Phytotaxa 176 (1): 055–067
www.mapress.com/phytotaxa/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

http://dx.doi.org/10.11646/phytotaxa.176.1.8

Towards a natural classification of Dothideomycetes 6: The genera *Dolabra*, *Placostromella*, *Pleosphaerellula*, *Polysporidiella* and *Pseudotrichia* (Dothideomycetes *incertae sedis*)

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Abstract

The type specimens of *Dolabra*, *Placostromella, Pleosphaerellula, Polysporidiella* and *Pseudotrichia* were re-examined in order to suggest their familial and higher placement according to the morphology based on modern taxonomic concepts. An overview of the history and descriptions and illustrations of these genera are provided. Based on morphological similarities, *Placostromella* is placed in *Parmulariaceae,* while *Pseudotrichia* is transferred to *Montagnulaceae*. *Pleosphaerellula* is placed in *Pleosporales*, genera *incertae sedis* and *Polysporidiella* is retained in Dothideomycetes, genera *incertae sedis* as it is not typical of any existing family of Dothideomycetes. According to published phylogenetic data, *Dolabra* belongs in Chaetothyriomycetidae, genera *incertae sedis* (Eurotiomycetes). Recollection, epitypifycation and multi-gene molecular analyses are needed for all type species of these genera in order to clarify their familial status. By illustrating and redescribing the type species we expect to stimulate interest for these fungi to be recollected.

Key words: Ascomycota, *Montagnulaceae*, morphology, *Parmulariaceae*, *Pleosporales*

Introduction

Dothideomycetes is the largest class in the division Ascomycota. Species of this order occur in various habitats and can be pathogens, saprobes endophytes or epiphytes (Kirk *et al*. 2008, Schoch *et al*. 2006). Dothideomycetes are characterized by bitunicate (fissitunicate) asci, although asci with similar characters are shared by other classes, such as Arthoniomycetes and Eurotiomycetes (Hyde *et al*. 2013, Schoch *et al*. 2006, Chomnunti *et al*. 2011, 2012). Although the pattern for ascoma development has not been thoroughly defined for Dothideomycetes (Hyde *et al*. 2013), the bitunicate ascus is considered as a defining character in modern dothideomycete taxonomy (Schoch *et al.* 2006). Lumbsch & Huhndorf (2010) included two subclasses (Dothideomycetidae and Pleosporomycetidae), within the Dothideomycetes as well as numerous families under eleven orders and 34 unclassified families with over 150 genera in Dothideomycetes *incertae sedis*. Hyde *et al*. (2013) accepted 22 orders in the class Dothideomycetes and included 26 families under Dothideomycetes *incertae sedis*. *Pleosporales* is the largest order of the Dothideomycetes with 41 families (Hyde *et al*. 2013).

In the present study, and also in Ariyawansa *et al.* (2013a), we re-examined generic types of five genera which previously had been placed in Dothideomycetes genera, *incertae sedis* by Lumbsch & Huhndorf (2010). *Dolabra*, *Placostromella*, *Pleosphaerellula*, *Polysporidiella* and *Pseudotrichia* were re-examined and redescribed from their type specimens. We classified *Placostromella* in *Parmulariaceae*, *Pleosphaerellula* in *Pleosporales*, genera *incertae sedis*, while *Polysporidiella* is retained in Dothideomycetes, genera *incertae sedis* based on morphology;

Accepted by Eric McKenzie: 25 Mar. 2014; published: 20 Aug. 2014

however these placements need to be confirmed pending fresh collections. *Dolabra* and *Pseudotrichia* are placed in Chaetothyriomycetidae, genera *incertae sedis* and *Montagnulaceae*, respectively, based on both morphology and molecular data.

Materials and methods

Examination of herbarium material

The type specimens of *Dolabra*, *Placostromella, Pleosphaerellula, Polysporidiella* and *Pseudotrichia* were borrowed from B, IMI, LE and W. Ascomata were rehydrated in 5% KOH prior to examination and sectioning. Specimens were examined under a stereo microscope (Motic SMZ 168) and fine forceps were used to remove one or two ascomata, which were mounted in water. Hand sections were cut with a sharp razor blade and thin (8−12 µm) sections were cut using a LEICA CM1850 freezing microtome. The sections were transferred to a drop of water or a drop of cotton blue for examination. Observations and photomicrographs were made from material mounted in water using a Nikon ECLIPSE 80i light microscope with a Cannon 450D digital camera. Measurements were made with Tarosoft (R) Image Frame Work.

Taxonomy

Genus and type species descriptions are given unless the genus is monotypic when only the species description is given.

Montagnulaceae M.E. Barr, Mycotaxon 77: 194 (2001) MycoBank: MB 82111

The family *Montagnulaceae* was introduced by Barr (2001) including three genera *Kalmusia*, *Montagnula* and *Didymosphaerella* in the order *Pleosporales*. Zhang *et al.* (2012) excluded *Didymosphaerella* from the family and placed the genus in *Didymellaceae*, while including *Bimuria*, *Didymocrea*, *Karstenula*, *Letendraea*, *Paraphaeosphaeria*, and *Trematеia* in the family. Hyde *et al*. (2013) accepted nine genera in this family including the recently added *Deniquelata* (Ariyawansa *et al.* 2013b) while we include *Pseudotrichia* in this paper. *Montagnulaceae* is characterized by immersed ascomata, pseudoparenchymatous peridium, septate, narrow, cellular pseudoparaphyses, cylindric or oblong, bitunicate (fissitunicate), with long pedicellate asci and brown, phragmosporous or muriform ascospores. The asexual states of *Montagnulaceae* are coelomycetous including "*Coniothyrium*"-like, "*Microsphaeropsis*"-like and *Paraconiothyrium* asexual morphs (Zhang *et al.* 2012, Barr 2001, Hyde *et al*. 2013).

Pseudotrichia Kirschst., Annls mycol. 37(1/2): 125 (1939) MycoBank: MB 4497

Saprobic or *parasitic* in terrestrial or rarely aquatic habitats. Sexual state: *Ascomata* solitary or scattered, initially immersed, becoming erumpent, to nearly superficial, globose to pyriform, carbonaceous, ostiolate. *Ostiole* usually widely porate with elongated papilla, ostiolar canal filled with a tissue of hyaline cells and centre covered with setae. *Peridium* comprising several layers of thick-walled cells of *textura angularis*; outer layer heavily pigmented, comprising small, dark brown to black cells, inner cells lightly pigmented or hyaline. *Hamathecium* of dense, hyaline, septate, narrow, unbranched, cellular pseudoparaphyses. *Asci* 8-spored, bitunicate, fissitunicate, elongate, fusoid or clavate to cylindrical, with narrow, long, furcate pedicel, thickened and rounded at the apex, with small ocular chamber. *Ascospores* uniseriate or distichously arranged, partially overlapping, fusoid, straight to curved, 3- to multiseptate, constricted or not at the septa, smooth-walled, thick-walled without a sheath, hyaline or pale brown at maturity. Asexual state: Unknown.

Notes:—*Pseudotrichia* was introduced by Kirschstein (1939) as a monotypic genus to accommodate *Pseudotrichia stromatophila.* Various authors have placed this genus under different families. Petrak (1940)

classified *Pseudotrichia* under *Lophiostomataceae* based on the shape of the apex of ascomata, while Barr (1990) included the genus in *Platystomaceae*. Mugambi & Huhndorf (2009) included *Pseudotrichia* under *Melanommataceae* based on two-gene (TEF1, LSU) phylogenetic analyses of *P. mutabilis* (Pers.) Wehm. However, in Mugambi & Huhndorf (2009) and Zhang *et al*. (2012), *Pseudotrichia guatopoensis* Huhndorf clustered in *Platystomaceae* along with *Platystomum compressum* (Pers.) Trevis. outside of *Melanommataceae*. Therefore, Mugambi & Huhndorf (2009) stated that *P. guatopoensis* may belong in the family *Platystomaceae*. *Pseudotrichia guatopoensis* was introduced by Huhndorf (1994) based on peripheral arrangement of asci and trabeculate pseudoparaphyses. The type species of *Pseudotrichia* shows some morphological deviations from the familial type of *Melanommataceae*. Therefore, we examined the familial types of *Melanommataceae* as well as *Montagnulaceae* in order to clarify the placement of *Pseudotrichia*. According to our observations ascomatal and peridial characters, cellular, septate, unbranched pseudoparaphyses, and asci with long pedicels exclude *Pseudotrichia stromatophila* from *Melanommataceae* and support its placement in *Montagnulaceae*. Therefore, we tentatively assign *Pseudotrichia* in *Montagnulaceae.* Recollection, epitypification and multi-gene molecular analyses are needed for the type and other species of *Pseudotrichia* in order to clarify the familial and generic status.

Pseudotrichia allequashensis Fallah & Shearer, *P. guatopoensis*, *P. mamillata* M.E. Barr, *P. pachnostoma* (Berk. & M.A. Curtis) M.E. Barr, *P. viburnicola* (P. Crouan & H. Crouan) Rossman and *P. xanthotricha* (Berk. & Broome) Réblová have been recently assigned to the genus (Index Fungorum 2013). Although these *Pseudotrichia* species share common ascomatal characters such as immersed-erumpent to superficial ascomata with rounded or laterally compressed apices and are sometimes surrounded by pigmented hyphal appendages, ascospore characters (size and the number of septa) are highly varied. Ascospores of *P. pachnostoma* have 7–11 septa, while *P. allequashensis* have 3 septa (Barr 1984, Fallah & Shearer 2001). The genus is in need of morphological and phylogenetic taxonomic revision.

Type species:—*Pseudotrichia stromatophila* Kirschst., Annls mycol. 37(1/2): 125 (1939) MycoBank: MB 279032 (Fig. 1)

Saprobic or *parasitic* on *Diatrypella* species. Sexual state: *Ascomata* 500−750 µm high, 520−710 µm wide ($\overline{x}$ = 620 × 680 µm, n = 10), solitary or scattered, initially immersed, becoming erumpent, to nearly superficial, globose to pyriform, coriaceous, ostiolate. *Ostiole* usually widely porate, ostiolar canal filled with a tissue of hyaline cells. *Peridium* 90−110 µm ($\overline{x}$ = 98 µm, n = 20) wide, comprising several layers of thick-walled cells of *textura prismatica*; outer layer heavily pigmented, comprising small, dark brown to black cells. *Hamathecium* of dense, 2−4 µm ($\overline{x}$ = 3 µm, n = 20) cellular, hyaline, septate, unbranched pseudoparaphyses. *Asci* 135−200 × 13−22 µm ($\overline{x}$ = 160 × 18 µm, n = 20), 8-spored, bitunicate, fissitunicate, elongate-clavate to sub-cylindrical, with narrow, long, furcate pedicel, thickened and rounded at the apex, with minute ocular chamber. *Ascospores* 35−40 × 7−12 µm ($\overline{x}$ = 38 × 10 µm, n = 40), uniseriate or distichously arranged, partially overlapping, fusoid, straight to curved, 2-celled when immature, becoming 4-celled when mature, constricted at the septum, with several guttules in each cell, smooth-walled, thick-walled without a sheath, hyaline or rarely pale brown at maturity. Asexual state: Unknown.

Material examined:—CZECHOSLOVAKIA, growing on *Diatrypella* species, 20 August 1912, *Petrak* (B, holotype).

Parmulariaceae E. Müll. & Arx ex M.E. Barr, Mycologia 71(5): 944 (1979) MycoBank: MB 81109

This previously invalid family was formerly validated by Barr (1979) and included 21 genera, while Inácio & Cannon (2008) discussed 35 genera in this family. Lumbsch & Huhndorf (2010) included 34 genera and listed it under Dothideomycetes, families *incertae sedis*. Inácio *et al*. (2012) introduced a new genus *Antoniomyces*, characterized by superficial, elliptical to boat-shaped ascomata opening by longitudinal slits and cylindrical-clavate to clavate asci with 1-septate ascospores. The family *Parmulariaceae* is characterized by foliicolous, lichenicolous, superficial, dark brown to black colonies and asci surrounded by septate pseudoparaphyses underneath a covering ascostroma which later breaks to expose the hamathecium. Ascospores 1-septate, oblong to ellipsoid, ellipsoid to ovate (Inácio *et al.* 2012, Hyde *et al*. 2013).

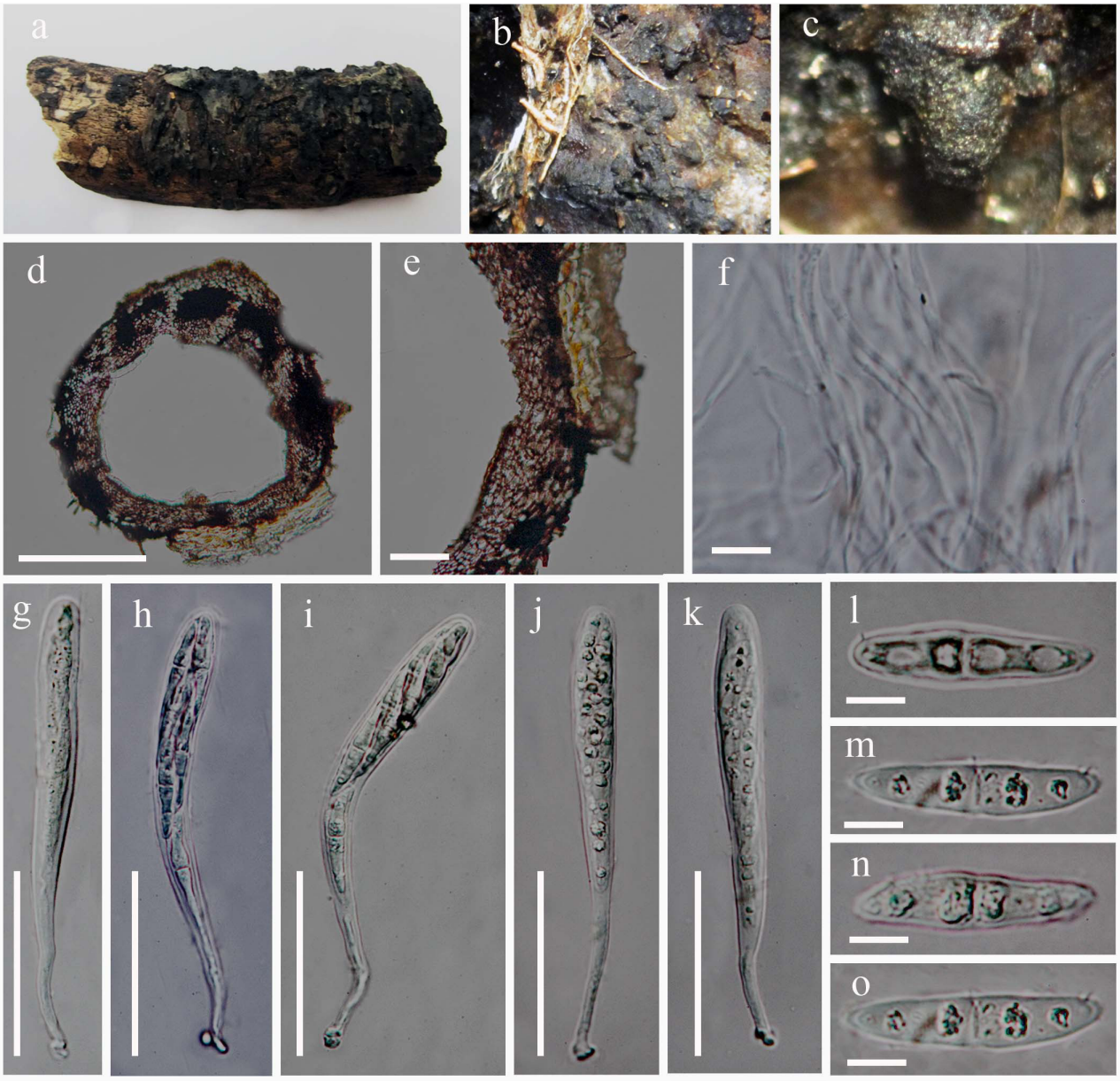

FIGURE 1. *Pseudotrichia stromatophila* (holotype). a. Ascomata on host substrate b–c. Close up of ascoma. d. Section of ascoma. e. Close up of the peridium. f. Pseudoparaphyses with septa. g–k. Asci with long, narrow pedicel. l–o. Immature, hyaline ascospores. Scale bars: d = 300 µm, e = 50 µm, f = 5 µm, g–k = 50 µm, l–o = 10 µm.

Placostromella Petr., Sydowia 1(1−3): 9 (1947) MycoBank: MB 4141

Epiphytic on living leaves. Sexual state: *Ascostromata* subcuticular, carbonaceous, loosely scattered, black, rounded or broadly ellipsoid, sometimes coalescent, uniloculate and opening when wet by irregular or longitudinal splits. *Upper wall* consisting of several rows of irregularly arranged, dark brown, angular cells. *Lower wall* brown to dark brown, sometimes absent, with irregular to ± angular cells. *Peridium* base poorly developed, comprising a single substratum of several layers of compressed dark brown-walled cells of *textura angularis*. *Hamathecium* of colourless, smooth, septate, thin-walled, filiform pseudoparaphyses, branching dichotomously at acute angles. *Asci* 8-spored, bitunicate, cylindrical to clavate, subsessile or short pedicellate with broadly rounded ends. *Ascospore*s overlapping, 1- to 3-seriate, hyaline, sometimes becoming light brown to brown, cylindric-ellipsoidal or oblong to obovate with broadly rounded ends with a thin gelatinous sheath, verrucose, 1-septate, the upper cell often broader than the lower one, more or less constricted at the septum. Asexual states: Unknown (Inácio *et al*. 2005).

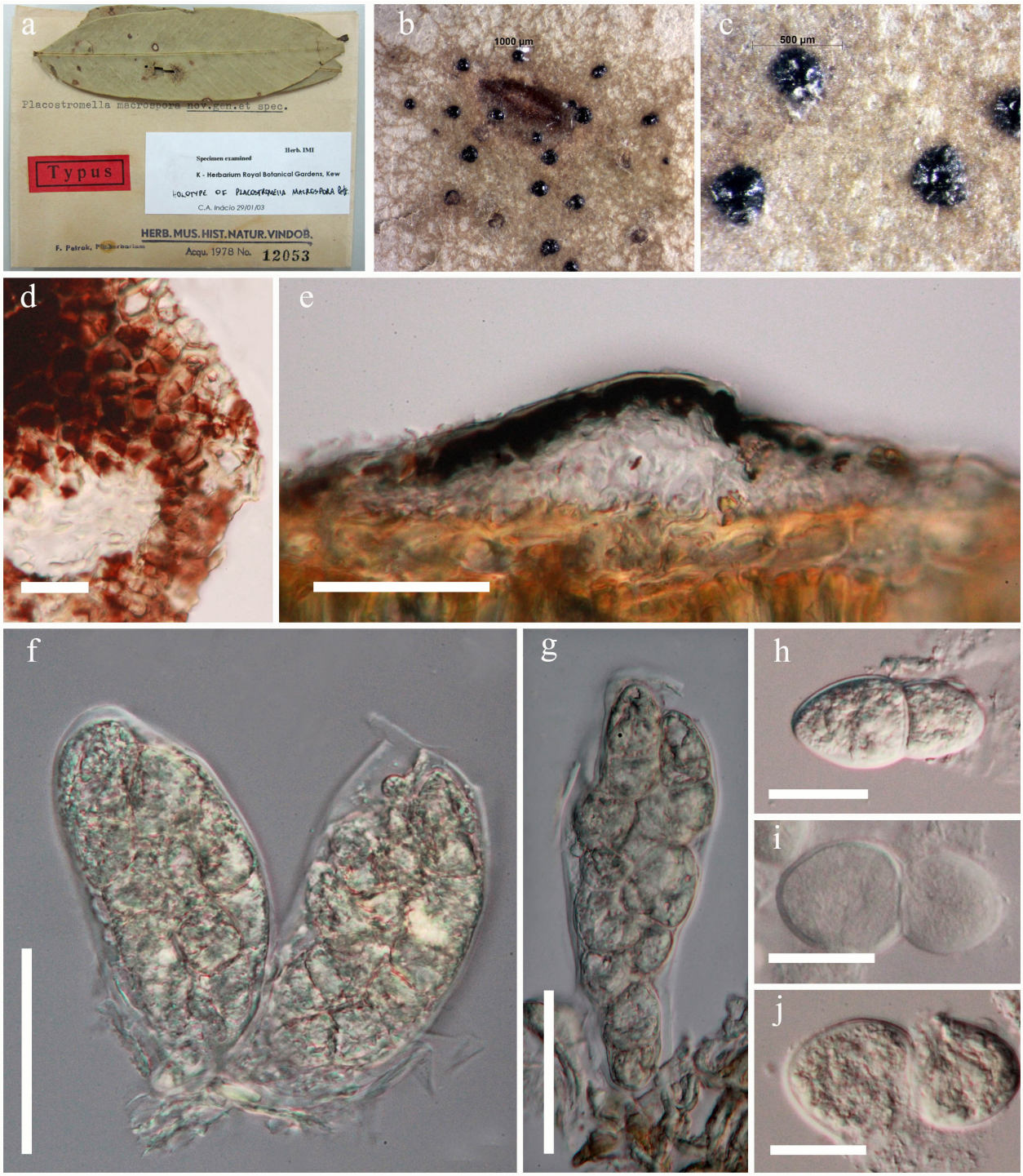

FIGURE 2. *Placostromella macrospora* (holotype). **a.** Herbarium material. b–c. Ascostromata on host surface. Note the superficial mycelium and ridges of the ascostromata radiating from the center to the outer rim. d. Close up of upper wall. e. Section through ascoma. f–g. Bitunicate asci. h–j. Ascospores. Scale bars: d = 25 µm, e–g = 50 µm, h–j = 20 µm.

Notes:—*Placostromella macrospora* Petr., the type species of *Placostromella* was introduced by Petrak (1947) as a monotypic genus. Batista & Maia (1964) added *P. amazonensis* and Inácio *et al*. (2005) transferred *Palawaniella castanopsis* J.N. Kapoor to *Placostromella castanopsis* (J.N. Kapoor) Inácio *et al.* based on similar morphological characters. Kapoor (1968) had mentioned that *Palawaniella castanopsis* differed from the other species of *Palawaniella* and had similarities with *Placostromella macrospora*. *Placostromella macrospora* and *P. castanopsis* share similar morphological characters, such as subcuticular, black, shiny ascomata with a clearly defined margin, colourless, smooth, septate, thin-walled, filiform interthecial filaments, clavate to cylindric-clavate or broadly clavate asci and 1-septate ascospores with a gelatinous sheath (Inácio *et al*. 2005). *Placostromella* was

accepted as a genus of *Dothideales* by Eriksson (1984), Hawksworth *et al*. (1995) and Kirk *et al*. (2001). Eriksson *et al*. (2003) and Lumbsch & Huhndorf (2010) grouped this genus under Dothideomycetes, genera *incertae sedis*. Inácio *et al*. (2005) pointed out the possible relationship with the family *Parmulariaceae* considering the form and position of the internal stroma and the structure of the ascomata and excluded it from the *Dothideales* based on the presence of interthecial filaments. Although we could not find any interthecial filaments in our examination, we tentatively assign *Placostromella* to *Parmulariaceae* pending molecular investigation.

Type species:—*Placostromella macrospora* Petr., Sydowia 1(1−3): 9 (1947) MycoBank: MB 289711 (Fig. 2)

Foliar epiphytes on *Castanopsis ceratacantha*. *Mycelium* forming a superficial to immersed network over the leaf surface, branched, smooth-walled, brown to pale brown. Sexual state: *Ascostromata* 180−360 µm diam., subcuticular, carbonaceous, loosely scattered, black, rounded or broadly ellipsoid, with ridges radiating from the centre to the outer rim, uniloculate and opening when wet by irregular splits. *Upper wall* consisting of several rows of irregularly arranged, dark brown to black, angular, 5−12 µm diam. cells. *Peridium* 9−12 µm thick, ostiole not clear, base poorly developed, comprising a single substratum of several layers of compressed dark brown-walled cells of *textura angularis*. *Pseudoparaphyses* not observed. *Asci* 80−130 × 35−45 µm ($\overline{x}$ = 102.5 × 43 µm, n = 15), 8-spored, bitunicate, cylindrical to clavate, subsessile or short pedicellate with broadly to narrowly rounded ends. *Ascospore*s 30.4−50.5 × 14.3−20 µm ($\overline{x}$ = 68 × 16 µm, n = 40), overlapping 2−3-seriate, hyaline, oblong to obovate with broadly rounded ends, slightly verrucose, 1-septate, the upper cell often broader than the lower one, strongly constricted at the septum. Asexual states: Unknown.

Material examined:—TAIWAN. Kweichow, vicinity of Hu-tau Langtai, on living leaves of *Castanopsis ceratacantha*, 6 November 1930, *Y. Tsiang* (W, holotype).

Pleosporales, genera *incertae sedis*

Pleosporales was formally established by Barr (1987) based on the family *Pleosporaceae* with the type species *Pleospora herbarum*. It is the largest order of Dothideomycetes (Kirk *et al*. 2008) and is characterised by perithecioid ascomata, usually with a papillate apex, ostioles with or without periphyses, cellular pseudoparaphyses, bitunicate asci, and ascospores of various shapes, pigmentation and septation (Hyde *et al*. 2013). The anamorphs of *Pleosporales* are mostly coelomycetous and rarely hyphomycetous, including *Phoma* or *Phoma*-like anamorphic stages (Zhang *et al*. 2012). Lumbsch & Huhndorf (2010) included 12 genera under *Pleosporales, incertae sedis*, while Hyde *et al*. (2013) included six.

Pleosphaerellula Naumov & Czerepan., Bot. Mater. Otd. Sporov. Rast. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 8: 149 (1952) MycoBank: MB 4226

Saprobic on dead branches. Sexual state: *Ascomata* scattered, carbonaceous, immersed under epidermis to erumpent, spherical to globose-depressed, black, lacking an ostiole, and breaking on top of the ascomata to release ascospores at maturity. *Peridium* thick, comprising 2 layers of cells, outer layer with relatively small, heavily pigmented thick-walled, brown to dark brown cells, arranged in *textura angularis*, inner layer of subhyaline thin-walled *textura angularis*, cells larger than outer cells. *Hamathecium* of dense, long, 0.8−1.5 µm thick, hyaline, simple, aseptate *pseudoparaphyses*. *Asci* poly-spored, bitunicate, cylindrical to clavate, very short pedicellate or sessile, apically broadly rounded, thick-walled, ocular chamber not observed. *Ascospores* overlapping, minute, crowded, ellipsoidal or elongate-ellipsoidal, hyaline, aseptate, smooth-walled. Asexual state: Unknown.

Notes:—*Pleosphaerellula* was introduced by Naumov & Czerepanova (in Czerepanova and Kuznetzova 1952) as a monotypic genus to accommodate *P. cornicola* and classified under *Mycosphaerellaceae*. Later, Tóth (1975) described a new species P. fumanae Tóth from Hungary. Czerepanova and Kuznetzova (1952) stated they had not observed interascal tissues in their original description, but Tóth (1975) observed some well developed, bulky, thread-like paraphyses in younger ascomata. The size and the form of the spores of *P. fumanae* were considered to be different to those of the type species, *P. cornicola*. Lumbsch & Huhndorf (2010) grouped this genus under Dothideomycetes, genera *incertae sedis*.

In this study we refer *Pleosphaerellula* to *Pleosporales, incertae sedis* based on morphology. The genus shares similar characteristics with *Moristroma polysporum* Romero & Samuels, which was included in *Pleosporales,*

genera *incertae sedis* (Zhang *et al*. 2012). The type needs recollecting, sequencing and epitypifying in order to clarify the familial status.

Type species:—*Pleosphaerellula cornicola* Naumov & Czerepan., Bot. Mater. Otd. Sporov. Rast. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 8: 152 (1952) MycoBank: MB 303842 (Fig. 3)

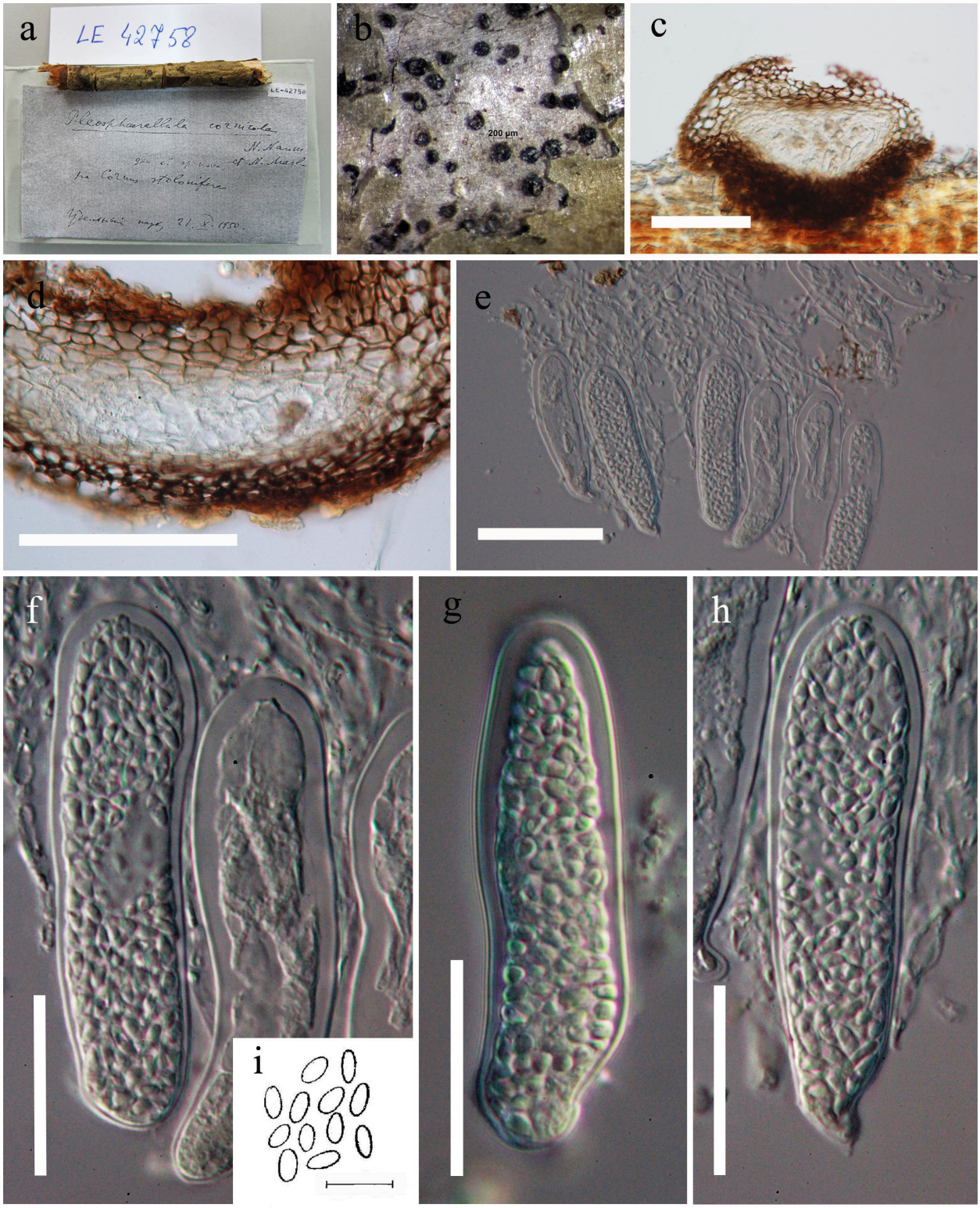

FIGURE 3. *Pleosphaerellula cornicola* (holotype). a. Herbarium material. b. Ascomata on host surface. c. Section through ascoma. d. Peridium. e. Asci and pseudoparaphyses. f–h. Bitunicate asci with many ascospores. i. Ascospores (Redrawn from Czerepanova and Kuznetzova 1952). Scale bars: c–d = 100 µm, e = 50 µm, f–h = 25 µm, i = 5 µm.

Saprobic on dead branches. Sexual state: *Ascomata* 250−300 µm diam., scattered, immersed under epidermis to erumpent, spherical to globose-depressed, black, lacking an ostiole, breaking on top of the ascomata to release ascospores at maturity. *Peridium* 20−50 µm thick comprising 2 layers of cells, outer layer with relatively small, heavily pigmented thick-walled, brown to dark brown cells, arranged in *textura angularis*, inner layer of subhyaline thin-walled, cells larger than outer cells. *Hamathecium* of dense, long, 0.8−1.5 µm thick, hyaline, hyphae-like, aseptate pseudoparaphyses. *Asci* 60−75 × 12−18 µm ($\overline{x}$= 68 × 16 µm, n = 15), poly-spored, bitunicate, cylindrical to clavate, sessile, apically broadly rounded, thick-walled, ocular chamber not observed. *Ascospores* 2−2.5 × 1.4−2 µm ($\overline{x}$= 2.3× 1.7 µm, n = 40), overlapping, crowded, ellipsoidal, hyaline, aseptate, smooth-walled. Asexual state: Unknown.

Material examined:—RUSSIA. Leningrad, Udelnyj Park, on dead branch of *Corni stolonifera*, 21 October 1950 (LE, holotype).

Dothideomycetes, genera *incertae sedis*

Dothideomycetes is the largest class in the division Ascomycota and is characterized by bitunicate (fissitunicate) asci. Lumbsch & Huhndorf (2010) included 34 families and over 150 genera in Dothideomycetes *incertae sedis*, while Hyde *et al*. (2013) included 26 families.

Polysporidiella Petr., Sydowia 14: 355 (1960) MycoBank: MB 4321

Notes:—*Polysporidiella* was introduced by Petrak (1960) and is a monotypic genus typified by *Polysporidiella iranica*. Petrak initially classified this as *Discosphaerina euganea* Petr., but later treated it as a new genus. Lumbsch & Huhndorf (2010) grouped this genus under Dothideomycetes, genera *incertae sedis*. We cannot find any existing family in Hyde *et al*. (2013) to accommodate this genus.

Type species:—*Polysporidiella iranica* Petr., Sydowia 14: 355 (1960) MycoBank: MB 337489 (Fig. 4)

Saprobic on petiole of *Astragalus* spp. Sexual state: *Ascomata* 95−105 µm high, 75−90 µm diam, loosely and irregularly scattered, often solitary, immersed to erumpent, globose or broadly ellipsoid, black, depressed, pulvinate, without a distinct ostiole. *Peridium* 13−21 µm wide, composed a single layer of heavily or lightly pigmented, large, dark brown, irregularly rounded or angular cells. *Hamathecium* lacking pseudoparaphyses, with 2 asci per ascomata. *Asci* 53−65 × 32−44 µm ($\overline{x}$= 58 × 37.5 µm, n = 20), polysporous, bitunicate, fissitiunicate, ellipsoidal to narrowly clavate, subsessile, short pedicellate, apical region rounded with a minute ocular chamber. *Ascospores* 9−14 × 6−10 µm ($\overline{x}$= 12.3 × 7.5 µm, n = 30), crowded overlapping, ellipsoidal or ovoid, with broadly rounded ends, 1-septate, not constricted at the septum, smooth-walled, becoming brown at maturity. Asexual state: Unknown.

Material examined:—IRAN. Steppes in Tschahbahar, on dead petiole of *Astragalus* spp. 1 May 1959, *E. Gauba* (W, holotype).

Chaetothyriomycetidae, genera *incertae sedis* (Eurotiomycetes)

The class Eurotiomycetes consist of three subclasses (Chaetothyriomycetidae, Eurotiomycetidae and Mycocaliciomycetidae) and Chaetothyriomycetidae includes the common black yeasts, sooty moulds, lichens and pathogens of humans and animals. Members are characterized by perithecial ascomata and bitunicate asci with dehiscence ranging from fissitunicate to evanescent (Geiser *et al*. 2006, Lumbsch & Huhndorf 2010). *Chaetothyriales*, *Pyrenulales* and *Verrucariales* have been classified under this subclass (Lutzoni *et al*. 2004, Lumbsch & Huhndorf 2010, Geiser *et al*. 2006, Hyde *et al*. 2013), while Lumbsch & Huhndorf (2010) include two families and two genera under Chaetothyriomycetidae *incertae sedis*.

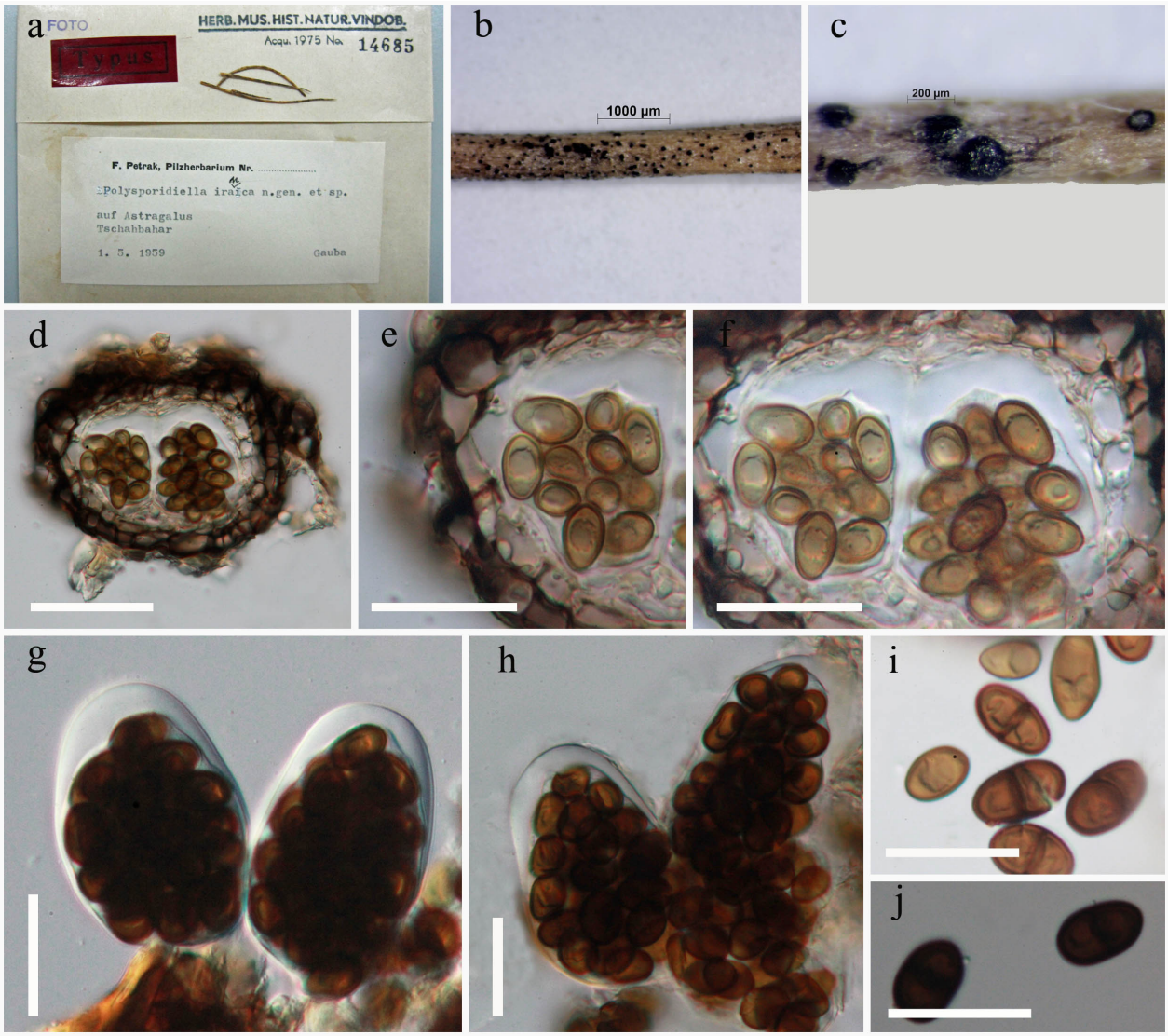

FIGURE 4. *Polysporidiella iranica* (holotype). a. Herbarium material. b–c. Ascomata on host surface. d. Section through ascoma. e. Peridium. f. Arrangement of asci in ascomata. g–h. Bitunicate asci with many spores. i–j. Ascospores. Scale bars: d = 50 µm, e–h = 25 µm, i–j = 20 µm.

Dolabra C. Booth & W.P. Ting, Trans. Br. mycol. Soc. 47(2): 237 (1964) MycoBank: MB 1683

Notes:—*Dolabra* was introduced by Booth & Ting (1964) as a monotypic genus to accommodate *Dolabra nepheliae* and is associated with cankers of *Nephelium lappaceum* (rambuttan). They mentioned that this genus shows characters of *Pleosporales* in having abundant pseudoparaphyses, structure of the locules in the upper half of the stroma and a definite apical pore. They also stated that the ascomata characters belong to the *Nitschkiaceae*, but the pseudosphaeriaccous nature of the ascomata and the bitunicate asci differ from this family. Zalasky *et al.* (1971) examined the type specimen and additional collections and redescribed the genus with a *Rhabdospora nepheliae* (not validly published) asexual state associated with cankers on *Nephelium lappaceum* as well as in culture. Lumbsch & Huhndorf (2010) grouped this genus under Dothideomycetes genera, *incertae sedis*. Multigene phylogenetic analysis (Rossman *et al.* 2010) showed that *Dolabra nepheliae* lies in the subclass Chaetothyriomycetidae (Eurotiomycetes) allied with *Phaeomoniella chlamydospora*. Although *Dolabra* has some characters of *Pleosporales* such as bitunicate asci and abundant, unbranched, thin-walled, septate pseudoparaphyses, the schizogenous ascomatal apex that splits to form an irregularly shaped pore and a stalked base to the ascomata show the characters of Eurotiomycetes. The presence of pseudoparaphyses in *Dolabra* suggests a relationship between the Dothideomycetes and Eurotiomycetes (Booth & Ting 1964, Rossman *et al.* 2010). Based on the morphological characters and phylogenetic data we refer *Dolabra* to Chaetothyriomycetidae, genera *incertae sedis*.

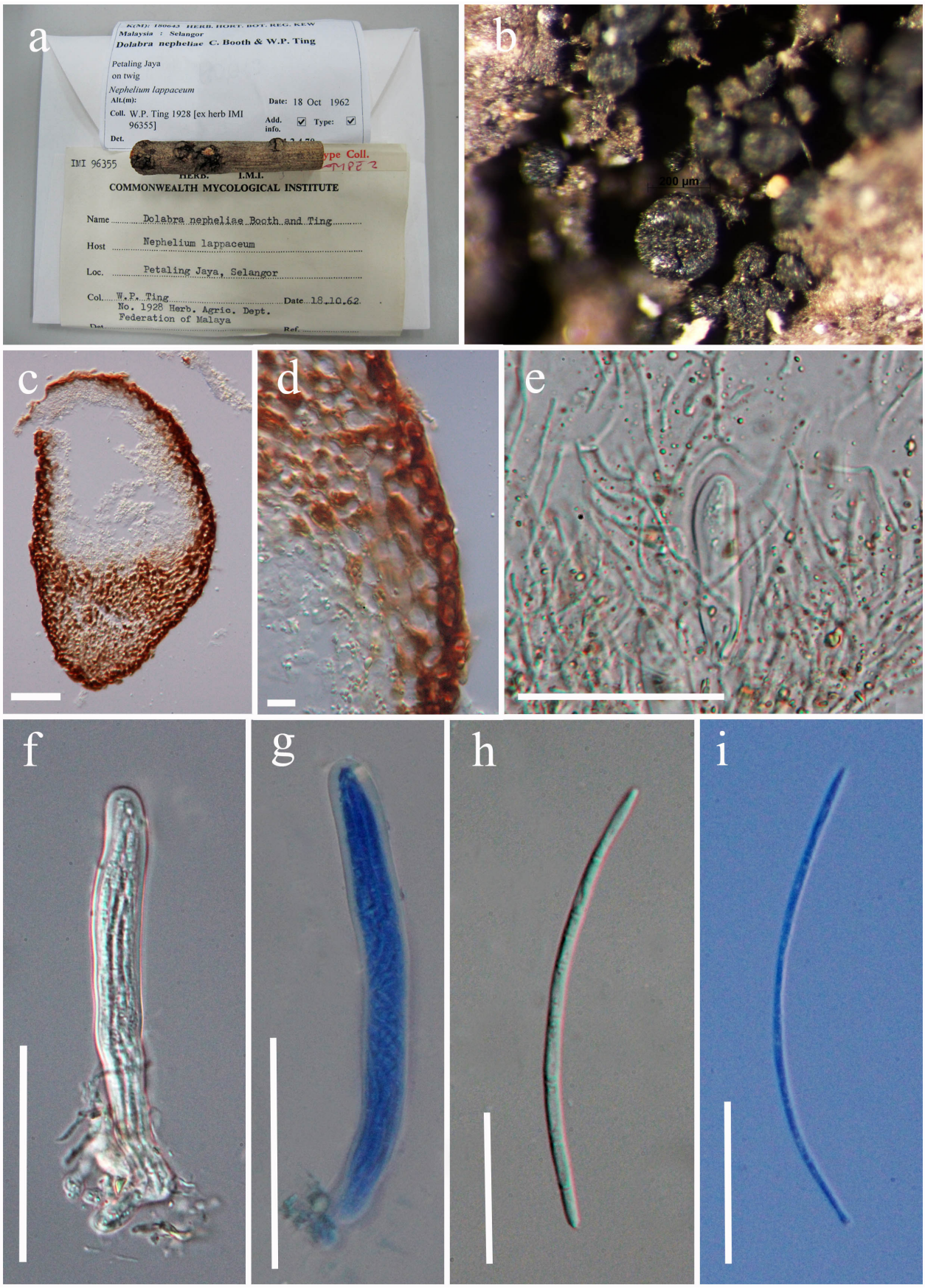

FIGURE 5. *Dolabra nepheliae* (holotype). a. Herbarium material. b. Ascomata on host surface. c. Section of an ascoma. d. Section of the peridium. e. Pseudoparaphyses. f–g. Asci (blue staining in lactophenol cotton blue reagent). h–i. Septate, long, cylindrical ascospores. Scale bars: c = 50 µm, d = 10µm, e-g = 50 µm, h–i = 25 µm.

Type species:—*Dolabra nepheliae* C. Booth & W.P. Ting, Trans. Br. mycol. Soc. 47(2): 237 (1964) MycoBank: MB 330157 (Fig. 5)

Growing on tumorous bark, living leaves, petioles, cankers, and small to large irregular patches of raised bark on the main trunk and lateral branches of *Nephelium lappaceum*. Cankers on woody branches, slightly roughened to irregularly globose, extending from surface up to 1 cm high, with deep fissures in which ascomata develop. Sexual state: *Ascomata* 240−600 high, 150−220 diam, crowded, superficial, scattered or clustered, lining fissures, dark brown to black, coriaceous, ovoid to elongate with irregularly schizogenous, ostiolar opening, collapsed laterally with apex sunken when dried, surface smooth to slightly roughened, wide, with long stalked base. *Peridium* 16−25 µm diam ($\overline{x}$ = 19, n = 20), gelatinous, thinner at the apex, wide at the base, comprising two layers of cells: outer layer dark brown to black, of thick-walled cells; inner layer of hyaline, thin-walled cells of *textura prismatica*. *Hamathecium* comprising abundant, hyaline, unbranched, septate, pseudoparaphyses which extend beyond asci to the upper region of ascomata. *Asci* 90−130 × 8−12 µm ($\overline{x}$ = 105 × 10 µm, n = 20), 8-spored, bitunicate, cylindrical to narrowly clavate. *Ascospores* 90−125 × 2.5−3.5 µm ($\overline{x}$ = 110 × 3 µm, n = 30), 5−7-septate, long cylindrical, curved, with rounded ends, hyaline. Asexual state: *Pycnidia* dark brown to black, ovoid to spherical, with an acute or obtuse apex, scattered to clustered, smooth-walled. *Pycnidial wall* of two regions: outer region of brown to black, thick-walled cells; inner region of hyaline cells, 2−8 rows; opening by a slightly papillate, irregular slit, occasionally opening completely to appear discoid. *Conidiophores* hyaline, septate, short, formed from inner cells of the pycnidial wall. *Conidiogenous cells* holoblastic, hyaline, smooth, cylindrical. *Conidia* long filiform to fusiform, slightly curved to lunate, 2−10-septate, smooth, hyaline, base slightly truncate, apex rounded. *Pycnidia* developing toward center of colony after 1 week on potato dextrose agar, appearing same as pycnidia on substratum (asexual morph description follows Rossman *et al*. 2010).

Material examined:—MALAYSIA. Selangor: Petaling Jaya, on bark of *Nephelium lappaceum*, 18 October 1962, *W.P. Ting* (IMI, holotype).

Acknowledgments

We gratefully acknowledge the Directors and Curators of B, IMI, LE and W herbaria for the loan of specimens in their keeping. The Mushroom Research Foundation, Chiang Rai, Thailand and Guizhou Key Laboratory of Agricultural Biotechnology, Guizhou Academy of Agricultural Sciences, Guiyang City, Guizhou Province, People's Republic of China are acknowledged for providing postgraduate scholarship support to Kasun M. Thambugala. Special thanks go to MFLU grant (56101020032) for supporting studies on Dothideomycetes. Kasun M. Thambugala specially appreciates D.A. Daranagama for helpful comments and advice on the manuscript.

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