A contribution to the knowledge of larger basidiomycetes of Albania

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Abstract. The author presents a list of fungi, encountered during a field trip in Albania, which yielded collection of 112 species, including 45 recorded for the first time for that country.

Key words: *Agaricomycotina,* Albanian mycota, Balkan Peninsula, *Basidiomycota,* macromycetes

Introduction

In terms of mycology, Albania is undoubtedly the least explored country in Southeast Europe. Larger fungi and larger basidiomycetes, in particular, make no exception, with only a few published contributions that are available at present (Pacioni 1984, Ivančević & Karadelev 2013, Karadelev & al. 2014, Mersinllari & al. 2017). Several other species, along with distributional data on the already published entities could be found in the available online Database of the Albanian Fungi (Anonymous, online). In 2016, the author had an opportunity to visit Albania and collect macrofungi in several areas *en route*. Some of these turned out to be new country records and are presented here with the other observations during this collection trip.

Material and methods

Fungi were collected in different habitats *en route* from Pogradec to Sarandë in the following localities: [1] between Çërravë and Grabovicë, in a woodland of *Quercus virginiana* Ten. and in the roadside grasslands, 40°50'21.9"N, 20°43'22.4"E, 21.10.2016; [2] south of Ujëbardhë along the road between junctions to Kamenica and Pepellash villages, 40°30'27.0"N, 20°41'09.2"E, in plantation of *Pinus nigra* J.F. Arn., 21.10.2016 (Fig. 1a); [3] Qafa e Qarrit Pass, between the junctions to Pepellash and Helmës villages, 40°28'03.0"N, 20°40'25.3"E, in sparse woodlands of *Quercus trojana* Webb. with scattered trees of *P. nigra* and scrub layer of *Juniperus* sp. and *Buxus sempervirens* L., 21.10.2016 (Fig. 1b); [4] between Helmës and Mollas villages, 40°26'37.0"N, 20°40'08.5"E, in riparian habitats, 21.10.2016; [5] northwards of Gozhdarazhde village, along the road between Ersekë and Leskovik, 40°15'13.0"N, 20°37'07.7"E, in woodlands of *Q. trojana* and in adjacent grasslands, 21.10.2016; [6] Përmet, in the lawns of the town park, 40°14'08.1"N, 20°21'16.0"E, 22.10.2016; [7] between Përmet and Leusë villages, 40°13'24.2"N, 20°21'31.5"E, in a forest of *Pinus halepensis* Mill., collections supplied by Rossen Vassilev and Kamen Bakardzhiev, 22.10.2016; [8] between Kutal and Cusinë villages at river Vjosë, 40°15'17.0"N, 20°19'35.7"E, in grasslands (Fig. 1c), 22.10.2016; [9] Këlcyrë Gorge, Gryka e Këlcyrës, 40°17'46.8"N, 20°09'48.0"E, in a mixed woodland, 22.10.2016; [10] between Jorgucat and Muzinë villages, 39°56'20.8"N, 20°13'21.5"E, in grazed calcareous grasslands, 22.10.2016; [11] Sarandë, Lëkurësi Castle, 39°51'47.4"N, 20°01'39.9"E, in a scrubland of *Phlomis fruticosa* L. and *Quercus coccifera* L., 23.10.2016 (Fig. 1d).

Fungal specimens were documented with colour photographs and/or field notes and dried in a dehy-

Fig. 1. Collecting sites: **a** – plantation of *Pinus nigra* south of Ujëbardhë (site 2); **b** – woodland of *Quercus trojana* at Qafa e Qarrit Pass (site 3); **c** – grasslands between Kutal and Cusinë villages at river Vjosë (site 8); **d** – scrubland of *Phlomis fruticosa* and *Quercus coccifera* at Lëkurësi Castle of Sarandë (site 11).

drator for permanent preservation. Voucher specimens were deposited in the Mycological Collection of the Institute of Biodiversity and Ecosystem Research (SOMF). Microscopic study was held with AmScope T360B microscope on slides with use of water, KOH 5%, Congo red in ammonia and Melzer's reagent, as appropriate. The fungi were identified with the aid of suitable monographs, keys, atlases, or publications on individual species, namely by Clémençon (1984), Breitenbach & Kränzlin (1986, 1991, 1995, 2000), Moser & Jülich (1988), Sunhede (1989), Candusso & Lanzoni (1990), Fraiture (1993), Boertmann (1995), Pegler & al. (1995, 1997), Galli (1996, 2001, 2004, 2007), Martín (1996), Candusso (1997), Calonge (1998), Heilmann-Clausen & al. (1998), Basso (1999), Bon (1999), Ludwig (2000, 2007), Contu (2003a, b), Neville & Poumarat (2004), Kränzlin (2005), Sarasini (2005), Watling & Hills (2005), Knudsen & Vesterholt (2008), Consiglio & Setti (2009), Berniccia & Gorjon (2010), Martín & al. (2016), and Siquier & al. (2016). The species, appearing as new country records are asterisked in the list below. The taxa are arranged in alphabetical order within the respective rank, except for those with still uncertain family placement. Those are placed as *Incertae sedis* at the end of the fungal order, where they belong.

Results

List of species

***Agaricales* Underw.**

***Agaricaceae* Cheval.**

1. *Agaricus campestris* L. : Fr.
   [10]
2. *Agaricus comtulus* Fr.*
   [11]
3. *Bovista plumbea* Pers. : Pers.
   [10]

4. *Coprinus commatus* (O.F. Müll. : Fr.) Pers.
   [1]
5. *Cyathus striatus* (Huds. : Pers.) Willd.
   [1]
6. *Cystoderma amianthinum* (Scop.) Fayod
   [2]
7. *Cystoderma cinnabarinum* (Alb. & Schwein. : Fr.) Fayod*
   [2]
8. *Lepiota alba* (Bres.) Sacc.*
   [5]
9. *Lepiota erminea* (Fr. : Fr.) P. Kumm.*
   [8]
10. *Lepiota grangei* (Eyre) Kühner*
    [2]
11. *Lepiota ignivolvata* Joss.*
    [2]
12. *Leucoagaricus leucothites* (Vittad.) Wasser
    [11]
13. *Lycoperdon excipuliforme* (Scop. : Pers.) Pers.*
    [2]
14. *Lycoperdon perlatum* Pers. : Pers.
    [2]
15. *Lycoperdon pratense* Pers. : Pers.*
    [6, 8]
16. *Lycoperdon utriforme* Bull. : Pers.
    [1]
17. *Macrolepiota procera* (Scop. : Fr.) Singer
    [7]
18. *Macrolepiota mastoidea* (Fr. : Fr.) Singer
    [2]
19. *Macrolepiota excoriata* (Schaeff. : Fr.) M.M. Moser
    [1, 2]
20. *Melanophyllum hematospermum* (Bull. : Fr.) Kreisel*
    [2]

***Amanitaceae* Pouzar**

21. *Amanita citrina* Pers.
    [1]
22. *Amanita pantherina* (DC. : Fr.) Krombh.
    [1]
23. *Amanita lactea* Malençon, Romagn. & D.A. Reid
    [2]
24. *Amanita phalloides* (Fr. : Fr.) Link
    [1]

***Bolbitiaceae* Singer**

25. *Bolbitius titubans* (Bull. : Fr.) Fr.
    [10]
26. *Pholiotina appendiculata* (Watling) Singer*
    [2]

***Cortinariaceae* Pouzar**

27. *Cortinarius anomalus* (Fr. : Fr.) Fr.*
    [1]

***Entolomataceae* Kotl. & Pouzar**

28. *Entoloma sericeum* Quél.
    [1]

***Hydnangiaceae* Gäum. & C.W. Dodge**

29. *Laccaria amethystina* Cooke
    [2]
30. *Laccaria laccata* (Scop. : Fr.) Cooke
    [1]
31. *Laccaria lateritia* Malençon*
    [1]

***Hygrophoraceae* Lotsy**

32. *Hygrocybe conica* (Schaeff. : Fr. P. Kumm.
    [1]
33. *Hygrocybe russocoriacea* (Berk. & T.K. Mill.) P.D. Orton & Watling*
    [2]
34. *Hygrophorus chrysodon* (Batsch : Fr.) Fr.
    [2]
35. *Hygrophorus gliocyclus* Fr.*
    [2]
36. *Hygrophorus hypothejus* (Fr. : Fr.) Fr.*
    [2]

***Hymenogastraceae* Vittad.**

37. *Galerina graminea* (Velen.) Kühner*
    [2]
38. *Galerina marginata* (Batsch : Fr.) Kühner
    [2]
39. *Hebeloma antracophilum* Maire*
    [1]
40. *Hebeloma sinapizans* (Paulet) Gillet
    [1]
41. *Hypholoma fasciculare* (Huds. : Fr.) P. Kumm.
    [1, 2]
42. *Psilocybe semilanceata* (Fr. : Fr.) P. Kumm.*
    [10]
43. *Stropharia coronilla* (Bull. : Fr.) Quél.
    [6]

***Inocybaceae* Jülich**

44. *Crepidotus calolepis* (Fr.) P. Karst.
    [9]
45. *Inocybe geophylla* (Bull. : Fr.) P. Kumm. var. *lilacina* (Peck.) Gillet
    [2]

***Marasmiaceae* Kühner**

46. *Marasmius collinus* (Scop. : Fr.) Singer*
    [1, 8, 10]

47. *Marasmius rotula* (Scop. : Fr.) Fr.
[2]
48. *Marasmius wynneae* Berk. & Broome*
[11]

***Mycenaceae* Overeem**

49. *Mycena epipterygia* (Scop. : Fr.) Gray
[2]
50. *Mycena pura* (Pers. : Fr.) P. Kumm.
[2]
51. *Panellus stipticus* (Bull. : Fr.) P. Karst.
[3]

***Omphalotaceae* Bresinsky**

52. *Gymnopus dryophilus* (Bull. : Fr.) Murr.
[1, 2]
53. *Gymnopus fusipes* (Bull. : Fr.) Quél*.
[1]
54. *Gymnopus perforans* (Hoffm.) Antonín & Noordel.*
[2]
55. *Rhodocollybia butyracea* (Bull. : Fr.) Lennox
[2]

***Physalacriaceae* Corner**

56. *Armillaria mellea* (Vahl. : Fr.) P. Kumm.
[4]

***Pleurotaceae* Kühner**

57. *Pleurotus cornucopiae* (Paulet) Rolland*
[9]
58. *Pleurotus eryngii* (DC. : Fr.) Quél.
[6, 8]

***Psathyrellaceae* Vigalys, Moncalvo & Redhead**

59. *Coprinellus disseminatus* (Pers. : Fr.) J.E. Lange
[1]
60. *Coprinopsis nivea* (Pers. : Fr.) Redhead, Vilgalys & Moncalvo
[2]

***Pterulaceae* Corner**

61. *Radulomyces molaris* (Fr. : Fr.) M.P. Christ.
[1]

***Schizophyllaceae* Quél**

62. *Schizophyllum commune* Fr. : Fr.
[3]

***Strophariaceae* Singer & A.H. Sm.**

63. *Pholiota jahnii* Kuyper & Tjallingii-Beukers*
[2]
64. *Protostropharia semiglobata* (Batsch : Fr.) Redhead, Moncalvo & Vilgalys
[2, 10]

***Tricholomataceae* Pouzar**

65. *Arrhenia retiruga* (Bull. : Fr.) Redhead*
[1]
66. *Clitocybe brumalis* (Bull. : Fr.) P. Kumm.*
[2]
67. *Clitocybe dealbata* (Sow. : Fr.) P. Kumm.
[6]
68. *Clitocybe gibba* (Pers. : Fr.) P. Kumm.
[2]
69. *Clitocybe odora* (Bull. : Fr.) P. Kumm.
[2]
70. *Clitocybe rivulosa* (Pers. : Fr.) P. Kumm.*
[8]
71. *Clitocybe sinopica* (Fr. : Fr) P. Kumm.
[2]
72. *Melanoleuca melaleuca* (Pers. : Fr.) Murr.*
[1]
73. *Pseudoclitocybe cyathiformis* (Bull. : Fr.) Singer
[2]
74. *Tricholoma sejunctum* (Sow. : Fr.) Quél.
[7]
75. *Tricholoma saponaceum* (Fr. : Fr.) P. Kumm.
[2]
76. *Tricholoma terreum* (Schaeff. : Fr.) P. Kumm.
[2]

Incertae sedis

77. *Panaeolina foenisecii* (Pers. : Fr.) Maire
[10]

***Auriculariales* J. Schröt.**

***Auriculariaceae* Fr.**

78. *Auricularia mesenterica* (Dicks. : Fr.) Pers.
[8, 9]

***Boletales* E.-J. Gilbert**

***Diplocystidaceae* Kreisel**

79. *Astraeus hygrometricus* (Pers. : Pers.) Morgan
[2, 5]

***Rhizopogonaceae* Gäum. & C.W. Dodge**

80. *Rhizopogon luteolus* Fr. : Fr.
[2]

***Sclerodermataceae* Corda**

81. *Scleroderma meridionale* Demoulin & Malençon*
[3]
82. *Scleroderma polyrhizum* (J.F. Gmel. : Pers.) Pers.*
[1]

***Suillaceae* Besl. & Bresinsky**

83. *Chroogomphus mediterraneus* (Finschow) Vila, Pérez-De-Greg. & G. Mir*
[2, 3]

84. *Suillus granulatus* (L. : Fr.) Roussel
[2]
85. *Suillus luteus* (L. : Fr.) Roussel
[2, 3]

***Cantharellales* Gäum.**
***Clavulinaceae* Donk**
86. *Clavulina cinerea* (Bull. : Fr.) J. Schröt.*
[1]

***Corticiales* K.-H. Larss.**
***Corticiaceae* Herter**
87. *Vuilleminia comedens* (Nees : Fr.) Maire
[1]

***Geastrales* K. Hosaka & Castellano**
***Geastraceae* Corda**
88. *Geastrum elegans* Vittad.*
[2, 7]
89. *Geastrum rufescens* Pers. : Pers.*
[2]
90. *Geastrum sessile* (Sow.) Pouzar*
[2]
91. *Sphaerobolus stellatus* Tode : Pers.*
[1]

***Gloeophyllales* Thorn**
***Gloeophyllaceae* Jülich**
92. *Gloeophyllum sepiarium* (Wulfen : Fr.) P. Karst.
[3]

***Gomphales* Jülich**
***Gomphaceae* Donk**
93. *Ramaria apiculata* (Fr. : Fr.) Donk*
[2]

***Hymenochaetales* Oberw.**
***Hymenochaetaceae* Donk**
94. *Coltricia perennis* (L. : Fr.) Murrill*
[2]
***Repetobasidiaceae* Jülich**
95. *Rickenella fibula* (Bull. : Fr.) Reitelh.*
[2]

***Polyporales* Gäum.**
***Fomitopsidaceae* Jülich**
96. *Ischnoderma benzoinum* (Wahlenb. : Fr.) P. Karst.
[2]
97. *Daedalea quercina* (L. : Fr.) Pers.*
[1]
***Meruliaceae* P. Karst.**
98. *Bjerkandera adusta* (Willd. : Fr.) P. Karst.*
[9]
***Polyporaceae* Corda**
99. *Faerberia carbonaria* (Alb. & Schwein. : Fr.) Pouzar*
[1]
100. *Polyporus arcularius* (Batsch : Fr.) Fr.
[1]
101. *Pycnoporus cinnabarinus* (Jacq. : Fr.) P. Karst.
[3]
102. *Trametes hirsuta* (Wulf. : Fr.) Lloyd
[3]
103. *Trametes versicolor* (L. : Fr.) Lloyd
[1]

***Russulales* P.M. Kirk, P.F. Cannon & J.C. David**
***Auriscalpiaceae* Maas Geest.**
104. *Auriscalpium vulgare* Gray : Fr.
[2]
***Peniophoraceae* Lotsy**
105. *Peniophora quercina* (Pers. : Fr.) Cooke
[1]
***Russulaceae* Lotsy**
106. *Lactarius camphoratus* (Bull. : Fr.) Fr.
[1]
107. *Lactarius deliciosus* (L. : Fr.) Gray
[2]
108. *Lactarius semisanguifluus* R. Heim & Leclair*
[2]
109. *Lactarius subumbonatus* Lindgr.*
[1]
110. *Russula torulosa* Bres.
[2]
***Stereaceae* Pilát**
111. *Stereum hirsutum* (Willd. : Fr.) Pers.
[1, 3, 9]

***Thelephorales* Oberw.**
***Thelephoraceae* Chevall.**
112. *Thelephora terrestris* Ehrh. : Fr.*
[2]

Discussion

A total of 112 species were collected and identified. Of these, 45 species were new records for the country and the remaining have already been listed from Albanian localities by Ivančević & Karadelev (2013), Karadelev

& al. (2014), Mersinllari & al. (2017), and in the Database of Albanian Fungi (Anonymous, online). Most of the fungi were collected in the Korcë district, which was most probably due to the more favourable weather conditions at the time of collection. Most of the registered species are known as common or at least widespread in the countries of the Balkan Peninsula. Less known species seem to be *Amanita lactea, Chroogomphus mediterraneus* and *Scleroderma meridionale,* although their distribution in the Balkan Peninsula is still incompletely studied. In the future, they would probably prove to be more common than currently thought, as already was shown for *S. meridionale* (Assyov 2016). Prevalence of common species in the list was expected, considering the limited time for collection. The high percentage of new country records was also predictable, considering the so far scarce exploration of the Albanian macrofungi.

Conclusion

Although short, the field trip expectedly provided abundant fungal material and promising results, including the large number of basidiomycetes recorded for the first time from the territory of Albania. Undoubtedly, the country has a rich mycota, given the great habitat diversity. Still, its fungal diversity is understudied and deserves further attention.

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