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Some Macrofungi Determined in Oltu and Narman (Erzurum-Türkiye) Region

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ABSTRACT
This study reports on macrofungus samples collected within the borders of Oltu and Narman (Erzurum) districts in 2018 and 2019. As a result of field and laboratory studies, 198 species were identified. The species identified in the region are distributed in 5 classes, 12 orders, 52 families, and 103 genera. 187 of the identified species are new to the research area. The species are listed with their habitat, locality, and edibility status.

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Oltu ve Narman (Erzurum-Türkiye) Yöresinde Belirlenen Bazı Makrofunguslar

ÖZET
Bu çalışma, 2018 ve 2019 yıllarında Oltu ve Narman (Erzurum) ilçe sınırları içerisinde toplanan makrofungus örneklerini rapor etmektedir. Arazi ve laboratuvar çalışmaları sonucunda 198 tür belirlenmiştir. Bölgede tespit edilen türler 5 sınıf, 12 takım, 52 familya ve 103 cins içerisinde dağılım göstermektedir. Belirlenen türlerin 187 tanesi araştırma alanı için yenidir. Türler habitat, lokalite ve yenilebilirlik durumları ile birlikte liste halinde sunulmuştur.

Mikoloji

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INTRODUCTION

Oltu district is located within Erzurum province's boarders between 40º 33' 0" north latitude and 41º 58' 2" east longitude. The total surface area of the district is approximately 1380.40 km², the altitude of the district centre is 1275 m, and the distance to the city center is 129 km (Külekçi and Bulut, 2013). Narman District is located between 40º22"0' N latitudes and 41º55"59' E longitudes, lying at a distance of 96 km from 2 Erzurum province, covering an area of 1275 km and at an altitude of 1640 m (Külekçi and Koç, 2020). Both districts within the borders of Erzurum province provide a suitable habitat for macrofungus development due to their rich vegetation and forested areas.

The effects of climatic factors such as temperature, humidity, and precipitation on fungal development are important. According to the meteorological data obtained from Erzurum Meteorology Station in 2019, the average temperature, relative humidity, and precipitation amounts in Oltu and Narman districts, which have extremely cold winters and semi-arid Mediterranean climates, are 9.8 ºC, 9.2 ºC; 59.5%, 56.7%; 32.53 mm, 28.92 mm, respectively.

Fungi are immensely diverse, with 144,000 species named and classified at a current rate of around 2,000 per year. However, it is estimated that the vast majority (over 93%) of fungal species are currently unknown to science. The latest best estimate suggests that the total number of fungal species on Earth is somewhere between 2.2 and 3.8 million, exceeding the estimated number of plants by more than 6 times (Willis, 2018; Hawksworth & Lücking,

2017). Although studies on macrofungus systematics have increased in recent years, both in our country and worldwide, it is believed that this rate should be further increased to address such a significant deficiency.

The current checklist (Sesli et al., 2020, Solak ve Türkoğlu, 2022) and the latest studies (Acar et al., 2020; Acar et al., 2021; Çetinkaya & Uzun, 2021; Çetinkaya et al., 2021; Çevik et al., 2021; Doğan et al., 2021; Keleş & Kaya, 2021; Kesici & Uzun, 2021; Oruç et al., 2021; Şelem et al., 2021; Berber et al., 2022; Kaplan et al., 2023; Keleş & Kaya, 2023; Akata et sl., 2024a; 2024b; 2024 c; 2024d; 2024e; Dalkıran et al., 2024; Doğan et al., 2024; Kaygusuz et al., 2024; Keleş et al., 2024; Kesici et al., 2024; Uzun et al., 2024) indicated that there isn‟t a specific work on the macrofungal biodiversity of Oltu and Narman districts.

The study aims to determine the macrofungal composition of Oltu and Narman districts, and to make a contribution to the mycobiota of Türkiye.

MATERIAL and METHOD

The research materials were collected from 47 suitable habitats in the Oltu and Narman districts of Erzurum province between 2018 and 2019 (Table 1).

Table 1. Locality information of the determined species
Çizelge 1. Tespit edilen türlerin lokalite bilgileri

No.	Lokalite	Koordinat	Altitude
1	Erzurum, Oltu, Southern slope of İnciköy pass	40° 34.050'K, 41° 50.455'D	2016 m
2	Erzurum, Oltu, Southwestern slope of İnciköy pass	40° 34.162'K, 41° 50.195'D	2046 m
3	Erzurum, Oltu, İnciköy pass Western slope	40° 34.342'K, 41° 49.592'D	2182 m
4	Erzurum, Oltu, İnciköy pass peak point	40° 34.430'K, 41° 50.036'D	2173 m
5	Erzurum, Oltu, İnciköy pass North-west slope 1	40° 34.566'K, 41° 49.890'D	2165 m
6	Erzurum, Oltu, İnciköy pass North west slope 2	40° 34.657'K, 41° 50.064'D	2092 m
7	Erzurum, Oltu, İncikoy recreation area	40° 34.773'K, 41° 50.064'D	2104 m
8	Erzurum, Oltu, On the İnciköy Esenyamaç village road	40° 36.012'K, 41° 50.749'D	1790 m
9	Erzurum, On the Oltu-Narman road, near the brick factory	40° 29.221'K, 41° 57.603'D	1369 m
10	Erzurum, On the Oltu-Narman road, around Ünlükaya village	40° 25.468'K, 41° 57.453'D	1455 m
11	Erzurum, On the Narman-Köprüköy road, around the Narman junction	40° 18.680'K, 41° 53.508'D	1578 m
12	Erzurum, Narman, Opposite Göllü village 1	40° 13.828'K, 41° 52.075'D	1863 m
13	Erzurum, Narman, Opposite Göllü village 2	40° 13.649'K, 41° 52.138'D	1937 m
14	Erzurum, Narman, Yanıktaş Village	40° 16.469'K, 41° 51.745'D	1637 m
15	Erzurum, Narman, Around Telli village	40° 13.219'K, 41° 48.362'D	1854 m
16	Erzurum, Narman, Around Yoldere village	40° 17.474'K, 41° 52.555'D	1607 m
17	Erzurum, Oltu, Obayayla village, recreation area vicinity 1	40° 30.547'K, 42° 3.990'D	1941 m
18	Erzurum, Oltu, Obayayla village, recreation area vicinity 2	40° 30.509'K, 42° 4.092'D	1984 m
19	Erzurum, Oltu, Obayayla village, recreation area vicinity 3	40° 30.519'K, 42° 4.367'D	1946 m
20	Erzurum, Oltu, Bahçelikışla village	40° 35.107'K, 42° 9.318'D	1501 m
21	Erzurum, Oltu, İnanmış villiage	40° 28.719'K, 41° 41.974'D	2037 m
22	Erzurum, Narman, Around Telli village 1	40° 12.775'K, 41° 47.324'D	1950 m
23	Erzurum, Narman, Around Telli village 2	40° 12.617'K, 41° 47.796'D	2045 m
24	Erzurum, Narman, Around Telli village 3	40° 12.433'K, 41° 48.257'D	2104 m
25	Erzurum, Narman, Around Çamlıyayla village	40° 11.938'K, 41° 49.861'D	2067 m
26	Erzurum, Narman, Around Mercimekli village	40° 12.766'K, 41° 50.090'D	1940 m
27	Erzurum, Oltu, Çamlıbel village	40° 28.931'K, 41° 46.099'D	1720 m
28	Erzurum, Oltu, Derebasi village passage	40° 38.182'K, 41° 55.547'D	2066 m
29	Erzurum, Oltu, Around Derebaşı village	40° 38.266'K, 41° 54.616'D	1750 m
30	Erzurum, Oltu, Uzunoluk recreation area	40° 37.884'K, 41° 56.473'D	1903 m
31	Erzurum, Oltu, Around Gökçedere village	40° 36.689'K, 41° 58.117'D	1710 m
32	Erzurum, Narman, Surroundings of Göllü village, recreation area 1	40° 13.289'K, 41° 52.463'D	1972 m
33	Erzurum, Narman, Surroundings of Göllü village, recreation area 2	40° 13.142'K, 41° 52.659'D	2010 m
34	Erzurum, Narman, Around Mercimekli village	40° 12.634'K, 41° 50.178'D	1961 m
35	Erzurum, Narman, Around Çamlıyayla village	40° 11.383'K, 41° 49.424'D	2210 m
36	Erzurum, Narman, opposite Göllü village	40° 13.584'K, 41° 52.391'D	1907 m
37	Erzurum, Narman, Around Ilıca villag	40° 12.995'K, 41° 52.716'D	2058 m
38	Erzurum, Oltu, Obayayla village recreation area	40° 30.392'K, 42° 4.198'D	1990 m
39	Erzurum, Oltu, Around Obayayla village 1	40° 29.885'K, 42° 4.403'D	1976 m
40	Erzurum, Oltu, Around Obayayla village 2	40° 29.887'K, 42° 4.915'D	2171 m
41	Erzurum, Oltu, Around Aşağıçamlı village	40° 32.521'K, 42° 4.899'D	1691 m
42	Erzurum, Oltu, On the road to Gökçedere village Uzunoluk Recreation area 1	40° 36.811'K, 41° 58.656'D	1575 m
43	Erzurum, Oltu, On the road to Gökçedere village Uzunoluk Recreation area 2	40° 36.754'K, 41° 58.596'D	1612 m
44	Erzurum, Narman, On the Yanıktaş-Telli village road	40° 13.251'K, 41° 48.445'D	1833 m
45	Erzurum, Oltu, Gökçedere-Derebaşı village road	40° 37.694'K, 41° 55.085'D	1963 m
46	Erzurum, Oltu, Gökçedere village Uzunoluk recreation area vicinity	40° 37.825'K, 41° 56.639'D	1871 m
47	Erzurum, Oltu, Gökçedere-Uzunoluk recreation area road	40° 36.800'K, 41° 57.956'D	1650 m

The locations of the collected fungal samples were transferred to the numerical environment using the GIS (Geographic Information Systems) technique (Fig. 1). Digital maps were then obtained with the ArcMap 10.2 program.

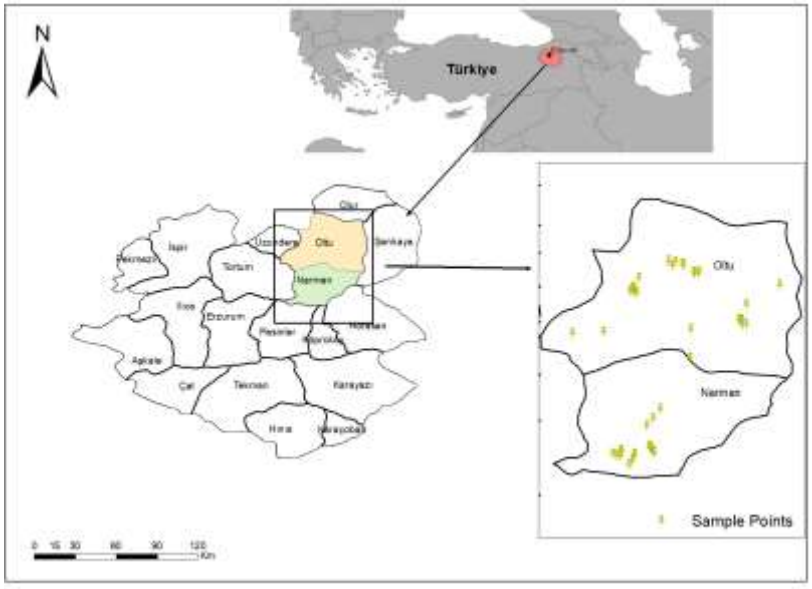

Figure 1. The map showing the district borders of Oltu and Narman, where macrufungi were collected
Şekil 1. Makrofungusların toplandığı Oltu ve Narman ilçe sınırlarını gösteren harita

During field studies, fruit bodies were photographed in their natural habitats, and their characteristics related to morphology and ecology were noted. Then the fungal samples were taken to the laboratory for further investigations. After spore prints were taken, fresh samples were dried. Macroscopic and microscopic analyses, as well as micro-chemical reactions, were performed using dried samples. Reagents such as Melzer's reagent, 5% KOH, H_2O, H_2SO_4, congo red, and cotton blue, etc., were used to make microscopic characters (ascus, basidium, spores, etc.) more clearly visible and distinct. Microscopic investigations were made using a light microscope (Leica DM500) and measurements with the Leica Application Suite (version 3.2.0) software. The identification of the materials was conducted based on 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 species determined in the region were alphabetically listed along with notes on the habitats, collection dates, and accession numbers (Cemil SADULLAHOĞLU: CS). Turkish names of taxa are given according to Sesli et al. (2020) and Anonymous 2025b. The systematic position of each taxa was given considering the Index Fungorum (Anonymous, 2025a).

Ascomycota Whittaker
Leotiomycetes O.E. Erikss. & Winka
Helotiales Nannf.
Helotiaceae Rehm

1. *Cyathicula cyathoidea* (Bull.) Thüm. / Cıbıl dikenli kadeh: On decaying plant residues, 06.06.2018, unedible, [8], CS. 119.
2. *Hymenoscyphus fructigenus* (Bull.) Gray / Meyve mıhı: On fallen oak branch bark, unedible, 02.11.2018, [44], CS. 786.

Lachnaceae Raitv.

3. *Capitotricha bicolor* (Bull.) Baral / Papatya mantarı: On plant residue, unedible, 06.06.2018, [6], CS. 73.
4. *Lachnum brevipilosum* Baral / Kıllı akçanak: On cone residue, unedible, 06.06.2018, [6, 8, 17], CS. 74, 113, 249.

Mollisiaceae Rehm

5. *Mollisia cinerea* (Batsch) P. Karst. / Boz tepsi: On poplar branch residue, unedible, 19.06.2019, [13], CS. 806.

Rutstroemiaceae Holst-Jensen, L.M. Kohn & T. Schumach.

6. *Rutstroemia firma* (Pers.) P. Karst. / Kuş düdüğü: On wood residue, unedible, 21.09.2019, [30], CS. 980.

Pezizomycetes O.E. Eriksss. & Winka

Pezizales J. Schröt.

Discinaceae Benedix

7. *Discina ancilis* (Pers.) Sacc. / Dibi buruşuk: Under conifer trees, edible, 06.06.2018, [8], CS. 110.

Helvellaceae Fr.

8. *Dissingia leucomelaena* (Pers.) K. Hansen & X.H. Wang / Çukur semer mantarı: Under conifer trees, edible, 07.06.2018, [23], CS. 405.
9. *Helvella acetabulum* (L.) Quél. Kuzu kulağı mantarı: Under conifer trees, edible, 05-06.06.2018, [1, 5, 8], CS. 10, 70, 130.
10. *Helvella fibrosa* (Wallr.) Korf / Tüylü semer mantarı: On conifer leaf residues, unknown, 30.06.2018, [20], CS. 350.
11. *Helvella lacunosa* Afzel. / Bet semer mantarı: Mixed forest, edible, 07.06.2018, [9], CS. 141.
12. *Helvella latispora* Boud. / Kertik semer mantarı: Among conifer leaf residues, unedible, 06.06.2018, [20], CS. 351.

Morchellaceae Rchb.

13. *Morchella angusticeps* Peck / Köşeli göbek: Under conifer trees, edible, 06-07.06.2018, [7, 16], CS. 101, 103, 220, 242.
14. *Morchella esculenta* (L.) Pers. / Kuzu göbeği: Mixed forest, edible, 07.06.2018, [16], CS. 243.
15. *Morchella populiphila* M. Kuo, M.C. Carter & J.D. Moore / Kavak kuzu göbeği: Mixed forest, edilbe, 07.06.2018, [16], CS. 232, 234.
16. *Morchella semilibera* DC. / Hacı takkesi: Under poplar, edible, 07.06.2018, [16], CS. 238, 239, 240.
17. *Verpa bohemica* (Krombh.) J. Schröt./ Çan mantarı: Mixed forest, edible, 07.06.2018, [14], CS. 193.

Otideaceae Eckblad

18. *Otidea bufonia* (Pers.) Boud. / Sık yer kulak: Mixed forest, unedible, 02.11.2018, [47], CS. 780.

Pezizaceae Dumort.

19. *Marcelleina atroviolacea* Brumm. / Mor buztutan: On moss-covered conifer residues, unedible, 21.09.2019.2018, [42], CS. 952.
20. *Peziza fimeti* (Fuckel) E.C. Hansen / Ezik çanak: On cow manure, unedible, 01.07.2018, [35], CS. 425.
21. *Peziza repanda* Wahlenb. / Battal çanak: On wood residue, unedible, 07.06.2018, [15], CS. 210.
22. *Peziza violacea* (Bull.) Relhan / Pembe çanak: On burnt soil, unedible, 06.06.2018, [4], CS. 824.

Pyronemataceae Corda

23. *Anthracobia macrocystis* (Cooke) Boud. / Zerzenne: On burnt soil, unedible, 02.11.2018, [42], CS.745.
24. *Geopora sepulta* (Fr.) Korf & Burds. / Düz dalga topu: Meadow, unedible, 07.06.2018, [15], CS. 213.
25. *Scutellinia scutellata* (L.) Lambotte / Dikenli tabak: By the stream, on soil, unedible, 05.07.2019, [45], CS. 830.
26. *Sepultariella semiimmersa* (P. Karst.) Van Vooren, U. Lindem. & Healy / Torba deren: Among mosses, under conifer trees, unedible, 28.09.2018, [34], CS. 613.

Sordariomycetes O.E. Eriksss. & Winka

Xylariales Nannf.

Xylariaceae Tul. & C. Tul.

27. *Xylaria hypoxylon* (L.) Grev. / Güdük ölü parmak: On the base of moss-covered log, unedible, 02.11.2018, [44], CS. 772.

Basidiomycota R.T. Moore

Agaricomycetes Doweld

Agaricales Underw.

Agaricaceae Chevall.

28. *Agaricus arvensis* Schaeff. / At mantarı: Meadow, edible, 07.06.2018, [13], CS. 181.
29. *Agaricus bresadolanus* Bohus / Halkalı kızıl: Meadow, unedible, 07.06.2018, [9], CS. 137.
30. *Agaricus campestris* L. / İçi kızıl: Meadow, edible, 07.06.2018, [11], CS. 156.
31. *Agaricus macrocarpus* F.H. Møller / Çayır mantarı: Mixed forest, edible, 07.06.2018, [14], CS. 194.
32. *Agaricus subperonatus* (J.E. Lange) Singer / Kestane mantarı: Among conifer leaves, edible, 06.06.2018, [8], CS. 109.
33. *Agaricus sylvaticus* Schaeff. / Orman mantarı: Under conifer trees, edible, 30.06.2018, [20], CS. 333.
34. *Agaricus sylvicola* (Vittad.) Peck / Boylu kızıl: Under conifer trees, edible, 06.06.2018, CS. [8], 115.
35. *Coprinus comatus* (O.F. Müll.) Pers. / Söbelen: Meadow, edible, 06.06.2018; 28.09.2018; 21.09.2019, [10, 15, 26], CS. 154, 204, 635, 1001.

36. ***Lepiota clypeolaria*** (Bull.) P. Kumm. / Ladin pullusu: Mixed forest, unedible, 05-30.06.2018, [2, 3, 17, 18, 20], CS.20, 35, 278, 303, 354.
37. ***Macrolepiota procera*** (Scop.) Singer / Kartal ayağı: Under conifer trees, edible, 20.09.2019, [42], CS. 914.
38. ***Tulostoma brumale*** Pers. / Gözenek mantarı: Mixed forest, unedible, 05.06.2018, [2], CS. 22.

Amanitaceae E.-J. Gilbert

39. ***Amanita eliae*** Quél. / El kesesi: Mixed forest, unedible, 30.06.2018, [17], CS. 292.
40. ***Amanita fulva*** Fr. / Parlak kese: Under conifer trees, edible, 30.06.2018, [21], CS. 367.
41. ***Amanita gemmata*** (Fr.) Bertill. / Kaba kese: Under conifer trees, unedible, 30.06.2018, [18, 19], CS. 301, 311, 316, 326.
42. ***Amanita pantherina*** (DC.) Krombh. / Panter mantarı: Under conifer trees, poisonous, 30.06.2018, [17, 18, 20] CS. 272, 298, 317, 340, 357.
43. ***Amanita vaginata*** (Bull.) Lam. / Yarıklı kese: Under conifer trees, edible, 01.07.2018, [22], CS. 383.
44. ***Saproamanita vittadinii*** (Moretti) Redhead, Vizzini, Drehmel & Contu / Duvakluca: Meadow, edible, 07.06.2018, [11], CS. 157.

Bolbitiaceae Singer

45. ***Conocybe apala*** (Fr.) Arnolds / Ak yalın etek: Meadow, unedible, 07.06.2018, [11], CS. 158.
46. ***Conocybe blattaria*** (Fr.) Kühner / Er yalın etek: Mixed forest, unedible, 02.11.2018, [44], CS. 787.
47. ***Conocybe rickenii*** (Jul. Schäff.) Kühner / El yalın etek: Meadow, unedible, 07.06.2018, [15], CS. 207.
48. ***Conocybe tenera*** (Schaeff.) Fayod / Daz yalın etek: Meadow, unedible, 07.06.2018, [12], CS. 170.

Clavariaceae Chevall.

49. ***Clavaria acuta*** Sowerby / Sivri çomak: Mixed forest, edible 30.06.2018, [20], CS. 352.

Clitocybaceae Vizzini, Consiglio & M. Marchetti

50. ***Clitocybe bresadolana*** Singer / El huni mantarı: Mixed forest, unedible, 05.06.2018, [2], CS. 23.
51. ***Clitocybe catinus*** (Fr.) Quél. / Beyaz huni mantarı: Under conifer trees, unedible, 30.06.2018, [17], CS. 255.
52. ***Clitocybe dealbata*** (Sowerby) P. Kumm. / Ağulu huni mantar: Under conifer trees, poisonous, 07.06.2018, [13], CS. 177.
53. ***Collybia phyllophila*** (Pers.) Z.M. He & Zhu L. Yang / Dallı huni mantar: Under conifer trees, poisonous, 30.06.2018, [17], CS. 288.
54. ***Collybia nuda*** (Bull.) Z.M. He & Zhu L. Yang / Mavi cincile: Mixed forest, edible, 06-07.06.2018; 30.06.2018; 27.09.2018; 05.07.2019, [8, 14, 20, 34, 46], CS. 114, 189, 337, 611, 845.

Cortinariaceae R. Heim ex Pouzar

55. ***Calonarius elegantissimus*** (Rob. Henry) Niskanen & Liimat. / Kel örümcek mantarı: Mixed forest, unedible, 24.08.2018, [28], CS. 480.
56. ***Cortinarius decipiens*** (Pers.) Fr. / Som örümcek mantarı: Mixed forest, unedible, 07.06.2018, [16], CS. 225.
57. ***Cortinarius orellanus*** Fr. / Ağulu örümcek mantarı: Mixed forest, poisonous, 07.06.2018, [13], CS. 187.
58. ***Cortinarius pulchripes*** J. Favre / Kır örümcek mantarı: Under willow, unedible, 07.06.2018, [9], CS. 142.
59. ***Cortinarius vernus*** H. Lindstr. & Melot / Sidikli örümcek mantarı: Under conifer trees, unedible, 30.06.2018, [21], CS. 373.
60. ***Meottomyces dissimulans*** (Berk. & Broome) Vizzin: Mixed forest, unknown, 07.06.2018, [16], CS. 235, 236.
61. ***Thaxterogaster vibratilis*** (Fr.) Niskanen & Liimat. / Titrek örümcek mantarı: Under conifer trees, unedible, 30.06.2018, [17], CS. 269.

Entolomataceae Kotl. & Pouzar

62. ***Entoloma lampropus*** (Fr.) Hesler: Under conifer trees, unknown, 01.07.2018, [25], CS. 428.
63. ***Entoloma longistriatum*** (Peck) Noordel. / Uzun kıvrıkbaş: On the conifer residue, poisonous, 30.06.2018; 01.07.2018, [17, 23], CS. 262, 398
64. ***Entoloma rusticoides*** (Gillet) Noordel. / Paslı kıvrıkbaş: Meadow, unedible, 07.06.2018, [12], CS. 172.
65. ***Entoloma undatum*** (Gillet) M.M. Moser / Kesik kıvrıkbaş: Mixed forest, unedible, 05.06.2018, [4], CS. 42.
66. ***Rhodophana nitellina*** (Fr.) Papetti / Kızıl kafa: Mixed forest, unedible, 05.06.2018, [43], CS. 43.

Galeropsidaceae Singer

67. ***Panaeolus fimicola*** (Fr.) Quél. / Yoz ters çanı: On manure, poisonous, 07.06.2018; 21.09.2019, [14, 40], CS. 195, 999
68. ***Panaeolus semiovatus*** (Sowerby) S. Lundell & Nannf. / Kel ters çanı: On bovine manure, unedible, 06.06.2018, [21], CS. 379.

Hygrophoraceae Lotsy

69. ***Arrhenia rickenii*** (Hora) Watling / Narin yosun mantarı: Meadow, unedible, 07.06.2018, [15], CS.215.
70. ***Hygrocybe acutoconica*** (Clem.) Singer / Has mum mantarı: Under conifer trees, unedible, 01.07.2018, [27], CS. 450.
71. ***Hygrophorus ligatus*** (Fr.) Fr. / Engin gaypaşuk: Under conifer trees, unedible, 30.06.2018, [17], CS. 290.

Hymenogastraceae Vittad.

72. *Galerina marginata* (Batsch) Kühner / Kenar galerina: On conifer wood residues, poisonous, 30.06.2018; 02.11.2018, [20, 43], CS. 358, 747.
73. *Hebeloma birrus* (Fr.) Gillet / Yünlü turp kokan: Under conifer trees, unedible, 06.06.2018, [6, 7], CS. 84, 100.
74. *Hebeloma crustuliniforme* (Bull.) Quél. / Benekli turp kokan: Under conifer trees, poisonous, 06.06.2018; 30.06.2018; 01.07.2018, [8, 17, 19, 20, 22], CS. 132, 263, 324, 356, 387
75. *Hebeloma laterinum* (Batsch) Vesterh. / Yatık turp kokan: Under conifer trees, unedible, 06.06.2018, [8], CS. 131.
76. *Hebeloma mesophaeum* (Pers.) Quél. / Ala turp kokan:Under conifer trees, poisonous, 07.06.2018, [13], CS. 178.
77. *Hebeloma populinum* Romagn. / Kavak turp kokan: Mixed forest, unedible, 07.06.2018, [13], CS. 176,186.
78. *Hebeloma sinapizans* (Paulet) Gillet: Under conifer trees, poisonous, 06.06.2018, [7], CS. 99.
79. *Psilocybe coronilla* (Bull.) Noordel. / Kefgarik: Meadow, edible, 07.06.2018, [15], CS. 205.
80. *Psilocybe subcoprophila* (Britzelm.) Sacc. / Ters kefgarik: On horse manure, poisonous, 06.06.2018, [16], CS. 228.

Incerta Sedis

81. *Crucibulum laeve* (Huds.) Kambly / Kuş yuvası: On conifer branch residues, unedible, 06.06.2018; 30.06.2018; 30.10.2018, [5, 6, 8, 17, 18, 37], CS. 68, 81, 112, 248, 287, 318, 666.
82. *Cyathus olla* (Batsch) Pers. / Çizgili yuva: On soil, unedible, 21.09.2019, [42], CS. 954.
83. *Cystoderma carcharias* (Pers.) Fayod / Gamsız nar mantarı: Under conifer trees, unedible, 30.10.2018, [37], CS. 653.
84. *Cystodermella cinnabarina* (Alb. & Schwein.) Harmaja / Nazlı tozlu deri: Under conifer trees, unedible, 06.06.2018; 30.06.2018, [5, 6, 20] CS. 71, 85, 338.
85. *Cystodermella granulosa* (Batsch) Harmaja / Tozlu deri: Under conifer trees, unedible, 01.11.2018, [41], CS. 724.
86. *Infundibulicybe geotropa* (Bull.) Harmaja/ Etçe: Under conifer trees, edible, 06.06.2018, [6], CS. 90.
87. *Infundibulicybe gibba* (Pers.) Harmaja / Koca huni mantar: Under conifer trees, edible, 30.06.2018, [17], CS. 284.
88. *Lepista irina* (Fr.) H.E. Bigelow / Süslü cincile: Meadow, edible, 07.06.2018; 20.09.2019, [11, 42], CS. 161, 933
89. *Lepista personata* (Fr.) Cooke / Diken mantarı: Under poplar, edible, 07.06.2018, [14, 15], CS. 196, 197, 214.
90. *Melanoleuca cognata* (Fr.) Konrad & Maubl. / Kahve yılan mantarı: Under conifer trees, edbile, 07.06.2018, [15], CS. 217.
91. *Melanoleuca graminicola* (Velen.) Kühner & Maire / Top yılan mantarı: Under conifer trees, edible, 06.06.2018, [5, 6], CS. 69, 88.
92. *Melanoleuca microcephala* (P. Karst.) Singer / Küçük yılan mantarı: Under conifer trees, edible, 07.06.2018, [13], CS. 179.
93. *Melanoleuca stridula* (Fr.) Singer / Ağu yılan mantarı: Under conifer trees, edible, 06.06.2018, [5, 6, 7], CS. 60, 83, 93.
94. *Panaeolina foenisecii* (Pers.) Maire / Dön şapka: Meadow, poisonous, 07.06.2018, [10], CS. 148.
95. *Tricholomopsis rutilans* (Schaeff.) Singer / Mor sarı: On the conifer log, unedible, 30.06.2018, [17], CS. 252.

Inocybaceae Jülich

96. *Inocybe dulcamara* (Pers.) P. Kumm. / Hanım kümbet: Under conifer trees, poisonous, 06.06.2018; 30.06.2018; 01.07.2018, [7, 17, 20, 22] CS. 106, 254, 329, 382
97. *Inocybe flocculosa* Sacc. / Ay kümbet: Under conifer trees, poisonous, 06.06.2018, [17, 18], CS. 246, 304.
98. *Inocybe fuscidula* Velen. / Bulanık kümbet: Under conifer trees, poisonous, 30.06.2018, [17], CS. 273.
99. *Inocybe hirtella* Bres. / Uzak kümbet: Under poplar trees, poisonous, 07.06.2018, [10], CS. 151.
100. *Inocybe mixtilis* (Britzelm.) Sacc. / Ters kümbet: Under conifer trees, poisonous, 30.06.2018, [19], CS. 319.
101. *Inocybe nitidiuscula* (Britzelm.) Lapl. / Koz kümbet: Under conifer trees, poisonous, 30.06.2018, [17], CS. 253.
102. *Inocybe pallida* Velen. / Saplı kümbet: Under conifer trees, poisonous, 30.06.2018, [20], CS. 344.
103. *Inocybe sindonia* (Fr.) P. Karst. / Oymalı kümbet: Under conifer trees, poisonous, 30.06.2018, [20], CS. 348.
104. *Inocybe splendens* R. Heim / Has kümbet: Under conifer trees, poisonous, 30.06.2018, [20], CS. 353.
105. *Inocybe vaccina* Kühner / Oyuk kümbet: Under conifer trees, poisonous, 06.06.2018, [6, 8], CS. 75,126.
106. *Inosperma bongardii* (Weinm.) Matheny & Esteve-Rav. / Gâvur kümbet: Under conifer trees, poisonous, 02.11.2018, [44], CS. 783.
107. *Inosperma cookei* (Bres.) Matheny & Esteve-Rav. / Dik kümbet: Under conifer trees, poisonous, 01.07.2018, [24], CS. 415.

108. *Inosperma quietiodor* (Bon) Matheny & Esteve-Rav. / Yoğun kümbet: Mixed forest, poisonous, 01.07.2018, [23], CS. 401.
109. *Mallocybe gymnocarpa* (Kühner) Matheny & Esteve-Rav. / Engin kümbet: Under conifer trees, poisonous, 30.06.2018, [22], CS. 381
110. *Mallocybe leucoblema* (Kühner) Matheny & Esteve-Rav. / Öz kümbet: Under conifer trees, poisonous, 06.06.2018, [17], CS. 274.
111. *Pseudosperma rimosum* (Bull.) Matheny & Esteve-Rav. / Uysal kümbet: Mixed forest, poisonous, 0507.06.2018; 30.06.2018, [2, 5, 11], CS.31, 57, 58, 163.

Lycoperdaceae F. Bercht. & J. Presl

112. *Lycoperdon marginatum* Vittad. / Kenar poslak: Under conifer trees, edible, 06.06.2018; 01.07.2018, [12, 22], CS. 174, 385.
113. *Lycoperdon perlatum* Pers. Fıssa kuri: Under conifer trees, edible, 30.06.2018, [18, 21], CS. 309, 375.
114. *Utraria mollis* (Pers.) R.L. Zhao & J.X. Li / Zayıf poslak: Under conifer trees, edible, 05-06.06.2018; 30.06.2018. [1, 7, 18], CS.14, 96, 305.

Lyophyllaceae Jülich

115. *Calocybe chrysenteron* (Bull.) Singer / Çatık çoban damı: Under conifer trees, unedible, 05.06.2018, [2], CS. 29.
116. *Calocybe gambosa* (Fr.) Donk / Gugule: Under conifer trees, edible, 06.06.2018 [6], CS. 76.
117. *Calocybe onychina* (Fr.) Donk / Kızıl karadönek: Under conifer trees, unedible, 06.06.2018, [5, 6], CS. 64, 87.
118. *Lyophyllum decastes* (Fr.) Singer / Küme karadönek: Under conifer trees, edible, 05.07.2019, [46], CS. 848.

Macrocystidiaceae Kühner

119. *Macrocystidia cucumis* (Pers.) Joss. / Hıyar kokar: Meadow, unedible, 07.06.2018, [15], CS. 211.

Marasmiaceae Roze ex Kühner

120. *Marasmius oreades* (Bolton) Fr. / Mıh başı: Meadow, edible, 07.06.2018, [11, 12], CS.159, 168.

Mycenaceae Roze

121. *Mycena abramsii* (Murrill) Murrill / Sil kukulcuk: On the remnants of burnt wood, unedible, 02.11.2018, [42], CS. 732.
122. *Mycena acicula* (Schaeff.) P. Kumm. / Sivri kukulcuk: Among the remnants of oak leaves, unedible, 05-07.06.2018, [1, 16], CS. 12, 221.
123. *Mycena aetites* (Fr.) Quél. / Orak kukulcuk: Mixed forest, unedible, 06.06.2018, [5], CS. 65.
124. *Mycena epipterygia* (Scop.) Gray / Yel kukulcuk: On the conifer log, unedible 25.08.2018, [31], CS. 554.
125. *Mycena latifolia* (Peck) A.H. Sm. / Geniş kukulcuk: Under conifer trees, unknown, 01.11.2018, [41], CS. 720.
126. *Mycena pura* (Pers.) P. Kumm. / Mor kukulcuk: Under conifer and oak trees, edible, 06.06.2018; 30.06.2018; 27.09.2018; 02.11.2019, [6, 7, 21, 32, 43], CS. 77, 79, 108, 362, 587, 749.
127. *Xeromphalina campanella* (Batsch) Kühner & Maire / Göbekli çan: Under conifer trees, unedible, 06.06.2018, [6], CS. 78.
128. *Xeromphalina cauticinalis* (Fr.) Kühner & Maire / Sarı göbekli çan: Among mosses, under conifer trees, unedible, 07-30.06.2018, [36, 17, 18], CS. 180, 258, 259, 260, 313.

Omphalotaceae Bresinsky

129. *Collybiopsis confluens* (Pers.) R.H. Petersen / Ak çırpı bacak: Under conifer trees, unedible, 01.07.2018, [25], CS. 438.
130. *Gymnopus alkalivirens* (Singer) Halling / Kara çırpı bacak: Under conifer trees, unedible, 06.06.2018, [5], CS. 63.
131. *Gymnopus androsaceus* (L.) Della Magg. & Trassin. / Çırpı bacak: On the cone, unedible, 06.06.2018, [8] CS. 124.
132. *Gymnopus dryophilus* (Bull.) Murrill / Sarı çırpı bacak: Mixed forest, edible, 05.06.2018; 06.06.2018;-30.06.2018; 07.07.2018; 02.11.2018, [1, 2, 3, 4, 8, 13, 38, 22, 43], CS. 8, 17, 27, 37, 53, 133, 183, 299, 388, 753.
133. *Rhodocollybia butyracea* (Bull.) Lennox / Gövertek: Among the remnants of conifer leaves, edible 06.06.2018, [8], CS. 134.

Physalacriaceae Corner

134. *Flammulina ononidis* Arnolds / Kirli tüylü bacak: Among mosses, mixed forest, unedible, 02.11.2018, [44], CS. 792.
135. *Flammulina velutipes* (Curtis) Singer / Tüylü bacak: Under poplar log, edible, 02.11.2018, [44], CS. 798.
136. *Strobilurus tenacellus* (Pers.) Singer / Kozalak ebesi: On the remnants of a cone, unedible, 06.06.2018, [8], CS. 111.

Pleurotaceae Kühner

137. *Pleurotus ostreatus* (Jacq.) P. Kumm. / İstiridye mantarı: On the poplar log, edible, 07.06.2018, [15, 16], CS. 200, 230.
138. *Pleurotus populinus* O. Hilber & O.K. Mill. / Kavak mantarı: On the poplar log, edible, 07.06.2018, [14, 16], CS. 190, 231.

Pluteaceae Kotl. & Pouzar

139. *Pluteus podospileus* Sacc. & Cub. / Yüksük çıtkırdı: On the conifer log, unedible, 05.06.2018, [4], CS. 44.
140. *Volvopluteus gloiocephalus* (DC.) Vizzini, Contu & Justo / Kakilvik: Meadow, edible, 07.06.2018, [12], CS. 169.

Psathyrellaceae Vilgalys, Moncalvo & Redhead

141. *Candolleomyces candolleanus* (Fr.) D. Wächt. & A. Melzer (Fr.) Maire / Güzel pulcuklu: Under poplar, edible, 07.06.2018, [9, 16], CS. 138, 145, 241.
142. *Coprinellus disseminatus* (Pers.) J.E. Lange / Minik mürekkep: On the poplar log, unedible, 07.06.2018, [10], CS. 152.
143. *Tulosesus ephemerus* (Bull.) D. Wächt. & A. Melzer / Ehrami mürekkep: On the cow manure, unedible, 02.11.2018, [42], CS. 741.
144. *Tulosesus impatiens* (Fr.) D. Wächt. & A. Melzer Cam mürekkebi: Under oak trees, unedible, 07.06.2018; 02.11.2018, [15, 43], CS. 201, 765.
145. *Coprinellus micaceus* (Bull.) Vilgalys, Hopple & Jacq. Johnson / Pullu mürekkep: Under poplar trees, edible, 06.06.2018, [10], CS. 147.
146. *Coprinopsis atramentaria* (Bull.) Redhead, Vilgalys & Moncalvo / Kütük döbeleni: Under conifer trees, poisonous, 21.09.2019, [30], CS. 961.
147. *Coprinopsis nivea* (Pers.) Redhead, Vilgalys & Moncalvo / Ak döbelen: On manure, unedible, 01.07.2018, [22], CS. 384.
148. *Parasola kuehneri* (Uljé & Bas) Redhead, Vilgalys & Hopple / Doruk sevelen: Under conifer trees, unedible, 06.06.2018, [8], CS. 127.
149. *Psathyrella longipes* (Peck) A.H. Sm. / Uzun pulcuklu: Mixed forest, edible, 07.06.2018, [16], CS. 233.
150. *Psathyrella spadiceogrisea* (Schaeff.) Maire / Yol pulcuklu: Under poplar, unedible, 07.06.2018, [11, 14], CS. 165, 191.
151. *Psathyrella tephrophylla* (Romagn.) Bon / Zarif sevelen: Meadow, unedible, 07.06.2018, [15], CS. 206, 216.

Pseudoclitocybaceae Vizzini, Consiglio, P.-A. Moreau & P. Alvarado

152. *Pseudoclitocybe expallens* (Pers.) M.M. Moser / Yayvan peslivan: Under conifer trees, edible, 06.06.2018, [5], CS. 55.

Schizophyllaceae Quél.

153. *Schizophyllum commune* Fr. / Kımuk: On remnants of the oak branch, unedible, 24.08.2018, [29], CS. 482.

Strophariaceae Singer & A.H. Sm.

154. *Agrocybe dura* (Bolton) Singer / Yaz meteliği: Near the conifer forest, edible, 05.-07.06.2018, [1, 12], CS. 5, 166, 171.
155. *Agrocybe paludosa* (J.E. Lange) Kühner & Romagn. ex Bon / Yaş metelik: Meadow unedible, 05.06.2018, [2], CS. 24.
156. *Agrocybe splendida* Clémençon / Hoş metelik: Meadow, unedible, 07.06.2018, [9], CS. 136.
157. *Deconica montana* (Pers.) P.D. Orton / Kafa bulduran: Mixed forest, poisonous, 06.06.2018, [5], CS. 59.
158. *Hypholoma fasciculare* (Huds.) P. Kumm. / Ağulu sarıpapak: On the conifer log, poisonous, 07.06.2018; 27.09.2018, [22, 32], CS. 395, 591.
159. *Pholiota aurivella* (Batsch) P. Kumm. / Sarı pulbaş: On the willow trunk, edible, 01.11.2018, [39], CS. 698.
160. *Pholiota populnea* (Pers.) Kuyper & Tjall.-Beuk. / Kavak yamağı: On the poplar trunk, unedible, 01.11.2018, [40], CS. 689.

Tricholomataceae Lotsy

161. *Leucopaxillus gentianeus* (Quél.) Kotl. / Boz huni şapka: Under conifer trees, unedible, 06-30.06.2018, [7, 21], CS. 107, 372.
162. *Tricholoma fracticum* (Britzelm.) Kreisel / Halkalı karakız: Under conifer trees, unedible, 30.06.2018; 25.08.2018, [17, 31], CS. 294, 562.
163. *Tricholoma sciodes* (Pers.) C. Martín / Zarif karakız: Mixed forest, unedible, 01.07.2018, [27], CS. 443.
164. *Tricholoma sejunctum* (Sowerby) Quél. / Telli karakız: Under conifer trees, unedible, 07.06.2018; 25.08.2018, [16, 31], CS. 226, 227, 526, 527.
165. *Tricholoma terreum* (Schaeff.) P. Kumm. / Karakız mantarı: Under conifer trees and mixed forest, edible, 05-06-07-30.06.2018; 27.09.2018, [1, 2, 4, 6, 13, 21, 33], CS. 7, 19, 39, 47, 80, 182, 361, 596.
166. *Tricholoma virgatum* (Fr.) P. Kumm. / Sivri karakız: Under conifer trees, unedible, 30.06.2018, [17], CS. 286.

Tubariaceae Vizzini

167. *Tubaria conspersa* (Pers.) Fayod / Ökse tubarya: On remnants of leaf and branch, unedible 07.06.2018, [13], CS. 185.
168. *Tubaria furfuracea* (Pers.) Gillet / Fırfırlı tubarya: Among poplar leaves, unedible, 07.06.2018, [11], CS. 162.
169. *Tubaria romagnesiana* Arnolds / Borazan tubarya: Mixed foresti among leaves, unedible, 07.06.2018, [16], CS. 237.

Boletales E.-J. Gilbert

Boletaceae Chevall.

170. *Xerocomellus chrysenteron* (Bull.) Šutara / Pöslen: Under conifer trees, edible, 30.06.2018; 05.07.2019, [20, 21, 46], CS. 359, 371, 846.

Diplocystidiaceae Kreisel

171. *Astraeus hygrometricus* (Pers.) Morgan / Dişli yıldız: Mixed forest, unedible, 05.06.2018, [5], CS. 40.

Gomphidiaceae Maire ex Jülich

172. *Chroogomphus rutilus* (Schaeff.) O.K. Mill / Geyik mantarı: Under conifer trees, edible, 01.07.2018; 27.09.2018, [26, 34], CS. 445, 620.

Suillaceae Besl & Bresinsky

173. *Suillus collinitus* (Fr.) Kuntze / Benekli sünger mantarı: Under conifer trees, edible, 06.06.2018, [7], CS. 94.
174. *Suillus luteus* (L.) Roussel / Sünger mantarı: Under conifer trees, edible, 05-06.06.2018; 05.07.2019, [1, 6, 46], CS. 2, 89, 856.

Cantharellales Gäum.

Clavariadelphaceae Corner

175. *Clavariadelphus ligula* (Schaeff.) Donk / Sarı topuz mantarı: Under conifer trees, edible, 30.06.2018, [21], CS. 370.

Hydnaceae Chevall.

176. *Clavulina cinerea* (Bull.) J. Schröt. / Gümüş tepeli mercan: Under conifer trees, unedible, 06.06.2018, [31], CS. 547.
177. *Clavulina coralloides* (L.) J. Schröt. / Tepeli mercan: Under conifer trees, unedible, 30.06.2018, 01.07.2018, [20, 23], CS. 341 402.

Tapinellaceae C. Hahn

178. *Tapinella atrotomentosa* (Batsch) Šutara / Kadife sap: Under conifer trees, unedible, 25.08.2018, [31], CS. 543, 560.
179. *Tapinella panuoides* (Fr.) E.-J. Gilbert / Çam yelpazesi: Under conifer trees, unedible, 30.06.2018, [20], CS. 342.

Geastrales K. Hosaka & Castellano

Geastraceae Corda

180. *Geastrum pectinatum* Pers./ Alımlı yer yıldızı: Under conifer trees, unedible, 20.09.2019, [34], CS. 883.
181. *Geastrum triplex* Jungh. / Yakalı yer yıldızı: Under conifer trees, edible, 01.11.2018, [36], CS. 674.

Hymenochaetales Oberw.

Hymenochaetaceae Donk

182. *Coltricia perennis* (L.) Murrill / Kangal delikli huni: Under conifer trees, unedible, 01.07.2018, [23], CS. 399.

Polyporales Gäum.

Polyporaceae Fr. ex Corda

183. *Lentinus arcularius* (Batsch) Zmitr./ Delikli kaplan mantarı: On the remnant of the branch, unedible, 06.06.2018, [8], CS. 128.
184. *Lentinus tigrinus* (Bull.) Fr./ Kaplan mantarı: On the poplar log, edible, 07.06.2018, [16], CS. 219.
185. *Trametes cinnabarina* (Jacq.) Fr. / Kızıl kenet: On the remnants of the oak branch, unedible, 24.08.2018; 19.06.2019, [13, 29], CS. 484, 814.
186. *Trametes ochracea* (Pers.) Gilb. & Ryvarden / Limon hindi kuyruğu: On the poplar log, unedible, 07.06.2018, [9], CS. 143.
187. *Trametes trogii* Berk. / Som hindi kuyruğu: On the poplar log, unedible, 06.06.2018; 24.08.2018, [10, 28], CS. 149, 467.

Russulales Kreisel ex P.M. Kirk, P.F. Cannon & J.C. David

Auriscalpiaceae Maas Geest.

188. *Auriscalpium vulgare* Gray/ Sarkık diş: On the cone, unedible, 05.06.2018, [3, 4], CS. 36, 49, 50.

Russulaceae Lotsy

189. ***Lactarius deliciosus*** (L.) Gray / Kanlıca mantarı: Under conifer trees, edible, 05-06-30.06.2018; 27.09.2018, [2, 5, 17, 33], CS. 25, 66, 271, 600.
190. ***Lactarius semisanguifluus*** R. Heim & Leclair / Çıntar: Under conifer trees, edible, 01.11.2018, [41], CS. 723.
191. ***Lactarius volemus*** (Fr.) Fr. / Tirmit: Mixed forest, edible, 30.06.2018 [19], CS. 321.
192. ***Russula atropurpurea*** (Krombh.) Britzelm. / Kızıl kirmit: Mixed forest, edible, 30.06.2018, [17, 18, 20], CS. 261, 314, 335.
193. ***Russula betularum*** Hora / Huş kirmiti: Under conifer trees, poisonous, 30.06.2018, [17], CS. 245.
194. ***Russula delica*** Fr. / Ak çıntar: Mixed forest, edible, 25.08.2018, [29], CS. 494.
195. ***Russula roseipes*** Secr. ex Bres. / Kavruk kirmit: Under conifer trees, edible, 30.06.2018, [17], CS. 277.
196. ***Russula vinosa*** Lindblad / Allı kirmit: Under conifer trees, edible, 06-30.06.2018, [7, 17], CS. 92, 285,

Thelephorales Corner ex Oberw.

Thelephoraceae Chevall.

197. ***Thelephora terrestris*** Ehrh. / Kuru onparmak: Under conifer trees, unedible, 30.06.2018; 05.07.2019, [21, 34], CS. 360, 833.

Dacrymycetes Doweld

Dacrymycetales Henn.

Dacrymycetaceae J. Schröt.

198. ***Calocera viscosa*** (Pers.) Fr. / Yaş sarı boynuz: Under conifer trees, unedible, 25.08.2018, [31], CS. 539.

DISCUSSION and CONCLUSION

In the research area, 66 species (33%) were found to be edible, while 96 species (49%) were inedible due to factors like hard structure or unpleasant taste. Additionally, 32 species (16%) contain toxic substances that can cause poisoning, and the edibility of 4 species (2%) remains undetermined.

Although 64 edible species were identified in the research area, the local population only consumes certain species belonging to the genera "*Agaricus*," "*Morchella*," and "*Pleurotus*," which they are well acquainted with. It was found that they refer to "*Agaricus*" species as "çayır mantarı," "*Morchella*" species as "dana burnu," and "*Pleurotus*" species as "kavak mantarı."

The Turkish names of 196 identified mushroom species have been provided. However, since the names of *Meottomyces dissimulans* (Berk. & Broome) Vizzin and *Entoloma lampropus* (Fr.) Hesler have not yet been finalized in the list of Turkish mushrooms, their local names have not been included.

When examining the monthly distribution of macrofungi samples collected from the research area, it is observed that the highest number of samples were collected in June, September, October, and November, respectively (Figure 2).

A hundred ninety eigth macrofungi species were determined within the boundaries of Oltu-Narman (Erzurum) districts. Twenty-seven (%14%) of them belong to *Ascomycota* and 171 (%86%) to *Basidiomycota*. 187 taxa are new for the region except. The taxa determined in the region are distributed in 5 classes (Fig. 3), 12 orders (Fig. 4), 52 families, and 103 genera.

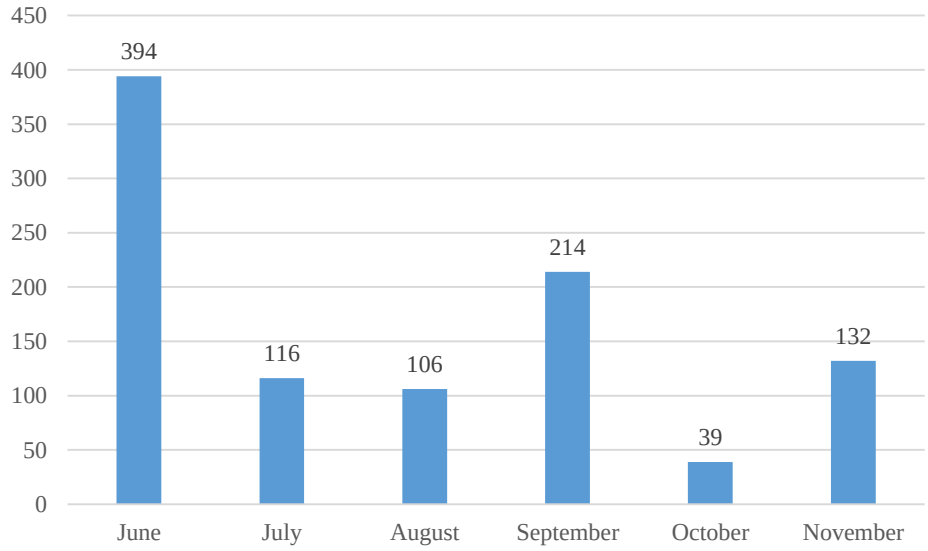

Figure 2.The monthly distribution of macrofungi samples collected from the research area.
Şekil 2. Araştırma alanından toplanan makrofungus örneklerinin aylık dağılımı

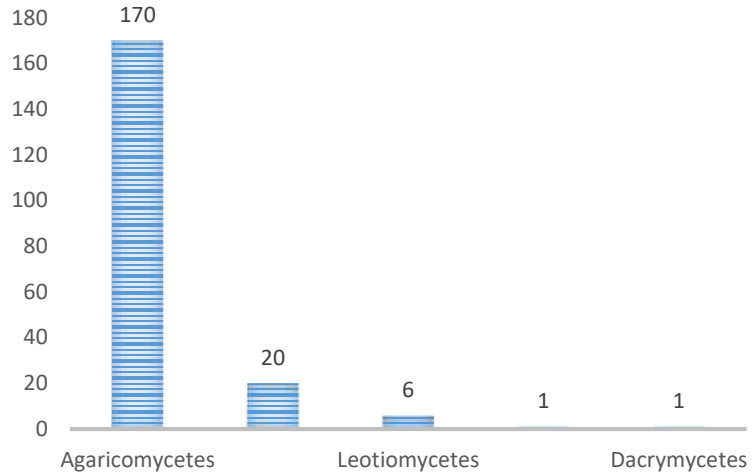

Figure 3. Class-wise distribution of the determined species.
Şekil 3. Tespit edilen türlerin sınıf bazında dağılımı

Inocybaceae (16), *Agaricaceae* (11), *Psathyrellaceae* (11), *Hymenogastraceae* (9), *Mycenaceae* (8), *Russulaceae* (8), *Cortinariaceae* (7) ve *Strophariaceae* (7) were found to be the most crowded 8 families.
The most crowded 6 genera were determined as *Inocybe*, *Agaricus*, *Hebeloma*, *Mycena*, *Amanita*, *Russula,* and *Tricholoma* with 10, 7, 6, 6, 5, 5, and 5 species, respectively.
The following 6 genera (*Conocybe Cortinarius Entoloma, Helvella,* and *Melanoleuca*) are represented with four taxa, The remaining genera are represented by 6 with 4 species, 11 with 3 species, 18 with 2 species, and 61 with 1 species.
The macrofungi species identified in the study area exhibit similarities with those reported in neighboring regions (Table 2). These similarities may be attributed to the shared vegetation structure and climate, while the observed differences could be due to various micro-climatic effects in the research area and the presence of distinct micro-habitats.
As shown in Table 2, the fungi identified in the study area were compared with similar studies conducted in nearby regions: Allahuekber Mountains National Park (Akçay, 2017) with 35.82% similarity, Erzincan (Keleş and Demirel, 2010) with 27.75%, Karagöl Sahara (Demirel et al., 2017) with 23.83%, Erzurum (Demirel et al., 2003) with 29.82%, Bingöl (Uzun et al., 2017b) with 24.1%, Kop Mountain (Polat, 2014) with 42.5%, Muş-Bitlis (Kaya, 1999) with 42.25%, Ağrı (Demirel et al., 2002) with 46.66%, and Hınıs and Karaçoban (Erzurum) (Öztürk et al., 2000) with 61.11% similarity. These similarities and differences are thought to be due to the unique climate and vegetation of the study area.

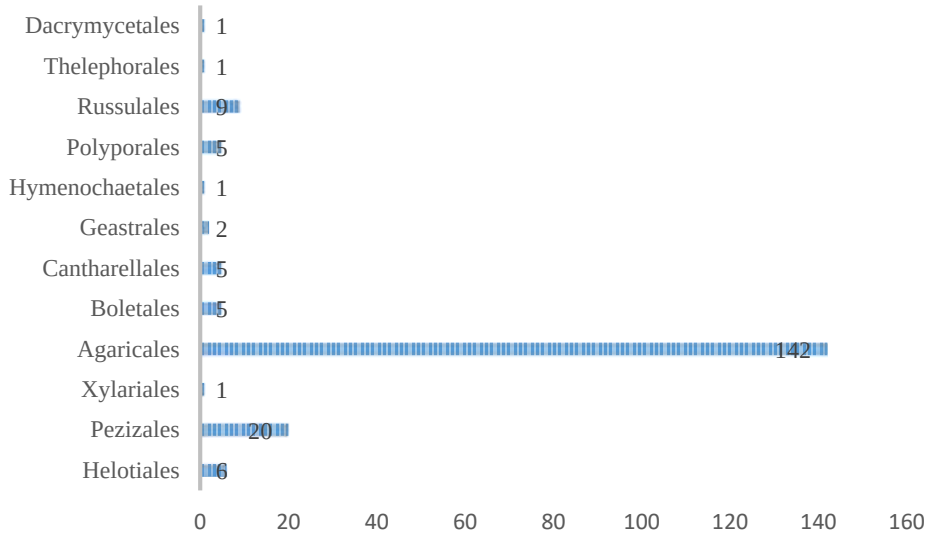

Figure 4. Order-wise distribution of the determined species
Şekil 4. Tespit edilen türlerin takım bazında dağılımı.

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)

Research area / Araştırma yöresi	Total species number Toplam tür sayısı	Common species number Ortak tür sayısı	Similarity (%) Benzerlik (%)
Allahuekber Dağları Milli Parkı (Şenkaya-Sarıkamış) (Akçay, 2017)	254	91	35.82
Erzincan (Keleş and Demirel, 2010)	191	53	27.75
Karagöl-Sahara (Artvin) (Demirel et al., 2017).	172	41	23.83
Erzurum (Demirel et al., 2003)	114	34	29.82
Bingöl (Uzun et al., 2017b)	112	27	24.1
Kop Dağı (Erzurum-Bayburt) (Polat, 2014)	80	34	42.5
Muş-Bitlis (Kaya, 1999)	71	30	42.25
Ağrı (Demirel et al., 2002)	45	21	46.66
Hınıs and Karaçoban (Erzurum) (Öztürk et al., 2000)	18	11	61.11

Although fungi produce millions of spores for reproduction, it is a well-known fact that their presence in the environment is directly or indirectly dependent on plants or plant debris. Environmental factors such as climate change, human impact, and habitat loss, which affect forests and forest ecosystems, also leave deep marks on the ecological balance of macrofungi in the region. These factors narrow the habitats of macrofungi, reshaping their survival strategies and roles within the ecosystem. Consequently, these changes affect the biodiversity and ecosystem functions of macrofungi in complex and unpredictable ways.

As a result of this study, habitat and substrate preferences, edibility status, and seasonal distributions of macrofungus species growing in Oltu and Narman (Erzurum) districts were determined, and the basis for future taxonomic studies was provided.

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Contribution Rate Statement Summary of Researchers

The authors declare that they have contributed equally to the article.

Conflict of Interest

Authors have declared no conflict of interest.

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