ACTA MYCOLOGICA
Vol. 42 (1): 21-34
2007

Dedicated to Professor Alina Skirgiełło on the occasion of her ninety-fifth birthday

Macromycetes in the Pirin Mts (SW Bulgaria)

CVETOMIR M. DENCHEV, VIOLETA I. FAKIROVA, MELANIA M. GYOSHEVA and ROUMYANA D. PETROVA

Bulgarian Mycological Society
23 Acad. G. Bonchev St., BU-1113 Sofia, cmdenchev@yahoo.co.uk

Denchev C. M., Fakirova V. I., Gyosheva M. M., Petrova R. D.: *Macromycetes in the Pirin Mts (SW Bulgaria)*. Acta Mycol. 42 (1): 21-34, 2007.

This paper attempts to compile available and unpublished data on the macromycetes of the Pirin Mts. The total number of currently known species is 350, including 34 ascomycetes and 316 basidiomycetes. Among them, 60 species are reported for the first time for the Pirin Mts, including *Inocybe pisciodora* which is a new record for Bulgaria. The species composition, ecological-trophic structure, and economically important edible fungi are briefly discussed. A list of 25 macroscopic fungi of conservation significance for the mycota of this mountain, evaluated with the recent IUCN criteria, is given, including 4 Critically Endangered, 9 Endangered, 7 Vulnerable, and 5 Near Threatened species.

Key words: Bulgaria, fungal diversity, macromycetes, Pirin Mts, Pirin National Park

INTRODUCTION

Pirin Mts is situated in the south-western part of Bulgaria. In this article, the Pirin Mts refers to the floristic region of Pirin, according to Jordanov (1966) (Fig. 1). The Pirin National Park, on the area of 40 332 ha (57 % of which covered by forest plant communities), is located in the territory of that mountain. There are two reserves in the Park, Bayuvi Doupki–Dzhindzhiritsa Reserve (2873 ha) and Yulen Reserve (3156 ha). Regarding the flora, the Pirin Mts is one of the most interesting Bulgarian and Balkan mountains. The main tree species in the forest plant communities are *Fagus sylvatica, Pinus nigra, P. sylvestris, P. peuce, P. heldreichii, Picea abies,* and *Pinus mugo.*

Unfortunately, the inventory of Pirin Mts mycota is still far behind comparing to the inventory of the flora and fauna. There is no published list of macromycetes as for the whole mountain as well as for the Pirin National Park in particular. The available information is scanty and referes mainly to short communications on establishment of new or rare species for Bulgaria. Data on macromycetes of the Pirin Mts are published by Pilát (1926); Burzakov (1928, 1932); Kreisel (1959); Hinkova (1961,

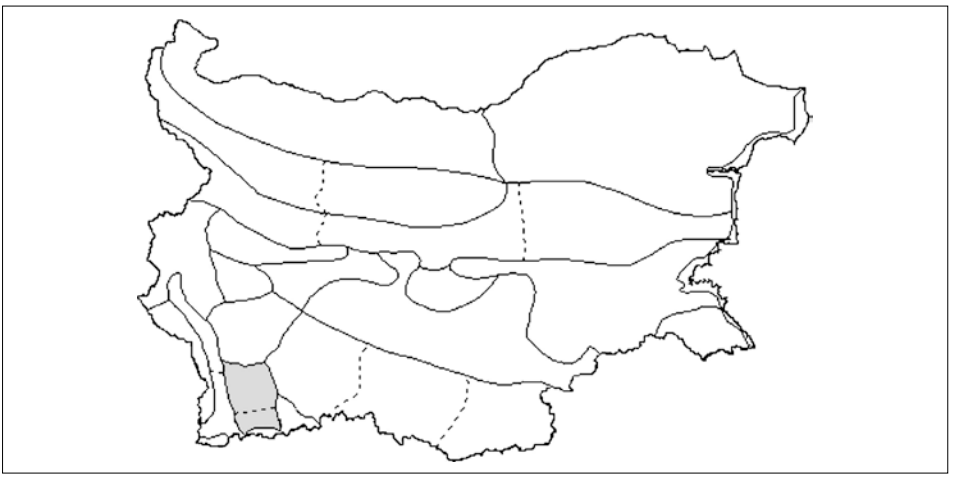

Fig. 1. Floristic regions in Bulgaria (by Jordanov 1966).
The Pirin Mts (northern and southern parts) are highlighted.

1965); Dörfelt (1977); Chalukov (1978, 1982, 1984, 1985, 1987); Stoichev (1981, 1987a, b, 1990, 1995); Stoichev and Naidenov (1984); Vanev and Reid (1986); Dimcheva and Stoichev (1987); Dörfelt and Müsch (1987); Stoichev and Dimcheva (1987, 1988); Kuthan and Kotlaba (1988); Drumeva-Dimcheva and Gyosheva-Bogoeva (1993); Dimitrova (1994, 1997, 1998, 1999, 2000); La Porta et al. (1998); Gyosheva (2000); Gyosheva et al. (2000); Assyov (2004); Assyov and Denchev (2004); Lacheva and Stoichev (2004). Among them, only Dimcheva and Stoichev (1987), basing on the available information for the species diversity, attempted to analyse the trophic groups of macromycetes in the mountain. Drumeva-Dimcheva and Gyosheva-Bogoeva (1993) reported data on the macromycetes in Bayuvi Doupki–Dzhindzhiritsa Reserve. Orderly mycological studies on the mountain and Pirin National Park, in particular, have not been carried out yet. There are no complete collections of specimens from the Pirin reserves, as well as from some areas such as massifs, river basins, etc. All available materials have been gathered on short mycological trips, mainly following the traditional tourist routes in the valleys of Bunderitsa River and Demyanitsa River and in the area of Yavorov Chalet. No orderly ecological studies have been carried out for a period of several years.

In 2001-2003 the Management Plan of the Pirin National Park was prepared. Its chapter devoted to the fungal diversity was worked out by a group of the Bulgarian Mycological Society, including the first two authors of the present article. For this purpose, during 2001-2002 short field investigations were conducted and all the available information about the mountain was analyzed.

In the present article, for the first time, all published records on macromycetes from the Pirin Mts and, in particular, from the Pirin National Park, as well as data from the field investigations in 2001-2002 and other unpublished data, obtained from the public mycological collections in Sofia (SOMF) and Plovdiv (SOA), are summarized and briefly discussed. The taxonomic and chorological information about Pirin

Mts is still incomplete for a serious analysis of the taxonomic structure as well as for the objective estimation of the status of species threat and the anthropogenic influence on economically important edible mushrooms

MATERIALS AND METHODS

In Table 1, lists of macroscopic fungi of the Pirin Mts and separately, of the Pirin National Park, are given. The listed taxa within ascomycetes and basidiomycetes are given in alphabetical order. The authors' names are abbreviated according to Kirk et al. (2004). The information in the presented lists includes available data from literature sources, unpublished data of the authors, and data from the Mycological Collection of the Institute of Botany, Sofia (SOMF), and Mycological Collection of the Agricultural University, Plovdiv (SOA). The treatment of different genera and species follows a lot of recent monographs and particular articles on European fungi. Taxonomic judgements on unexamined specimens were avoided. A brief list of published synonyms, is listed separately, with references to the names used in the main list in Table 1.

The conservation status of the species is based on the contemporary and official Red List of Fungi in Bulgaria (Gyosheva et al. 2006), where the current IUCN Red Data Book categories (IUCN 2001, 2003a, b) are put into practice.

Table 1
Checklist of macromycetes in the Pirin Mts

	Taxa	Park**	ETG***	C****	Sources*****
	ASCOMYCOTA				
1	*Aleuria aurantia* (Pers.) Fuckel*	+	Hu		SOMF
2	*Brunnipila clandestina* (Bull. : Fr.) Baral	+	Fd		41
3	*Caloscypha fulgens* (Pers. : Fr.) Boud.*	+	Hu, LeS		SOMF
4	*Ciboria batschiana* (Zopf) N.F. Buchw.	+	Fd		12, SOMF
5	*Crocicreas cyathoideum* (Bull.) S.E. Carp.	+	Fd		13, SOMF
6	*Cudoniella clavus* (Alb. & Schwein.) Dennis	+	Fd		41
7	*Dasyscyphus mollissimus* (Lasch) Dennis	+	Fd		41, SOMF
8	*D. oblongosporus* G.G. Hahn & Ayers	+	LeS		11, 14, SOMF
9	*Dermea piceina* J.W. Groves	+	LeS		12, 14, SOMF
10	*Discina ancilis* (Pers.) Sacc.	+	LeS	VU	10, 21
11	*Duplicaria empetri* (Pers. : Fr.) Fuckel	+	Fd		22
12	*Elaphomyces granulatus* Sacc. & Bizz.		Mr	CR	19, 21, SOMF
13	*Gyromitra esculenta* (Pers. : Fr.) Fr.*	+	Hu		unpubl.
14	*G. infula* (Schaeff. : Fr.) Quél.		LeS		23
15	*Helvella acetabulum* (L.) Quél.*	+	Hu		SOMF
16	*H. lacunosa* Afzel. : Fr.*		Hu		SOMF
17	*Herpotrichia juniperi* (Duby) Petr.	+	Ad		41
18	*Hymenoscyphus imberbis* (Bull.) Dennis		LeS		43
19	*Hysterium acuminatum* Fr. : Fr.	+	LeS		41
20	*Lachnum bicolor* (Bull. : Fr.) P. Karst.	+	Fd		15, 41
21	*L. brevipilosum* Baral	+	LeS		15
22	*L. virgineum* (Batsch : Fr.) P. Karst.	+	S		15, 41
23	*Lasiobelonium nidulum* (J.C. Schmidt & Kunze) Spooner		LeS		41
24	*Morchella elata* Fr. : Fr.	+	Hu	NT	10, 21
25	*M. esculenta* (L. : Fr.) Pers.	+	Hu		10, 31
26	*Otidea onotica* (Pers. : Fr.) Fuckel	+	Hu	VU	21, 23
27	*Peziza echinospora* P. Karst.	+	Carb		10, 41

Tab. 1 cont.

28	*P. moseri* Aviz.-Hersh. & Nemlich	+	Carb		10, 41
29	*P. praetervisa* Bres.	+	Carb		41
30	*Pseudoplectania nigrella* (Pers. : Fr.) Fuckel	+	Br		10
31	*Sarcoscypha coccinea* (Jaqc. : Fr.) Sacc.*		LeS		SOMF
32	*Spathularia flavida* Pers. : Fr.		St	NT	20, 21
33	*Urnula craterium* (Schwein. : Fr.) Fr.	+	St, LeS	VU	10, 21
34	*Xylaria polymorpha* (Pers. : Fr.) Grev.		LeS		43
	BASIDIOMYCOTA				
35	*Abortiporus biennis* (Bull. : Fr.) Singer (= *Daedalea biennis*)		LeS		23, 38, SOMF
36	*Agaricus arvensis* Schaeff. : Fr.	+	Hu		3, 10
37	*A. augustus* Fr.*				SOMF
38	*A. campestris* L. : Fr.*	+	Hu		unpubl.
39	*A. silvaticus* Schaeff.	+	Hu		10, SOMF
40	*A. subfloccosus* (J.E. Lange) Pilát	+			32
41	*Albatrellus confluens* (Fr.) Kotl. & Pouzar	+	Hu		23
42	*A. cristatus* (Schaeff. : Fr.) Kotl. & Pouzar	+	Hu		17, 20, SOMF
43	*A. ovinus* (Schaeff. : Fr.) Kotl. & Pouzar	+	Hu		37, SOA
44	*Amanita battarrae* (Boud.) Bon	+	Mr		17, 20
45	*A. citrina* (Schaeff.) Pers.	+	Mr		17
46	*A. gemmata* (Fr.) Bertill.	+	Mr		17
47	*A. lividopallescens* (Secr. ex Boud.) Kühner & Romagn.	+	Mr		10, SOMF
48	*A. muscaria* (L. : Fr.) Hook.*	+	Mr		SOMF
49	*A. vaginata* (Bull. : Fr.) Vittad.	+	Mr		18, SOMF
50	*Amyloporia xantha* (Fr.) Bondartsev & Singer ex Bondartsev	+	LeS		10, SOA
51	*Antrodia serialis* (Fr. : Fr.) Donk	+	LeS		10, 38
52	*A. xantha* (Fr. : Fr.) Ryvarden		LeS		38
53	*Armillaria mellea* (Vahl : Fr.) P. Kumm.	+	LeS, LeP		10
54	*Asterophora parasitica* (Bull. : Fr.) Singer	+	M		3
55	*Astraeus hygrometricus* (Pers. : Fr.) Morgan	+	Hu		17, SOMF
56	*Auriscalpium vulgare* Gray	+	S	EN	10, 21, SOMF
57	*Bjerkandera adusta* (Willd. : Fr.) P. Karst.	+	LeS		10, 17, 37, SOA
58	*B. fumosa* (Pers. : Fr.) P. Karst		LeS		37, 38, SOA
59	*Bolbitius vitellinus* (Pers. : Fr.) Fr.*		Hu		SOMF
60	*Boletus calopus* Fr.	+	Mr		2, 17, SOMF
61	*B. chrysenteron* Bull.	+	Mr		2, 18, SOMF
62	*B. edulis* Bull. : Fr.	+	Mr		2, 18, SOMF
63	*B. erythropus* (Fr. : Fr.) Krombh.	+	Mr		2, 17, SOMF
64	*B. ferrugineus* Schaeff.	+	Mr		18
65	*B. luridus* Schaeff. : Fr.	+	Mr		2, 17, SOMF
66	*B. pinophilus* Pilát & Dermek	+	Mr		2, 18
67	*B. queletii* Schulzer s. lat.	+	Mr		2, 23
68	*B. subtomentosus* Pers. : Fr.	+	Mr		2, 17
69	*Bovista nigrescens* Pers. : Pers.	+	Hu		7, SOMF
70	*B. plumbea* Pers. : Pers.	+	Hu		10, SOMF
71	*Calocera viscosa* (Pers. : Fr.) Fr.	+	LeS		17
72	*Cantharellus cibarius* Fr. : Fr.	+	Mr		18, SOMF
73	*C. tubaeformis* (Bull. : Fr.) Fr.		Mr		23
74	*Cerrena unicolor* (Bull. : Fr.) Murrill		LeS		38
75	*Chalciporus piperatus* (Bull. : Fr.) Bataille	+	Mr		2, 18, SOMF
76	*Chlorophyllum rhacodes* (Vittad.) Vellinga	+	Hu		3, 10, 17, 34, SOMF
77	*Chroogomphus helveticus* (Singer) M.M. Moser	+	Mr		2, 16, 17
78	*Ch. rutilus* (Schaeff. : Fr.) O.K. Mill.	+	Mr		2, 17, 18
79	*Chrysomphalina chrysophylla* (Fr.) Clémençon	+	LeS		43

Tab. 1 cont.

80	*Claudopus variabilis* (Pers. : Fr.) Fr.*	+	LeS		SOMF
81	*Clavariadelphus ligula* (Schaeff. : Fr.) Donk		Mr	VU	20, 21, 23, SOMF
82	*Clavulina rugosa* (Bull.) J. Schröt.		Hu		23, SOMF
83	*Climacocystis borealis* (Fr. : Fr.) Kotl. & Pouzar	+	LeS		17
84	*Clitocybe clavipes* (Pers. : Fr.) P. Kumm.	+	St, Hu		10, 18, SOMF
85	*C. gibba* (Pers. : Fr.) P. Kumm.	+	Hu		3, 10, SOMF
86	*C. nebularis* (Batsch : Fr.) Quél.	+	Hu		10, 23
87	*C. odora* (Bull.) Fr.	+	St		17, SOMF
88	*C. radicellata* Gillet	+	St		10, SOMF
89	*C. suaveolens* (Schumach.) Fr.*	+	St		SOMF
90	*C. vermicularis* (Fr.) Gillet	+	Ad, St	EN	10, 31, SOMF
91	*Clitopilus prunulus* (Scop. : Fr.) Fr.*		Hu		SOMF
92	*Coltricia perennis* (L. : Fr.) Murrill	+	LeS		3, 17
93	*Conocybe blattaria* (Fr. : Fr.) Kühner	+	Hu		41, SOMF
94	*C. juniana* (Velen.) Hauskn. & Svrček	+	Hu		43
95	*C. pubescens* (Gillet) Kühner	+	C		10
96	*Coprinus atramentarius* (Bull. : Fr.) Fr.*	+	Hu, LeS		SOMF
97	*C. laanii* Kits van Wav.*	+	LeS		unpubl.
98	*C. lagopus* (Fr. : Fr.) Fr.		Hu		43
99	*C. radians* (Desm. : Fr.) Fr.*	+	LeS		unpubl.
100	*C. radiatus* (Bolton) Gray	+	C		43
101	*C. xanthothrix* Romagn.*	+	LeS		unpubl.
102	*Coriolopsis gallica* (Fr.) Ryvarden		LeS		37, SOA
103	*Cortinarius croceus* (Schaeff.) Gray	+	Mr		10, 18
104	*C. elegantior* (Fr.) Fr.	+	Mr		43
105	*C. glaucopus* (Schaeff. : Fr.) Fr.	+	Mr		41
106	*C. largus* Fr.	+	Mr		41, SOMF
107	*C. lustratus* Fr.*	+	Mr		SOMF
108	*C. sanguineus* (Wulfen) Fr.		Mr		10, 41
109	*C. traganus* (Fr.) Fr.	+	Mr		17, 41
110	*C. venetus* (Fr.) Fr.*	+	Mr		SOMF
111	*Cyathus striatus* (Huds. : Pers.) Hoffm.	+	LeS		17
112	*Cystoderma amianthinum* (Scop. : Fr.) Fayod	+	Br		10, SOMF
113	*C. carcharias* (Pers.) Fayod	+	St		10, 23, SOMF
114	*C. cinnabarinum* (Alb. & Schwein.) Fayod		St, Hu		23, SOMF
115	*C. granulosum* (Batsch : Fr.) Fayod	+	St		10, SOMF
116	*Dacrymyces chrysocomus* (Bull. : Fr.) Tul.	+	LeS		4
117	*Daedaleopsis confragosa* (Bolton : Fr.) J. Schröt.		LeS		37, SOA
118	*Datronia mollis* (Sommerf. : Fr.) Donk		LeS		37, SOA
119	*Endoptychum agaricoides* Czern.	+	Hu	EN	10, 21
120	*Entoloma hirtipes* (Schumach. : Fr.) M.M. Moser	+	Mr		41
121	*E. mammosum* (L.) Hesler	+	Hu		10, SOMF
122	*Fomitopsis pinicola* (Sw. : Fr.) P. Karst.	+	LeP		17, 28
123	*Funalia trogii* (Berk.) Bondartsev & Singer		LeS		38
124	*Galerina marginata* (Batsch : Fr.) Kühner	+	LeS		17
125	*G. vittiformis* (Fr.) Earle	+	LeS		28
126	*Ganoderma applanatum* (Pers.) Pat.	+	LeP, LeS		10, 17
127	*G. carnosum* Pat.	+	LeS		17
128	*G. lucidum* (Curtis : Fr.) P. Karst.	+	LeS		42
129	*G. resinaceum* Boud.		LeP, LeS		42
130	*Geastrum fimbriatum* Fr.	+	Hu		17, 28, 31
131	*G. melanocephalum* (Czern.) V.J. Staněk	+	Hu	VU	20, 21, 23
132	*G. pectinatum* Pers. : Pers.*	+	Hu		SOMF
133	*G. rufescens* Pers. : Pers.	+	Hu		31
134	*G. schmidelii* Vittad.		Hu		23

Tab. 1 cont.

135	*Gloeophyllum abietinum* (Bull. : Fr.) P. Karst.	+	LeS		10, 17, 34
136	*G. odoratum* (Wulfen : Fr.) Imazeki	+	LeS		10
137	*G. sepiarium* (Wulfen : Fr.) P. Karst.	+	LeS		3, 10, 17
138	*Gomphidius glutinosus* (Schaeff. : Fr.) Fr.	+	Mr		2, 3, SOMF
139	*Guepinia helvelloides* (DC. : Fr.) Fr.	+	LeS	EN	20, 21, 22
140	*Gymnopus peronatus* (Bolton : Fr.) Antonín, Halling & Noordel.		St		10, SOMF
141	*Gyrodon lividus* (Bull. : Fr.) Sacc.		Mr	CR	2, 20, 21, 23
142	*Gyroporus castaneus* (Bull. : Fr.) Quél.	+	Mr		2, SOMF
143	*G. cyanescens* (Bull. : Fr.) Quél.	+	Mr		2, 17, 18
144	*Handkea excipuliformis* (Scop. : Pers.) Pers.*	+	Hu		SOMF
145	*H. utriformis* (Bull. : Pers.) Pers.*	+	Hu		SOMF
146	*Hebeloma circinans* (Quél.) Sacc.*	+	Mr		SOMF
147	*H. edurum* Métrod ex Bon*	+	Mr		SOMF
148	*Hemimycena gracilis* (Quél.) Singer	+	Ad		43
149	*Heterobasidion annosum* (Fr. : Fr.) Bref.	+	LeP		10, 17, 33
150	*Hydnellum ferrugineum* (Fr. : Fr.) P. Karst.*	+	Mr		SOMF
151	*H. suaveolens* (Scop. : Fr.) P. Karst.	+	Mr	EN	20, 21, 41
152	*Hydnum repandum* L. : Fr.	+	Mr		18, SOMF
153	*Hygrocybe conica* (Scop. : Fr.) P. Kumm.	+	Hu		31
154	*H. persistens* (Britzelm.) Singer		Hu		41
155	*Hygrophorus agathosmus* (Fr.) Fr.	+	Mr		18
156	*H. calophyllus* P. Karst.		Mr		23
157	*H. chrysodon* (Batsch : Fr.) Fr.		Mr		23
158	*H. eburneus* (Bull. : Fr.) Fr.		Mr		18
159	*H. hypothejus* (Fr. : Fr.) Fr.		Mr		23
160	*H. pudorinus* (Fr.) Fr.*		Mr		SOMF
161	*Hypholoma capnoides* (Fr.) P. Kumm.	+	LeS		18
162	*H. fasciculare* (Huds. : Fr.) Quél.*		LeS		SOMF
163	*H. sublateritium* (Schaeff.) Quél.	+	LeS		18, SOMF
164	*Incrustoporia nivea* (Jungh.) Ryvarden		LeS		38
165	*Inocybe bresadolae* Massee	+	Mr		31
166	*I. brunnea* Quél.	+	Mr		31
167	*I. hystrix* (Fr.) P. Karst.*		Mr		SOMF
168	*I. lanuginosa* (Bull. : Fr.) P. Kumm.	+	Mr		43
169	*I. leucoblema* Kühner	+	Mr		31
170	*I. pisciodora* Donadini & Riousset*	+	Mr		unpubl.
171	*I. praetervisa* Quél.		Mr		41
172	*I. rimosa* (Bull.) P. Kumm.	+	Mr		41
173	*I. whitei* (Berk. & Broome) Sacc.*	+	Mr		SOMF
174	*Inonotus hastifer* Pouzar		LeS		38
175	*Ischnoderma benzoinum* (Wahlenb. : Fr.) P. Karst.	+	LeS		10, 36, SOA
176	*Kuehneromyces mutabilis* (Schaeff. : Fr.) Singer & A.H. Sm.*		LeS		SOMF
177	*Laccaria amethystina* Cooke*		Mr		SOMF
178	*Lactarius aurantiacus* (Pers.) Gray	+	Mr		18
179	*L. blennius* (Fr.) Fr.	+	Mr		17, 18, SOMF
180	*L. bresadolianus* Singer*	+	Mr		SOMF
181	*L. circellatus* (Battarra) Fr.		Mr		41
182	*L. hepaticus* Plowr.	+	Mr		43
183	*L. picinus* Fr.		Mr		41
184	*L. piperatus* (L. : Fr.) Pers.	+	Mr		3, SOMF
185	*L. rufus* (Scop. : Fr.) Fr.	+	Mr		17
186	*L. sanguifluus* Fr.		Mr		41
187	*L. scrobiculatus* (Scop.) Fr.*	+	Mr		SOMF
188	*L. semisanguifluus* R. Heim & Leclair		Mr		41
189	*L. subdulcis* (Bull. : Fr.) Gray	+	Mr		17
190	*L. volemus* (Fr.) Fr.*		Mr		SOMF

Tab. 1 cont.

191	*Lentinus tigrinus* (Bull. : Fr.) Fr.*		LeS		SOMF
192	*Lenzites warnieri* Durieu & Mont.		LeS	NT	21, 38
193	*Lepiota aspera* (Pers. : Fr.) Quél.		Hu		23, SOMF
194	*L. cristata* (Bolton : Fr.) P. Kumm.*		Hu		SOMF
195	*Lepista nuda* (Bull. : Fr.) Cooke	+	Hu		10
196	*Leucoagaricus leucothites* (Vittad.) M.M. Moser ex Bon*	+	Hu		SOMF
197	*Lycoperdon atropurpureum* Vittad.	+	Hu		10
198	*L. decipiens* Durieu & Mont.*	+	Hu		SOMF
199	*L. echinatum* Pers. : Pers.		Hu		41
200	*L. ericetorum* Pers. var. *ericetorum*	+	Hu		5, 8, SOMF
201	*L. marginatum* Vittad.	+	Hu		9, SOMF
202	*L. molle* Pers. : Pers.*		Hu		SOMF
203	*L. perlatum* Pers. : Pers.	+	Hu		10
204	*L. pyriforme* Schaeff. : Pers.*	+	LeS		SOMF and unpubl.
205	*L. spadiceum* Schaeff.		Hu		8, SOMF
206	*L. umbrinum* Pers. : Pers.	+	Hu		10, SOMF
207	*Macrolepiota procera* (Scop. : Fr.) Singer	+	Hu		3, 10, 17, 34, SOMF
208	*Marasmiellus roseus* (M.M. Moser) Kuyper & Noordel.		Hu		41
209	*Marasmius alliaceus* (Jacq. : Fr.) Fr.	+	St, LeS		17, 18, SOMF
210	*M. androsaceus* (L. : Fr.) Fr.	+	Ad, LeS		10, 17, 43
211	*M. caryophylleus* (Schaeff.) J. Schröt.	+	St		3
212	*M. epiphyllus* (Pers.) Fr.	+	St		10
213	*M. insititius* Fr.	+	St		3
214	*M. oreades* (Bolton : Fr.) Fr.	+	Mr		3, 10, 31, SOMF
215	*M. rotula* (Scop. : Fr.) Fr.	+	LeS		3, 10
216	*M. scorodonius* (Fr. : Fr.) Fr.	+	LeS, St		10
217	*M. splachnoides* (Hornem.) Fr.	+	Ad		3
218	*M. wynnei* Berk. & Broome	+	Ad, Fd, St		31
219	*Megacollybia platyphylla* (Pers. : Fr.) Kotl. & Pouzar	+	LeS		10, 41, SOMF
220	*Melanoleuca bataillei* Melençon	+	St		41
221	*M. cognata* (Fr.) Konrad & Maubl.	+	St		31, SOMF
222	*M. exscissa* (Fr.) Singer	+	St		10, 41
223	*M. grammopodia* (Bull. : Fr.) Murrill	+	St		10, SOMF
224	*M. melaleuca* (Pers. : Fr.) Murrill*	+	Hu		SOMF
225	*M. oreina* (Fr.) Kühner & Maire	+	St		10, 41, SOMF
226	*M. subalpina* (Britzelm.) Brezinsky & Stangl	+	St		10, 41, SOMF
227	*Micromphale perforans* (Hoffm. : Fr.) Gray		Ad, St		23
228	*Mycena crocata* (Schrad.) Fr.	+	Fd, St		18
229	*M. epipterygia* (Scop. : Fr.) Gray*	+	St, Ad		SOMF
230	*M. galericulata* (Scop. : Fr.) Schaeff.	+	LeS		17, 18, SOMF
231	*M. leptocephala* (Pers. : Fr.) Gillet*	+	Hu		SOMF
232	*M. maculata* P. Karst.*	+	LeS		SOMF
233	*M. polygramma* (Bull.) Gray	+	LeS		10, SOMF
234	*M. pura* (Pers.) Sacc.	+	St		10, 17, 18
235	*M. renati* Quél.	+	LeS		10, 41
236	*M. rosella* (Fr.) P. Kumm.		Ad, St		23
237	*M. vitilis* (Fr.) Quél.		LeS		41, SOMF
238	*Naucoria striatula* P.D. Orton		Mr		43
239	*Neolentinus lepideus* (Fr. : Fr.) Redhead & Ginns	+	LeS		10
240	*Onnia leporina* (Fr.) H. Jahn		LeS		38
241	*O. tomentosa* (Fr. : Fr.) P. Karst.	+	LeS		10, 17, 38
242	*Oudemansiella mucida* (Schrad. : Fr.) Höhn.		LeS, LeP		10

Tab. 1 cont.

243	*Panaeolus semiovatus* (Sowerby. : Fr.) S. Lundell & Nannf.		C		10, SOMF
244	*Paxillus involutus* (Batsch : Fr.) Fr.	+	Mr		2, 17
245	*Peniophora rufa* (Pers. : Fr.) Boidin*	+	LeS		unpubl.
246	*Phaeolus schweinitzii* (Fr. : Fr.) Pat.	+	LeP		10, 17, 34
247	*Phellinus chrysoloma* (Fr.) Donk	+	LeP, LeS		38
248	*Ph. conchatus* (Pers. : Fr.) Quél.	+	LeP, LeS		39
249	*Ph. hartigii* (Allesch. & Schnabl) Pat.	+	LeP		10, 39
250	*Ph. igniarius* (L. : Fr.) Quél.	+	LeP, LeS		39
251	*Ph. nigrolimitatus* (Romell) Bourdot & Galzin	+	LeS	NT	21, 39
252	*Ph. pini* (Brot.) Bondartsev & Singer	+	LeP		10, 17, 39
253	*Ph. torulosus* (Pers.) Bourdot & Galzin*		LeP, LeS		SOMF
254	*Pholiota astragalina* (Fr.) Singer	+	LeS		43
255	*Ph. highlandensis* (Peck) A.H. Sm. & Hesler	+	Carb		10, 31
256	*Ph. squarrosa* (Weigel : Fr.) P. Kumm.*	+	LeP, LeS		SOMF
257	*Phylloporus pelletieri* (Lév.) Quél. (*Ph. rhodoxanthus* (Schwein. : Fr.) Bres.)	+	Mr	EN	2, 17, 20, 21
258	*Phyllotopsis nidulans* (Pers. : Fr.) Singer		LeS	NT	20, 21
259	*Piptoporus betulinus* (Bull. : Fr.) P. Karst.	+	LeP		10
260	*Pleurotus cornucopiae* (Paulet) Rolland*		LeS		SOMF
261	*P. ostreatus* (Jacq. : Fr.) Quél.	+	LeS, LeP		10
262	*Pluteus cervinus* Schaeff.	+	LeS		17
263	*Polyporus arcularius* (Batsch : Fr.) Fr.	+	LeS		10, 23
264	*P. brumalis* (Pers. : Fr.) Fr.	+	LeS		10, 17
265	*P. circinatus* Fr. : Fr.	+	LeS		3
266	*P. melanopus* (Pers. : Fr.) Fr.	+	LeP, LeS		17, 23, 38
267	*P. neesii* Fr.	+	LeS		3
268	*P. squamosus* (Huds. : Fr.) Fr.	+	LeP, LeS		10
269	*P. varius* (Pers. : Fr.) Fr.	+	LeS		17, 41
270	*Poria lindbladii* (Berk.) Cooke		LeS		38
271	*Postia stipica* (Pers. : Fr.) Jülich		LeS		38
272	*Psathyrella ammophila* (Durieu & Lev.) P.D. Orton*		Hu		SOMF
273	*P. gracilis* (Fr. : Fr.) Quél.	+	Hu		3
274	*P. pennata* (Fr.) A. Pearson & Dennis	+	Carb		10, 41
275	*Pseudohydnum gelatinosum* (Scop. : Fr.) P. Karst.	+	LeS		17
276	*Psilocybe montana* (Pers. : Fr.) P. Kumm.	+	Hu		43, SOMF
277	*P. semilanceata* (Fr.) P. Kumm.	+	C, Hu		43
278	*Pycnoporus cinnabarinus* (Jacq. : Fr.) Fr.	+	LeS		10, 38
279	*Ramaria formosa* (Pers.) Quél.	+	Hu		18, 23, SOMF
280	*Rhizopogon roseolus* (Corda) Th. Fr.	+	Mr		18, 31, SOMF
281	*Rhodocollybia butyracea* (Bull.) Antonín & Noordel.	+	St		10, 18, SOMF
282	*Rickenella swartzii* (Fr. : Fr.) Kuyper	+	Br		43
283	*Rigidoporus ulmarius* (Sowerby : Fr.) Imazeki		LeP		38
284	*Russula adusta* (Pers.) Fr.	+	Mr		3, SOMF
285	*R. aeruginea* Fr.*	+	Mr		SOMF
286	*R. alutacea* (Fr.) Fr.*		Mr		SOMF
287	*R. amethystina* Quél.	+	Mr	EN	21, 41
288	*R. aurea* Pers.	+	Mr		18, 41
289	*R. badia* Quél.	+	Mr		41
290	*R. caerulea* (Pers.) Fr.	+	Mr		3
291	*R. cyanoxantha* (Schaeff.) Fr.	+	Mr		17, 18, SOMF
292	*R. delica* Fr.	+	Mr		18, SOMF
293	*R. foetens* (Pers. : Fr.) Fr.	+	Mr		18
294	*R. grata* Britzelm.*	+	Mr		SOMF
295	*R. grisea* (Batsch) Fr.	+	Mr		41
296	*R. integra* (L.) Fr.	+	Mr		18, 41

Tab. 1 cont.

297	*R. melliolens* Quél.	+	Mr		41
298	*R. mustelina* Fr.*		Mr		SOMF
299	*R. paludosa* Britzelm.	+	Mr		18, 41
300	*R. puellaris* Fr.		Mr		41
301	*R. rosea* Pers.		Mr		41, SOMF
302	*R. sanguinea* (Bull.) Fr.	+	Mr		43
303	*R. xerampelina* (Schaeff.) Fr.*		Mr		SOMF
304	*Sarcodon imbricatus* (L. : Fr.) P. Karst.	+	Mr		10; SOMF
305	*S. leucopus* (Pers.) Maas Geest. & Nannf.	+	Mr	CR	21, 23, 41, SOMF
306	*Schizopora paradoxa* (Schrad. : Fr.) Donk*	+	LeS		unpubl.
307	*Scleroderma verrucosum* (Bull. : Pers.) Pers.*	+	Hu		SOMF
308	*Skeletocutis amorpha* (Fr. : Fr.) Kotl. & Pouzar		LeS		38
309	*Sparassis crispa* (Wulfen : Fr.) Fr.	+	Mr	EN	21, 35
310	*Stereum hirsutum* (Willd. : Fr.) Gray	+	LeS		3, 17, 28
311	*S. sanguinolentum* (Alb. & Schwein.) Fr.	+	LeS		17, 38
312	*S. spadiceum* (Pers.) Quél.	+	LeS		3
313	*Strobilomyces strobilaceus* (Scop. : Fr.) Berk.		Mr	VU	1, 2, 20, 21, 41, SOMF
314	*Strobilurus esculentus* (Wulfen : Fr.) Singer	+	S		10, 18, 41
315	*S. stephanocystis* (Kühner & Romagn. ex Hora) Singer	+	S		10, 18, SOMF
316	*S. tenacellus* (Pers. : Fr.) Singer	+	S		10, SOMF
317	*Stropharia aeruginosa* (Curtis : Fr.) Quél.	+	Hu		18, 23
318	*S. coronilla* (Bull. : Fr.) Fr.	+	Hu		10
319	*S. semiglobata* (Batsch : Fr.) Quél.	+	C		17, 28
320	*S. squamosa* (Pers. : Fr.) Quél.	+	LeS		10
321	*Suillus bovinus* (L. : Fr.) Roussel	+	Mr		2, 3
322	*S. granulatus* (L. : Fr.) Roussel	+	Mr		2, 34
323	*S. grevillei* (Klotzsch) Singer		Mr		2, 10, SOMF
324	*S. luteus* (L. : Fr.) Roussel	+	Mr		2, 43
325	*S. sibiricus* (Singer) Singer subsp. *helveticus* Singer	+	Mr	EN	1, 2, 17, 18, 20, 21, 40, SOMF
326	*S. variegatus* (Schwartz : Fr.) Richon & Roze	+	Mr		1, 2, 17, SOMF
327	*Thelephora palmata* (Scop. : Fr.) Fr.*	+	Mr		SOMF
328	*Tomentella crinalis* (Fr.) M.J. Larsen	+	LeS		41
329	*Trametes gibbosa* (Pers. : Fr.) Fr.		LeS		38
330	*T. hirsuta* (Wulfen : Fr.) Pilát	+	LeS		17, 38
331	*T. pubescens* (Schumach. : Fr.) Pilát		LeS		38
332	*T. versicolor* (L. : Fr.) Lloyd	+	LeS		10, 17, 38
333	*Trichaptum abietinum* (Dicks. : Fr.) Ryvarden	+	LeS		10, 17
334	*T. fuscoviolaceum* (Ehrenb. : Fr.) Ryvarden		LeS		38
335	*Tricholoma albobrunneum* (Pers.) P. Kumm.		Mr		23, SOMF
336	*T. atrosquamosum* (Chevall.) Sacc.	+	Mr		41
337	*T. colossus* (Fr.) Quél.	+	Mr	CR	10, 20, 21, 41
338	*T. flavovirens* (Pers. : Fr.) S. Lundell		Mr		23
339	*T. imbricatum* (Fr.) P. Kumm.*	+	Mr		SOMF
340	*T. portentosum* (Fr. : Fr.) Quél.		Mr		23
341	*T. saponaceum* (Fr. : Fr.) P. Kumm.	+	Mr		17, 18, SOMF
342	*T. terreum* (Schaeff. : Fr.) Quél.*		Mr		SOMF
343	*Tricholomopsis rutilans* (Schaeff. : Fr.) Singer	+	LeS		10, 18, SOMF
344	*Tylopilus pseudoscaber* Secr. ex A.H. Smith & Thiers (*Porphyrellus porphyrosporus* (Fr. & Hök.) E.-J. Gilbert)	+	Mr	VU	1, 2, 10, 17, 20, 21, SOMF
345	*Tyromyces caesius* (Schrad. : Fr.) Murrill		LeS		38
346	*T. subcaesius* A. David	+	LeS		10

347	*T. tephroleucus* (Fr. : Fr.) Donk		LeS		38
348	*Vascellum pratense* (Pers. : Pers.) Kreisel		Hu		6
349	*Xeromphalina campanella* (Batsch : Fr.) Maire	+	LeS		17, 18, SOMF
350	*Xerula radicata* (Relhan : Fr.) Fr.	+	LeS		17, 18, 43

Explanations: *New records for the Pirin Mts; **National Park Pirin; ***Ecological-trophic groups: **Ad** – needle-debris saprotrophs, **Fd** – leaf-debris saprotrophs, **S** – cone saprotrophs, **St** – litter saprotrophs, **Hu** – humus saprotrophs, **LeS** – wood saprotrophs, **Br** – moss saprotrophs, **C** – coprotrophs, **M** – fungal saprotrophs, **Carb** – carbotrophs, **Mr** – mycorrhizal fungi, **LeP** – wood parasites; ****IUCN categories: **CR** – Critically Endangered, **EN** – Endangered, **VU** – Vulnerable, **NT** – Near Threatened; *****For the assigned numbers of literature sources, see the references rubric

List of synonyms: *Agaricus macrosporus* (F.H Møller & Jul. Schäff.) Pilát. = ***Agaricus albertii,*** *Anellaria semiovata* (Sowerby. : Fr.) A. Pearson & Dennis = ***Panaeolus semiovatus,*** *Boletus piperatus* Bull. : Fr. = ***Chalciporus piperatus,*** *Caldesiella ferruginosa* (Fr.) Sacc. = ***Tomentella crinalis,*** *Calvatia excipuliformis* (Scop. : Pers.) Perdeck = ***Handkea excipuliformis,*** *Calvatia utriformis* (Bull. : Pers.) Jaap = ***Handkea utriformis,*** *Clavaria formosa* Pers. = ***Ramaria formosa,*** *Clavaria ligula* Schaeff. : Fr. = ***Clavariadelphus ligula,*** *Clavaria rugosa* Bull. = ***Clavulina rugosa,*** *Clitocybe infundibuliformis* (Schaeff.) Fr. = ***Clitocybe gibba,*** *Collybia butyracea* (Bull. : Fr.) P. Kumm. = ***Rhodocollybia butyracea,*** *Collybia peronata* (Bolton : Fr.) P. Kumm. = ***Gymnopus peronatus,*** *Conocybe magnicapitata* P.D. Orton = ***Conocybe juniana,*** *Coriolopsis trogii* (Berk.) Domański = ***Funalia trogii,*** *Coriolus hirsutus* (Wulf. : Fr.) Pat. = ***Trametes hirsuta,*** *Crepidotus variabilis* (Pers. : Fr.) P. Kumm. = ***Claudopus variabilis,*** *Cystoderma terrei* (Berk. & Broome) Harmaja = ***Cystoderma cinnabarinum,*** *Daedalea biennis* (Bull.) Fr. = ***Abortiporus biennis,*** *Dasyscyphus bicolor* (Bull. : Fr.) Fuckel = ***Lachnum bicolor,*** *Dasyscyphus brevipilus* Le Gal = ***Lachnum brevipilosum,*** *Dasyscyphus clandestinus* (Bull. : Fr.) Fuckel = ***Brunnipila clandestine,*** *Dasyscyphus mollissimus* (Lasch) Nannf. = ***Lasiobelonium mollissimum,*** *Dasyscyphus nidulus* (J.C. Schmidt & Kunze) Massee = ***Lasiobelonium nidulum,*** *Dasyscyphus virgineus* (Batsch : Fr.) Gray = ***Lachnum virgineum,*** *Deconica physaloides* (Bull.) P. Karst. = ***Psilocybe montana,*** *Dermocybe crocea* (Schaeff.) M.M. Moser = ***Cortinarius croceus,*** *Dermocybe punicea* (P.D. Orton) M.M. Moser = ***Cortinarius sanguineus,*** *Diplomitoporus lindbladii* (Berk.) Gilb. & Ryvarden = ***Poria lindbladii,*** *Discina perlata* (Fr. : Fr.) Fr. = ***Discina ancilis,*** *Echinoderma asperum* (Pers. : Fr.) Bon = ***Lepiota aspera,*** *Fomes pinicola* (Sw.) Fr. = ***Fomitopsis pinicola,*** *Galerina rubiginosa* (Pers.) Kühner = ***Galerina vittiformis,*** *Ganoderma atkinsonii* H. Jahn, Kotl. & Pouzar = ***Ganoderma carnosum,*** *Geastrum nanum* Pers. = ***Geastrum schmidelii,*** *Geastrum sessile* (Sowerby) Pouzar = ***Geastrum fimbriatum,*** *Gomphidius rutilus* (Schaeff. : Fr.) S. Lundell = ***Chroogomphus rutilus,*** *Gyrocephalus rufus* (Jacq.) Bref. = ***Guepinia helvelloides,*** *Helotium clavus* (Alb. & Schwein.) Gillet = ***Cudoniella clavus,*** *Hemitrichia vesparium* (Batsch) T. Macbr. = ***Metatrichia vesparium,*** *Herpotrichia nigra* R. Hartig = ***Herpotrichia juniperi,*** *Hirschioporus abietinus* (Dicks. : Fr.) Donk = ***Trichaptum abietinum,*** *Hydnum imbricatum* L. : Fr. = ***Sarcodon imbricatus,*** *Hygrocybe acutoconica* (Clem.) Singer = ***Hygrocybe persistens,*** *Inocybe fastigiata* (Schaeff. : Fr.) Quél. = ***Inocybe rimosa,*** *Inocybe longicystis* G.F. Atk. = ***Inocybe lanuginosa,*** *Inocybe pudica* Kühner = ***Inocybe whitei,*** *Lachnella oblongospora* (G.G.Hahn. & Ayers) Seaver = ***Dasyscyphus oblongosporus,*** *Lactarius mitissimus* (Fr.) Fr. = ***Lactarius aurantiacus,*** *Lentinus lepideus* (Fr. : Fr.) Fr. = ***Neolentinus lepideus,*** *Lenzites abietina* (Bull.) Fr. = ***Gloeophyllum abietinum,*** *Lenzites sepiaria* (Wulfen : Fr.) Fr. = ***Gloeophyllum sepiarium,*** *Lepiota acutesquamosa* (Weinm.) P. Kumm. = ***Lepiota aspera,*** *Leucoporus arcularius* (Batsch : Fr.) Quél. = ***Polyporus arcularius,*** *Marasmius perforans* (Hoffm. : Fr.) Fr. = ***Micromphale perforans,*** *Macrolepiota rhacodes* (Vittad.) Singer = ***Chlorophyllum rhacodes,*** *Melanoleuca cinerascens* D.A. Reid = ***Melanoleuca exscissa,*** *Morchella conica* Pers. = ***Morchella vulgaris,*** *Mycena gracilis* (Quél.) Kühner = ***Hemimycena gracilis,*** *Mycena chlorinella* (J.E. Lange) Singer = ***Mycena leptocephala,*** *Mycena swartzii* (Fr. : Fr.) A.H. Sm. = ***Rickenella swartzii,*** *Nyctalis parasitica* (Bull. : Fr.) Fr. = ***Asrerophora parasitica,*** *Oligoporus caesius* (Schrad. : Fr.) Gilb. & Ryvarden = ***Tyromyces caesius,*** *Oligoporus stipticus* (Pers. : Fr.) Gilb. & Ryvarden = ***Postia stipica,*** *Oligoporus tephroleucus* (Fr. : Fr.) Gilb. & Ryvarden = ***Tyromyces tephroleucus,*** *Omphalina chrysophylla* (Fr.) Murrill = ***Chrysomphalina chrysophylla,*** *Omphalina rosella* (M.M. Moser) M.M. Moser = ***Marasmiellus roseus,*** *Oudemansiella platyphylla* (Pers. : Fr.) M.M. Moser = ***Megacollybia platyphylla,*** *Oudemansiella radicata* (Relhan : Fr.) Singer = ***Xerula radicata,*** *Peziza anthracophila* Dennis = ***Peziza echinospora,*** *Peziza lilacina* (Boud.) Sacc. & Traverso = ***Peziza moseri,*** *Polystictus perennis* (L. : Fr.) Fr. = ***Coltricia perennis,*** *Psaliota arvensis* (Schaeff. : Fr.) Gillet = ***Agaricus arvensis,*** *Phialea cyathoidea* (Bull.) Gillet = ***Crocicreas cyathoideum,*** *Pholiota carbonaria* (Batsch : Fr.) Singer = ***Pholiota highlandensis,*** *Pholiotina blattaria* (Fr.) Fayod = ***Conocybe blattaria,*** *Polyporus nummularius* (Bull. : Fr.) Pers. = ***Polyporus varius,*** *Polyporus perennis* (L. : Fr.) Fr. = ***Coltricia perennis,*** *Porphyrellus pseudoscaber* Secr. ex Singer = ***Porphyrellus porphyrosporus,*** *Psilocybe physaloides* (Bull.) Quél. = ***Psilocybe montana,*** *Rhytisma empetri* Fr. = ***Duplicaria empetri, Russula aurata*** **(With.) Fr. =** *Russula aurea, Russula laurocerasi* Melzer = ***Russula grata,*** *Skeletocutis nivea* (Jungh.) Jean Keller = ***Incrustoporia nivea,*** *Spongipellis borealis* (Fr. : Fr.) Pat. = ***Climacocystis borealis,*** *Strobilomyces floccopus* (Vahl : Fr.) P. Karst. = ***Strobilomyces strobilaceus,*** *Stropharia semiglobata* (Batsch : Fr.) Quél. var. *stercoraria* (Bull. : Fr.) K.-D. Jahnke = ***Stropharia semiglobata,*** *Trametes trogii* Berk. = ***Funalia trogii,*** *Tremiscus helvelloides* (DC.) Donk = ***Guepinia helvelloides,*** *Trichaptum hollii* (J.C. Schmidt) Rea = ***Trichaptum fuscoviolaceum,*** *Trichaster melanocephalus* Czern. = ***Geastrum melanocephalum,*** *Vascellum depressum* (Bonord.) F. Šmarda = ***Vascellum pretense,*** *Xerocomus chrysenteron* (Bull.) Quél. = ***Boletus chrysenteron,*** *Xerocomus spadiceus* (Fr.) Quél. = ***Boletus ferrugineus,*** *Xerocomus subtomentosus* (L. : Fr.) Fr. = ***Boletus subtomentosus***

RESULTS

Species composition. The current knowledge on the macroscopic fungi, both for ascomycetes and basidiomycetes, of the Pirin Mts comprises 350 species (Tab. 1). For the ascomycetes, 7 orders, 17 families, 26 genera, and 34 species are established. Regarding basidiomycetes, there are found 10 orders, 45 families, 128 genera, and 316 species.

The families with highest species diversity are: *Tricholomataceae* (54 species or 15.4 % of the total species number), *Russulaceae* (33 species, 9.4 %), *Polyporaceae* (30 species, 8.6 %), *Cortinariaceae* and *Marasmiaceae* (19 species, 5.4 %), *Lycoperdaceae* (15 species, 4.3 %), *Strophariaceae* and *Boletaceae* (13 species, 3.7 %), *Agaricaceae* and *Hymenochaetaceae* (11 species, 3.1 %). Regarding the species diversity, the richest genera are: *Russula* (20 species), *Lactarius* (13), *Lycoperdon, Marasmius,* and *Mycena* (10), *Inocybe* and *Boletus* (9), *Cortinarius* and *Tricholoma* (8), *Clitocybe, Melanoleuca, Phellinus,* and *Polyporus* (7), *Coprinus, Amanita, Hygrophorus,* and *Suillus* (6).

The amount of 263 species (75.1 % of the total species number in the mountain) was estimated for the Pirin National Park so far. Twenty-six species of ascomycetes and 237 species of basidiomycetes were established (Tab. 1).

The mycological investigations of the reserves in Pirin Mts are still in an initial stage. Scanty studies were conducted only in Bayuvi Doupki–Dzhindzhiritsa Reserve. There are no records in the literature on the macroscopic fungi in the Yulen Resrve. In Bayuvi Doupki–Dzhindzhiritsa Reserve, 58 species were established (16.6 % of the total species number in the mountain and 22 % from the species, found in Pirin National Park), as follows: *Amanita vaginata, Boletus chrysenteron, B. edulis, B. erythropus, B. ferrugineus, B. luridus, B. pinophilus, B. piperatus, Cantharellus cibarius, Chroogomphus rutilus, Clitocybe clavipes, Coprinus laanii, C. radians, C. xanthothrix, Cortinarius croceus, Cudoniella clavus, Fomitopsis pinicola, Galerina marginata, Gloeophyllum abietinum, G. sepiarium, Gyroporus cyanescens, Heterobasidion annosum, Hydnum repandum, Hygrophorus agathosmus, H. eburneus, Hypholoma capnoides, H. sublateritium, Inocybe pisciodora, Lactarius aurantiacus, L. blennius, Lycoperdon pyriforme, Marasmius alliaceus, Mycena crocata, M. galericulata, M. pura, Peniophora rufa, Phellinus conchatus, Ph. nigrolimitatus, Ramaria formosa, Rhizopogon roseolus, Rhodocollybia butyracea, Russula adusta, R. aurea, R. badia, R. cyanoxantha, R. delica, R. foetens, R. integra, R. paludosa, Strobilurus esculentus, S. stephanocystis, Stropharia aeruginosa, S. semiglobata* var. *stercoraria, Suillus sibiricus, Tricholoma saponaceum, Tricholomopsis rutilans, Xeromphalina campanella,* and *Xerula radicata.* These data are still preliminary and do not represent the potential diversity of the Pirin Mts reserves.

During the field investigations as well as after the inventory of SOMF, 60 species were found as new for the Pirin Mts, namely *Gyromitra esculenta, Helvella acetabulum, H. lacunosa, Aleuria aurantia, Sarcoscypha coccinea, Caloscypha fulgens, Agaricus augustus, A. campestris, Lepiota cristata, Leucoagaricus leucothites, Bolbitius vitellinus, Hebeloma circinans, H. edurum, Coprinus atramentarius, C. laanii, C. radians, C. xanthothrix, Psathyrella ammophila, Cortinarius lustratus, C. venetus, Inocybe hystrix, I. pisciodora, I. whitei, Claudopus variabilis, Clitopilus prunulus, Laccaria amethystina, Handkea excipuliformis, H. utriformis, Lycoperdon decipiens, L. molle, L. pyriforme, Pleurotus cornucopiae, Amanita muscaria, Hypholoma fasciculare, Kuehneromyces mutabilis, Pholiota squarrosa, Clitocybe suaveolens, Hygrophorus pudorinus, Melanoleuca melaleuca, Mycena epipterygia, M. leptocephala, M. maculata, Tricholoma imbricatum, T. terreum, Scle-*

roderma verrucosum, Phellinus torulosus, Schizopora paradoxa, Geastrum pectinatum, Lentinus tigrinus, Peniophora rufa, Lactarius bresadolianus, L. scrobiculatus, L. volemus, Russula ***aeruginea, R. alutacea, R. grata, R. mustelina, R. xerampelina, Hydnellum ferrugineum,*** and *Thelephora palmata*. *Inocybe pisciodora* is a new record for Bulgaria.

In order to establish the actual fungal diversity in the Pirin Mts, purposeful and systematic mycological studies are needed. In the course of these studies, numerous new records for the mountain and the country are expected.

Ecological-trophic structure. Twelve ecological-trophic groups of fungi were determined in the plant communities of Pirin Mts (Tab. 1). Analysis of the published data showed that mycorrhizal fungi represented the highest number of species (33 % of the total species number), followed by wood saprotrophs (32 %), humus saprotrophs (19 %), and litter saprotrophs (8 %). The affiliation of the macromycetes to the respective groups is as follows: needle-debris saprotrophs (Ad) – 9 species, leaf-debris saprotrophs (Fd) – 9, cone saprotrophs (S) – 6, litter saprotrophs (St) – 29, humus saprotrophs (Hu) – 66, wood saprotrophs (LeS) – 111, moss saprotrophs (Br) – 3, coprotrophs (C) – 5, fungal saprotrophs (M) – 1, carbotrophs (Carb) – 5, mycorrhizal fungi (Mr) – 114, and wood parasites (LeP) – 19 (Fig. 2).

Among the biotrophs, there are species with high economic importance: *Armillaria mellea* (on variety of trees), *Phellinus conchatus* (on *Salix*), *Ph. hartigii* (on *Abies alba*), *Ph. igniarius* (on *Salix*), *Ph. pini* (on *Pinus heldreihii, P. mugo*), *Fomitopsis pinicola* (on *Picea abies, Abies alba, Pinus peuce*), *Heterobasidion annosum* (on *Picea abies, Abies alba*), *Phaeolus schweinitzii* (on *Picea abies*), etc.

Economically important edible fungi and species of conservation significance. On the studied territory, 9 species of economic importance were found: *Agaricus arvensis, A. campestris, A. silvaticus, Boletus edulis, B. pinophillus, Cantharellus cibarius, Lepista nuda, Macrolepiota procera, Marasmius oreades.*

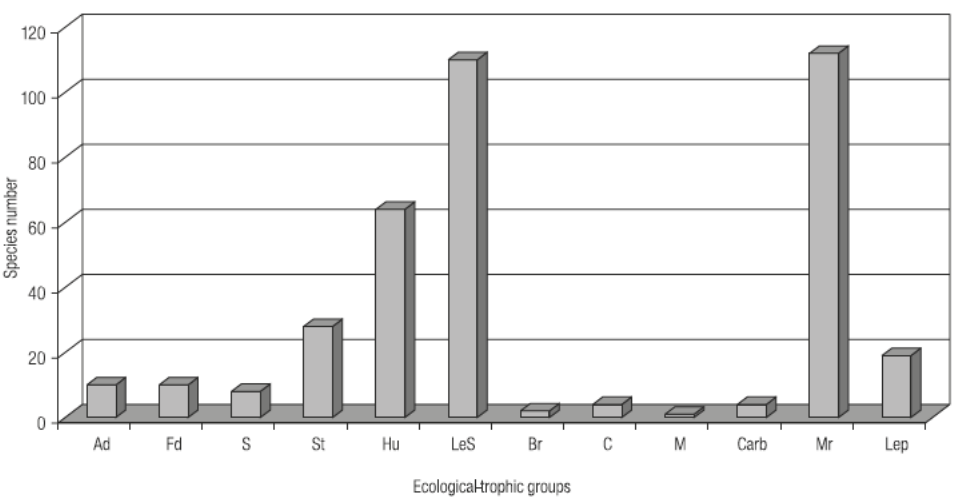

Fig. 2. Arrangement of fungal species in ecological-trophic groups.
Abbreviations: Ad – needle-debris saprotrophs, Fd – leaf-debris saprotrophs, S – cone saprotrophs, St – litter saprotrophs, Hu – humus saprotrophs, LeS – wood saprotrophs, Br – moss saprotrophs, C – coprotrophs, M – fungal saprotrophs, Carb – carbotrophs, Mr – mycorrhizal fungi, LeP – wood parasites.

In the last few years, the trade in economically important mushroom species has been gaining more attention and, thereupon, a huge progress. Such valuable edible species are *Boletus edulis, B. pinophillus, Cantharellus cibarius, Marasmius oreades,* etc. However, the activity of gathering and buying up mushrooms has lots of disadvantages, the most important of which is the lack of a normative base for the wild mushrooms in Bulgaria, regulating this process.

Our analysis arrived at the conclusion that the populations of *Boletus edulis*, *B. pinophilus,* and *Cantharellus cibarius* needed further restrictive regime of collection. The gathering of these mushrooms should be permited only in the areas of resorts, chalets, and along the mountain roads.

In the Pirin Mts, there are distributed the following 25 species of conservation significance: Critically Endangered (CR) – 4 species (*Elaphomyces granulatus, Tricholoma colossus, Gyrodon lividus,* and *Sarcodon leucopus*), Endangered (EN) – 9 species (*Endoptychum* ***agaricoides, Clitocybe vermicularis, Phylloporus pelletieri, Suillus sibiricus,*** *Sparassis crispa, Auriscalpium vulgare, Russula amethystina, Hydnellum suaveolens,* and *Guepinia helvelloides*), Vulnerable (VU) – 7 species (*Discina ancilis, Otidea onotica, Urnula craterium, Strobilomyces strobilaceus, Tylopilus pseudoscaber, Geastrum melanocephalum,* and *Clavariadelphus ligula*), Near Threatened (NT) – 5 species (*Spathularia* ***flavida, Morchella elata, Phyllotopsis nidulans, Phellinus nigrolimitatus,*** and *Lenzites warnieri*).

REFERENCES

Assyov B. 2004. New data about Boletales in Bulgaria. Mycol. Balcan. 1: 85-88. [1]

Assyov B., Denchev C. M. 2004. Preliminary checklist of Boletales s. str. in Bulgaria. Mycol. Balcan. 1: 195-208. [2]

Burzakov B. 1928. [Contribution to the study of the fungus flora of Bulgaria]. God. Sofiisk. Univ. Fiz.-Mat. Fak. 24(2-3): 1-18 (in Bulgarian). [3]

Burzakov B. 1932. [Two truffle species and a few fungi new for Bulgaria]. Izv. Bulg. Bot. Druzh. 5: 84-86 (in Bulgarian). [4]

Chalukov V. G. 1978. [New taxa and chorological data on Bulgarian flora]. Fitologiya 9: 70-72 (in Bulgarian). [5]

Chalukov V. 1982. [New data on the species composition and distribution of class Gasteromycetes in Bulgaria]. Fitologiya 19: 83-84 (in Bulgarian). [6]

Chalukov V. 1984. [Ecologic and taxonomic studies on *Bovista* in Bulgaria]. (In:) V. Velchev, (ed.). Modern theoretical and applied aspects of the plant ecology, Plovdiv, 10-13 October 1983: 298-305. Bulgarian Academy of Sciences Publishing House, Sofia (in Bulgarian). [7]

Chalukov V. 1985. [Genus *Lycoperdon* Pers. in Bulgaria]. Fitologiya 28: 41-51 (in Bulgarian). [8]

Chalukov V. 1987. [New for Bulgaria taxa of Gasteromycetes]. Fitologiya 33: 70 (in Bulgarian). [9]

Dimcheva M. D., Stoichev G. T. 1987. [Trophic characteristic of macromycetes established in Pirin mountain]. (In:) B. Kuzmanov (ed.). Proceedings of the 4th National Conference of Botany, Sofia, 1987, 1: 220-226. Bulgarian Academy of Sciences Publishing House, Sofia (in Bulgarian). [10]

Dimitrova E. G. 1994. A contribution to the study of the Discomycetes fungi in Bulgaria. II. Fitologiya 47: 74-77. [11]

Dimitrova E. 1997. Revision notes on the discomycetous fungi from Helotiales in Bulgaria. Phytol. Balcan. 3 (2-3): 211-215. [12]

Dimitrova E. 1998. Genus *Crocicreas* Fr. in Bulgaria. Phytol. Balcan. 4 (3): 131–139. [13]

Dimitrova E. 1999. Discomycetous fungi found in Bulgaria on needles, cones and twigs of conifers. Phytol. Balcan. 5 (1): 137-144. [14]

Dimitrova E. 2000. A taxonomic study of Hyaloscyphaceae in Bulgaria. II. *Dasyscyphus, Lachnum* and *Trichopezizella.* Phytol. Balcan. 6 (1): 133-145. [15]

Dörfelt H. 1977. Zur Taxonomie, Verbreitung und Ökologie des filzigen Schmierlings *Chroogomphus helveticus* (Sing.) Moser. Feddes Repert. 88 (4): 273-285 + Tabs I-II. [16]

Dörfelt H., Müsch F. 1987. Mykologische Studien in *Pinus peuce*-Waldern der Volksrepublik Bulgarien. Feddes Repert. 98 (7-8): 419-431. [17]

Drumeva-Dimcheva M., Gyosheva-Bogoeva M. 1993. [Macromycetes in Bulgaria]. (In:) M. Sakalian (ed.). The National Biological Diversity Conservation Strategy, 1: 1-34. Sofia (in Bulgarian). [18]

Gyosheva M. 2000. New and rare macromycetous taxa to Bulgaria. Phytol. Balcan. 6 (2-3): 283-288. [19]

Gyosheva M., Fakirova V., Denchev C. 2000. Red list and threat status of Bulgarian macromycetes. Hist. Nat. Bulg. 11: 139-145. [20]

Gyosheva M. M., Denchev C. M., Dimitrova E. G., Assyov B., Petrova R. D., Stoichev G. T. 2006. Red List of fungi in Bulgaria. Mycol. Balcan. 3: 81-87. [21]

Hinkova Ts. 1961. [Materials on the fungus flora of Bulgaria]. Izv. Bot. Inst. (Sofia) 8: 251-259 (in Bulgarian). [22]

Hinkova Ts. 1965. [Contribution to the fungus flora of Bulgaria]. God. Sofiisk. Univ. Biol. Fak., 2. Bot., Mikrobiol., Fiziol. Biohim. Rast. 58 (2) [1963/1964]: 95-105 (in Bulgarian). [23]

IUCN 2001. IUCN Red List categories and criteria: Version 3.1. IUCN Species Survival Commission, IUCN, Gland, Switzerland and Cambridge, UK. [24]

IUCN 2003a. Guidelines for application of IUCN Red List categories at regional levels: Version 3.0. IUCN species survival Commission, IUCN, Gland, Switzerland and Cambridge, UK. [25]

IUCN 2003b. Guidelines for using the IUCN Red List categories and criteria. Standards and Petitions Subcommittee of the IUCN SSC Red List Programme Committee, IUCN, Gland, Switzerland and Cambridge, UK. [26]

Jordanov D. (ed.) 1966. [Flora of People's Republic of Bulgaria]. Vol. 3. Bulgarian Academy of Sciences Publishing House, Sofia (in Bulgarian). [27]

Kreisel H. 1959. Beitrage zur Pilzflora Bulgariens. Feddes Repert. 62 (1): 34-43. [28]

Kirk P. M., Cannon P. F., David J. C., Stalpers J. A. (eds) 2001. Dictionary of the fungi. 9th ed. CAB International, Oxon. [29]

Kirk P. M. *et al.* 2004. Authors of fungal names. CABI Bioscience, Wallingford. Electronic version: *http://www.speciesfungorum.org/AuthorsOfFungalNames.htm.* [30]

Kuthan J., Kotlaba F. 1989. Makromyzeten der bulgarischen Schwarzmeerküste und einiger Orte im landesinnern Bulgariens. Acta Mus. Nat. Pragae, Ser. B 44 (3-4) [1988]: 137-243 + Photos 1-2 & Tabs I/1-XVI/2. [31]

Lacheva M. N., Stoichev G. T. 2004. New species of the genus *Agaricus* (Agaricaceae) for Bulgaria. Mycol. Balcan. 1: 35-40. [32]

La Porta N., Apostolov K., Kornonen K. 1998. Intersterility groups of *Heterobasidion annosum* and their host specificity in Bulgaria. Eur. J. Forest. Pathol. 28: 1-9. [33]

Pilát A. 1926. Nekolik poznámek k mycologickym pomérum Bulharska. Mycologia 3: 24-30. [34]

Stoichev G. T. 1981. [New taxa for the Bulgarian fungus flora]. Nauchni Trudove Vissh Selskost. Inst. "Vasil Kolarov" 26 (4): 105-107 (in Bulgarian). [35]

Stoichev G. T. 1987a. [Seven species of Polyporaceae new for Bulgaria]. (In:) B. Kuzmanov (ed.). Proceedings of the 4th National Conference of Botany, Sofia, 1987, 1: 208-215. Publishing House of Bulgarian Academy of Sciences, Sofia (in Bulgarian). [36]

Stoichev G. T. 1987b. [New chorological data for *Polyporaceae* in Bulgaria]. Nauchni Trudove Vissh Selskost. Inst. "Vasil Kolarov" 32 (4): 71-78 (in Bulgarian). [37]

Stoichev G. T. 1990. [*Polyporaceae* s.l. in Bulgaria]. Ph.D. thesis (msc). Vissh Selskostopanski Institut Vasil Kolarov, Plovdiv (in Bulgarian). [38]

Stoichev G.T. 1995. [*Phellinus* Quél. (Hymenochaetaceae Donk) in Bulgaria]. (In:) Jubilee Research Session, Vissh Selskostopanski Institut "Vasil Kolarov", Plovdiv, October, 1995, 4 (1): 221-227. Vissh Selskostopanski Institut "Vasil Kolarov", Plovdiv (in Bulgarian). [39]

Stoichev G. T., Dimcheva D. M. 1987. [New taxa and chorological data for the fungus flora of Bulgaria]. Fitologiya 33: 67-69 (in Bulgarian). [40]

Stoichev G., Dimcheva M. 1988. [New mushrooms for the Pirin mountain and Bulgaria]. Nauchni Trudove Vissh Selskost. Inst. "Vasil Kolarov" 33(4): 89-93 (in Bulgarian). [41]

Stoichev G., Naidenov Ya. 1984. [*Ganoderma* in Bulgaria]. Gorskost. Nauka 3: 83-87 (in Bulgarian). [42]

Vanev S. G., Reid D. A. 1986. New taxa and chorologic data for the Bulgarian fungus flora. Fitologiya 31: 63-70. [43]