

Novel fungal taxa from the arid Middle East introduced prior to the year 1940. III. Anamorphic Fungi – Coelomycetes

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Abstract – The third part of this series surveys 61 coelomycetes described before 1940 with holotypes originating from the Middle East. The taxa concerned were examined in relation to their authors, dates of publication, collectors and original locality. The taxonomic positions were updated following the current taxonomy of the fungi concerned. The two major pre-1940 mid-eastern surveys by Bubák (1914) and Reichert (1921) were also scanned for names of known taxa yet unreported for the area and, for the first author, of novel coelomycetes originating from present-day Turkey, not considered as part of the Middle East.

The oldest names *Gloeosporium schweinfurthianum* and *Sphaeropsis calotropidis* were introduced by Thümen around 1879, upon examination of Egyptian specimens sent to Berlin by Schweinfurth. Two additional taxa were described before 1900 while none was introduced in the first decade of the 20th century. Most were issued in the second decade of the same (78.3%), thus the contribution of the next two decades was only 15.0%. The protologues of the taxa concerned were elaborated by a few mycologists from Austria, Germany and Italy. Most taxa were described as species of known genera; only four were considered as varieties or forma of known species. The genus *Basiascella* was proposed for *B. gallarum* from Irak, currently regarded as a later synonym of *Piggotia ulmi*. The new coelomycetes developed on green plants collected by Europeans residing in the Middle East or botanists travelling in this area. The original localities of collections are now situated in Egypt, Irak, Libya, Palestine and Syria.

About half of the new coelomycetes originated from Libya. These 26 novelties were all described by Saccardo and Trotter within a relatively short period between 1912 and 1916, following the Italian occupation of this country (1911-1942). The 18 Iraki taxa were introduced by Bubák in 1914 based on specimens originating from the Handel-Mazzetti expedition to the Orient in 1910; the same applies to the 7 Syrian coelomycetes. The Egyptian species were characterised by Reichert (6 spp.), Thümen (2 spp.) and F. Tassi (*Diplodia aegyptiaca*); the relevant material was collected by German travellers or residents such as Ehrenberg, Schweinfurth or R. Muschler. Only a single species, *Septoria apetala*, originates from Palestine.

According to the updated taxonomy of the early described coelomycetes, they belong to 26 genera. Seventeen taxa belong to *Coniothecium* and *Hendersonia*, two genera which, like most of the other genera, have not been monographically treated. The original status of the five *Phoma* species was recently re-assessed; this has not happened for the four respective species of *Camarosporium*, *Microdiplodia* and *Rhabdospora*. Five other genera have either three species (*Diplodina* and *Macrophoma*) or two species (*Phyllosticta*, *Placosphaeria* and *Septoria*). The remaining 15 genera are each represented by a single species. This distribution clearly indicates that all the coelomycetous novelties are the result of casual discovery rather than the outcome of a detailed survey of the group.

All the pre-1940 novel coelomycetes authored by German-speaking specialists have type material dating before World War I. The holotypes of the 6 Egyptian names introduced by

Reichert in 1921 were available in Berlin prior to this war. The two Iraqi and Syrian species named by Petrak in 1939 were based on material collected by Ehrenberg or by K.H. Reehinger. The Libyan taxa described by Italian specialists have specimens gathered just few years before or after 1914; only *Diplodina smyrnii* was collected in 1922. World War I apparently brought German interest in the Biodiversity of the Middle East to an end. It also distinctly affected the interest of other European experts with regard to the distribution of local coelomycetes.

In the two major pre-1940 surveys by Bubák and Reichert, data on 10 known coelomycetes originating from Egypt (8 spp.), Irak or Syria (1 sp. each) have been found. Their taxonomic positions were updated as well. Bubák's report also encompasses protologues of 20 new coelomycetes from present-day Turkey including the types of two new genera; all were also taxonomically critically updated. In total, 91 species are listed and treated in this survey. Finally several of the taxa described before World War II are only known from their type collections. The regional exploration of this major group of economic importance definitely needs to be resumed.

Fungi / Coelomycetes / Novel Taxa / Taxonomy / Biodiversity / Middle East / Egypt / Irak / Libya / Palestine / Syria / Turkey

Résumé – Le troisième volet de cette série considère les 61 coelomycètes caractérisés par des protologues définis avant 1940 et avec des holotypes originaires du Moyen Orient. Ces taxons, nouveaux pour la science au moment de leur introduction, sont examinés en fonction des noms d'auteurs, dates d'introduction, positions taxonomiques, collecteurs des holotypes et localités de récoltes. Les positions taxonomiques respectives furent actualisées en fonction des données disponibles. Les deux contributions majeures sur les champignons de cette région, publiées avant 1940 (Bubák 1914, Reichert 1921) rapportent également des binômes de coelomycètes connus; le texte de Bubák traite en outre de quelques coelomycètes inédits collectés en Turquie, un pays considéré comme ne faisant pas partie de cette zone aride.

Les deux plus anciens taxons introduits, *Gloeosporium schweinfurthianum* et *Sphaeropsis calotropidis* dus à Thümen en 1879, concernent des spécimens égyptiens expédiés par Schweinfurth à Berlin. Deux autres seront seulement proposés avant 1900 mais aucun ne sera nommé durant la première décennie du 20^e siècle. Une grande partie de ces 61 inédits, soit 78,3 % du groupe, fut introduite au cours de la seconde décennie; cette tendance ramène la part relative des vingt prochaines années au faible taux de 15,0 %. Les descriptions originelles furent élaborées par quelques mycologues établis en Allemagne, Autriche et Italie. Elles concernent des taxons souvent introduits en tant qu'espèce de genres connus; seuls quatre furent proposés au niveau inférieur de variété ou de forme. Le genre *Basiascella* fut établi pour *B. gallarum*, originaire d'Irak; cette espèce-type est actuellement considérée comme un synonyme ultérieur de *Piggotia ulmi*. Ces nouveaux organismes se sont développés sur des fragments de plantes vertes, herborisés par des botanistes Européens résidents ou explorateurs. Les localités d'origine se situent, de nos jours, en Egypte, Irak, Libye, Palestine et Syrie.

Presque la moitié des coelomycètes inédits sont originaires de Libye. Ces 26 taxons furent établis surtout par Saccardo et Trotter, au cours d'une très courte période allant de 1912-1916; leurs holotypes furent collectés au départ de la colonisation italienne du pays (1911-1942). Les 18 taxons Irakiens furent précisés par Bubák en 1914, d'après du matériel provenant du voyage de Handel-Mazzetti au Proche Orient en 1910; il en est de même pour les 7 taxons Syriens. Les éléments égyptiens furent caractérisés soit par Reichert (6 spp.), par Thümen (2 spp.) ou par F. Tassi (*Diplodia aegyptiaca*); les holotypes sont dus à des résidents ou explorateurs allemands, tels que, Ehrenberg, Schweinfurth or R. Muschler. Seul *Septoria apetala* est originaire de Palestine.

Une actualisation des positions taxonomiques originelles souligne le rattachement des noms correspondants actuellement valides, à un ensemble de 26 genres. Un groupe de 17 taxons se rattache aux genres *Coniothecium* et *Hendersonia*, deux entités en attente d'un

document monographique, comme c'est le cas d'ailleurs pour la plupart des genres représentés. Le statut original des 5 *Phoma* inédits a fait l'objet d'études récentes, ce qui n'est pas le cas des 4 taxons respectifs des genres *Camarosporium*, *Microdiplodia* et *Rhabdospora*. Cinq autres genres rassemblent chacun soit trois espèces (*Diplodina* et *Macrophoma*), soit deux espèces (*Phyllosticta*, *Placosphaeria* et *Septoria*). Les 15 genres restants sont représentés chacun par une seule espèce. Cette distribution particulière des effectifs en espèces des genres représentés, souligne le caractère aléatoire de ces découvertes en coelomycètes inédits.

Tous les coelomycètes nommés avant 1940 par des spécialistes germanophones, sont fondés sur des holotypes collectés avant la première guerre mondiale. Le matériel type des 6 éléments Egyptiens précisés par Reichert en 1921, étaient présent à Berlin avant ce conflit. Celui des deux espèces issues d'Irak ou de Syrie, définies par F. Petrak en 1939, fut collecté soit par K.H. Reehinger en 1937 ou par Ehrenberg. Les taxons établis par les mycologues italiens ont des holotypes herborisés autour de l'année 1914 ; seul celui de *Diplodina smyrnii* fut ultérieurement collecté par R. Cavara. La Première Guerre mondiale semble avoir mis un terme à l'intérêt des allemands pour la Biodiversité de la région Moyen Orient. Il en est de même pour la curiosité des spécialistes européens pour les coelomycètes de cette zone aride.

Les deux publications régionales majeures de Bubák et de Reichert, parues avant 1940, rapportent également les noms de dix coelomycètes connus, inédits pour la région ; ces dix taxons sont originaires d'Egypte (8 spp.), d'Irak ou de Syrie (1 espèce chacun). Une actualisation de leurs positions taxonomiques souligne la présence, parmi les genres d'appartenance, de quatre noms ne figurant pas dans la liste des coelomycètes inédits ; ce sont les genres *Ampelomyces*, *Marssonina*, *Sphaerellopsis* et *Vermicularia*. La contribution de Bubák propose, en outre, des protologues de 20 coelomycètes nouveaux, originaires des frontières actuelles de la Turquie ; deux s'avèrent des espèces-types de genres nouveaux. Les positions taxonomiques des taxons turcs feront également actualisées. Les dix coelomycètes connus et les 20 éléments turcs portent à 91, le total des taxons considérés dans la présente note. Enfin, un examen critique des données de nature taxonomique, des coelomycètes définis avant la Seconde Guerre mondiale, souligne que plusieurs d'entre eux demeurent encore connus uniquement par les descriptions originelles et/ou par les localités de collecte de base. Une exploration approfondie de la biodiversité de cet ensemble fongique d'importance économique marquée, mérite d'être rapidement réalisée.

Champignons / Coelomycètes / Taxon inédit pour la Science / Taxonomie / Biodiversité / Moyen-Orient / Egypte / Irak / Lybie / Palestine / Syrie / Turquie

INTRODUCTION

Coelomycetes are characterized by forms that produce their conidia in pycnidial, pycnothyrial, acervular, cupulate or stromatic conidiomata (Sutton 1980). They are capable of growing, reproducing and surviving in a wide variety of ecological situations. Even more diverse are the activities of coelomycetes in relation to plant substrates. The capacity of species or strains within species to function somewhat variably along the spectrum from saprobism to parasitism is shown by their ubiquity in disease syndromes. The coelomycetes comprise many species pathogenic to economically important agricultural and forestry crops (Peace 1962, Waller *et al.* 2002), as well as hosts representing a wide range of native plants.

The taxonomy of the coelomycetes is in a transitional state as new information, particularly concerning conidiogenesis as well as molecular sequence analyses, is assimilated into the existing framework (Sutton 1980, Nag Raj 1993).

The need for a vast amount of revisionary work of the several thousand existing names of coelomycetous organisms is thus inescapable (van der Aa & Vanev 2002, Boerema *et al.* 2004).

The present third contribution on novel taxa originating from the Middle East region introduced prior to 1940 surveys coelomycetous fungi; previous notes respectively dealt with ascomycetes and hyphomycetes (Mouchacca 2008, 2009). The series succeeds a former one introducing similar taxa but described in the period from 1940-2000 (see Mouchacca 2005).

The oldest coelomycetous names retrieved are *Gloeosporium schweinfurthianum* and *Sphaeropsis calotropidis*; both figure in the second list of Egyptian fungi (taxa from nos. 19-42) published by Thümen (1879-80) following his examination of specimens received at the Berlin Botanical Garden from various German collectors. The first notable German collector in the Middle East was C.G. Ehrenberg (1795-1856). This famous biologist started his long exploration of the region together with W.F. Hemprich (1820-1825) by visiting Egypt, Libya and Nubia (Sudan). They subsequently visited the Asian Red Sea coasts before travelling north to Syria and Lebanon, then back to Alexandria and home to Berlin via Trieste. About 46,000 botanical specimens were collected during five years of hectic travels in this area (Sarjeant 1978).

Ehrenberg was acquainted with the study of fungi. In his doctoral thesis submitted in 1817 to the University of Berlin he described 250 species of fungi from the Berlin district of which 62 were new to science (Sarjeant 1978). Unfortunately, however, Ehrenberg produced no immediate publication listing his collection of the Middle East fungi. In 1921, Reichert (1921) reported the existence in the Botanical Museum of over 150 fungal specimens labelled by Ehrenberg that had not yet received any attention; some of them proved to represent type material of novel coelomycetes (Reichert 1921).

The distinguished traveller G. Schweinfurth (1863-1925) also contributed to the knowledge of fungi present in the Middle East. He largely collected in the second half of the 19th century along the Nile basin down to Central Africa and in adjacent regions (1863-1874). This notable German naturalist subsequently became a private scientist in Cairo for a long period (1875-1888). During his time in the Egyptian capital he was able to explore the area between the Nile and the Red Sea. Schweinfurth finally returned to Berlin and remained in close association with the Botanical Museum but a few trips to the Middle East were made until 1914, e.g. Yemen (1888-1889) and Eritrea (1891-1894).

During an extremely long period between 1863 and World War I, Schweinfurth organised a regular flow of material to Berlin and to some mycologists in France from the countries he visited. The African species of fungi were studied by F. von Thümen, P. Hennings and P. Magnus, resulting in the description of several new interesting taxa including some coelomycetes (Thümen 1878, 1979-80).

Almost in the same period, the botanist J. Bornmüller (1862-1948) made extensive travels in the Middle East: Syria and Palestine (1897), Egypt (1908) and Lebanon and Anti-Lebanon (1910). The fungal material collected by this noteworthy Curator of the Herbarium Haussknecht (1904-1938) was, however, sent mainly to Magnus; who introduced several new species, including *Septoria apetala* originating from Palestine (Magnus 1900).

Bornmüller's last travel coincided with the expedition to Mesopotamia and Kurdistan undertaken by H.F. Handel-Mazzetti in the period from March-November 1910. Together with the zoologist Viktor Pietschmann, this Austrian botanist sailed down the river Euphrates starting from Alep in present-day Syria.

Near Kerbala they crossed the desert in an easterly direction to the river Tigris and then they walked north along its banks up to the high mountains of Kurdistan, in present-day Turkey. Both explorers returned to the Vienna University Botanical Institute with a large collection of herbarium specimens. Fungal taxa named by F. Bubák for Irak and Syria were based on collections made during this expedition (Bubák 1914).

At the start of the 20th century, the Italian occupation of Libya (1911-1942) promoted an increasing interest in the biodiversity of living forms inhabiting this country. Several botanical expeditions yielded numerous fungal specimens that were examined by P.A. Saccardo and A. Trotter and later on by R. Parisi, and published in a series of notable papers introducing several pycnidial and acervular fungi (Saccardo 1913, Saccardo & Trotter 1913, Trotter 1912, 1916).

The advent of World War I marks the end of the Middle East exploration period by German botanists. In the period between the two World Wars, coelomycetous fungi apparently received limited attention since the mycological activities of that time were mainly directed to the study of fungal diseases of economic plants, a trend notable above all in Egypt. In addition to investigations undertaken by local plant pathologists as A.F. El-Helaly, T. Fahmy and A. Fikry (Mostafa 1959), invited English speaking experts also contributed to this effort but new coelomycetes were not described in the period between the two World Wars.

The data included in the present paper were gradually accumulated in the course of work undertaken on the fungi of the Middle East region. Although all available sources for new taxa have been consulted, the present list does not claim to be complete, i.e. additions and omissions are possible.

LIST OF TREATED TAXA

The general structure of the present list is similar to the previous one dealing with ascomycetes. Therefore, details about data presentation, herbaria housing authentic material, items reported and used abbreviations could be sought in Mouchacca (2008). Taxonomically and nomenclatural accepted names are printed in bold.

TAXA described as novelties

– ***Aposphaeria rhois* Sacc. & Trott.**, in Trotter – *Annales mycologici* 10: 512. 1912. XXII: 918. LIBYA. On decorticated branches of *Rhus oxyacanthae*, in M. Mergheb, near Khums, Tripolitania, Mar. 1912, *leg.* Trotter; H.: not in PAD.

The genus *Aposphaeria* Sacc., conserved against *Aposphaeria* Berk., includes approximately 200 species (Sutton 1980), most of which grow on woody plants. Many of the species are poorly described and may not be congeneric with the type, *Aposphaeria pulviscula* (Sacc.) Sacc. (Heiny *et al.* 1992).

– ***Ascochyta tripolitana* Sacc. & Trott.**, in Trotter [as *tripolitania*] – *Annales mycologici* 10: 512. 1912. XXII: 1023. LIBYA. On living branches of *Calotropis procera*, near Tajoura and Sidi Bellesher, Tripoli, Mar. 1912, *leg.* Trotter; H.: not in PAD.

Mel'nik (in Mel'nik, Braun & Hagedorn 2000) in his treatment of the genus simply reproduced the original description: Pycnidia epiphyllous, more or

less aggregated, black, 200-250 µm diam., with a small circular pore. Conidia subcylindrical, both ends blunt, straight, often flexuous, with 1, sometimes with 2 septa, mostly 16-22 × 6.5-7.5 µm. Mel'nik mistakenly reported the fungus as being collected in Lebanon' Tripoli.

– *Ascochyella syriaca* Petr. – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 1: 476. 1939, publ. 1940. SYRIA. On leaf rachis of *Astragalus venosus*, Mount Akamat, 26 Jul. 1820, leg. Ehrenberg. H: Herb. Petrak W. [= *Pseudodiplodia syriaca* (Petr.) Petr. – Sydowia, Ser. II, 7: 305. 1953; transfer considered as provisional by Petrak (1953)].

Petrak (1953) provisionally transferred several species of *Ascochyella* Tassi to *Pseudodiplodia* (P. Karst.) Sacc. pending clarification of generic delimitations in this group of coelomycetes. Recently Buchanan (1987) placed *Ascochyella* (and *Ascochyula* Died.) in synonymy with *Ascochyta* Lib. and restricted *Pseudodiplodia* to similar taxa having annelidic conidiogenous cells. The correct placement of this fungus requires the study of authentic material.

– *Camarosporium pegani* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 213. 1914 [non *Camarosporium pegani* Gucevicz – Notulae Systematicae e Sectione Cryptogamic Instituti Botanici Academiae Scientiarum U.R.S.S. 13: 256. 1960; illegitimate, a homonym]. SYRIA. On bark of *Peganus harmata*, at the limits between Mesopotamia and northern Arabia, in the steppe, in the middle part of the river Euphrates, between the cities of Meskene and Der El-Sor, Village of Sabcha, 250-350 m, 28 Mar. 1910, leg. Handel-Mazzetti no. 522 p. p.

The particular taxonomic problems of the genus *Camarosporium* Schultz. were reviewed by Sutton (1980). The genus contains about 400 names, many of which refer to species that have not been re-examined since their introduction. It is in urgent need of revision, discounting any approach based on host specificity.

– *Camarosporium pygmaeum* (Sacc.) van Warmelo & B. Sutton – Mycological Papers 145: 36. 1981.

≡ *Stegosporium pygmaeum* Sacc., in Saccardo & Trotter [as *Steganosporium*] – Annales mycologici 11: 418. 1913. XXV: 612. LIBYA. On dead twigs of *Marrubium desertum*, Wadi Kaam, Zlitan, May 1913, Tripolitania, leg. Trotter; H.: PAD.

The species was transferred to *Camarosporium* Schulz. on account of the presence of dark brown, smooth, distoseptate and phragmo- or dictyosporous conidia having no constrictions and formed in small pycnidia. In addition, van Warmelo & Sutton (1981) clearly forwarded the reasons for maintaining the name *Stegosporium* Corda against the orthographic variant *Steganosporium*.

– *Camarosporium sarcinosporum* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 214. 1914. XXV: 396. IRAK. On old twigs of *Haloxylon salicornia*, in the desert between Sumedscha and Scheria, on the left bank of the river Tigris, between Baghdad and Mossul, Mesopotamia, 60 m, 4 May 1910, leg. Handel-Mazzetti no. 967.

– *Camarosporium tarhunense* Sacc. – Annales mycologici 11: 567. 1913. XXV: 402. LIBYA. On decaying twigs of *Pituranthi* sp., Ras Ghenai, Tarhuna, Tripolitania, 25 Mar. 1913, leg. R. Pamapanini; H.: PAD; socio cum *Coniothyrium stigmatoideum* Sacc.

– *Coniothyrium acaciae* Trott. – Nuovo Giornale Botanico Italiano, N.S. 23: 21. 1916. XXV: 238. LIBYA. On branches of *Acacia tortilis*, near El-Gheriat Scerghia,

in the arid region Hamada el Hamra, Tripolitania, Apr. 1914, *leg.* Trotter; H.: not in PAD.

According to Verkley *et al.* (2004), in the genus *Coniothyrium* Corda, *nomina conservanda*, many hundreds of species have been described on the basis of material found on plants, and most of these species have never been critically re-examined or studied in culture. Occasionally, species have been described from organisms other than plants or from soil.

– *Coniothyrium diedickeanum* Reichert – Botanische Jahrbücher für Systematik 56: 713. 1921. XXVI: 1016. EGYPT. On dry stems of *Anabasis articulatis*, close to Cairo, Nov. 1820/25, *leg.* Ehrenberg.

– *Coniothyrium galii* Trott. – Nuovo Giornale Botanico Italiano, N.S. 23: 22. 1916. XXV: 244. LIBYA. On dry leaves of *Galium parisiense*, Rumia, Yefran, Mar. 1914, *leg.* Trotter; H.: not in PAD.

– *Coniothyrium globiparum* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 209. 1914. XXV: 234. IRAK. On corms of *Salsola rigida* var. *villosa*, at the limits between Mesopotamia and northern Arabia, in the middle part of the river Euphrates, between Abou-Kamal and Ramadi but close to Kaijim, 120-180 m, 6 Apr. 1910, *leg.* Handel-Mazzetti no. 665.

– *Coniothyrium mesopotamicum* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 210. 1914. XXV: 245. IRAK. On dead twigs and spines of *Lyci barbari*, at the limits between Mesopotamia and northern Arabia, on clay soil, in the valley of the middle part of the river Euphrates, on the left bank close to El-Hammam, 170 m, 27 Mar. 1910, *leg.* Handel-Mazzetti no. 500.

– *Coniothyrium nitrariae* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 210. 1914 [non *Coniothyrium nitrariae* Kravtzev, *apud* Schwarzman & Kravtzev – Trudy instituta botaniki. Alma-Ata, Kazakh SSR 9: 93. 1961; illegitimate, a homonym]. XXV: 246. IRAK. On bark of *Nitraria retusa*, at the limits between Mesopotamia and northern Arabia, in a closed hot dry valley situated in the middle part of the river Euphrates, between Abu-Kemal and Hit, close to Haniset and Iflawi above Hit, 140-180 m, 9 Apr. 1910, *leg.* Handel-Mazzetti no. 809.

– *Coniothyrium rude* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 210. 1914. XXV: 238. IRAK. Two locations are cited: On dead rachis of *Astragalus spinosus*, at the limits between Mesopotamia and northern Arabia, in the middle part of the river Euphrates between Abou-Kamal and Ramadi, in the stony desert close to Kaijim, 120-180 m, 4 Apr. 1910, *leg.* Handel-Mazzetti no. 643, in association with the ascomycete *Pleospora rudis* Berl.; on young rachis of *Ammothamni gibbosi*, left bank of the river Tigris between Baghdad and Mossul, in the arid Wadi Schreimije, close to Tekrit, 150 m, 10 May 1910, *leg.* Handel-Mazzetti no. 1021.

The coelomycete was first renamed *Ascochyrella rudis* (Bubák) Petr. & P. Syd. – Annales mycologici 22: 329. 1924, then *Pseudodiplodia rudis* (Bubák) Petr. & P. Syd. – Sydowia 78: 304. 1953. *Ascochyrella* Tassi is now regarded as a synonym of *Ascochyta* Lib. (Buchanan 1987). The type species of *Pseudodiplodia* (P. Karst.) Sacc., *P. ligniaria* P. Karst. – Hedwigia 23: 87. 1884, was re-examined by Buchanan (1987). Light and electron microscopic studies showed annellidic, rather than phialidic conidiogenous cells as previously underlined by Sutton (1980). The genus is thus heterogenous with respect to conidiogenesis and is in need of a monographic treatment. Rayss & Borut (1958) mentioned having

isolated *Coniothyrium rude* from hammada soil, 22 km from the City of Sdom, Israël, December 1953.

– *Coniothyrium sporoboli* Reichert – Botanische Jahrbücher für Systematik 56: 713. 1921. XXVI: 1021. EGYPT. On leaves of *Sporobolus spicatus* in the desert close to Helwan, West bank of the river Nile at Cairo, Dec. 1905, leg. R. Muschler.

– *Coniothyrium stigmatoideum* Sacc. – Annales mycologici 11: 417. 1913. XXV: 246. LIBYA. On dead twigs of *Pituranthus tortuosus*, village of Selim, Tripolitania, Apr. 1913, leg. Trotter; H.: PAD.

No information additionnal to those here reported for the fungus, are given by El-Buni & Rattan (1981) in their recent check-list of Libyan fungi.

– *Coniothyrium subcrustaceum* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 211. 1914. XXV: 244. IRAK. On dead twigs of *Zizyphus nummularia*, on the left bank of the river Tigris, between Baghdad and Mossul, on the way between Sumedscha and Scheria, 60 m, 4 May 1910, leg. Handel-Mazzetti no. 970.

Rayss & Borut (1958) underline having isolated the species from loess-soil collected at the depth of 10 cm, at Beershaba, Israël, March 1955. Both authors reported that according to Bubák (1914) species of *Coniothyrium* found in arid zones are distinguished by “bigger conidia”.

– *Coniothyrium tenue* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 211. 1914 [non *Coniothyrium tenue* Died. – Kryptogamenflora der Mark Brandenburg und ausgrenzender Gebiete 9 (3): 567. 1914; illegitimate, homonym]. XXV: 233. IRAK. On dead twigs of *Cleome glauca*, at the limits between Mesopotamia and northern Arabia, in the middle part of the river Euphrates, between Abou Kamal and Ramadi, in the desert between Ana and Haditha, 120-180 m, 7 Apr. 1910, leg. Handel-Mazzetti no. 771 p. p.

The combination *Ascochyella tenuis* (Bubák) Petr. – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 52: 367. 1941, publ. 1942, was not re-evaluated by Buchanan (1987) when attempting to reappraise the generic concept of *Ascochyella* Tassi.

– *Cylindrosporium septatum* forma *smyrnii-olusatri* Sacc. & Trott. – Annales mycologici 11: 418. 1913. XXV: 629. LIBYA. On *Smyrnum olustrum*, Kasr Garian, Apr. 1913, Tripolitania, leg. Trotter; H.: not in PAD.

Cylindrosporium septatum Romell, in Saccardo – *Sylloge Fungorum* X: 503. 1892, is presently regarded as agreeing with *Pseudocercospora pastinacae* (P. Karst.) U. Braun – *Nova Hedwigia* 56: 444. 1993. Braun (1995) subsequently stressed that “the status of *Cylindrosporella septatum* f. *smyrnii-olusatri* Sacc. & Trotter (1913: 418) described on *Smyrnum olustrum* from Libya, is unclear”.

– *Didymosporium australe* Sacc. & Trott., in Trotter – Annales mycologici 10: 514. 1912. XXII: 1213. LIBYA. On dead leaves of *Phoenix dactylifera*, Gargarish, close to Tripoli, Mar. 1912, leg. Trotter; H.: PAD.

Didymosporium Nees:Link, non *Didymosporium* Sacc., was qualified as *nomen dubium* by Sutton (1977). The correct placement of this Libyan based taxon thus awaits re-examination of authentic material.

– *Diplodia aegyptiaca* F.Tassi var. *aegyptiaca* – Atti della Reale Accademia dei Fisiocritici Siena 4, Ser. 8: 64. 1896. XI: 907; XIV: 927. EGYPT. On dry fruits of *Anona forskalii*, close to Cairo, date ?, leg. F. Tassi.

The original description was reproduced by Roumeguère – *Revue mycologique*, Toulouse 18 (no. 72): 168. 1896, tab. 172, f. 1. *Diplodia aegyptiaca*

was listed by Zambettakis (1954) as a synonym of *Nemadiplodia anomala* (Mont.) Zambett. – Bulletin Trimestriel de la Société Mycologique de France 70: 227. 1954 [≡ *Diplodia anomala* Mont. – Sylloge Generum Specierumque Cryptogamarum, no 964. 1856, from Cuba]. The genus *Nemadiplodia* Zambett. was however treated by Petrak (1963) as a synonym of *Botryodiplodia* (Sacc.) Sacc. The status of *Diplodia aegyptiaca* thus awaits re-appraisal. The subsequent *Diplodia aegyptiaca* var. *incrustans* F. Tassi – Revue mycologique, Toulouse 18 (no. 72): 168. 1896, tab. 172, f. 2, developed on “*drupa exsiccata Cerbera thevetiae in India occidentali*” (West Indies).

According to Lazzizzera *et al.* (2008), for many years species of *Diplodia* Fr. were described on the basis of host association with the result that more than 1.000 species have now been described. Since host range is no longer considered to be of primary importance in species differentiation in the *Botryosphaeriaceae* Theiss. & P. Syd., it is likely that many of these names are synonyms.

– ***Diplodina acaciae* Trott.** – Nuovo Giornale Botanico Italiano, N.S. 23: 23. 1916. XXV: 350. LIBYA. On twigs of *Acacia tortilis*, close to El-Gheriat Scerghia, in the arid region Hamada el Hamra, Tripolitania, Mar. 1914, *leg.* Trotter; *socio cum Coniothyrium acaciae*; H.: not in PAD.

El-Buni & Rattan (1981) also listed this taxon in their Check-list of Libyan Fungi but without further information. Following Sutton (1980), *Diplodina* Westend. is a large genus urgently in need of a revision.

– ***Diplodina rhachidicola* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 206. 1914. XXV: 350. IRAK. Three collections are cited: On rachis leaves of *Astragalus argyrophylli*, in the mountains of Dschebel Sindschar, 600-700 m, 8 Jun. 1910, *leg.* Handel-Mazzetti no. 1367 p. p.; on rachis leaves of *A. bassianici*, at the highest summit of Mount Tschil Muran, 1400 m, 9 Jun. 1910, *leg.* Handel-Mazzetti no. 1510 p. p.; on rachis leaves of *A. gossypinoides*, in the mountains of Dschebel Sindschar, between the village of Dscheddale and lake El-Chattunije, at Wadi Schilu on the descending road to Bara, 600-700 m, 11 Jun. 1910, *leg.* Handel-Mazzetti no. 1556.

The following relevant combination needs to be re-assessed: *Ascochyta rhachidicola* (Bubák) Bondartsev & Bond.-Mont. – Notulae Systematicae ex Instituto Cryptogamico Horti Botanici Petropolitani Principalis U.S.S.R., Botanicheskiy materialy 8: 139. 1952.

– ***Diplodina smyrnii* R. Parisi** – Bullettino dell’Orto Botanica della Regia Università di Napoli 9: 64. 1928. LIBYA. On the stem of *Smyrnum olusatrum*, Wadi Sambar, Shahat, 1922, *leg.* R. Cavara; H.: not in PAD.

– ***Gloeosporium schweinfurthianum* Thüm.** – Grevillea 7-8: 49. 1879-1880. EGYPT. On leaves of *Erodium glaucophyllum*, in the desert at Wadi Deglah, close to Cairo, May 1879, *leg.* Schweinfurth.

The details of this specimen were also reproduced by Reichert (1921: 715). According to von Arx (1970), the fungus “is the *Colletotrichum* conidial state of *Glomerella cingulata*: *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. – Atti Istituto Veneto di Scienze, Lettere ed Arti, Ser. 6, 2: 270. 1884 [≡ *Vermicularia gloeosporioides* Penz. – Michelia 2 (no. 8): 450. 1882]. However, following Sutton (1980) the present synonymy awaits confirmation.

Colletotrichum gloeosporioides is one of the most common and widely distributed plant pathogens in the world (Cannon *et al.* 2008). Since its original description as *Vermicularia gloeosporioides* it has been associated with at least 470 different host genera either as a primary disease-causing organism, or isolated

from deteriorated plant parts. *Colletotrichum gloeosporioides* has also frequently been confused with other members of the genus, especially *C. acutatum* J.H. Simmonds, and many older records of *C. gloeosporioides* must be treated with caution. This coelomycete has also commonly been demonstrated to be linked to the teleomorphic species *Glomerella cingulata* (Stoneman) Spauld & H. Schrenk. According to Cannon *et al.* (2008), within this taxon some strains are homothallic and produce the teleomorph in culture, but many are heterothallic and require mating with compatible types

The anamorphic species *Colletotrichum gloeosporioides* has never been adequately typified according to modern nomenclatural practice, resulting in uncertainty as to application of the name. A lectotype specimen was therefore designated by Cannon *et al.* (2008) to preserve current usage; it was chosen from original material in Penzig's herbarium, specimens of which are now preserved in the U.S. National Fungus Collections (BPI). An epitype was also chosen as eligible lectotype material, but is not preserved in a living state. A living culture was also selected from a set of strains isolated from *Citrus* species from southern Italy: strain IMI 356878 was formally designated as epitype of *Vermicularia gloeosporioides*. The epitype strain was then described and characterized using morphological and molecular methods. No teleomorph was however produced in culture. Finally the problem of the presence of three already existing distinct rDNA ITS sequences of the epitype strain in GENBANK, was solved by re-sequencing the newly selected epitype strain to confirm its true base-pair nature.

A basic problem with *Colletotrichum* systematics at the beginning of the 21st century was an increasing imbalance in the morphological, biological and genetic variation within taxa recognized at the species level (Sutton 1980, 1992). The typification of *Colletotrichum gloeosporioides* is the first step towards a clarification process of the true taxonomic relationships of names introduced within this genus: over 700 species have been described. The major known revision of the genus made by von Arx (1957) based on morphological rather than associative characteristics reduced the number of recognized species to only eleven, with the vast majority being regarded as synonyms of *C. gloeosporioides*.

– ***Hendersonia gaillonii* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 212. 1914. XXV: 390. IRAK. On old cortex of *Gaillonnia olivieri*, between Kalaat (etym.: fortress) Scherget (Assuria) and Al-Hadr (Hatra), Mesopotamia, 250 m, 12 May 1910, *leg.* Handel-Mazzetti no. 1100 p. p.

The genus name *Hendersonia* Berk. has been rejected in favour of *Stagonospora* (Sacc.) Sacc. for which a monographic treatment is not yet available (Sutton 1980).

– ***Hendersonia haloxylis* Trott.** – Nuovo Giornale Botanico Italiano, N.S. 23: 24. 1916. XXV: 378. LIBYA. On branches of *Hammada schmitiana*, Zanzur, Tripoli, Mar. 1913, *leg.* Trotter; H.: not in PAD.

– ***Hendersonia mesopotamica* Petrak** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 50: 496. 1939, publ. 1940. H: Herb. Petrak. W. IRAK. On dead leaves of *Eragrostidis cynosuroidis*, between the cities of Chanikin and Baghdad, 18 Aug. 1937 (No. 2455), *leg.* K.H. Rechinger.

– ***Hendersonia pegani* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 212. 1914. XXIV: 1037. SYRIA. On the cortex of *Pegani harmalae*, at the border between Mesopotamia and northern Arabia, in the steppe at the middle part of the river Euphrates, between Meskene and Der El-Sor, close to the village of Sabcha, 250-350 m, 28 Mar. 1910, *leg.* Handel-Mazzetti no. 522 p. p.

– ***Hendersonia sarmentorum forma major* Trotter.** – Nuovo Giornale Botanico Italiano, N.S. 23: 24. 1916. XXV: 377. LIBYA. On twigs of *Ferula* sp., near Nalut, Apr. 1914, *leg.* Trotter; H.: not in PAD.

Trotter (1916) was probably unaware that few years before describing the *forma major*, the following combination had been established: *Hendersonulina sarmentorum* (Westend.) Tassi – Bulletin del Laboratorio ed Orto Botanico della Reale Università di Siena 5: 60. 1902, for *Hendersonia sarmentorum* Westend. – Bulletins de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles 18: no. 60. 1851.

– ***Hendersonia spodiopogonis* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 213. 1914. XXV: 383. IRAK. On the leaf sheath of *Spodiopogonis pogonanthi*, at the northern part of Mar (lake) Jakob close to the city of Mossul, Kurdistan, 400-600 m, 24 Oct. 1910, *leg.* Handel-Mazzetti no. 3191 p. p.

– ***Hyalothyridium leptitanum* Sacc. & Trotter.**, in Trotter – Annales mycologici 10: 513. 1912. XXII: 1086. LIBYA. On decorticated branches of *Rhus tripartita*, LebDAH, Mar. 1912, *leg.* Trotter; H.: PAD.

Hyalothyridium Tassi (a *Camarosporium* Schulz. counterpart with hyaline spores) was recently reinstated by Latterell & Rossi (1984); based on the provided description, both authors consider *H. leptitanum* as a legitimate taxon. *Hyalothyridium calamagrostidis* Greene – Transactions of the Wisconsin Academy of Science, Arts & Letters 36: 230. 1946, publ. 1947, was subsequently renamed *Ophanocoela calamagrostidis* (Greene) Nag Raj – Canadian Journal of Botany 67: 3177. 1989.

– ***Hymenopsis afra* Sacc. & Trotter.** – Annales mycologici 11: 419. 1913. XXV: 987. LIBYA. On twigs of *Genista* sp., at Ain Zara and Bir Tobras, Tripoli, Mar. 1913, *leg.* Trotter; H.: PAD.

Nag Raj (1993) has recently included this taxon among the group of “Unexamined and Excluded taxa” of *Hymenopsis* Sacc. species after his treatment of the genus. *Hymenopsis afra* is then reported to develop on dead branches of *Retama* sp.

– ***Leptothyrium thymi* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 216. 1914. SYRIA. On old twigs of *Thmus syriacus*, close to the ruins of the city of Gharra, at the middle point of the northern footpath of Dschebel (etym.: Mount) Abd El-Asis, Mesopotamia, 500-900 m, 22 Jun. 1910, *leg.* Handel-Mazzetti no. 1763.

The name is not cited in Reed & Farr (1993).

– ***Macrophoma calotropidis* (Thüm.) Berlese & Voglino** – Atti della Società Veneto-Trentino di Scienze Naturali in Padova 7: 198. 1886, tab. 2, fig. 9. X: 204.

≡ *Sphaeropsis calotropidis* Thüm. – Grevillea 6-7: 51. 1879-80. III: 114; XV: 391. EGYPT. On senescent leaves of *Calotropidis procera*, a village of Berber in Nubia, Higher Egypt, 1866, *leg.* Schweinfurth.

= *Phoma calotropidis* (Thüm.) Sacc., in Saccardo – *Sylloge Fungorum* III: 114. 1884.

Sutton (1980) synonymised *Macrophoma* (Sacc.) Berl. & Voglino with *Sphaeropsis* Sacc. Denman *et al.* (2000) suggested that *Sphaeropsis* and *Lasiodiplodia* Ellis & Everh. are synonyms of *Diplodia* Fr. Since the generic limits of *Macrophoma* are still a matter of debate, the status of the fungus collected in Higher Egypt is thus uncertain.

– ***Macrophoma engleriana* Reichert** – Botanische Jahrbücher für Systematik 56: 712. 1921. XXVI: 900. EGYPT. On stems of *Anabasis articulatis*, Cairo, 1822/25, leg. Ehrenberg.

– ***Macrophoma pituranthi* Sacc. & Trott.**, in Trotter – Annales mycologici 10: 513. 1912. XXII: 910. LIBYA. On living branches of *Pituranthus tortuosus*, Gargarish, Tripoli, Feb. 1912, leg. Trotter; H.: not in PAD.

– ***Melanconium echinosporum* Reichert** – Botanische Jahrbücher für Systematik 56: 715. 1921. XXVI: 1246. EGYPT. On leaves of *Phragmites communis* var. *isiacae*, locality ?, Mar. 1822/25, leg. Ehrenberg.

No modern revision of taxa ascribed to this generic entity has yet been undertaken (Sutton 1980).

– ***Microdiplodia machlaiana* Reichert** – Botanische Jahrbücher für Systematik 56: 714. 1921. XXVI: 1074. EGYPT. On dry stems of *Phragmites communis* var. *isiacae*, locality ?, 1822/25, leg. Ehrenberg.

According to Sutton (1977) there is no type species designated for *Microdiplodia* Allesch. nor any authentic cultures, and thus its taxonomic position remains uncertain. Following Dumm *et al.* (2008) there are over 300 names ascribed for the genus, most of them are not connected to any teleomorph genus and are also of uncertain position within the Ascomycetes.

– ***Microdiplodia pegani* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 212. 1914. XXIV: 1037. SYRIA. On cortex of *Peganum harmala*, at the borders between Mesopotamia and northern Arabia, in the steppe in the middle part of the river Euphrates river, between Meskene and Der El-Sor, close to the village of Sabcha, 250-350 m, 28 Mar. 1910, leg. Handel-Mazzetti no. 522 p. p.

– ***Microdiplodia pituranthi* Trott.** – Nuovo Giornale Botanico Italiano, N.S. 23: 23. 1916. XXV: 307. LIBYA. On branches of *Pituranthus* sp. (? *scoparia*), close to Bir Tescia, Garian, Apr. 1914, leg. Trotter; H.: not in PAD.

– ***Microdiplodia warburgiana* (Reichert) Natrass** – First list of Cyprus Fungi, Nicosia: 44. 1937.

≡ *Diplodia warburgiana* Reichert – Botanische Jahrbücher für Systematik 56: 715. 1921. XXVI: 1067. EGYPT. On dry stems of *Citrus medicus*, in the Nile island of Rhoda, Cairo, Feb. 1822/25, leg. Ehrenberg.

– ***Monostichella salicis* (Westend.) Arx** – Verhandelingen der Koninklijke Nederlandsche Akademie van Wetenschappen. Afdeling natuurkunde 51 (3): 131. 1957.

≡ *Gloeosporium salicis* Westend. – Herbarium Cryptogamiae de Belgique, exs. 1269.

= *Gloeosporium mesopotamicum* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 217. 1914; synonymy *fide* von Arx (1957). SYRIA. On living leaves of *Salix acmophylla*, at the middle region of the river Chabour (Nahr Khabur) close to Hsitsche, 400 m, 18 Jun. 1910, leg. Handel-Mazzetti no. 1683.

Two other synonyms are listed by Sutton (1980).

A modern description is provided by Sutton (1980). The fungus has a worldwide distribution on *Salix* spp. (Sutton 1980: 517).

– ***Phoma exigua* Desm. var. *exigua*** – Annales des Sciences Naturelles, Botanique, Sér. 3, 11: 282. 1849.

= *Phoma linicola* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 203. 1914 [not *Phoma linicola* E.J. Marchal & Verplancke – Bulletin de la

Société Royale de Botanique de Belgique 59: 22. 1926: now *Phoma exigua* var. *linicola* (Naumov & Vassiljevsky) P.W.T. Maas; not *Phoma linicola* Naumov – Materialy po mikologii i fitopatologii Rossii. Petrograd 5: 3. 1926: *Macrophomina* sp. ?]; synonymy *vide* Boerema *et al.* (2004: 250). XXV: 104. IRAK. On dead twigs of *Linus mucronatus*, in the mountains of Dschebel Sindschar above the fortress of Sindschar, Mesopotamia, 1200 m, 9 Jul. 1910, *leg.* Handel-Mazzetti no. 1491. For the large number of other established synonyms, see Boerema *et al.* (2004: 240-254).

A modern description of the coelomycete is provided by Boerema *et al.* (2004: 241). A wound and weak parasitic soil fungus of worldwide distribution, which in Eurasia has been isolated from 200 different host genera (Boerema *et al.* 2004).

– ***Phoma meliicola* Sacc. & Trotter**, in Trotter – Annales mycologici 10: 513. 1912. XXII: 871. LIBYA. On inflorescences of *Melia azedarach*, close to Tripoli, Mar. 1912, *leg.* Trotter; H.: not in PAD.

This species name is among the few binomials not reported in the recent treatment of the genus published by Boerema *et al.* (2004).

– ***Phoma nitrariae* var. *andreucciana* A. Nannizi** – Contributo alla Flora della Libya: 4. 1912. XXV: 116, as “subspecies”. LIBYA. On twigs of *Nitraria retusa*, LebDAH, May 1912, *leg.* Nannizi; H.: not in PAD.

Phoma nitrariae (Thüm.) Sacc., in Saccardo – *Sylloge fungorum* 3: 86. 1884 [= *Sphaeropsis nitrariae* Thüm. – Pilzflora Sibiria no. 792], has not yet been re-assessed (Boerema *et al.* 2004).

– ***Phoma sorghina* (Sacc.) Boerema, Dorenbosch & Kesteren** – Persoonia 7 (2): 139. 1973.

≡ *Phyllosticta sorghina* Sacc. – *Michelia* 1 (2): 140. 1878.

= *Phoma depressitheca* Bubák – *Annalen des K. K. Naturhistorischen Hofmuseums. Wien* 28: 203. 1914; synonymy *vide* Boerema *et al.* 2004. XXV: 94. IRAK. On dead leaves of *Eragrostidis cynosuroides*, collected in an irrigation ditch, close to the village of Kwerisch (Babylon), 100 m, 17 Jun. 1910, *leg.* Handel-Mazzetti no. 870.

For the large number of similarly established synonyms, see Boerema *et al.* (2004).

A modern description is provided by Boerema *et al.* (2004: 207). A soil and seed fungus of worldwide distribution, particularly in the tropics and subtropics; occasionally observed in temperate regions, especially on plants in glasshouses, and in regions with a continental climate (Boerema *et al.* 2004: 210).

– ***Phoma teucris* Bubák** – *Annalen des K. K. Naturhistorischen Hofmuseums. Wien* 28: 204. 1914 [non *Phoma teucris* Gonz. Frag. – *Boletín de la Real Sociedad Española de Historia Natural* 23: 317. 1923; illegitimate]. XXV: 97. IRAK. On dead cortex of *Teucri oliverianai*, at the borders between Mesopotamia and northern Arabia, in the middle part of the river Euphrates, between Abou Kamal and Ramadi, in the desert below the fortress of Hit, 120-180 m, 10 Apr. 1910, *leg.* Handel-Mazzetti no. 857.

The name was not treated by Boerema *et al.* (2004) in the recent “*Phoma* Identification Manual”.

– ***Phyllosticta ephedrae* Trotter**. – *Nuovo Giornale Botanico Italiano, N.S.* 23: 21. 1916. XXV: 40. LIBYA. On the tops of young branchlets of *Ephedra altissima*, Bu Tuil, near Tarhuna, Tripolitania, May 1913, *leg.* Trotter; H.: not in PAD.

According to van der Aa & Vanev (2002: 200), the published protologue points to *Asteromella* Pass. & Thüm. On *Ephedra*, however, no *Asteromella* has

been described so far but five *Mycosphaerella* species have been recorded on plants of this genus but their relevant spermatial stages still remain unknown. In the absence of type material no final decision about this *Phyllosticta* could thus be made (van der Aa & Vanev 2002: 200).

– ***Phyllosticta perpusilla* Sacc.** – *Bulletino della Societa Botanica Italiana* 22: 155. 1913. XXV: 44. LIBYA. On dead stems of *Juncus acutus*, Ain Zara, Tripoli, 19 Feb. 1913, *leg.* R. Pampanini; H.: PAD.

Van der Aa & Vanev (2002: 357) emphasized that the fungus described under this name belongs most likely to *Asteromella*: pycnidia densely gregarious, small, 50-60 µm diam.; conidia oblong, hyaline, 3 × 1 µm. On this host genus, no *Asteromella* has been described as yet but ten *Mycosphaerella* species are known on it without indication of spermatial stages in their life cycles. Apparently van der Aa & Vanev did not succeed in locating the authentic type material of *Phyllosticta perpusilla*.

– ***Piggottia ulmi* (Grev.) Keissler** – *Annalen des K. K. Naturhistorischen Hofmuseums Wien* 46: 207. 1933.

≡ *Asteroma ulmi* Grev. – *Flora Edinensis Edinburgh* 368. 1824.

= *Basiascella gallarum* Bubák – *Annalen des K. K. Naturhistorischen Hofmuseums. Wien* 28: 216. 1914; synonymy *fide* Sutton (1980). XXV: 511. IRAK. On leaves of *Ulmus campestris*, between Beloris and Balak at the River Bohtan, mid-Kurdistan, 500-600 m, 17 Oct. 1910, *leg.* Handel-Mazzetti no. 2986.

Two other synonyms are reported by Sutton (1980).

Teleomorph: *Platychora ulmi* (Schleich.) Petrak – *Annales mycologici* 23: 103. 1925.

≡ *Sphaeria ulmi* Schleich. – *Plantae Cryptogamae Helveticae* 1 (nos. 1-100): 73. 1805.

A modern description of this coelomycete was provided by Sutton (1980: 337). *Basiascella gallarum* is the type species of *Basiascella* Bubák (Bubák 1914). Sutton (1977) reported that host characteristics and the presence of continuous conidia distinctly truncated at the base, favours the synonymy of the Iraki fungus with *Piggotia ulmi*. The fungus induces leaf lesions in several species of *Ulmus*.

– ***Placosphaeria ? coronillae* Sacc., ad interim** – *Annales mycologici* 11: 566. 1913; *Bulletino della Societa Botanica Italiana* 22: 155. 1913. XXV: 207. LIBYA. On leaves of *Coronilla scorpioides*, Wadi Zafranina, Mesellata, Tripolitania, Apr. 1913, *leg.* R. Pampanini; H.: PAD.

This species of *Placosphaeria* (De Not.) Sacc. awaits to be reconsidered pending re-examination of type material (Sutton 1980).

– ***Placosphaeria ephedrina* Bubák** – *Annalen des K. K. Naturhistorischen Hofmuseums. Wien* 28: 205. 1914. XXV: 207. IRAK. On old twigs of *Ephedra alba*, in the steppe at the salt marshes of El Chattunije, between the river Chabur and Dschebel Sindschar, Mesopotamia, 400 m, 14 Jun. 1910, *leg.* Handel-Mazzetti no. 1612 p. p.

The relevant Iraki specimen has apparently not been the subject of any subsequent taxonomic treatment (Sutton 1980).

– ***Pseudoseptoria stomaticola* (Bäumler) B. Sutton** – *The Coelomycetes*: 98. 1980.

≡ *Phyllosticta stomaticola* Bäumler – *Oesterreichische Botanische Zeitschrift* 39: 289. 1889.

= *Septoria oxyspora* var. *penniseti* Trott. – *Nuovo Giornale Botanico Italiano*, N.S. 23: 26. 1916; synonymy *fide* Sutton (1980). XXV: 428. LIBYA. On leaves and

culms of *Pennisetum dichotomum* var. *subplumosum*, El-Gheriat, Tripoli, Apr. 1914, *leg.* Trotter; H.: not in PAD.

Ten other synonyms and relevant combinations are included in Sutton (1980).

The fungus causes leaf spots on a number of grasses (van der Aa & Vanev 2002: 441).

– *Rhabdospora ephedrigena* **Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 207. 1914. XXV: 465. IRAK. On old twigs of *Ephedra alba*, at the salt marshes of El Chattunije, between the river Chabur and Dschebel Sindschar, Mesopotamia, 400 m, 14 Jun. 1910, *leg.* Handel-Mazzetti no. 1612 p. p.

The generic epithet *Rhabdospora* (Dur. & Mont.) Mont. has not been the subject of a conservation procedure (Sutton 1977) but no general account of its taxa have yet been undertaken.

– *Rhabdospora jefrensis* **Trott.** – Nuovo Giornale Botanico Italiano, N.S. 23: 25. 1916. XXV: 465. LIBYA. On dead twigs of *Moricandia arvensis*, Wadi Sert, Yefran, Tripolatania, Mar. 1912, *leg.* Trotter; H.: PAD.

– *Rhabdospora lunulata* **Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 208. 1914. XXV: 459. SYRIA. On dead twigs of *Alhagi camelorum*, at the limits between Mesopotamia and northern Arabia, on the right bank of the middle part of the river Euphrates, close to the fortress of Der El-Sor, 200 m, 1 Apr. 1910, *leg.* Handel-Mazzetti no. 601 p. p.

– *Rhabdospora spodiopogonis* **Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 208. 1914. XXV: 466. IRAK. On dead leaves sheaths of *Spodiopogonis pogomanthi*, at lake Mar Jakub, north of the city of Mossul, Kurdistan, 400-600 m, 24 Aug. 1910, *leg.* Handel-Mazzetti no. 3191 p. p.

– *Septogloeum saccardianum* **Trott.** – Nuovo Giornale Botanico Italiano, N.S. 23: 27. 1916. XXV: 590. LIBYA. On living leaves of *Silene stricta*, Ain Maimuna, Garian, Tripolitania, Apr. 1914, *leg.* Trotter; H.: not in PAD.

Following Sutton (1980), there are over 100 species described in *Septogloeum* Sacc. that are most probably not congeneric. Their definite relocation awaits the typification of some close but badly known genera.

– *Septoria apetala* **Magnus** – Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien 50: 446. 1900. PALESTINE-ISRAEL. On *Silene apetala*, plants growing at 200 m below sea level close to the city of Jericho, old Palestine territory, 1 May 1897, *leg.* Bornmüller no. 1032.

According to Priest (2006) there are at least two taxa on *Silene*: one a short-spored species with conidia 20-40 × 2 µm represented by *S. silenes* Westend., *S. dimera* Sacc., *S. dominii* Bubák and possibly *S. apetala* Magnus, and a longer-spored taxon with conidia 36-70 × 2.0-2.5 (-3.0) represented by *S. silenicola* Ellis & G.Martin, *S. silene-nutantis* C. Massal. and *S. doehlii* Syd. The definite taxonomic status of *S. apetala* awaits re-examination of authentic material.

– *Septoria polygongonis* **Sacc. & Trott.**, in Trotter – Annales mycologici 10: 513. 1912. XXII: 1118. LIBYA. On leaves of *Polygonum monspeliensis*, Gargarish, Tripoli, Mar. 1912, *leg.* Trotter; H.: not in PAD.

The species was not considered by Priest (2006). Two other accepted *Septoria* taxa were described on *Polygonum* hosts: *S. polygonati* Kabat & Bubák – Hedwigia 50: 41. 1909, observed on *P. multiflorum* in Bohemia and *S. polygonorum* Desm. – Annales des Sciences Naturelles, Botanique, Sér. 2, 17: 108. 1842, on *Polygonum* sp. (? *P. minus*), in France (Priest 2006).

KNOWN coelomycete taxa also reported by Bubák (1914) and Reichert (1921) for the Middle East

In order to give a complete survey of coelomycetes of the Middle East, names of known taxa included in Bubák (1914) and Reichert (1921) are also listed, including the current taxonomic status and original localities based on current political borders. For each species the place of citation in the respective document is indicated with the actual name of the country of collection; both data are cited in relation with the binomials used in Bubák's (1914) and Reichert's (1921) publications.

– *Ampelomyces quisqualis* Ces. ex Schtdl. – Botanische Zeitung 10: 301. 1852 [as *Cicinnobolus cesatii* De Bary]. Reichert 1921: 712. Two specimens are cited: On *Oidium* sp. infecting *Vicia calcarata*, Village of Senures, Fayum depression, Higher Egypt, leg. Schweinfurth; on *O. erysiphoides* developing on *Linum usitissimum*, Village of Senures, Fayum depression, Higher Egypt, leg. Schweinfurth. EGYPT.

According to Ellis & Ellis (1985), the fungus is fairly common on powdery mildews, growing on the mycelial mat with most of the older records under the name *Cicinnobolus cesatii* De Bary.

– *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. – Atti Istituto Veneto di Scienze, Lettere ed Arti, Ser. 6, 2: 270. 1884 [as *C. gloeosporioides* Penz. – Michelia 2: 415. 1882]. Reichert 1921: 715. On *Citrus* flower, Cairo, 1913, leg. B.G. Bolland. EGYPT.

≡ *Vermicularia gloeosporioides* Penz. – Michelia 2 (no. 8): 450. 1882.

For most updated information about the exact status of *Colletotrichum gloeosporioides*, see under *Gloeosporium schweinfurthianum* (Part A). As recently stated by Cannon *et al.* (2008), the typification of *C. gloeosporioides* is the first step towards a clarification process of the true taxonomic relationships of the 700 names introduced for the genus.

– *Coniothecium effusum* Corda – *Icones Fungorum* 1: 2. 1837. Bubák 1914: 218. On standing twigs of *Populus euphraticus*, in an island of the river Tigris, at Baghdad city, leg. Handel-Mazzetti no. 911. IRAK.

– *Diplodia opuntiae* Sacc. – Michelia 2 (no. 7): 267. 1881. Reichert 1921: 714. On cladodes of *Opuntia ficus-indica*, Bulak, close to Cairo, 1822/25, leg. Ehrenberg. EGYPT.

– *Diplodina donacina* (Sacc.) Allescher, in Rabenhorst – Kryptogamenflora. VI. Abtheilung: Fungi Imperfecti I: 679. 1844-48. Reichert 1921: 714. On *Phragmites communis* var. *isiacae*, Cairo, Feb. 1822/25, leg. Ehrenberg. EGYPT.

Reichert (1921: 714) omitted to cite the basionym of this combination, and he gave the following bibliographic reference: Saccardo – *Sylloge Fungorum* III: 406. This could be taken as an implicit indication that Reichert relied on the description of *Ascochyta donacina* Sacc. – Michelia 2 (no. 6) 1880, for the identification of the Egyptian specimen. Mel'nik (in Mel'nik *et al.* 2000) examined the holotype of *Ascochyta donacina*; he concluded it represents a Coelomycete of the *Phaeodidymae* group. The correct taxonomic position of this collection awaits re-examination.

– *Marssonina kriegeriana* (Bres.) Magnus – Hedwigia 45: 88. 1906.

≡ *Marssonia kriegeriana* Bres. – Hedwigia 32: 40. 1893; Kabat & Bubák – Fungi Imperfecti exsiccati no. 575. XI: 575. Reichert 1921: 716. On leaves of *Salix* sp., close to Alexandria, leg. Ch. de Blumencron. EGYPT.

According to Sutton (1980), *Marssonia* J.C. Fisher is a synonym of the conserved name *Marssonina* Magnus. However, the genus *Gloeosporium* Desm. & Mont. antedates *Marssonina* by several years, and if the respective type species are congeneric, as seems likely, the fungi at present placed in *Marssonina* should be transferred to *Gloeosporium* in accordance with nomenclatural priority (Sutton 1980). The fungus was also reported from Europe and the United States on the same host (Farr *et al.* 1989).

– ***Phyllosticta palmarum* Rabenh.** – Fungi Europaei Exsiccati, Ed. nov., Ser. 2, no. 2161. 1876. Reichert 1921: 712. On *Phoenix dactylifera*, on the banks of the river Nile, City of Esna, Higher Egypt, leg. E. Steinberg. EGYPT.

Recently van der Aa & Vanev (2002: 349) examined the holotype of the fungus: it contained only immature ascomata of an undetermined ascomycetous fungus. Collections cited under this binomial thus need to be re-assessed.

– ***Septoria koeleriae* Cocc. & Morini var. *koeleriae*** – Enumerazione del Funghi della Provincia di Bologna 2: no. 176. 1883. Bubák 1914: 207: On leaves of *Koeleria phleoidis*, leg. Handel-Mazzetti no. 2399. SYRIA.

The name was not accounted for by Priest (2006) in his treatment of species of *Septoria* Sacc. that were observed in Australia.

– ***Sphaerellopsis filum* (Biv.-Bern. ex Fr.) B. Sutton** – Mycological Papers 141: 196. 1977.

≡ *Phoma filum* Biv.-Bern. ex Fr. – Systema mycologicum 2: 547. 1823.

= *Darluca filum* (Biv.-Bern. ex Fr.) Berk. – Outline of British Fungology: 318. 1860 [as *Darluca filum* (Bivon.) Cast., in Castagne L. – Catalogue des plantes qui croissent naturellement aux environs de Marseille. Supplément, Aix : 53. 1851]. Reichert 1921: 714. Observed on *Uromyces striatus* J. Schröt. developing on *Medicago ciliaris*, City of Damietta, leg. Schweinfurth; on *Puccinia rottboelliae* J. Syd. & Syd. developing on *Rottboellia compressa* var. *fasciculata*, village of Farasun in the Delta, leg. Schweinfurth; on *Uredo* sp. developing on *Cynodon dactylon*, at San, Mar. 1822/25, leg. Ehrenberg. EGYPT.

Teleomorph: *Eudarluca caricis* (Fr.) Eriksson – Botaniska Notiser 119: 35. 1966.

For the several other known synonyms, see Sutton (1980: 471).

The fungus is a hyperparasite on Uredinales on various hosts and worldwide in distribution (Sutton 1980).

– ***Vermicularia culmifraga* Fr.** – Summa Vegetabilium Scandinaviae: 420. 1849. Reichert 1921: 713. On *Imperata cylindrica*, close to El-Marg, east of Cairo, 27 Apr. 1908, leg. Bornmüller. EGYPT.

The name was apparently overlooked by von Arx (1957).

NOVEL fungal taxa reported by Bubák (1914) but originating from present Turkey

Several specimens of the Handel-Mazzetti Expedition were collected in localities of the “former enlarged Kurdistan” involving parts of present-day Turkey, Syria and Irak. Among those originating from current Turkey, few proved to represent material of novel fungal taxa also described by Bubák (1914). They are treated below after an update of their taxonomic positions when relevant changes are known.

– ***Ascochyta kurdistanica* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 206. 1914. XXV: 325. On leaves of *Bulboschoenus*

maritimus (= *Scirpus maritimus*), south of Kjachta village, district Mamuret El-Asis, in the direction of the river Euphrates, Western Kurdistan, 600 m, 10 Jul. 1910, *leg.* Handel-Mazzetti no. 1974.

Mel'nik (in Mel'nik, Braun & Hagedorn 2000) retained the species in *Ascochyta* Lib. upon re-examination of authentic material. He provided the following description: Pycnidia between leaf veins, immersed, yellow, globose or irregularly globose-depressed, 90-130 µm diam. Pycnidial wall thin. Conidia oblong-ellipsoidal or cylindrical, both ends rounded, not constricted, 13-17 (20) × 4.5 µm.

– ***Ascochyta polygoni-setosi* (Bubák) Mel'nik** – Novosti Sistematiki Nizhikh Rastenii 8: 212. 1971.

≡ *Diplodina polygoni-setosi* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 206. 1914. XXV: 353. On dead twigs of *Polygonum setosum*, between Arghana Meden and Kalender Han, district of Diarbekir, 1100-1200 m, 1 Aug. 1940, *leg.* Handel-Mazzetti no. 2640.

According to Mel'nik (in Mel'nik, Braun & Hagedorn 2000), this species is well-characterised by having conspicuous conidiophores: Pycnidia protruding through the epidermis, dull black, globose-depressed or lentiform, circular in outline or ellipsoidal, 120-250 µm diam., with a circular pore, up to 25 µm diam. Pycnidial wall thick. Conidiophores cylindrical or slightly swollen on the apex, 10-24 × 2 µm. Conidia cylindrical, both ends rounded, straight, not constricted, 13-17 (20) × 2.5-3.5 (4) µm.

– ***Camarosporium noaeae* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 213. 1914 [non *Camarosporium noaeae* Kalymbetov – Trudy Botanicheskogo Instituta im. V.L. Komarova AN SSSR, Ser. II, 11: 274. 1956: illegitimate, homonym, Art. 64.1; non *Camarosporium noaeae* Kalymbetov – Notulae Systematicae e Sectione Cryptogamic Instituti Botanici Academiae Scientiarum URSS 13: 248. 1960: illegitimate, homonym, Art. 64.1]. XXV: 396. On old twigs of *Noaeae tournefortii*, between the city of Malatya and the village of Kjachta, on the hills above Karatschor in the direction of Kumik, Western Kurdistan, 1600-1700 m, 16 Jul. 1910, *leg.* Handel-Mazzetti no. 2263 p. p.

Camarosporium Schulzer contains about 400 names and is in urgent need of revision (Sutton 1980).

– ***Camarosporium onobrychidis* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 213. 1914. XXV: 398. On old twigs of *Onobrychidis cornutae*, Mount Nimrud Dagh, village of Kjachta, district Mamuret El-Asis, Western Kurdistan, 1600-2250 m, 12 Aug. 1910, *leg.* Handel-Mazzetti no. 2086.

– ***Coniothyrium grandisporum* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 209. 1914. XXV: 236. On a dry tree of *Quercus infectoria*, village of Kjachta, district Mamuret el Asis, in the direction of Tschut, Western Kurdistan, 1000 m, 15 Jul. 1910, *leg.* Handel-Mazzetti no. 3166.

– ***Dendrophoma podanthi* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 204. 1914. XXV: 168. On leaves of *Asyneuma (Podanthi) lanceolata*, between Malatja and Kjachta, close to Kory, 1950 m, 19 Aug. 1910, *leg.* Handel-Mazzetti no. 2490 p. p.

Dendrophoma Sacc. was reduced to synonymy with *Dinemasporium* Lév., but taxa ascribed to the former have not yet been reallocated to proper genera (Sutton 1977).

– *Hendersonia acanthophylli* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 212. 1914. XXV: 378. On twigs of *Acanthophyllum verticillatus*, in the vicinity of Kjachta, district Mamuret El-Asis, in the direction of the river Euphrates, on the dry sloping land close to the village of Karambura, Western Kurdistan, 650 m, 9 Jul. 1910, leg. Handel-Mazzetti no. 1133.

The status of this taxon awaits to be re-evaluated (Sutton 1980).

– *Leptothyrium podanthi* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 215. 1914. XXV: 495. Two specimens are listed: On the highest living leaves of an *Asynemna* (*Podanthi*) *amplexicaulis* plant, between Malatya and Kjachta, in the descending fertile lands of Mount Gok Tepe, in the direction of Kumik, Western Kurdistan, 2000 m, 16 Jul. 1910, leg. Handel-Mazzetti no. 2275; on leaves of *Asynemna lanceolata*, in the same locality but closer to Kory, 1950 m, 19 Jul. 1910, leg. Handel-Mazzetti no. 2498 p. p.

The generic limits of *Leptothyrium* Kunze, in Kunze & J.C. Schmidt, have recently been redefined but known taxa await reconsideration (Sutton 1980).

– *Microdiplodia handelii* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 211. 1914. XXV: 306. On old twigs of *Thesus tauricolus*, Mount Nimrud Dagh, village of Kjachta, district Mamuret el-Asis, Western Kurdistan, 2200-2250 m, 12 Jul. 1910, leg. Handel-Mazzetti no. 2112 p. p.

For comment on the species, see under *Microdiplodia machlaiana* (Part A).

– *Microdiplodia noaeae* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 211. 1914. XXV: 295. On old twigs of *Noaeae tournefortii*, between Malatya and Kjachta, in the descending slopes above Karatschor in the direction of Kumik, Western Kurdistan, 1600-1800 m, 16 Jul. 1910, leg. Handel-Mazzetti no. 2263 p. p.

– *Neozythia handelii* (Bubak) Petr. – Sydowia, Annales mycologici 13: 9. 1959.
 ≡ *Roumegueriella handelii* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 214. 1914. XXV: 486. On old twigs of *Asperula asperne*, growing among the stones, summit of Mount Meleto (Meretug) Dagh, district of Bitlis, 2900-3100 m, 18 Aug. 1910, leg. Handel-Mazzetti no. 2747 p. p.

The taxonomic position of the ascomycetous genus *Roumegueriella* Speg., in Roumeguère & Spegazzini – Revue Mycologique, Toulouse 2: 18. 1880, has recently been reconsidered by Rossman *et al.* – Studies in Mycology 42: 69-70. 1999. These authors accepted two species: *Roumegueriella rufula* (Berk. & Broome) Malloch & Cain – Canadian Journal of Botany 50: 64. 1972, and a second species *R. pulchella* Udagawa *et al.* (1994); the latter is differentiated by the small, ellipsoid ascospores, 6.5-8 × 4-5 µm, and the lack of an anamorph of the *Gliocladium* type. The genus was however introduced with the type species *Roumegueriella muricospora* Speg., presently regarded as a synonym of *R. rufula* [≡ *Chaetomium rufulum* Berk. & Broome – Annals and Magazine of Natural History, Ser. 4, 11: 348. 1873]; the developing *Gliocladium*-like anamorph is apparently still unnamed.

According to Rossman *et al.* (1999) Spegazzini's generic description of *Roumegueriella* stated that the genus stands questionably between "*Sphaeropsideos et Hyphomycetes*": he apparently did not see asci in the type specimen and considered this to be an asexual fungus. Hughes (1951) and later Malloch & Cain (1972) reviewed the history of the genus noting that it is a cleistothecial ascomycete. Within the Hypocreales, *Roumegueriella* is one of six cleistothecial genera; it is most closely allied with another

cleistothecial genus, *Heleococcum* C.A. Jorg., both of which were confirmed as members of the Hypocreales using molecular data (Rehner & Samuels 1995).

Convinced of the coelomycetous nature of Spegazzini's taxon, Bubák introduced *Roumegueriella handelii* having pycnidia gelatinous, oblong to globose, golden brown to reddish in colour, 150-250 µm diam., with conidia 1-celled, globose to ovoid, 5-7 µm diam. The confusion could have been generated by the general aspect of the superficial structures produced by *Roumegueriella rufula* which are, however, ascomatal in nature; these superficial structures are also irregularly globose and dark yellow to reddish brown in colour, thus approximating the pycnidia of Bubák's coelomycete.

Petrak (1959) re-examined the original specimen of *Roumegueriella rufula*. He concluded it represents a second species of his genus *Neozythia* Petr., type species *N. nectrioidea* (Petr.) Petr. – Sydowia 11: 351. 1958. This new generic epithet was introduced after the discovery that *Sclerozythia* Petr. – Sydowia 9: 539. 1955, type species *S. nectrioidea* Petr., was a homonym of *Sclerozythia* Petch, type species *S. brassicae* Petch, in Grove – British Stem- and Leaf-fungi 2: 363. 1937. Petrak (1959) then proposed the new combination: *Neozythia handelii* (Bubák) Petr.

– ***Phacidiella asperulina* (Bubák) B. Sutton** – The Coelomycetes: 31. 1980.

≡ *Ramulariospora asperulina* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 216. 1914. XXV: 531. On dead stems of *Asperula asperne*, Mount Meleto Dagh, district of Bitlis, middle Kurdistan, 2900-3100 m, 11 Aug. 1910, leg. Handel-Mazzetti no. 2747; H.: IMI 194251 ex BPI.

Ramulariospora asperulina is the type species of *Ramulariospora* Bubák established to accommodate the present coelomycete. According to Sutton (1980), although this genus was described to have 1-septate conidia, the examination of the type (IMI 194251, holotype ex BPI) showed only aseptate conidia; consequently the genus was reduced to synonymy with *Phacidiella* Karst. The specific epithet was erroneously cited as “*tomispora*” by Sutton (1980: 31).

– ***Phoma astragalina* (Gonz. Frag.) Boerema & Kesteren** – Persoonia 11: 317. 1971.

≡ *Ceuthospora astragalina* Gonz. Frag. – Boletín de la Royal Sociedad Española de Historia Natural 18: 84. 1918.

= *Phoma dianthi* (Bubák) Bubák – Annales mycologici 13: 30. 1915 [non *Phoma dianthi* Sacc. & Malb. – Atti del Reale Istituto Veneto di Scienze, Lettere ed Arti 6, 1: 1276. 1883: illegitimate, a homonym, now a *Phomopsis* sp.; non *Phoma dianthi* Ellis & Everh., in Langlois A.B. – Catalogue provisoire de plantes phanérogames et cryptogames de la Basse-Louisiane, Etats-Unis d'Amérique: 32. 1887: *nomen nudum*; non *Phoma dianthi* Lagière – Annales de l'Ecole Nationale d'Agriculture de Grignon, Sér. 3, 5: 160. 1946: illegitimate, a homonym, now a *Phomopsis* sp.]; synonymy *vide* Boerema & Kesteren (1971).

≡ *Plenodomus dianthi* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 204. 1914. XXV: 85. On dead stems of *Dianthis orientalis*, Mount Nemrud Dagh, village of Kjachta (Kähta), District Mamuret El-Asis, Western Kurdistan, 2000-2500 m, 12 Jun. 1910, leg. Handel-Mazzetti No. 2057 p. p.

For other synonyms, see Boerema *et al.* (2004).

The several homonyms proposed for the coelomycete under the binomial *Phoma dianthi* favoured the adoption of the new combination *Phoma astragalina* based on the next published oldest name (Boerema & Kesteren 1971). Later on,

Boerema, Gruyter & Kesteren (1994) validated *Phoma* Sacc. section *Plenodomus* Preuss, proposed for pycnidial states related to the ascomycetous genus *Leptosphaeria* Ces. & De Not.

A modern description of *Phoma astragalina* was provided by Boerema *et al.* (2004: 341-342). The fungus is a plurivorous necrophyte frequently found in the mountains of south-western Asia, but appears to occur also in the mountains of Central Europe. Most records are from dead stems of herbaceous plants, especially *Astragalus* spp., but this *Phoma* has also been found on dried branches of a shrub.

– ***Phoma bacteriosperma* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 203. 1914. XXV: 91. On dead twigs of *Heldreichia rotundifolia*, Mount Ak Dagh, between Malatya and Kjachta, Western Kurdistan, 2250-2670 m, 17 Jun. 1910, *leg.* Handel-Mazzetti no. 2304 p. p.

This species of *Phoma* Sacc. and the relevant combination *Sclerophomella bacteriosperma* (Bubák) Petrak & Sacc. – Annales mycologici 8: 212. 1924, were not reported by Boerema *et al.* (2004) in their recent treatment of the genus.

– ***Phoma handelii* (Bubák) Bubák** – Annales mycologici 13: 30. 1915.

≡ *Sclerophoma handelii* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 205. 1914. XXV: 117. Two collections are cited: On old twigs of *Thesi tauricoli*, in the stony summit of Mount Nimrud Dagh, Village of Kjachta, district Mamuret el-Asis, Western Kurdistan, 2200-2250 m, 12 Jul. 1910, *leg.* Handel-Mazzetti no. 2112 p. p.; on old twigs of *Campanula stricta*, same locality, *leg.* Handel-Mazzetti no. 2114 p. p.

A monographic treatment of the genus *Sclerophoma* Höhn. has not yet been made (Sutton 1980). Besides, the present coelomycete is not discussed by Boerema *et al.* (2004).

– ***Placosphaeria tragii* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 205. 1914. XXV: 208. On leaves of *Pimpinella tragii*, between Malatya and Kjachta, above the woods extending between Bekikara and Tschat, Western Kurdistan, 1800-1900 m, 19 Jul. 1910, *leg.* Handel-Mazzetti no. 2473.

– ***Rhabdospora grossetexta* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 208. 1914. XXV: 460. On dead twigs and leaf sheaths of *Asynemnae (Podanthi) lobeloidie*, Mount Ak Dagh, between Malatya and Kjachta, Western Kurdistan, 2500-2700 m, 17 Jul. 1910, *leg.* Handel-Mazzetti no. 2339.

The fungus has apparently not been reported since its description (Sutton 1980).

– ***Sclerosphaeropsis heldreichiae* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 209. 1914. XXV: 260. On dead twigs of *Heldreichia rotundifolia*, Mount Ak Dagh, between Malatya and Kjachta, Western Kurdistan, 2250-2670 m, 17 Jun. 1910, *leg.* Handel-Mazzetti no. 2304 p. p.

This is the type species of the genus *Sclerosphaeropsis* Bubák. Sutton (1977) reconsidered its history and concluded in the absence of authentic material, the genus should be regarded as doubtful.

– ***Septoria aperae-interruptae* Bubák** – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 207. 1914. XXV: 426. On leaves of *Apera interrupta*, in a

humid place between Bekikara and Kory, located between Malatya and Kjachta, Western Kurdistan, 1600-1800 m, 19 Jul. 1910, *leg.* Handel-Mazzetti no. 2486 p. p.

Septoria Sacc. has been the subject of a conservation procedure but this extremely large genus is in urgent need of a modern general account (Sutton 1980, Priest 2006).

– *Sphaeropsis heterogena* Bubák – Annalen des K. K. Naturhistorischen Hofmuseums. Wien 28: 209. 1914. XXV: 254. Two collections are cited: On dead twigs of *Noaëae tournefortii*, in the sloping downlands above the village of Karatschar, in the direction of Kumik, between Malatya and Kjachta, Western Kurdistan, 1600-1700 m, 17 Jul. 1910, *leg.* Handel-Mazzetti no. 2263 p. p.; on leaves of *Galii incani*, Mount Ak Dagħ situated in the same region, 2500-2670 m, 17 Jul. 1910, *leg.* Handel-Mazzetti no. 2340 p. p.

DISCUSSION

For the period under consideration, novel coelomycetes from the Middle East form a group of 61 taxa (Tab. 1). Their protologues were elaborated by European mycologists active in Austria and Germany (Bubák, Magnus, Petrak, Reichert and Thümen) and in Italy (Nannizi, Parisi, Tassi, Trotter and Saccardo). The new taxa were commonly introduced as species of known genera; only four units of subspecific rank, forma or variety, were proposed commonly by the Italian mycologists. The new genus *Basiascella* Bubák, type species *B. gallarum* Bubák, was erected for a coelomycete developing on leaves of *Ulmus campestris* in Irak; it is presently regarded as matching *Piggotia ulmi* (Grev.) Keissler. All the relevant holotypes developed on plant material, living, senescent or dead which is not surprising since the plant substrates were collected by botanists exploring the local higher green plants. No attempt had apparently been made to prepare living cultures of these novel taxa.

Four names were introduced before the turn of the 19th century. The oldest are *Gloeosporium schweinfurthianum* and *Sphaeropsis calotropidis*, both included in the 2nd list of Egyptian fungi published by F. von Thümen in 1879-80. The list comprises 24 taxa identified from a batch of specimens received from Schweinfurth. Additional early species are *Diplodia aegyptiaca* var. *aegyptiaca* Tassi and the sole element from the Palestine area: *Septoria apetala* Magnus, collected by J. Bornmüller in 1897.

Interestingly the first decade of the 20th century is not linked to any new coelomycete. Most of the taxa of this fungal group are from the second decade: 78.3% of the novelties; their original localities are in present-day Libya, Irak and Syria. The 7 coelomycetes of the 3rd decade (11.7%) basically are from the Nile Valley since only *Diplodina smyrnii* was collected by R. Cavara in Libya in 1922. The fourth decade is simply associated with two species introduced by Petrak (1939).

The introduction of the 25 Libyan taxa (42.6% of the group) correlates with the Italian occupation of the country in 1911; these were wholly described by Saccardo and Trotter in a relatively short period from 1912-1916 since only *Diplodina smyrnii* Parisi was introduced in 1922. Elements of the second half of the group originate from Irak (29.5%) and to a less extent from Egypt (14.8%) or Syria (11.5%). The Iraki and Syrian taxa (respectively 17 and 6) are from Bubák

Table 1. Present taxonomic positions of novel coelomycetous taxa retrieved.

– Generic Transfer
Camarosporium pygmaeum (Sacc.) van Warmelo & B. Sutton, *Stegosporium pygmaeum* Sacc. 1913
Macrophoma calotropidis (Thüm.) Berlese & Voglino, *Sphaeropsis calotropidis* Thüm. 1878-1880
Microdiplodia warburgiana (Reichert) Natrass, *Diplodia warburgiana* Reichert 1921

– Synonymy
Monostichella salicis (Westend.) von Arx, *Gloeosporium mesopotamicum* Bubák 1914
Phoma exigua Desm. var. *exigua*, *Phoma linicola* Bubák 1914
Phoma sorghina (Sacc.) Boerema, Dorenbosch & Kesteren, *Phoma depressitheca* Bubák 1914
Piggotia ulmi (Grev.) Keissler, *Basiascella gallarum* Bubák 1914
Pseudoseptoria stomaticola (Bäumler) B.C. Sutton, *Septoria oxyspora* var. *penniseti* Trott. 1916

– Original Names Unchanged
a – Not re-evaluated since
Aposphaeria rhois Sacc. & Trott. 1912
Ascochyta syriaca Petr. 1939
Camarosporium pegani Bubák 1914
Camarosporium sarcinosporum Bubák 1914
Camarosporium tarhunense Sacc. 1913
Coniothyrium acaciae Trott. 1916
Coniothyrium diedickeanum Reichert 1921
Coniothyrium galii Trott. 1916
Coniothyrium globiparum Bubák 1914
Coniothyrium mesopotamicum Bubák 1914
Coniothyrium nitrariae Bubák 1914
Coniothyrium rude Bubák 1914
Coniothyrium sporoboli Reichert 1921
Coniothyrium stigmatoidium Sacc. 1913
Coniothyrium subcrustaceum Bubák 1914
Coniothyrium tenue Bubák 1914
Cylindrosporium septatum forma *smyrnii-olusatri* Sacc. & Trott. 1913
Didymosporium australe Sacc. & Trott. 1912
Diplodia aegyptiaca F. Tassi var. *aegyptiaca* 1896
Diplodina acaciae Trott. 1916
Diplodina rhachidicola Bubák 1914
Diplodina smyrnii R. Parisi 1928
Gloeosporium schweinfurthianum Thüm. 1878-1880
Hendersonia gaillonii Bubák 1914
Hendersonia haloxylis Trott. 1916
Hendersonia mesopotamica Petrak 1939
Hendersonia pegani Bubák 1914
Hendersonia sarmentorum forma *major* Trott.
Hendersonia spodiopogonis Bubák 1914
Hymenopsis afra Sacc. & Trott. 1913
Leptothyrium thymi Bubák 1914
Macrophoma engleriana Reichert 1921
Macrophoma pituranthi Sacc. & Trott. 1912
Melanconium echinosporum Reichert 1921
Microdiplodia machlaiana Reichert 1921
Microdiplodia pegani Bubák 1914
Microdiplodia pituranthi Trott. 1916
Phoma mellicola Sacc. & Trott. 1912
Phoma nitrariae var. *andreucciana* A. Nannizi 1912
Phoma teucris Bubák 1914
Phyllosticta ephedrae Trott. 1916
Phyllosticta perpusilla Sacc. 1913
Placosphaeria ? *coronillae* Sacc., *ad interim* 1913
Placosphaeria ephedrina Bubák 1914
Rhabdospora ephedrigena Bubák 1914
Rhabdospora jefrensis Trott. 1916
Rhabdospora lunulata Bubák 1914
Rhabdospora spodiopogonis Bubák 1914
Septogloeum saccardianum Trott. 1916
Septoria apetala Magnus 1900
Septoria polypogonis Sacc. & Trott. 1912

b – accepted
Ascochyta tripolitana Sacc. & Trott. 1912
Hyalothyridium leptitanum Sacc. & Trott. 1912

(1914) and their plant substrates were gathered by the 1910 Handel-Mazzetti expedition to the Orient; only *Ascochyella syriaca* Petr. 1939 was collected by Ehrenberg in Syria and *Hendersonia mesopotamica* Petr. 1939 from Irak by Reehinger.

The Egyptian subgroup (9 spp.) comprises three of the oldest taxa described and the novelties introduced by Reichert (1921). The holotypes of the latter were deposited in Berlin by Ehrenberg following his journey in 1820-25 in the region or sent by Schweinfurth before World War I. *Coniothyrium sporoboli* was collected in Egypt by R. Muschler in 1905. Finally the single element collected in Palestine by J. Bornmüller, *Septoria apetala* Magnus 1900, raises the number of involved modern political countries to five.

A taxonomic update of the original binomials indicates their present affiliation to 26 genera (Tab. 1): 11 comprise a large part of the new coelomycetes, while 15 others are simply represented by a single species each. Eleven novelties belong to *Coniothyrium*, a large genus in terms of the known number of species awaiting a modern general revision. The six *Hendersonia* species definitely belong to other coelomycetous genera. *Phoma* Sacc. (5 spp.) has received much attention in the last decades but not yet to a monographic level which is unfortunately not the case for most of the generic entities here associated with a limited number of taxa: *Camarosporium*, *Microdiplodia* and *Rhabdospora* (4 spp. each), *Diplodina* and *Macrophoma* (3 spp. each) or *Phyllosticta*, *Placosphaeria* and *Septoria* (2 spp. each).

The two major early reports on the fungi of Irak and Syria by Bubák (1914) and of Egypt by Reichert (1921) also include the names of ten known coelomycetes, observed mostly in Egypt (8 spp.) rather than in either Irak or Syria. The material of the Egyptian fungi was dispatched to the Berlin Botanical Garden by Schweinfurth (3 taxa), Ehrenberg (2 taxa) and B.G. Rolland, Ch. de Blumencorn, E. Steinberg and J. Bornmüller (Reichert 1921). Specimens of the sole unit from Irak and from Syria are due to the Handel-Mazzetti expedition (Bubák 1914). The taxonomic positions of the 10 known taxa have also been updated. Among the affiliated genera, *Ampelomyces* Ces. ex Schltdl., *Marssonina* Magnus, *Sphaerellopsis* Cooke and *Vermicularia* Tode are additions to the genera of the 61 novel coelomycetes.

Bubák's report (1914) also provides protologues for 20 novel coelomycetes collected in the northern part of the former historically larger Turkistan, now in the present Turkey. The taxonomic positions of the Turkish novelties were also updated. Two of them had been selected as type species of new monotypic genera. That of *Ramulariospora* Bubák, *R. asperulina* Bubák, was later on assigned to *Phacidiella* P. Karst., as *P. asperulina* (Bubák) B. Sutton. *Sclerosphaeropsis* Bubák was based on *S. heldreichiae* Bubák; due to the absence of authentic material, the genus was regarded as doubtful by Sutton (1977). The 10 known species and the 20 novel Turkish taxa are listed in the present contribution in order to get a more exhaustive analysis of information available on coelomycetes of the Middle East. All in all 91 taxa of coelomycetes recorded in this region prior to 1940 are listed and discussed.

An analysis of available data based on voucher specimens of the novel coelomycetes from the Middle East, clearly shows that most holotypes were collected before World War I. This is evident in the case of names ascribed to Saccardo and Trotter from Libya, although part of them had been introduced during the war years. Taxa named by Reichert (1921) relate to specimens sent to Berlin before this war by German travellers or residents in the region. The three coelomycetes described in the years between the two World Wars were also based

on material collected before the first one. World War I seems to mark the end of the German collecting period in the Middle East. It also marks the end of any interest by European mycologists in the regional biodiversity of this taxonomic group. No evidence of any replacement effort by local or newly resident mycologists could be found.

A few novel coelomycetes have been reallocated to other genera or proved to be synonyms of previously introduced taxa (Tab. 1), but most of them have never been reassessed, *i.e.* up to now they are only known from their protologues and/or type localities. The description of only 61 coelomycetes within the long period from 1887 to 1940 clearly indicates limited activities in the exploration of the coelomycetes of the Middle East.

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