

Notes on *Pyrenomyces* and *Coelomyces* from Poland. 1.

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Abstract

Several coelomycete and pyrenomycete fungi from the Białowieża National Park are presented in this paper, all with descriptions and illustrations: *Myxocyclus polycistis*, *Diplodia sarmentorum*, *Zythiostroma pinastri*, *Stilbospora macrosperma*, *Phomatospora angustae*, *Diaporthe larseniana*, *Lasiosphaeria punctata*, *Coniochaeta malacotricha* and *Nitschkia parasitans*. Five species are new to Poland.

Key words: *Myxocyclus polycistis*, *Coelomyces*, *Pyrenomyces*, distribution, habitats, Poland

The present work is devoted to some coelomycete and pyrenomycete fungi which have been found in the Białowieża National Park. Some literature on the *Pyrenomyces* (in the old, broad sense) from Białowieża exists: by Truszkowska (1959, 1965a, 1965b, 1967), Pouzar (1978), Chlebicki (1986) and Laessøe (1987). Only some groups of pyrenomycete fungi have been the subject of these studies e.g. *Sphaeriales* and their anamorphs. I have concentrated upon the occurrence of fungi in section 256 of the Białowieża National Park (Fig. 1). The field work was carried out in 1987-1990. Material was collected according to the methods described by Sutton (1980). The paper contains descriptions and illustrations of nine species of fungi belonging to *Coelomyces* and *Pyrenomyces*.

A single fungus locality is marked by a black circle (on the map) and by the designation of the appropriate square e.g. G₅ (in the text). The following abbreviations are used: (a) — fungi occurring on live trunks, branches, leaves and stems or other fungi and lichens; (b) — fungi on damaged, dead stumps, twigs, stems, leaves and inflorescences still attached to the plant (not lying on the ground); (c) — fungi on recently fallen, prostrate trunks, branches, leaves and stems; (d) — fungi on decorticated stumps and branches, on decorticated

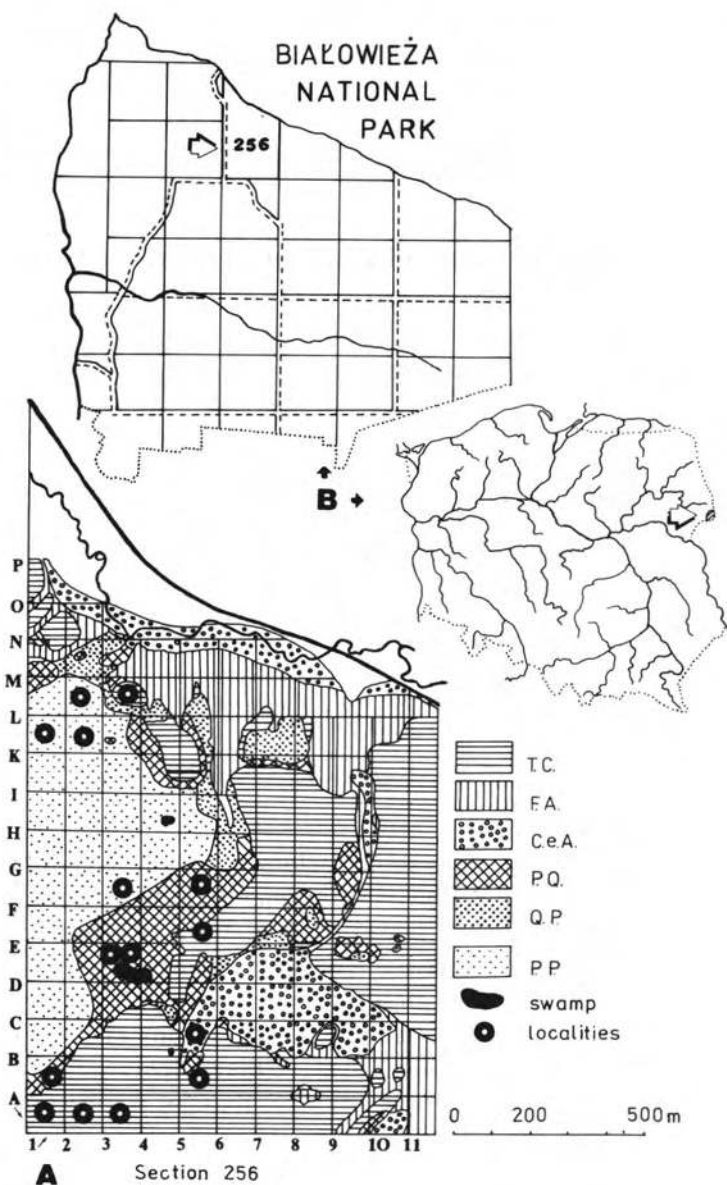


Fig. 1. Distribution of fungi localities. A — section 256, the following abbreviations are used: T.C. — *Tilio-Carpinetum*, F.A. — *Fraxino-Alnetum*, C.e.A. — *Carici elongatae-Alnetum*, P.Q. — *Pino-Quercetum*, Q.P. — *Quercus-Piceetum*, P.P. — *Peucedano-Pinetum*. B — localisation of section 256 within the Białowieża National Park and Poland

wood of broken branches or on the surface of slashed stumps and branches, on stems without epidermis and on old destroyed leaves; (e) — fungi on dead stromata of other fungi; B.N.P. — the Białowieża National Park; diam. — diameter; hb. Chlebicki — author's herbarium; p. sp. — pars sporifera; syn. — synonymy.

Myxocyclus polycistis (Berk. & Br.) Sacc., *Annls mycol.* 6: 539, (1908), syn.: *Hendersonia polycistis* Berk. & Br., (1850), *Myxocyclus confluens* Riess apud Fresenius, (1852), — other syn. *vide* Sutton (1975), — Teleomorphosis: *Splanchnonema argus* (Berk. & Br.) Kutze, *Rev. Gen. Pl.* 3: 531, (1898).

Conidiomata subperidermal, acervular, separate, sometimes confluent, 1-3 mm long and 0.6-1 mm wide, black, prominent above the substratum (Fig. 2A), conidiophores flexuous, verruculose, septate, conidia muriform, dark brown, distoseptate, 57-63 x 19-21 μm , enveloped in a gelatinous sheath (Fig. 2B-D). On twigs of *Betula verrucosa*, (c), B.N.P., section 256, *Pino-Quercetum*, 20 Nov. 1987, hb. Chlebicki 1150, square E₃; *Pino-Quercetum*, 21 June 1989, hb. Chlebicki 1213, square B₁, (Fig. 1). This fungus has been reported from the U.S.A. and Canada on *Betula papyrifera* and *B. occidentalis* (Sutton 1980), however, *Splanchnonema argus* which is their teleomorph was mentioned from Europe by Munk (1957) and Sivanesan (1984) and Poland by Eichler (1907), Schroeter (1908) and Weber-Czerwińska (1974).

Diplodia sarmentorum (Fr.) Fr., *Summa Veg. Scand.*: (417, (1846), — other syn. *vide* Booth (1958). — Teleomorphosis: *Otthia spiraeae* (Fuckel) Fuckel, *Symbolae Mycologicae*: 170, (1970).

Pycnidia globose, black, 240-400 μm diam., gregarious with a wall 34-50 μm thick and minute ostiolum (Fig. 3A, B), conidiophores hyaline 9 μm long, conidia 14-18 x 6-7 μm , initially one-celled and hyaline, later becoming light-brown and 2-celled (Fig. 3C). On branches of *Acer platanoides*, (c), B.N.P., section 256, *Tilio-Carpinetum*, 10 June 1988, hb. Chlebicki 980, square A₂, (Fig. 1). Booth (1958) grew anamorph in culture and observed pycnidia 300-420 μm diam. with a wall 20-35 μm thick. *Diplodia sarmentorum* has not been found in Poland before.

Zythiostroma pinastri (Karst.) Hohn., *Mitt. Bot. Inst. Tech. Hochsch. Wien* 8: 90. (1931), — syn.: *Zythia pinastri* Karst. (1885), — Teleomorphosis: *Scolecconectria cucurbitula* (Tode ex Fr.) Booth. Conidiomata superficial, globose, dark reddish brown, at the top often collapsing, ostiole circular, in old locules wide open (Fig. 4A). Conidiophores branched, septate, hyaline 19-20 μm long, conidia hyaline, straight, aseptate 2.5 x 0.8-1 μm (Fig. 4B). On twigs and needles of *Pinus sylvestris*, (c), B.N.P., section 256, *Pino-Quercetum*, 20 Nov. 1987, 27 Oct. 1988, hb. Chlebicki 1105, 1151, *Peucedano-Pinetum*, 28 Febr. 1990, hb. Chlebicki 1231, quares E₃, G₅, L₁, L₂, (Fig. 1). *Zythiostroma pinastri* has not been found in Poland before.

Stilbospora macrosperma Pers. ex Méral, *Nouv. Fl. Env. Paris*, Ed. 2, 1: 147, (1821), syn.: *Sporidesmium macrosporum* (Pers.) Cda, (1829).

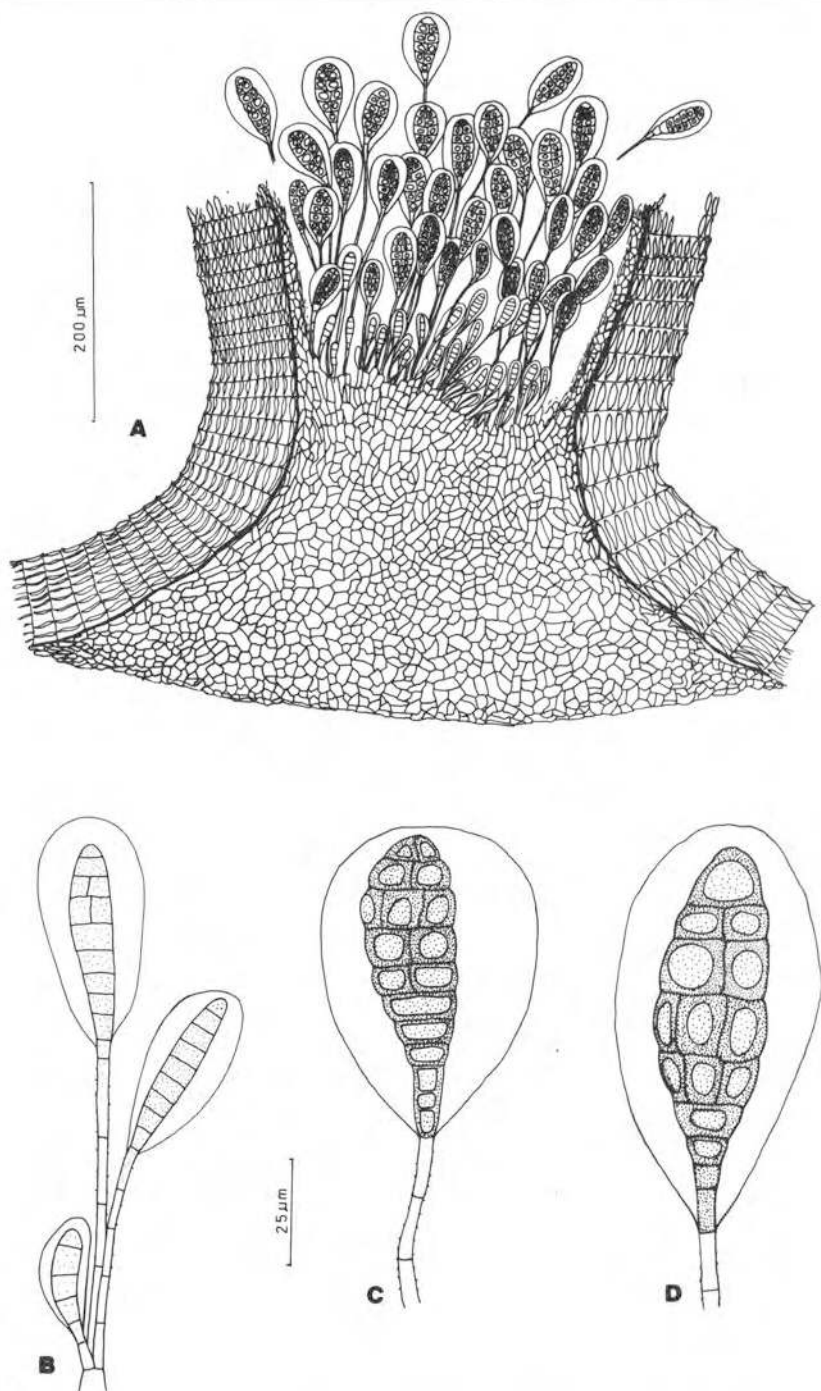


Fig. 2. *Myxocyclus polycistis*: A — vertical section of a conidioma, B — developing conidia, C, D — conidia — hb. Chlebicki 1150

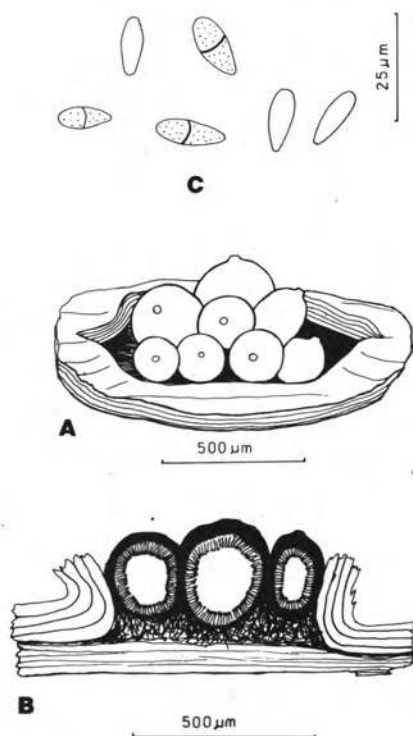


Fig. 3. *Diplodia sarmentorum*: A — external appearance of pycnidia, B — section of pycnidia, C — conidia — hb. Chlebicki 980

Conidiomata acervular, circular 1000-2000 μm diam., conidiophores branched and septate 28-48 x 5-7 μm , paraphyses filiform 80-115 x 4.5-5.7 μm , conidia fusiform, 3-euseptate, constricted at the septa, brown, truncate at the base (30)34-40(45) x 11.5-13.4 μm (on *Carpinus betulus*) and (46)48-51(55) x 15-17 μm (on *Ulmus montana*), (Fig. 5A, B), issuing in a black globule. On branches of *Carpinus betulus*, (c), B.N.P., section 256, *Tilio-Carpinetum*, 8 June 1988, 26 oct. 1988, hb. Chlebicki 992, 1145, squares B₅, F₅ (Fig. 1); on branches of *Ulmus montana*, (c), Sudety Mts, Śnieżnik Mt, near wood road beside Młynowiec, voiv, Wałbrzych, 21 Oct. 1984, hb. Chlebicki 508, (Fig. 6A).

Sutton (1980) gave as substratum *Carpinus betulus* and *Fagus sylvatica*, Grove (1937) also mentioned *Ulmus* and *Cornus*. First locality in Poland was given by Schroeter (1908). Next localities were given by Wróblewski (1916), Truszkowska (1965b) and Weber-Czerwińska (1974) where it was mentioned as *Stilbospora angustata* Pers. on *Carpinus betulus* (Fig. 6A). However *Stilbospora angustata* is a synonym of *Truncatella angustata* (Pers. ex Lk) Hughes (Sutton 1980) and come into contention with *S. macrosperma* which is a different species (Grove 1937, Sutton 1975). I have not seen

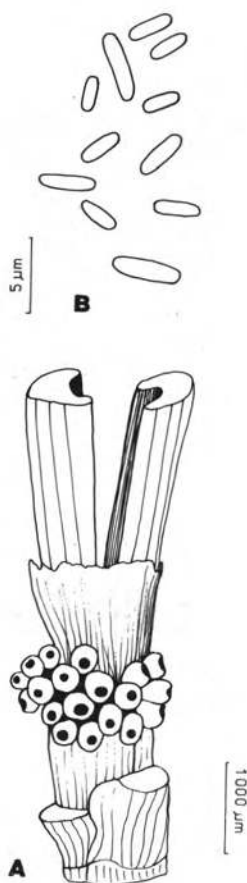


Fig. 4. *Zythiostroma pinastri*: A — external appearance of conidiomata, B — conidia — hb. Chlebicki 1231

Truszkowska's collection but her description (Truszkowska 1965b) well matches the description of *Stillbospora macrosperma* given by Sutton (l.c.).

Diaporthe larseniana Munk, Dansk Bot. Arkiv 17(1): 255, (1957). Stroma with blackened, dorsal zone continues with the ventral zone and concave ostiolar disc, perithecia 420-540 μm diam., necks somewhat elongated, ostioles erumpent through small rupture in the peridermis, top of the ostiole with sharp, circular furrow (vide Munk 1957), asci subcylindric 53-67 x 6-8.5 μm spores hyaline, straight or barely constricted 12--15(17) x 3.8-4.5 μm (Fig. 7A, B). On twigs of *Picea abies*, (c), B.N.P., section 256, *Peucedano-Pinetum*, 29 Oct. 1988, hb. Chlebicki 1102, square M₂ (Fig. 1). First locality in Poland was given by Truszkowska (1977) on *Picea abies* in Biała Łądecka Valley, Sudety Mts, (Fig. 6B).

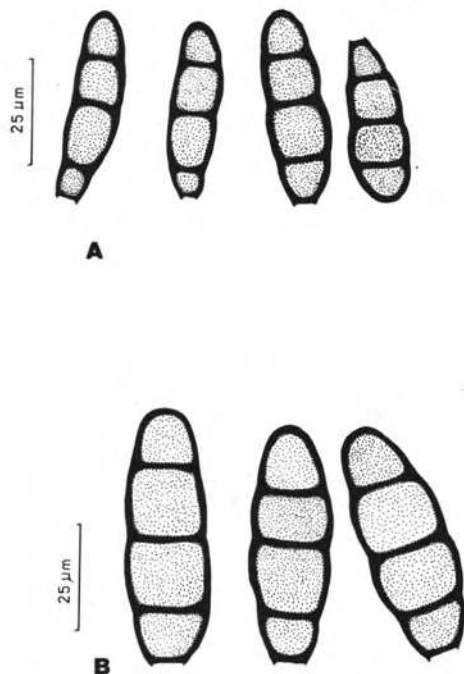


Fig. 5. *Stilbospora macrosperma*: A — conidia of sample from *Carpinus betulus*, B.N.P — hb. Chlebicki 992, B — conidia of sample from *Ulmus montana*, Sudety Mts — hb. Chlebicki 508

Phomatospora angelicae (Fuck.) Mouton, Bull. Soc. Bot. Belge, 39, 39, (1900), — syn.: *Sphaeria angelicae* Fuck., (1869), — other syn. *vide* Arx & Müller (1954).

Perithecia sphaeric 170-210 μm diam., immersed, with neck 180-200 μm long, ostiolum 100-120 μm diam. (Fig. 7C), asci 4-spored, cylindrical 44-47 x 5.7-7 μm , spores hyaline, 1-celled 15-17 x 3.8-4.5 μm (Fig. 7D, E). On stems of *Peucedanum palustre*, (c), B.N.P., section 256, *Carici elongatae-Alnetum*, 22 June 1989, hb. Chlebicki 1158, square C₅ (Fig. 1).

Lasiosphaeria punctata Munk, Dansk Bot. Arkiv (17)1: 114-115, fig. 37, (1957).

Teleomorph: perithecia subsphaeric with broad base 380-460 μm diam. and slightly rounded-conical ostiole (Fig. 8A), gregarious, covered with brown, septate hairs (38)60-70 x 4-5 μm , asci cylindric-clavate 96-113 x 11-15 μm , 8-spored, ascospores rounded-geniculate at the middle, light yellowish brown,

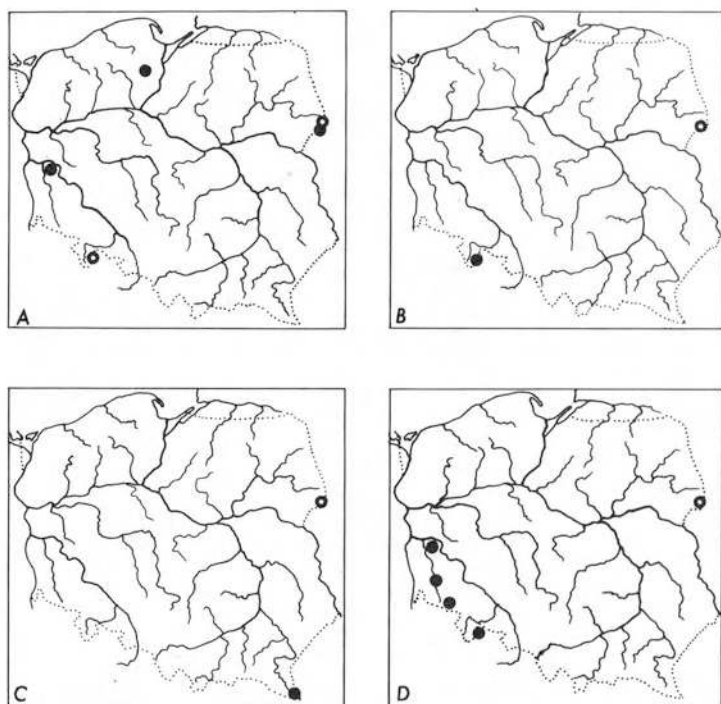


Fig. 6. Distribution of fungi localities in Poland: A — *Stilbospora macrosperma*, B — *Diaporthe larseniana*, C — *Lasiosphaeria punctata*, D — *Coniochaeta malacotricha*. ● — literature references, ○ — author's collections

0-3-septate, verruculose (Fig. 8B). Anamorph: hyphomycetes in the neighbourhood of perithecia, conidiophores 190-280 μm long, 5-9 μm thick at the base, dark brown, septate, thick-walled, conidia often 3-celled rarely bicellular (Fig. 8C, D) 23-28 x 11-14.5 μm , dark brown, proximal cells lighter-coloured. On branches of *Pinus sylvestris*, (d), B.N.P., section 256, *Tilio-Carpinetum*, 29 Oct. 1988, hb. Chlebicki 1108, 1109, square M₃ (Fig. 1).

Some of my observations do not agree with Munk's description. Munk (1957) reports only bicellular conidia, ascospores as not septate (his drawing fig. 37 p. 114) and substratum — a rotten branch of *Fagus*. My material differs somewhat from his description in respect to ascospore and conidium morphology (more septa in the ascospores and conidia) as well as in the kind of substrate (*Pinus sylvestris*). In my opinion such small differences are of secondary importance or indicate that Munk probably did not have completely mature material. The first locality in Poland was given by Truszkowska (Domáński et al. 1963) on *Fagus sylvatica* in Bieszczady Mts (Fig. 6C).

Coniochaeta malacotricha (Niessl) Trav., Fl. It. Crypt., 473, (1906), — syn.: *Rosellinia malacotricha* Niessl, (1871), *Sordaria malacotricha* Awd. in Niessl, (1872), *Helminthosphaeria malacotricha* Kirschst., (1933).

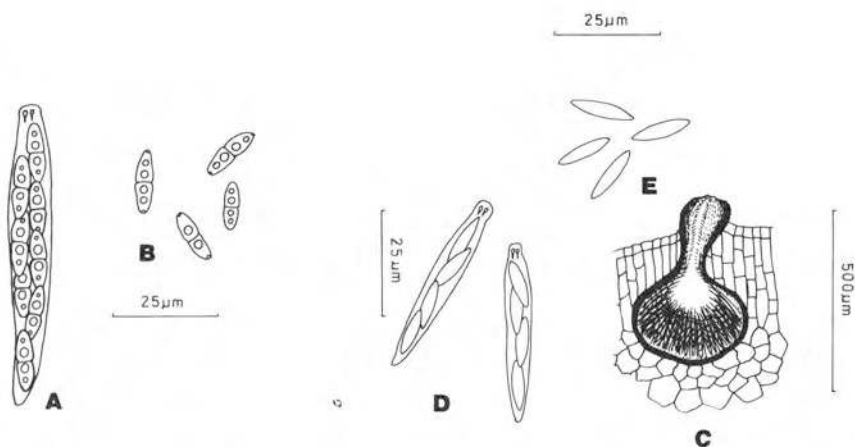


Fig. 7. *Diaporthe larseniana*: A — ascus, B — ascospores — hb. Chlebicki 1102. *Phomatospora angelicae*: C — section of perithecium, D — asci, E — ascospores — hb. Chlebicki 1158

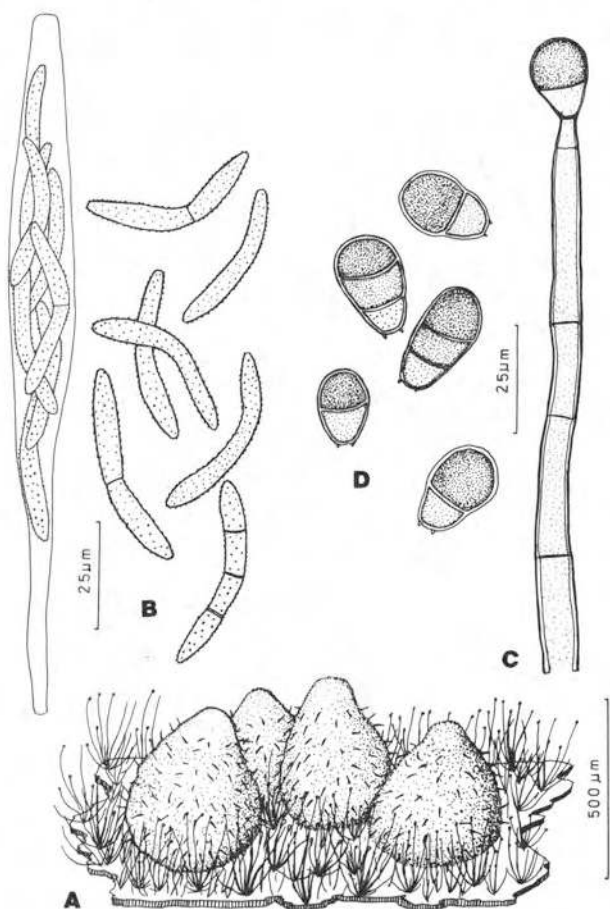


Fig. 8. *Lasio-sphaeria punctata*: A — perithecia surrounded a hyphomycete, B — ascus and ascospores, C — conidiophorous hypha and conidium, D — conidia — hb. Chlebicki 1108

Perithecia egg-shaped or conical (Fig. 9A), gregarious 230-300 μm diam., 320-400 μm high, densely covered with black, shining hairs 50-60 \times 3 μm (Fig. 9B), asci cylindrical 80-92 \times 11-12 μm , 8-spored, paraphyses indistinct, ascospores circular or elliptical (Mill-stone shaped), flat 12-13.5 \times 9.6-10 μm \times 5-6 μm (Arx & Müller 1954: 9-12 \times 6-7 μm), brown with dark brown, large refractive oil-drop (Fig. 9C). On wood of *Pinus sylvestris*, (d), B.N.P., section 256, *Peucedano-Pinetum*, 28 Oct. 1988, hb. Chlebicki 1118, square G₃ (Fig. 1). The fungus has been reported from Lower Silesia by Schroeter (1908) on *Sambucus racemosa* and *Ribes grossularia* (samples are not preserved in Polish herbaria), (Fig. 6D).

Nitschka parasitans (Schw.) Nannf., Svensk Bot. Tidskr. 69: 52, (1975), — syn.: *Sphaeria parasitans* Schw., Trans. Amer. Phil. Soc. 2(4): 206, (1832). *Perithecia* subglobose, black 210-340 μm diam., on well developed subiculum,

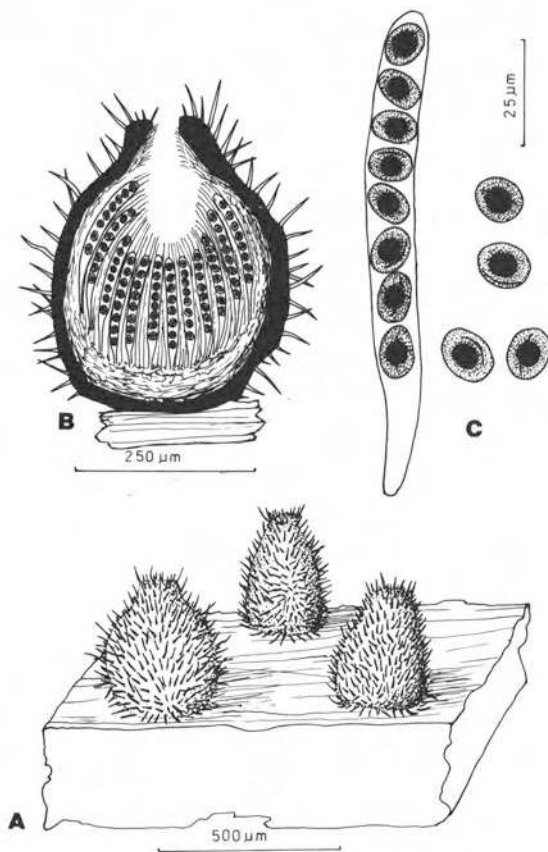


Fig. 9. *Coniochaeta malacotricha*: A — perithecia on decorticated wood, B — section of perithecium, C — ascus and ascospores — hb. Chlebicki 1118

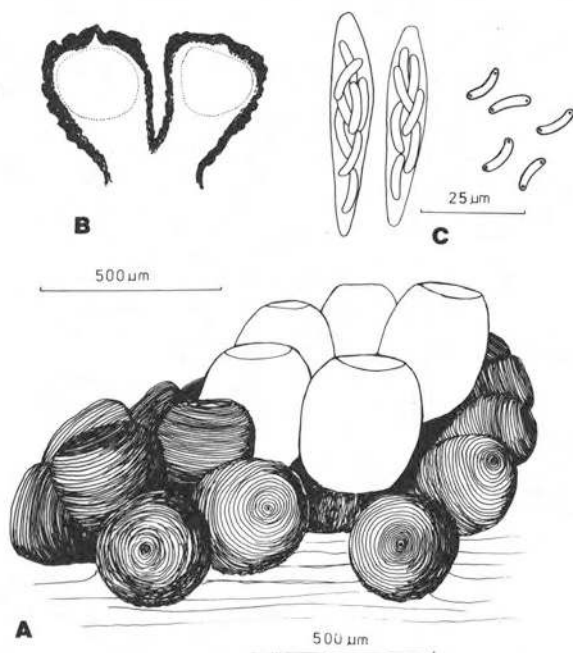


Fig. 10. *Nitschkia parasitans*: A — perithecia on stroma of *Nectria cinnabarina*, B — vertical section of perithecia, C — asci and ascospores — hb. Chlebicki 990

densely gregarious, parasitic on stromata of *Nectria cinnabarina* (Fig. 10A), the upper, black portion of the perithecium is rough, flattened at the top, ostiolum minute, indistinctly visible (Fig. 10B), asci cylindrical-clavate, 8-spored $44\text{--}53 \times 7\text{--}8 \mu\text{m}$, ascospores hyaline, allantoid with one oil globule at each end, measuring $9.6\text{--}12(13) \times 2\text{--}3 \mu\text{m}$ (Fig. 10C). On live stromata of *Nectria cinnabarina* on branches of *Tilia cordata* and *Acer platanoides*, (a), B.N.P., section 256, *Tilio-Carpinetum*, 10 June 1988, 18 Nov. 1988, hb. Chlebicki 990, 1045, squares A₁, A₃ (Fig. 1). *Nitschkia parasitans* has not been found in Poland before.

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Notatki mikologiczne z Polski poświęcone grzybom należącym do Pyrenomycetes i Coelomycetes. I.

Streszczenie

Praca zawiera opisy grzybów zaliczanych do *Coelomycetes* i *Pyrenomycetes*. Opisano kolejne stanowiska *Myxoecylus polycistis*, ponadto uzupełniono opis *Lasiosphaeria punctata*. Spośród dziewięciu przedstawionych gatunków pięć zebrano po raz pierwszy w Polsce.