon* sp., KHO? G. Volkens (B) (holotype). Central Africa? - On *Antheophora* sp., Djur, IX.1867, G. Schweinfurth ? (B). Central African Republic (as French Congo) - On grasses, Kouti region (near Ndélé), 15.XI.1891, J. Dybowski F6844 ex Patouillard Herb. 597 [as *Hyalodothis clavus*]'. The relevant Schweinfurth specimen no. 2410 was unfortunately not included in this study.

Following Ryley (2006), re-examination of such original material confirmed much of Hennings' (1895, publ. 1896) data. Transverse sections of a stroma revealed a structure similar to that of ascostromata of *Nigrocornus scleroticus* (Pat.) Ryley. Immersed in the stroma are locules, 360-390 x 120-150 µm, which were empty of asci. No asci or ascospores were found in the type material, a situation which was undoubtedly influenced by the weathered nature of the ascostromata. The holotype also lacked the upper portions of the tillers where an anamorph might possibly have developed on the unfolding leaves. Due to the inability to determine the morphology of both the anamorph and the teleomorph of *E. volkensis*, Ryley considered the name to be a tentative synonym of *Nigrocornus scleroticus*.

24 – Xylariaceae: *Xylaria djurensis* Henn., *Hedwigia* 37: 289. 1898, as *nov. sp.*

Current name: *Xylaria djurensis* Henn., *Hedwigia* 37: 289. 1898.

On dung, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, 1 July 1871, leg. Schweinfurth *s.n.*

Krug & Cain (1971) examined the type material and provided the following description: 'Stromata erumpent clavate, stalked, granulose-farinose, yellowish, about 7.0 x 5.0 cm, with a subglobose, sclerotoid, tuberiform base; stromatic head clavate to ovoid, obtuse, 2.5-3.0 x 1.5 cm; stromatic tissue carnose, white; stalk rugulose, fibrose, about 3-6 cm long. Perithecia erumpent, ovoid, mammilate. Asci and ascospores absent (immature). *Holotypus*: In vaccarum fimo lectus est, in Seriba Ghattas, in Djur regione, reipublicae Centralis Africanae, 1 Quint. 1871. Schweinfurth. In *Holmensi herbario*'.

Species of *Xylaria* Hill:Schrank commonly develop on wood. The fact that *X. djurense* was observed on dung led Krug & Cain (1971) to consider it should belong to *Podosordaria* Ellis & Holway. The absence of immature asci and ascospores in the original material led both authors to consider the name as a doubtful species of *Podosordaria*. In his comment on the species, Hennings (1898) already noted this point by stating 'Die Asken und Sporen fehlt leider'.

Taxa unrelated to South Sudan but reported by Hennings in the same paper

25 - *Graphiola phoenicis* (Moug.:Fr.) Poiteau, Ann. Sc. Nat. 1824, p. 473.

Current name: *Graphiola phoenicis* (Moug.) Poit., Ann. Sci. Nat., Bot., sér. 1, 3: 473. 1824.

≡ *Phacidium phoenicis* Moug.:Fr., in Fries E.M., *Syst. mycol.* 2(2): 572. 1823.

= *Trichodesmium pheonicis* (Fr.) Chevall., Flore générale des environs de Paris (Chevallier F.F.): 382. 1826.

For further synonyms, see Fischer (1883).

LIBYA. On leaves of the date-palm tree *Phoenix dactylifera*, Benghazi, 3 Feb. 1883, leg. G. Ruhmer.

Cole (1983) reviewed the taxonomic history of this biotrophic parasitic fungus of palms. The species was originally identified as a myxomycete and later classified as a discomycete, rust, pyrenomycete, smut-like fungus and hyphomycete. This taxonomic confusion has persisted for over a century and was primarily due to the lack of understanding of fructification development and the nuclear cycle of the fungus. On the basis of ultrastructural and histological data obtained from a study of infected leaves of *Phoenix canariensis*, mechanisms of ingress, ramification and egress of *Graphiola phoenicis* were proposed. The fungus proved to be a member of the Heterobasidiomycetes and the new order Graphiolales was proposed for its accommodation.

The systematic position of *Graphiola* species was later confirmed to be among the Basidiomycota, in the smut relationship of Ustilagomycotina, in the family *Graphioloraceae*, Exobasidiales (Begerow *et al.* 2002). Members of this family differ from species in other families of Exobasidiales by being biotrophic parasites on palm leaves (*Arecaceae*) and by black, cup-shaped basidiomata containing catenate basidia. The *Graphioloraceae* include two genera: *Graphiola* Poit., and *Stylina* Syd.

The genus was recently revised by Piepenbring *et al.* (2012). Twelve species were accepted with *Graphiola phoenicis* being by far the most common, widely distributed, and well-known member of the genus. The fungus was first observed by Poiteau (1824) developing on the leaves of date palms cultivated in a green house in Paris. It has subsequently been reported on numerous palm species, but is commonly associated with *Phoenix canariensis* and *P. dactylifera*. When numerous sori are present on the leaf, the tissue can turn yellow and the leaf can die prematurely (Piepenbring *et al.* 2012). For details of the morphology and the development of the sori see Cole (1983).

26 - *Lentinus tanghiniae* Lév., Ann. Sc. Nat., Bot., sér. 3, 5: 119. 1846.

Current name: *Lentinus sajor-caju* (Fr.) Fr., *Epicr. syst. mycol.*: 393. 1838 [1836-38].

≡ *Agaricus sajor-caju* Fr., *Syst. mycol.* 1: 175. 1821.

= *Pocillaria sajor-caju* (Fr.) Kuntze, *Rev. gen. pl.* 2: 866. 1891.

= *Pleurotus sajor-caju* (Fr.) Singer, *Lilloa* 22: 271. 1949, publ. 1951.

= *Lentinus exilis* Klotsch:Fr., in Fries E.M., *Syn. gen. Lent.*: 10. 1836.

= *Lentinus dactyliophorus* Lév., Ann. Sci. Nat., Bot., sér. 3, 2: 174. 1844.

= *Lentinus tanghiniae* Lév., Ann. Sc. Nat., Bot., sér. 3, 5: 119. 1846.

= *Lentinus stenophyllus* Reichardt, Verh. Zool.-Bot. Ges. Wien 16: 375. 1866.

= *Lentinus nicobarensis* Reichardt, Reise der Österr. Fregatte Novara 1(3): 143, pl. 23/1. 1870.

= *Lentinus irregularis* Currey, Trans. Linn. Soc. Lond. 1: 121, pl. 19/14-15. 1876.

= *Lentinus glandulosus* Cesati, Atti Accad. Sci. Fis. Mat. Napoli 8(8): 3. 1879.

= *Lentinus woodii* Kalchbr., *Grevillea* 9(52): 136. 1881.

= *Lentinus murrayi* Kalchbr. & MacOwen, *Grevillea* 9(52): 136. 1881.

= *Lentinus tenuipes* Sacc. & Paoletti, Atti Ist. Veneto Sci. Lett. Art....: 392. p. 5/3. 1888

= *Pocillaria dactylophora* (Lév.) Kuntze, *Rev. gen. pl.*: 866. 1891.

= *Lentinus bonii* Pat., Bull. Soc. mycol. France 8(2): 48. 1892.

= *Lentinus bukobensis* Henn., Bot. Jahrb. Syst. 17: 32. 1893.

= *Lentinus annulifer* De Seynes, Rech. Champ. Congo Français 1: 25. 1897.

A number of other synonyms are listed in IF.org.

CONGO. Two specimens are reported. On decaying wood, Village of Rikkete, close to Khor Atiziri [cited as Atasili or Atazilly], Uandos-Gebiet, Niam-Niam land, 28 Feb. 1870, leg. Schweinfurth *s.n.*; same substrate, Village of Munsa [as Munza], locality of Monbuttu, 26 March 1870, leg. Schweinfurth *s.n.* On February 28, 1870, Schweinfurth crossed Khor Nduku [as Lindukoo] representing the Nile watershed between the Sudan and the Congo.

Lentinus sajor-caju develops on dead and fallen trunks and branches in the forest and in the open. It is common in tropical Africa, Asia and Australasia. The species is edible when young and this may partially account for the large number of synonyms. The *Pleurotus* combination has been cited frequently in error in literature on cultivated mushrooms (Buchanan 1993). Besides, following Li & Yao (2005) the correct name for the cultivated Chinese Phoenix mushroom is *Pleurotus pulmonarius* (Fr.) Quél., and not *Lentinus sajor-caju*.

27 – *Lentinus zeyheri* Berk., Uitenhag. No. 13 [this reference relates to Plate 20 C and its label ‘Upon dry wood of *Potulacaria afra*, Uitenhag, December, is in Berkeley’s 1843 publication].

Current name: *Lentinus zeyheri* Berk., J. Bot., London 2: 514. 1843.

= *Pocillaria zeyheri* (Berk.) Kuntze, *Revis. gen. pl.* 2: 866. 1891.

Table 1 Fungal taxa treated by P. Hennings: location of specimens by country; original and current names.

| Hennings original name | Current name |
|---|---|
| Insert one line | |
| - TAXA from South Sudan reported in Hennings (1898): | |
| 01 - <i>Cintractia axicola</i> (Berk.) Cornu | <i>Cintractia axicola</i> (Berk.) Cornu* |
| 02 - <i>Tolyposporium anthistiriae</i> Henn.° | <i>Sporisorium anthistiriae</i> (Cobb) Vanky* |
| 03 - <i>Stereum elegans</i> G. Mey. | <i>Podoscypha elegans</i> (G. Mey.) Pat.*** |
| 04 - <i>Stereum cyathoides</i> Henn.° | <i>Podoscypha thozetii</i> (Berk.) Boidin* |
| 05 - <i>Cyphella nabambissoënsis</i> Henn.° | <i>Calyptella nabambissoënsis</i> (Henn.)W.B. Cooke** |
| 06 - <i>Clavaria schweinfurthiana</i> Henn.° | <i>Clavaria schweinfurthiana</i> Henn.** |
| 07 - <i>Polystictus sanguineus</i> (L.) G. Mey. | <i>Pycnoporus sanguineus</i> (L.) Murrill* |
| 08 - <i>Polyporus schweinfurthianus</i> Henn.° | <i>Boletus</i> sp.*** |
| 09 - <i>Cantharellus addaiensis</i> Henn.° | <i>Cantharellus addaiensis</i> Henn.* |
| 10 - <i>Coprinus plicatilis</i> (M.A. Curtis) Fr. | <i>Parasola plicatilis</i> (M.A. Curtis) Redhead et al.* |
| 11 - <i>Lentinus ghattasensis</i> Henn.° | <i>Lentinus tigrinus</i> (Bull.) Fr.* |
| 12 - <i>Lentinus strigosus</i> Fr. | <i>Lentinus strigosus</i> Fr.** |
| 13 - <i>Marasmius sublanguidus</i> Henn.° | <i>Marasmius sublanguidus</i> Henn.** |
| 14 - <i>Volvaria speciosa</i> (Fr.) Sacc. | <i>Volvopluteus gloiocephalus</i> (DC.) Vizzini, Contu & Justo* |
| 15 - <i>Lepiota schweinfurthii</i> Henn.° | <i>Lepiota schweinfurthii</i> Henn.** |
| 16 - <i>Lepiota zeyheri</i> Berk. | <i>Macrolepiota zeyheri</i> (Berk.) Singer* |
| 17 - <i>Podaxon carcinomalis</i> (L.) Fr. | <i>Podaxis carcinomalis</i> (L.) Fr.* |
| 18 - <i>Podaxon ghattasensis</i> Henn.° | <i>Podaxis ghattasensis</i> Henn.*** |
| 19 - <i>Podaxon pistillaris</i> (L.) Fr. | <i>Podaxis pistillaris</i> (L.) Fr.* |
| 20 - <i>Dimerosporium bosciae</i> Henn.° | <i>Hysterostomella bosciae</i> (Doidge) Doidge* |
| 21 - <i>Meliola clerodendricola</i> Henn.° | <i>Meliola clerodendricola</i> Henn.* |
| 22 - <i>Parodiella perisporioides</i> (Berk. & M.A. Curtis) Speg. | <i>Parodiella perisporioides</i> (Berk. & M.A. C.) Speg.* |
| 23 - <i>Epichloë volkensii</i> Henn.° | ? <i>Nigrocornus scleroticus</i> (Pat.) Ryley* |
| 24 - <i>Xylaria djurensis</i> Henn.° | <i>Xylaria djurensis</i> Henn.*** |
| Insert one line | |
| - TAXA unrelated to South Sudan but reported in Hennings (1898): | |
| 25 - Libya: <i>Graphiola phoenicis</i> (Moug.:Fr.) Poit. | <i>Graphiola phoenicis</i> (Moug.) Poit.* |
| 26 - Congo: <i>Lentinus tanghiniae</i> Lév. | <i>Lentinus sajor-caju</i> (Fr.) Fr.* |
| 27 - Congo: <i>Lentinus zeyheri</i> Berk. | <i>Lentinus zeyheri</i> Berk.* |
| 28 - Congo: <i>Marasmius munsae</i> Henn.° | <i>Marasmius munsae</i> Henn.* |
| 29 - Congo: <i>Polystictus munsae</i> Henn.° | <i>Hexagonia glabra</i> (P. Beauv.) Ryvarden* |
| 30 - Congo: <i>Polystictus xanthopus</i> Fr. | <i>Microporus xanthopus</i> (Fr.) Kuntze* |
| 31 - Sudan the: <i>Tylostoma laceratum</i> (Ehrenb.) Fr. | <i>Schizostoma laceratum</i> (Ehrenb.:Fr.) Lév.* |
| 32 - Libya: <i>Tylostoma ruhmerianum</i> Henn.° | <i>Tulostoma volvulatum</i> Borshch.* |
| Insert one line | |
| - TAXA from South Sudan but published by Hennings elsewhere: | |
| 33 - <i>Geaster schweinfurthii</i> Henn.° | <i>Geastrum schweinfurthii</i> Henn.*** |
| 34 - <i>Hexagonia niam-niamensis</i> Henn.° | <i>Hexagonia niam-niamensis</i> Henn.* |
| 35 - <i>Lycoperdon djurensis</i> Henn.° | <i>Lycoperdon djurense</i> Henn.*** |

nov. sp. in the text: °; valid taxon: *; not re-assessed:**; dubious position:***

= *Lentinus villosus* var. *zeyheri* (Berk.) Pilat, *Ann. mycol.* 34(1/2): 139. 1936.

= *Lentinus crinitus* var. *zeyheri* (Berk.) Pilat, *Ann. mycol.* 39: 80. 1941.

CONGO. On a tree trunk, Khor Kusumbo at Nembey's village [as Nembes-Dorf], in the direction of Munsu, 16 Mar. 1870, leg. Schweinfurth no. 3156.

The holotype was collected in Uitenhage, South Africa. A non-original description was provided by Reid (1975). The small basidiomes resemble those of *Lentinus strigosus* Fr., from which however, they are very distinct.

According to Grand *et al.* (2011), sect. *Lentinus* Pegler comprises four African representatives: *L. zeyheri*, *L. villosus* Kloetzsch, *L. stupeus* Kloetzsch, and *L. atrobrunneus* Pegler.

These representatives can be separated from other members of sect. *Lentinus* based on spore morphology, persistently involute pileus margin and distribution in Africa.

28 – *Marasmius munsae* Henn., *Hedwigia* 37: 287. 1898, as *nov. sp.*

Current name: *Marasmius munsae* Henn., *Hedwigia* 37: 287. 1898.

CONGO. On soil, in a bushy place, Village of Munsa [as Munza], at Monbuttu, close to Niangaga, 1870, leg. Schweinfurth *s.n.* On March 1, 1870, Schweinfurth crossed the Nile watershed between the Sudan and the Congo heading for Munsa. He returned to the Sudan on April 1, 1870.

Regarded by Hennings (1898) as being close to *Marasmius zenkeri* Henn., *Bot. Jahrb. Syst.* 22: 98. 1895, now *Chamaeceras zenkeri* (Henn.) Kuntze, *Rev. gen. pl.* 3: 457. 1898. The species was not documented by Singer (1964) in his revision of Congolese *Marasmius* specimens collected by Mme Goossens-Fontana.

Recently Antonin (2007) re-examined syntype SF-16273 of the species and provided the following modern description: Basidiospores (5.5-)7.0-10.0 x (3.5-)4.5-6.0 µm, broadly ellipsoid, thin-walled, smooth, non-dextrinoid. Basidia (only one deformed found) 4-spored, clavate. Basidioles up to 30 x 9 µm, clavate, fusoid, subcylindrical. Cheilocystidia 30-31 x 6-8 µm, clavate, fusoid, cylindrical, (sub)rostrate, sometimes branched at apex, thin-walled. Tramal hyphae non-dextrinoid. Pileipellis a cutis composed of cylindrical, radially arranged, thin- to slightly thick-walled, smooth, non-dextrinoid, up to 8 µm wide hyphae; terminal cells adpressed to erect, cylindrical, clavate. Stipitipellis a cutis consisting of cylindrical, parallel, slightly thick-walled, smooth, non-dextrinoid, up to 6 µm wide hyphae, with subhyaline or pale brown walls in KOH. Caulocystidia probably absent. Clamp-connections present in all tissues.

29 – *Polystictus munsae* Henn., *Hedwigia* 37: 285. 1898, as *nov. sp.*

Current name: *Hexagonia glabra* (P. Beauv.) Ryvarden [as *glaber*], *Mycotaxon* 72: 216. 1999.

≡ *Favolus glaber* P. Beauv., *Flore d'Oware et de Bénin en Afrique*, Vol. 2: 76. 1806.

CONGO. On a tree branch, village of Munsa, locality of Monbuttu, April 1870, leg. Schweinfurth *s.n.*

The species was regarded by Ryvarden (1999, 2012) as matching *Hexagonia glabra*. Following this author, *Favolus glaber* is a prior name for *Boletus tenuis* Hooker, better known as *Hexagonia tenuis* (Hooker) Fr., *Epacr. syst. mycol.*: 498. 1838, a widespread but not common fungus. The Beauvois specific epithet is actually better since the species always has a completely glabrous pileus, while the size and thickness vary considerably (*tenuis* = thin).

30 – *Polystictus xanthopus* Fr., *Observ.* II: p. 255.

Current name: *Microporus xanthopus* (Fr.) Kuntze, *Revis. gen. pl.* 3(2): 494. 1898.

≡ *Polyporus xanthopus* Fr., *Observ. mycol.* 2: 255. 1818.

= *Polystictus xanthopus* (Fr.) Fr., *Nova Acta R. Soc. Scient. Upsal.*, Ser. 3, 1: 58. 1851.

= *Coriolus xanthopus* (Fr.) G. Cunn., *Proc. Linn. Soc.*, N.S.W. 75(3-4): 247. 1950.

= *Trametes xanthopus* (Fr.) Corner, *Beih. Nova Hedwigia* 97: 177. 1989.

Few other synonyms are listed in IF.org.

CONGO. On a tree trunk, Khor Dyagbe at Wando's village [reported as Chor Diagbe bei Uandos-Dorf], no date provided, leg. Schweinfurth *s.n.* As noted before, on March 1, 1870, Schweinfurth crossed the Nile watershed between the Sudan and the Congo. From March 2-6, he crossed Khor Dyagbe at Wando's village (4° 15', 28° 15') and travelled in the region of the rivers Khor Billwey, Khor Amono and Khor Diamvonoo.

The fungus develops on fallen trunks, logs and branches of dead hardwood trees, typically in open insolated areas, e.g. where trees have fallen (Roberts & Ryvarden 2006). It is a species of dry forest, producing infundibuliform basidiocarps with a central to lateral stipe. The pileus is thin, 1.5-7.5 cm across, concentrically zonate in shades of orange-brown; the pores are minute and buff; the stipe ochre to yellowish and of very variable length, ca. 1-9 cm long. *Microporus xanthopus*

was originally described from an unlocalized collection but was redescribed as very common throughout the paleotropics.

31 - *Tylostoma laceratum* (Ehrenb.) Fr., *Syst. Myc.* III, p. 44.

Current name: ***Schizostoma laceratum*** (Ehrenb.:Fr.) Lév., *Ann. Sci. Nat., Bot., sér. 3, 5*: 165. 1846.

≡ *Tulostoma laceratum* Ehrenb.:Fr. [as *Tylostoma*], *Syst. mycol.* 3(1): 43. 1829.

= *Queletia laceratum* (Ehrenb.:Fr.) S. Ahmad, *J. Indian bot. Soc.* 20: 136. 1841.

= *Tulostoma boissieri* Kalchbr., in Roumeguère C., *Rev. Mycol. (Toulouse)* 3: 24. 1881. Synonymy *vide* MB.org.

SUDAN (The Republic of). On sand dunes, Village of Obak [as O-bak], between the cities of Berber and Suakein, 1868, leg. Schweinfurth *s.n.*

The name *Tulostoma laceratum* was introduced by Fries (1829) with the following short note: ‘*Stipite incrassata tortuoso, peridii ore rotundo obtuso integro*. Ehrenb. I. *Hor. Phys.*’. Following the comments of Fries (1829) and Hollos (1904), Ehrenberg had made a brief description of the species which he never published. Apparently Ehrenberg communicated the description to Fries who included it in his work.

The holotype was collected by Ehrenberg and simply annotated: On sandy soil, Desert of Nubia, 1822/25. At this time the northern part of present Sudan was commonly designated by the term Nubia. Schweinfurth’s specimen of this fungus could thus be regarded as being collected in the same region as the holotype, almost fifty years later. It should be noted that until 1906 the Port of Suakein on the Red Sea coast was the main gate to the inland Sudan before the establishment of the present Port of Sudan. Both Ehrenberg and Schweinfurth visited Suakein during their travels in the region.

The study of Schweinfurth’s specimen allowed Hennings (1898) to publish the following enlarged description: ‘Die peridie ist kugelig, bräunlich, papierartig dünn, glatt und kahl, 1.5-2 cm im Durchmesser, unterseits mit filzigem Ringabsatz, unregelmässig lappig aufreissend. Der Stiel ist cylindrisch, blass, schwach gestreift, etwas schuppig, fast holzig, äusserlich meist mit Sandkörnchen bekleidet, 10-18 cm hoch, 5 mm dick, nach oben verjüngt, unten etwas knollig mit häutiger Scheide, wurzelnd. Das Capillitium ist dunkelrostbraun, die Fäden sind verzweigt, bandförmig geschlängelt, gelbbraun, 5-12 µm, breit. Die Sporen sind kugelig, glatt, gelbbraun, 6-7 µm im Durchmesser, mit kastanienbraunem glatten Episorp’.

The complex taxonomic history of *Schizostoma laceratum* is beyond the scope of the present note. It shall be dealt with in a separate paper focusing on novel homobasidiomycetes collected in the Middle East region before the year 1940.

32 - *Tylostoma ruhmerianum* Henn., *Hedwigia* 37: 288. 1898, as *nov. sp.*

Current name: ***Tulostoma volvulatum*** Borshch. var. ***volvulatum***, *Materialy dla botaniceskoi geografii Aralo-Kaspiiskago kraia-Zapiski. Imp. Acad. Nauk. St. Petersburg* 7: 189. 1865 [in Russian].

= *Tulostoma ruhmerianum* Henn. [as *Tylostoma ruhmeriana*], *Hedwigia* 37: 288. 1898. Synonymy *vide* MB.org.

LIBYA. On sandy soil, Benghazi, Cyrenaica, 1883, leg. G. Ruhmer. According to Altés *et al.* (1999), the type material is lost.

The protologue of the species is the following: *Peridio globoso depresso, pallido, squamuloso-maculato* 1.5 cm lato, 1 cm longo, *osculo mammoso, haud fimbriato*, 1 mm lato, *stipite cylindraceo, lignoso, aequali, pallido, squamoso, basi incrassato*, 5.5 cm longo, 5 mm crasso; *floccis hyalinis, ramosis*, 5-8 µ. *crassis, sporis globosis, laevibus*, 4-5 µ., *episorpio flavo-brunneo*. Cyrenaica. Benghazi, auf sandfelden, 1883, G. Ruhmer. Hennings (1898: 288) then added the following comment: Die Art ist mit *T. jourdani* nahe verwandt, jedoch durch die schupfige Peridie, den Stiel, sowie durch die nicht eckigen sporen verschieden, ebenso von *T. boissieri* Kalchbr.

Tulostoma jourdani Pat., Rev. Mycol. (Toulouse) 8: 143. 1886, is now accepted as a valid taxon. It was dedicated to Mr Jourdan, the collector of many fungi sent to N. Patouillard from East Africa. The name is thus unrelated to the Middle East Valley of Jordan (Wright 1987). *T. boissieri* is currently a synonym of *Schizostoma laceratum* (Ehrenb.:Fr.) Lév. (see under *Schizostoma laceratum*).

The complicated and yet unsettled taxonomic history of *Tulostoma volvulatum* is beyond the scope of the present paper. The name is regarded as valid in MB.org, although Altés *et al.* (1999) reached the opposite conclusion. The discovery by these authors of the long forgotten holotype at the Komarov Botanical Institute allowed them to prepare an enlarged modern description of *Tulostoma volvulatum*. The finding of ornamented spores and other novel features clearly excluded this collection from the current concept of the species (Dring & Rayss 1963).

Altés *et al.* (1999) had concluded *Tulostoma volvulatum* represents an earlier name for *T. giovanellae* Bres., *Fungi Tridentino*, p. 63, tab. LXXII, f. 1, while the name *T. volvulatum s. auct.*, has to be replaced by *T. obesum* Cooke & Ellis, in Cooke M.C. *et al.*, *Grevillea* 6(39): 82. 1878; this is the oldest binomial available for this gasteromycete. The current name of *T. obesum* is however *T. volvulatum* var. *obesum* (Cooke & Ellis) J.E. Wright, *Biblioth. Mycol.* 113: 212. 1987. The proposal by Altés *et al.* (1999) the Libyan species represents an earlier name for *T. obesum* Cooke & Ellis, has apparently not been adopted by the relevant specialists.

Names relating to South Sudan but published elsewhere:

33 - *Geaster schweinfurthii* Henn., Bot. Jahrb. Syst. 14(4): 361. 1891, publ. 1892, as *nov. sp.*

Current name: *Geastrum schweinfurthii* Henn. [as *Geaster*], Bot. Jahrb. Syst. 14(4): 361. 1891, publ. 1892.

On soil, Grande zeriba of Ghattas, Jur, Bahr El-Ghazal Province, May 1871, leg. Schweinfurth *s.n.*

The species was reported to show affinities with *Geastrum mirabile* Mont. [as *Geaster mirabilis*], Ann. Sci. Nat., Bot., sér. 4, 3: 139. 1855: holotype from Cayenne, French Guiana, and presently considered a valid taxon; and *G. striatum* Kalchbr. [as *striatula*], *Grevillea* 9(no.49): 3. 1880: holotype from Australia [non *G. striatum* Lloyd (as *Geaster*), Mycol. Writ. 7(letter 73): 1305. 1924: holotype from North America].

As pointed out by Dring & Rayner (1967), *Geastrum schweinfurthii* differs from both holotypes of *G. drummondii* Berk., J. Bot., London 4: 63. 1845 (K), and *G. ambiguum* Mont., Ann. Sci. Nat., Bot., sér. 2, 8: 362. 1837 (PC), in its almost smooth, paler endoperidium, and less hygroscopic and thinner exoperidium, with ragged mycelial layer. The former seems to be closest to *G. kotlabaе* Stanek, in Pilat A., *Flora CSR*, B-1, Gasteromycetes: 474 & 784. 1958; it deviates however in having a less hygroscopic and thinner fleshy layer of the exoperidium and in retaining the mycelial layer as a ragged sheet, whereas in *G. kotlabaе* it is caducous.

Later on Demoulin & Dring (1975) stated instead the species is the *Geastrum drummondii* of Dring (1964), and the *G. ambiguum* of Bottomley (1948), which the last author had considered to be a synonym of *G. drummondii*. In the presumed absence of a holotype, Demoulin & Dring proposed the name *G. schweinfurthii* for *G. kotlabaе* Stanek, of which there exist many specimens in K from Central, East and West South Africa. Their decision was based on the grounds *G. kotlabaе* conforms closely to Hennings' description and figure. This disposition has apparently not received a general agreement (see IF.org & MB.org).

34 – *Hexagonia niam-niamensis* Henn., Bot. Jahrb. Syst. 14: 348. 1891, publ. 1892, as *nov. sp.*

Current name: *Hexagonia niam-niamensis* Henn., Bot. Jahrb. Syst. 14: 348. 1891, publ. 1892.

= *Scenidium niam-niamense* (Henn.) Kuntze, *Revis. gen. pl.* 3(2): 516. 1898.

= *Hexagonia nigrocincta* Pat., Bull. Trimest. Soc. mycol. Fr. 22: 48. 1906.

On tree trunk, land of the Niam-Niam tribe, presently close to the Congo border, 1870, leg. Schweinfurth *s.n.*

Table 2 Overall changes in the taxonomic positions of taxa considered by Hennings.

Generic changes

1 - GENERIC CHANGES:

| | |
|---|---|
| Coprinus plicatilis (M.A. Curtis) Fr. | Parasola plicatilis (M.A. Curtis) Redhead et al.* |
| Cyphella nabambissoënsis Henn.° | Calyprella nabambissoënsis (Henn.) W.B. Cooke** |
| Dimerosporium bosciae Henn° | Hysterostomella bosciae (Doidge) Doidge* |
| Lepiota zeyheri Berk. | Macrolepiota zeyheri (Berk.) Singer* |
| Polystictus sanguineus (L.) G. Mey. - Congo | Pycnoporus sanguineus (L.) Murrill* |
| Polystictus xanthopus Fr. - Congo | Microporus xanthopus (Fr.) Kuntze* |
| Stereum elegans G. Mey. | Podoscypha elegans (G. Mey.) Pat.*** |
| Tolyposporium anthistiriae Henn.° | Sporisorium anthistiriae (Cobb) Vanky* |
| Tylostoma laceratum (Ehrenb.) Fr. - Sudan | Schizostoma laceratum (Ehrenb.:Fr.) Lév.* |

2 - SYNONYMIES:

| | |
|--------------------------------------|---|
| Epichloë volkensii Henn. | ? Nigrocornus scleroticus (Pat.) Ryley* |
| Lentinus ghattasensis Henn.° | Lentinus tigrinus (Bull.) Fr.* |
| Lentinus tanghiniae Lév. - Congo | Lentinus sajor-caju (Fr.) Fr.* |
| Polyporus schweinfurthianus Henn.° | Boletus sp.*** |
| Polystictus munsae Henn.° - Congo | Hexagonia glabra (P. Beauv.) Ryvarden* |
| Stereum cyathoides Henn.° | Podoscypha thozetii (Berk.) Boidin* |
| Tylostoma ruhmerianum Henn.° - Libya | Tulostoma volvulatum Borshch.* |
| Volvaria speciosa (Fr.) Sacc. | Volvopluteus gloiocephalus (DC.) Vizzini et al. |

3 - NAMES UNCHANGED:

| | |
|---|-----------------|
| Cantharellus addaiensis Henn.° | Valid taxon |
| Cintractia axicola (Berk.) Cornu | Valid |
| Graphiola phoenicis (Moug.) Poit. - Libya | Valid |
| Hexagonia niam-niamensis Henn.° | Valid |
| Lentinus zeyheri Berk. - Congo | Valid |
| Marasmius munsae Henn.° - Congo | Valid |
| Meliola clerodendricola Henn.° | Valid |
| Parodiella perisporioides (Berk. & M.A. Curtis) Speg. | Valid |
| Podaxon carcinomalis (L.) Fr. | Valid |
| Podaxon pistillaris (L.) Fr. | Valid |
| Clavaria schweinfurthiana Henn.° | Not re-assessed |
| Lentinus strigosus Fr. | Not re-assessed |
| Lepiota schweinfurthii Henn.° | Not re-assessed |
| Marasmius sublanguidus Henn.° | Not re-assessed |
| Geaster schweinfurthii Henn.° | Dubious |
| Lycoperdon djurense Henn.° | Dubious |
| Podaxon ghattasensis Henn.° | Dubious |
| Xylaria djurense Henn.° | Dubious |

nov. sp. in the text: °; valid taxon: *; not re-assessed:**; dubious position:***

A modern description of this *Hexagonia* was published by Ryvarden & Johansen (1980: 372). Characteristic of the species is the white to pale buff, glabrous, smooth or concentrically sulcate pileus and the large pores. The fungus develops on dead wood and is a rare species in Africa. Specimens have been collected in Nigeria, Sierra Leone, Tanzania and Zambia.

35 – *Lycoperdon djurense* Henn., *Hedwigia* Beibl. 40: 100. 1901, as *nov. sp.*

Current name: *Lycoperdon djurense* Henn. [as *djurense*], *Hedwigia* Beibl. 40: 100. 1901.

On soil, Jur, Bahr El-Ghazal Province, May 1871, leg. Schweinfurth *s.n.* As previously noted, from April 23 - June 4, 1871, Schweinfurth resided at Jur (Ghattas zeriba), and at Jur Ghattas (old zeriba at Geer).

The fungus was described by Hennings (1901) as being 'gracile' and close to *Lycoperdon curtisii* Berk., North Amer. Fung.: no. 333. 1859 [1853-59], now renamed *Vascellum curtisii* (Berk.) Kreisell, *Fed. Repert.* 68: 86. 1963.

Ponce de Leon (1970) proposed the combination *Vascellum djurense* (Henn.) P. Ponce, *Fieldiana*, Bot. 32(9): 122. 1970. According to Demoulin & Dring (1975), however, Ponce de Leon's description does not seem to be derived from the type material but from some other specimens cited. Besides in Ponce de Leon's publication the type locality [Djur, 7°26' lat. N, 28°32' long. E] is erroneously located in the Central African Republic whereas it is in the Republic of Sudan. Finally both authors also listed *Lycoperdon djurense auct. non* Henn., as a synonym of *Vascellum endotephrum*.

Demoulin & Dring (1975) also provided the following statement: *Lycoperdon djurense* is a name frequently used for *Vascellum endotephrum* (Pat.) Demoulin & Dring, Bull. Jar. Bot. Nat. Belg. 45: 358. 1975 [= *L. endotephrum* Pat., Bull. Soc. mycol. Fr. 18: 300, tab. 14, fig. 3. 1902]. In order to clarify this point they examined the isotype in C.G. Lloyd's collection [cat. 24 660 BPI], which after the destruction of Hennings' herbarium would appear to be all that remains of the type.

Based on their examination of the isotype, Demoulin & Dring (1975) concluded Hennings' fungus is very close to if not identical with *Lycoperdon marginatum* Vittad., in Moris G.G. *et al.*, *Florula Caprariae*: 226. 1839. Their decision was based on the absence of paracapillitium in either species. *Lycoperdon marginatum* shares the presence of a yellowish capillitium provided with pores and the development of sphaerocysts derived from the endoperidium beneath the pseudoparenchymatous layer. However, this taxonomic disposition remained controversial.

Discussion

In his note '*Fungi centro-africani*', Hennings (1898) treated 30 species of fungi (Tab.1) collected by Schweinfurth in the years 1868-71, in the then politically unsettled zone known as Central Africa. In the same note he also considered two other taxa distinguished by specimens observed in northern Libya by G. Ruhmer in 1883: *Graphiola phoenicis* and *Tylostoma ruhmerianum*.

When taking into account present political borders in the eastern central part of this continent, five members of the Central African group disclose collecting sites in the actual Democratic Republic of Congo (Congo-Kinshasa) while *Tylostoma laceratum* was observed in the present Republic of the Sudan. It follows simply 24 fungi of Hennings' paper have collecting sites in the recent Republic of South Sudan, independent since 2011.

Hennings has however separately described three other novel taxa based on material also provided by Schweinfurth from this new African republic: the holotypes of *Geaster schweinfurthii* and *Hexagonia niam-niamensis* were collected in May 1871 (Hennings 1891) and that of *Lycoperdon djurense* in 1883 (Hennings 1901). The total number of fungi linked to South Sudan thus amounts to 27 and those treated in this revisit to 35. Among the latter, 20 fungi were introduced as species new to Science.

The 35 taxa here considered are members of the following major groups: ascomycetes (5 species), hetero- (3 species), and homobasidiomycetes (27 species). The dominant position of the latter group in terms of species numbers is due to the fact their fruit bodies are commonly clearly visible to the unaided eye.

The binomials of half these fungi have changed over time: nine were transferred to other genera and eight have been synonymized with previously named fungi (Table 2). The majority of these 17 species are now regarded as taxonomically valid (14 species) although the following require further investigation: *Boletus* sp., *Calyptella nabambissoënsis*, and *Podoscypha elegans*. The original names of the remaining taxa have not undergone any change; however, only nine are presently regarded as valid, five are considered as dubious, and the last four need to be re-assessed. More work is thus required to clarify the taxonomic positions of these old names linked to this part of the African continent.

Acknowledgements

Sincere appreciation is extended to colleagues having provided reprints of their work or critical information on the taxa here treated: V. Antonin, G. Eyssartier, Yu-Ming Ju, M. Piepenbring, and L. Ryvardeen. Peter Roberts is warmly acknowledged for his endeavour to upgrade the present manuscript.

References

- Altés A, Moreno G, Wright JE. 1999 – Notes on *Tulostoma volvulatum* and *T. giovanellae*. *Mycological Research* 103, 91–98.
- Antonin V. 2007 – Monograph of *Marasmius*, *Gloiocephala*, *Palaeocephala*, and *Setulipes* in Tropical Africa. *Fungus Flora of Tropical Africa* 1, 1–177 + 19 pls.
- Arx JA, Müller E. 1975 – A re-evaluation of the bitunicate ascomycetes with keys to families and genera. *Studies in Mycology* 9, 1–159.
- Barrasa JM, Rico VJ. 2003 – The non-omphalinoid species of *Arrhenia* in the Iberian Peninsula. *Mycologia* 95, 700–713.
- Beeli M. 1932 – *Fungi Goossensiani*: IX Genre *Lepiota*. *Bulletin de la Société Royale de Botanique de Belgique* 64, 206–222.
- Begerow D, Bauer R, Oberwinkler F. 2002 – The Exobasidiales: an evolutionary hypothesis. *Mycological Progress* 1, 187–199.
- Bresadola G. 1916 – *Synonymia et adnotanda mycologica*. *Annales Mycologici* 14, 221–242.
- Bottomley AM. 1948 – Gasteromycetes of South Africa. *Bothalia* 4, 473–810.
- Buchanan PK. 1993 – Identification, names and nomenclature of common edible mushrooms. *Mushroom Biology and Mushroom Products*. Eds.: S Chang, JA Buswell & S Chiu. Chinese University Press, Hong Kong, pp. 21–32.
- Buyck B. 2012 – One neo- and four epitypifications for *Cantharellus* species from tropical African savannah woodlands. *Cryptogamie, Mycologie* 33, 11–17.
- Cole GT. 1983 – *Graphiola phoenicis*: A taxonomic enigma. *Mycologia* 75, 93–116.
- Cooke WB. 1953 – The genera of Homobasidiomycetes (exclusive of the Gastromycetes). USDA Division of Mycology & Disease Survey, Special Publication 3, 1–100.
- Crous PW, Phillips AJL, Baxter AP. 2000 – *Phytopathogenic Fungi from South Africa*. University of Stellenbosch, Department of Plant Pathology Press, 358 Pp.
- Cunningham GH. 1956, publ. 1957 – *Thelephoraceae* of New Zealand. Parts IX, X and XI. Part IX – The Genus *Stereum*. *Transactions and Proceedings of the Royal Society of New Zealand* 84, 201–231.
- Curtis W. 1781 – *Flora Londinensis* 1: tab. 215 [engraved no. 200].
- Demoulin V, Dring DM. 1975 – Gasteromycetes of Kivu (Zaire), Rwanda and Burundi. *Bulletin du Jardin botanique national de Belgique* 45, 339–372.
- Dring DM. 1964 – Gasteromycetes of Tropical West Africa. *Mycological Papers* 98, 1–58.
- Dring DM, Rayner RW. 1967 – Some Gasteromycetes from Eastern Africa. *Journal of East African Natural History Society* 26, 5–46.
- Dring DM, Rayss T. 1963 – The Gasteromycete fungi of Israël. *Israël Journal of Botany* 12, 147–178.
- Dutta AK, Pradhan P, Roy A, Acharya K. 2011 – *Volvariella* of West Bengal, India I. *Researcher* 3, 13–17.
- Dyé A Henri. 1902 – Le Bahr el Ghazal: Notions générales sur la province, les rivières, les plateaux et les marais. *Annales de Géographie* 11(no. 58), 315–335.
- Eicker A, Coetzee JC, Botha L. 1989 – The biology and cultivation of *Macrolepiota zeyheri*. *Mushroom Science* 12, 441–450.
- Eyi Ndong HE, Degreef J, Kesel A. de 2011 – Champignons comestibles des forêts denses d’Afrique Centrale. *Taxonomie et identification*. *ABC Taxa* 10, 253 Pp.

- Eyssartier G. 2001 – Vers une monographie du genre *Cantharellus* Adams:Fr. [doctoral dissertation]. Paris: Natural History Museum, 259 Pp.
- Eyssartier G. & Buyck B. 1998 – Contribution à la systématique du genre *Cantharellus* en Afrique tropicale : étude de quelques espèces rouges. *Belgian Journal of Botany* 131, 139–149.
- Fischer E. 1883 – Beitrag zur Kenntniss der gattung *Graphiola*. *Botanische Zeitung* 45, 745-756.
- Fries E. 1829 (-1832) – *Systema mycologicum*, etc. Vol.3. *sectio* 1 - Gryphiswaldae, pp. 1-260, 1829; section 2. - Gryphiswaldae, pp. 261–524.
- Grand EA, Hughes KW, Petersen RH. 2011 – Relationships within *Lentinus* subg. *Lentinus* (Polyporales, Agaricomycetes), with emphasis on sects. *Lentinus* and *Tigrini*. *Mycological Progress* 10, 399–413.
- Heinemann P. 1966 – *Cantharellinae* du Katanga. *Bulletin du Jardin Botanique de l'Etat, Bruxelles* 36, 335–352.
- Hennings P. 1891 – *Fungi africani*. *Botanische Jahrbücher für Systematik* 14, 337–373.
- Hennings P. 1895, publ. 1896 – *Fungi somalenses in expeditione Ruspoliana a Doctor Riva lecti*. *Annuario del Reale Istituto Botanico di Roma* 6, 84–87.
- Hennings P. 1898 – *Fungi centro-africani*. *Hedwigia* 37, 283–289.
- Hennings P. 1901– *Aliquot Fungi Africae borealis a cl. Dr. G. Schweinfurth collecti*. *Hedwigia* 40, 98–101.
- Hibbett DS, Vilgalys R. 1991 – Evolutionary Relationships of *Lentinus*: Evidence from Restriction Analysis of Enzymatically Amplified Ribosomal DNA. *Mycologia* 83, 425–439.
- Hibbett DS, Vilgalys R. 1993 – Phylogenetic relationships of *Lentinus* (Basidiomycotina) inferred from molecular and morphological characters. *Systematic botany* 18, 409–433.
- Hibbett DS, Tsuneda A, Murakami S. 1994 – The secotioid form of *Lentinus tigrinus*: genetics and development of a fungal morphological innovation. *American Journal of Botany* 81, 466–478.
- Hollos L. 1904 – *Die Gasteromyceten Ungarns*. Leipzig, Oswald Weigel, 278 Pp.
- Hughes SJ. 1958 – *Revisiones hyphomycetum aliquot cum appendice de nominibus rejiciendis*. *Canadian Journal of Botany* 36, 727–836.
- Inacio CA, Cannon PF. 2002 – Re-interpretation of *Cocconia palmae*, with description of the genus *Dianesia* (Ascomycota: *Dothideomycetidae*). *Fungal Diversity* 9, 71–79.
- Justo A, Castro ML. 2010 – An annotated checklist of *Volvariella* in the Iberian Peninsula and Balearic Islands. *Mycotaxon* 112, 271–273.
- Justo A, Vizzini A, Minnis AM, Menolli N Jr, Capelari M, Rodriguez O, Malysheva E, Contu M, Ghignone S, Hibbett DS. 2011 – Phylogeny of the *Pluteaceae* (Agaricales, Basidiomycota): Taxonomy and Character Evolution. *Fungal Biology* 115, 1–20.
- Keirle MR, Hemmes DE, Desjardin DE. 2004 – Agaricales in the Hawaiian Islands. 8. *Agaricaceae: Coprinus* and *Podaxis*; *Psathyrellaceae: Coprinopsis, Coprinellus* and *Parasola*. *Fungal Diversity* 15, 33–124.
- Krug JC, Cain RF. 1974 – A preliminary treatment of the genus *Podosordaria*. *Canadian Journal of Botany* 52, 589–605.
- Lee CJ, Kim WG, Jhune CS, Cheong JC, Seok SJ. 2009 – New record of the genus *Calypotella* from Korea. *Microbiology* 37, 1–4.
- Li X-L, Yao Y-J. 2005 – Revision of the taxonomic position of the Phoenix Mushroom. *Mycotaxon* 91, 61–73.
- Litthauer D, Jansen VM van, Tonder A van, Wolfaardt FW. 2007 – Purification and kinetics of a thermostable laccase from *Pycnoporus sanguineus*. *Enzyme & Microbial Technology* 46, 563–568.
- Morse EE. 1933 – A study of the genus *Podaxis*. *Mycologia* 25, 1–33.
- Mouchacca J. 1995 – Check-list of novel fungi described from the Middle East, mostly from soil since 1930. *Sydowia* 16, 161–213.

- Mouchacca J. 2009 – Novel fungal taxa from the arid Middle East introduced prior to the year 1940. III. Anamorphic Fungi - Coelomycetes. *Cryptogamie, Mycologie* 30, 377-403.
- Nagy LG, Csaba V, Tamas P. 2010 – Type studies and nomenclatural revisions in *Parasola* (*Psathyrellaceae*) and related taxa. *Mycotaxon* 112, 103–141.
- Patouillard N. 1900 – Essai taxonomique sur les familles et les genres des Hyménomycètes. Lons-le-Saunier, France: Imprimerie et Lithographie Lucien Declume, 184 Pp.
- Pegler DN. 1975 – The genus *Lentinus*: a world monograph. *Kew Bulletin Additional Series* 10, 1–281.
- Pegler DN. 1982 – Agaricoid and boletoid Fungi (Basidiomycota) from Malawi and Zambia. *Kew Bulletin* 37, 255–271.
- Pegler DN. 1983 – The genus *Lentinula* (*Tricholomataceae* tribe *Collybieae*). *Sydowia* 36, 227–239.
- Piepenbring GM. 2000 – The species of *Cintractia s.l.* (Ustilaginales, Basidiomycota). *Nova Hedwigia* 70, 289–372.
- Piepenbring GM, Nold F, Trampe T, Kirschner R. 2012 – Revision of the genus *Graphiola* (Exobasidiales, Basidiomycota). *Nova Hedwigia* 94, 67–96.
- Poiteau MA. 1824 – Description de *Graphiola*, nouveau genre des plantes parasite de la famille des champignons. *Annales des Sciences Naturelles, Botanique*, sér. 1a, 3, 721–731.
- Ponce de Leon P. 1970 – Revision of the genus *Vascellum* (*Lycoperdaceae*). *Fieldiana, Botany* 32, 109–125.
- Priest MJ, Lenz M. 1999 – The Genus *Podaxis* (Gasteromycetes) in Australia with a description of a New Species from Termite Mounds. *Australian Systematic Botany* 12, 109–116.
- Redhead SA. 1988 – A biogeographical overview of the Canadian mushroom flora. *Canadian Journal of Botany* 67, 3003–3062.
- Redhead SA, Vilgalys R, Moncalvo J-M, Johnson J, Hopple JS. Jr 2001 – *Coprinus* Pers., and the disposition of *Coprinus* Species *sensu lato*. *Taxon* 50, 203–241.
- Reid DA. 1965 – A monograph of stipitate stereoid fungi. *Beihefte Nova Hedwigia* 18, 1–382.
- Reid DA. 1975 – Type studies of the larger Basidiomycetes described from southern Africa. *Contributions from the Bolus Herbarium* 7, 1–255.
- Rick J. 1908 – *Fungi Austro-Americani* Fasc. IX u. X. *Annales Mycologici* 6, 105–108.
- Roberts P, Ryvarden L. 2006 – Poroid Fungi from Korup National park, Cameroon. *Kew Bulletin* 61, 55–78.
- Ryley MJ. 2006 – Notes on the type, synonyms, and other specimens of the balansioid fungus, *Nigrocornus scleroticus*. *Mycotaxon* 95, 97–112.
- Ryvarden L. 1999 – Type Studies in the *Polyporaceae* 26. Species described by A.M.F. Palisot de Beauvois. *Mycotaxon* 72, 215–215.
- Ryvarden L. 2012 – Type studies in *Polyporaceae* 27. Species described by P. Ch. Hennings. *Czech Mycology* 64, 13–21.
- Ryvarden L, Johansen I. 1980 – A preliminary polypore flora of East Africa. *Fungiflora*, Oslo, Norway, 636 Pp.
- Ryvarden L, Pearce GD, Masuka AJ. 1994 – An introduction to the larger fungi of south central Africa. *Baobab Books*, Harare.
- Schweinfurth G. 1873 – The Heart of Africa, Three years' travels and adventures in the unexplored regions of Central Africa from 1868 to 1871. Translated by Ellen E. Frewer.
- Singer R. 1964 – *Marasmius* congolais recueillis par Mme Goossens-Fontana et d'autres collecteurs Belges. *Bulletin du Jardin Botanique de l'Etat, Bruxelles* 34, 317–388.
- Sutton BC. 1980 – The Coelomycetes. Fungi imperfecti with Pycnidia, Acervuli and Stromata. *CMI, Kew, Surrey, UK*, 696 Pp.
- Sjökvist E, Larsson E, Eberhardt U, Ryvarden L, Larsson K-H. 2012 – Molecular Evolution and Systematics: Stipitate stereoid basidiocarps have evolved multiple times. *Mycologia* 104, 1046–1055.

- Talbot PHB. 1954 – The Genus *Stereum* in South Africa. *Bothalia* 6, 303–338.
- Tanaka E, Tanaka C, Gafur A, Tsuda M. 2002 – *Heteroepichloë*, *gen. nov.* (*Clavicipitaceae*; *Ascomycetes*) on bamboo plants in East Asia. *Mycoscience* 43, 87–93.
- Thaung MM. 2006 – Biodiversity of phylloplane ascomycetes in Burma. *Australasian Mycologist* 25, 5–23.
- Vanky K. 2012 – *Smut Fungi of the World*. The American Phytopathological Society, St. Paul, Min., Pp. xvii + 1458, figs. 650.
- Vanky K, Vanky C, Denchev CM. 2011 – *Smut Fungi in Africa - A checklist*. *Mycologia Balkanica* 8, 1–77.
- Vellinga EC, Kok RPJ de, Bruns TD. 2003 – Phylogeny and taxonomy of *Macrolepiota* (*Agaricaceae*). *Mycologia* 95, 442–456.
- White JF Jr, Reddy PV. 1998 – Examination of structure and molecular phylogenetic relationships of some graminicolous symbionts in genera *Epichloë* and *Parepichloë*. *Mycologia* 90, 226–234.
- Wickens GA. 1972 – Dr. G. Schweinfurth's Journeys in the Sudan. *Kew Bulletin* 27, 129–146.
- Wright JE. 1987 – The genus *Tulostoma* (*Gasteromycetes*) – A world monograph. *Bibliotheca Mycologica* 113, 338 Pp.
- Yamac RM, Kanbak G, Zeytinoglu M, Senturk H, Uyanoglu M. 2008 – Hypoglycemic effect of *Lentinus strigosus* (Schwein.) Fr. crude exopolysaccharide in streptozotocin-induced diabetic rats. *Journal of Medicinal Food* 11, 516–517.
- Young AM. 1996 – An Australian species of *Calyptella* returns from obscurity. *Mycologist* 10, 152–153.