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Interesting *macromycetes* found in the Kielce town (Central Poland)

JANUSZ ŁUSZCZYŃSKI

Department of Botany, Institute of Biology
Jan Kochanowski Teacher Education School
M. Konopnickiej 15, PL-25-406 Kielce, Poland

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The paper contains a list of 90 *Basidiomycetes* collected in the Kielce town. Among these there are 6 species new to Poland: *Hyphoderma capitatum*, *Phlebia cremeoochracea*, *Phlebiella allantospora*, *Inocybe cryptocystis*, *Marasmius tremulae*, *Pluteus pouzarianus*, 4 species protected by law and 64 species included in the red list of threatened macrofungi in Poland.

Key words: *Macromycetes*, urban mycology, threatened fungi, macrofungi new for Poland.

INTRODUCTION

Investigations of mycoflora of Polish towns were carried out in Warsaw, Cracow, Łódź, Szczecin, Lublin and several smaller towns (Chełchowski 1888, 1898; Schroeter 1889; Wojewoda 1971, 1991b; Skirgiełło and Domański 1981; Ławrynowicz 1982, 1989; Flisińska 1984; Lisiewska and Wypij 1985; Friedrich 1987; Ławrynowicz and Adamczyk 1991). A recapitulation of the results contains the publication by Adamczyk and Ławrynowicz (1991).

The Kielce town (112 km^2, population over 200 000 inhabitants) has a dense, ca 25% forest cover (Fig. 1). Comparing to the other Polish or European towns, it is characterized by the presence of highly differentiated natural vegetation and variety of habitats. The stand of trees consists of: fir, pine, beech,. hornbeam, oak, alder, ash, and a small proportion of spruce and larch. From the phytosociological point of view the vegetation represents

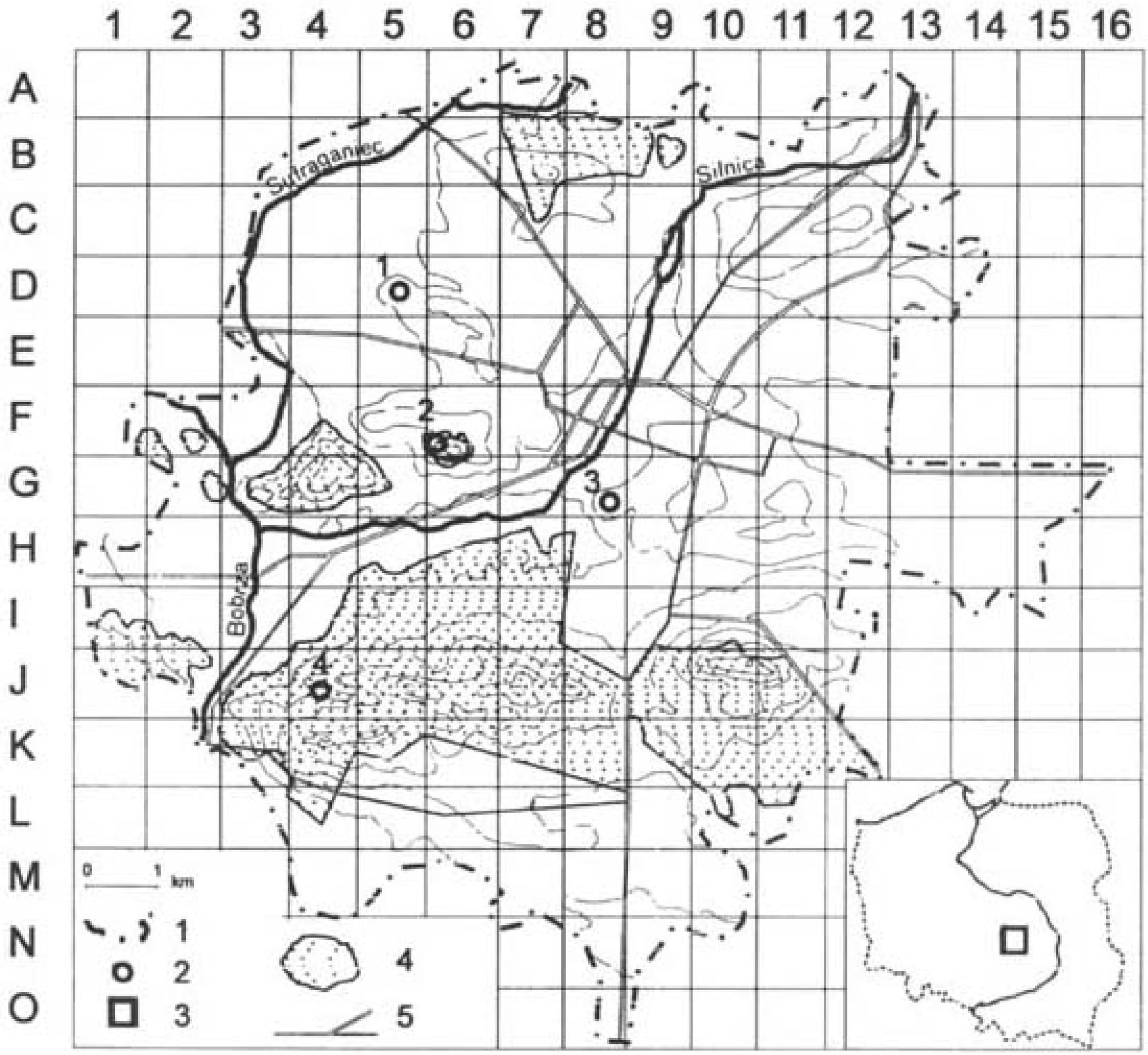


Fig. 1. Key map of the investigated area: 1 – borders of the town; 2 – reserves in the Kielce urban area (1 – Ślichowice, 2 – Karczówka Hill, 3 – Kadzielnia, 4 – Biesak); 3 – Kielce – the study area; 4 – forests; 5 – streets

the following associations: *Peucedano-Pinetum*, *Querco roboris-Pinetum*, *Tilio-Carpinetum* and *Circaeo-Alnetum*. The xerothermic and psammophilous grasslands are also present. The ruderal, synanthropic communities, pastures and meadows developed in the suburban zone, around farm buildings. The city centre with a compact town development has an unnatural vegetation cover, including plants of foreign origin, parks, squares, flower-beds, grasses and trees planted along streets and avenues.

The studies were carried out from 1986 till 1994 and yielded the collection of 434 species. This paper presents 6 species new to Poland and others, known only from a few localities in Poland and/or rare in Europe.

Macromycetes were mapped using carthogram method. The area of town was divided into the net of 1 km^2 squares (Fig. 1). One square was considered as one locality. For each species the type of habitat, time of fruiting (Roman numerals), distribution and the presence on the red list in Poland are given.

The author thankfully acknowledges Prof. Dr. hab. W. Wojewoda for indentification several species of *Aphyllophorales* and revision of the others, and also for literature and technical facilities. Special thanks are also due to Prof. Dr. hab. M. Ławrynowicz for her helpful remarks.

LIST OF SPECIES

Nomenclature is applied according to K r e i s e l (1987), M o s e r (1983), and J ü l i c h (1984), supplemented by other authors.

Abbreviations: *Am — Arrhenatheretum medioeuropaeum, CA — Circaeo-Alnetum, CB — Cirsio-Brachypodion, Coryph — Corynephoretalia, LF — Luzulo-Fagetum, PP — Peucedano--Pinetum, QrP — Querco roboris-Pinetum, SC — Scheuchzerio-Caricetea fuscae, SvC — Spergulo vernalis-Corynephoretum, TC — Tilio-Carpinetum*, loc — locality/localities, n — near, p — page, pp — pages, * — species new to Poland; A 1, B 8, J 3 ... — number of squares according to the squares net for Kielce (Fig. 1), RL — Red list of threatened macrofungi in Poland (W o j e w o d a and Ł a w r y n o w i c z 1992)

HETEROBASIDIOMYCETES

Dacrymycetales

Calocera furcata (Fr.) Fr. [=*C. cornea* f. *furcata* (Fr.) Neuhoff] — *QrP*, on *Pinus sylvestris* and *Abies alba* logs, XI (2 loc: A 10, J 4). In Poland described by W o j e w o d a (1977), O l e s i ń s k i and W o j e w o d a (1987), F r i e d r i c h (1986, 1987), RL.

Dacrymyces ovisporus Bref. — *PP*, *QrP*, on *Pinus sylvestris* dead branches, X (1 loc: I 5). In Poland described by W o j e w o d a (1976, 1991b), Ł u s z c z y ń s k i (1993), RL.

HOMOBASIDIOMYCETES

Aphyllophorales

Albatrellus confluens (Alb. et Schw.: Fr.) Kotl. et Pouz. [=*Scutiger confluens* (Alb. et Schw.: Fr.) Bond. et Sing.] — *QrP*, *TC*, under *Pinus*, IX — X (2 loc: J 3-4). In Poland mentioned by W o j e w o d a (1991a), RL.

Antrodiella hoehnelii (Bres. in Höhn) Niemelä [=*Trametes hoehnelli* (Bres. in Höhn.) Pil.] – *TC*, on *Quercus* dead branch, X (1 loc: G 4), RL.

Amylostereum areolatum (Chaill.: Fr.) Boid. [=*Stereum areolatum* Chaill. in Fr.: Fr.] – *QrP*, on *Abies alba* dead branch, IX (1 loc: A 10). In Poland noted by E i c h l e r (1900), T e o d o r o w i c z (1933), D o m a ń s k i (1962, 1991), W o j e w o d a et al. (1986), O l e s i ń s k i and W o j e w o d a (1987).

A. chailletii (Pers.: Fr.) Boid. [=*Stereum chailletii* (Pers.: Fr.) Fr.] – *QrP*, *TC*, on *Abies alba* logs, I – XII (3 loc: B 7, J 10, K 11). In Poland mentioned in: G u m i ń s k a (1962), D o m a ń s k i et al. (1967), S k i r g i e ł ł o (1968), Ł a w r y n o w i c z (1973, 1978), B u j a k i e w i c z (1979), D o m a ń s k i (1962, 1991), W o j e w o d a (1973, 1974), K a ł u c k a (1995).

Artomyces pyxidatus (Pers.: Fr.) Jül. [=*Clavaria pyxidata* Pers.: Fr. =*Clavicorona pyxidata* (Pers.: Fr.) Doty] – *PP*, on? *Pinus sylvestris* decaying log, X (1 loc: J 4). In Poland mentioned in: F l i s i ń s k a (1987), S a ł a t a (1991), RL.

Botryobasidium laeve (J. Erikss.) Parm. – *QrP*, *TC*, on *Abies alba*, *Populus tremula* decaying wood, V – XI (4 loc: B 7, 8, J 4, 5), RL.

Cantharellus cibarius Fr. – *PP*, *QrP*, VIII – IX (11 loc: F 3, G 4, 5, I 6, 10, J 3, 8, 10, K 3, 6, 11) (Fig. 2.1), RL.

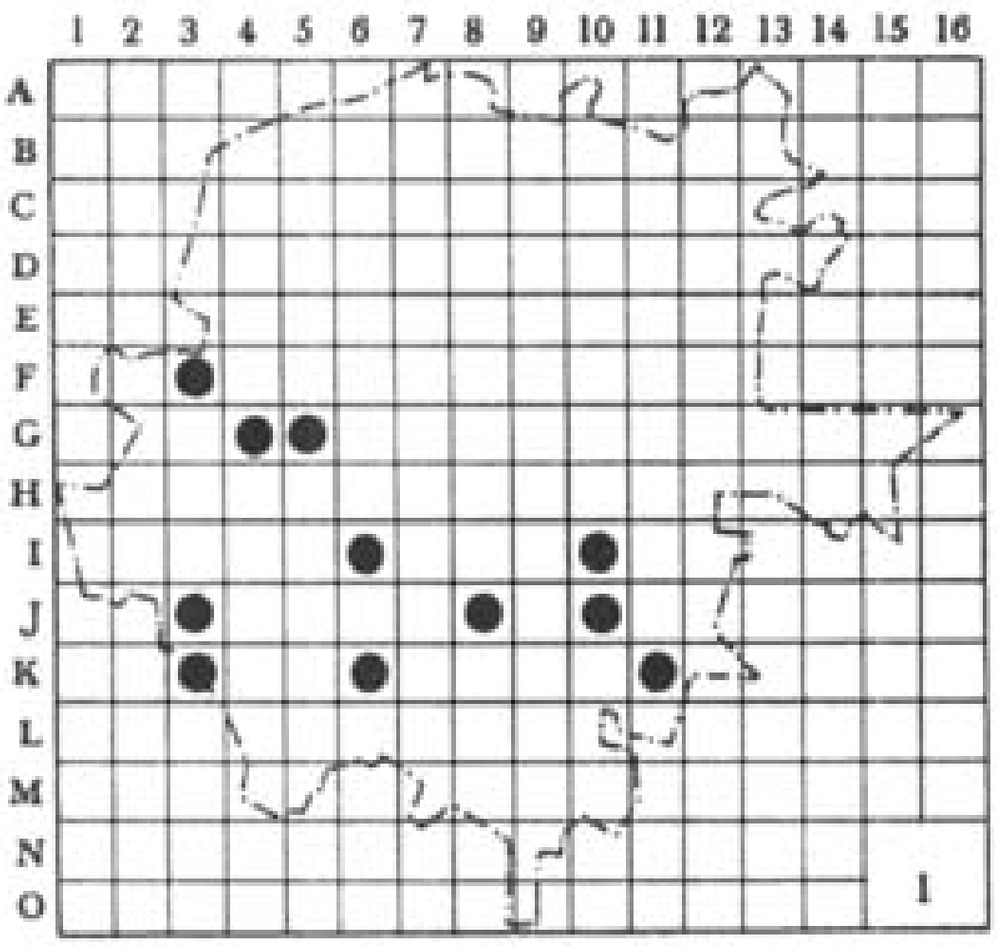
Clavulina rugosa (Bull.: Fr.) Schroet. [=*Clavaria rugosa* Bull.: Fr. =*Ramaria rugosa* (Bull.: Fr.) Quél.] – *TC*, under *Fagus sylvatica*, IX (1 loc: J 5), RL.

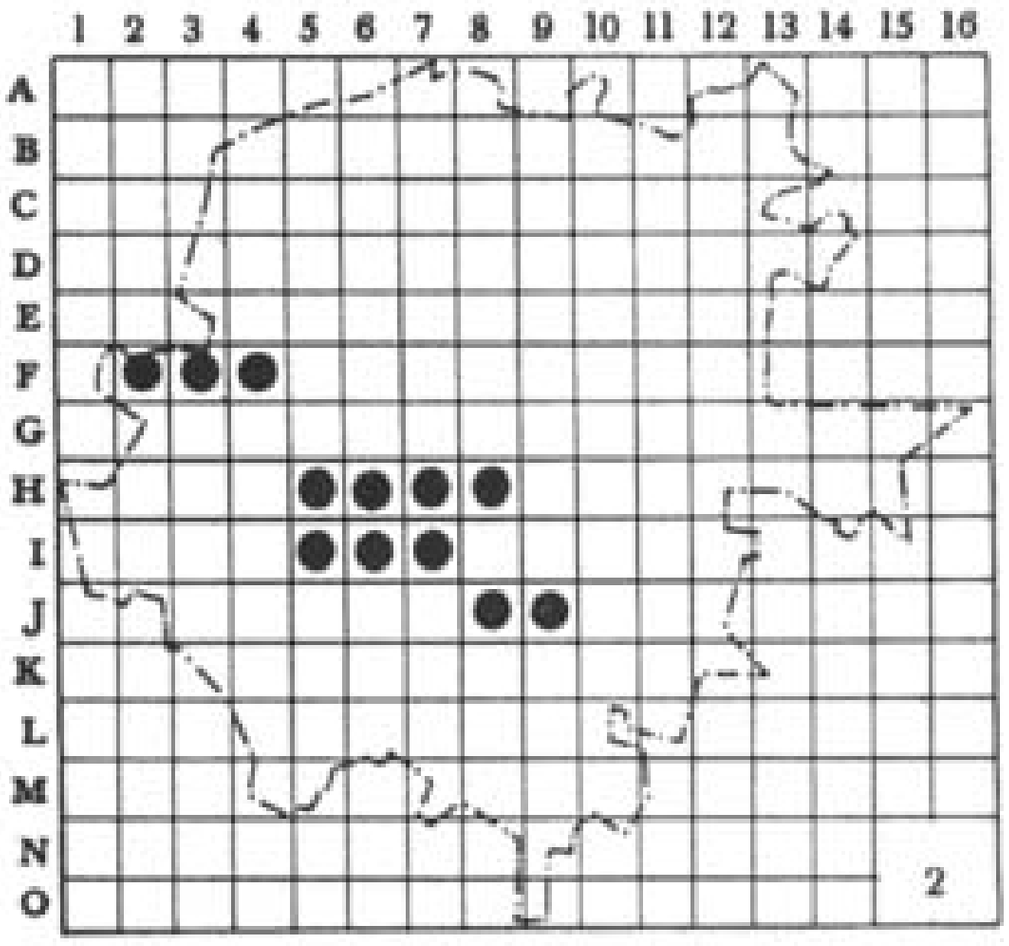
Datronia mollis (Sommerf.: Fr.) Donk [=*Antrodia mollis* (Sommerf.: Fr.) P. Karst.] – *QrP*, on *Populus*, *Quercus* dead logs, V – IX (2 loc: A 8, K 10). In Poland, apart from Carpathians, mentioned by W o j e w o d a (1991a), O l e s i ń s k i and W o j e w o d a (1987), B u j a k i e w i c z et al. (1992), K a ł u c k a (1995), RL.

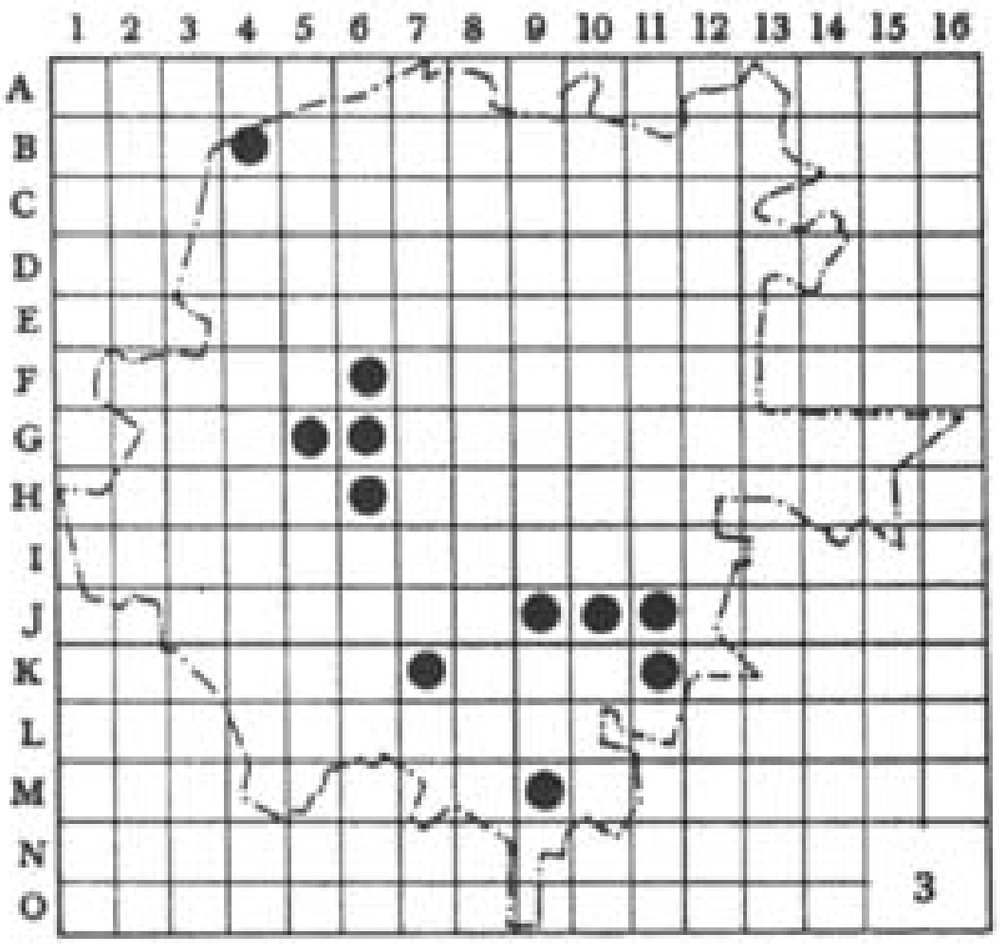
Diplomitoporus flavescens (Bres.) Domański [=*Trametes flavescen* Bres.] – *QrP*, on *Pinus branch*, VIII (1 loc: K 3). In Poland mentioned by D o m a ń s k i (1965, 1970), W o j e w o d a (1973), H e i n r i c h and W o j e w o d a (1976), B u j a k i e w i c z and L i s i e w s k a (1983), O l e s i ń s k i and W o j e w o d a (1987), RL.

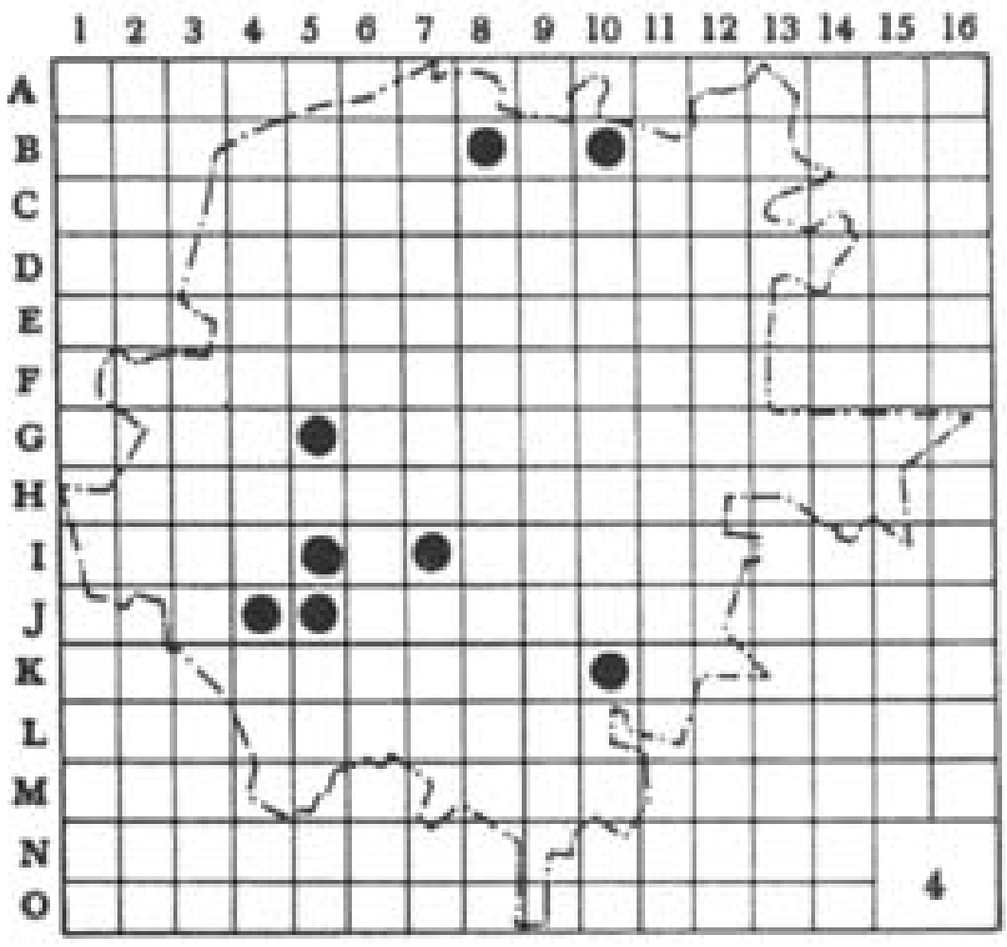
Ganoderma carnosum Pat. [=*G. atkinsonii* Jahn, Kotl. et Pouz.] – *QrP*, *TC*, on *Abies alba* stems and roots, II – XI (5 loc: B 7, 8, J 5, 7, 10). This species in Poland until now was not distingushed from *G. lucidum*. There is only one known locality, Agata in ŚNP (J a h n et al. 1980), RL.

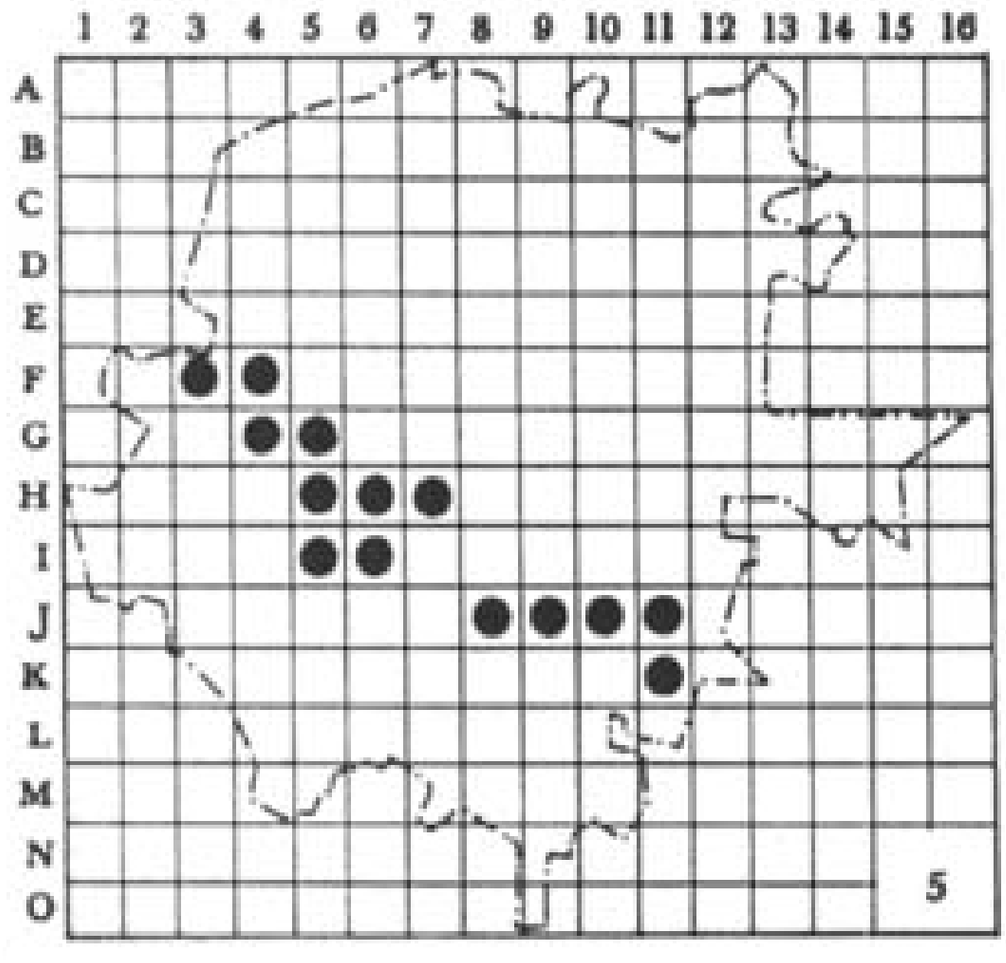
Gloeoporus taxicola (Pers.: Fr.) Gilbn. et Ryv. [=*Meruliopsis taxicola* (Pers.: Fr.) Bond. in Parm. =*Poria taxicola* (Pers.: Fr.) Bres. =*P. haematodes* (Rostk. in Sturm) Egeland] – *PP*, on *Pinus* branch, V (1 loc: K 11), RL.











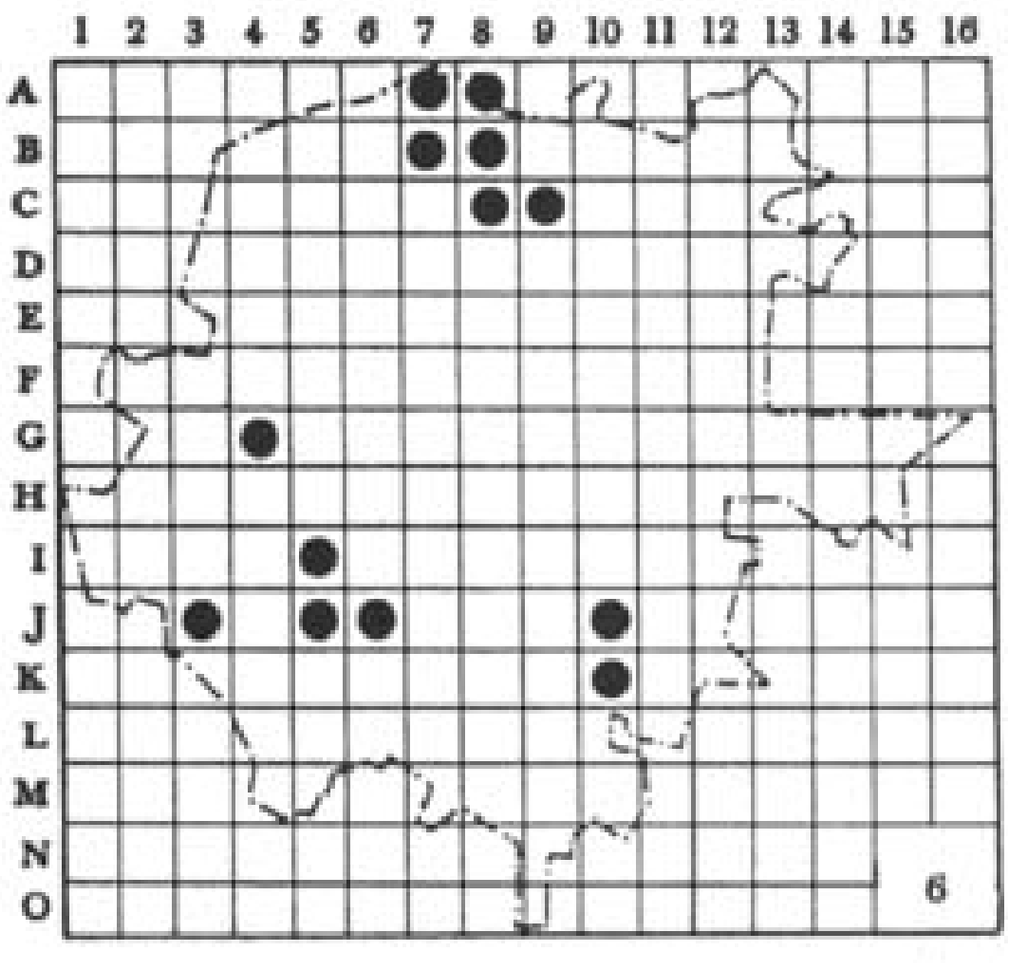


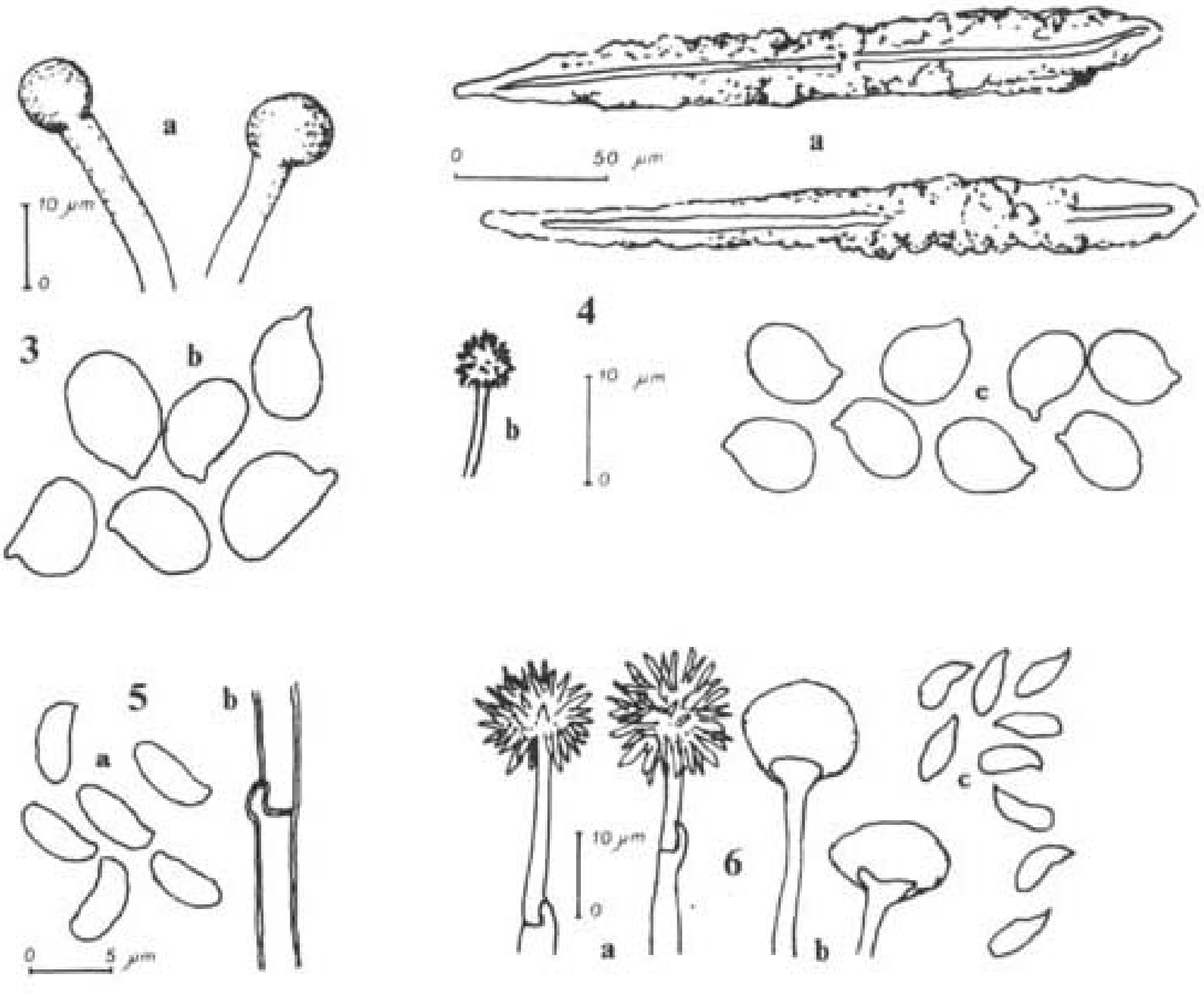
Fig. 2. Carthograms: 1 — *Cantharellus cibarius*, 2 — *Thelephora caryophyllea*, 3 — *Macrolepiota procera*, 4 — *Pluteus pouzarianus*, 5 — *Lactarius deliciosus*, 6 — *Phallus impudicus*

* *Hyphoderma capitatum* J. Erikss. et Strid — *QrP*, on *Pinus*, XI (1 loc: A 10). Known from Switzerland and Sweden (J ü l i c h, 1984). Fruit body thin, resupinate, white to light yellow colour. Hyphae hyalin, ca. 8,1 µm diametre in head part. Spores hyaline, round to broad eliptical, smooth with a slitghtly thickened walls and distinctly apiculus, 8-12.1 × 7-8.1 µm (Fig. 3). On the bark and wood of coniferous trees (*Picea*, *Pinus*).

Inonotus cuticularis (Bull.: Fr.) P. Karst. — on *Acer negundo*, IV (1 loc: F 11). In Poland noted in: T e o d o r o w i c z (1933), W o j e w o d a (1973, 1974), RL.

I. obliquus (Sow.: Fr.) P. Karst. — *TC*, on *Betula pendula* log, V (1 loc: J 10), RL.

Junghuhnia nitida (Pers.: Fr.) Ryv. — *QrP*, on *Quercus* branch, VII (1 loc: A 10). In Poland mentioned in: W r ó b l e w s k i (1922), D o m a ń s k i et al. (1963), W o j e w o d a (1965), RL.



Figs 3—6. Morphological characteristics. Fig. 3. *Hyphoderma capitatum*: a — cystidia, b — spores. Fig. 4. *Litschauerella abietis*: a — cystidia, b — asterocystidium, c — spores. Fig. 5. *Phlebia lilascens*: a — spores, b — hypha. Fig. 6. *Resinicium bicolor*: a — asterocystidia, b — holocystidia, c — spores

Litschauerella abietis (Bourd. et Galz.) Oberw. ex Jül. — *QrP*, on *Abies alba* log, XI (1 loc: A 10). Cosmopolitic fungus, known from Europa, Africa, N-America and New Zealand (D o m a ń s k i 1965-1992). Fruiting body resupinate, annual, developes on softwood. Cystidia large, numerous, conical, thickwalled and incrusted: 120-150 × 6.7-13.5 μm. Asterocystidia present on basidia base. Spores: 5.4-9.6 × 4.8-7.2 μm light amyloid, globose, thin-walled with apiculus (Fig. 4). In Poland mentioned in: D o m a ń s k i et al. (1967).

Meripilus giganteus (Pers.: Fr.) P. Karst. [=*Grifola gigantea* (Pers.: Fr.) Pil.] — under *Aesculus*, IX (1 loc: F 9). In Poland mentioned in: S k i r g i e ł ł o (1976), S z c z e p k a and G r z e g o r z e k (1984), F r i e d r i c h (1986), O l e s i ń s k i and W o j e w o d a (1987), F l i s i ń s k a (1987), B u j a k i e w i c z et al. (1992). Species protected by law.

Phaeolus schweinitzii (Fr.) Pat. — *PP*, *QrP*, under *Pinus*, on the ground from buried roots of this tree, VIII (2 loc: F 6, G 5). In Poland mentioned in: G u m i ń s k a (1966), W o j e w o d a (1973, 1974, 1991b), L i s i e w s k a (1979), F r i e d r i c h (1986), O l e s i ń s k i and W o j e w o d a (1987), B u j a k i e w i c z and L i s i e w s k a (1983), F l i s i ń s k a (1987), B u j a k i e w i c z et al. (1992), RL.

Phellinus hartigii (All. et Schnabl) Pat. [= *Fomitiporia hartigii* (All. et Schnabl) Fiasson et Niemelä] — *QrP*, *TC*, on sick and dead trunks of *Abies alba*, I — XII (5 loc: A 10, J 3-5, 7). In Poland, apart from Carpathians, noted by D o m a ń s k i (1962), W o j e w o d a (1974), Ł a w r y n o w i c z (1978), L i s i e w s k a (1979), G i n k o (1987), K a ł u c k a (1995), RL.

Ph. pini (Brot.: Fr.) A. Ames. [=*Trametes pini* (Brot.: Fr.) Fr.] — on dead *Pinus*, V (1 loc: H 8). In recent years very rarely found in S-Poland, RL.

* *Phlebia cremeoochracea* (Bourd. et Galz.) Parm. — *TC*, on a *Fagus* branch, VII (1 loc: J 3). Known only from France where it grows on branches of the beech and ash trees (D o m a ń s k i 1965-1992). Fruiting body resupinate, waxy, cream-ochre to ochre, hyphae thinwalled without clamps. Spores narrow eliptic: 5-7 × 2.5-3.5 μm.

Ph. lilascens (Bourd.) J. Erikss. et Hjortst. — *QrP*, on *Pinus* log, XI (1 loc: A 10). From Poland noted only by the Scandinavian mycologists mentioned with no definite locality (E r i k s s o n et al. 1981). In Europe known from France, Spain, Scandinavia and Ukraine (D o m a ń s k i 1965-1992). Fruiting body resupinate, waxy, dirty yellow colour with violet or pink shade. Hyphae thinwalled with clamps, closely packed. Cystidia absent. Spores narrow eliptic: 3.6-4.8 × 1.8-2.4 μm (Fig. 5), RL.

* *Phlebiella allantospora* (Oberw.) Larss. et Hjortst. [=*Aphanobasidium allantosporum* (Oberw.) Jül.] — *TC*, on dead wood of coniferous trees, V (1 loc: J 10). In Europe only in: Austria, Germany, Denmark, on decaying wood

(D o m a ń s k i 1965-1992). Fruiting body resupinate, caesious or grey-ocher. Hyphae hayalin, monomitic. Pleurobasidia non-encrusted; spores smooth, allantoid, amyloid: 5-6 × 1.5-2 µm.

Phylloporia ribis (Schum.: Fr.) Ryv. [=*Phellinus ribis* (Schum.: Fr.) P. Karst.] — *TC*, and parks, on roots of *Euonymus verrucosus* and *Ribes alpina*, I — XII (3 loc: B 7, D 10, J 5), RL.

Ramaria flava (Schaeff.: Fr.) Quél. — *LF*, X (1 loc J 4), RL.

Resinicium bicolor (Alb. et Schw.: Fr.) Parm. [=*Odontia bicolor* (Alb. et Schw.: Fr.) Quél.] — *PP*, *TC*, on *Abies alba* and *Pinus sylvestris* branches and logs, IV — VII (4 loc: B 7, 8, G 5, J 10). Probably common in Poland, but rarely mentioned in literature. In Europe known from many countries. Fruiting body outspread, hymenophore hydnoid of cream colour. Two types of cystidia: holocystidia and sterocystidia. Spores narrows, slight alantoid and colourless: 5.4-6.7 × 2.5-3 µm (Fig. 6).

Sparassis crispa (Wulf. in Jacq.): Fr. — *PP*, *QrP*, at the base of trunks and on roots of *Pinus sylvestris*, VIII — IX (3 loc: F 6, J 3, 4). Species protected by law, RL.

Stereum ochraceoflavum (Schwein.) Ell. [=*S. rameale* (Pers.) Fr.] — *TC*, on dead branches of *Corylus* and *Quercus*, V — XI (5 loc: A 10, B 7, F 6, G 3, 4). Distribution in Poland: D o m a ń s k i (1991, Fig. 7).

Fig. 7. Localities of *Stereum ochraceoflavum* in Poland: 1 — new locality, 2 — localities known before

Thelephora caryophyllea (Schaeff.): Fr. — *PP*, on soil, VIII — XII (12 loc: F 2-4, H 5-8, I 5-7, J 8, 9) (Fig. 2.2), RL.

Agaricales

Agaricus augustus Fr. — *QrP*, on soil, X (2 loc: J 10, K 11). In Poland noted among others by G u m i ń s k a (1966, 1969, 1976 b), W o j e w o d a (1974), RL.

A. xanthodermus Gen. — in park, on soil, (1 loc: F 10). Distribution in Poland: S k i r g i e ł ł o (1986), L i s i e w s k a and W y p i j (1986), M a m o s (1986), G u m i ń s k a (1992), RL.

Arrhenia spathulata (Fr.) Redhead [=*Leptoglossum muscigenum* (With.: Fr.) P. Karst.] — *SvC*, *PP*, among mosses, IX — X (3 loc: F 3, G 4, 5), RL.

Boletus edulis Bull.: Fr. — *QrP*, on soil, IX (1 loc: J 6), RL.

B. queletii Schulz. — *TC*, on soil, IX (1 loc: J 6). In Poland noted by S k i r g i e ł ł o (1960). Similar to *B. erythropus* from which it differs by having the flesh turning slightly blue, and dark red base (also basal flesh), RL.

Clitocybe candicans (Pers.: Fr.) Kumm. — *QrP*, on humus and the old fire places, IX (2 loc: D 3, E 4), RL.

C. radicellata Gill. [=*C. verna* Egeland ex Lundell =*C. pruinosa* (Lasch) Kumm. sensu Harmaja] — *PP*, on soil, IV (1 loc: I 9). In Poland mentioned by B u j a k i e w i c z (1979), F l i s i ń s k a (1987), RL.

C. vermicularis (Fr.) Quél. [=*C. rhizophora* Vel. Josserand et Pouchet =*Collybia rhizophora* Vel.] — *PP*, *TC*, on soil, V — VI (3 loc: J 3, 11, K 11).

Cystoderma terreii (Berk. et Br.) Harmaja [=*C. cinnabarinum* (Alb. et Schw. =*Lepiota cinnabarina* (Alb. et Schw.) P. Karst.] Fayod — *PP*, *QrP*, *TC*, on humus, IX — X (8 loc: F 3, 4, G 3-5, H 6, J 10, K 10), RL.

Entoloma atromarginatum (Romagn. et Favre) Zschieschang — *SC*, among *Sphagnum*, VIII (1 loc: B 11), RL.

E. byssisedum (Pers.: Fr.) Donk — *TC*, on twigs in humus, IX (1 loc: J 5), RL.

Gyroporus castaneus (Bull.: Fr.) Quél. — *TC*, on soil, VIII (1 loc: B 7). Rare especially in S-Poland. Noted by S k i r g i e ł ł o (1939), G u m i ń s k a (1966), L i s i e w s k a et al. (1976), W o j e w o d a (1979), M a m o s (1986), F l i s i ń s k a (1987), RL.

Hebeloma claviceps (Fr.) Kumm. sensu Ricken [=*H. crustuliniforme* (Bull.) Quél. sensu Bruchet =*H. velutipes* Bruchet] — *PP*, on soil, IX, (2 loc: I 6, J 4), RL.

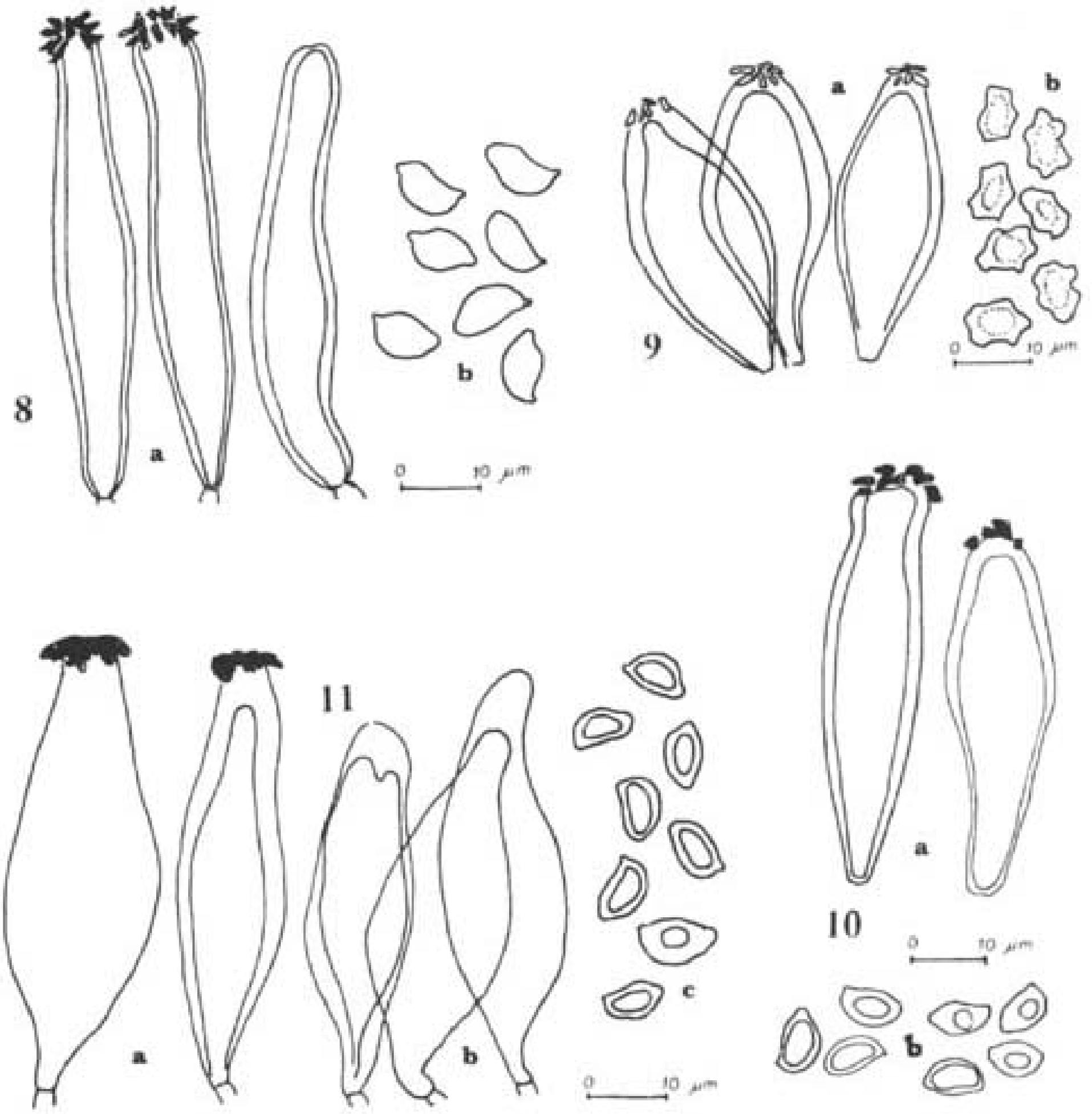
H. hiemale Bres. — *PP*, *QrP*, and hedge-row with *Ligustrum vulgare* and *Populus italica*, VIII — XI (8 loc: D 4, E 11, 12, F 3, 4, I 6, J 8, M 8). Known from few localities especially in N-Poland: B u j a k i e w i c z and L i s i e w s k a (1983), O l e s i ń s k i and W o j e w o d a (1987), G u m i ń s k a (1990).

H. pumilum Lange — *PP*, *TC*, on soil, VIII — X (3 loc: F 4, J 4, 5), RL.

Hemimycena delectabilis (Peck) Sing. [=*Mycena delectabilis* (Peck) Kühner =*Omphalia gracillima* sensu Lge.] — *TC*, on decaying leaves, X (1 loc: B 8). In Poland mentioned by B u j a k i e w i c z (1973), W o j e w o d a (1974), F r i e d r i c h (1986), F l i s i ń s k a (1987), RL.

Hydropus marginellus (Pers.: Fr.) Sing. [=*Clitocybe umbrino-marginata* Britz.] — *QrP*, on decay *Abies* log, II (1 loc: J 7). In Poland mentioned by K o t l a b a and L a z e b n č e k (1967), G u m i ń s k a (1972), B u j a k i e w i c z et al. (1992), RL.

Hygrophorus gliocyclus Fr. [=*H. lignatus* Fr.] — *PP*, *TC*, on soil, VIII (2 loc: J 10, K 11). In Poland mentioned by D i t t r i c h (1917), G u m i ń s k a (1976 a), RL.



Figs 8–11. Morphological characteristics. Fig. 8. *Inocybe auricoma*: a — cystidia, b — spores. Fig. 9. *Inocybe calida*: a — cystidia, b — spores. Fig. 10. *Inocybe cryptocystis*: a — cystidia, b — spores. Fig. 11. *Inocybe fuscidula*: a — cheilocystidia, b — pleurocystidia, c — spores

Hypholoma polytrichi (Fr.) Sing. — among mosses, IX (1 loc: E 4), RL.

H. subviride Berk. et Curt. — *QrP*, on *Pinus* log, VII (1 loc: B 8). Until now noted from N-E and E-Poland: P o u z a r (1981), O l e s i ń s k i and W o j e w o d a (1987), B u j a k i e w i c z et al. (1992), D o m a ń s k i (1993). In the past it was not distiguished from *H. fasciculare*.

Inocybe abjecta (P. Karst.) Sacc. [=*I. peronatella* Favre] — *PP*, *QrP*, and beyond the limits of forest, on soil, VIII — X (9 loc: C 11, F 4, G 4, 5, I 2, J 4, 8, K 4, 5), RL.

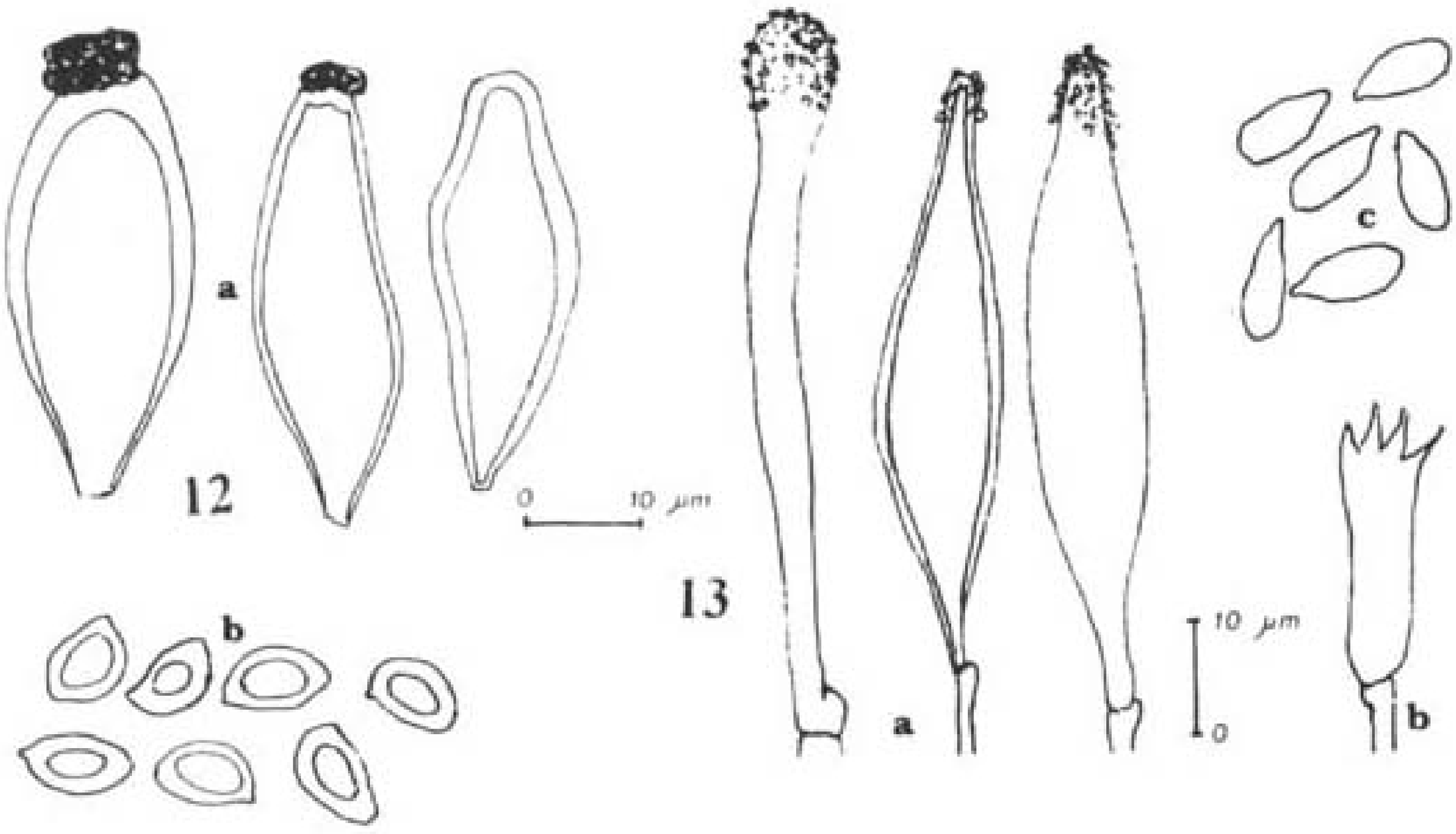
I. auricoma (Batsch) Lange — *QrP*, *TC*, on soil, IX-X (2 loc: G 4, I 6) (Fig. 8), RL.

I. calida Vel. [=*I. brunneorufa* Stangl et Veselskl'] — *TC*, on soil, X (1 loc: B 7), (Fig. 9).

* *I. cryptocystis* Stuntz [=*I. mystica* Stangl et Glovinski=*I. confusa* P. Karst.] — *PP*, on soil, IX (1 loc: J 3). Cap of mature fruit body ochraceous. Stem scarcely yellow-ochraceous, acidulus. Spores: 7.4-9.4 × 4.7-5.4 µm, cystidia small and thick-walled 32.4-40 (55) × 10.8-13 (16) µm (Fig. 10). In Europe, on limestone soil, under oaks, hornbeams and elms.

I. fuscidula Vel. [=*I. brunneoatra* (Heim) Orton=*I. descissa var. brunneoatra* Heim] — *TC*, on soil, IX (1 loc: G 4), (Fig. 11).

I. inconcinna P. Kast. — *PP*, on soil, III — IX (2 loc: G 4, J 4). In Poland, mentioned by B u j a k i e w i c z (1979). Fruiting body with floury smell. Stipe pruinose at apex only. Spores: 8.1-10 × 4.0-5.4 µm, cystidia slightly thick-walled, crystal-bearing or without crystal: 37-51 × 13.1-16.2 µm (Fig. 12).



Figs 12–13. Morphological characteristics. Fig. 12. *Inocybe inconcinna*: a — cystidia, b — spores. Fig. 13. *Marasmius tremulae*: a — cystidia, b — basidium, c — spores.

Leccinum vulpinum Watl. [=*L. aurantiacum* var. *vulpinum* (Watl.) Pil.] – near *Populus tremula*, on soil, IX (1 loc: F 3), RL.

Lepiota alba (Bres.) Sacc. – *CB*, on soil, VIII – IX (2 loc: D 6, G 3). In Poland mentioned by G u m i ń s k a (1976 a), G i n k o (1987), RL.

Macrolepiota procera (Scop.: Fr.) Sing. [=*Lepiota procera* (Scop.: Fr.) S.F. Gray] – *PP*, *QrP*, *TC*, *Am*, on soil, VIII – IX (11 loc: B 4, F 6, G 5, 6, H 6, J 9-11, K 7, 11, M 9) (Fig. 2.3), RL.

M. puellaris (Fr.) Moser [=*Lepiota puellaris* (Fr.) Rea] – *TC*, on soil, VIII (1 loc: J 10). In Poland mentioned by G u m i ń s k a (1969), G i n k o (1987), RL.

M. rachodes (Vitt.) Sing. [=*Lepiota rachodes* (Vitt.) Quél.] – *TC*, on soil, VIII – IX (2 loc: J 10, 11), RL.

* *Marasmius tremulae* Vel. – *QrP*, on *Populus petioles*. IX (1 loc: K 9). Cap 2-4 mm, hemispherical, white, very finely downy. Lamellae distant. Stipe 10 × 0.3 mm, finely bristly. Cystidia with crystal heads. Spores 11-14 × 3-4 µm., (Fig. 13).

Mycena atroalba (Bolt.: Fr.) S.F. Gray – *QrP*, on twigs, IX (1 loc: I 5). In Poland mentioned by L i s i e w s k a (1987), RL.

Omphalina epichysium (Pers.: Fr.) Quél. – *PP*, XII (1 loc: J 11). In Poland noted by N e s p i a k (1960), G u m i ń s k a (1966), B u j a k i e w i c z (1970, 1979), B u j a k i e w i c z et al. (1992), RL.

Oudemansiella mucida (Schrad.: Fr.) Höhn [=*Collybia mucida* (Schrad.: Fr.) Quél., =*Mucidula mucida* (Schrad.: Fr.) Pat.] – *TC*, on *Fagus* logs, X (1 loc: J 3). Distribution in Poland: S k i r g i e ł ł o (1970), W o j e w o d a (1974), B u j a k i e w i c z, L i s i e w s k a (1983), F r i e d r i c h (1986), RL.

Phaeomarasmius erinaceus (Fr.) Kühner [=*Ph. aridus* (Pers.) Sing.] – *TC*, on decaying *Abies* logs, VII – IX (2 loc: B 8, J 10). In Poland mentioned from several localities by W o j e w o d a (1965, 1974), B u j a k i e w i c z and L i s i e w s k a (1983), D o m a ń s k i (1993), K a ł u c k a (1995), RL.

Pholiota flammans (Fr.) Kumm. – *TC*, on *Pinus* branch, X (1 loc: J 10). In Poland noted by G u m i ń s k a (1966), Ł a w r y n o w i c z 1978), B u j a k i e w i c z (1979), W o j e w o d a (1979), B u j a k i e w i c z and L i s i e w s k a (1983), M a m o s (1986); G i n k o (1987), F r i e d r i c h (1986, 1987), B u j a k i e w i c z et al. (1992).

Pleurotus calyptratus (Lindbl. in Fr.) Sacc. – *QrP*, *TC*, and planted along streets *Populus tremula* trees, V – VIII (3 loc: A 10, B 7, F 11). In Poland noted from Silesia only (S o k ó ł and S z c z e p k a 1995). In Europe known from south and western countries, where it grows on dead poplar wood, mainly on *Populus tremula* and *P. alba* (H i l b e r 1982). Fruiting body lateral or with short stipe, white, white-cream and smooth, dry often

almost white. Cap young slightly conical, old semi-circular 3-5 cm diametre. At margins always present velum partiale. Lamellae white, crowded, 3-4 mm wide. Spores colourless, smooth, cilindrical (10.8) 11.6-14.3 (16.0) × 4-4.5 µm. Basidia (with 4 spores) 29.7-31.9 × 7.1-8.1 µm. Hyphae with clamps (Fig. 14). Weak smell, pleasant aniseed taste. RL.

Pluteus chrysophaeus (Schaeff.: Fr.) Quél. [= *P. xanthopheus* Orton] — *TC*, on *Fagus* twigs, VIII (1 loc: J 5). In Poland noted by D o m a ń s k i et al. (1970), B u j a k i e w i c z (1970, 1973), L i s i e w s k a and W y p i j (1985), B u j a k i e w i c z et al. (1992), RL.

P. ephebus (Fr.: Fr.) Gill. (= *P. murinus* Bres. sensu Romagn.) — on decaying *Aesculus*? log, IX (1 loc: F 8). In Poland noted by B u j a k i e w i c z (1973).

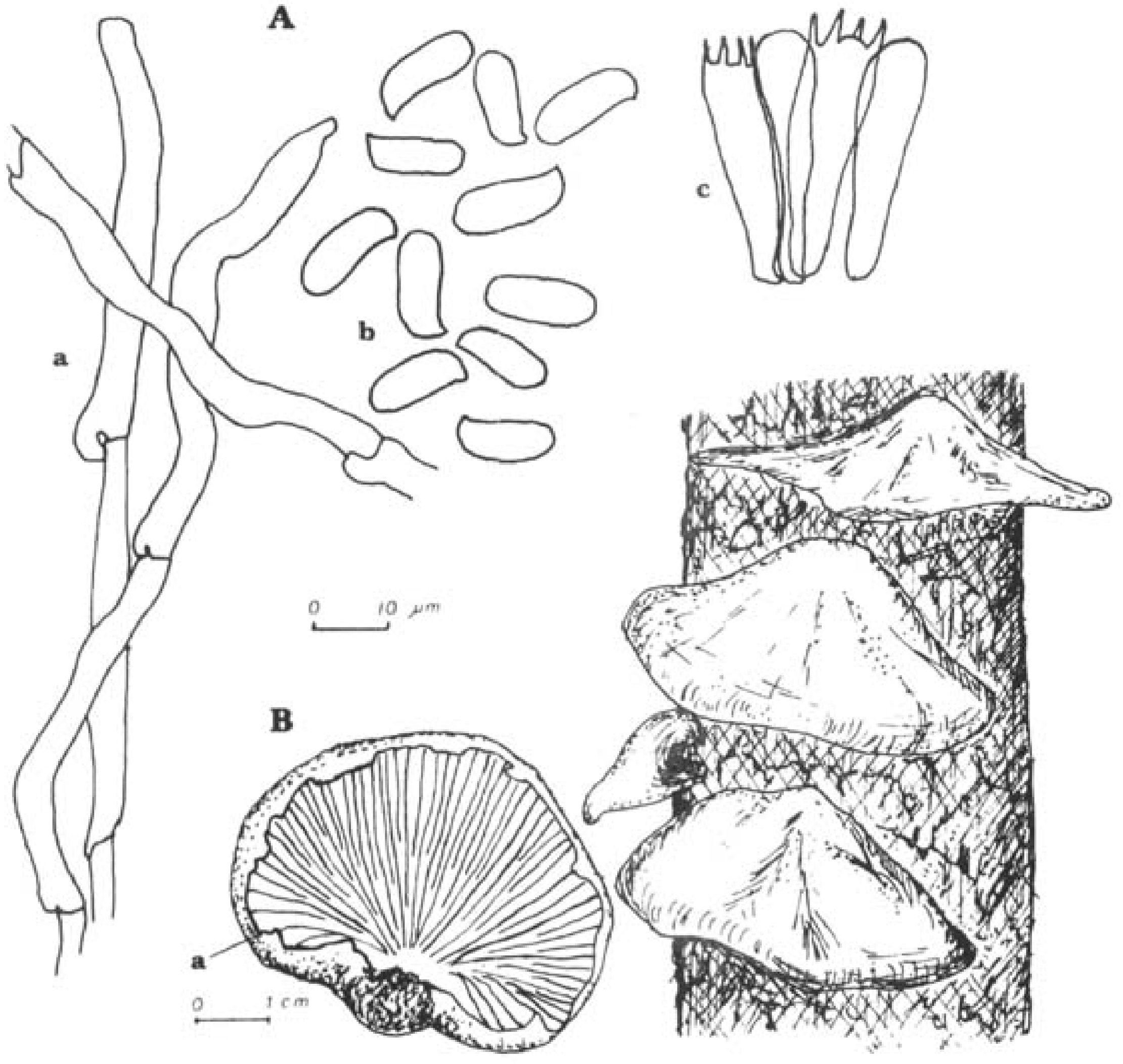


Fig. 14. *Pleurotus calyptratus*. A. Hymenium elements: a — hyphae, b — spores, c — basidia. B. Fruitbodies: a — velum

P. godeyi Gill. — *PP*, *TC*, on *Quercus* and *Fagus* twigs, VIII — IX (3 loc: J 3-5), RL.

* *P. pouzarianus* Sing. — *PP*, *QrP*, *TC*, on *Pinus* and *Abies* logs, VIII — X (8 loc: B 8, 10, G 5, I 5, 7, J 4, 5, K 10) (Fig. 2.4). Until now not distiguished from *P. atricapillus* from which it differs by the presence of clamps and the growth (most frequently) on coniferous wood. Spores 6.7-9.4 × 5-6 µm, globular, oval with slightly thickened walls (Fig. 15). Other features like *P. atricapillus*.

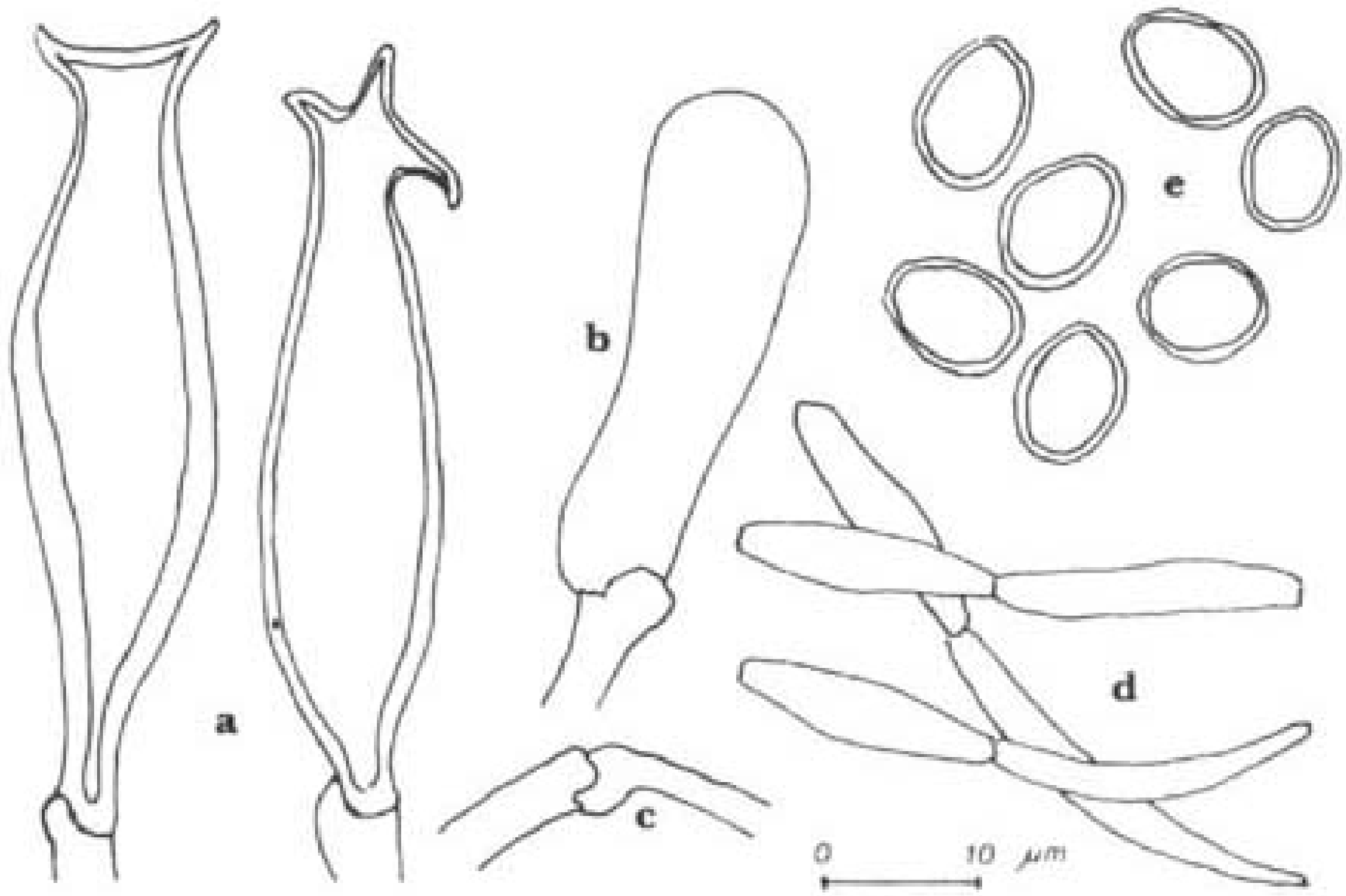


Fig. 15. *Pluteus pouzarianus*: a — cystidia, b — basidiola, c — hyphae with clamps, d — hyphae from cap skin, e — spores.

Psathyrella conoceps (Kauffm.) A. H. Smith [= *P. plumulosa* Romagn. = *P. pennata* sensu Lge.] — *QrP*, on buried twigs, VIII — IX (2 loc: E 13, J 8), RL.

Stropharia albonitens (Fr.) P. Karst. — *PP*, on soil, X (1 loc: G 4), RL.

S. caerulea Kreisel [= *S. cyanea* (Bolt.) Tuomikoski sensu Tuomikoski, Moser, H. Jahn, Cetto, M. Bon, Urbonas et al. = *S. aeruginosa* (Curtis.: Fr.) Quél. sensu Bres., J. Lge. = *S. albocyanea* (Fr.) Quél. sensu Kreisel] — in the grass, X — XI (4 loc: E 11, 12, H 14, 15). In Poland mentioned by Olesiński and Wojewoda (1987), Bujakiewicz and Lisiewska (1983), Kałucka (1995). Similar to *S. aeruginosa* from which it differs by lacking of veil flakes, and having the spindle and bottle-shaped cystidia: 37.8-48 × 8.1-13.1 µm, spores: 8.1-9 × 5-5.4 µm (Fig. 16). Stipe smooth, sticky, rarely weakly covered with mucus.

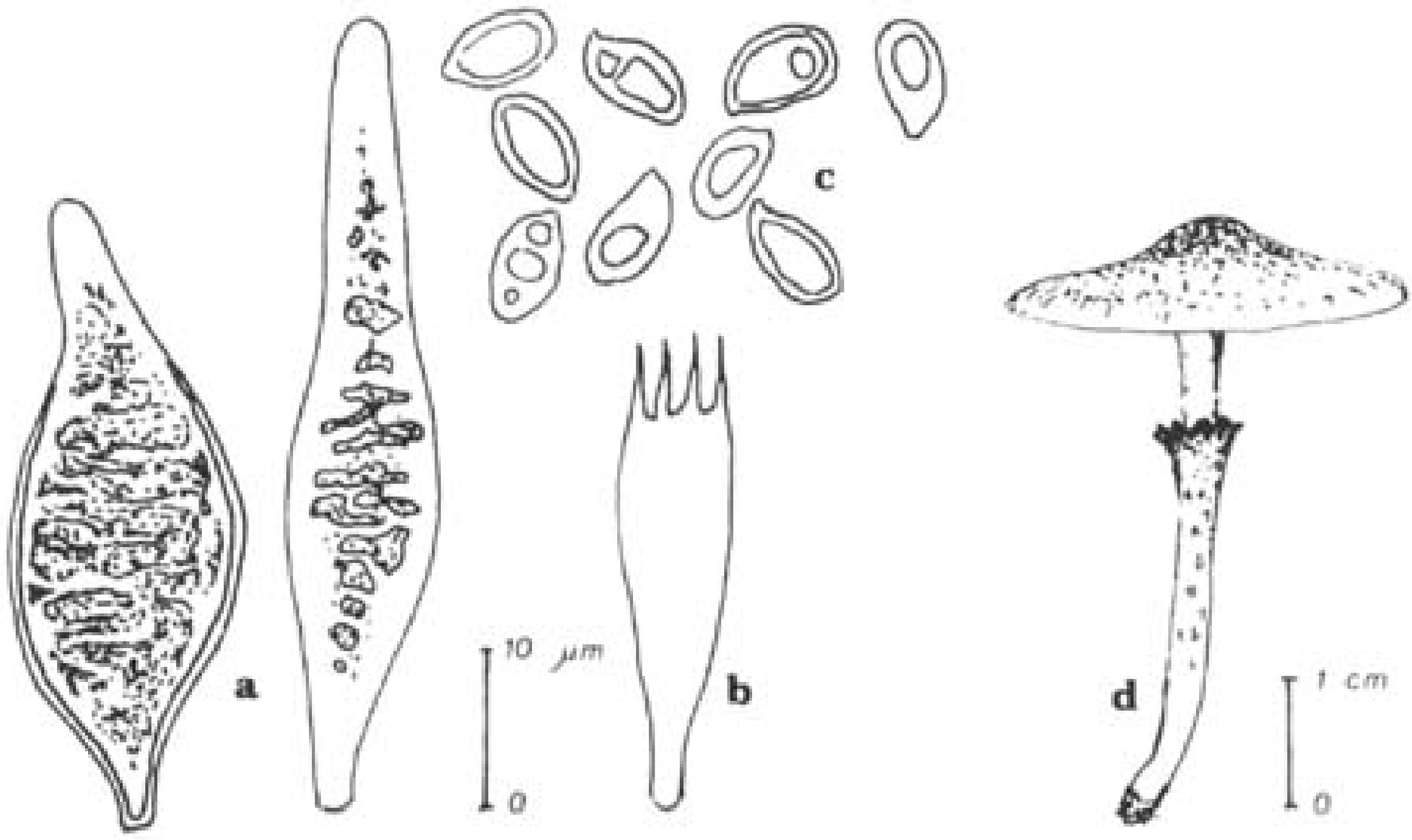


Fig. 16. *Stropharia caerulea*: a – cystidia, b – basidium, c – spores, d – fruitbody.

Tricholomopsis decora (Fr.) Sing. – *PP*, on *Pinus* log, VIII (1 loc: G 4). In Poland outside Carpathians noted by L i s i e w s k a (1979), RL.

Tricholoma equestre Fr. f. *pinastri* Fr. [=*T. flavovirens* (Pers. et Fr.) Lund et Nannf.] – *PP*, on sandy soil, X – XI (1 loc: H 7), RL.

Volvariella pusilla (Pers.: Fr.) Sing. [=*V. parvula* (Weinm). Speg.] – *TC*, on soil, VIII (1 loc: G 6), RL.

V. speciosa (Fr.: Fr.) Sing. [=*Volvaria speciosa* (Fr.: Fr.) Kumm., *Amanita incarnata* Pers. incl. var. *laevis* Alb. et Schw.] – on compost, VIII (1 loc: C 5). In Poland noted by W o j e w o d a (1974), L i s i e w s k a and W y p i j (1985), G i n k o (1987).

Russulales

Lactarius deliciosus (L.: Fr.) S.F. Gray – *PP*, *QrP*, on soil, VIII – X (14 loc: F 3, 4, G 4, 5, H 5-7, I 5, 6, J 8-11, K 11) (Fig. 2.5), RL.

L. lilacinus (Lasch: Fr.) Fr. – *CA*, under *Alnus*, IX (1 loc: K 9). In Poland noted by L i s i e w s k a (1965), B u j a k i e w i c z (1973), F r i e d r i c h (1986), B u j a k i e w i c z et al. (1992), RL.

Russula versicolor J. Schaeff. – on swamps overgrown by young forest (birch and alder), on soil, IX (4 loc: F 3, H 3, K 8, 9). In Poland mentioned by W o j e w o d a (1974), H o ł o w n i a (1977), B u j a k i e w i c z and L i s i e w s k a (1983).

Tulostomatales

Tulostoma brumale Pers.: Pers. [=*T. mammosum* Fr.] – in *SvC*, and sandy glades in PP, on sandy soil, IV – XI (3 loc: F 3, G 4, 5), RL.

Lycoperdales

Bovista tomentosa (Vitt.) Quél. – on border *PP*, and *Coryph* on soil, VIII – IX (2 loc: C 4, E 3). In Poland known from several loc: Teodorowicz (1933), Šmarda (1957), Wojewoda (1974, 1981), RL.

Langermannia gigantea (Batsch: Pers.) Rostk. [=*Calvatia gigantea* (Batsch: Pers.) Lloyd =*C. maxima* (Schaeff.) Morgan =*Globaria bovista* (L.) Schroet.] – in garden, on compost, IX (1 loc: F 12). Species protected by law. Distribution in Poland: Skirgiełło (1970).

Geastrales

Geastrum fimbriatum Fr. – *TC*, on soil, VIII – IX (1 loc: G 4), RL.

G. minimum Schw. – *P*P, on soil, X (1 loc: H 5), RL.

G. quadrifidum Pers.: Pers. – *PP*, *TC*, on soil, IV – X (2 loc: G 4, I 7), RL.

Phallales

Phallus impudicus L.: Pers. – *QrP*, *TC*, and parks, on soil sometimes in „fairy rings", VII – IX (13 loc: A 7, 8, B 7, 8, C 8, 9, G 4, I 5, J 3, 5, 6, 10, K 10) (Fig. 2.6). Species protected by law. Distribution in Poland: Skirgiełło (1970).

CONCLUSIONS

In Kielce 64 species (ca 15% of the total *macromycetes* of the area) are listed in the red list for Poland.

Three of them belong to the category „endangered" (E) species: *Hydropus marginellus*, *Hygrophorus glyocyclus* and *Boletus queletii*.

Eight species belong to the category „vulnerable" (V) species: *Albatrellus confluens*, *Lepiota alba*, *Oudemansiella mucida*, *Pleurotus calyptratus*, *Lactarius deliciosus*, *Geastrum minimum*, and *Hebeloma pumilum*.

The category „rare" (R) contains 30 species: *Dacrymyces ovisporus*, *Antrodiella hoehnelii*, *Clavulina rugosa*, *Botryobasidium laeve*, *Diplomitoporus flavescens*, *Ganoderma carnosum*, *Gloeoporus taxicola*, *Junghuhnia nitidia*, *Phaeolus schweinitzii*, *Ramaria flava*, *Agaricus augustus*, *A. xanthodermus*,

Clitocybe radicellata, Cystoderma terrei, Hebeloma claviceps, Hemimycena delictabilis, Hypholoma polytrichi, Inocybe abjecta, Inonotus obliquus, Mycena atroalba, Omphalina epichysium, Phaeomarasmius erinaceus, Phellinus pini, Sparassis crispa, Thelephora caryophyllea, Tricholomopsis decora, Tulostoma brumale, Bovista tomentosa, Geastrum fimbriatum, G. quadrifidum.

The category „indeterminate" (I) contains 23 species: *Arrhenia spathulata, Artomyces pyxidatus, Calocera furcata, Cantharellus cibarius, Clitocybe candicans, Datronia mollis, Entoloma atromarginatum, E. byssisedum, Gyroporus castaneus, Inonotus cuticularis, Lactarius lilacinus, Leccinum vulpinum, Macrolepiota procera, M. rachodes, Phellinus hartigii, Phlebia lilascens, Phylloporia ribis, Pluteus chrysophaeus, P. godeyi, Psathyrella conoceps, Stropharia albonitens, Tricholoma equestre, Volvariella pusilla.*

The most of mentioned species are very rare and found in one or two localities only. Some of them were found in greater number of localities, for example: *Lactarius deliciosus* (in 14 loc), *Phallus impudicus* (13), *Thelephora caryophyllea* (12), *Cantharellus cibarius* (11), *Macrolepiota procera* (11), *Inocybe abjecta* (9), *Cystoderma terreii* (8), *Hebeloma hiemale* (8), *Pluteus pouzarianus* (8), *Ganoderma carnosum* (5), *Phellinus hartigii* (5), and *Stereum ochraceoflavum* (5).

Ninety, above mentioned, species listed in this work emphasize unique character of the Kielce macromycetes. Six of them are new to Poland, 64 are included in the red list of threatened macrofungi in Poland (W o j e w o d a and Ł a w r y n o w i c z 1992), and 4 species are protected by law.

REFERENCES

A d a m c z y k J., Ł a w r y n o w i c z M. 1991. Stan zbadania grzybów wielkoowocnikowych miast Polski [Investigation state of *macromycetes* in the Polish towns]. Wiad. Bot. 35 (1): 3-9.

B u j a k i e w i c z A. 1970. Udział grzybów wyższych w lasach łęgowych i olesach Puszczy Bukowej pod Szczecinem [Higher fungi in the alluvial and alder forests of the Forest Bukowa near Szczecin]. PTPN Bad. Fizjogr. nad Polską Zach. B 23: 61-96.

B u j a k i e w i c z A. 1973. Udział grzybów wyższych w lasach łęgowych i w olesach Wielkopolski [Higher fungi in the alluvial and alder forests of Wielkopolska Province]. PTPN Prace Kom. Biol. 35 (6): 1-91.

B u j a k i e w i c z A. 1979. Grzyby Babiej Góry. I. Mikoflora lasów [Fungi of the Babia Góra Mts. I. Mycoflora of forests]. Acta Mycol. 15 (2): 213-294.

B u j a k i e w i c z A., L i s i e w s k a M. 1983. Mikoflora zbiorowisk roślinnych Słowińskiego Parku Narodowego [The mycoflora of plant communities in the Słowiński National Park]. PTPN Bad. Fizjogr. nad Polską Zach. B 34: 49-77.

B u j a k i e w i c z A., L i s i e w s k a M., S a d o w s k a B., S k i r g i e ł ł o A., M a j e w s k i T. 1992. *Aphyllophorales.* In: A. S k i r g i e ł ł o, W. M u ł e n k o, B. S a d o w s k a. (eds.) Fungi. Phytocoenosis 4 (N.S.) Archivum Geobotanicum 3: 31-32.

B u j a k i e w i c z A., L i s i e w s k a M., S a d o w s k a B., S k i r g i e ł ł o A. 1992. *Agaricales.* In: A. S k i r g i e ł ł o, W. M u ł e n k o, B. S a d o w s k a. (eds.) Fungi. Phytocoenosis 4 (N. S.) Archivum Geobotanicum 3: 33-38.

Bujakiewicz A., Lisiewska M., Skirgiełło A., Sadowska B. 1992. *Russulales*. In: A. Skirgiełło, W. Mułenko, B. Sadowska. (eds.) Fungi. Phytocoenosis 4 (N. S.) Archivum Geobotanicum 3: 38.

Chełchowski S. 1888. Basidialnyje griby okrestnostej Varšavy [*Basidiomycetes* of the neighbourhood of Warsaw]. Varšava. Var. Univ. Izv. pp. 112.

Chełchowski S. 1898. Grzyby podstawkozarodnikowe Królestwa Polskiego [Les basidiomycetes du Royaume de Pologne]. *Basidiomycetes Polonici*. I. *Autobasidiomycetes*. Pamiętnik Fizjograficzny 15 (3): 3-285.

Dittrich G. 1917. Bemerkungen zu neuen Funden Schlesischer Pilze. Hedw. 58: 1-8.

Domański S. 1962. *Addimenta ad mycofloram lignicolam Reservaci Publici ad Sanctum Crucem* ("Góry Świętokrzyskie") [Polonia Centralis] – Materiały do mikoflory nadrzewnej Świętokrzyskiego Parku Narodowego. Fragm. Flor. Geobot. 8 (4): 509-517.

Domański S. 1965-1992. Mała flora grzybów [Short guide to the fungal flora]. 1-7 PWN. Warszawa–Kraków.

Domański S. 1965. Flora Polska. Grzyby (*Fungi*) 2: *Basidiomycetes, Aphyllophorales, Polyporaceae* I, *Mucronoporaceae* I. PWN, Warszawa., 279 pp., 63 pls.

Domański S. 1970. Grzyby zasiedlające drewno w Puszczy Białowieskiej. XIII [Wood-inhabiting fungi in the Białowieża virgin forest in Poland. XIII]. Acta Soc. Bot. Pol. 39: 191-207.

Domański S. 1991. Flora Polska. Grzyby (*Mycota*) 21: *Basidiomycetes, Aphyllophorales, Stereaceae, Podoscyphaceae*. PWN, Warszawa–Kraków.

Domański S., Gumińska B., Lisiewska M., Nespiak A., Skirgiełło A., Truszkowska W. 1963. Mikoflora Bieszczadów Zachodnich. II. (Ustrzyki Górne) [Mycoflora of West Bieszczady. II. (Ustrzyki Górne)]. Monogr. Bot. 15: 3-75.

Domański S., Gumińska B., Lisiewska M., Nespiak A., Skirgiełło A., Truszkowska W. 1967. Mikoflora Bieszczadów Zachodnich. III (Baligród, 1962) [Mycoflora of West Bieszczady. III (Baligród,1962)]. Acta Mycol. 3: 63-114.

Domański S., Lisiewska M., Majewski T., Skirgiełło A., Truszkowska W., Wojewoda W. 1970. Mikoflora Bieszczadów Zachodnich. IV (Zatwarnica, 1965) [Mycoflora of West Bieszczady. IV (Zatwarnica, 1965)]. Acta Mycol. 6: 129-179.

Domański Z. 1993. *Macromycetes* in the „Jegiel" reserve. Acta Mycol. 28 (2): 185-199.

Eichler B. 1900. Materiały do flory grzybów okolic Międzyrzeca [Matériaux à la flore mycologique]. Pamiętnik Fizjograficzny 16: 157-206.

Eriksson J., Hjortstam K., Ryvarden L. 1981. The *Corticiaceae* of North Europe. 6. Fungiflora, Oslo: 1051-1276.

Flisińska Z. 1984. Materiały do poznania flory grzybów wielkoowocnikowych (*Macromycetes* Lublina [Materials for the knowledge of *macromycetes* flora of the Lublin area]. Ann. UMCS, Sec. C, 39 (2): 9-18.

Flisińska Z. 1988 (1987). *Macromycetes* zbiorowisk leśnych i torfowiskowych Pojezierza Łęczyńsko-Włodawskiego [The *Macromycetes* of forest and peatbog communities of the Łęczna-Włodawa Lake District]. Acta Mycol. 23 (1): 19-92.

Friedrich S. 1984. Mikoflora Puszczy Goleniowskiej [Mycoflora of the Goleniowska Woods]. Acta Mycol. 20 (2): 173-208.

Friedrich S. 1986 (1985). *Macromycetes* na tle zespołów leśnych Puszczy Goleniowskiej [*Macromycetes* in the plant associations of the Goleniowska Woods]. Acta Mycol. 21(1): 43-76.

Friedrich S. 1987. *Macromycetes* Szczecina [*Macromycetes* of the Szczecin city]. PTPN Bad. Fizjogr. nad Polską Zach., B, 38: 5-26.

G i n k o B. 1987 (1985). Materiały do mikoflory lasów świerkowych Suwalszczyzny [Materials to the mycoflora of the spruce forests in Suwałki region]. Acta Mycol. 21 (2): 233-245.

G u m i ń s k a B. 1962. Mikoflora lasów bukowych Rabsztyna i Maciejowej [The fungi of the beech forests of Rabsztyn and Maciejowa]. Monogr. Bot. 13: 3-85.

G u m i ń s k a B. 1966. Mikoflora lasów jodłowych okolic Muszyny [Mycoflora of the fir forests of Muszyna]. Acta Mycol. 2: 107-149.

G u m i ń s k a B. 1969. Mikoflora Pienińskiego Parku Narodowego. I [Mycoflora of the Pieniny National Park. I]. Acta Mycol. 5: 219-243.

G u m i ń s k a B. 1972. Mikoflora Pienińskiego Parku Narodowego. II [Mycoflora of the Pieniny National Park. II]. Acta Mycol. 8: 149-174.

G u m i ń s k a B. 1976a. Mikoflora Pienińskiego Parku Narodowego. III [Mycoflora of the Pieniny National Park. III]. Zesz. Nauk. UJ, 432, Prace Bot. 4: 127-141.

G u m i ń s k a B. 1976b. *Macromycetes* łąk w Pienińskim Parku Narodowym [*Macromycetes* of meadows in the Pieniny National Park]. Acta Mycol. 12: 3-75.

G u m i ń s k a B. 1990. Mikoflora Pienińskiego Parku Narodowego. V [Mycoflora of Pieniny National Park. V]. Zesz. Nauk. UJ, 968, Prace Botan. 21: 157-172.

G u m i ń s k a B. 1992a. *Macromycetes* of the Pieniny National Park (S. Poland). Verff. Geobot. Inst. ETH, Stifung, Rübel, Zürich, 107: 238-252.

G u m i ń s k a B. 1992b. Grzyby wybranych łąk w Pienińskim Parku Narodowym — stan aktualny i warunki jego zachowania [*Macromycetes* of some meadows in the Pieniny National Park — the present state and suggestions for the future management]. Pieniny — Przyroda i Człowiek 2: 65-70.

H e i n r i c h Z., W o j e w o d a W. 1976. The effect of fertilization on a pine forest ecosystem in an industrial region. Ekol. Pol. 24: 319-330.

H i l b e r O. 1982. Die Gattung *Pleurotus* (Fr.) Kummer. Bibl. Mycol. 87, J. Cramer, Vaduz.

H o ł o w n i a I. 1977. Uwagi o metodzie badań oceny produktywności owocników grzybów na podstawie obserwacji w rezerwacie Las Piwnicki [Notices about the method of appreciation of productivity of fungal fruit-bodies based on observations in the Las Piwnicki nature reserve]. Acta Mycol. 13 (1): 117-124.

J a h n H., K o t l a b a F., P o u z a r Z. 1980. *Ganoderma atkinsonii* Jahn, Kotl. et Pouz. spec. nova, a parallel species to *Ganoderma lucidum*. Westfl. Pilzbr. 11: 96-121.

J ü l i c h W. 1984. Die Nichtblätterpilze, Gallertpilze und Bauchpilze. (*Aphyllophorales, Heterobasidiomycetes, Gastromycetes*). Kleine Kryptogamenflora. II b/1. VEB G. Fischer Verl. Jena, pp. 626.

K a ł u c k a I. 1995. *Macromycetes* in the forest communities of the Jodły Łaskie nature reserve (Central Poland). Acta Mycol. 30 (1): 3-26.

K o t l a b a F., L a z e b n i č e k J. 1967. IV. Sjezd Evropských Mykologů, Polsko 1966, [The Fourth Congress of Europaen Mycologists, Poland 1966]. Česká Mycol. 21 (1): 54-59.

K r e i s e l H. (ed.) 1987. Pilzflora der Deutschen Demokratischen Republik. *Basidiomycetes* (Gallert-, Hut- und Bauchpilze). VEB G. Fischer Verl. Jena, pp. 281.

L i s i e w s k a M. 1965. Obserwacje mikologiczne w łęgach rezerwatu „Dębina" pod Wągrowcem (Północna Wielkopolska) [Mycological observations in the alder-elm forest of the „Dębina" reserve near Wągrowiec (northern part of Great-Poland)]. PTPN Prace Kom. Biol. 26 (3): 3-11.

L i s i e w s k a M. 1966. Grzyby wyższe Wolińskiego Parku Narodowego [Higher fungi of the Wolin Island National Park]. Acta Mycol 2: 25-77.

L i s i e w s k a M. 1979. Flora *Macromycetes* Świętokrzyskiego Parku Narodowego [Flora of *Macromycetes* of the Świętokrzyski National Park]. Acta Mycol. 15 (1): 21-43.

L i s i e w s k a M. 1987. Flora Polska. Grzyby (*Mycota*) 17: *Basidiomycetes, Agaricales, Tricholomataceae* I, *Mycena*. PWN, Warszawa—Kraków.

Lisiewska M., Tortić M., Szmid M. 1976. Mikoflora lasów okolic Żegiestowa i Muszyny w Beskidzie Sądeckim [Mycoflora of the forests near Żegiestów and Muszyna in the Beskid Sądecki Mts.]. Acta Mycol. 12 (2): 211-224.

Lisiewska M., Wypij J. 1985. Mikoflora parków Ciechocinka [Mycoflora in the parks of Ciechocinek]. PTPN Bad. Fizjogr. nad Polską Zach., B, 36: 35-63.

Ławrynowicz M. 1973. Grzyby wyższe makroskopowe w grądach Polski Środkowej [Higher macroscopic fungi in the oak-hornbeam forests of the Central Poland]. Acta Mycol. 9 (2): 133-204.

Ławrynowicz M. 1978. Grzyby dorzecza Pilicy [Fungi of the Pilica catchment basin]. Studia Ośr. Dokum. Fizjogr. PAN, 6: 109-122.

Ławrynowicz M. 1982. Macro-fungal flora of Łódź. In: R. Bornkamm et al. (eds.). Urban ecology. Blackwell Scientific Publications, Oxford, London, Edinburgh, Boston, Melbourne: 41-47.

Ławrynowicz M. 1989. Grzyby w parkach i na ulicach Łodzi [Fungi in parks and streets of Łódź]. In: R. Olaczek and G. Ojrzyńska (eds.) W obronie zieleni miasta. Wyd. UŁ Łódź: 50-53.

Ławrynowicz M., Adamczyk J. 1991 (1988). Grzyby makroskopowe Łodzi. Stan badań i dotychczasowe wyniki [Macrofungi of the Łódź. Investigation state and present results]. Folia Soc. Scien. Lublin. 30, Biol. 1-2: 69-76.

Łuszczyński J. 1993. New localities of *Dacrymyces ovisporus* Bref. in Poland. Acta Mycol. 28 (1): 45-47.

Mamos K. 1986. Flora grzybów makroskopowych rezerwatu lipowego Babsk koło Skierniewic [*Macromycetes* of *Tilia cordata* reserve Babsk near Skierniewice]. Acta Univ. Lodz., Folia bot. 4: 203-221.

Moser M. 1983. Die Röhrlinge und Blätterpilze (*Polyporales, Boletales, Agaricales, Russulales*). Kleine Kryptogamenflora. II b/2, Basidiomyceten, 2. (5 ed.). VEB G. Fischer Verl. Jena, pp. 532.

Nespiak A. 1960. Notatki mikologiczne z Tatr – Notes mycologiques de Tatra. Fragm. Flor. Geobot. 6 (4): 709-724.

Nespiak A. 1990. Flora Polska. Grzyby (*Mycota*) 19: *Basidiomycetes, Agaricales, Cortinariaceae, Inocybe*. PWN, Warszawa – Kraków.

Olesiński L., Wojewoda W. 1987 (1985). Materiały do flory *Macromycetes* północnowschodniej Polski [Data on the *Macromycetes* flora of the North-Eastern Poland]. Acta Mycol. 21 (2): 193-232.

Pouzar Z. 1981. Zajimavy dvornik třepenitky svazčité [Interesting double of *Hypholoma fasciculare*]. Mycol. Listy 5: 4-8.

Rudnicka-Jezierska W. 1991. Flora Polska. Grzyby (*Mycota*) 23: *Basidiomycetes, Lycoperdales, Sclerodermatales, Tulostomatales, Nidulariales, Phallales, Podaxales*. PWN, Kraków.

Sałata B. 1991 (1988). Ogólnopolskie Sympozjum Mikologiczne nt. „Flora, ekologia i rozmieszczenie geograficzne grzybów" [Polish Mycological Symposium: „Flora, ecology and geographical distribution of fungi"]. Folia Soc. Scien. Lublin. 30, Biol. 1-2: 3-9.

Schroeter J. 1889-1908. Pilze. In: F. Cohn (ed.) Kryptogamen-Flora von Schlesien 3 (1, 2). Breslau.

Skirgiełło A. 1939. Polskie naziemne grzyby rurkowe (*Boletaceae* et partim *Polyporaceae* terrestres Poloniae) [Polish overground tubular fungi]. Planta Pol. 8: 1-125.

Skirgiełło A. 1960. Flora Polska. Grzyby (*Fungi*) 1: *Basidiomycetes, Boletales*. PWN, Warszawa.

Skirgiełło A. 1968. Comptes-rendus du IV-ème Congrés des Mycologues Européens Warszawa 1966. Acta Mycol. 4: 181-198.

Skirgiełło A. 1970. Materiały do poznania rozmieszczenia geograficznego grzybów wyższych w Europie. III [Matériaux à la connaissance de la distribution géographique des champignons supérieurs en Europe. III]. Acta Mycol. 6: 101-129.

Skirgiełło 1972. Materiały do poznania rozmieszczenia geograficznego grzybów wyższych w Europie. IV [Matériaux à la connaissance de la distribution géographique des champignons supérieurs en Europe. IV]. Acta Mycol. 8: 191-218.

Skirgiełło A. 1976. Materiały do poznania rozmieszczenia geograficznego grzybów wyższych w Europie. V [Matériaux à la connaissance de la distribution géographique des champignons supérieurs en Europe. V]. Acta Mycol. 12 (2): 155-189.

Skirgiełło A., Domański Z. 1981. Grzyby wyższe centrum Warszawy [Higher fungi of the central part of Warsaw]. In: M. Semerdžieva and V. Šašek (eds.), Report on the activity of the commision for fungal toxicology of the Czechoslovak Scientific Society for Mycology, Prague: 40-44.

Šmarda J. 1957. Přispevěk k poznáni Gasteromycetů v Polsce [A Contribution to knowledge on *Gasteromycetes* in Poland]. Acta Soc. Bot. Pol. 24 (2): 319-324.

Sokół S., Szczepka M.Z. 1995. *Pleurotus calyptratus* (Lindbl. in Fr.) Sacc. Neue Daten. Documents Mycol. 25 (98-100): 441-448.

Szczepka M. Z., Grzegorzek P. 1984. *Meripilus giganteus* (Pers.ex Fr.) P. Karst. na Wyżynie Śląskiej [*Meripilus giganteus* (Pers. ex Fr.) P. Karst. in the Silesian Upland]. Acta Biol., Pr. Nauk. UŚ, 660, 16: 54-63.

Teodorowicz F. 1933. Grzyby zachodniej i południowej Polski w zbiorze Zakładu Botaniki Ogólnej Uniwersytetu Poznańskiego [The higher fungi in western and southern Poland as collected in the Institute of General Botany, University of Poznań]. Wyd. Okr. Kom. Ochr. Przyr. Wielkop. Pomorze Poznań, 4: 1-34.

Wojewoda W. 1965. Notatki mikologiczne z Babiej Góry. I [Mycological records from the Babia Góra Mt. I]. Fragm. Flor. Geobot. 11: 339-353.

Wojewoda W. 1971. Grzyby (*Fungi*). In: S. Myczkowski (ed.), Środowisko przyrodnicze Krakowa jako obiekt dydaktyczny [Natural environment of Cracow as a didactic subject]. Nauka dla wszystkich, 157. PAN, Kraków: 23-32.

Wojewoda W. 1973. Grzyby wielkoowocnikowe ("*Macromycetes*") Ziemi Chrzanowskiej i Jaworzna, część I [Fungi „*Macromycetes*" of the Chrzanów and Jaworzno districts. I]. Studia Ośr. Dokum. Fizjogr. PAN 2: 57-86.

Wojewoda W. 1974. *Macromycetes* Ojcowskiego Parku Narodowego. I. Flora [Macromycetes of the Ojców National Park. I. Flora]. Acta Mycol. 10 (2): 181-265.

Wojewoda W. 1976. Polish *Dacrymycetales* I. *Dacrymyces estonicus* Raitv. and *D. ovisporus* Bref. Fragm. Flor. Geobot. 22: 395-400.

Wojewoda W. 1977. Polish *Dacrymycetales* II. *Calocera furcata* (Fr.) Fr. Fragm. Flor. Geobot. 23: 113-117.

Wojewoda W. 1979. Grzyby wielkoowocnikowe („*Macromycetes*") Ziemi Chrzanowskiej i Jaworzna, II [Fungi „*Macromycetes*" of the Chrzanów and Jaworzno districts. II]. Studia Ośr. Dokum. Fizjogr. PAN 7: 67-108.

Wojewoda W. 1981. Grzyby wielkoowocnikowe („*Macromycetes*") Ziemi Chrzanowskiej i Jaworzna, III [Fungi „*Macromycetes*" of the Chrzanów and Jaworzno districts. III]. Studia Ośr. Dokum. Fizjogr. PAN 8: 187-201.

Wojewoda W. 1991a (1990). Pierwsza czerwona lista grzybów wielkoowocnikowych (*Macromycetes*) zagrożonych w polskich Karpatach [First red list of threatened macrofungi in the Polish Carpathians]. Studia Ośr. Dokum. Fizjogr. PAN 18: 239-261.

Wojewoda W. 1991b. Changes in macrofungal flora of Cracow (S. Poland). Verff. Geobot. Inst. ETH, Stiftung Rübel, Zürich, 106: 150-161.

Wojewoda W., Heinrich Z., Komorowska H. 1986. *Macrobasidiomycetes* new to the Tatra National Park (Poland). Acta Mycol. 21 (1): 27-42.

W o j e w o d a W., Ł a w r y n o w i c z M. 1992. Czerwona lista grzybów wielkoowocnikowych zagrożonych w Polsce [Red list of threatened macrofungi in Poland]. In: K. Z a r z y c k i, W. W o j e w o d a, Z. H e i n r i c h (eds.) Lista roślin zagrożonych w Polsce (wyd. 2) [List of threatened plants in Poland (2. ed.).] W. Szafer Institute of Botany Polish Academy of Sciences, Kraków: 27-56.

W r ó b l e w s k i A. 1922. Wykaz grzybów zebranych w latach 1913-1918 z Tatr, Pienin, Beskidów Wschodnich, Podkarpacia, Podola, Roztocza i innych miejscowości [List of fungi gathered in the years: 1913–1918 from Tatra Mts., Pieniny Mts., East Beskidy, Podkarpacie, Podole, Roztocze, and other places]. Spraw. Kom. Fizjogr. 55/56: 1-50.

Interesujące *macromycetes* zebrane na terenie miasta Kielce (Polska Środkowa)

S t r e s z c z e n i e

Praca zawiera pierwsze wyniki badań mikologicznych przeprowadzonych w latach 1986-1994 na terenie Kielc. Wśród 90. gatunków, uznanych przez autora za szczególnie interesujące, jest sześć nowych dla Polski: *Hypholoma capitatum*, *Phlebia cremeoochracea*, *Phlebiella allantospora*, *Inocybe cryptocystis*, *Marasmius tremulae*, *Pluteus pouzarianus*, 4 podlegają ochronie prawnej, a 64 znajdują się na czerwonej liście grzybów zagrożonych w Polsce.