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***Lasiosphaeria caesariata* with *Sporidesmium hormiscioides* and *L. triseptata* with *S. adscendens***

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Abstract. – *Lasiosphaeria caesariata* (CLINTON & PECK in PECK) SACCARDO is redescribed from the type and recent collections. The probable anamorph, *Sporidesmium hormiscioides* CORDA, is redescribed and illustrated. *Lasiosphaeria triseptata* n. sp. from *Platanus orientalis* L. in Hungary is described. It was found associated with *Sporidesmium adscendens* BERKELEY.

**Introduction**

A collection of the hyphomycete, *Sporidesmium hormiscioides* CORDA, was found to have associated perithecia of *Lasiosphaeria caesariata* (CLINTON & PECK in PECK) SACCARDO. Attempts to culture both morphs were not successful. Some conidia and some ascospores germinated, but growth comparisons in culture were not possible because of the slow growth.

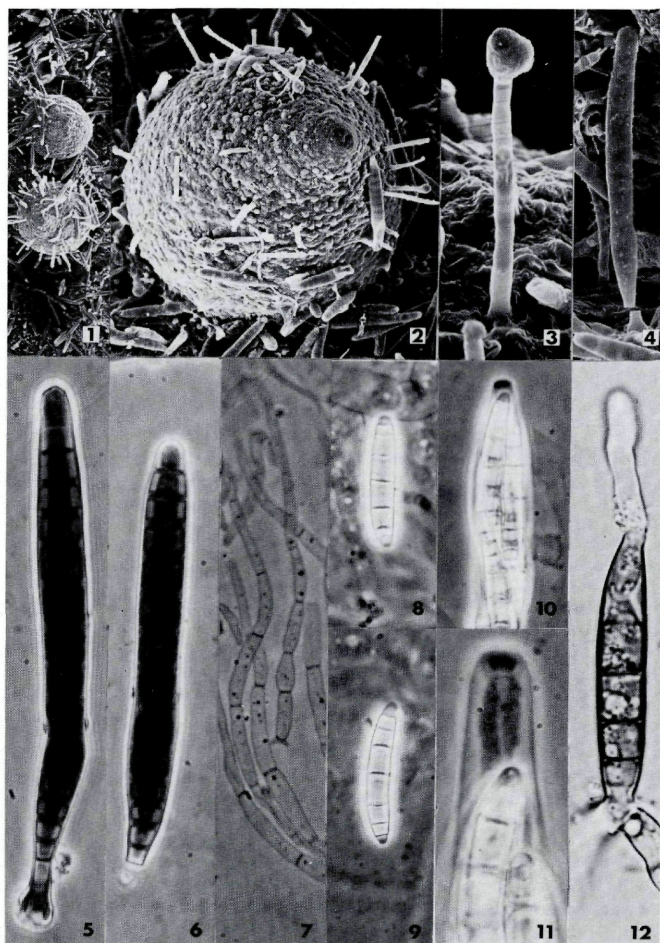
Collections filed as *S. hormiscioides* in DAOM were examined: three were found to have *L. caesariata* associated. Part of the type of *L. caesariata* was found to bear *S. hormiscioides*. The two morphs were found associated in three later collections from the same site that the initial associated collection was made. While it has not been possible to prove the connection of the two morphs in culture, it was thought to be worthwhile to redescribe them and point out the probable connection.

In the examination of *S. hormiscioides* collections, one European collection was found to bear another *Lasiosphaeria* which is described as new. The associated hyphomycete matches authenticated collections of *S. adscendens* BERKELEY. The collection was made on *Platanus orientalis* L. in Hungary. The association or connection may be of interest to mycologists in Europe.

**Descriptions**

1. *Lasiosphaeria caesariata* (CLINTON & PECK in PECK) SACCARDO, Sylloge Fungorum 2: 192 (1883) – Fig. 1–3, 7–13

= *Sphaeria caesariata* CLINTON & PECK in PECK, Ann. Report New York State Museum Nat. History, 29: 60. 1875 (1878).



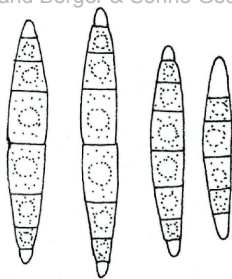
Figs. 1-3, 7-12: *Lariosphaeria caesariata*. - Figs. 4-6: *Sporidesmium hormiscioides*. - Figs. 1, 2: Ascocarps, S. E. M., 183938, 52 $\times$ , 204 $\times$ . - Fig. 3: Seta and terminal globule, S. E. M., 183938, 1040 $\times$ . - Fig. 4: Conidiogenous cell and conidium, S. E. M., 183938, 500 $\times$ . - Fig. 5, 6: Conidiogenous cell and conidia, 183933, 640 $\times$ . - Fig. 7: Paraphyses, 183933, 640 $\times$ . - Fig. 8, 9: Ascospores, 183938, 640 $\times$ . - Fig. 10, 11: Tips of asci, 183938, 640 $\times$ , 1600 $\times$ . - Fig. 12: Germinated ascospore, 189168 (a), 1200 $\times$ .

Ascocarps superficial, solitary or clustered in twos or threes, globose to pyriform, papillate, smooth, setose, glistening dark brown, nearly black, 280–400  $\mu\text{m}$  diam. – Beak a short papilla, ostiole 30–40  $\mu\text{m}$  diam. lined with hyaline 15–20  $\times$  2–3  $\mu\text{m}$  periphyses. – Wall carbonaceous, brittle, thick, of two distinct parts; outer part laterally 25–30  $\mu\text{m}$  thick, of 4–6 layers of dark brown, thick-walled 4–6  $\mu\text{m}$  diam. cells; inner part 10–15  $\mu\text{m}$  thick of 5–7 layers of hyaline to yellow prismatic thin-walled 8–12  $\times$  2–3  $\mu\text{m}$  cells. – External setae scattered, dark brown with an amorphous, yellow, globose to irregular cap, 30–90  $\times$  5–7  $\mu\text{m}$ , septate at 15–20  $\mu\text{m}$  intervals. – Paraphyses numerous, apically free, 2–4  $\mu\text{m}$  diam. above, inflated to 18  $\mu\text{m}$  near base, septate at 20–35  $\mu\text{m}$  intervals, not guttulate, not furnished with gelatinous coating. – Asci numerous in a broad hymenium, cylindrical, unitunicate, apical annulus small, IKI-negative, stainable with blue ink, pulvillus absent, 100–120  $\times$  16–24  $\mu\text{m}$ , with 8 overlapping biseriate to tetraseriate spores. – Ascospores fusoid, inequilateral to curved (5-)7-septate, widest at the middle, central two cells longer than wide, end cells short, guttulate, light yellow-brown with hyaline end cells, smooth, lacking sheath or appendages, septate in sequence 4 : 3 : 2 : 1 : 2 : 3 : 4, 34–46  $\times$  5–7  $\mu\text{m}$ .

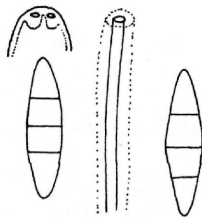
Anamorph: *Sporidesmium hormiscioides* CORDA, *Icones Fungorum* 2: 6 (1838). – Fig. 4–6, 14.

Colonies brown, nearly black, glistening, effuse to dense. – Conidiophores on wood, a single short flask-shaped conidiogenous cell 14–16  $\times$  9–12  $\mu\text{m}$  in the lower swollen portion and 4–5.5  $\mu\text{m}$  wide at the cylindrical neck, producing solitary blastic conidia. – Conidia medium to dark reddish brown, cylindrical, straight, sometimes curved or bent 12–18-septate, 90–205  $\times$  9–14.5  $\mu\text{m}$ , apical cell hyaline, apex hemispheric, base truncate, 4–4.5  $\mu\text{m}$  wide, secession schizolytic. – Cultures on straw in water agar in aerobic or anaerobic conditions result in polar germ tubes that grow about 30  $\mu\text{m}$  in 7 days.

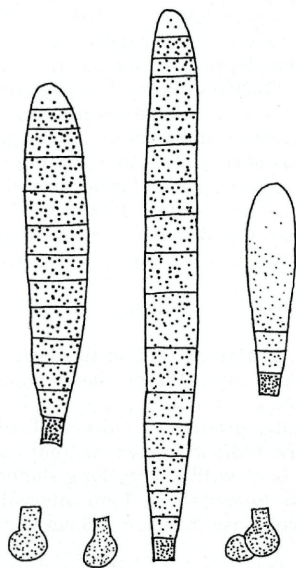
Specimens examined: on rotten wood, Portville, N. Y., Sept. 1875. [G. W. CLINTON] ex herb. C. H. PECK, ex herb. DEARNESS 4674, part of type of *L. caesariata*, DAOM 166653; on *Alnus*, Mesachie L. Expt. Station, Vancouver I., B. C., 22. VII. 1957. A. C. MOLNAR, 5640 (b); on wood, Kingsmere, Que. 6. X. 1952, D. E. WELLS (as *Melanomma*), 29365 (b); on dead branch, Mackenzie King Estate, Gatineau Park, Que., 3. XI. 1977, S. THOMSON, 165540 (b); on wood chips on trail, Moodie Drive, Ottawa, Ont., G. P. WHITE, 29. Aug. 1982, 183933 (a & b); 12. Sept. 1982, 183932 (a & b); 19. Sept. 1982, 183938 (a & b); 13. May 1984, 189168 (a & b).



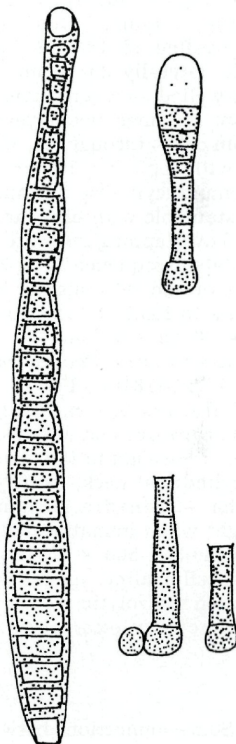
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Fig. 13: *Lasio-sphaeria caesariata*: Ascospores, 189168, 1000 $\times$ . – Fig. 14: *Sporidesmium hormiscioides*: Conidiophores and conidia, 183932 (b), 640 $\times$ . – Fig. 15: *Lasio-sphaeria triseptata*: Ascus tip, ascospores and paraphysis, 151144 (b), 1000 $\times$ . – Fig. 16: *Sporidesmium adscendens*: Conidiogenous cell and conidia, 151144 (a), 640 $\times$ .

## 2. *Lasiosphaeria triseptata* SHOEMAKER & WHITE, sp. n. – Fig. 15

Ascomata superficialia, dispersa, globosa vel ovoidea, papillata, rugulosa, glabra, nigra, 280–350  $\mu\text{m}$  alt., 280–350  $\mu\text{m}$  lat. Ostiolum 25–35  $\mu\text{m}$  diam., periphysatum. Parietis ascomatis fragilis, 35–40  $\mu\text{m}$  lat., cellulis brunneis crassi-tunicatus, 4–6  $\mu\text{m}$  diam. compositus. Paraphyses 2–3  $\mu\text{m}$  lat., pauciseptatae, sine guttulis, mucosae. Asci copiosi, cylindrici, unitunicati, annulati, 90–110  $\times$  12–17  $\mu\text{m}$ , 8-sporei. Ascosporeae biseriatae, fusiformes, rectae, triseptatae, in ordinem 2 : 1 : 2, septo primo medio, cellulis 1 et 4 longis, cellulis ceteris curtis, hyalinae, sine guttulis, laeves, sine mucosae, 20–25  $\times$  5–7  $\mu\text{m}$ . Hab. in cortice *Platanus orientalis* L., Vácrátot, Hort. Bot., Hungaria, 10. VI. 1956, leg. Dr. S. Tóth, 151144, Typus.

Ascocarps superficial, solitary, globose to ovoid, papillate, finely rugose, glabrous, glistening dark brown, nearly black, 280–350  $\mu\text{m}$  diam. – Beak a slight papilla, ostiole 25–35  $\mu\text{m}$  diam. with hyaline 15–18  $\times$  2–3  $\mu\text{m}$  periphyses. – Wall carbonaceous, brittle, laterally 35–40  $\mu\text{m}$  thick, of 10–12 layers of dark brown, thick-walled, 4–6  $\mu\text{m}$  diam., cells becoming prismatic, 8–10  $\times$  2–3  $\mu\text{m}$  in inner two layers. – Paraphyses numerous, hyaline, 2–3  $\mu\text{m}$  diam. throughout, septate at 20–30  $\mu\text{m}$  intervals, not guttulate, with copious gelatinous coating. – Asci numerous in a broad hymenium, cylindric, unitunicate, apical annulus small, IKI negative, stainable with blue ink, pulvillus absent, 90–110  $\times$  12–17  $\mu\text{m}$ , with 8 overlapping biseriatae spores. – Ascospores fusoid, straight, 3-septate in sequence 2 : 1 : 2, widest at the middle, cells subequal in length or end cells slightly longer than central cells, not guttulate, hyaline to light yellow-brown, smooth, lacking sheath or appendages, 20–25  $\times$  5–7  $\mu\text{m}$ .

Anamorph: *Sporidesmium adscendens* BERKELEY, Ann. Nat. Hist. 4: 291 (1840) – Fig. 16.

Colonies brown, nearly black, glistening, effuse to dense. – Conidiophores on wood, single or in twos or threes, flask-shaped 28–46  $\times$  8–10  $\mu\text{m}$  in the lower swollen portion and 5–6  $\mu\text{m}$  wide at the cylindrical neck, usually 2-septate, producing solitary blastic conidia. – Conidia medium to dark reddish brown, cylindrical, straight when immature, curved or bent with a very long slender beak, (80)350–500  $\times$  15–18  $\mu\text{m}$  up to 80-septate at 7  $\mu\text{m}$  intervals, apical cell hyaline, apex hemispherical, base truncate 5–6  $\mu\text{m}$  wide, secession schizolytic.

Specimen examined: DAOM 151144 (a), (see above).

## Discussion

Some connections between *Lasiosphaeria* and anamorphs have been reported. *L. hirsuta* (FRIES) CES. & DENOT to *Phialophora* (HUGHES, 1951), *L. punctata* MUNK to *Endophragmiella biseptata* (PECK) HUGHES as well as *Selenosporella* sp., *L. canescens* (PERS.) KARSTEN to *Selenosporella* (HUGHES, 1979).

Connections of *Sporidesmium* were made to *Hysterium hyalinum* COOKE & PECK (LOHMAN, 1934), and for *S. folliculatum* (CORDA) MASON & HUGHES to the lichen *Buellia stillingiana* J. STEIN (HALE, 1957). LOHMAN's illustration indicates the hyphomycete was probably a *Coniosporium*, but certainly not a *Sporidesmium*. AMADJIAN (1965) was not able to duplicate HALE's culture experiment, and HAWKSWORTH (1979) discounted the reported connection.

The work of SIVANESAN (1983) with the new genus *Phaeotrichosphaeria* indicated that three species probably had connections with *Endophragmiella*. Thus *Phaeotrichosphaeria* and some species of *Lasiosphaeria* possess *Endophragmiella* anamorphs. Because of the common anamorph, SIVANESAN suggested a close relationship of the teleomorph genera.

A *Sporidesmium*-like anamorph was reported for *Chaetosphaeria fusispora* HINO (1961, p. 127).

The culture experiments we made resulted in a few findings that may be of help in dealing with these fungi in culture. The best medium found for germination of conidia is water agar containing a few sterilized pieces of wheat straw. Conidia germinated at room temperature 20–23° C under usual aerobic conditions, but growth stopped after germ tubes had extended 20–30 µm after one week. Ascospores were found to germinate on straw agar under anaerobic conditions at 20–23° C. The germ tubes were terminal and sometimes branched close to the spore. Growth was slow, about 30 µm in 1 week. Conidia did germinate slowly under the anaerobic conditions used for ascospores.

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