

REASSESSMENT OF *SPHAEROPSIS UNDULATA* BERK. & CURT.

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Abstract

During an examination of the type specimen of *Sphaeropsis undulata* Berk. & Curt., No. 560 at the Mycological Herbarium, Kew Garden, it was found that *S. undulata* Berk. & Curt., actually belongs to *Lasiodiplodia* Ell. & Everh. The striae nature of conidia is diagnostic and this name precedes *Botryodiplodia theobromae* (Pat.) Griff. & Maubl. Therefore a new combination *Lasiodiplodia undulata* (Berk. & Curt.) Abbas, Sutton, Ghaffar & Abbas is proposed.

Specimen No. 30, on dead bark recorded by Berkeley & Broome (1873) as *Sphaeropsis undulata* Berk. & Curt., belongs to *Phaeodorus*, therefore a new species *Phaeodorus berkeleyi* Abbas, Sutton, Ghaffar & Abbas sp. nov., is proposed.

Specimen No. 648 belongs to *Cytosphaera* since type studies of *Haplosporella maniliensis* Sacc., *H. syconophila* Sacc., *Dothiorella stratosia* Sacc., *Sphaeropsis undulata* Berk. & Curt., No. 648 studied by Berk. & Broom from Ceylon, *Cytosphaera eucalyptii* Sharma and description of *H. cesatii* Sacc., shows that these taxa are conspecific with *Cytosphaera mangifera*. Therefore earliest epithet is taken up and a new combination *Cytosphaera cesatii* is proposed.

Sphaeropsis undulata Berk. & Curt., No. 560 collected by C. Wright 1868 from Cuba was described by Berkeley (1868). Saccardo (1884) referred it as *Dothiorella undulata* (Berk. & Curt.) Sacc., due to its hyaline conidia and gave conidial measurements as 30-33 µm. Petch (1907) agreed with Saccardo in its placement as *Dothiorella undulata*. Petrak & Sydow (1926) changed it to *Botryodiplodia undulata* (Berk. & Curt.) Petrak & Sydow. Hughes (1953) dealing with *Phaeobotryosphaeria plicatula* (Berk. & Br.) Petch, made no comment about *Sphaeropsis undulata* No. 560. The present studies showed that *Sphaeropsis undulata* Berk. & Curt. No. 560 actually belongs to *Lasiodiplodia* Ell. & Everh. The striate nature of conidia is diagnostic and this name precedes *L. theobromae* (Pat.) Griff. & Maubl. Therefore the new combination *Lasiodiplodia undulata* (Berk. & Curt.) comb. nov., Abbas, Sutton, Ghaffar & Abbas is proposed.

Berkeley & Broome (1873) recorded *Sphaeropsis undulata* Berk. & Curt., on two specimens of dead bark from Sri Lanka (Ceylon, South of Island) No. 648 and No. 30. No. 648 was collected in 1868, with 12.5-15 x 7.5-10 µm conidia and No. 30 was collected in 1867 with 17.5 µm long conidia. Berkeley & Broome were of the opinion that both specimens were of the same species. However it seems that subsequently Berkeley changed his mind about specimen No.30 and in his own hand writing labelled it as *Sphaeropsis undulata* var. *peradeniya* G.H.K.Th. Nov. 1867. Unfortunately this new variety was not published. When Saccardo (1884) referred *Sphaeropsis undulata* Berk. & Curt., No. 560 to *Dothiorella undulata* (Berk. & Curt.) Sacc., he also mentioned a specimen No. 789 from Ceylon having conidia 14-17 x 7-10 µm and considered it different from specimen No.560, however he made no comments on specimen No. 30 and No. 648.

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Petch (1907) stated that Berkeley & Broome reported only one specimen, No. 648 from Ceylon (Sri Lanka), with conidia 12.5-15 x 7.5-10 μm , while Hughes (1953) mentioned that Berkeley & Broome (1873) recorded two specimens but he only found specimen No. 30 in herb. K. However in the present studies both specimens were found to be present in herb. K.

Berkeley & Broome (1873) described *Sphaeria plicatula*. In herb. IMI there is a specimen No.30 (IMI 47971) labelled by Berkeley as *Sphaeria plicatula* Berk. & Broome from Ceylon central province. Both asci and conidia are found to be present in the same specimen. Petch (1907) changed the name to *Phaeobotryosphaeria plicatula* (Berk. & Broome) Petch. Hughes (1953) considered that specimen No. 30 is a pycnidial state of *S. plicatula* (Berk. & Broome) Petch, however he did not give any anamorphic generic name to this pycnidial state. This specimen is characterized by having stromatic conidiomata with few locules, on upper side with determinate or 1-2 enterogenous proliferating conidiogenous cells and brown, oval to obpyriform and thin-walled conidia. These clearly indicate that it belongs to the genus *Phaeodorus* Höhn. (Höhn, 1909; Sutton, 1980). *Phaeodorus* is a monotypic genus with *P. erumpens* (Berk. & Curt.) Petrak & Sydow, as type based on *Sphaeropsis erumpens* Berkeley & Curtis (1869). Comparative studies of specimen No. 30 and *P. erumpens* (= *P. lauracearum* Höhn.) clearly indicate that both taxa are not conspecific because in specimen No.30 conidiogenous cells (6-16 x 4 μm) and conidia (12-16 x 7.5-8 μm) are shorter than conidiogenous cells (9.5-19 x 7-13 μm) and conidia (24-28 x 10-13 μm) in *P. erumpens*. Therefore a new species, *Phaeodorus berkeleyi* Abbas, Sutton, Ghaffar & Abbas is also described.

Baccari also collected a specimen from Sarawak, which was doubtfully identified by Cesati as *Sphaeropsis undulata* Berk. & Curt. However Saccardo (1884) changed the name to *Haplosporella cesatii* Sacc. Petch (1907) considered that Ceylonese specimen No.648 and the Sarawak specimen are the same and belong to *H. cesatii* Sacc. Measurements of conidia given by Cesati for the Sarawak specimen are 7x4 μm which gives the wrong impression that conidia are smaller than specimen No. 648 which has conidia 12.5-15 x 7.5-10 μm . However, Petch (1907) explained the Cesati's unit = 2 μm , therefore conidial measurements become 14 x 8 μm which agrees with specimen No. 648. Hughes (1953) had not seen the Sarawak material, however he had seen two collections assigned by Petch to *H. cesatii*, and present in herb. K. No. 4724 (IMI 47954) on *Haevea brasiliensis* bark, Peradeniya, June 1915, and No. 4755 (IMI 47955) on *Ficus* bark. Hughes (1953) considered No. 4755 as *Phaeobotryosphaeria plicatula*. This material only had ascospores measuring 18-25 x 8-12 μm . The present study also confirms his observation, whereas No. 4724 is the pycnidial state of *Phaeobotryosphaeria plicatula* with conidia measuring 14-18 x 8-10 μm . This material has hyaline, thick-walled as well as brown conidia, and resembles the Ceylon material No.648, but in the same slide conidia of *Lasioidiplodia undulata* are also present. Therefore, Hughes (1953) doubtfully assigned *Haplosporella cesatii* in the synonymy of *Phaeobotryosphaeria plicatula*. In addition to this, he also placed *Haplosporella maniliensis* Sacc., *H. syconiphila* Sacc., *Dothiorella stratosia* Sacc., *Phaeodorus rauwolfiae* Zambattakis in its synonymy. However these and specimen No. 648 are characterized by eustromatic conidiomata with many locules with immature thick-walled hyaline conidia which become brown and thin-walled on maturity, indicating that they belong to *Cytosphaera*.

Studies on the types of *Haplosporella manilensis* Sacc., *H. syconophila* Sacc., *Dothiorella stratosia* Sacc., *Sphaeropsis undulata* Berk. & Curt. No 648 (studied by Berkeley and Broome from Ceylon), *Cytosphaera eucalyptii* Sharma and description of *H. cesatii* Sacc., show that these taxa are conspecific with *Cytosphaera mangiferae*, the earliest name *H. cesatii* should be taken up so a new combination *C. cesatii* is proposed.

Cytosphaera was erected by Diedicke, apud Sydow *et al.*, (1916) as a monotypic genus. Petrak & Sydow (1927) placed this generic name in synonymy with *Aplosporella* Speg. (*Haplosporella*). Sutton (1980) considered it to be a different genus, and *Aplosporella* and *Cytosphaera* can easily be distinguished by their conidial morphology and methods of dehiscence of conidiomata. In *Cytosphaera* conidia are aseptate, hyaline or brown without ornamentation on the outer conidial wall, and conidiomata dehiscence from separate locules, whereas in *Aplosporella* conidia are ornamented on the outer wall, and there is a common ostiole. Hughes (1953) used *H. cesatii*, *H. camerunensis*, *H. manilensis*, *H. syconophila*, *Dothiorella stratosia*, *Phaeodorus rauwolfiae*, in synonymy for the conidial state of *Phaeobotryosphaera plicatula* (Berk. & Br.) Petch. Sutton (1980) did not agree that *Haplosporella* (*Aplosporella*) is the correct name for them, since mature conidia are smooth, and immature conidia are enclosed in a mucilaginous sheath and there is no common ostiole for dehiscence. Furthermore, Sutton (1980) pointed out that these belong to the *Cytosphaera*, probably as the immature anamorphic state of *Phaeobotryosphaera plicatula*. Sutton (1980) redescribed *Cytosphaera mangifera*, though the description was not based on the type material, with conidiomata irregularly pulvinate, multilocular, conidia aseptate, hyaline or brown, thick-walled, microconidia were also present. Diedicke (1916) did not report microconidia. Abbas & Sutton (1988) while describing *Avettaea salvadorae*, pointed out that *H. manilensis* and *H. syconophila* showed close resemblance with *Avettaea*. Conidia are aseptate, brown, smooth-walled, and a mucilaginous sheath is very prominent in *Avettaea salvadorae* whereas in *H. manilensis* (IMI 47953) and *H. syconophila* (IMI 47952), it is only present in immature conidia. The study was mainly based on a squash preparation in herb. IMI, whereas the present study was based on type material obtained from herb K. Permanent freezing microtome slides were examined and these showed that conidiomata are quite different from those reported for *Avettaea*, and thus they belong to *Cytosphaera*.

LASIDIPLODIA Ell. & Everh. apud Clendenin, *Bot. Gaz.*, 21: 92 (1896); Sutton, *Coelomycetes* (CAB., IMI) Kew, 161 (1980).

Striodiplodia Zambettakis, *Bull. trimest. Soc. mycol. Fr.*, 70: 334 (1955).

Sp. typ.: *Lasidiplodia undulata* (Berk. & Curt.) Abbas, Sutton, Ghaffar & Abbas com. nov.,

(**Syn.** *Lasidiplodia theobromae* (Pat.) Griff. & Maubl., *Botryodiplodia theobromae* Pat., *L. tubericola* Ell. & Everh., Illustration: Punithalingam, 1980).

Fig. 1.

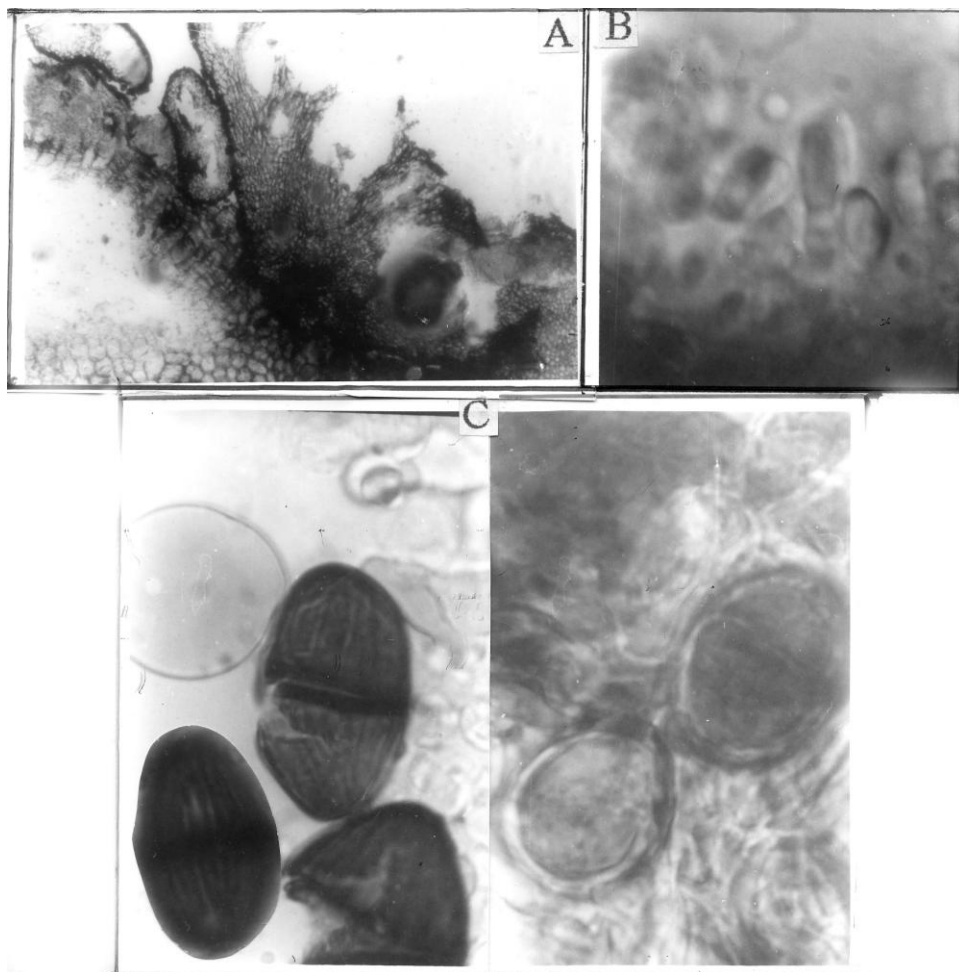


Fig. 1. *Lasiodiplodia undulata*: (Syn. *Shaeropsis undulata*, Berk. & Curt.) No. 560. A= V.S. of conidioma, 60X; B= conidiogenous cells, 150X; C= conidia, 1500X.

Mycelium immersed or superficial, branched, septate, dark chocolate brown. *Conidiomata* eustromatic, immersed or superficial, separate or aggregated and confluent, globose, carbonous, dark brown, uni- or multilocular; wall of dark brown, thick-walled *textura angularis*, paler and thinner towards the conidiogenous region, often with dark brown superficial hyphae over the surface. *Ostiole* absent, dehiscence by irregular rupture. *Conidiophores* absent. *Conidiogenous cells* determinate, discrete, cylindrical, hyaline, smooth, with no percurrent or sympodial proliferation, formed from cells lining the inner pycnidial walls. *Conidia* hologenous, acrogenous, hyaline when young, later becoming medianly 1 euseptate, dark brown, thick-walled, ellipsoid, base truncate, with longitudinal striations from apex to base. *Paraphyses* hyaline, cylindrical, septate.

Sutton (1980) is of the opinion that *Lasiodiplodia* is clearly the correct generic name to adopt for the ubiquitous tropical to subtropical plant pathogen popularly known as

Botryodiplodia theobromae Pat. The thick-walled, striate, slowly maturing conidia are diagnostic, in contrast to the vegetative hyphae that often give stromata a hirsute appearance but are of little taxonomic significance. The species is commonly referred to *Botryodiplodia* Sacc., typified by *B. juglandicola* (Schw.) Sacc., but if the differences in conidial morphology survive a reassessment of generic concepts in this group then *B. theobromae* will probably be maintained in *Lasiodiplodia* as Zambettakis (1955) has suggested.

Lasiodiplodia undulata (Berk. & Curt.) Abbas, Sutton, Ghaffar & Abbas comb. nov.

Sphaeropsis undulata Berk. & Curt., *J. Linn. Soc.*, 10: 352 (1869).

Dothiorella undulata (Berk. & Curt.) Sacc. *Syll. Fung.*, 3: 240 (1884).

Botryodiplodia undulata (Berk. & Curt.) Petrak apud Petrak & Sydow, *Beihf. Repert. Spec. nov. regni. Veget.*, 42: 157 (1926).

Diplodia gossypina Cke, *Grevillea* (95): 879 (1879); Taubenhaus, *Am. J. Bot.* 2: 324-331 (1915); Punithalingam, *Bibl. Mycol.*, 71: 1-121 (1980).

Botryodiplodia theobromae Pat. apud Pat. & de Lagerheim, *Bull. trimest. Soc. mycol. Fr.*, 8: 136 (1892), Punithalingam, *Bibl. mycol.*, 71: 1-121 (1980).

Lasiodiplodia theobromae (Pat.) Griff. & Maubl., *Bull. trimest. Soc. mycol. Fr.*, 25: 57 (1909).

Diplodia theobromae (Pat.) Nowell, *Diseases of Crop Plants in the Lesser Antilles*: 158 (1923).

Macrophoma vestita Prill. & Delacr., *Bull. trimest. Soc. mycol. Fr.*, 10: 165 (1894).

Diplodia cacaicola P. Henn., *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 22: 80 (1895).

Lasiodiplodia tubericola Ell. & Everh. apud Clendinin, *Bot. Gaz.*, 21: 92 (1896).

Diplodia tubercula (Ell. & Everh.) Tub., *Amer. J. Bot.*, 2: 328 (1915).

Botryodiplodia tubericola (Ell. & Everh.) Petrak, *Annls. Mycol.*, 21: 332 (1923).

Botryodiplodia gossypii Ell. & Everh., *J. Mycol.*, 8: 175-176. (1902).

Botryodiplodia elasticae Petch, *Annls Royal Bot. Gard. Peradeniya*, 3: 7 (1906).

Chaetodiplodia grisea Petch, *Annls Royal Bot. Gard. Peradeniya*, 3: 6-7 (1906).

Diplodia arachidis Petch, *Annls Royal Bot. Gard. Peradeniya*, 3: 6 (1906).

Lasiodiplodia nigra Appel & Laubert, *Arb. aus der Kais. Biol. Anst. für Land-und Forst.*, 5: 147-148 (1907).

Diplodia rapax Masee, *Bull. Misc. Inform. Royal Bot. Gard. Kew*, 1: 3 (1910).

Diplodia natalensis Pole Evans, *Sci. Bull. Dept Agri. Union of South Africa* No.1: 13 (1911).

Diplodia manihoti Sacc. (as 'maniothi'), *Annls Mycol.*, 12: 310 (1914).

Botryodiplodia manihoti (Sacc.) Petrak (as 'maniothi'), *Annls Mycol.*, 22: 83 (1924).

Botryodiplodia manihotis Syd. apud H. & P. Syd. & Butler, *Annls. Mycol.*, 14: 202 (1916).

Diplodia corchori Syd. apud H. & P. Syd. & Butler, *Annls Mycol.*, 14: 196 (1916).

Diplodia musae Died. apud H. & P. Syd. & Butler, *Annls Mycol.*, 14: 200 (1916).

Lasiodiplodia triflorae Higgins, *Bull. Georg. Exp. Stat.*, No. 118: 16 (1916).

Diplodia ananassae Sacc., *Atti della Accad. Sci. veneto-trenti no-istriana* Ser. III, 10: 75 (1917).

Botryodiplodia ananassae (Sacc.) Petrak, *Annls Mycol.*, 27: 365 (1929).

Botryodiplodia manihoticola Petrak apud Petrak & Syd., *Beihf. Repert. Spec. nov. regni veget.*, 42: 143. (1926).

Conidiomata eustromatic, irregularly pulvinate, black, separate, sometimes aggregated, initially immersed, but later becoming superficial, 520-1950 μm in length and 390-1940 μm in height, with a fertile, locular region and unfertile compact region. Locules many, peripheral, non-ostiolate, upper peripheral layer generally 1-4 cells thick and 8-17 μm wide, very dark and sclerotoid, the inner cells becoming gradually hyaline and thinner, of textura angularis; the walls separating the locules are of textura prismatica, 2-5 cells thick and 15-24 μm wide. *Conidiophores* generally absent but when present then 1-2 septate, smooth, hyaline, cylindrical, 13-25 x 3.2-4.8 μm . *Conidiogenous cells* hyaline, smooth, cylindrical, determinate, non-proliferating 8-20 x 3.2-4.8 μm . *Conidia* hologenous, aseptate, smooth, broadly oval, initially hyaline later becoming pale brown, with longitudinal striations, 20-32 X 13.5-19.2 μm and wall prominently 0.8-1.6 μm thick.

The present studies of type material clearly show that *S. undulata* belongs to *Lasiodiplodia*. There has been controversy about the name of the type species of *Lasiodiplodia*, until now the earliest name has been based on *Diplodia gossypina* Cke. (1879), (Taubenhaus, 1915; Punithalingam, 1980). Neither Punithalingam (1976, 1980) nor Sutton (1980) used this earlier epithet but since there is now a much earlier epithet known to be available, this controversy is removed.

PHAEODOMUS Höhn., *Sber. Akad. Wiss. Wien* 118: 69 (1909); Sutton, *Coelomycetes* (CAB., IMI) Kew, 323. 1981).

Sp. typ.: *P. erumpens* (Berk. & Curt.) Petrak & Syd. (syn. *Sphaeropsis erumpens* Berk. & Curt., *P. lauracearum* Höhn.).

Mycelium immersed, branched, septate, brown. *Conidiomata* eustromatic, separate, occasionally confluent, erumpent, irregularly pulvinate, dark brown to black, uni- to multi-locular, locules simple, effuse, peripheral in the upper part of the stroma, wall brown, thick-walled, and consisting of textura angularis, darker and more sclerotoid at the periphery. *Ostiole* absent, dehiscence by irregular breakdown or rupture of the overlying wall. *Conidiophores* absent. *Conidiogenous cells* determinate or indeterminate, discrete, straight, hyaline, smooth, cylindrical, doliiform or conical, proliferating enterogenous with 1-2 progressive proliferation formed from the inner cells of the locular wall. *Conidia* hologenous, aseptate, pale brown, eguttulate, smooth, base truncate, sometimes with a frill, apex obtuse, ellipsoid to obpyriform.

Petrak (1925) considered *Phaeodomus* to be intermediate between *Cyclodomus* Höhn. and *Hemidothis* Syd. Later, Petrak & Sydow (1927) maintained the genus as distinct.

Phaeodomus berkeley Abbas, Sutton, Ghaffar & Abbas sp. nov.

Conidiomata eustromatica, irregularia, pulvinata, nigra, 3-5 locularia, initio immersa, tandem superficialia, 520-910 x 260 x 860 μm . Parietes exterior et stratum peripherale 2-6 cellulis crassi, sclerotioideis, atro-nigris consistans ad 4-40 μm lati, cellulis remanentibus ex textura angulari, tenuioribus, brunneis. Parietes interoculares ex textura prismatica usque 10 cellulis crassis ad 40 μm latis. *Conidiophora* absentia. *Cellulae conidiogenae*, hyalinae, laeves, cylindricae, determinatae, non-proliferationeibus, 6-16x4 μm . *Conidia* hologenitica, aseptata, longa vel ovata, tenuiora, pallide brunnea, laevia, apicem et basim obtusa, 12-16 x 7.5-8.8 μm .

On foliis hospes plantum ignota, South island, Sri Lanka Ceylon, Nov. 1867. G.H.K. Th No.30 ex herb. k. 1415, (Reportorium Berkeley & Broome, (1873) *Sphaeropsis undulata* Berk. & Curt., holotypus.

Pheodomus berkeley Abbas, Sutton, Ghaffar & Abbas sp. nov.

Conidiomata eustromatic, irregularly pulvinate, black, 3-5 locular, initially immersed but later becoming superficial, 520-910 X 260-860 µm, outermost and peripheral layer sclerotoid, 2-6 cells thick and 4-40 µm wide, black, the rest of the tissue composed of textura angularis, brown and relatively thin-walled except for the wall separating the locules, which is up to 10 cells thick and 40 µm wide, thin-walled and of textura prismatica. *Conidiophores* absent. *Conidiogenous cells* hyaline, smooth, cylindrical, determinate (non-proliferating), 6-16 x 4 µm. *Conidia* hologenous, aseptate, oblong to oval, thin-walled, pale brown, smooth, both ends obtuse, 12-16 x 7.5 - 8.8 µm.

CYTOSPHAERA Died., apud Sydow *et al.*, *Annls Mycol.*, 14: 205 (1916); Sutton, Coelomycetes (CAB., IMI,) Kew: 161 (1980).

Sp. typ.: *C. cesatii* (Sacc.) Abbas, Sutton, Ghaffar & Abbas comb. nov.
Fig. 2 & 3

Mycelium immersed, branched, septate, dark brown. *Conidiomata* eustromatic, separate, occasionally confluent, irregularly pulvinate, dark brown to black, initially subepidermal but strongly erumpent, finally appearing superficial, multilocular; locules simple, globose, peripheral in the upper part of the stromata; tissue of thick-walled dark brown textura angularis, darker and more sclerotoid at the base and periphery. *Ostioles* single to each locule, circular, not papillate. *Conidiophores* sometimes present, 1-2 septate, hyaline, smooth, sparingly branched, formed from the inner cells of the locular walls. *Conidiogenous cells*, 1) macroconidial, determinate (non-proliferating), integrated or more frequently discrete, straight, cylindrical, hyaline, smooth. 2) microconidial, determinate, discrete, straight, cylindrical, hyaline, smooth, proliferating enterogenous and stationarily, channel minute, collarete and periclinal thickening distinct. *Macroconidia* hologenous, hyaline, aseptate, with very thick walls, ± guttulate, smooth, base truncate. *Microconidia*, enterogenous hyaline, aseptate, thin-walled, guttulate, ellipsoid to cylindrical.

Petrak & Sydow (1927) placed this generic name in synonymy with *Aplosporella* Speg., but *C. cesatii* can be distinguished from species of that genus by the hyaline, thick-walled conidia and the stromata of different structure. The genus is monotypic.

Specimens examined

Lasiodiplodia undulata (Berk. & Curt.) Abbas, Sutton, Ghaffar & Abbas comb. nov.

On bark of unidentified plant, Cuba, 1867, C.Wright, 560 herb. K. (= holotype of *Sphaeropsis undulata*), holotype.

Phaeobotryosphaeria plicatula (Berk. & Br.) Petch, (*Sphaeria plicatula* Berk. & Br.

On *Haevea brasiliensis* 15 Jun. 1915. No.30 ex. herb. K 4727 (IMI 47954; *Ficus* bark herb K 4755 (IMI 47955).

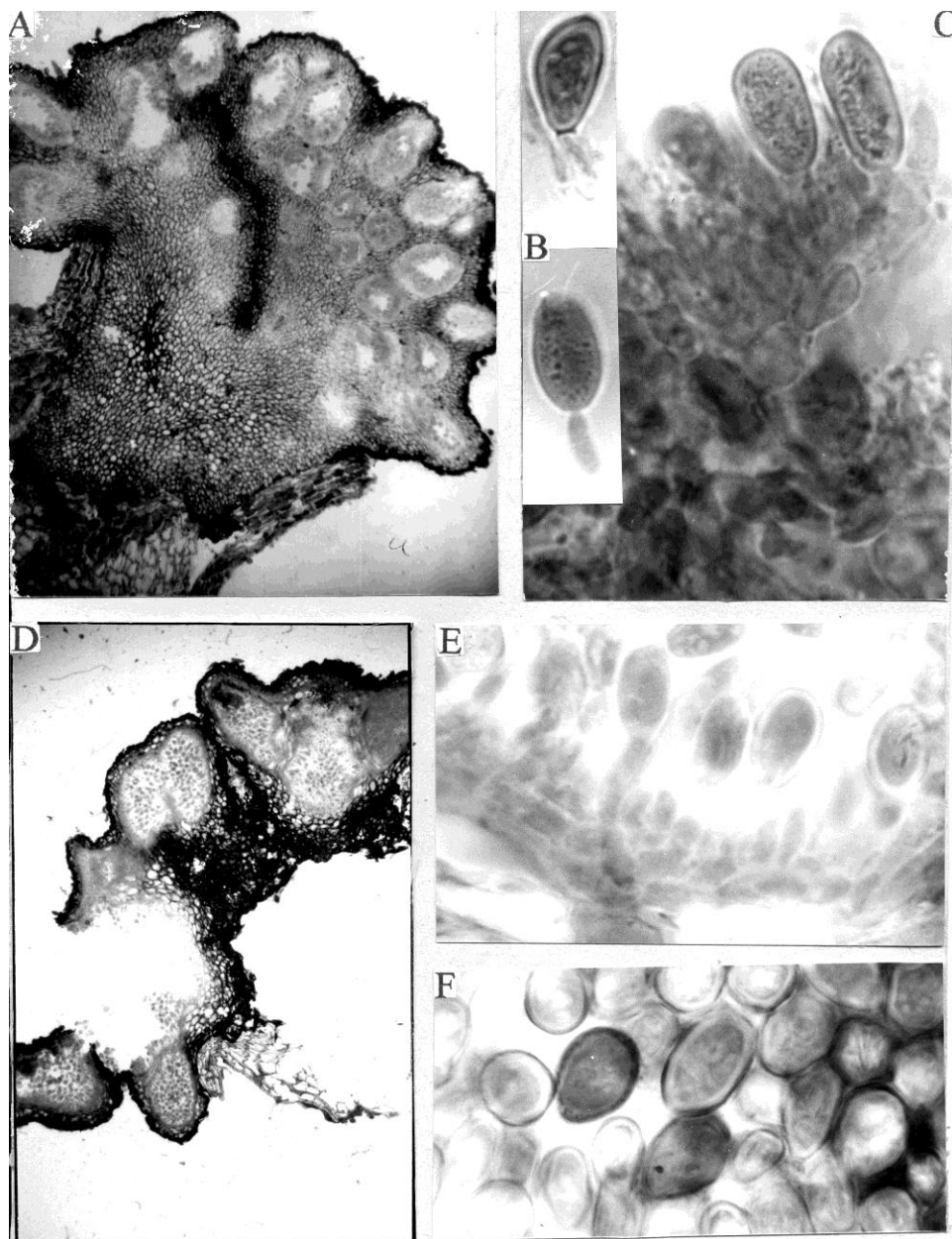


Fig. 2. *Cytosphaera cesatii*: (Syn. *Dothiorella strotosa* No. 431). Type, herb K: A= V.S. of conidioma, 40X; B= Conidiogenous cells with conidia, 1800X; C= Conidiomata wall with conidiogenous cells, 1800X; *Haplosporella melanensis* No. 8386, type, herb K. D= V.S. of conidioma, 40X; E= Conidiogenous cells, 1800X; F= Conidia 1800X.

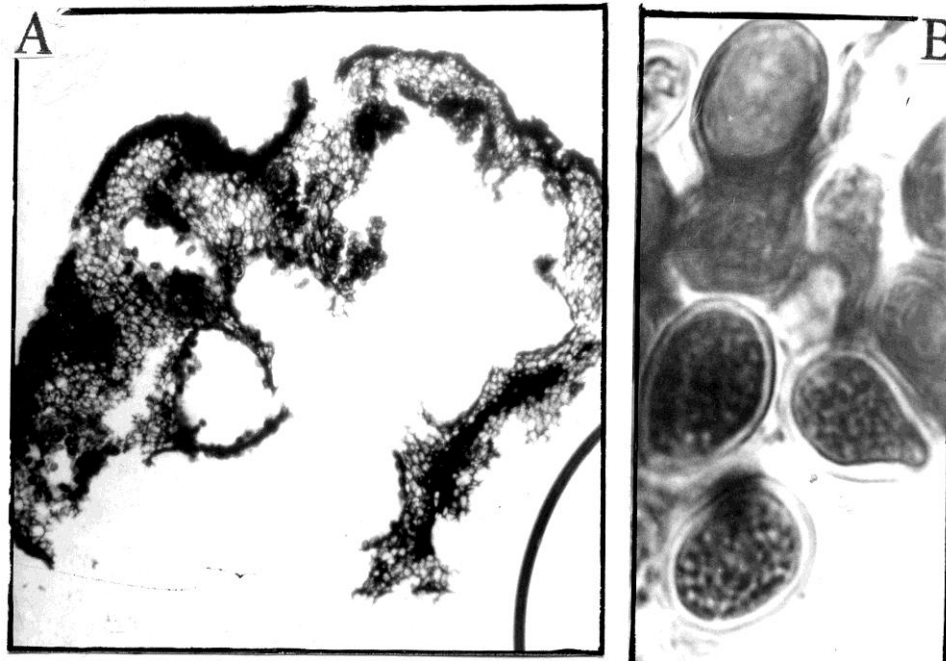


Fig. 3. *Cytosphaera cesatii*: (Syn. *Haplosporella syconophila* No. 431). Type, herb K. A= V.S. of conidioma, 40X; B= Conidia, 1800X.

***Phaeodumus berkeley* sp.nov.**

On bark of unidentified plants South of Island Sri Lanka, (Ceylon) Nov. 1867, H.K. Th. No. 30 herb. K. 1415, holotype (Reported by Berkeley and Broome 1873 *Sphaeropsis undulata* Berk. & Curt.).

***Phaeodumus erumpens* (Berk. & Curt.) Petrak & Sydow**

On leaves of an unidentified member of *Lauraceae*. Brazil exherb. F.H. (IMI 202952), (= holotype of *P. lauracearum* Höhn.).

***Cytosphaera cesatii* (Sacc.) Abbas, Sutton, Ghaffar & Abbas comb. nov.**

On dead bark of unidentified plant, Sri Lanka (Ceylon), 1868, No.648, holotype (= *Sphaeropsis undulata* Berk. & Curt. reported by Berk. & Br.

***Cytosphaera eucalyptii* Sharma**

On *Eucalyptus globulus*, Krushinagar, Adharfal, Jabalpur, India 20.8.1975, D. Sharma (IMI 199077), holotype.

***Cytosphaera mangiferae* Died.**

On *Mangifera indica*, Pakistan (IMI 152939).

***Dothiorella stratos* Sacc.**

On *Piscidia erythrina* Singapore, C.F. Baker, Fungi Malayana 431 in herb. K, holotype.

***Haplosporella manilensis* Sacc.**

On *Ricinus communis*, Philippines. E.D. Merrill. 8386. in herb. K, holotype.

***Haplosporella syconophila* Sacc.**

On *Ficus elastica*, Singapore, C.F. Baker. Fungi Malayana 431. in herb. K, holotype.

References

- Abbas, S.Q. and B.C. Sutton. 1988. An addition to *Avetiaea* (Coelomycetes) from Pakistan. *Trans. Br. Mycol. Soc.*, 90: 491-494.
- Berkeley, M.J. and C.E. Broome. 1873. The review on the fungi of Ceylon. *J. Linn. Soc. Part II.* 14: 65-140.
- Cooke, M.C. 1879. Some exotic fungi *Grevillea*, 6: 117-118.
- Diedicke, 1916. In: *Sydow et al., Annls. Mycol.*, 14: 205.
- Hughes, S.J. 1953. Fungi from the Gold Coast. II. *Mycol. Pap.* (CAB, IMI) Kew, 50: 1-104.
- Petch, T. 1907. Revisions of Ceylon Fungi. *Ann. Royal Bot. Garden, Peradeniya*, 4: 59-68.
- Petrak, F. 1925. Mykologische. Notizen. VIII. *Annls Mycol.*, 23: 1-143.
- Petrak, F. and H. Sydow. 1927. Die Gattungen der Pyrenomyzeten, Sphaeropsideen und Melanconiceen. *Beih. Rep. Spec. nov. regni veg.*, 42(2,3): 161-551.
- Punithalingam, E. 1976. *Descriptions of pathogenic fungi and bacteria* (CAB, IMI) Kew, no. 519.
- Punithalingam, E. 1980. *Botryodiplodia theobromae*. *Bibl. Mycol.*, 71: 1-121.
- Sutton, B.C. 1980. *The Coelomycetes* (CAB, IMI) Kew, Surrey, U.K. pp. 696.
- Sydow, H., P. Sydow and E.J. Butler. 1916. Fungi Indiae Orientalis. V. *Annls Mycol.*, 14: 177-220.
- Taubenhaus, J.J. 1915. The probable non-validity of the genera *Botryodiplodia*, *Diplodiella*, *Chaetodiplodia*, *Lasiodiplodia*. *Am. J. Bot.*, 2: 324-331.
- Zambettakis, C. 1955. Recherches sur la systématique des "Sphaeropsidales-Phaeodidymae". *Bull. trimestr. da la Soc. Mycol. de France*, 70: 219-350.

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