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MACROMYCETES OF CRNA GORA (MONTENEGRO)

MAKROMICETI CRNE GORE

ABSTRACT

On the basis of published literature, her own investigations and the data by some other mycologists the author has compiled a list of 204 macromycetes registered up to now in Crna Gora, together with their localities. Because of varied climatic conditions, both thermophilous, even purely Mediterranean, and montane fungi were recorded. The distribution of a number of them, insofar as it could be estimated from the scanty data, is discussed and some rare species pointed out.

IZVOD

Na osnovu objavljene literature, vlastitih istraživanja i podataka nekih drugih mikologa sastavila je autorica listu od 204 makromiceta dosad registrovanih u Crnoj Gori, sa svim dosad poznatim lokalitetima. Zbog raznolikih klimatskih uvjeta, ustanovljene su i termofilne, čak i čisto mediteranske, a i montane gljive. Raspravlja se o rasprostranjenju izvjesnog broja vrsta, koliko se moglo zaključiti prema oskudnim podacima, a istaknute su i neke rijetke.

INTRODUCTION

Fungi in the territory of Crna Gora were first mentioned in print nearly a hundred years ago, when Beck and Szyszylowicz (1888) published a list of plants collected there two years earlier by the second named author, which included ten species of

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fungi, one belonging to *Ustilaginales*, three to *Uredinales* and the rest to *Aphyllophorales*.

More intensive mycological investigations in Crna Gora started with Bubák who made three journeys there (in 1901, 1903, 1904) and published his finds in four contributions (1903a, 1903b, 1906, 1915), with 805 species of fungi. Baudyš (1914) cited 18 species from Boka Kotorska and Orjen. Jaap (1916) in his paper on fungi in Dalmatia lists 510 species, nearly half of them from the territory of Crna Gora, mostly Boka Kotorska. In his papers on *Ustilaginales* and *Peronosporales* of Yugoslavia Lindtner (1950, 1957) mentions for various species localities from Crna Gora, too. In recent times parasites of cultivated plants were investigated almost exclusively and more than 500 species published in various contributions, e.g. Mijušković (1950, 1953, 1965), Mijušković and Vučinić (1974), A few fungi were registered by some other authors.

The main attention in all those papers was paid to micromycetes, i.e. small *Ascomycetes, Fungi imperfecti (Deuteromycetes), Uredinales* etc. growing as saprophytes or parasites on vascular plants. The probable reason is that such small species on leaves and twigs are easily collected and herborized; for fleshy fungi it is necessary to have some sort of drying device which is not always available on a journey even now. Also, fungi causing diseases of cultivated plants and therefore interesting for agriculture belong mostly to micromycetes. Therefore while the number of published micromycetes for Crna Gora is, as far as one can judge, at least about 1500 species, only less than 60 macromycetes, i.e. fungi with larger fruitbodies, were noted in earlier papers.

MATERIALS AND METHODS

For the list of macromycetes in Crna Gora, presented here, in addition to the published papers, the results of my own investigations, as well as data obtained from several mycologists from abroad, were used.

I had only two occasions, two or three days each, to study the macromycetes in Crna Gora: in July 1973, during the Symposium on the flora and vegetation of south-eastern Dinarides in Andrijevica, and in August 1978, during a short holiday drive. Both times I had great help in field work from my husband, S. Tortić, prof. In the herbarium of the Natural Sciences museum in Beograd (BEO) I found some collections from Crna Gora by late V. Lindtner, who had moreover during his lifetime informed me about several species he had noted there. The results of the first collecting trip in 1973, together with the data by Lindtner, were published (Tor-

tić 1974) in a journal of a regional character and not easily available, therefore the details about finds are repeated here.

A considerable addition to the list was possible to be made out of the data and specimens received in the first place from Dr. F. Kotlaba (Prague) and Mr. H. Forstinger (Reid/Innkreis), a few also from ing. J. Kuthan (Ostrava-Poruba) and Dr. A. Černý (Brno), all of whom collected fungi at the Montenegrinian sea-coast during their summer holidays. In September 1980 a foray was made by members of North American Mycological Association in Austria and Yugoslavia during which, among other localities, three in Crna Gora were visited. The resulting list of species was sent to the author by Dr. O. K. Miller, Jr. (Blacksburg, Virginia). To all the colleagues and friends here named I render my sincere thanks.

The number of macromycetes obtained from all those sources is now 204. Basidiomycetes with fruitbodies, some of them rather small and hardly conspicuous, and ten larger ascomycetes, were taken into account. For a few published fungi it is not certain which species they represent; this is discussed in the list. Published obsolete Latin names were modernized, but are added in parentheses. The nomenclature for agarics is after Moser (1983), for polypores after Domański (1972) and Domański et al. (1973) with some newer modifications, for corticia after Eriksson et Ryvarden (1973—1976) and Eriksson et al. (1978—1984), but in the citations of authors ":" was used instead of "ex", after the propositions of the Code of nomenclature 1981.

Voucher specimens of species in published papers were not seen. Those collected by above named collectors and by myself have been deposited in various herbaria, as National Museum, Prague (PRM) Landesmuseum, Linz (LI), Botanical Department of the Faculty of Science, Zagreb (ZA), Natural History Museum, Beograd (BEO) or are kept in private collections. Sometimes the specimens could not be preserved: either they were in a rather bad state, although recognisable, or there was no possibility for drying. Also, generally frequent and common species were usually only noted.

INVESTIGATED LOCALITIES

Szyszylowicz's collections are from Hum Orahovski and Debeza Mt., both south of Komovi Mt., also from forest Skrobotuša on the border with Albania.

Bubák collected most of his macromycetes in the region of Durmitor Mt. and mentions about a dozen localities on the way from Nikšić through Šavnik to Žabljak and further in the mountain. Several finds are near Piva monastery. Only few larger fungi were noted by him elsewhere, mostly in the vicinity of Rijeka Crnojevića.

Jaap's macromycetes were found mostly near Hercegnovi and Zelenika.

During my first trip I collected the material near Andrijevica (800 m) in a small coppice of Turkey oak *(Quercus cerris)* on Čakor pass (1600—1850 m) in a forest of *Picea abies* and *Pinus peuce* with admixed *Abies alba,* as well as in open grassy places, and in Komovi Mt. in beech forests at Preslo, from Trešnjevik up to the alpine pastures at Štavne (1500—1860 m). During the second excursion the fungi were investigated in a fir forest at Crno jezero near Žabljak (1400 m), in pine forest *(Pinus nigra)* at Crna Poda, in the valley of the river Tara, and on the shores of the lake Biogradsko jezero (1100—1200 m) in the National park of the same name.

Lindtner visited the valley of the river Ljubašnica in Komovi, which is quite near and parallel to Preslo, therefore practically the same locality, and collected also a few specimens at Žabljak and Biogradsko jezero.

The fungi on the sea-coast were collected by the aforementioned colleagues mostly in the region o Boka Kotorska, particularly in the vicinity of Tivat (Radovići and Pržno), in Petrovac, Sutomore, and some down south to Ulcinj. Occasional finds are from Cetinje, Titograd, Virpazar etc.

The American mycological group made their collections in beech forests at Crkvine (south of Kolašin and at Mojkovac (950—1000 m), as well as at Bioča, between Bijelo Polje and Ivangrad, along a stream under willows and alders (650 m).

LIST OF SPECIES

Ascomycetes

Hypocreaceae

Podostroma alutaceum (Pers. : Fr.) Atk. — Durmitor: Žabljak, coniferous forests, VII 64, V. Lindtner, BEO (T o r t i ć 1974).

Xylariaceae

Daldinia concentrica (Bolt. : Fr.) Ces. et De Not. — Bioča IX 80, O. K. Miller.

Hypoxylon fragiforme (Pers. : Fr.) Kickx — Mala Lukavica, old branches of *Fagus sylvatica* (B u b á k 1903 as *H. coccineum* Bull.); Crkvine, IX 80, O. K. Miller.

H. fuscum (Pers.) Fr. — Piva monastery, dead branches od *Carpinus betulus* and *Corylus avellana* (B u b á k 1915).

H. mediterraneum (De Not.) Mill. — Petrovac, on living *Quercus* sp. V 86, H. Forstinger, LI.
Ustulina deusta (Fr.) Petrak — Komovi: Preslo, dead and living wood of *Fagus sylvatica*, VII 73, ZA (Tortić 1974).
Xylaria hypoxylon (L). Grev. — Crkvine, IX 80, O. K. Miller.

Geoglossaceae

Leotia lubrica Pers. — Durmitor: Zmijinje jezero, coniferous forests, X 64, V. Lindtner, BEO (Tortić 1974).

Morchellaceae

Morchella rotunda Pers. — Ulcinj, among shrubs (Bubák 1906).

Helvellaceae

Gyromitra mcknightii Harmaja — Žabljak, Mt. Durmitor near Crno jezero, *Picea-Abies* forest, on soil on trailside, alt, ca 1500 m, VI 71, O. Vitikainan, H. (Harmaja 1986).
G. perlata (Fr.) Harmaja — Biogradsko jezero, V 64, V. Lindtner, BEO (Tortić 1974 as *Discina perlata* (Fr.) Fr.).

Pezizaceae

Otidea auricula (Schaeff.) Rehm — Durmitor: Žabljak coniferous forests, VII 64, V. Lindtner, BEO (Tortić 1974).

Basidiomycetes

Tremellaceae

Exidia glandulosa (Bull.) Fr. — Velika Lukavica near Šavnik, old branches of *Fagus sylvatica* (Bubák 1903).
Exidiopsis calcea (Pers.) Wels — Crno jezero near Žabljak, dry branches of living *Abies alba*, VIII 78, ZA.
Tremiscus helvelloides (DC : Pers.) Donk — Komovi: Ljubašnica, coniferous forest, X 64, V. Lindtner, BEO (Tortić 1974).

Septobasidiaceae

Septobasidium orbiculare (Dur. et Lév.) Donk — Hercegnovi, on *Aonidia lauri* on *Laurus nobilis;* Zelenika, on *Olea europaea*

(Jaap 1916 as *S. michelianum* (Cald.) Pat.).

S. quercinum (Bagl.) Sacc. — Hercegnovi, on *Quercus pubescens* (Jaap 1916 as *S. bagliettoanum* (Fr.) Bres.).

Auriculariaceae

Auricularia mesenterica (Dicks.) Fr. — Piva monastery, on dead branches of *Fagus sylvatica* (Bubák 1915 as var. *minor);* Petrovac at Budva, prostrate broadleaved branch V 86, H. Forstinger.

Hirneola auricula judae (Bull. : Fr.) Berk. — Radovići near Tivat, dead tree of *Morus alba,* VI 76, F. Kotlaba PRM; Sutomore, dead wood of *Quercus* (?), IX 83, H. Forstinger.

Dacrymycetaceae

Guepiniopsis buccina (Pers. : Fr.) Kennedy — Komovi: Preslo, dead wood of *Fagus,* VII 73, det. D. Reid, ZA (Tortić and Hočevar 1977).

Schizophyllaceae

Schizophyllum commune Fr. — Between Bogetići and Nikšić, Podprle at Šavnik, both on wood of *Fagus sylvatica* (Bubák 1903 as *Sch. alneum);* near Rijeka Crnojevića, old branch (Bubák 1906 as *Sch. alneum);* Andrijevica, wood of *Quercus* sp. VII 73, Komovi: Preslo, wood of *Fagus sylvatica,* VII 73, (both Tortić 1974); Kotor, live broadleaved tres and a stump of *Ailanthus altissima,* V 76; Pržno at Radovići near Tivat, stump of broadleaved tree VI 76, both F. Kotlaba, PRM.

Cyphellaceae

Cyphella villosa (Pers.) P. Karst. — At Kotor, dry stalks of *Sambucus ebulus* (Jaap 1916).

Stereaceae

Stereum hirsutum (Willd.) Pers. — Near Bijela and Gornja Bukovica, wood of *Fagus sylvatica* (Bubák 1903); at Rijeka Crnojevića on old naked wood (Bubák 1906); at Kotor, on *Quercus pubesens,* also at Hercegnovi on *Quercus pubescens*

and prostrate branches of *Prunus avium* (Jaap 1916); Andrijevica, stumps of *Quercus sp.*, also Komovi: Preslo, stumps of *Fagus sylvatica*, VII 73 (Tortić 1974); Bioča, IX 80, O. K. Miller; Petrovac near Budva, injured trunk of *Quercus* sp., also slopes of Lovćen Mt. near the mausoleum (1350 m), prostrate trunk of *Fagus sylvatica*, V 86, H. Forstinger; Sutomore, wood of *Quercus sp.*, VIII 83, H. Forstinger.

S. insignitum Quél. — Debeza mountain (Beck and Szyszylowicz 1888 sub *S. rugosum*, PRC, Tortić and Jelić 1972); Komovi: Preslo, dead and living wood of *Fagus sylvatica*, VII 73, ZA (Tortić 1974); Biogradsko jezero, log of *Fagus sylvatica*, VIII 78, ZA.

S. reflexulum Reid — Igalo, on *Juniperus oxycedrus*, IX 40, Lj. Glišić, BEO (Tortić 1975).

S. rugosum Pers. — Piva monastery, dead branches of *Carpinus betulus* (Bubák 1915); Komovi: Preslo, dead wood of *Fagus sylvatica*, VII 73, ZA (Tortić 1974).

S. sanguinolentum (Alb. et Schw. : Fr.) Fr. — Petrovac near Budva, dead branch of *Pinus halepensis*, VIII 80, F. Kotlaba, PRM.

Cantharellaceae

Cantharellus cibarius Fr. — In forests at Žabljak and on Durmitor Mt. (Bubák 1903); Andrijevica, a small stand of *Quercus cerris*, VII 73 (Tortić 1974).

Corticiaceae s. lato

Aleurodiscus disciformis (Fr.) Pat. — Hercegnovi, old (presumably living) trunks of *Quercus pubescens* (Jaap 1916, Tortić 1980).

Amylocorticium cf. canadense (Burt) Erikss. & Weresub — Crna Poda in the valley of river Tara, prostrate trunks of *Pinus nigra*, VIII 78, ZA, rev. K. Hjortstam.

Byssomerulius corium (Fr.) Parm. — Kotor, dead branch of *Nerium oleander*, V 76, F. Kotlaba, PRM; Petrovac near Budva, dead trunk of *Myrtus communis* and dead branch of *Spartium junceum*, VIII 80, F. Kotlaba, PRM.

Ceraceomyces borealis (Rom.) Erikss. & Ryv. — Crno jezero at Žabljak, prostrate rotten trunk of *Abies alba*, VIII 78, ZA, det. K. Hjortstam.

Chondrostereum purpureum (Fr.) Pouz. — Kotor, on a stump (Jaap 1916 as *Stereum purpureum*); Buljarica at Petrovac

(near Budva), dead trunk of *Populus nigra*, VIII 80, F. Kotlaba, PRM.

Gloeocystidiellum ochraceum (Fr.) Donk — Crno jezero near Žabljak, prostrate trunk of *Abies alba*, VIII 78, ZA.

Hyphoderma radula (Fr. : Fr.) Donk — Crno jezero near Žabljak, prostrate trunk of *Abies alba*, VIII 78, ZA.

H. praetermissum (P. Karst.) Erikss. & Strid — Crno jezero near Žabljak, log of *Abies alba*, VIII 78, ZA; Crna Poda in the valley of river Tara, prostrate trunk of *Pinus nigra*, VIII 78, ZA.

Hyphodermella corrugata (Fr.) Erikss. & Ryv. s. lato — Pržno near Tivat, rotten branches of *Myrtus communis*, V 76, F. Kotlaba, det. J. Boidin, ZA, PRM.

Hyphodontia sambuci (Pers.) John Erikss. — Hercegnovi, rotten stalks of *Clematis vitalba, Phlomis fruticosa* etc. (Jaap 1916 *as Corticium serum).*

Laxitextum bicolor (Pers. : Fr.) Lentz — Komovi: Preslo, log of *Fagus sylvatica*, VII 73, ZA (Tortić 1974, Tortić and Jelić 1977).

Peniophora incarnata (Pers.) Cooke — Oćevići near Rijeka Crnojevića, on old branches (Bubák 1906 as *Corticium incarnatum*); Hercegnovi, on Pyrus malus (Jaap 1916 as *Peniogloeocystidium incarnatum).*

P. lycii (Pers.) v. Höhn. et Litsch. — Hercegnovi, dry branches of *Juniperus oxycedrus, Rubus* sp., *Euphorbia wulfenii, Coronilla emeroides, Spartium junceum* etc. (Jaap 1916).

P. meridionalis Boidin — Pržno near Tivat, dead branches of *Pistacia lentiscus* and unidentified broadleaved shrub, V 76, F. Kotlaba, ZA.

P. quercina (Pers. ex Fr.) Cooke — Hercegnovi, dry branches of *Quercus pubescens* (Jaap 1916 as *P. corticalis).*

P. ex aff. *versicolor* (Bres.) Sacc. & Syd. — Pržno at Tivat, dead branch of *Pistacia lentiscus*, VI 76, leg. F. Kotlaba, det. Z. Pouzar., PRM.

Phlebia radiata Fr. — Pržno near Tivat, wood of *Pinus halepensis*, V 76, F. Kotlaba, PRM, (Přihoda 1985).

Pulchericium caeruleum (Fr.) Parm. — Hercegnovi, rotten branches of *Rubus* sp. (Jaap 1916 as *Corticium caeruleum).*

Vuilleminia comedens (Nees : Fr.) Maire — Velika Lukavica, old branches of *Fagus sylvatica* (Bubák 1903 as *Corticium comedens);* Hercegnovi, dry branches of *Quercus pubescens* (Jaap 1916).

Ramariaceae

Ramaria aurea (Schaeff. Quél. — Forests at Barno jezero near Žabljak (Bubák 1915 as *Clavaria aurea).*

Ganodermataceae

G. adspersum (S. Schulz.) Donk — Cetinje, at the base of trunk of living *Fagus sylvatica;* Kotor, stump of *Celtis australis* and living *Morus alba,* both V 76, F. Kotlaba, PRM.

Ganoderma applanatum (Pers.) Pat. — Drešnica near Nikšić, also virgin forest at the base of Durmitor Mt., both on wood of *Fagus* (Bubák 1903 as *Fomes applanatus);* Piva monastery, trunk of *Fagus* (Bubák 1915 as *Polyporus applanatus);* Hercegnovi, old stumps of *Quercus pubescens* (Jaap 1916 as *Fomes applanatus* might be *G. adspersum?);* Komovi: Preslo, wood of *Fagus sylvatica,* VII 73, ZA (Tortić 1974); Biogradsko jezero, wood of *Fagus sylvatica* VIII 78.

G. lucidum (Leys.) P. Karst. — Donja Plavnica at the Skadar Lake, on *Salix alba,* VIII 47, P. Černjavski, BEO (Tortić 1985).

G. resinaceum Boud. in Pat. — Sutomore, at the base of dead *Quercus* sp., VIII 83, H. Forstinger.

Hymenochaetaceae

Hymenochaete cinnamomea (Pers.) Bres. — Piva monastery, dead branches of *Corylus avellana* (Bubák 1915), Hercegnovi, rotten stalks of *Rubus* sp. (Jaap 1916).

H. cruenta (Pers. : Fr.) Donk — Crno jezero near Žabljak, standing dead trunk of a young *Abies alba* VIII 78, ZA.

H. fuliginosa (Pers.) Bres. — Crno jezero near Žabljak, prostrate young trunk of *Abies alba,* VIII 78, ZA.

Inonotus hispidus (Bull. : Fr.) P. Karst. — Morinj, Boka Kotorska, *Populus* sp., VIII 74 (Reid 1975); Kotor, living branch of *Sophora japonica,* living branch of *Morus alba,* also Trojica near Kotor and Tivat, living trees of *Morus alba,* V 76, F. Kotlaba PRM, Petrovac near Budva, living tree of *Morus* cf. *alba* VIII 80, F. Kotlaba PRM, between Cetinje and Bukovica (920 m), on *Morus* sp. V 86, H. Forstinger. Jaap (1916) cites *Polyporus corruscans?* (his question mark) from Hercegnovi and Kotor on *Morus* sp. which is probably also *I. hispidus* (Tortić and Kotlaba 1976).

I. tamaricis (Pat.) Maire — Titograd, at the base of living tree of *Tamarix gallica,* and Kotor, living branch of *T. gallica,* V 76 F. Kotlaba PRM, Petrovac and Buljarica near Budva, living branch and trunk of *T. gallica* VIII 80, F. Kotlaba PRM; Petrovac, on *Tamarix* sp. V 86, and Sutomore, on *Tamarix* sp. IX 83, both H. Forstinger.

Phellinus hartigii (All. et Schn.) Bond. — Čakor pass, log of *Abies alba,* VII 73, ZA (Tortić 1974); Crno jezero near Žabljak, prostrate trunk of *Abies alba,* VIII 78, ZA.

Ph. igniarius (L. Quél. — Hum Orahovski, on rotten trunks in forests (Beck and Szyszyłowicz 1888 as *Polyporus igniarius).*

Ph. pini (Thore : Fr.) Pilát — Ulcinj, on *Pinus halepensis,* VI 68, J. Kuthan Přihoda 1985); Petrovac, on dead resp. diseased *Pinus halepensis,* V 86, H. Forstinger.

Ph. punctatus (Fr.) Pilát — Titograd, half living tree of *Robinia pseudacacia;* Duraševići at Tivat, dead tree of *Morus alba* and living *Olea europaea;* Kotor, dead trunk of *Robinia pseudacacia,* Trojica near Kotor, living *Olea europaea;* Odoljen near Kotor, dead trunk of *Punica granatum;* Hercegnovi, living tree of *Citrus aurantiaca* and dead *Nerium oleander;* Miločer, stump of *Laurus nobilis,* all V—VI 76, F. Kotlaba, PRM; Budva, living *Nerium oleander* VII 76, A. Černý; Petrovac near Budva, living *Olea europaea,* prostrate branches of *Myrtus communis* and dead branch of *Spartium junceum,* all VIII 80, F. Kotlaba PRM; Sutomore, living *Robinia pseudacacia* and *Olea europaea,* VIII 83, H. Forstinger; Virpazar, injured trunk of living *Robinia pseudacacia,* and Petrovac, injured trunk of living *Olea europaea,* V 86, H. Forstinger.

Ph. rimosus (Berk.) Pilát — Budva, dead trunk of *Robinia pseudacacia* VI 76, PRM (Kotlaba and Pouzar 1978).

Ph. robustus (P. Karst.) Bourd. et Galz. — Kotor, dead trunk of *Gleditschia triacanthos* V 76, F. Kotlaba, PRM.

Ph. torulosus (Pers.) Bourd. et Galz. — Hercegnovi, on stumps and roots of *Quercus pubescens,* once also on *Punica granatum* and *Erica arborea* nearby (Jaap 1916 as *Fomes torulosus);* Radovići near Tivat, at the base of living *Ceratonia siliqua;* Trojica near Kotor, base of living *Robinia pseudacacia;* Tivat, stump of *Cupressus sempervirens,* all V 76, F. Kotlaba PRM; Petrovac, at the base of half-living *Myrtus communis* VIII 80, F. Kotlaba PRM; Sutomore, stump of *Cupressus* (?) prostrate branch of *Robinia* (?) and stump of Quercus sp., VIII—IX 83, H. Forstinger; Petrovac, on stumps of *Juniperus* (?), *Erica arborea* (?) and stump of Prunus sp., V 86, H. Forstinger.

Pt. tuberculosus (Baumg.) Niemelä — Andrijevica, on living *Prunus domestica,* VII 73, ZA (Tortić 1974. as *Ph. pomaceus);* Pržno near Radovići at Tivat, dead trunk of *Prunus dulcis;* Kotor, living *Prunus domestica* and Odoljen near Kotor, stump of *Prunus cerasus,* all V 76, F. Kotlaba PRM; Petrovac near Budva, dead branch of *Prunus domestica* and dead trunk of *Prunus persica,* VIII 80, F. Kotlaba, PRM.

Polyporaceae s. lato

Amyloporiella flava (P. Karst.) David et Tortić — Crna Poda in the valley of the river Tara, prostrate trunk of *Pinus nigra,* VIII 78, ZA (David and Tortić 1984).

Bjerkandera adusta (Willd. : Fr.) P. Karst. — Kotor, on a stump (Jaap 1916 as *Polyporus adustus);* Komovi: Preslo, on wood of *Fagus sylvatica* VII 73, ZA (Tortić 1974); Crno jezero at Žabljak, prostrate trunk of *Abies alba,* VIII 78; Kotor, dead trunk of *Populus nigra,* V 76, F. Kotlaba, PRM; Mojkovac, IX 80, O. K. Miller; Petrovac near Budva, stump of *Populus alba,* VIII 80, F. Kotlaba, PRM; Virpazar, stump of *Juniperus* sp., V 86, H. Forstinger.

Cerrena unicolor (Bull. : Fr.) Maire — Bijela and Miloševići near Šavnik, on wood of *Fagus* (Bubák 1903 as *Daedalea unicolor);* Komovi: Preslo, wood of *Fagus sylvatica,* VII 73, ZA (Tortić 1974); Cetinje, dead branch of *Tilia tomentosa* V 76, F. Kotlaba PRM; Ulcinj, stump of *Celtis australis* VIII 80, F. Kotlaba PRM; Cetinje, diseased tree of *Vilia sp.,* and Sutomore, prostrate trunk of *Quercus* sp., VIII—IX 83, H. Forstinger; between Petrovac and Virpazar (650 m), dead trunk of *Quercus* sp., V 86, H. Forstinger.

Daedalea quercina (L.) Pers. — Kotor, on *Quercus pubescens* (Jaap 1916 as *Lenzites quercina).*

Datronia mollis (Sommerf.) Donk — Komovi: Preslo, wood of *Fagus,* VII 73, ZA (Tortić 1974).

Dichomitus campestris (Quél) Domań. et Orlicz — Miločer, dead branch attached to the living *Quercus cerris* VI 76, F. Kotlaba, PRM, (Tortić and Kotlaba 1976).

Fomes fomentarius (L.) Kickx — Hum Orahovski, in forests, and Mokra below the Debeza Mt. (Beck and Szyszylowicz 1888 as *Polyporus fomentarius);* near Drešnica, Bijela Miloševići, all near Šavnik, also in virgin forest at the base of Durmitor Mt., on *Fagus sylvatica* (Bubák 1903); at Bukovica and Gvozd near Nikšić on wood of *Quercus* and at Piva monastery and Kula Muratovića on wood of *Fagus* (Bubák 1915); Budva, stump of *Morus* or *Tilia,* VI 68, J. Kuthan; Komovi: Preslo, wood of *Fagus* VII 73 (Tortić 1974); Biogradsko jezero, wood of *Fagus* VIII 78. Njeguši at Kotor, on living *Populus nigra,* V 76, F. Kotlaba, PRM; Mojkovac, IX 80, O. K. Miller; Lovćen Nt. south of Jezerski vrh (1350 m), on dead trunk of *Fagus,* V 86, H. Forstinger.

Fomitopsis cytisina (Berk.) Bond. et Sing. — Kotor, stump of *Celtis australis,* V 76, F. Kotlaba, PRM.

F. pinicola (Sw. : Fr.) P. Karst. — At Žabljak, Nedajno and in virgin forest at the base of Durmitor Mt., on old trunks of

Picea abies (Bubák 1903 as *Fomes pinicola);* Kula Muratovića, on *Fagus,* and Piva monastery, on *Salix* sp. (Bubák 1915 as *Polyporus ungulatus);* Crno jezero near Žabljak, on stumps, prostrate trunks and standing dead *Abies alba* VIII 78, ZA; Biogradsko jezero, standing dead trunk of *Alnus* sp., prostrate trunk of *Fagus sylvatica,* prostrate and standing dead trunks of *Abies alba,* VIII 78.

Funalia gallica (Fr.) Bond. & Sing. — Buljarica near Petrovac, prostrate trunk of *Populus nigra,* VIII 80, F. Kotlaba, PRM; Petrovac, prostrate broadleaved branch, V 86, H. Forstinger.

Gloeophyllum abietinum (Bull. : Fr.) P. Karst. — At Nedajmo, on *Abies alba* (Bubák 1903 as *Lenzites abietina);* Barno jezero near Žabljak, prostrate trunk of *Picea abiea* (Bubák 1915 as *Lenzites a bietina);* Duraševići near Tivat, stump of *Cupressus sempervirens,* V 76, F. Kotlaba, PRM; Sutomore, dead *Pinus halepensis,* VIII 83, H. Forstinger.

G. sepiarium (Wulf. : Fr.) P. Karst. — Čakor pass, on *Picea abies;* Komovi: Preslo, on *Abies alba,* both VII 73, ZA (Tortić 1974); Komovi: Ljubašnica, X 64, V. Lindtner, BEO (Tortić 1974).

G. trabeum (Pers. : Fr.) Murr. — Petrovac near Budva, worked wood, VIII 80, F. Kotlaba, PRM; Sutomore, stump of *Cupressus,* VIII 83, H. Forstinger, ZA.

Hapalopilus rutilans (Pers. : Fr.) P. Karst. — Crno jezero near Žabljak, prostrate trunk of *Abies alba,* VIII 78, ZA.

Heterobasidion annosus (Fr.) Bref. — Crno jezero near Žabljak, log and root of a stump of *Abies alba,* VIII 78.

Hirschioporus abietinus (Dicks. : Fr.) Donk — Crno jezero near Žabljak, prostrate trunk, logs and branches of *Abies alba,* VIII 78, ZA.

H. fuscoviolaceus (Ehrenb. : Fr.) Donk — Petrovac, prostrate trunk of *Pinus halepensis,* VIII 80, F. Kotlaba, PRM, and V 86, H. Forstinger; Sutomore, prostrate trunk of *Pinus halepensis,* VIII 83, H. Forstinger.

H. pargamenus (Fr.) Bond. & Sing. — Miločer, stump of *Pinus halepensis,* VI 76, F. Kotlaba, PRM (Přihoda 1985).

Irpex lacteus (Fr. ex Fr.) Fr. — Duraševići near Tivat, dead trunk of *Prunus armeniaca,* and Kotor, dead trunk of *Gleditschia triacanthos,* V 76, F. Kotlaba, PRM.

Ischnoderma benzoinum (Wahlenb.) P. Karst. — Crno jezero near Žabljak, prostrate trunk of *Abies alba,* VIII 78, ZA (Tortić 1979).

Laetiporus sulphureus (Bull. : Fr.) Murr. — Luge Andrijevičke, on *Prunus domestica,* VII 73 (Tortić 1974); Bioča, IX 80, O. K. Miller.

Lenzites betulina (L.) Fr. — Cetinje, on stumps of *Quercus pubescens* (Jaap 1916).

Polyporus arcularius (Batsch) : Fr. — Andrijevica, on twigs of *Quercus* sp. VII 73 (Tortić 1974 as *P. anisoporus);* Piva monastery, on dead branches (Bubák 1915).

P. squamosus (Huds.) Fr. — Donja Bukovica near Šavnik, wood of *Quercus* sp. (Bubák 1915); Biogradsko jezero, stump of *Acer platanoides* and broken trunk of *Fagus sylvatica,* VIII 78.

P. varius (Pers.) : Fr. — Hum Orahovski, in forests, and forest Skrobotuša (at the border with Albania) (Beck and Szyszylowicz 1888); Gornja Bukovica, Savina voda at the base of Savin kuk, forest at the base of Durmitor Mt., and Piva monastery, on branches and trunks of *Fagus sylvatica* (Bubák 1915 as *P. elegans);* Komovi: Preslo, on wood of *Fagus sylvatica,* VII 73, ZA (Tortić 1974; Bioča, IX 80, O. K. Miller.

Poria lindbladii (Berk. et Br. ex Berk.) Cooke — Sutomore, on the underside of prostrate trunk of *Pinus halepensis?,* VIII 83, H. Forstinger, ZA.

Pycnoporus cinnabarinus (Jacq. : Fr.) P. Karst. — Barno jezero near Žabljak, on *Picea abies* (Bubák 1915 as *Trametes cinnabarina);* Komovi: Preslo, prostrate branches and logs of *Fagus sylvatica,* VII 73, ZA (Tortić 1974); Komovi: Ljubašnica, X 64, V. Lindtner, BEO (Tortić 1974); Biogradsko jezero, V. Lindtner (letter) (Tortić 1974).

Rigidoporus ulmarius (Sow. : Fr.) Imazeki — Cetinje, in the hollow of a stump and a tree of *Ulmus* sp., VIII 83 and V 86, H. Forstinger, ZA.

Schizopora paradoxa (Schrad. : Fr.) Donk — Komovi: Preslo, wood of *Fagus sylvatica,* VII 73, ZA (Tortić 1974), Biogradsko jezero, branch of *Fagus,* VIII 78, ZA; Petrovac near Budva, felled trunk of *Pinus cf. halepensis,* VIII 80, F. Kotlaba, PRM.

Skeletocutis amorpha (Fr.) Kotl. et Pouz. — Petrovac near Budva, felled trunk of *Pinus* cf. *halepensis,* VIII 80, F. Kotlaba, PRM.

Trametes gibbosa (Pers. : Fr.) Fr. — Forest Skrobotuša, at the border with Albania (Beck and Szyszylowicz 1888).

T. hirsuta (Wulf.) Pilát — Between Bogetići and Nikšić, also at Miloševići near Šavnik, both on wood of *Fagus* (Bubák 1903 as *Polyporus hirsutus* and *P. fibula);* Gornja Bukovica and Barno jezero, on wood of *Quercus* sp., Piva monastery on wood of *Fagus* (Bubák 1915 as *Polyporus hirsutus);* Komovi: Preslo, VII 73, on wood of *Fagus,* and Komovi: Ljubašnica, X 64, V. Lindtner, BEO (Tortić 1974).

T. pubescens (Schum. : Fr.) Pilát — Bioča, IX 80, O. K. Miller; Virpazar, stump of *Populus* sp., IX 83, H. Forstinger. Jaap

(1916) cites from Kotor, on a trunk of *Salix* sp., *Polystictus velutinus* which might be this species, but also *T. hirsuta.*

T. trogii Berk. in Trog. — Kotor, living broadleaved tree, V 76, F. Kotlaba, PRM.

T. versicolor (L.) Pilát — Hum Orahovski, in wet forests (Beck and Szyszylowicz 1888 as *Polyporus versicolor);* Rijeka Crnojevića, on old wood (Bubák 1906 as *Polyporus versicolor);* Piva monastery, trunk of *Fagus sylvatica (Bubák* 1915 as *Polyporus versicolor);* Hercegnovi, stump of *Quercus pubescens* (Jaap 1916 as *Polystictus versicolor);* Komovi: Preslo, stumps of *Fagus sylvatica,* VII 73 (Tortić 1974); Crna Poda and Gornja Dobrilovina in the valley of river Tara, on wood of *Fagus sylvatica,* VIII 78, ZA; Biogradsko jezero, prostrate trunk of *Fagus,* VIII 78; Kotor, dead trunk of *Gleditschia triacanthos* and Pržno near Tivat, prostrate branches of *Cupressus sempervirens,* both V 76, F. Kotlaba, PRM; Petrovac near Budva, stump of broadleaved tree *(Ficus?),* VIII 80, F. Kotlaba, PRM; This species occurs mostly on *Populus* spp. and the find might be *T. versicolor.** Bioča, IX 80, O. K. Miller; Sutomore, prostrate branch and stump of a broadleaved tree, IX 83, H. Forstinger; Petrovac, on a root, and Dugi Do near Bukovica, on a stump, V 86, H. Forstinger.

T. zonata (Nees : Fr.) Pilát — Gornja Bukovica, on wood of *Fagus sylvatica* (Bubák 1915 as *Polyporus zonatus)***

Truncospora ochroleuca (Berk.) S. Ito — Budva, at the injured base of living *Eucalyptus* sp. VII 76, A. Černý, ZA; Petrovac near Budva, dead trunk of *Spartium junceum,* VIII 80, F. Kotlaba, PRM; Sutomore, dead branches of *Spartium junceum,* IX 83, H. Forstinger, LI, ZA.

Tyromyces chioneus (Fr. : Fr.) P. Karst. — Komovi: Ljubašnica, on wood of a broadleaved tree, X 64, V. Lintner, BEO, det. Z. Pouzar (Tortić 1974).

Boletaceae

Boletus erythropus Fr. — Čakor pass, under *Picea abies,* VII 73 (Tortić 1974); Crno jezero near Žabljak, fir forest, VIII 78.

B. luridus Schff. : Fr. — Miločer, in a park, VI 76, F. Kotlaba, PRM.

B. cf. *queletii* Schulz. — Macchia at Radovići, near Tivat, V 76, F. Kotlaba, PRM.

Porphyrellus pseudoscaber (Secr.) Sing. — Durmitor, VII 64, V. Lindtner (letter, specimen not found in BEO) (Tortić 1974).

Xerocomus shrysenteron (Bull.) Quél. — Mojkovac, IX 80, O. K. Miller.

Paxillaceae

Paxillus involutus (Batsch) Fr. — Mojkovac, IX 80, O. K. Miller.

Pleurotaceae

Geopetalum carbonarium (Alb. et Schw. : Fr.) Pat. — Komovi: Preslo, beech forest, in a burnt place, VII 73, ZA (Tortić 1974).

Panus rudis Fr. — At Šavnik, on old stump of *Quercus* sp. (Bubák 1903 as *Lentinus rudis);* Piva monastery, on a trunk of *Fagus* (Bubák 1915); Andrijevica, on wood of *Quercus* sp., VII 73 (Tortić 1974).

P. tigrinus (Bull. : Fr.) Sing. — Near Skadar Lake, on stumps of *Salix alba* and *S. fragilis (Černjavski* et al. 1949 as *Lentinus tigrinus);* Biogradsko jezero, root of a stump of *Acer platanoides* and prostrate trunk of a broadleaved tree, VIII 78.

Pleurotus ostreatus (Jacq. : Fr.) Quél. s. lato — Komovi: Preslo, on wood of *Fagus sylvatica,* VII 73 (Tortić 1974).

Tricholomataceae

Armillariella mellea (Vahl. : Fr.) P. Karst. s. lato — Along the coast (Crnogorsko primorje) on cultivated *Citrus* spp. frequent (Mijušković 1953); Crno jezero near Žabljak, rhizomorphs on prostrate trunks of *Abies alba,* VIII 78.

Catathelasma imperiale (Fr.). Sing. — Komovi: Ljubašnica, X 65, V. Lindtner, BEO (Tortić 1974).

Chaetocalathus craterellus (Dur. et Lév.) Sing. — Hercegnovi, on *Phlomis fruticosa, Salvia officinalis, Smilax aspera, Coronilla emeroides, Rubus sp., Erica verticillata* etc., also Kotor, on *Clematis vitalba* (Jaap 1916 as *Pleurotus craterellus);* Pržno near Tivat, on detritus, Duraševići near Tivat, dead branch of *Rubus* sp., and between Kotor and Trojica, dead branch of *Rubus* sp., all V 76, F. Kotlaba, PRM; Petrovac near Budva, dead branch of *Myrtus communis,* VIII 80, F. Kotlaba, PRM.

Clitocybe gibba (Pers. : Fr.) Kummer — Andrijevica, oak forest, VII 73 (Tortić 1974).

C. inversa (Scop.) Quél. — Forest at Barno jezero near Žabljak (Bubák 1915).

C. odora (Bull. : Fr.) Kummer — Crkvine, Mojkovac, IX 80, O. K. Miller.

C. rivulosa (Pers. : Fr.) Kummer — Bioča, IX 80, O. K. Miller.

Collybia butyracea (Bull. : Fr.) Quél. — Čakor pass, under *Juniperus* sp., VII 73 (Tortić 1974).

C. confluens (Pers. : Fr.) Kummer — Biogradsko jezero, V 64, V. Lindtner, BEO (Tortić 1974); Crkvine, IX 80, O. K. Miller.

C. dryophila (Bull. : Fr.) Quél. — Komovi: Preslo, beech forest, VII 73 (Tortić 1974).

C. peronata (Bolt. : Fr.) Kummer — Crkvine, IX 80, O. K. Miller.

C. tuberosa (Bull. : Fr.) Kummer — Mojkovac, IX 80, O. K. Miller.

Flammulina velutipes (Fr.) P. Karst. — Bioča, IX 80, O. K. Miller.

Laccaria amethystea (Bull. Murr.) — Crkvine, IX 80, O. K. Miller.

L. laccata (Scop. : Fr.) Berk. et Br. — Komovi: Preslo, clearing in a beech forest, VII 73 (Tortić 1974); Mojkovac, IX 80, O. K. Miller.

Leptoglossum tremulum (Schaeff. : Fr.) Sing. — Mojkovac, IX 80, O. K. Miller.

Marasmiellus ramealis (Bull. : Fr.) Sing. — Bioča, IX 80, O. K. Miller.

Marasmius alliaceus (Jacq. : Fr.) Fr. — Komovi: Preslo, wood of *Fagus sylvatica*, VII 73, ZA (Tortić 1974). V. Lindtner stated in a letter that he has found this species on Komovi Mts. and also Durmitor Mts. but gave no other data (Tortić 1974).

M. oreades (Bolt. : Fr.) Fr. — Miloševići at Šavnik (Bubák 1903 as *M. caryophylleus);* near Šavnik in grassland (Bubák 1915); Komovi: Preslo, in a clearing in beech forest, and Čakor pass, in meadow, VII 73, ZA (Tortić 1974).

Melanoleuca evenosa (Sacc.) Konr. — Durmitor Mt., VII 64 D. Čolić, BEO (Tortić 1974).

Micromphale perforans (Hoffm. : Fr.) Sing. — Čakor pass, fallen needles of *Picea abies*, VII 73, ZA (Tortić 1974).

Mycena amicta (Fr.) Quél. — Komovi: Preslo, wood of *Fagus sylvatica*, VII 73, ZA (Tortić 1974).

M. aurantiomarginata (Fr.) Quél. — Crkvine, IX 80, O. K. Miller.

M. haematopus (Pers. : Fr.) Kummer — Crkvine, IX 80 ,O. K. Miller.

M. inclinata (Fr.) Quél. — Bioča, IX 80, O. K. Miller.

M. pura (Pers. : Fr.) Quél. — Komovi: Preslo, beech forest, and Čakor pass, spruce and molika forest, VII 73 (Tortić 1974); Mojkovac, IX 80, O. K. Miller.

M. renati Quél. — Komovi: Preslo, wood of *Fagus sylvatica*, VII 73, ZA (Tortić 1974); Crkvine, IX 80, O. K. Miller.

Oudemansiella mucida (Schrad. : Fr.) Höhn. — Komovi: Preslo, on wood of *Fagus sylvatica*, VII 73 (Tortić 1974); V. Lindtner stated in a leter that he has found this species also on Komovi Mts and near Žabljak (Tortić 1974).

Ou. radicata (Rehl. : Fr.) Sing. — Biogradsko jezero, beech forest, VIII 78; Crkvine, IX 80, O. K. Miller.

Panellus stipticus (Bull. : Fr.) P. Karst. — Crkvine, IX 80, O. K. Miller.

Resupinatus cyphelliformis (Bk.) Sing. — Crkvine. IX 80, O. K. Miller.

Rickenella fibula (Bull. : Fr.) Raith — Komovi: Preslo, among mosses, VII 73 (Tortić 1974 as *Gerronema fibula).*

Pluteaceae

Pluteus atricapillus (Secr.) Sing. — Komovi: Preslo, wood of *Fagus sylvatica,* VII 73 (Tortić 1974); Biogradsko jezero, stump of *Fagus sylvatica,* VIII 78; Mojkovac, Crkvine, IX 80, O. K. Miller.

P. romellii (Britz.) Sacc. — Mojkovac, Bioča, IX 80, O. K. Miller.

Volvariella bombycina (Pers. : Fr.) Sing. — Andrijevica, stump of *Quercus (cerris?),* VII 73, ZA (Tortić 1974).

Entolomataceae

Clitopilus prunulus (Schw. : Fr.) Kummer — Mojkovac, IX 80, O. K. Miller.

Amanitaceae

Amanita muscaria (L. Hooker — Durmitor: Zmijinje jezero, X 64, V. Lindtner, BEO (Tortić 1974).

A. rubescens (Pers. : Fr.) S. F. Gray — Hercegnovi, under *Castanea sativa* (Jaap 1916 as *A. pustulata);* Crno jezero near Žabljak, fir forest, VIII 78.

A. strobiliformis (Vitt.) Quél. — Miločer, park, under *Quercus* sp., VI 68, J. Kuthan, herb. Kuthan.

A. vaginata (Fr.) Vitt. — Crkvine, IX 80, O. K. Miller.

Limacella cf. *glioderma* (Fr.) R. Maire — Pržno near Tivat, macchia, VI 76, F. Kotlaba, PRM.

Agaricaceae

Agaricus campestris L. — Bioča, IX 80, O. K. Miller.

A. silvicola (Vitt.) Bk. — Crkvine, IX 80, K. Miller.

Cystoderma amianthinum (Scop. : Fr.) Fayod — Mojkovac, IX 80, O. K. Miller.

Lepiota clypeolaria (Bull. : Fr.) Kummer — Crkvine, IX 80, O. K. Miller.

L. cristata (A. et S. : Fr.) Kummer — Bioča, IX 80, O. K. Miller.
Macrolepiota procera (Scop. : Fr.) Sing. — Crkvine, IX 80, O. K. Miller.
Phaeolepiota aurea (Matt. : Fr.) Maire — Komovi: Ljubašnica X ,64, V. Lindtner, BEO (Tortić 1974).

Coprinaceae

Anellaria semiovata (Sow. : Fr.) Pears. et Dennis — Čakor pass, meadow, VII 73, ZA (Tortić 1974).
Coprinus atramentarius (Bull. : Fr.) Fr. — Andrijevica, stump of *Quercus (cerris?)*, VII 73 (Tortić 1974); Bioča, IX 80, O. K. Miller.
C. comatus (Müller : Fr.) S. F. Gray — Bioča, IX 80, O. K. Miller.
C. disseminatus (Pers. : Fr.) S. F. Gray — Bioča, IX 80, O. K. Miller.
C. lagopus (Fr.) Fr. — Bioča, IX 80, O. K. Miller.
C. micaceus (Bull. : Fr.) Fr. — Bioča, IX 80, O. K. Miller.
C. niveus (Pers. : Fr.) Fr. — Bioča, IX 80, O. K. Miller.
Panaeolus acuminatus (Schaeff.) Quél. — Bioča, IX 80, O. K. Miller.
P. cf. *sphinctrinus* (Fr.) Quél. — Čakor pass, in meadow, and Komovi: Štavne, in meadow, on animal excrements, VII 73 (Tortić 1974).
Psathyrella candolleana (Fr.) Maire — Andrijevica, stump of *Quercus (cerris?)* in oak stand, also in plum-orchard, VII 73 (Tortić 1974); Radovići near Tivat, small wood debris, V 76, F. Kotlaba, PRM; Bioča, IX 80, O. K. Miller.

Bolbitiaceae

Conocybe tenera (Schaeff. : Fr.) Kühner — Bioča, IX 80, O. K. Miller.

Strophariaceae

Hypholoma fasciculare (Hunds. : Fr.) Kummer — Mojkovac, IX 80, O. K. Miller.
H. sublateritium (Fr. Quél. — At Šavnik, old stump of *Quercus* sp. (Bubák 1903 as *H. lateritium).*
Kuehneromyces mutabilis (Schaeff. : Fr.) Sing. et Smith — Komovi: Preslo, wood of *Fagus sylvatica,* VII 73, ZA (Tortić 1974; Biogradsko jezero, prostrate trunk of *Fagus sylvatica,* VIII 78.

Pholiota carbonaria (Fr.) Sing. — Komovi: Preslo, beech borest, in a burnt place, VII 73, ZA (Tortić 1974).

Psilocybe cyanescens (Mre.) Mühn. — Komovi: Ljubašnica, X 64, V. Lindtner, BEO (Tortić 1974).

Stropharia aeruginosa (Curt. : Fr.) Quél. — Bioča, IX 80, O. K. Miller.

S. semiglobata (Batsch : Fr.) Quél. — Velika Lukavica near Šavnik, on cattle excrements (Bubák 1903); Čakor pass, and Komovi: Štavne, on animal excrements, VII 73 (Tortić 1974).

S. squamosa (Pers. : Fr.) Quél. — Crkvine, IX 80, O. K. Miller.

Tubaria pellucida (Bull. : Fr.) Gill. — Bioča, IX 80, O. K. Miller.

Crepidotaceae

Crepidotus applanatus (Pers.) Kummer — Bioča, IX 80, O. K. Miller.

Cortinariaceae

Galerina marginata (Batsch Kühner — Bioča, IX 80, O. K. Miller.

Gymnopilus bellulus (Peck) Murr. — Crkvine, IX 80, O. K. Miller.

Russulaceae

Lactarius circellatus Fr. — Bioča, IX 80, O. K. Miller.

L. lilacinus (Lasch) Fr. — Komovi: Ljubašnica, alder stand, X 64, V. Lindtner, BEO (Tortić 1974).

L. piperatus (Scop.) Fr. s. lato — Andrijevica, oak stand, VII 73 (Tortić 1974).

Russula alutacea (Pers. : Fr.) Fr. — Mojkovac, IX 80, O. K. Miller.

R. delica Fr. — Mojkovac, IX 80, O. K. Miller.

R. foetens Pers. s. lato — Andrijevica, oak stand, VII 73 (Tortić 1974).

R. paludosa Britz. — Crkvine, IX 80, O. K. Miller.

R. rosacea Pers. : S. F. Gray — Crkvine, IX 80, O. K. Miller.

R. virescens (Schff.) Fr. — Hercegnovi, under *Quercus* sp. (Jaap 1916).

Astraeaceae

Astraeus hygrometricus (Pers.) Morg. — Pržno near Tivat, macchia (*Phyllirea latifolia, Cistus villosus, Smilax aspera* etc.) V. 76, F. Kotlaba, PRM.

Clathraceae

Clathrus ruber (Mich.) Pers. — Near Kotor along roads under hedge (Jaap 1916); Stari Bar, under *Olea europaea,* VI 66, J. Kuthan, herb. Kuthan (Tortić 1974); Pržno near Tivat, under *Pinus halepensis, Arbutus unedo, Brica arborea, Smilax aspera* etc., VI 76, F. Kotlaba, PRM.

Lycoperdaceae

Bovistella paludosa Lév. — According to Bubák (1915), *Lycoperdon Bubaki* described by Bresadola in Ann. myc. 1908 p. 46, was shown by Lloyd (Mc. notes Br. 33, 1909, p. 435) to be identical with *B. paludosa.* No locality is mentioned.

Bovista nigrescens Pers. — Mali Štulac at Žabljak, grassland (Bubák 1915).

B. plumbea Pers. — Pitomine near Žabljak, grassland (Bubák 1915); Čakor pass, in a clearing, VII 73, ZA (Tortić 1974).

Calvatia caelata (Bull.) Morg. — Velika Lukavica and near Šavnik (Bubák 1903 as *Lycoperdon caelatum);* Mali Štulac and Kovačevići near Žabljak (Bubák 1915); Čakor pass, in a clearing, VII 73 (Tortić 1974).

Lycoperdon perlatum Pers. — Crkvine, Mojkovac, IX 80, O. K. Miller.

L. pusillum (Batsch : Fr.) Schum. — Mojkovac, IX 80, O. K. Miller.

L. pyriforme Schaeff. ex Pers. — Mojkovac, IX 80, O. K. Miller.

L. umbrinum Pers. — Crkvine, Mojkovac, IX 80, O. K. Miller.

Nidulariaceae

Cyathus olla Batsch : Pers. — Pržno near Tivat, fallen cone of *Pinus halepensis,* V 77, F. Kotlaba, PRM (Přihoda 1985).

Tulostomataceae

Tulostoma squamosum Pers. — Čakor passe, on a stump, VII 73 (Tortić 1974).

DISCUSSION

Since macromycetes of Crna Gora were investigated only by mycologists from other parts of Yugoslavia, or, more often, from abroad, very few localities were visited more than once, and then usually by different workers. There was no regular and systemati-

cal long term study in one particular place. On the other hand, as the samples were taken from many localities, a large part of the territory was covered in this way.

Nearly half of the species registered are lignicolous *Aphyllophorales* with tough, coriaceous, corky or woody, long lasting fruitbodies, often recognisable even when old; some are perennial. Such fungi are predominant during summer (which is usually dry, particularly at the sea-coast) when most investigations were made, and moreover several investigators were mainly interested in them. Agarics and other fleshy terricolous fungi were noted in about the same number of species, which is in fact small since they usually make up a greater part of the mycoflora of a given region. They appear namely in larger quantities in autumn, after rains. For illustration it can be pointed out that the family *Tricholomataceae* is represented here only by 32 species, less than half of the genera belonging to that family. From several other larger or smaller families only one or two species were noted.

Many otherwise common and widely spread species, as *Amanita muscaria, Cantharellus cibarius, Lycoperdon pyriforme, Schizopora paradoxa, Trametes gibbosa, T. hirsuta* etc. were noted in only one or very few localities, and some, as *Boletus edulis,* not at all. On the other hand, there are records of some interesting and rare species with few or no localities in other parts of Yugoslavia.

In spite of the scanty data, it is possible to discuss here tentatively the main characters of the mycoflora of Crna Gora, on the basis of what is known about fungi in similar habitats in other parts of Yugoslavia and elsewhere.

Owing to the climatic conditions there are great differences between the composition of the mycoflora along the sea-coast and inland, particularly in mountains. Along the coast many thermophilous, even some strictly Mediterranean species, occur whilst montane or boreal-montane fungi were found in mountain forests.

Among the polypores which were found, purely Mediterranean ones in Europe are, according to P l a n k (1980), *Inonotus tamaricis, Truncospora ochroleuca, Phellinus rimosus.* The first two are now known from several ather localities along our Adriatic coast, and *I. tamaricis* is apparently rather common. Other Mediterranean fungi are *Clathurs ruber, Peniophora meridionalis, Stereum reflexulum* etc. A number of thermophilous fungi which were found here at the sea-coast occur also in other parts of Yugoslavia and penetrate to warmer parts of Central Europe, some even to south Scandinavia, as *Fomitopsis cytisina, Inonotus hispidus, Peniophora lycii, Pluchericium caeruleum, Phellinus torulosus* and others.

Still more species were recorded in montane forests, mainly those of beech and of fir. Many are rather frequent in other regions of Yugoslavia in such forests and are probably spread in Crna Gora,

even if some were noted there only once. Such are, for instance, lignicolous species occurring exclusively or predominantly on *Fagus*, as *Stereum insignitum, Marasmius alliaceus, Oudemansiella mucida, Mycena renati, Laxitextum bicolor*, or on *Abies* as *Hymenochaete cruenta, Ischnoderma benzoinum, Gloeocystidiellum ochraceum, Phellinus hartigii*, or terricolous *Amanita muscaria, Boletus erythropus* etc.

Some fungi were noted in Crna Gora up to now only at the sea-coast, as *Boletus luridus, Russula virescens, Peniophora quercina, Phlebia radiata, Stereum sanguinolentum* etc. They have, however, a broad ecological range occurring in various types of forests or on several hosts, and were found in Yugoslavia more often in inland localities, some of them at rather elevated altitudes. Many other species, as seen from the list, grew both at the seo-coast and in the mountains.

Among fungi which are apparently rare in Yugoslavia can be mentioned *Amylocorticium* cf. *canadense, Ceraceomyces borealis, Guepiniopsis buccina, Phellinus rimosus, Truncospora ochroleuca* and some others.

Gyromitra mcknightii was described as a new species only recently (H a r m a j a 1986). The type material was collected at Crno jezero near Žabljak in 1971, but specimens belonging to the same species were found also in Finland. Those collections are preserved at the herbarium of the Botanical Museum in Helsinki (H). Since *G. mcknightii* differs from the closely related *G. perlate* (= *Discina perlata)* in some spore characters, they can be distinguished only microscopically. *G. mcknightii* is, in the opinion of its author, widely spread; of course its area can be established only after further investigations. It will be probably found also in some herbaria under specimens determined as *G. perlata.*

The mycoflora of larger fungi in Crna Gora seems accordingly to be rich and interesting, but is unfortunately very poorly known. Further intensive studies are imperative to make at least a rough inventory of species. This is urgent not only for purely soientific reasons, but also because, owing to the deterioration and poisoning of air, water and soil by what is mistakenly named progress, fungi are endangered as much as other organisms. In many countries red lists are prepared or under preparation also for fungi, e. g. for Germany (B l a b et al. 1984), Poland (W o j e w o d a and Ł a w r y n o w i c z 1986) etc. which show that many species are on the verge of extinction. Wholesale collecting of edible fungi for personal use or still more so for the market also contributes much to the disappearance of particular species. Such collecting should be at least strictly regulated and cultivation of fungi encouraged.

The preservation of natural habitats, as long as we have them, is necessary for fungi also, as is for other organisms, except that

fungi have some microhabitats which do not always agree with those of higher plants and therefore the factors needed for their development should be studied.

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MAKROMICETI CRNE GORE

Sažetak

Prve podatke o gljivama na teritoriju Crne Gore objavili su Beck i Szyszylowicz (1888) i naveli deset vrsta. Kasnije je nekoliko mikologa, uglavnom iz inostranstva, povremeno istraživalo mikofloru u pojedinim predjelima. Stalna istraživanja provođena su samo u novije vrijeme i to sa stanovišta fitopatologije, pa su proučavani parasiti kulturnog bilja. U engleskom su tekstu citirani najvažniji radovi.

Pažnja svih autora bila je uglavnom posvećena mikroskopski sitnim gljivicama, mikromicetima, kojih je dosad na području Crne Gore publicirano oko 1500 vrsta. Gljiva s velikim plodištima, makromiceta, bilo je zabilježeno samo blizu šezdesetak.

Autorica ovog prikaza je na osnovu objavljenih radova, vlastitih istraživanja i podataka koje su joj ljubezno stavili na raspolaganje neki kolege mikolozi iz inostranstva (navedeni u engleskom tekstu), sastavila listu od 204 makromiceta dosad ustanovljenih u Crnoj Gori, sa svim zasad poznatim lokalitetima.

Upada u oči srazmjerno velik broj lignikolnih gljiva iz grupe *Aphyllophorales*, s kožastim, tvrdim, kod nekih vrsta i višegodišnjim plodištima. Razlog je u tome što je većina istraživača posjećivala ove krajeve ljeti, za sušnog doba, kad se nalaze uglavnom takove vrste, kojima plodišta dugo traju. Mesnate gljive, pretežno iz reda *Agaricales*, razvijaju se u većem mnoštvu obično tek na jesen. Iako njima pripada blizu polovica nađenih vrsta to je suviše malen broj, jer one posvuda sačinjavaju pretežni dio mikoflore nekog područja.

Mnoge inače česte i rasprostranjene gljive kao *Amanita muscaria*, *Cantharellus cibarius*, *Lycoperdon pyriforme*, *Schizopora paradoxa*, *Trametes gibbosa*, *T. hirsuta* itd. ustanovljene su na samo jednom ili na malom broju nalazišta, a neke kao *Boletus edulis*, uopće se nigdje ne spominju. S druge strane nađen je niz interesantnih vrsta, rijetkih u Jugoslaviji.

Iako su podaci dakle oskudni, mogu se ipak iz njih izvući poneki zaključci o glavnim karakteristikama mikoflore u Crnoj Gori.

U vezi s klimatskim prilikama postoje velike razlike u sastavu mikoflore Crnogorskog primorja i unutrašnjeg dijela, jer duž obale dolaze mnoge termofilne, čak mediteranske vrste dok se u gorskim šumama nalaze montane ili borealno montane gljive.

Čisto mediteranske vrste su napr. *Clathrus ruber*, *Inonotus tamaricis*, *Peniophora meridionalis*, *Phellinus rimosus*, *Truncospora ochroleuca*, *Stereum reflexulum* i dr. Mnoge termofilne vrste ovdje nađene u primorskoj zoni ustanovljene su i drugdje duž naše jadranske obale ali i u unutrašnjosti zemlje, a dosta njih dopire do Srednje Evrope, neke i južne Skandinavije gdje se razvijaju na toplijim staništima. To su napr. *Fomitopsis cytisina*, *Inonotus hispidus*, *Peniophora lycii*, *Pulchericium caeruleum*, *Phellinus torulosus* itd.

Montane su vrste raširene u drugim krajevima Jugoslavije u gorskim šumama, većinom bukovim i jelovim. Vjerojatno su češće i u Crnoj Gori u takovim šumama, iako su neke tamo zabilježene samo jednom. Među njima se ističu napr. lignikolne gljive koje dolaze isključivo ili pretežno na bukvi kao *Stereum insignitum*, *Marasmius alliaceus*, *Oudemansiela mucida*, *Mycena renati*, *Laxitextum bicolor* i dr. ili na jeli kao *Hymenochaete cruenta*, *Iscuhnoderma benzoinum*, *Gloeocystidiellum ochraceum*, *Phellinus hartigii* itd. ili terikolne *Amanita muscaria*, *Boletus erythropus* i druge.

Priličan broj gljiva ima širu ekološku amplitudu pa dolaze u različitim šumskim zajednicama odnosno na različitim domaćinima i mogu se naći i u obalnom i kontinentalnom području kako se vidi iz liste. Neke od takovih su doduše ustanovljene ovdje zasad samo u primorskom dijelu, kao *Boletus luridus*, *Russula virescens*, *Peniophora quercina*, *Phlebia radiata*, *Stereum sanguinolentum*, no to je slučajnost, jer su kod nas češće u kontinentalnom dijelu zemlje.

Među vrstama koje su po dosadašnjim podacima rijetke u Jugoslaviji mogu se spomenuti *Amyclocorticium* cf. *canadense*, *Ceraceomyces borealis*, *Gueponiopsis buccina*, *Phellinus rimosus*, *Truncospora ochroleuca* i neke druge.

Gyromitra mcknightii je opisana tek nedavno kao nova vrsta (H a r m a j a 1986). Tipski je materijal sabran uz Crno jezero kod Žabljaka još 1971. god., ali je ista vrsta nađena i u Finskoj. Svi se ti primjerci čuvaju u herbariju Botaničkog muzeja u Helsinkiju (H). Kako se *G. mcknightii* razlikuje od vrlo srodne *G. perlata* (=*Discina perlata*) po obliku i ornamentici spora, mogu se ove vrste odijeliti samo nakon mikroskopske analize. *G. mcknightii* je prema mišljenju njenog autora dosta rasprostranjena, ali će se dakako njen areal moći utvrditi tek daljim istraživanjima. Vjerojatno će se naći i u pojedinim mikološkim zbirkama među primjercima određenim kao *G. perlata*.

Mikroflora Crne Gore je prema tome čini se vrlo bogata i interesantna što se tiče viših gljiva, ali je nažalost vrlo slabo poznata. Neophodne su intenzivne studije da bi se dobio bar u glavnim crtama inventar vrsta. To je nužno ne samo iz čisto naučnih razloga, nego i zato što su gljive zbog uništavanja okoline i trovanja zraka, vode i tla takozvanim napretkom ugrožene isto toliko koliko i ostali organizmi. U mnogim se zemljama izrađuju crvene liste ne samo ugroženih životinja i višeg bilja nego i gljiva, iz kojih se vidi da su mnoge vrste na pragu potpunog uništenja, a neke su u pojedinim krajevima nestale. Nestanku pojedinih vrsta doprinosi i grabežljivo sakupljanje jestivih gljiva za vlastitu upotrebu ili prodaju. Takovo se sakupljanje nastoji u nekim zemljama Evrope ograničiti posebnim propisima i umjesto toga se propagira umjetno uzgajanje gljiva.

I za gljive kao i za ostale organizme potrebno je da se sačuvaju prirodna staništa dok ih još imamo. Gljivama odgovaraju često posebna mikrostaništa, ne uvijek jednaka onima koje odgovaraju višem bilju, pa bi trebalo proučavati i faktore potrebne za njihov razvoj.