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Some Macrofungi Determined in Şemdinli and Yüksekova Districts (Hakkari-Turkey)

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ABSTRACT

The present study reports macrofungi specimens collected from Şemdinli and Yüksekova districts (Hakkari) between 2014 and 2016. As a result of field and laboratory studies, 197 species were identified. Together with the previously reported six species, 203 species belonging to two division, 48 families and 97 genera were listed from the study area. Among them, 36 species belong to *Ascomycota,* and 167 to *Basidiomycota*.

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Şemdinli ve Yüksekova (Hakkari-Türkiye) Ilçelerinden Belirlenen Bazı Makrofunguslar

ÖZET

Bu çalışma, Şemdinli ve Yüksekova ilçelerinden (Hakkari) 2014 ve 2016 yılları arasında toplanan makrofungus örneklerini rapor etmektedir. Arazi ve laboratuar çalışmaları sonucunda 197 tür belirlenmiştir. Daha önce bildirilen altı türle birlikte, iki bölüm 46 familya ve doksan yedi cinse ait 203 tür çalışma alanından listelenmiştir. Bunlardan 36'sı *Ascomycota*, 167'si ise *Basidiomycota* bölümüne aittir.

Araştırma Makalesi

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Anahtar Kelimeler
Makrofunguslar
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INTRODUCTION

Macrofungi, whose members are classified in the divisions *Ascomycota* and *Basidiomycota*, constitute an artificial group in the kingdom Fungi with specimens forming large and easily observable fruiting bodies visible without using any magnifying apparatus (Servi *et al.* 2010). Over 22.000 macrofungi species currently exist throughout the world but the global biodiversity has been estimated to comprise between 53.000 and 110.000 species (Mueller *et al.* 2007). The macrofungal diversity of Turkey is well documented with a large number of taxonomic studies dating back to 19th century, and the number of studies increased especially over the last three decades and approximately 2500 species of macrofungi have thus far been described and reported from Turkey (Rigler 1852, Pilat 1932, Niemela and Uotila 1977, Solak and Gücin 1992, Kaşık 1994, Işıloğlu ve Öder 1995, Öztürk *et al,* 2003, 2017, Doğan *et al.* 2005, 2018, Sesli and Denchev 2008, *Uzun et al.* 2013, 2014a, 2014b, 2017, Acar and Uzun 2016, 2017, Sesli *et al.* 2016, Akata 2017, Akata and Kaya, 2013, Akata and Uzun 2017, Akata *et al.* 2012, 2014, 2018, 2019, Allı *et al.* 2017, Altuntaş *et al.* 2017, Işık and Türkekul 2018, Sesli and Liimatainen 2018).

Şemdinli and Yüksekova districts are situated on the southeast corner of Turkey within the boundaries of Hakkari province. The study area, which covers over 3,700 km^2, has the characteristics of a continental climate feature. The summers are hot and dry while the winters are cold and snowy with an average temperature of 10.3°C and total precipitation of 789 mm. Although the region is dominated by steppe vegetation, some herbaceous plants and trees such as dewberry, dog rose, goldenrod, hawthorn, hogweed, nettle, alder, apple, pear, oak, poplar, walnut, and willow can also be seen.

The macrofungi naturally grown in eastern part of Turkey has also been documented in some studies performed in various provinces of the Eastern Anatolia Region (Demirel 1996, Allı 2011, Keleş and Demirel 2010; Kaya 2001, Demir *et al.* 2007, Demirel and

Koçak 2016, Demirel *et al.* 2003, 2015, 2016, Dengiz and Demirel 2016, Akçay *et al.* 2010, Uzun 2010, Uzun *et al.* 2013, 2014a, 2014b, 2017). Although some mycological investigations were conducted in the vicinity of the study area by Uzun *et al.* (2014b), Acar and Uzun (2016), Acar *et al.* (2017, 2018, 2019), Kalmer *et al.* (2019), there is not any detailed mycological study in Şemdinli and Yüksekova districts.

The purpose of this current study was to determine the macrofungal composition of Şemdinli and Yüksekova districts and make a contribution to the mycobiota of Turkey.

MATERIALS and METHODS

Macrofungal specimens were collected from 46 localities in Şemdinli and Yüksekova districts of Hakkari province between 2014 and 2016 (Table 1).

The locations of the collected fungal samples were transferred to the numerical environment using GIS (Geographic Information Systems) technique (Fig. 1). Digital maps were then obtained with ArcMap 10.2 program (Azizoğlu and Adızel., 2017a, 2017b). During field studies, macroscopic and ecological characteristics of the samples were noted and they were photographed in their natural habitats. Then the

Table 1. Collection localities of macrofungi samples.
Çizelge 1. Makrofungus örneklerinin toplanma yerleri

Number *Numara*	Localities *Lokaliteler*	Coordinates *Koordinatlar*	Altitudes (m) Yükseklik (m)
1	Şemdinli center	37° 19'092"N - 44° 33'651"E	1411 m
2	Şemdinli, Altınsu village	37° 19'172"N - 44° 33'111"E	1470 m
3	Şemdinli, Altınsu village	37° 19'319"N - 44° 33'227"E	1456 m
4	Şemdinli, Aşağı Korgan village	37° 24'121"N - 44° 30'327"E	1638 m
5	Şemdinli, Beyyurdu village	37° 19'163"N - 44° 25'482"E	1448 m
6	Şemdinli, Bozyamaç village	37° 22'084"N - 44° 26'384"E	1371 m
7	Şemdinli, Çatalca village	37° 23'323"N - 44° 34'294"E	1729 m
8	Şemdinli output, creek edge	37° 18'419"N - 44° 33'522"E	1372 m
9	Şemdinli, Derya village	37° 21'285"N - 44° 31'392"E	1532 m
10	Şemdinli, Derya village	37° 21'271"N - 44° 31'282"E	1525 m
11	Şemdinli, Derya village	37° 21'240"N - 44° 31'334"E	1519 m
12	Şemdinli, Durak village	37° 23'046"N - 44° 32'169"E	1614 m
13	Şemdinli, Durak village	37° 24'210"N - 44° 30'661"E	1640 m
14	Şemdinli Enterance	37° 20'201"N - 44° 33'096"E	1660 m
15	Şemdinli, Güzel Konak village	37° 24'657"N - 44° 29'591"E	1692 m
16	Şemdinli, Günyazı village	37° 17'227"N - 44° 35'795"E	1374 m
17	Şemdinli, Harmanlı village	37° 21'409"N - 44° 30'002"E	1481 m
18	Şemdinli, Harmanlı village	37° 22'229"N - 44° 29'216"E	1450 m
19	Şemdinli, Hazne village	37° 16'181"N - 44° 37'520"E	1418 m
20	Şemdinli, Öveç village	37° 22'322"N - 44° 28'495"E	1507 m
21	Şemdinli, Öveç village	37° 22'334"N - 44° 28'679"E	1462 m
22	Şemdinli, Şabatan village	37° 20'202"N - 44° 33'092"E	1663 m
23	Şemdinli, Şabatan village	37° 21'687"N - 44° 32'461"E	1723 m
24	Şemdinli, Toli village	37° 23'306"N - 44° 31'594"E	1612 m
25	Şemdinli, Yukarı Korgan village	37° 24'056"N - 44° 29'543"E	1676 m
26	Şemdinli, Yukarı Korgan village	37° 24'019"N - 44° 30'237"E	1683 m
27	Yüksekova, Akalın village	37° 34'022"N - 44° 14'582"E	1866 m
28	Yüksekova, Akocak village	37° 37'115"N - 44° 05'294"E	2080 m
29	Yüksekova, Bostancık village	37° 26'685"N - 44° 11'975"E	1911 m
30	Yüksekova, Çatma village	37° 28'567"N - 44° 15'585"D	1944 m
31	Yüksekova, Berdereş village	37° 27'091"N - 44° 16'762"E	2022 m
32	Yüksekova, Dibekli village	37° 40'972"N - 44° 05'911"E	1728 m
33	Yüksekova, Gürdere village	37° 30'017"N - 44° 12'518"E	1916 m
34	Yüksekova, Gürkavak village	37° 25'267"N - 44° 11'250"E	1657 m
35	Yüksekova-Hakkâri road	37° 42'173"N - 44° 03'028"E	1593 m
36	Yüksekova, Karlı village	37° 29'968"N - 44° 14'986"E	1920 m
37	Yüksekova, Köşkönü village	37° 25'524"N - 44° 09'431"E	1670 m
38	Yüksekova, Köşkönü village	37° 25'351"N - 44° 09'577"E	1590 m
39	Yüksekova, Memişte village	37° 25'240"N - 44° 13'384"E	1775 m
40	Yüksekova, Odabaşı village	37° 40'241"N - 44° 06'685"E	1747 m
41	Yüksekova, Ortaç village	37° 40'927"N - 44° 34'695"E	1715 m
42	Yüksekova, Pınargözü village	37° 26'264"N - 44° 08'457"E	2016 m
43	Yüksekova, Sürekli village	37° 25'388"N - 44° 08'528"E	1713 m
44	Yüksekova, Tuğlu village	37° 25'295"N - 44° 08'618"E	1482 m
45	Yüksekova, Tuğlu village	37° 25'161"N - 44° 09'127"E	1522 m
46	Yüksekova, Yeşiltaş village	37° 25'124"N - 44° 06'271"E	1335 m

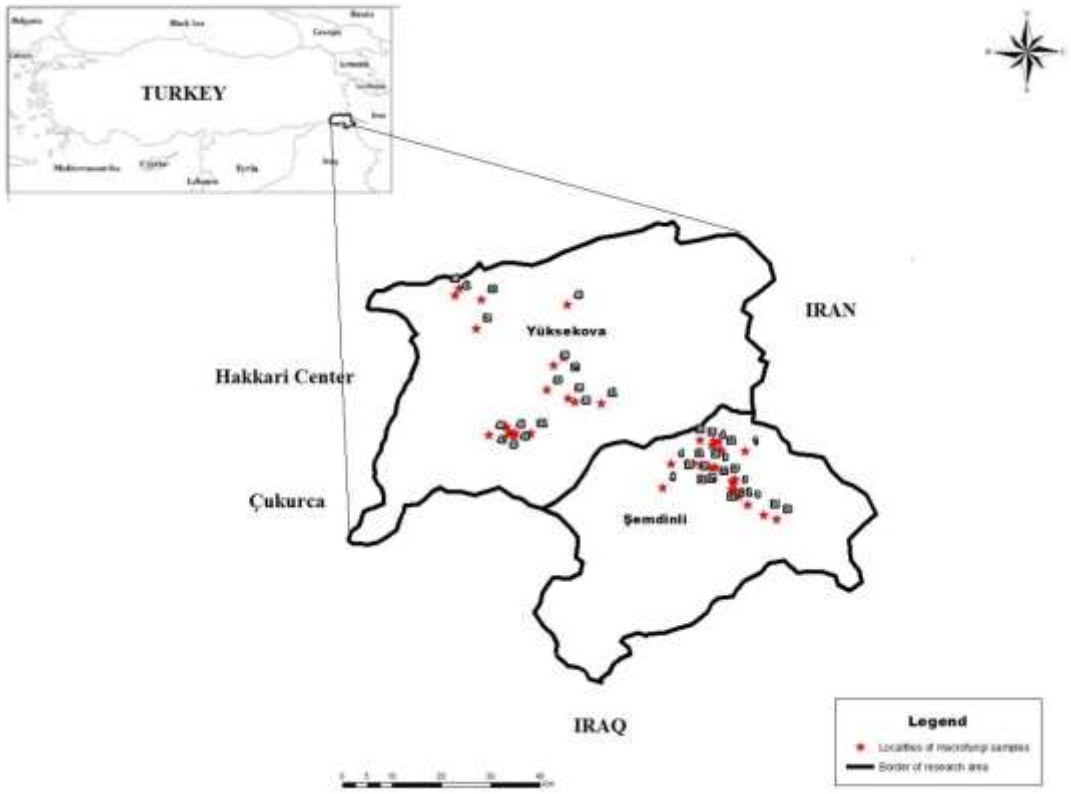

Figure 1. The map showing the disctrict borders of Yüksekova and Şemdinli where macrufungi were collected
Şekil 1. Makrofungusların toplandığı Yüksekova ve Şemdinli ilçe sınırlarını gösteren harita

fungal samples were taken to the laboratory for further investigations. After spore prints were taken, fresh samples were dried. Macroscopic and microscopic studies and micro-chemical reactions were conducted by using dried samples. Reagents such as melzer's reagent, 5% KOH, H_2O, H_2SO_4, congo red and cotton blue etc. were used. The identification of the materials was performed considering the relevant literature (Breitenbach and Kränzlin 1984, 1986, 1991, 1995, 2000, Bas *et al.* 1988, 1990, 1995, Hansen and Knudsen 1992, 1997, 2000, Ryvarden and Gilbertson 1993, Pegler *et al.* 1997, Noordeloos et al. 2001, Jordan 2004, Kränzlin 2005, Medardi 2006, Knudsen and Versterholt 2008). The study materials were kept in the fungarium of Yüzüncü Yıl University (VANF).

RESULTS

The taxa were alphabetically listed along with notes on the habitats, collection dates, and accession numbers (Acar: A). The systematic position of each taxa was given considering the Index Fungorum (www.indexfungorum.org; accessed 25 May 2019).

ASCOMYCOTA

Ascobolaceae

Ascobolus carbonarius P. Karst.: On burnt ground, locality 43, 30.04.2015, A. 893.

Ascobolus furfuraceus Pers.: On dung, locality 10, 05.06.2014, A. 327.

Dermateaceae

Mollisia cinerea (Batsch) P. Karst.: On poplar branch, locality 2, 11.04.2015, A. 873.

Mollisia melaleuca (Fr.) Sacc.: On poplar branch, locality 17, 11.04.2015, A. 888.

Pyrenopeziza revincta (P. Karst.) Gremmen: On hogweed, locality 23, 01.05.2015, A. 928.

Pyrenopeziza rubi (Fr.) Rehm: On blackberry, locality 14, 24.10.2014, A. 407.

Diatrypaceae

Diatrypella favacea (Fr.) Ces. and De Not.: On oak branch, locality 9, 27.10.2014, A. 693.

Diatrypella quercina (Pers.) Cooke: On oak branch, locality 14, 24.10.2014, A. 423; on oak branch, locality 26, 27.10.2014, A. 626.

Discinaceae

Gyromitra brunnea Underw.: Under oak, locality 6, 10.04.2015, A. 850.

Helotiaceae

Cyathicula cyathoidea (Bull.) Thüm.: On hogweed, locality 23, 01.05.2015, A. 929.

Hymenoscyphus calyculus (Fr.) W. Phillips: On poplar branch, locality 24, 24.10.2014, A. 451.

Hymenoscyphus immutabilis (Fuckel) Dennis: On oak leaf, 22, 24.10.2014, A. 503.

Hymenoscyphus scutula (Pers.) W. Phillips: On goldenrods, locality 24, 24.10.2014, A. 449; on nettle

remnant, locality 42, 25.10.2014, A. 508.
Phaeohelotium umbilicatum (Le Gal) Dennis: On poplar, locality 24, 24.10.2014, A. 444.
Helvellaceae
Helvella acetabulum (L.) Quél. : Under oak, locality 28, 11.04.2015, A. 881.
Helvella lacunosa Afzel. : Under poplar, locality 27, 02.05.2016, A. 952.
Helvella leucopus Pers.: Under poplar, locality 27, 02.05.2016, A. 953.
Paxina queletii (Bres.) Stangl: Under willow, locality 40, 06.06.2014, A. 354; under poplar, locality 19, 01.05.2015, A. 939.
Hyaloscyphaceae
Neodasyscypha cerina (Pers.) Spooner: On oak branch, locality 14, 24.10.2014, A. 405.
Morchellaceae
Morchella angusticeps Peck: Under poplar, locality 19, 01.05.2015, A. 934.
Morchella esculenta (L.) Pers.: Under poplar, locality 7, 10.04.2015, A. 860; under poplar, locality 2, 11.04.2015, A. 866; under poplar, locality 17, A. 885; under poplar, locality 3, 01.05.2015, A. 942.
Verpa bohemica (Krombh.) J. Schröt.: Under oak, locality 6, 10.04.2015, A. 843; under poplar, locality 7, 10.04.2015, A. 861; under poplar, locality 2, 11.04.2015, A. 865; under poplar, locality 28, A. 877; under poplar, locality 17, A. 886; under poplar, locality 33, 30.04.2015, A. 891.
Pezizaceae
Iodophanus carneus (Pers.) Korf: In meadow, on dung, locality 30, 26.10.2014, A. 602.
Peziza arvernensis Roze and Boud.: Among wood remnant, locality 46, 30.04.2015, A. 907; under oak, locality 15, 01.05.2015, A. 919.
Peziza badia Pers.: In meadow, locality 31, 04.06.2014, A. 270.
Peziza granularis Donadini: Acar and Uzun (2016).
Peziza sepiatra Cooke: In meadow, locality 31, 04.06.2014, A. 259.
Peziza succosa Berk.: In meadow, locality 11, 27.10.2014, A. 718.
Pyronemataceae
Cheilymenia pulcherrima (P. Crouan and H. Crouan) Boud.: On dung, locality 35, 23.10.2014, A. 371.
Geopora arenosa (Fuckel) S. Ahmad: Under poplar, locality 35, 23.10.2014, A. 385.
Humaria hemisphaerica (F.H. Wigg.) Fuckel: On rotten oak wood, locality 32, 06.06.2014, A. 361.
Scutellinia scutellata (L.) Lambotte: On alder stump, locality 1, 05.06.2014, A. 318.
Scutellinia umbrorum (Fr.) Lambotte: On plant remnant, locality 13, 05.06.2014, A. 305.
Tricharina gilva (Boud. ex Cooke) Eckblad: On burnt ground, locality 5, 10.04.2015, A. 858; on burnt wood, locality 7, 10.04.2015, A. 863.
Rutstroemiaceae
Rutstroemia firma (Pers.) P. Karst.: On oak branch, locality 9, 27.10.2014, A. 672.
Xylariaceae
Xylaria hypoxylon (L.) Grev.: On oak branch, locality 17, 28.10.2014, A. 729.
BASIDIOMYCOTA
Agaricaceae
Agaricus arvensis Schaeff.: In meadow, locality 27, 04.06.2014, A. 254.
Agaricus bernardii Quél.: In meadow, locality 27, 06.06.2014, A. 342.
Agaricus campestris L.: In meadow, locality 46, 25.10.2014, A. 537; in meadow, locality15, 01.05.2015, A. 921.
Agaricus litoralis (Wakef. and A. Pearson) Pilát: In meadow, locality 27, 04.06.2014, A. 255; in meadow, locality 27, 24.10.2014, A. 507; in meadow, locality 25, 27.10.2014, A. 635; in meadow, locality 45, 03.11.2014, A. 816; in meadow, locality 27, 17.07.2015, A. 950.
Agaricus sylvicola (Vittad.) Peck: On oak branch, locality 26, 27.10.2014, A. 617.
Agaricus urinascens (Jul. Schäff. and F.H. Møller) Singer: In meadow, locality 24, 24.10.2014, A. 439.
Bovista aestivalis (Bonord.) Demoulin: Under oak, locality 9, 27.10.2014, A. 706.
Bovista pila Berk. and M.A. Curtis: In meadow, locality 4, 24.10.2014, A. 436; under oak, locality 9, 27.10.2014, A. 669.
Chlorophyllum agaricoides (Czern.) Vellinga: In meadow, locality 25, 27.10.2014, A. 636.
Coprinus comatus (O.F. Müll.) Pers.: Under willow, locality 13, 05.06.2014, A. 304; in meadow, locality 28, 11.04.2015, A. 878.
Coprinus xerophilus Bogart: In meadow, locality 36, 30.04.2015, A. 911.
Cyathus stercoreus (Schwein.) De Toni: On dung, locality 36, 04.06.2014, A. 277.
Lepiota clypeolaria (Bull.) P. Kumm.: Under oak locality 26, 27.10.2014, A. 621.
Lepiota cristata (Bolton) P. Kumm.: Under willow, locality 41, 06.06.2014, A. 363; under poplar locality, 12, 24.10.2014, A. 459; under apple, locality 11, 27.10.2014, A. 720.
Lepiota subincarnata J.E. Lange: In meadow, locality 37, 26.10.2014, A. 551.
Leucoagaricus barssii (Zeller) Vellinga: In meadow, locality 29, 26.10.2014, A. 571.
Leucoagaricus leucothites (Vittad.) Wasser: In meadow, locality 29, 26.10.2014, A. 586.
Lycoperdon marginatum Vittad.: In meadow, locality 25, 27.10.2014, A. 632.
Lycoperdon pratense Pers.: In meadow, locality 9, 27.10.2014, A. 704.
Macrolepiota excoriata (Schaeff.) Wasser: In meadow, locality 24, 24.10.2014, A. 435; in meadow, locality 25, 27.10.2014, A. 633; under oak, locality 9, 27.10.2014, A. 708; In meadow, Locality 17, 28.10.2014, A. 721; in meadow, locality 44, 03.11.2014, A. 838.
Macrolepiota fuliginosa (Barla) Bon: Under walnut,

locality 17, 28.10.2014, A. 736.
Macrolepiota mastoidea (Fr.) Singer: In meadow, locality 4, 24.10.2014, A. 434.
Macrolepiota procera (Scop.) Singer: Under oak, locality 46, 25.10.2014, A. 533; under oak, locality 37, 26.10.2014, A.554.
Amanitaceae
Amanita eliae Quél.: Under oak, locality 45, 03.11.2014, A. 822.
Atheliaceae
Athelia epiphylla Pers.: On wood remnant, locality 31, 04.06.2014, A. 267.
Byssocorticium atrovirens (Fr.) Bondartsev and Singer: On oak branch, locality 11, 27.10.2014, A. 715.
Auriculariaceae
Auricularia mesenterica (Dicks.) Pers.: On poplar stump, locality 37, 26.10.2014, A. 572.
Bolbitiaceae
Bolbitius titubans (Bull.) Fr.: In meadow, locality 10, 05.06.2014, A. 332; In meadow, locality 4, 05.06.2014, A. 341.
Conocybe aporos Kits van Wav.: In meadow, locality 1, 05.06.2014, A. 325.
Conocybe arrhenii (Fr.) Kits van Wav.: On walnut remnant locality 17, 28.10.2014, A. 732.
Conocybe aurea (Jul. Schäff.) Hongo: Under poplar, locality 10, 05.06.2014, A. 328.
Conocybe brachypodii (Velen.) Hauskn. and Svrček: In meadow, under oak, locality 46, 25.10.2014, A. 536.
Conocybe moseri Watling: In meadow, locality 14, 24.10.2014, A. 391.
Conocybe pygmaeoaffinis (Fr.) Kühner: Under pear, locality 10, 05.06.2014, A. 326.
Conocybe rickeniana P.D. Orton: In meadow, locality 38, 26.10.2014, A. 548; under apple, locality 29, A. 577; in meadow, locality 30, A. 616.
Conocybe rickenii (Jul. Schäff.) Kühner: In meadow, locality 13, 05.06.2014, A. 290.
Conocybe semiglobata Kühner and Watling: In meadow, locality 24, 24.10.2014, A. 440.
Conocybe siennophylla (Berk. and Broome) Singer: Under oak, locality 22, 24.10.2014, A. 496; in meadow, locality 17, 28.10.2014, A. 724.
Conocybe subovalis Kühner and Watling: In meadow, locality 27, 24.10.2014, A. 442.
Conocybe tenera (Schaeff.) Fayod: Under willow, locality 12, 05.06.2015, A. 307; in meadow, locality 35, 03.07.2014, A. 387; under oak 42, 25.10.2014, A. 512; in meadow, locality 37, 26.10.2014, A. 553; in meadow, locality 38, 02.11.2014, A. 786.
Boletaceae
Butyriboletus appendiculatus (Schaeff.) D. Arora and J.L. Frank: Under oak, locality 44, 03.11.2014, A. 825.
Rubroboletus satanas (Lenz) Kuan Zhao and Zhu L. Yang: Under oak, locality 20, 01.11.2014, A. 760.
Suillellus amygdalinus (Thiers) Vizzini, Simonini and Gelardi: Acar *et al.* (2019).
Clavulinaceae
Clavulina coralloides (L.) J. Schröt.: Under poplar and oak, locality 10, 05.06.2014, A. 331.
Cortinariaceae
Cortinarius caerulescens (Schaeff.) Fr.: Kalmer *et al.* (2019).
Cortinarius decipiens (Pers.) Fr.: Under poplar, locality 19, 01.05.2015, A. 932.
Cortinarius odorifer Britzelm.: Under oak, locality 9, 24.10.2014, A. 475.
Cortinarius vernus H. Lindstr. and Melot: Under willow, locality 35, 23.10.2014, A. 370.
Cyphellaceae
Chondrostereum purpureum (Pers.) Pouzar: On poplar stump, locality 35, 23.10.2014, A. 373.
Dacrymycetaceae
Calocera cornea (Batsch) Fr.: On oak stump, locality 9, 27.10.2014, A. 703.
Entolomataceae
Entoloma elodes (Fr.) P. Kumm.: In meadow, locality 42, 25.10.2014, A. 529.
Entoloma hirtipes (Schumach.) M.M. Moser: Under oak, locality 14, 24.10.2014, A. 424.
Entoloma sericeum Quél.: Under poplar and walnut, locality 1, 05.06.2014, A. 313.
Fomitopsidaceae
Laetiporus sulphureus (Bull.) Murrill: On willow, locality 14, 24.10.2014, A. 390.
Ganodermataceae
Ganoderma adspersum (Schulzer) Donk: On oak stump, locality 26, 27.10.2014, A. 618.
Geastraceae
Geastrum nanum Pers.: Under oak, locality 8, 24.10.2014, A. 413.
Geastrum saccatum Fr.: Under oak, locality 9, 27.10.2014, A. 679.
Gomphaceae
Ramaria stricta (Pers.) Quél.: On poplar, locality 32, 06.06.201, A. 358.
Hydnangiaceae
Laccaria laccata (Scop.) Cooke: Under oak, locality 32, 02.05.2016, A. 955.
Hymenochaetaceae
Fuscoporia torulosa (Pers.) T. Wagner and M. Fisch.: On oak, locality 46, 25.10.2014, A. 532.
Phellinopsis conchata (Pers.) Y.C. Dai: On dog rose, locality 42, 02.11.2014, A. 528.
Hymenogastraceae
Hebeloma gigaspermum Gröger and Zschiesch.: Under poplar, locality 35, 23.10.2014, A. 378.
Hebeloma laterinum (Batsch) Vesterh.: In meadow, locality 11, 24.10.2014, A. 483.
Hebeloma mesophaeum (Pers.) Quél.: Under poplar, locality 36, 04.06.2014, A. 282.
Hebeloma populinum Romagn.: Under poplar, locality 21, 01.11.2014, A. 778.
Hebeloma sinapizans (Paulet) Gillet: Under oak, locality 10, 24.10.2014, A. 474.
Naucoria scolecina (Fr.) Quél.: Among wood remnant,

locality 10, 24.10.2014, A. 469.
Naucoria subconspersa Kühner ex P.D. Orton: Under poplar, locality 35, 23.10.2014, A. 380.
Psilocybe coronilla (Bull.) Noorde.: In meadow, locality 30, 26.10.2014, A. 615; in meadow, locality 26, 27.10.2014, A. 622; in meadow, locality 17, 28.10.2014, A. 723; in meadow, locality 20, 01.11.2014, A. 749; in meadow, locality 45, 03.11.2014, A. 820.
Inocybaceae
Crepidotus caspari Velen.: On salix branch, locality 23, 01.05.2015, A. 924.
Crepidotus luteolus Sacc.: On blackberry, locality 29, 26.10.2014, A. 578.
Crepidotus mollis (Schaeff.) Staude: On oak branch, locality 10, 24.10.2014, A. 400; A. 470.
Crepidotus variabilis (Pers.) P. Kumm.: On oak branch, locality 9, 27.10.2014, A. 650.
Inocybe dulcamara (Pers.) P. Kumm.: Under willow, locality 4, 24.10.2014, A. 432; under poplar, locality 19, 01.05.2015, A. 940.
Inocybe hirtella Bres.: Under poplar, locality 29, 26.10.2014, A. 582.
Inocybe rimosa (Bull.) P. Kumm.: Under poplar, locality 36, 04.06.2014, A. 283; under poplar and walnut, locality 1, 05.06.2014, A. 310; under poplar, locality 12, 24.10.2014, A. 457; under poplar, locality 29, 26.10.2014, A. 580.
Marasmiaceae
Calyptella capula (Holmsk.) Quél.: On herbaceous plant, locality 31, 04.06.2014, A. 269.
Macrocystidia cucumis (Pers.) Joss.: Among wood remnant, locality 24, 24.10.2014, A.438.
Marasmius epiphyllus (Pers.) Fr.: On poplar leaf, locality 20, 01.11.2014, A. 758.
Meruliaceae
Mycoacia aurea (Fr.) J. Erikss. and Ryvarden: On alder branch, locality 10, 05.06.2014, A. 329.
Mycenaceae
Mycena galericulata (Scop.) Gray: On willow stump, locality 43, 30.04.2015, A. 895; on oak stump, locality 23, 01.05.2015, A. 922.
Mycena galopus (Pers.) P. Kumm.: On oak branch, locality 9, 27.10.2014, A. 710.
Mycena hiemalis (Osbeck) Quél.: On oak branch, locality 9, 27.10.2014, A. 665.
Mycena inclinata (Fr.) Quél.: On oak branch, locality 9, 24.10.2014, A. 480.
Mycena niveipes (Murrill) Murrill: On oak stump, locality 9, 27.10.2014, A. 690.
Mycena polygramma (Bull.) Gray: Under oak, locality 10, 24.10.2014, A. 482.
Mycena pura (Pers.) P. Kumm: Under oak, locality 9, 27.10.2014, A. 709.
Mycena renati Quél.: On oak branch, locality 9, 27.10.2014, A. 702; on hawthorn branch, locality 17, 28.10.2014, A. 727.
Mycena vitilis (Fr.) Quél.: On oak branch, locality 9, 27.10.2014, A. 663.
Omphalotaceae
Gymnopus dryophilus (Bull.) Murrill: Under oak, locality 10, 24.10.2014, A. 393; under oak, locality 37, 26.10.2014, A. 552; under oak, locality 26, 27.10.2014, A. 625; under oak, locality 20, 01.11.2014, A. 757.
Gymnopus erythropus (Pers.) Antonín, Halling and Noordel.: On oak remnant, locality 9, 27.10.2014, A. 646.
Gymnopus fuscopurpureus (Pers.) Antonín, Halling and Noordel.: Under oak, locality 22, 24.10.2014, A. 501.
Paxillaceae
Melanogaster ambiguus (Vittad.) Tul. and C. Tul.: Uzun *et al.* (2014b).
Paxillus involutus (Batsch) Fr.: Under poplar, locality 36, 04.06.2014, A. 288; under poplar, locality 38, 02.11.2014, A. 789.
Physalacriaceae
Armillaria mellea (Vahl) P. Kumm.: On walnut stump, locality 21, 01.11.2014, A. 773.
Desarmillaria tabescens (Scop.) R.A. Koch and Aime: On root of oriental plane, locality 17, 28.10.2014, A. 739.
Flammulina velutipes (Curtis) Singer: On willow, locality 17, 11.04.2015, A. 890.
Xerula pudens (Pers.) Singer: Under oak, locality 9, 27.10.2014, A. 685.
Pleurotaceae
Pleurotus dryinus (Pers.) P. Kumm.: On walnut stump, locality 17, 28.10.2014, A. 731.
Pleurotus eryngii (DC.) Quél.: In meadow, locality 33, 02.05.2016, A. 954.
Pleurotus ostreatus (Jacq.) P. Kumm.: On willow stump, locality 24, 24.10.2014, A. 454; on poplar stump, locality 10, 24.10.2014, A. 467; on poplar stump, locality 28, 11.04.2015, A. 882.
Pluteaceae
Pluteus romellii (Britzelm.) Sacc.: On poplar stump, locality 10, 05.06.2014, A. 340; on wood remnant, locality 42, 25.10.2014, A. 509; on poplar stump, locality 29, 26.10.2014, A. 574; on wood remnant, locality 9, 27.10.2014, A. 653.
Psathyrellaceae
Coprinellus disseminatus (Pers.) J.E. Lange: On willow stump, locality 42, 25.10.2014, A. 510.
Coprinellus domesticus (Bolton) Vilgalys, Hopple and Jacq. Johnson: On oak stump, locality 37, 26.10.2014, A. 555; on oak branch, locality 9, 27.10.2014, A. 674.
Coprinellus impatiens (Fr.) J.E. Lange: On wood remnant, locality 8, 24.10.2014, A. 421; on oak branch, locality 22, 24.10.2014, A. 497.
Coprinellus micaceus (Bull.) Vilgalys, Hopple and Jacq. Johnson: On poplar stump, locality 36, 04.06.2014, A. 278; on wood remnant, locality 40, 06.06.2014, A. 343; on poplar stump, locality 12, 24.10.2014, A. 458.
Coprinellus xanthothrix (Romagn.) Vilgalys, Hopple and Jacq. Johnson: On wood remnant, locality 42,

25.10.2014, A. 526.
Coprinopsis atramentaria (Bull.) Redhead, Vilgalys and Moncalvo: Under poplar, locality 46, 30.04.2015, A. 898.
Coprinopsis cinerea (Schaeff.) Redhead, Vilgalys and Moncalvo: Under willow, locality 31, 04.06.2014, A. 258; under pear, locality 9, 27.10.2014, A. 638.
Coprinopsis lagopus (Fr.) Redhead, Vilgalys and Moncalvo: On wood remnant, locality 14, 24.10.2014, A. 428; on wood remnant, locality 36, 02.11.2014, A. 791.
Coprinopsis marcescibilis (Britzelm.) Örstadius and E. Larss.: In meadow, locality 30, 26.10.2014, A. 605.
Coprinopsis nivea (Pers.) Redhead, Vilgalys and Moncalvo: In meadow, on dung, locality 32, 02.05.2016, A. 956.
Coprinopsis picacea (Bull.) Redhead, Vilgalys and Moncalvo: In meadow, locality 29, 26.10.2014, A. 568; In meadow, locality 20, 01.11.2014, A. 751.
Homophron spadiceum (P. Kumm.) Örstadius and E. Larss.: On willow stump 41, 06.06.2014, A. 366; under oak, locality 12, 24.10.2014, A. 461.
Parasola auricoma (Pat.) Redhead, Vilgalys and Hopple: In meadow, locality 12, 05.06.2014, A. 292.
Parasola kuehneri (Uljé and Bas) Redhead, Vilgalys and Hopple: Under willow, locality 31, 04.06.2014, A. 256; under poplar, locality 46, 30.04.2015, A. 899.
Parasola leiocephala (P.D. Orton) Redhead, Vilgalys and Hopple: In meadow, locality 30, 26.10.2014, A. 603.
Psathyrella ammophila (Durieu and Lév.) P.D. Orton. Near road, on sandy soil, locality 30, 26.10.2014, A. 606.
Psathyrella candolleana (Fr.) Maire: Under willow, locality 13, 05.06.2014, A. 294; on wood remnant, locality 40, 06.06.2014, A. 347; under poplar, locality 29, 26.10.2014, A. 584.
Psathyrella fatua (Fr.) P. Kumm.: On wood remnant, locality 42, 25.10.2014, A. 523; under oak, locality 26, 01.11.2014, A. 619.
Psathyrella leucotephra (Berk. and Broome) P.D. Orton.: Under oak, locality 12, 24.10.2014, A. 464.
Psathyrella panaeoloides (Maire) Arnolds: In meadow, locality 42, 25.10.2014, A. 519.
Psathyrella picta (Romagn.) Romagn. ex Bon.: Under willow, locality 31, 04.06.2014, A. 257; in meadow, locality 12, 05.06.2014, A. 291; under willow, locality 13, 05.06.2014, A. 296; in meadow, locality 16, 01.05.2015, A. 931.
Psathyrella prona (Fr.) Gillet: Under willow, locality 13, 05.06.2014, A. 299; In meadow, locality 30, 26.10.2014, A. 599.
Psathyrella pseudogracilis (Romagn.) M.M. Moser: In meadow, locality 30, 26.10.2014, A. 611; under apple, locality 11, 27.10.2014, A. 719.
Psathyrella spadiceogrisea (Schaeff.) Maire: Under willow, locality 25, 24.10.2014, A. 433; under oak, locality 37, 26.10.2014, A. 563; in meadow, locality 29, A. 566.

Polyporaceae
Cerioporus squamosus (Huds.) Quél.: On poplar stump, locality 36, 04.06.2014, A. 279; on walnut stump, locality 38, 02.11.2014, A. 815.
Fomes fomentarius (L.) Fr.: On poplar stump, locality 36, 04.06.2014, A. 285; on walnut, locality17, 28.10.2014, A. 726.
Lentinus arcularius (Batsch) Zmitr.: On oak branch, locality 8, 24.10.2014, A. 420; on oak branch, locality 10, 27.10.2014, A. 649; on oak branch, locality 20, 01.11.2014, A. 752.
Lentinus tigrinus (Bull.) Fr.: On poplar stump, locality 42, 25.10.2014, A. 521; on poplar stump, locality 37, 02.11. 2014, A. 788; on willow stump, locality 43, 30.04.2015, A. 894.
Neolentinus cyathiformis (Schaeff.) Della Magg. and Trassin.: On poplar stump, locality 3, 01.05.2015, A. 945.
Trametes hirsuta (Wulfen) Lloyd: On apple stump, locality 46, 30.04.2015, A. 904.
Trametes trogii Berk.: On poplar stump, locality 1, 05.06.2014, A. 320; on poplar stump, locality 29, 26.10.2014, A. 589.
Trametes versicolor (L.) Lloyd: On poplar stump, locality 29, 26.10.2014, A. 581; on poplar stump, locality 46, 30.04.2015, A. 897.
Schizophyllaceae
Schizophyllum amplum (Lév.) Nakasone: On oak branch, locality 11, 24.10.2014, A. 488.
Schizophyllum commune Fr.: On poplar stump, locality 5, 10.04.2015, A. 853; on walnut stump, locality 46, 30.04.2015, A. 896.
Stereaceae
Stereum gausapatum (Fr.) Fr.: On oak stump, locality 46, 25.10.2014, A. 535; on oak stump, locality 37, 26.10.2014, A. 543.
Stereum hirsutum (Willd.) Pers.: On oak stump, locality 39, 04.06.2014, A. 274; on willow branch, locality 42, 25.10.2014, A. 520; on oak branch, locality 37, 26.10.2014, A. 561; on oak branch, locality 44, 03.11.2014, A. 831; on walnut branch, locality 2, 11.04.2015, A. 871; on oak stump, locality 15, 01.05.2015, A. 912.
Strophariaceae
Leratiomyces squamosus (Pers.) Bridge and Spooner: On wood remnant, locality 22, 24.10.2014, A. 502; on wood remnant, locality 9, 27.10.2014, A. 660.
Pholiota aurivella (Batsch) P. Kumm.: On willow, locality 35, 23.10.2014, A. 369; on willow, locality 24, 24.10.2014, A. 455; on walnut stump, locality 38, 02.11.2014, A. 793.
Pholiota carbonaria (Fr.) Singer: On burnt soil, locality 15, 01.05.2015, A. 920.
Pholiota gummosa (Lasch) Singer. Under poplar, locality 24, 24.10.2014, A. 450.
Protostropharia luteonitens (Fr.) Redhead: On dung, locality 42, 25.10.2014, A. 524.
Protostropharia semiglobata (Batsch) Redhead,

Moncalvo and Vilgalys: On dung, locality 46, 25.10.2014, A. 539.

Tremellaceae

Tremella mesenterica Retz.: On willow branch, locality 21, 01.11.2014, A. 775; on walnut stump, locality 2, 11.04.2015, A. 869; on poplar stump, locality 19, 01.05.2015, A. 933.

Tricholomataceae

Bonomyces sinopicus (Fr.) Vizzini: On wood remnant, locality 40, 06.06.2014, A. 345.

Clitocybe fragrans (With.) P. Kumm.: Under poplar, locality 25, 27.10.2014, A. 629.

Clitocybe odora (Bull.) P. Kumm.: Under oak, locality 44, 03.11.2014, A. 834.

Clitocybe rivulosa (Pers.) P. Kumm.: In meadow, locality 36, 04.06.2014, A. 286.

Collybia cookei (Bres.) J.D. Arnold.: Under oak, locality 9, 27.10.2014, A. 667.

Lepista irina (Fr.) H.E. Bigelow: In meadow, locality 34, 02.11.2014, A. 785.

Lepista nuda (Bull.) Cooke: Under oak, locality 26, 27.10.2014, A. 620; in meadow, locality 17, 28.10.2014, A. 725; under oak, locality 44, 03.11.2014, A. 837.

Lepista personata (Fr.) Cooke. Under poplar, locality 36, 04.06.2014, A. 289; under apple, locality 28, 11.04.2015, A. 876; under poplar, locality 36, 30.04.2015, A. 910.

Lepista sordida (Schumach.) Singer: On wood remnant, locality 40, 06.06.2014, A. 346.

Leucocybe connata (Schumach.) Vizzini, P. Alvarado, G. Moreno and Consiglio: In meadow, locality 46, 30.04.2015, A. 902.

Melanoleuca cognata (Fr.) Konrad and Maubl.: Under oak, locality 9, 27.10.2014, A. 645; under oak, locality 45, 03.11.2014, A. 817.

Melanoleuca communis Sánchez-García and J. Cifuentes: Acar *et al.* (2017).

Melanoleuca dryophila Murrill: Acar *et al.* (2017).

Melanoleuca microcephala (P. Karst.) Singer: On wood remnant, locality 21, 01.11.2014, A. 776.

Melanoleuca polioleuca (Fr.) Kühner and Maire: On wood remnant, locality 30, 26.10.2014, A. 609.

Pseudoclitocybe cyathiformis (Bull.) Singer: On oak branch, locality 22, 24.10.2014, A. 494; in meadow, locality 29, 26.10.2014, A. 570.

Tricholoma populinum J.E. Lange: Under poplar, locality 9, 24.10.2014, A. 481.

Tricholoma scalpturatum (Fr.) Quél.: Under poplar, locality 36, 04.06.2014, A. 280.

Tubariaceae

Tubaria confragosa (Fr.) Harmaja: On plant remnant, locality 9, 27.10.2014, A. 655.

Tubaria conspersa (Pers.) Fayod: On plant remnant, locality 1, 05.06.2014, A. 311; on plant remnant, locality 42, 25.10.2014, A. 511.

Tubaria furfuracea (Pers.) Gillet: On wood remnant, locality 13, 24.10.2014, A., 395; on wood remnant, locality 12, A. 468; On dog rose, locality 37, 27.10.2014, A. 643; on plant remnant, locality 18, 28.10.2014, A. 735.

Tubaria romagnesiana Arnolds: On wood remnant, locality 42, 25.10.2014, A. 527.

DISCUSSION

Overall, 113 of the determined taxa were terricolous, 83 were lignicolous and 7 were coprophilous. Among them, *Conocybe tenera, Coprinellus micaceus, Gymnopus dryophilus, Inocybe rimosa, Lentinus arcularius Macrolepiota excoriata, Psilocybe coronilla, Pluteus romellii, Stereum hirsutum* and *Verpa bohemica* were the most widespread species.

Overall, 43 species were edible (*Agaricus arvensis, A. bernardii, A. campestris, A. litoralis, A. sylvicola, A. urinascens, Armillaria mellea, Auricularia mesenterica, Bovista aestivalis, B. pila, Butyriboletus appendiculatus, Clavulina coralloides, Coprinus comatus, Flammulina velutipes, Gymnopus dryophilus, Helvella lacunosa, H. leucopus, Laccaria laccata, Laetiporus sulphureus, Lentinus tigrinus, Lepista irina, L. nuda, L. personata, L. sordida, Leucoagaricus barssii, L. leucothites, Leucocybe connata, Lycoperdon marginatum, L. pratense, Macrolepiota excoriata, M. mastoidea, M. procera, Melanoleuca cognata, Morchella angusticeps, M. esculenta, Pleurotus dryinus, P. eryngii, P. ostreatus, Pluteus romellii, Cerioporus squamosus, Psilocybe coronilla, Tricholoma populinum* and *Verpa bohemica)* but *Pleurotus eryngii* was the most consumed and traded macrofungus species by the local people.

Amanita eliae, Clitocybe fragrans, C. odora, C. rivulosa, Coprinopsis atramentaria, Cortinarius decipiens, Entoloma elodes, Geopora arenosa, Gyromitra brunnea, Hebeloma mesophaeum, H. sinapizans, Inocybe dulcamara, I. hirtella, I. rimosa, Lepiota cristata, L. subincarnata, Mycena pura, Paxillus involutus and *Rubroboletus satanas* were listed as the poisonous species, but no poisoning case has been reported in the study area so far, most probably due to the fact that local people collect and consume only the well known edible fungi.

The macrofungi species determined in the study area show similarities with those reported in neighbouring areas (Table 2). The similarity may be due to the common vegetation structure and climate, and the differences may be due to the various micro-climatic effects seen in the research area and the presence of different micro-habitats.

CONCLUSION

In the present study, 203 macrofungi species belonging to 97 genera and 46 families within *Ascomycota* and *Basidiomycota* were listed. The list involves 36 species belonging to *Ascomycota* (*Pyronemataceae* and *Pezizaceae* 6, *Helotiaceae* 5, *Dermateaceae* and *Helvellaceae* 4, *Morchellaceae* 3, *Ascobolaceae* and

Diatrypaceae 2, *Discinaceae, Hyaloscyphaceae, Rutstroemiaceae* and *Xylariaceae* 1) and 167 species belonging to *Basidiomycota* (*Psathyrellaceae* 24, *Agaricaceae* 23, *Tricholomataceae* 19, *Bolbitiaceae* 13, *Mycenaceae* 9, *Hymenogastraceae* and *Polyporaceae* 8, *Inocybaceae* 7, *Strophariaceae* 6, *Cortinariaceae*, *Physalacriaceae* and *Tubariaceae* 4, *Boletaceae, Entolomataceae, Marasmiaceae, Omphalotaceae* and *Pleurotaceae* 3, *Atheliaceae, Geastraceae, Hymenochaetaceae, Paxillaceae, Schizophyllaceae* and *Stereaceae* 2, *Amanitaceae, Auriculariaceae, Clavulinaceae, Cyphellaceae, Dacrymycetaceae, Fomitopsidaceae, Ganodermataceae, Gomphaceae, Hydnangiaceae, Meruliaceae, Pluteaceae* and *Tremellaceae* 1). Except six (*Peziza granularis, Suillellus amygdalinus, Cortinarius caerulescens, Melanogaster ambiguus, Melanoleuca communis* and *M. dryophila*), all species were new for the area.

Table 2. The similarity percentages (in terms of taxa reported) with former studies around the study area

Çizelge 2. Çalışma alanı çevresinde gerçekleştirilmiş önceki çalışmalarla benzerlik yüzdeleri (rapor edilen taksonlar açısından)

Previous studies *Önceki çalışmalar*	Common species number *Ortak tür sayısı*	Total species number *Toplam tür sayısı*	Similarity (%) *Benzerlik* (%)
Van (Demirel 1996)	20	50	40
Bitlis (Kaya 2001)	23	60	38.3
Batman (Demir *et al.* 2007)	18	50	36
Van (Demirel *et al.* 2015)	46	122	37.7
Erciş/Van (Demirel and Koçak 2016)	30	96	31.2

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Statement of Conflict of Interest

Authors have declared no conflict of interest.

Author's Contributions

The contribution of the authors is equal.

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