Macromycetes determined in Muradiye (Van) district

Gözde ÇAĞLI1, Avni ÖZTÜRK2
1 Süphan Quarter, TEİAŞ housing, 65100, Van, Turkey
2 Muratpaşa Quarter, Fatih Gemalmaz housing, Yakutiyi, Erzurum, Turkey
*gozde__1989@hotmail.com, 1avniozturk49@gmail.com

Abstract: The study was based on macrofungi samples collected from the region within the boundaries of Muradiye district of Van province in 2014 and 2015. As a result of field and laboratory studies 86 macrofungi species belonging to 50 genera, 25 families, seven orders and three classes within the divisions Ascomycota and Basidiomycota were determined. The determined taxa are listed together with their habitats, substrates, collection locality, geographic coordinates and personnel voucher numbers. One of them, Melanophyllum haematospermum (Bull.: Fr.) Kreisel, is a new record for Turkey as the first member of the genus Melanophyllum Velen.

Key words: Biodiversity, new record, macrofungi, mycota, Turkey

Özet: Çalışma 2014 ve 2015 yıllarında Van’ın Muradiye ilçe sınırları içinde kalan bölgenin toplam makromantar örnekleri üzerinde gerçekleştirilmiş. Arazi ve laboratuvar çalışmalar sonucunda Ascomycota ve Basidiomycota böülümleri içinde yer alan üç sınıf, yedi takım, 25 ailesi, 70 cins ve 86 üründen bilgilendirilmiş. Belirlenen taksonlar, habitatları, substratları, toplanma yerleri, coğrafı koordinatları ve toplanmayı numaraları ile birlikte listelenmiştir. Bulunan bir tanesi, Melanophyllum haematospermum (Bull.: Fr.) Kreisel, Velen. çinsinin ilk önyüzü niteliğinde, Türkiye için yeni kayıtlı.

Anahtar Kelimeler: Biyoçeşitlilik, yeni kayıt, makromantar, mikota, Türkiye

1. Introduction

Fungi are an important group of organism for nature, and about 1.5 million species of them have been supposed to exist in the world (Hawksworth et al., 1995). Those fungi with fruiting bodies that can be seen by naked eye are known as macrofungi and almost 15,000 of them were determined in Europe (Lukić, 2008).

Starting especially from the first quarter of 20th century, many studies have also been carried out on the macrofungi of Turkey and almost 2,400 taxa have been determined (Sesli and Denchev, 2014; Solak et al., 2015). But the macrofungal biodiversity of Turkey hasn’t completely been determined yet.

Muradiye is a district of Van province within Eastern Anatolian region of Turkey and situated between 38°44’ - 39°12’ north latitudes and 43°34’ - 43°53’ east longitudes. The district is surrounded by Diyadin (Ağrı) district to north, central district of Van to the south, Çaldıran and Özalp districts to the east and Erçiş district to the west (Figure 1). Bendimahi and Zincirli streams, and Van lake are the main hydrologic components of the region. According to the data obtained from Muradiye Meteorological Station, the region has an annual average temperature of 9.2 °C and a total precipitation of 582 mm. Steppe vegetation is the dominant vegetation type in the region. Populus L., Salix L., Quercus L., Malus Mill. and Juglans L. are the major tree population affecting the growth of macrofungi in the region.

Though some macrofungal biodiversity studies have been carried out in neighboring districts and provinces (Demirel, 1996; Demirel and Uzun, 1996; Uzun and Demirel, 1996; Demirel et al., 2002, 2003, 2004, 2010, 2015; Kaya, 2000a,b,c,d; Kaya, 2001; Kaya and Demirel, 2000; Akçay et al., 2010; Demirel and Koçak, 2016; Şelem et al., 2019) there isn’t a complete study on the macrofungi of Muradiye district.

The study aims to determine the macrofungi of the district and make a contribution to the mycobiota of Turkey.

2. Materials and Method

Macrofungi samples were collected from the region within the boundaries of Muradiye districts of Van province. They were photographed at their natural habitat and descriptive characteristics of them were noted. Then the samples were transferred to the laboratory and microscopic investigations were performed. The samples were identified with the help of the related references (Phillips, 1981; Moser, 1983; Buczacki, 1989; Bresnasky and Besl, 1990; Ellis and Ellis, 1990; Breitenbach and Kränzlin, 1984, 1986, 1991, 1995, 2000; Jordan, 1995; Wasser, 1996, 2000; Peterson et al., 2000; Kränzlin, 2005; Hausknecht, 2009; Amandeep et al., 2015). The samples are kept at the fungarium of Van Yüzüncü Yıl University (VANF).

3. Results

The determined taxa are listed in alphabetical order and the systematics follows Index Fungorum (accessed on 5 December 2019).

Ascomycota Whittaker
Leotiomycetes O.E. Erikss. & Winka
Helotiales Nannf.
Helotiaceae Rehm
1. Hymenoscyphus calyculus (Fr.) W. Phillips
Muradiye district centre, on Salix sp. stumps, 38°59'783"N, 43°46'093"E, 1724 m, 24.10.2014, Çağlı. 181; Değerbilir
village, on *Populus* sp. stump, 39°03′646″N, 43°44′799″D, 1806 m, 24.10.2014, Çağlı. 187.

**Pezizomycetes** O.E.Erikss. & Winka

**Pezizales** J.Schröt.

**Helvellaceae** Fr.

2. *Helvella leucopus* Pers.

Around Muradiye Waterfall, on soil under *Populus* sp., 39°03′915″N, 43°45′400″E, 1828 m, 19.05.2015, Çağlı. 209.

3. *Paxina queletii* (Bres.) Stangl

Değerbilir village, on soil under *Populus* sp., 39°03′646″N, 43°44′093″E, 1806 m, 27.05.2015, Çağlı. 293.

**Morchellaceae** Rchb.

4. *Morchella elata* Fr.

Değerbilir village, on soil under *Populus* sp., 39°03′732″N, 43°45′169″E, 1827 m, 19.05.2015, Çağlı. 239.

5. *Verpa bohemicus* (Krombh.) J. Schröt

Muradiye District centre, on soil under *Populus* sp., 38°59′783″N, 43°46′093″E, 1724 m, 03.05.2015, Çağlı. 206.

6. *Verpa conica* (O.F. Müll.) Sw.

Old Görece village, on soil *Populus* sp., 39°04′881″N, 43°45′514″E, 1813 m, 19.05.2015, Çağlı. 243.

**Pezizaceae** Dumort.

7. *Peziza domiciliana* Cooke

Küçükköy village, on soil under *Populus* sp. 38°59′473″N, 43°46′421″E, 1667 m, 26.05.2014, Çağlı. 73.

8. *Peziza praetervisa* Bres

Küçükköy village, on burned place under *Salix* sp., 38°59′473″N, 43°45′421″E, 1667 m, 26.05.2014, Çağlı. 82.

**Pyronemataceae** Corda

9. *Geopora arenosa* (Fuckel) S. Ahmad

Muradiye District centre, on soil under *Populus* sp., 38°59′783″N, 43°45′093″E, 1724 m, 26.05.2014, Çağlı. 78.

10. *Scutellinia scutellata* (L.) Lombotte

Muradiye district centre, on *Salix* and *Populus* sp. stumps, 38°59′783″N, 43°46′093″E, 1724 m, 06.05.2014, Çağlı. 36.

11. Around Muradiye Waterfall, 39°03′913″N, 43°45′400″E, 1828 m, 26.05.2014, Çağlı. 95.

**Basidiomycota** R.T.Moore

**Agaricomycetes** Doweld

**Agaricales** Underw.

**Agaricaeae** Chevall.

11. *Agaricus arvensis* Schaeff.

Yumakli village, on soil under *Populus* sp., 38°56′565″N, 43°45′078″E, 1639 m, 19.05.2015, Çağlı. 221.

12. *Agaricus bernardii* Quél.

Küçükköy village, meadow, 38°59′473″N, 43°45′421″E, 1667 m, 24.10.2014, Çağlı. 178.

13. *Agaricus campestris* L.

Değerbilir village, meadow, 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 129.

14. *Agaricus pampeanus* Speg.

Görece village, meadow, 39°03′520″N, 43°45′517″E, 1865 m, 24.10.2014, Çağlı. 165.

15. *Bovista plumbea* Pers.

Kemerköprü village, meadow, 39°01′701″N, 43°43′921″E, 1822 m, 06.05.2014, Çağlı. 17.

16. *Coprinus comatus* (O.F. Müll.) Pers.

Değerbilir village, meadow, 39°03′732″N, 43°45′169″E, 1827 m, 19.05.2015, Çağlı. 237.

17. *Lepiota cristata* (Bolton) P. Kummer.

Değerbilir village, among leaf litter under *Populus* sp., 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 111.

18. *Lepiota helveloa* Bres.

Değerbilir village, among leaf litter under *Populus* sp., 39°03′732″N, 43°45′169″E, 1827 m, Çağlı. 116; Günderme village, 39°05′152″N, 43°49′028″E, 1907 m, 20.10.2014, Çağlı. 118.

19. *Leucoagaricus leucothites* (Vittad.) Wasser

Değerbilir village, among grass with needle litter, 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 117.

20. *Lycoperdon pratense* Pers.

Küçükköy village, meadow, 38°59′473″N, 43°45′421″E, 1667 m, 24.10.2014, Çağlı. 179.

21. *Lycoperdon utriforme* Bull.

Değerbilir village, meadow, 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 131; Balakh village,
22. **Macrolepiota excoriata** (Schaeff.) Wasser
Görecek village, among grass, 39°03′520″N, 43°45′517″E, 1865 m, 24.10.2014, Çağlı. 166.

23. **Melanophyllum haematospermum** (Bull.: Fr.) Kreisel
Pileus 12-24 mm in diameter, at first hemispherical to obtuse-connic, then campanulate later convex or planate, with or without a small umbo; margin incurved when young, decurved to level at maturity, with greyish to greyish-brown veil fragments; surface cottony when young, suede-like to granulose, light to dingy-brown, darker at the center. Lamellae free to deeply adnexed, crowded, pinkish-brown, vinaceous-brown. Stipe 20-30 × 3.5-5 mm, cylindrical, straight to somewhat bent, enlarged to bulbous at the base, hollow or with a pith-like core in age, fragile, greyish, covered by reddish-brown to vinaceous-brown remnants of the universal veil (Figure 2a). Basidia 15-19 × 5.5-6.5 μm, clavate to clavate-cylindrical, 4-spored. Spores 4.5-6.5 × 2.5-4 μm, elliptic, oblong-elliptic to reniform, thin walled, smooth to minutely roughened, olive-brown (Figure 2b).

**Melanophyllum haematospermum** was reported to grow on humus-rich soil under both conifers and deciduous trees as solitary or in groups (Wasser, 2000; Bujakiewicz, 2010).

Değerbilir village, on soil among leaf litter under **Populus** sp., 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 112.

**Bolbitiaceae** Singer

24. **Conocybe semiglobata** Kühner & Watling
Kuçükköy village, among grass, 38°59′473″N, 43°46′421″E, 1667 m, 26.05.2014, Çağlı. 46; Yavıcak village, 38°57′107″N, 43°46′429″E, 1660 m, Çağlı. 74.

25. **Conocybe sienophylla** (Berk. & Broome) Singer
Muradiye District centre, among leaf litter under **Populus** sp., 38°59′783″N, 43°46′093″E, 1724 m, 26.05.2014, Çağlı. 91; Durukkaç village, 38°57′391″N, 43°40′898″E, 1670 m, 24.10.2014, Çağlı. 169.

26. **Conocybe subovalis** Kühner & Watling
Değerbilir village, meadow, 39°03′732″N, 43°45′169″E, 1827 m, 06.05.2014, Çağlı. 16; Ayranç village, 39°46′29″N, 43°51′673″E, 1937 m, 26.05.2014, Çağlı. 68; Kuçükköy village, 38°59′473″N, 43°46′421″E, 1667 m, 20.10.2014, Çağlı. 138.

27. **Conocybe tenera** (Schaeff.) Fayod
Kuçükköy village, among grass under **Populus** sp., 38°59′473″N, 43°46′421″E, 1667 m, 26.05.2014, Çağlı. 67; Around Muradiye Waterfall, 39°03′915″N, 43°45′400″E, 1828 m, 19.05.2015, Çağlı. 226.

28. **Conocybe velutipes** (Velen.) Hauskn. & Svrček
Değerbilir village, among leaf litter under **Populus** sp., 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 113 (Çağli et al., 2019).

29. **Galeropsis desertorum** Velen. & Dvořák
Değerbilir village, meadow, 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 144.

**Cortinariaceae** R. Heim ex Pouzar

30. **Cortinarius vernus** H. Lindstr. & Melot
Değerbilir village, among leaf litter under **Populus** sp., 39°03′732″N, 43°45′169″E, 1827 m, 06.05.2014, Çağlı. 15; Around Muradiye Waterfall, 39°03′915″N, 43°45′400″E, 1828 m, Çağlı. 214; Muradiye District centre, 38°59′783″N, 43°46′093″E, 1724 m, Çağlı. 223; Gönderme village, 39°05′152″N, 43°49′028″E, 1907 m, 19.05.2015, Çağlı. 229.

**Cypellaceae** Lotsy

31. **Chondrostereum purpureum** (Pers.) Pouzar
Muradiye District centre, on **Salix** sp. stump, 38°59′783″N, 43°46′093″E, 1724 m, 24.10.2014, Çağlı. 185.

**Entolomataceae** Kol. & Pouzar

32. **Entoloma ameides** (Berk. & Broome) Sacc.
Görecek old village, meadow, 39°04′881″N, 43°45′514″E, 1813 m, 19.05.2015, (Çağlı et al., 2019).

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**Figure 2.** Basidiocarps (a) and basidiospores (b) of **Melanophyllum haematospermum** (bar: 10 μm).
33. **Hymenogastraceae** Vittad.

34. **Hebeloma crustuliniforme** (Bull.) Quél.

35. **Hebeloma pusillum** J.E. Lange

36. **Psilocybe coronilla** (Bull.) Noordel.

37. **Panaeolus papilionaceus** (Bull.) Quél.

38. **Inocybe dulcamara** (Pers.) P. Kumm

39. **Inocybe flocculosa** Sacc.

40. **Inocybe rimosus** (Bull.) P. Kumm.

41. **Inocybe splendens** R. Heim

42. **Marsamiaceae** Roze ex Kühner

43. **Mycena galericulata** (Scop.) Gray

44. **Mycena niveipes** (Murrill.) Murrill

45. **Pleurotaceae** Kühner

46. **Pleurotus eringii** (DC.) Quél.

47. **Pleurotus ostreatus** (Jacq.) P. Kumm

48. **Pluteus salicinus** (Pers.) P. Kumm.

49. **Volvoplateus gloiocephalus** (DC.) Vizzini, Contu & Justo

50. **Psathyrellaceae** Vilgalys, Moncalvo & Redhead

51. **Coprinellus disseminatus** (Pers.) J.E. Lange

52. **Coprinellus micaceus** (Bull.) Vilgalys, Hopple & Jacq. Johnson

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**Hymenogastraceae** Vittad.

**Hebeloma cavipes** Huijsman

Muradiye District centre, among leaf litter under *Populus* sp., 38°59′783″N, 43°46′093″E, 1724 m, 06.05.2014, Çağlı. 35.

**Hebeloma crustuliniforme** (Bull.) Quél.

Görecek village, among leaf litter under *Populus* sp., 39°03′520″N, 43°45′517″E, 1865 m, 20.10.2014, Çağlı. 136; Muradiye district centre, 38°59′783″N, 43°46′093″E, 1724 m, Çağlı. 155; Yumak village, 38°56′565″N, 43°45′078″E, 1639 m, 24.10.2014, Çağlı. 164; Yakınçak village, 38°57′107″N, 43°46′429″E, 1660 m, 19.05.2015, Çağlı. 224.

**Hebeloma pusillum** J.E. Lange

Değebilir village, among leaf litter under *Populus* sp., 39°03′732″N, 43°45′169″E, 1827 m, Şelale dere yanı; 39°03′913″N, 43°45′400″E, 1828 m, 20.10.2014, Çağlı. 141, 142.

**Psilocybe coronilla** (Bull.) Noordel.

Çayırkık, Kemerköyli köyü; 39°01′701″N, 43°43′921″E, 1822 m, 06.05.2014, Çağlı. 21; Görecek village, 39°03′520″N, 43°45′517″E, 1865 m, 24.10.2014, Çağlı. 168; Ayrancı village, 39°06′405″K, 43°50′567″E, 1972 m, Çağlı. 242.

**Incertae Sedis**

37. **Panaeolus papilionaceus** (Bull.) Quél.

Muradiye district centre, on manured soil, 38°59′783″N, 43°46′093″E, 1724 m, 26.05.2014, Çağlı. 40; Kücükköy village, 38°59′473″N, 43°46′421″E, 1667 m, 03.06.2014, Çağlı. 96; Yumak village, 38°56′565″N, 43°45′078″E, 1639 m, 03.05.2015, Çağlı. 207.

39. **Inocybe flocculosa** Sacc.

Değebilir village, among grass under *Populus* sp., 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 137; Around Muradiye Waterfall, 39°03′915″N, 43°45′400″E, 1828 m, 19.05.2015, Çağlı. 213.

40. **Inocybe rimosus** (Bull.) P. Kumm.

*Populus* sp. altı, Görecek village, among grass, 39°03′520″N, 43°45′517″E, 1865 m, 26.05.2014, Çağlı. 76; Muradiye District centre, 38°59′783″N, 43°46′093″E, 1724 m, Çağlı. 92; Yumak village, 38°56′565″N, 43°45′078″E, 1639 m, 03.06.2014, Çağlı. 98; Yakınçak village, 38°57′107″N, 43°46′429″E, 1660 m, Çağlı. 99; Keçikiran village, 38°58′252″N, 43°38′170″E, 1705 m, Çağlı. 100; Ünseli village, 38°58′821″N, 43°35′283″E, 1667 m, 20.10.2014, Çağlı. 134.

41. **Inocybe splendens** R. Heim

*Populus* sp. altı, Şelale dereyi; 39°03′915″N, 43°45′400″E, 1828 m, 19.05.2015, Çağlı. 231.

42. **Marsamiaceae** Roze ex Kühner

43. **Mycena galericulata** (Scop.) Gray

Değebilir village, on decaying *Quercus* sp. stumps, 39°03′646″N, 43°44′799″E, 1806 m, 06.05.2014, Çağlı. 34; Muradiye District centre, 38°59′783″N, 43°46′093″E, 1724 m, 19.05.2015, Çağlı. 259.

44. **Mycena niveipes** (Murrill.) Murrill

Muradiye District centre, on decaying stump, 38°59′783″N, 43°46′093″E, 1724 m, 26.05.2014, Çağlı. 88.

45. **Hemimycese detestabilis** (Peck) Singer

Around Muradiye Waterfall, on leaf litter under *Populus* sp., 39°03′915″N, 43°45′400″E, 1828 m, 20.10.2014, Çağlı. 114.

46. **Pleurotaceae** Kühner

47. **Pleurotus ostreatus** (Jacq.) P. Kumm

Değebilir village, on *Populus* and *Salix* sp. stumps, 39°03′732″N, 43°45′169″E, 1827 m, 20.10.2014, Çağlı. 110; Yakınçak village, 38°57′107″N, 43°46′429″E, 1660 m, 24.10.2014, Çağlı. 170.

49. **Volvoplateus gloiocephalus** (DC.) Vizzini, Contu & Justo

Değebilir village, among grass, 39°03′646″N, 43°44′799″E, 1806 m, 19.05.2015, Çağlı. 253.

50. **Psathyrellaceae** Vilgalys, Moncalvo & Redhead

51. **Coprinellus disseminatus** (Pers.) J.E. Lange

Muradiye District centre, around *Salix* sp. stumps, 38°59′783″N, 43°46′093″E, 1724 m, 06.05.2014, Çağlı. 28; Karahan village, 38°56′725″N, 43°39′836″E, 1645 m, 03.06.2014, Çağlı. 104; Balaklı village, 38°58′507″N, 43°44′083″E, 1965 m, 19.05.2015, Çağlı. 220.

51. **Coprinellus micaceus** (Bull.) Vilgalys, Hopple & Jacq. Johnson

Değebilir village, around *Salix* sp. stumps, 39°03′732″N, 43°45′169″E, 1827 m, 06.05.2014, Çağlı. 10; Açlıköl village, 38°57′997″N, 43°42′056″E, 1673 m, 03.06.2014, Çağlı. 48; Muradiye District centre, 38°59′783″N,
43°46′09″3E, 1724 m, 20.10.2014, Çağlı. 102; Küçükköy village, 38°59′47″3N, 43°46′42″1E, 1667 m, 26.05.2014, Çağlı. 132; Görecek village, 39°0′48″81″N, 43°45′51″4E, 1813m, 19.05.2015, Çağlı. 234; Around Muradiye Waterfall, 39°03′91″5N, 43°45′40″0E, 1828 m, 27.05.2015, Çağlı. 262.

52. Coprinopsis atramentaria (Bull.) Redhead, Vilgalys & Moncalvo
Muradiye District centre, around decaying Populus sp. stump, 38°59′78″3N, 43°46′09″3E, 1724 m, 26.05.2014, Çağlı. 37; Değerbilir village, 39°0′37″32″N, 43°45′16″9E, 1827 m, 20.10.2014, Çağlı. 151; Around Muradiye Waterfall, 39°03′91″5N, 43°45′40″0E, 1828 m, 19.05.2015, Çağlı. 235.

53. Coprinopsis marcesciblis (Britzelm.) Örstadius & E. Larss.
Görecek village, among leaf litter, 39°0′52″00″N, 43°45′51″7E, 1865 m, Çağlı. 167; Küçükköy village, 38°59′47″3N, 43°46′42″1E, 1667 m, 24.10.2014, Çağlı. 177; Around Muradiye Waterfall, 39°03′91″5N, 43°45′40″0E, 1828 m, 19.05.2015, Çağlı. 235.

54. Coprinopsis patouillardii (Quéf.) G. Moreno
Muradiye District centre, on manured soil, 38°59′78″3N, 43°46′09″3E, 1724 m, 20.10.2014, Çağlı. 156.

55. Parasola plicatilis (Curtis) Redhead, Vilgalys & Hopple
Küçükköy village, on manured soil among grass, 38°59′47″3N, 43°46′42″1E, 1667 m, 26.05.2014, Çağlı. 79.

56. Psathyrella bipellis (Quéf.) A.H. Sm.
Görecek village, among grass under Populus sp., 39°0′48″81″N, 43°45′51″4E, 1813 m, 20.10.2014, Çağlı. 147.

57. Psathyrella candolleana (Fr.) Maire
Muradiye District centre, around Populus sp. stump, 38°59′78″3N, 43°46′09″3E, 1724 m, 26.05.2014, Çağlı. 43; around Muradiye Waterfall, 39°03′91″5N, 43°45′40″0E, 1828 m, 20.10.2014, Çağlı. 119; Değerbilir village, 39°0′37″32″N, 43°45′16″9E, 1827 m, Çağlı. 123; Yumakli village, 38°56′56″5N, 43°45′07″8E, 1639 m, Çağlı. 203; Küçükköy village, 38°59′47″3N, 43°46′42″1E, 1667 m, 27.05.2015, Çağlı. 264.

58. Psathyrella corrugis (Pers.) Konrad & Maubl.
Muradiye District centre, among leaf litter under Populus sp., 38°59′78″3N, 43°46′09″3E, 1724 m, 19.05.2015, Çağlı. 257.

59. Psathyrella microrhiza (Lasch) Konrad & Maubl.
Değerbilir village, among leaf litter under Populus sp., 39°0′37″32″N, 43°45′16″9E, 1827 m, 20.10.2014, Çağlı. 122.

60. Psathyrella prona (Fr.) Gillet
Populus sp. altu, Merkez; 38°59′78″3N, 43°46′09″3E, 1724 m, 26.05.2014, Görece eski köy; 39°0′48″81″N, 43°45′51″4E, 1813 m, Balakli köyü; 38°58′50″7N, 43°44′08″3E, 1695 m, 19.05.2015, ÇAĞLI. 41, 222, 244.

61. Psathyrella pseudograciulis (Romagn.) M.M. Moser
Muradiye District centre, on decaying stump, 38°59′78″3N, 43°46′09″3E, 1724 m, 24.10.2014, Çağlı. 186.
Tricholomataceae R. Heim ex Pouzar
74. Melanoleuca excissa (Fr.) Singer
Değębılir village, among grass, 39°03’646”N, 43°44’799”E, 1806 m, 19.05.2015, Çağlı. 241.
75. Tricholoma populinum J.E. Lange
Görekçek village, under Polyporus sp., 39°03’520”N, 43°45’517”E, 1865 m, 24.10.2014, Çağlı. 163.
76. Tricholoma scalpaturatum (Fr.) Quél.
Değębılir village, under Polyporus sp., 39°03’732”N, 43°45’169”E, 1827 m, 20.10.2014, Çağlı. 154.
77. Lepista irina (Fr.) H.E. Bigelow
Muradiye District centre, under Polyporus sp., 38°59’783”N, 43°46’093”E, 1724 m, 26.05.2014, Çağlı. 90.
78. Lepista nuda (Bull.) Cooke
Muradiye District centre, under Polyporus sp., 38°59’783”N, 43°46’093”E, 1724 m, 24.10.2014, Çağlı. 189.
79. Lepista personata (Fr.) Cooke
Değębılir village, under Polyporus sp., 39°03’732”N, 43°45’169”E, 1827 m, 03.06.2014, Çağlı. 13; Muradiye District centre, 38°59’783”N, 43°46’093”E, 1724 m, 06.05.2014, Çağlı. 31; Açıköl village, 38°57’997”N, 43°42’056”E, 1673 m, 24.10.2014, Çağlı. 188; Durukkaş village, 38°57’391”N, 43°40’898”E, 1670 m, Çağlı. 258.
Tubaricaceae Vizzini
80. Tubaria furfuracea (Pers.) Gillet
Muradiye District centre, on soil among leaf litter, 38°59’783”N, 43°46’093”E, 1724 m, 06.05.2014, Çağlı. 29; Küçükköy village, 38°59’473”N, 43°46’421”E, 1667 m, Çağlı. 53; Yumak village, 38°56’565”N, 43°45’078”E, 1639 m, 25.06.2014, Çağlı. 54.
Paxillaceae E.-J. Girbert
81. Paxillus involutus (Batsch) Fr.
Değębılir village, among grass under Polyporus sp., 39°03’732”N, 43°45’169”E, 1827 m, Çağlı. 125; Karahan village, 38°56’725”N, 43°39’836”E, 1645 m, 20.10.2014, Çağlı. 145.
Hymenochaetales Oberw.
Hymenochaetaceae Donk
82. Phellinus igniarius (L.) Quél.
Küçükköy village, on Salix sp. trunk, 38°59’473”N, 43°46’421”E, 1667 m, 25.06.2014, Çağlı. 83.
Polyporales Gäumann.
Polyporaceae Fr. ex Corda
83. Cerioporus squamosus (Huds.) Quél.
Değębılir village, under Polyporus sp. stump, 39°03’732”N, 43°45’169”E, 1827 m, 06.05.2014, Çağlı. 14; Yakmacak village, 38°57’107”N, 43°46’429”E, 1660 m, 19.05.2015, Çağlı. 219.
84. Lentinus tigrinus (Bull.) Fr.
Muradiye District centre, around Salix sp. stump, 38°59’783”N, 43°46’093”E, 1724 m, 06.05.2014, Çağlı. 27; 26.05.2014, Çağlı. 87; 24.10.2014, Çağlı. 191; Küçükköy village, 38°59’473”N, 43°46’421”E, 1667 m, 19.05.2015, Çağlı. 260.
85. Polyporus rhizophilus Pat.
Kemerköprü village, meadow, 39°01’701”N, 43°43’921”E, 1822 m, 06.05.2014, Çağlı. 22.
Russulales Kreisel ex P.M. Kirk, P.F. Cannon & J.C. David
Russulaceae Lotsy
86. Lactarius controversus Pers.
Değębılir village, in poplar grove, 39°03’732”N, 43°45’169”E, 1827 m, 20.10.2014, Çağlı. 146; Muradiye District centre, 38°59’783”N, 43°46’093”E, 1724 m, 24.10.2014, Çağlı. 190.
4. Discussions
Eighty six macrofungi species belonging to 50 genera, 25 families, seven orders and three classes were determined from Muradiye district of Van province. Ten of the determined taxa belong to Ascomycota (1 Helotiales, 9 Pezizales) while 76 belong to Basidiomycota (70 Agaricales, 1 Boletales, 1 Hymenochaetales, 3 Polyporales, 1 Russulales). The taxa are distributed in 25 families. Agaricales and Psathyrellales were found to be the most crowded families each with 13 taxa. Strophariaceae is the second crowded one with 11 taxa. Two of the families (Bolbitiaceae, Tricholomataceae) comprises 6, two of them (Hymenogastraceae, Inocybaceae) comprises 4, three of them (Morchellaceae, Mycenaceae, Polyporaceae) comprises 3 taxa, five of them (Helvellaceae, Pezizaceae, Pyronemataceae, Pleurotaceae, Pluteaceae) comprises 2 taxa, and the rest of the 10 families comprises 1 taxon.
Thirty five (%40.79) of the determined taxa are edible. But only three of them are collected and consumed by local people. Among them Agrocybe dura is known as “çimen mantarı” in the region while Pleurotus ostreatus is known as “ağac/kavak mantarı” and Pleurotus eryngii is known as “heliz mantarı”. Forty two (%48.84) of them are inedible and 9 (%10.47) of them are more or less poisonous.
The taxa determined in Muradiye district were compared with the findings of the studies carried out in neighbouring regions and some similarities were observed. These studies and the similarity percentages are given in Table 1.

Table 1. Similarity percentages of neighbouring studies with Muradiye district.

| Neighbouring study | # of identical taxa | Total taxa | Similarity (%) |
|--------------------|---------------------|------------|----------------|
| Demirel (1996)     | 18                  | 50         | 36.00          |
| Demirel et al. (2002) | 23              | 45         | 51.11          |
| Demirel et al. (2003) | 23              | 114        | 20.18          |
| Demirel et al. (2004) | 17              | 162        | 10.49          |
| Akçar et al. (2010) | 20                  | 50         | 40.00          |
| Demirel & Koçak (2016) | 46              | 96         | 47.92          |
| Demirel et al. (2017) | 21              | 172        | 12.21          |

Among the determined taxa, Bovista plumbea, Coprinus comatus, Psilocybe cornulina, Volvopluteus gloiocephalus and Polyporus rhizophilus were also recorded from the region by Demirel (1996). All the other taxa are new for the region while Melanophyllum haematospermum are new for Turkish mycobiota at genus level.
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