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Macromycetes in a recreational park in Łódź

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S t a s i ń s k a M.: *Macromycetes in a recreational park in Łódź.* Acta Mycol. 29 (2): 229-236, 1994.
The paper contains the list of 144 species of macromycetes collected in the period of 1986-1988 a recreational park in town of Łódź.

INTRODUCTION

Threats to macrofungi in places of their natural occurrence have increased in resent years (W o j e w o d a, Ł a w r y n o w i c z, 1992). Changes in natural ecosystems and destruction of certain habitats have resulted in the disappearance of including ectomycorrhizal species (Ł a w r y n o w i c z, S t a s i ń s k a, 1989). Investigations conducted in the area of Łódź have shown that many species threatened in forests have their refuges in urban parks where they grow in symbiosis with native tree species. This concerns mainly fragments of natural forests preserved in parks (Ł a w r y n o w i c z, 1982).

The mycoflora of macrofungi in urban areas has not been surveyed satisfactorily. Only few publications were concerned with macrofungi in Kraków (W o j e w o d a, 1971), Warszawa (S k i r g i e ł ł o, D o m a ń s k i, 1981), Szczecin (F r i e d r i c h, 1987) and Kielce (Ł u s z c z y ń s k i, 1989). Mycological observations have been made in the town of Łódź since 1972 and 500 species of macrofungi have so far been noted there (Ł a w r y n o w i c z, 1982) in one of the urban parks of Łódź.

DESCRIPTION OF THE STUDY AREA

The 3th May recreational park was surveyed. It covers an area of 23.524 ha and is located in the central-eastern part of the city, in the quarter of Łódź-Widzew. The

park was created in 1915 in the area of Widzew Wood constituting remnants of the previous Łódź Pristine Forest; it is a small patch of natural vegetation utilized by man and transformed in great part.

The whole area of the province of Łódź is dominated by habitats of fertile hornbeam-oak forest with lime (O l a c z a k, 1981). The present species composition of the studied stand shows that the original park vegetation approximating dry-ground forest communities has been much transformed by man's activity. This over 100-year-old stand is composed of common deciduous species, particularly *Quercus robur* and its hybrids, *Betula pendula, Acer platanoides, A. negundo* and *Populus berolinensis*. Among coniferous there are *Pinus sylvestris* and *Larix decidua*; among shrubs there are: *Symphoricarpus albus, Syringa vulgaris, Berberis vulgaris* and others. The western part of the park with its lawns and arranged groups of trees has some scenic qualities, while the eastern part has preserved its forest character, though in impoverished form. Sports fields, tennis court and play-grounds for children cover a considerable part of the park area, which makes it a sport-recreational park (M o w s z o w i c z et al., 1962).

Parent rocks of soils in the town of Łódź are Quaternary formations, chiefly of postglacial origin, such as clays gravels and sands of different genesis. On these formations paeudopodzolic soils, leached brown soils, leached brown and pseudoglay soils (K l a t k o w a, 1981) have developed. They are transformed soils degraded to a certain degree due to man's activity.

The natural environment of Łódź is characterized by poorly developed drainage network; larger rivers, lakes and ponds are absent. This is connected with the specific location of the city on the watershed dividing waters of the Vistula and Odra Rivers.

Climatic conditions are highly variable with prevailing westerly and south-westerly winds bringing humid polar-maritime air masses. Spatial distribution of atmospheric precipitation is affected by the location of the town on the edge of Łódź Hills and by the urban agglomeration itself, emitting considerable amounts of pollutants to the atmosphere. However, the eastern part of the city, lying on that side of hills which is exposed to the west, i. e. towards the inflow of humid air masses, has greater annual precipitation (D u b a n i e w i c z, 1974).

Observations were made in July-October 1986, June-December 1987, and – on account of favourable climatic conditions – in January and February 1988. The keys listed in the references were used. The nomenclature and systematic order of fungi were given after M o s e r (1963, 1978) and J ü l i c h (1984). Collected material has been deposited in the Herbarium of the University of Łódź.

MYCOFLORA OF THE PARK

The results of studies have shown that the mycoflora of macrofungi of the park surveyed is rich and differentiated; altogether 144 species were found.

Species characteristic of deciduous and mixed forests prevailed. Most abundantly fructifying fungi were designated in the list symbol "o". Edible (e) and poisonous (p) mushrooms were also numerous. Species of coniferous stands, occurred only sporadically on dead stumps, these were *Hypholoma capnoides, Heterobasidion annosum, Paxillus panuoides, Trichaptum abietinum.* Species of non-forest habitats, such as *Lycoperdon perlatum, Inocybe cookei, Marasmius oreades, Agrocybe paludosa, A. praecox, A. sphaleromorpha*, were not very frequent.

Species composition of mycoflora is determined by the presence of certain species of higher plants, above all trees with fungi are associated by mycorrhize. The park stand is less differentiated; it is dominated by oak, with a low proportion of birch, larch and pine, which has a profound influence on the mycoflora. Most species of macromycetes occurring in the 3th May Park (114) were found in the oak--hornbeam forests of Central Poland (Ł a w r y n o w i c z, 1973).

Fungi fructifying on wood constitute over 25 % of all the species recorded in the surveyed area. The highest number of these species was noted in the eastern and central part of the park. Most of them were arboreal saprophytes: *Nectria cinnabarina, Peniophora quercina, Exidia glandulosa* fructified on twigs, *Hypholoma fasciculare, Stereum hirsutum, Trametes versicolor* – on stumps. Stumps at a higher stage of decomposition were overgrown with the fruiting bodies of *Pluteus atricapillus* and *Lycoperdon perlatum.* Numerous parasites were found on long trees – *Phellinus robustus* on oak, *Piptoporus betulinus* on birch. Among other parasites fructifying on wood, some species threatening the park stand should be mentioned, namely *Armillariella mellea, Chondrostereum purpureum* and *Laetiporus sulphureus.*

The growth and abundant fructification of particular macromycetes depends greatly on ecological and hygric conditions (Ł a w r y n o w i c z, 1973). It was noted that in the surveyed park a greater number of species (116) fructified in 1987 than in 1986 (88); this was most probably associated with the meteorological conditions favouring the growth of fungi. The maximum appearance of macromycetes in the investigated area was noted in September and October.

The fructification of macrofungi is largely influenced by away of utilization of particular areas in the park. In its central part with sport and recreational facilities macrofungi were less numerous than in the eastern part which was of forest character and more numerous than in the western part. Tending of woods, including such measures as mowing and removal of grass, or removal of twigs, carried out in certain areas of the park, favoured the occurrence of terrestrial species. Inversely, in the regions where stands were not tended the proportions of arboreal species was greater than that of terrestrial ones due to accumulation of wood. An interesting phenomenon was observed in places which were heavily trampled. A large number of terrestrial species was found there. Most probably this was connected with the great moisture of substratum in these spots. The following species were quite rare and interesting: *Hydnotrya tulasnei* and *Tuber dryophilum* which fructify under ground (Ł a w r y n o w i c z, 1988).

THE LIST OF THE FUNGI

Symbols:

c – often
l – numerously
o – abound
s – singly (le)
g – on (or in) soil
t – on twigs
w – on wood
st – on stumps
e – edible
p – poisonous

Ascomycetes

Ciboria batschiana (Zopf) Buchw. – IX, X 87; s.
Cyathipodia macropus (Pers.: Fr.) Denis – IX 86; s.
Helotium fructigenum (Bull. ex Mer.) Fuck. – IX, X 87; on acorns.
Hydnotrya tulasnei Bk. et Br. – VIII 87; s, g (in).
Nectria cinnabarina Tode: Fr. – X 86; X, XI 87; t.
Peziza badia Pers.: Fr. – VIII 87; s.
Tuber dryophilum Tul. – VIII 87; s, g; near path.
Xylaria hypoxylon (L.) Grév. – IX 86; st.

Basidiomycetes

Agaricus silvicola (Vitt.) Sacc. – IX 86.
Agrocybe semiorbicularis (Bull.: Fr.) Fay. – VI-VIII 87.
A. sphaleromorpha (Bull.: Fr.) Fay. – VI 87.
A. paludosa (Lge.) Kuhn. et Romagn. – VI 87.
A. praecox (Pers.: Fr.) Fay. – VI 87.
Amanita citrina (Schff.) S. F. Gray – VII, IX 86; X 87.
A. muscaria (L.: Fr.) Hooker – IX 86; X 87; p.
A. pantherina (DC: Fr.) Sacc. – VIII, IX 86; VIII 87; p.
A. rubescens (Pers.: Fr.) S. F. Gray – VII, IX 86; VII 87.
A. spissa (Fr.) Kummer – VII 87.
Armillariella mellea (Vahl. in Fr. Dan.: Fr.) Karst. – IX, X 86; X, XI 87; o, st.
Bjerkandera adusta (Willd.: Fr.) P. Karst. – VI-XII 87; I, II 88; o, st oak.
Boletus edulis Bull.: Fr. – IX 86; VII-IX 87; e, under oaks.
Calocera cornea (Batsch.: Fr.) Fr. – VI, IX 87, t.
Calocybe cornea (Bull.: Fr.) Donk – VIII, IX 86.
C. persicolor (Fr.) Sing. – VII 87.
Calvatia excipuliformis (Schff.: Pers.) Perdeck – IX 86; IX 87.
C. utriformis (Bull.: Pers.) Jaap. – VIII 87.
Camarophyllus niveus (Scop.: Fr.) Wunsche – X-XII 87; o, on lawn.
Cerocorticium confluens (Fr.: Fr.) Jülich et Stalpers – XII 87; t.
Chalciporus piperatus (Bull.: Fr.) Bat. – X 87; g.
Chondrostereum purpureum (Pers.: Fr.) Pouzar – IX 86; X 87; II 88; l, on bark of trees.
Clavulina cinerea (Fr.) Schroeter – IX 86; s.
C. cristata (Fr.) Schroeter – IX 86; s.
Clitocybe flaccida (Sow.: Fr.) Kummer – IX 86.
Clitopilus prunulus (Scop.: Fr.) Kummer – VIII, IX 86; VIII-X 87; l, under oaks.

Collybia dryophila (Bull. Fr.) Kummer – VII-IX 867; VII-X 87; c, l.
Coprinus disseminatus (Pers.: Fr.) S. F. Gray – IX, X 87; st.
C. narcoticus (Batsch.: Fr.) Fr. – VII, VIII 87; g on soil.
Cortinarius orellanoides Hry. – VIII 87; p.
Crepidotus variabilis (Pers.: Fr.) Kummer – XI 87.
Crucibulum leave (Huds. ex Relh.) Kambly et al. – IX-XI 87.
Cyathus striatus (Huds.: Pers.) – VIII, IX 86; VIII, IX 87; t.
Dacrymyces stillatus Nees.:Fr. – IX, XI 87; I 88; t.
Daedaleopsis confragosa (Bolt. Fr.) Schroet. – X, XII 87; t.
Etoloma nidorosum (Fr.) Quél. – VIII 87.
E. rhodopolium (Fr.) Kummer – IX 86; VIII 87.
E. sericeum (Bull.: Mérat) Quél. – VIII 87.
E. speculum (Fr.) Kummer – VII 86.
Exidia glandulosa Fr. – IX-XII 87; I 88; l, t.
E. truncata Fr. – IX 87; s.
Flamulina velutipes (Curt.: Fr.) Sing. – II 88.
Ganoderma applanatum (Pers.) Pat. – X, XII 87; st.
Hapalopilus rutilans (Pers.: Fr.) P. Karst. – VII, X 86; VII, X 87; t.
Hebeloma crustuliniforme (Bull.: Fr.) Quél. – IX 86; VIII, X 87; l, on lawn.
H. sacchariolens Quél. – IX 86.
Heterobasidion annosum (Fr.) Bref. – X 86; st, (coniferous trees).
Hygrophorus nemoreus (Lasch.) Fr. – VIII 87.
Hypholoma capnoides (Fr.) Fr. Kummer – XI 87.
H. fasciculare (Huds.: Fr.) Kummer – VII, IX 86; VI-XII 87; o, st.
H. sublateritium (Fr.) Quél. – X 86; IX-X 87.
Inocybe auricoma (Batsch) Fr. – IX 86; X 87.
I. asterospora Quél – VIII, IX 86; VI, VII 87.
I. brunnaeoatra (Heim) P. D. Orton – VIII, IX 86.
I. cookei Bres. – X 86; VII, VIII 87.
I. eutheles Bk. et Br. (ss. Sing., Malençon) – IX 86.
I. fastifiata (Fr.) Quél. – VI 86.
I. godeyi Gill. – VI 87.
I. hirtella Bres. – IX 86.
I. umbrina Bres. – IX 86.
Laccaria amethystina (Bolt. ex Hooker) Murr. – VII, IX 86; IX, X 87; l.
L. laccata (Scop.:Fr.) Bk. et Br. – VIII, IX 86; VIII, IX 87; l.
L. proxima (Boud.) Pat. – IX 86; X 87.
L. tortilis (Bolt.) S. F. Gray – VII 86; IX 87.
Lactarius camphoratus (Bull.:) Fr. – IX 86.
L. necator (Bull. em Pers. Fr.) Karst. – IX 86; IX 87.
L. pubescens Fr. – IX 86; VIII-X 87.
L. quietus Fr. – VII, VIII 86; VI, VII-X 87; l, o, under oaks.
L. vietus Fr. – IX 86; IX 87.
Laetiporus sulphureus (Bull.: Fr.) Murrill – VII 86; VI 87; st oak.
Leccinium scabrum (Bull.: Fr.) S. F. Gray – VIII, IX 86; VI, VIII 87; e.
L. testaceoscabrum (Secr.) Sing. – VI 87.

Lepista nebularis (Fr.) Harmaja – IX 86.
L. nuda (Bull.: Fr.) Cke. – IX 86; IX 87.
L. sordida (Fr.) Sing. – X 87.
Lycoperdon lividum Pers. – X 87.
L. molle Pers. – X 87.
L. umbrinum Pers.: Pers. – X 87.
L. perlatum Pers.: Pers. – IX, X 86; X 87.
L. pyriforme Schff.: Pers. – IX, X 86; IX, X 87.
Lyophyllum fumosum (Pers.: Fr.) Kuhn. et Romagn. – IX, X 87.
Marasmius oreades (Bolt.: Fr.) Fr. – VII, IX 86; VII, IX, X 87; near path.
Mycena alcalina (Fr.) Kummer – IX 86.
M. galericulata (Scop.: Fr.) S. F. Gray – IX 86; VI, VIII-XII 87; st.
M. galopoda (Pers.: Fr.) Kummer – X 87.
M. polygramma (Bull.: Fr.) S. F. Gray – IX 86.
M. tintinnabulum (Fr.) Quél. – II 88; st.
M. vitilis (Fr.) Quél. – IX 86.
Paxillus involutus (Batsch) Fr. – VIII, X 86; VIII-X 87; l.
P. panuoides Fr. – VII 87; t oak.
Peniophora cinerea (Pers.: Fr.) Cooke – XI 87. t.
P. quercina (Pers.: Fr.) Cooke – X-XII 87; I-II 88; t oak.
Phellinus ribis (Schum.: Fr.) P. Karst. – IX 86; X, XII 87; t.
P. robustu (P. Karst.) Bourd. et Galz. – VII-XII 86; VI-XII 87; I-II 88; l, on living oaks.
Phlebia radiata Fr. – X-XII 87; I 88; st oak.
Pholiota lenta (Pers.: Fr.) Sing. – IX 86.
P. squarrosa (Pers.: Fr.) Kummer – IX 86; IX, X 87.
Piptoporus betulinus (Bull.: Fr.) P. Karst. – VII-XII 86; VI-XII 87; I-II 88; o, on birchs.
Pleurotus ostreatus (Jacq.: Fr.) Kummer – IX 87; on oak.
Pluteus atricapillus (Secr) Sing. – IX 86; VI-VII, IX-X 87; st.
Psathyrella candolleana (Fr.) Mre – VII 87.
P. hydrophila (Bull. ex Mérat) R. Mre. – IX, X 86; IX-XI 87; st.
Rhodophyllus juncinus Kuhn. et Romagn. – VI 87.
Russula aeruginea Lindbl. – VIII, IX 86.
R. atropurpurea Krbh. – VII-IX 86.
R. chamaeleontina (Fr.) ss. Romagn. – VII-IX 86; VII, VIII 87.
R. cyanoxantha Schff.: Fr. – VIII, IX 86; VII, VIII 87.
R. densifolia Secr. (ss. Romagn.) – IX 86.
R. fellea (Fr.) – VII, VIII 86; VII 87.
R. foetens Fr. – VII, IX 86; VII, VIII 87.
R. fragilis (Pers.: Fr.) Fr. – VIII, IX 86; X 87.
R. grisea (Pers.: Secr.) Fr. ss. Gillet – IX 86.
R. ochroleuca (Pers.) – VII, IX 86.
R. sororia (Fr.) Romell ss. Boud. – VIII, IX 86; VII 87.
R. vesca Fr. – VII-IX 86; VII, VIII, X 87.
R. virescems (Schff. ex Zant.) Fr. – VII, VIII 86; VIII 87.
Schizophyllum commune Fr.: Fr. – IX-XII 87; st, t.
Scleroderma citrinum Pers. – VII, IX 86; VII-XI 87; o.

Sphaerobolus stellatus Tode.: Pers. – IX 87.
Stereum hirsutum (Wild.: Fr) S. F. Gray – XI-XII 87; I-II 88; st, t.
S. rugosum (Pers.: Fr.) Fr. – XI 87; I-II 88.
Stropharia aeruginosa (Curt.: Fr.) Quél. – IX 86; X 87.
Suillus grevillei (Klotzsch) Sing. – VIII 87; under larch.
S. luteus (L.: Fr.) S. F. Gray – VIII, IX 86; under pine.
Telephora caryophyllea (Schff.): Fr. – VII, VIII 87; g (on).
T. terrestris Pers.: Fr. – VII 87; g (on).
Trametes multicolor (Schff.) Jülich – X 86; w.
T. versicolor (L.: Fr.) Pilát – VII, IX, X 86; VII-XI 87; I-II 88; st, t.
Trichaptum abietinum (Pers.: Fr.) Ryv. – X, XI 87; I-II 88; st (non living conifers).
Tricholoma saponaceum (Fr.) Kummer – IX 86; X, XI 87.
Tubaria furfuracea (Pers.: Fr.) Gill. – VI-VIII 87.
T. hiemalis Rom. ex Bon. – I 88.
T. pallidospora Lge. – VIII, IX 86; VI 87.
Xerocomus chrysenteron (Bull.: St. Amans) Quél. – VII, VIII 86; IX, X 87; l, e.
X. rubellus (Krbh.) Quél. – VIII 86; VIII 87; e.
X. subtomentosus (L.: Fr.) Quél. – VIII 86; IX 87; e.

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