

# *Strigopodia*<sup>1</sup>

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Two species of Pyrenomycetes associated with resinous exudates of conifers are illustrated and described in the genus *Strigopodia* Bat.; the phragmoconidial and phialidic states are recognized as belonging to the form genera *Hormisciella* Bat. and *Capnophialophora* Hughes respectively.

The type species of *Strigopodia*, *S. piceae* Bat., is included as *S. resinae* (Sacc. & Bres.) n. comb., syn. *Capnodium resinae* Sacc. & Bres. In its mycelial state it was described as *Racodium resinae* Fr.  $\beta$  *piceum* Pers. Its phragmoconidial state is identified with *Helminthosporium resinaceum* M. C. Cooke, syn. *H. resinae* Bres., and *Clasterosporium resinae* Rillstone. This species occurs in Eastern United States of America (Maine, New Hampshire) and in Europe.

A new species *S. batistae* is recorded from Western United States of America (Calif., Wash., Idaho) and Western Canada (B.C.), and its phragmoconidial state is identified with *Helminthosporium pseudotsugae* W. B. Cooke.

The affinities of *Strigopodia* are with the capnodiaceous fungi rather than with the Parodiopsisaceae.

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## Introduction

In North America and Europe a number of hyphomycetous fungi have been described on or associated with resinous exudates of coniferous trees. This is a peculiar ecological niche and so far as I am aware there has been little taxonomic work on the hyphomycetes that can thrive on such a substrate.

About a dozen species of hyphomycetes have been described on coniferous resin with the epithets *resinae*, *resinacea*, *resinarium*, or *resinicola* in *Clasterosporium*, *Gyroceras*, *Hormodendron*, *Helminthosporium*, *Racodium*, *Stilbum*, and *Torula*; no doubt other species have been described on resin with other epithets. Two of the earliest names applied to hyphomycetes on resin are *Racodium resinae* Fr., and *Racodium resinae* Fr.  $\beta$  *piceum* Persoon (1822). *Racodium resinae* Fr., which will be dealt with in another publication, is quite a different fungus from Persoon's  $\beta$  *piceum*.

*R. resinae*  $\beta$  *piceum* has the appearance of a thick, dense, sooty mold, being composed of a compact subiculum of wide, brown to dark olivaceous brown hyphae. According to Persoon's description, this infraspecific taxon was based on mycelium only but examination of the presumed type collection in Persoon's herbarium in Herb. L has shown the presence of phragmoconidia. I collected this fungus at Devil's Bridge,

Cardiganshire, Wales, in 1954 and 1955 with perithecia, phragmoconidia, and phialides which are being referred to the genera *Strigopodia* Bat., *Hormisciella* Bat., and *Capnophialophora* Hughes respectively. Since that time, 26 collections associated with coniferous resin in North America and Europe have been seen and two closely related species can be differentiated.

The first species occurs in Maine and New Hampshire (U.S.A.) in Eastern North America, and in Europe; it is illustrated (Figs. 1-3) and described as *Strigopodia resinae* (Sacc. & Bres.) n. comb. ( $\equiv$  *Capnodium resinae* Sacc. & Bres.,  $\equiv$  *S. piceae* Bat., the type species of *Strigopodia*). The second species is known from California, Washington, and Idaho (U.S.A.) and British Columbia (Canada) in Western North America; this is illustrated (Figs. 4-6) and described as *S. batistae* n. sp. The *Hormisciella* phragmoconidial state of *S. resinae* has been described twice in *Helminthosporium* and once in *Clasterosporium* and that of *S. batistae* once in *Helminthosporium*.

No cultural work has been carried out to prove the genetic connection between perithecia, phragmoconidia, and phialides in the two species of *Strigopodia*. However, their constant association and the fact that in each species the three states have been seen attached to the same kind of mycelium is strong evidence. Furthermore, in both species phialides on hyphae are indistinguishable from those produced on ascospores and phragmoconidia.

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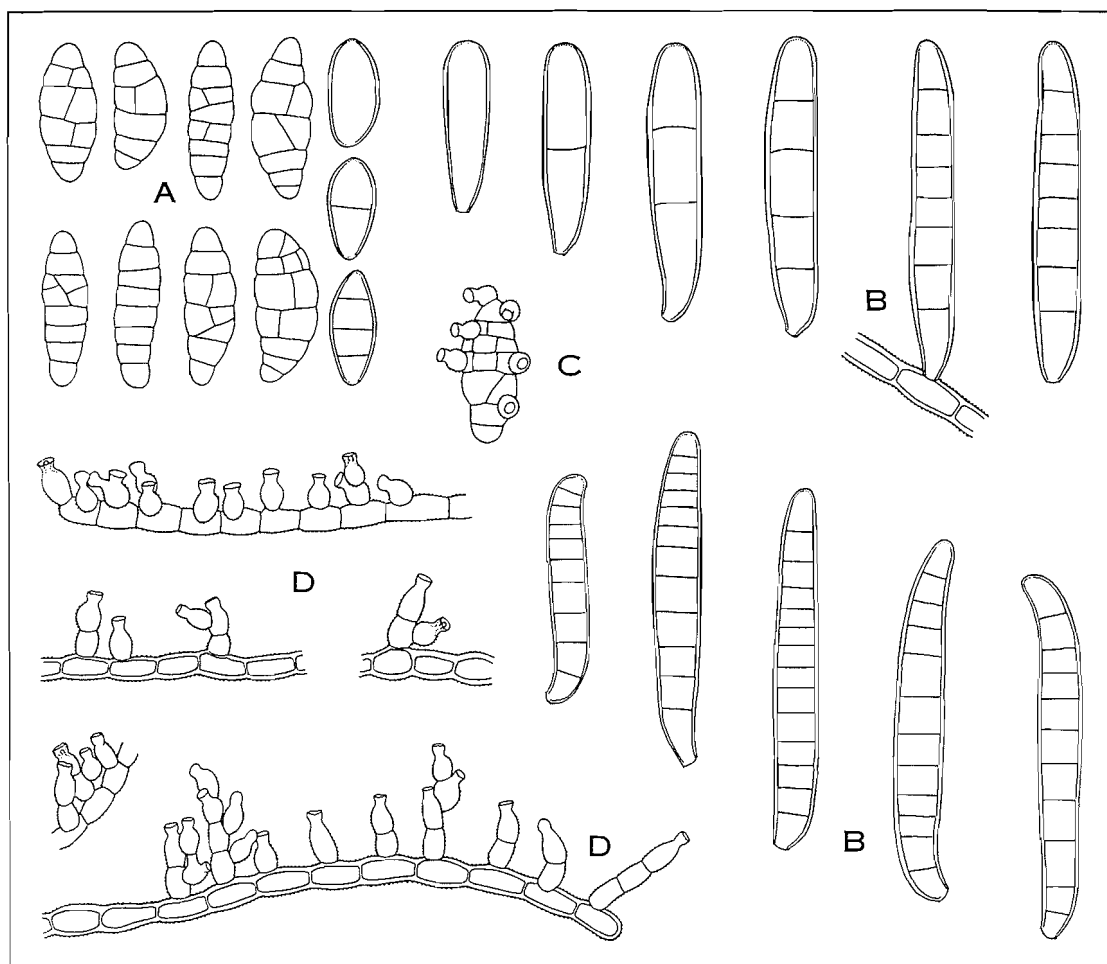


FIG. 1. *Strigopodia resinae* from DAOM 48946. A, mature and young ascospores. B, young and mature *Hormisciella* phragmoconidia. C, ascospore with *Capnophialophora* phialides. D, hyphae bearing *Capnophialophora* phialides.  $\times 500$ .

### Taxonomy

*Strigopodia resinae* (Sacc. & Bres.) comb. nov.  
 $\equiv$  *Capnodium resinae* Sacc. & Bres. in Bres. & Sacc., Malpighia, 11: 322. 1897 (as '*Capnodium* (*Limacinia*) *resinae*').  
 $\equiv$  *Limacinia resinae* (Sacc. & Bres.) Sacc. & Bres. in Sacc., Sylloge Fungorum, 14: 475. 1899 (as '*Limacinia resinae* Sacc. et Bres.').  
 $\equiv$  *Phragmocapnias resinae* (Sacc. & Bres.) Bat. & Cif., Saccardo, 2: 182. 1963 (as '(Sacc. & Bres.) Theiss. & Syd., Ann. Mycol., XV, p. 480. 1917').  
 $\equiv$  *Strigopodia piceae* Bat. in Bat., Maia, & Vital, An. Soc. Biol. Pernambuco, 15: 440. 1957.

### Mycelial state:

$\equiv$  *Racodium resinae* Fr.  $\beta$  *piceum* Pers., Mycol. Europ. 1: 68. 1822.

### Phragmoconidial state:

$\equiv$  *Helminthosporium resinaceum* M. C. Cooke, Grevillea, 17: 68. 1889.

$\equiv$  *Hyphosoma resinacea* (Cooke) Hughes, Can. J. Botany, 36: 781. 1958.

$\equiv$  *Helminthosporium resinae* Bres. in Bres. & Sacc., Malpighia, 11: 322. 1897.

$\equiv$  *Sporhelminthium resinae* (Bres.) Speg., Physis, 4: 292. 1918.

$\equiv$  *Clasterosporium resinae* Rilstone, J. Bot. Lond. 79: 188. 1941.

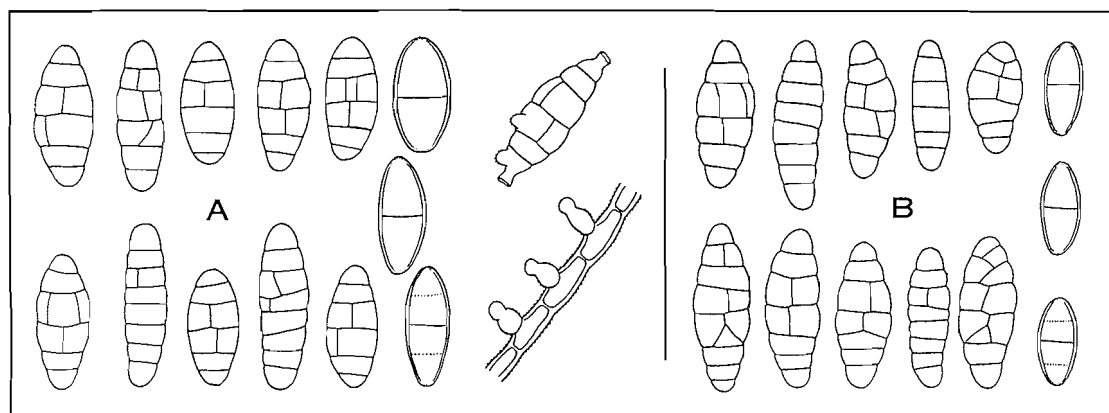


FIG. 2. *Strigopodia resinae*. A, mature and young ascospores, and *Capnophialophora* phialides on ascospore and hypha, from the type of *Capnodium resinae*. B, mature and young ascospores from the type of *Strigopodia piceae*.  $\times 500$ .

Subicula are effuse, dense, up to 2 mm thick, dark olivaceous brown to black, woolly and associated with resinous exudates which often permeate the subicula.

Mycelium is composed of repent and erect, superficial hyphae which are cylindrical, branched (usually at right angles), pale brown to dark olivaceous brown, finely to coarsely roughened, thick-walled (up to  $2\ \mu$ ),  $5\text{--}11\ \mu$  wide, septate at  $10\text{--}30\ \mu$  intervals, not or slightly constricted at the septa and showing frequent anastomoses. The hyphae occasionally grow out above the general level of the subiculum to form tapering fascicles up to 3 mm high.

*Hormisciella* phragmoconidia at maturity are narrowly ellipsoidal to subcylindrical, straight or curved or more or less sigmoid, 7- to 14-septate, usually 9- to 11-septate, not constricted at the septa,  $72\text{--}118 \times 10.8\text{--}14.4\ \mu$ , thick-walled (up to  $2\ \mu$ ) except at the apex, pale brown to dark olive-brown, smooth-walled, rounded at the slightly paler apex and somewhat flattened at the basal scar, which is  $3\text{--}3.5\ \mu$  wide. Conidia are sessile and develop singly along the hyphae as a blowing-out of the lateral wall of a hyphal cell.

*Capnophialophora* phialides are produced on hyphae, germinating ascospores, and occasionally on conidia, but in the collections available they are not common. On the hyphae they are usually crowded in groups, sessile or terminal and lateral on 1- or 2-celled stalks. They are more or less ovoid or subspherical  $6.5\text{--}10.5\ \mu$  long and  $5.4\text{--}6.3\ \mu$  wide, pale brown, slightly roughened, and bear a single, pale brown, broadly funnel-

shaped collarette, with a wide, open end at maturity; collarettes are  $4\text{--}5\ \mu$  wide and  $3.0\text{--}3.5\ \mu$  deep. Phialides commonly proliferate laterally just below a collarette to form another phialide which may also proliferate in this sympodial manner. Occasionally phialides produce a second collarette below the terminal one. Phialospores are apparently produced very sparsely; single ones observed within the collarette are hyaline, subspherical, and about  $1.0\text{--}1.5\ \mu$  in diameter.

Perithecia basally immersed or almost entirely immersed in the subiculum, black, scattered or in groups, subglobose,  $130\text{--}200\ \mu$  in diameter, and ostiolate at maturity; they bear numerous unbranched hypha-like appendages, up to  $250\ \mu$  long and up to  $9\ \mu$  wide, which anastomose and which may continue growth as ordinary hyphae which they so closely resemble.

Asci are fasciculate, broadly ellipsoidal, bitunicate, 8-spored,  $65\text{--}80 \times 30\text{--}35\ \mu$ .

Ascospores usually irregularly multiseriate, ellipsoidal, sometimes wider above the middle, brown to dark brown, thick-walled but thin-walled at base and apex which are bluntly rounded, transversely 5- to 7-septate, constricted at the septa, with one to four cells once or twice longitudinally septate, smooth,  $34\text{--}45 \times 12.5\text{--}16.2\ \mu$ .

The ascospore initials are broadly ellipsoidal, continuous, and soon become subhyaline to pale brown; the first transverse septum formed is always median and a further septum is then laid down in each of the two equal cells. The initial enlarges, and typically, further single septa arise

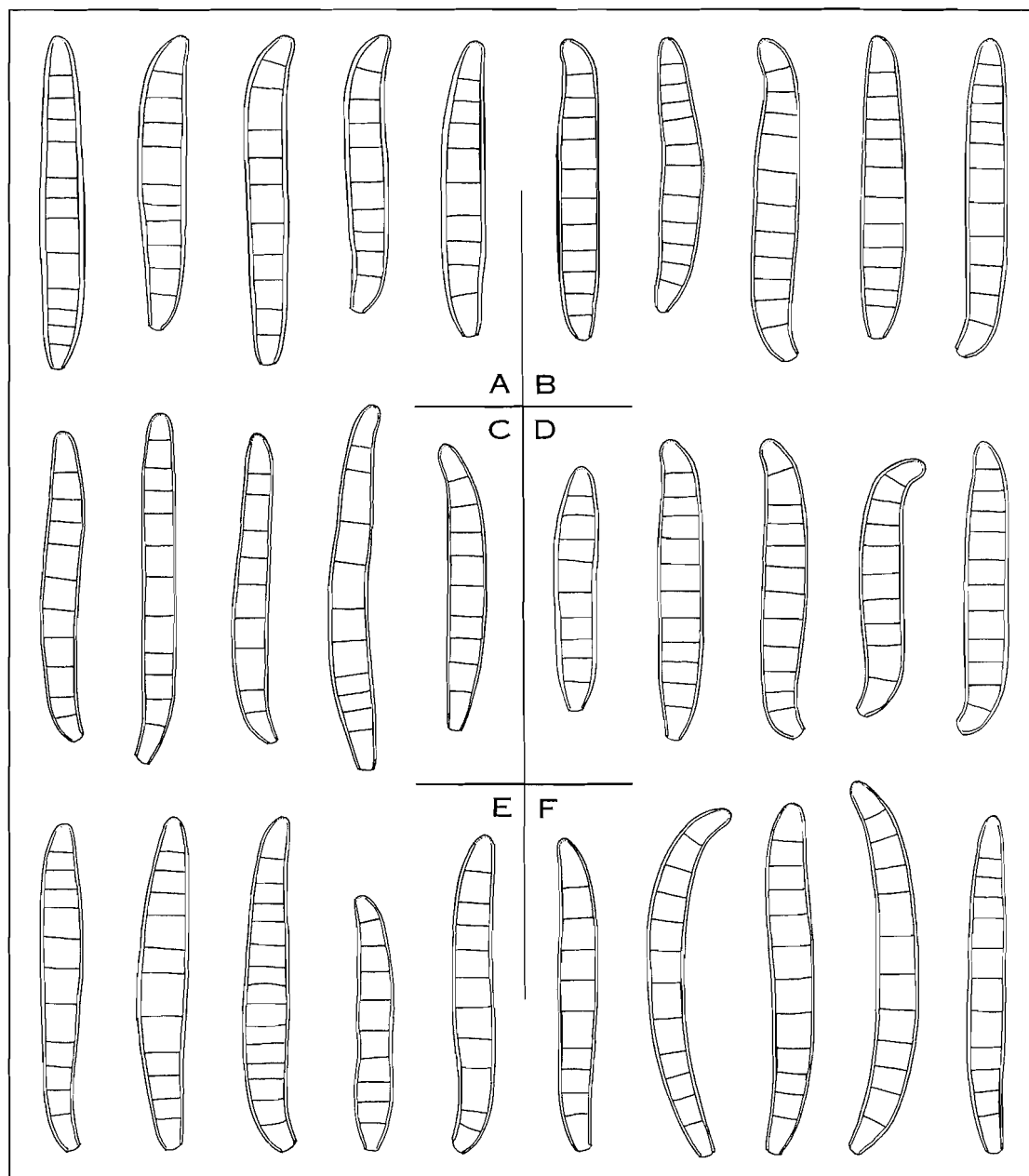


FIG. 3. *Strigopodia resinae*. *Hormisciella* phragmoconidia. A, from the type of *Capnodium resinae*. B, from the type of *Helminthosporium resinae*. C, from the type of *Strigopodia piceae*. D, from the type of *H. resinaceum*. E, from the type of *Racodium resinae*  $\beta$  *piceum*. F, from collection No. 8 (listed).  $\times 500$ .

in the terminal cells to produce 5-septate ascospores. Additional single septa in each of the two central cells results in a 7-septate ascospore.

\*Indicating states present: S. (perithecia), H. (phragmoconidia), C. (phialides).

#### Collections

(1) The type collection of *Capnodium resinae* Sacc. & Bres. in Herb. PAD, 'In resina in *Laricis*. Rabbi nel Trentino [Italy] Leg. G. Bresadola,' (S.H.C.),\* Figs. 2A, 3A. (2) The type collection

of *Strigopodia piceae* Bat., in Herb. BPI, on *Picea rubra* Link, Mt. Desert I., Maine, U.S.A., 30.VI.1929, coll. D. S. Johnson (S.H.C.), Figs. 2B, 3C. (3) The type collection of *Helminthosporium resinaceum* M. C. Cooke in Herb. K, '*Helminthosporium*. *resinaceum* Cke with *Sporotrichum resinaceum* Shere [England]. April 1870 [scr. Cooke]', (H.), Fig. 3D: (3 bis) A part of the preceding collection is preserved in Herb. NY, labelled 'From the Herbarium of George Massee. Purchased 1909. *Helminthosporium resinaceum* Cke. Shere, on fir-tree resin. Part of Type'. (4) The type collection of *Helminthosporium resinaceum* Bres. in Herb. S(a) and PAD(b); (a) '788 *Helminthosporium resinaceum* Bres. Riva-Valsesia: 29 Magg. '91. Sulle cicatrici della corticcia des *Larix* ed *Abies*', (H.C.), Fig. 3B; (b) '788b. *Helminthosporium resinaceum* Bres. Status mycelialis *Capnodis resinaceum* Bres. In questo pezzetto troverà i conidii grandi multiseptati. Insieme ad esso trovasi *Myxotrichum resinaceum*. Riva-Valsesia. Carestia', (H.). (5) The type collection of *Clasterosporium resinaceum* Rilstone in Herb. BM, on resin on larch, W. Watson (H.). (6) The presumed type collection of *Racodium resinaceum* Fr.  $\beta$  *piceum* Pers. in Herb. L, H.L.B. 90.0.H. 910, 264-625, 'Hb. Pers. [scr. J. H. Schuurmans Stekhoven] *Racodium piceum*<sup>†</sup> An *Racodium resinaceum* Fries Observ. Mycol. 1. p. 216 ? [scr. Persoon]', (H.), Fig. 3E. (7) 'Common on resin on trunks of *Abies balsamea* (L.) Mill., Shelburne, White Mts. [New Hampshire, U.S.A.]' in Herb. K, (H.C.). (8) In Herb. NYS '*Helminthosporium*. White Mts., on resin of *Abies balsamea*. W.G. Farlow', (H.C.), Fig. 3F; this is probably the same collection as No. 7. (9) In Herb. S, 'Flora Leutschoviensis. *Helminthosporium resinaceum* Bres. In cortice *Laricis* supra muscos et lichenes. V.1891. Leg. V. Greschik. Habitat, Leutschoviae. Lócse, Hungaria Superior. 968.' (H.). (10) In Herb. PAD, 'Su resina di Abete rosso, V. Macra. leg. Prof. G. Gola,' (H.). (11) In Herb. K, '*Antennaria pinicola*. *Hormiscium*. Keswick Foray [England, 1922] Det. A. L. Smith', (H.). (12) In Herb. K and IMI, 'on *Larix*, Kinloch, Isle of Rhum, Scotland, R. W. G. Dennis, 25.VII.1951, (H.). (13) In Herb. IMI, 'on *Larix*, Gairlock, Rossshire, Scotland, S. P. Wiltshire, 28.IX.1951', (H.). (14) DAOM 44587, on coniferous bark, Devil's Bridge, Cards., Wales, 8.VIII.1954, (H.C.). (15) DAOM 48946, on coniferous bark, Devil's

Bridge, Cards, Wales, 23.X.1955, (S.H.C.), Fig. 1.

Saccardo and Bresadola (in Bres. and Sacc., 1897) described *Capnodium resinaceum* (as '*Capnodium (Limacinia) resinaceum*') on resin from Italy; the type is identical with that of *Strigopodia piceae* Bat. described from Maine (U.S.A.). However, Saccardo and Bresadola described the ascospores of their species as 3-septate and  $30-32 \times 12 \mu$ ; considering the type (Fig. 2A) one can only assume that the authors saw only young ascospores. *Strigopodia piceae* was described as parasitic on *Picea rubra*; the type shows that the subiculum is associated with much resinous exudate. The asci of *S. piceae* were described as unitunicate, but in the type they are bitunicate; they are bitunicate in the type of *C. resinaceum* and in DAOM 48946.

Saccardo (1899) compiled *Capnodium resinaceum* as '*Limacinia resinaceum* Sacc. et Bres.'. Theissen and Sydow (1917) considered that *Capnodium resinaceum* could possibly be included in their genus *Phragmocapnias* but they did not make the new combination. An examination of the type of *P. betle* (Syd. & Butl.) Theiss. & Syd. ( $\equiv$  *Capnodium betle* Syd. & Butl.), the type species, indicates that *C. resinaceum* is not congeneric with it. Batista and Ciferri (1963) included *C. resinaceum* in *Phragmocapnias* and ascribed the new combination to Theissen and Sydow.

*Helminthosporium resinaceum* M. C. Cooke (1889) was described from England, *H. resinaceum* Bres. (in Bres. and Sacc., 1897) from Italy as the conidial state of *Capnodium resinaceum*, and *Clasterosporium resinaceum* Rilstone (1941) was also described as new from England. The phragmoconidial state cannot adequately be classified in *Helminthosporium* or *Clasterosporium*. In 1918 Spegazzini included *H. resinaceum* Bres. in his genus *Sporhelminthium* but the type of this name is a *Clasterosporium* (Hughes, 1958). In 1958 Hughes included *Helminthosporium resinaceum* in the genus *Hyphosoma* Sydow (1924), type species *H. hypoxylodes* Syd., which was described from New Zealand. Considerable collecting of sooty molds in that country in 1963 enabled me to have a better understanding of the type collection of *H. hypoxylodes* and I now realize that the diagnosis is based on a mixture of species. The type collection is composed of five different species of sooty molds, and in most preparations I have made from it two species of phragmoconidium-bearing fungi (*Hormisciella*) are

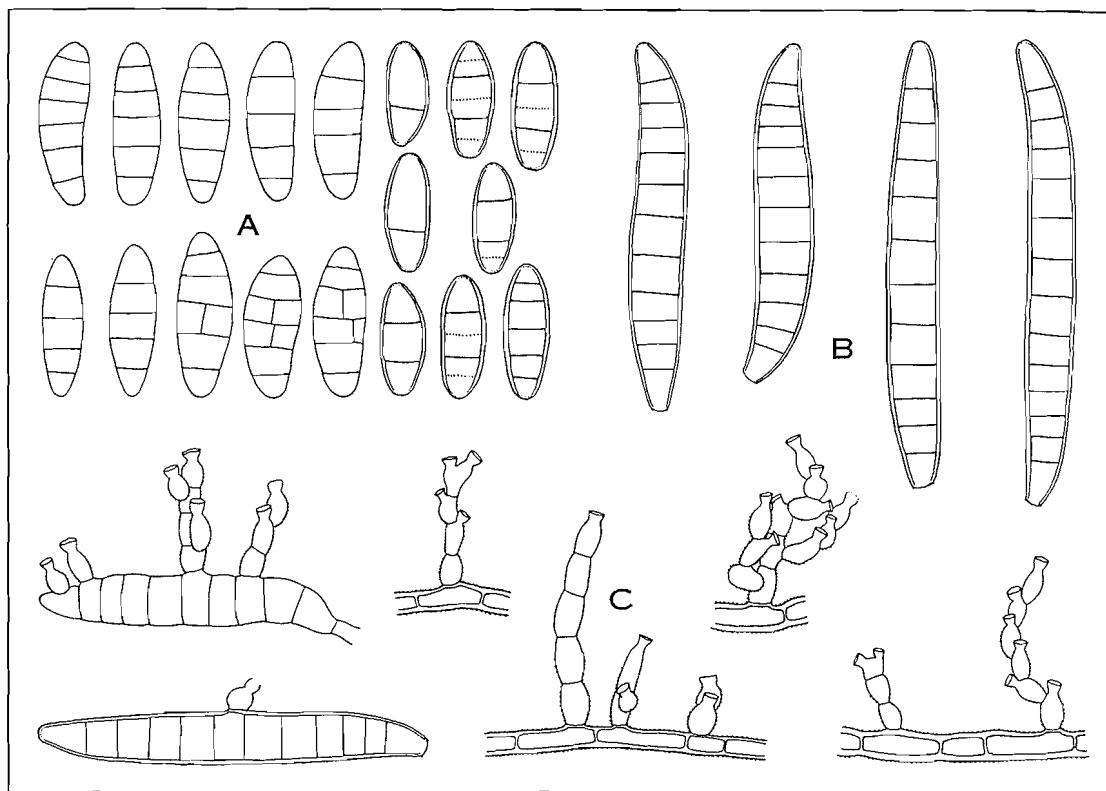


FIG. 4. *Strigopodia batistae*, from Herb. WSP 26195. A, mature and young ascospores. B, *Hormisciella* phragmoconidia. C, *Capnophialophora* phialides on hyphae and on two *Hormisciella* phragmoconidia.  $\times 500$ .

present, and in some of them a third species. The name *Hyphosoma* and that of its type species are best regarded as nomina confusa. The generic name *Hormisciella* Bat. (1956), type species *H. atra* Bat., is now adopted to replace *Hyphosoma* for the phragmoconidial state of *Strigopodia*.

In the two collections from Maine and New Hampshire the *Hormisciella* conidia are slightly narrower than in those from Europe but the differences do not seem significant.

So far as I am aware the phialide state of *S. resinae* has not been described; it is considered suitably referred to *Capnophialophora* Hughes (1966).

***Strigopodia batistae* sp. nov.**

Subiculum effusum, densum, ad 3 mm cr., atro-olivaceo-brunneum vel atrum.

Mycelium superficiale, ex hyphis repentis erectisque, cylindricis, ramosis, anastomosantibus, pallide brunneis vel atro-olivaceo-brunneis, asperatis, crasso-tunicatis (ad  $2.1 \mu$ ),  $7-10 \mu$  lat., cellulis  $15-47 \mu$  long., ad septas non vel vix

constrictis, aliquando in fasciculis subulatis, erectis vel repentibus, ramosis, rectis vel irregulariter tortis, compositum.

Status phragmoconidialis ad genus *Hormisciellam* Bat. pertinet, sed sub *Helminthosporio pseudotsugae* W. B. Cooke descriptus fuit.

Status phialidicus ad genus *Capnophialophoram* Hughes pertinet.

Perithecia immersa vel basaliter tantum immersa, atra, subglobosa,  $200-300 \mu$  diam., ostiolata, hyphis mycelialibus numerosis, ad  $300 \mu$  long. ornata. Asci fasciculati, ellipsoidei, bitunicati, 8-sporei,  $80-95 \times 27-38 \mu$ . Ascosporeae irregulariter multiseriatae, ellipsoideae, rectae vel leniter curvatae, brunneae vel atrobunneae, crasso-tunicatae sed terminaliter tenuo-tunicatae, transverse 4- ad 6-, plerumque 4- ad 5-septatae, cellulis 1 vel 2 centralibus praeditis septo longitudinali unico, ad septas non vel vix constrictae,  $30.5-46.5 \times 12.5-16.2 \mu$ .

Ascosporeae in stato juvenile 2-septatae, cellulis polaribus parvioribus, cellula centrale majore.

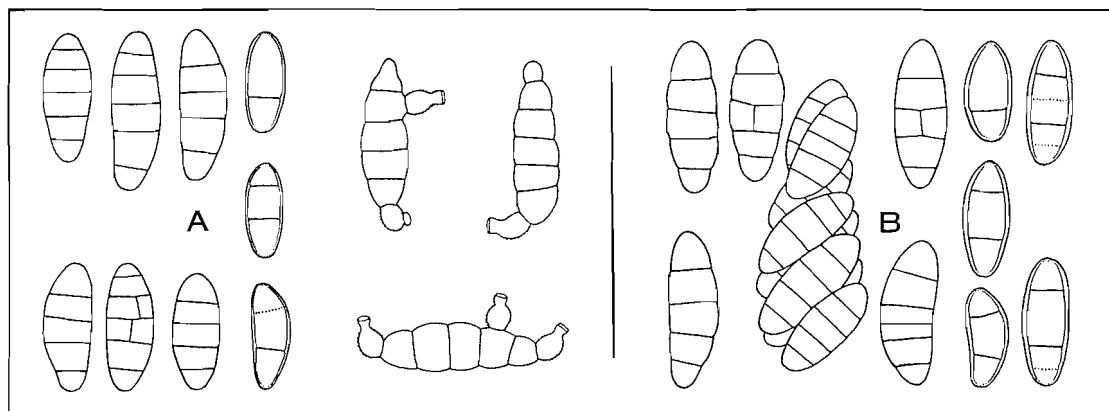


FIG. 5. *Strigopodia batistae*. A, mature and young ascospores, and 3 ascospores bearing *Capnophialophora* phialides from DAOM 51782. B, mature and young ascospores, with one group of eight ascospores from DAOM 56129.  $\times 500$ .

**HABITAT:** in resina et ad corticem *Laricis occidentalis* Nutt., *Pseudotsugae taxifoliae* (Poir.) Britt. var. *taxifoliae*, et *P. taxifoliae* var. *glaucae* (Mayr) Schneid. America borealis occidentalis.

**TYPUS:** in resina et ad corticem *Pseudotsugae taxifoliae* var. *taxifoliae*, Canada, British Columbia, Vancouver I., 21.VIII.1957, DAOM 56129.

The subiculum of *S. batistae* is similar to that of *S. resinae* described above.

*Hormisciella* phragmoconidia are narrowly ellipsoidal to subcylindrical, straight or curved or rarely sigmoid, 8- to 12-septate, usually 9- to 11-septate, not constricted at the septa, 75-117  $\mu$  long, 12.6-17.1  $\mu$  wide, usually 14.4-16.2  $\mu$  wide, thick-walled except at the apex, pale brown to dark olive-brown, smooth-walled, rounded at the apex and somewhat flattened at the basal scar, which is 3-4  $\mu$  wide. They are sessile and occur singly along the hyphae; they arise as a blowing-out of the lateral wall of a hyphal cell.

*Capnophialophora* phialides are produced on hyphae, on germinating ascospores, and on phragmoconidia. They appear to be more frequently produced in *S. batistae* than in *S. resinae*. On the hyphae they may be locally aggregated on a hypha, are sessile or more usually terminal and lateral on short stalks, and may occur in botryose clusters. They are similar to those of *S. resinae*. The phialides commonly proliferate laterally just below a collarette to form another phialide which may also proliferate in this sympodial manner, and sympodial chains of six phialides have been seen. Phialides commonly bear a lateral collarette just below the terminal one. Phialospores have been observed

only singly within the collarette and then presumably in a young stage of development: these are hyaline and minute.

Perithecia are similar to those of *S. resinae*.

Ascospores are usually irregularly multi-seriate, ellipsoidal, straight or very slightly curved, brown to dark brown, thick-walled but thin-walled and paler at base and apex which are bluntly rounded, transversely 4- to 6-, mostly 4- to 5-septate, not or scarcely constricted at the septa, with one or two central cells once longitudinally septate, 30.5-46.5  $\times$  12.5-16.2  $\mu$ .

Ascospore initials are broadly ellipsoidal, continuous, and soon become subhyaline to pale-brown. The first transverse septum is formed in the lower half of the initial and the second septum is then laid down toward the apex of the upper, larger cell. A three-celled initial results with the central cell usually longer than the end cells. With further growth of the initial a single septum develops in the central cell and also in the lower cell resulting in a 4-septate ascospore; a fifth septum, when formed, develops in the apical cell. One or two of the central cells may develop a single longitudinal septum.

#### Collections

On resin on *Pseudotsuga taxifolia* (Poir.) Britt. var. *taxifolia*, (1) Canada, B.C., Vancouver I., 21.VIII.1957, S.J.H., DAOM 56129 (S.H.C.), Type of *S. batistae*, Fig. 5B. (2) U.S.A., California, Trinity Co., 30.VIII.1956, D. F. Roy, DAOM 51782 (S.H.C.), Fig. 5A.

On resin on *Larix occidentalis* Nutt., (3) U.S.A., Idaho, Latah Co., 23.IX.1959, WSP 49320 (H.C.), Fig. 6D.

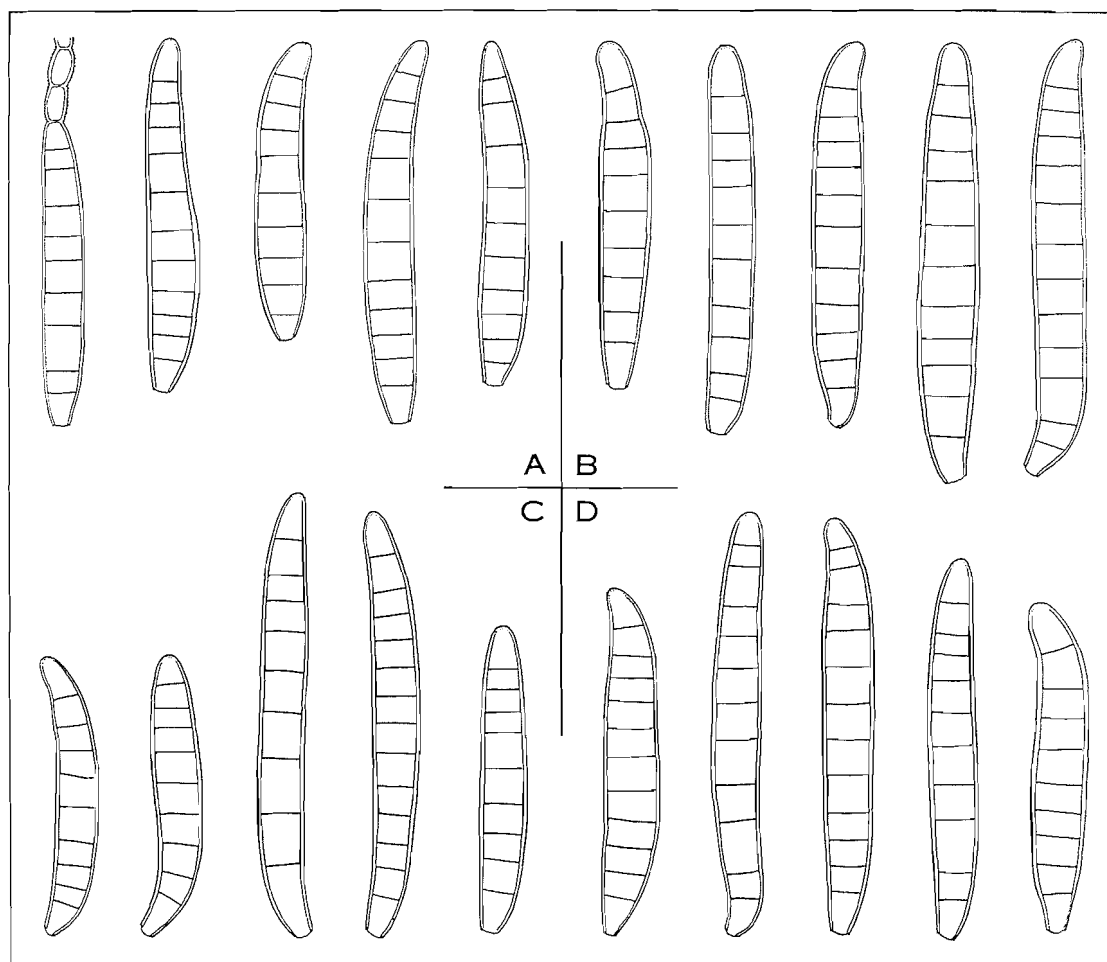


FIG. 6. *Strigopodia batistae*. *Hormisciella* phragmoconidia. A, from the type of *Helminthosporium pseudotsugae*. B, from Herb. WSP 26195. C, from W. B. and V. G. Cooke 22905. D, from Herb. WSP 49320.  $\times 500$ .

On resin on *Pseudotsuga taxifolia* var. *glauca* (Mayr) Schneid., and all authenticated for *Helminthosporium pseudotsugae* W. B. Cooke. U.S.A. (4-10) Idaho; (4) Idaho Co., 13.XI.1946, W. B. & V. G. Cooke (18784), WSP 26197 (H.C.): (5) Idaho Co., 3.V.1947, W. B. Cooke (19660), DAOM 28985 (H.C.): (6) Idaho Co., 22.X.1949, W. B. & V. G. Cooke (26041), WSP 26192 (H.C.): (7) Latah Co., 16.V.1947, W. B. & V. G. Cooke (23429), WSP 26193 (H.): (8) Nez Perce Co., 19.V.1947, W. B. & V. G. Cooke (19510) (H.C.): (9) Nez Perce Co., 13.III.1948, W. B. & V. G. Cooke (22905), WSP 39101 (H.C.), Fig. 6C: (10) Nez Perce Co., 14.V.1949, W. B. & V. G. Cooke (25161) in Herb. WIS (H.C.),

this is the type of *H. pseudotsugae*, Fig. 6A: (11) Washington, Stevens Co., 26.IV.1954, W. B. & V. G. Cooke (19550), WSP 26195 (S.H.C.), Figs. 4, 6B.

In 1952 W. B. Cooke described *Helminthosporium pseudotsugae* as a new species on resin and bark of *Pseudotsuga taxifolia* var. *glauca*. In 1958 I erroneously regarded this species as identical with the *Hormisciella* phragmoconidial state included above as *Strigopodia resinae*. The phragmoconidia of the Western North American species are consistently wider than those of *S. resinae*.

The perithecial states of *Strigopodia resinae* and *S. batistae* as described above are readily



distinguished by the order of development of septa in the ascospore initials and in the septation of the mature ascospores. In dimensions they are almost identical.

Cooke and Shaw (in W. B. Cooke, 1952) described a new species *Coccodinium laricis* from Idaho (U.S.A.) and claimed it to be the perfect state of *H. pseudotsugae* W. B. Cooke. The ascospores were described 'with 5 transverse septa and 1 longitudinal septum, 10- to 12-celled, averaging  $21.6 \times 7.2 \mu$ '. I failed to find perithecia with such ascospores on the type collection but conclude from the description that the fungus is obviously different from *Strigopodia batistae*.

### Discussion

*Strigopodia* was included by Batista in the Parodiopsisaceae. The hyphae were described with stomopodia but I believe that the structures which were so interpreted are, at least in part, the hyphal projections remaining after the separation of H-like anastomoses. The phragmoconidia were described as *Septoidium* conidia, but a conidial apparatus of this kind is, I believe, restricted to the genus *Parodiopsis* Maubl. (including *Perisporina* P. Henn.). Other differences between *Strigopodia* and *Parodiopsis* are evident on referring to Baker's (1955) treatment of *Parodiopsis* from Trinidad.

*Strigopodia* is far more closely related to such avowed sooty molds as *Aithalomyces* Woronichin (1926), described for *A. arctica* Woronich. and *A. rhododendri* Woronich., and *Phaeocapnias* Cif. & Bat. (in Batista and Ciferri, 1963), type species *P. mucronata* (Mont.) Cif. & Bat. ( $\equiv$  *Capnodium mucronatum* Mont.). In the original species of these three genera the mycelium forms a superficial subiculum composed of cylindrical hyphae with the individual cells more or less barrel-shaped. Furthermore the asci are bitunicate and the perithecia bear hypha-like appendages. In *Aithalomyces* the ascospores are transversely 3-septate and rounded at the ends but in *Phaeocapnias* they are transversely 7-septate with mucronate ends. In *Strigopodia* the ascospores are transversely septate, rounded at the ends with one or more longitudinal septa. *Phaeocapnias* resembles *Strigopodia* in the production of *Hormisciella*

conidia, and *Aithalomyces* in the production of a *Hormisciomyces* Bat. & Nasc. phialidic state: *Strigopodia* has a *Capnophialophora* phialidic state. So far as is known the two original species of *Aithalomyces* do not produce a *Hormisciella* phragmoconidial state; but in these pleomorphic fungi it is my experience that some particular conidial state or states may apparently be absent from the life history.

It is concluded that the species of *Strigopodia* are capnodiaceous sooty molds rather than parodiopsisidaceous parasites. Although *Strigopodia* is very closely related to the earlier *Aithalomyces* I prefer, at the present time, to use the generic name available for the two resinicolous species.

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