

Macromycetes of Sarız (Kayseri/Turkey) district

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Abstract

The present study was based on the macrofungi specimens collected from Sarız district (Kayseri-Turkey) between 2011-2012. As a result of field and laboratory studies, 54 taxa belonging to two classes, 22 families and 45 genera in *Ascomycota* and *Basidiomycota* were identified. All of the taxa are new records for the district.

Key words: biodiversity, macrofungi, Sarız, Turkey

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Sarız (Kayseri) yöresi makromantarları

Özet

Çalışma 2011-2012 yılları arasında Sarız (Kayseri-Türkiye) yöresinden toplanan makromantar örnekleri üzerinde gerçekleştirilmiştir. Arazi ve laboratuvar çalışmaları sonucunda, *Ascomycota* and *Basidiomycota* bölümlerine ait iki sınıf, 22 familya ve 45 cins içinde yer alan 54 takson belirlenmiştir. Taksonların tamamı bölge için yeni kayıttır.

Anahtar kelimeler: biyoçeşitlilik, makrofunguslar, Sarız, Türkiye

1. Introduction

Sarız is a district of Kayseri and situated between 38°15'-38°42' north latitudes and 36°12'-36°47' east longitudes, and in B6 according to the Davis' grid square system (Davis, 1965). The district is bordered by Pınarbaşı (Kayseri) to the north, Afşin (Kahramanmaraş) and Gürün (Sivas) to the east, Göksun (Kahramanmaraş) to the south, and Tufanbeyli (Adana) and Tomarza (Kayseri) to the west (Figure 1).

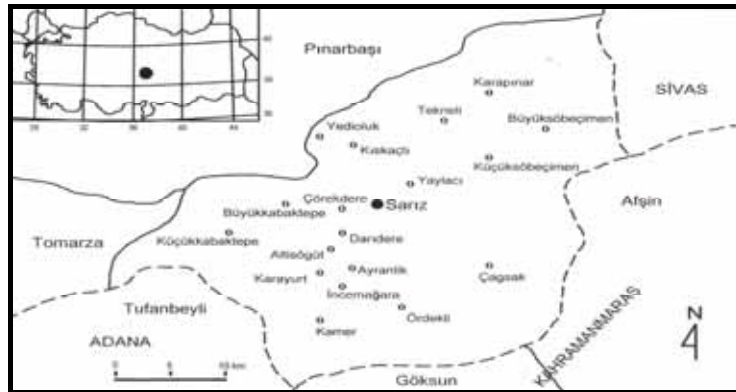


Figure 1. Map of the research area
Şekil 1. Araştırma alanının haritası

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The area falls mainly in Irano-Turanian phytogeographical region within the holoarctic floral kingdom and has a Mediterranean climate (Akman, 1999). The precipitation regime is as spring, winter, autumn and summer. The vegetation of the regions is mainly steppes. Three and shrub cover of the district is mainly characterized by *Quercus* L., *Juniperus* L., *Pinus* L., *Populus* L. and *Salix* L.

About 450 studies have so far been presented on the macrofungal diversity of Turkey and almost 2070 taxa of macromycetes have been compiled (Solak et al., 2007; Kırış et al., 2012; Akata and Kaya, 2012a; Akata and Kaya, 2012b; Sesli and Denchev, 2013; Sesli and Helfer, 2013; Akata and Yaprak, 2013; Güngör et al., 2013; Güngör et al., 2013). These studies are not evenly distributed to the whole regions of Turkey and there are many unstudied or well studied provinces and districts as well.

Kaşık et al. (2002a; 2002b; 2003) and Türkoğlu and Gezer (2006) carried out studies around the research area, but no records have been given from the district so far.

The study aims to determine the macrofungal diversity of the area and to make a contribution to the macromycota of Turkey.

2. Materials and methods

Macrofungi samples were collected from different localities within the boundaries of Sarız district (Kayseri) during periodical field inventories between 2011-2012. During field studies, macroscopic and ecologic characteristics and the local ethnomycological knowledge of the specimens were recorded and they were photographed in their natural habitats. Microscopic investigations were carried out in the fungarium under light microscope. Using the obtained macroscopic and microscopic data, the specimens were identified with the help of relevant literature (Phillips, 1981; Moser, 1983; Breitenbach and Kränzlin, 1984-2000; Buczacki, 1989; Jordan, 1995; Bessette et al., 1997). The samples are kept in Karamanoğlu Mehmetbey University, Kamil Özdağ Science Faculty, Karaman, Turkey.

3. Results

The systematic of the taxa are in accordance with Cannon & Kirk (2007) and Kirk et al. (2008), and they are listed in alphabetical order, together with their localities, collection dates and voucher numbers (Y: Osman Yaşar ATİLA).

Ascomycota Whittaker

Pezizomycetes O.E. Erikss. & Winka

Pezizales J. Schröt.

Helvellaceae Fr.

1. *Helvella leucopus* Pers.

Sarız, Yedioluk village, under *Populus* sp., 38°33' N-36°26' E, 1781 m, 28.05.2012, Y.231.

Morchellaceae Rchb.

2. *Morchella deliciosa* Fr.

Sarız, Yedioluk village, under mixed wood, 38°33' N-36°26' E, 1764 m, 20.05.2011, Y.15.

Basidiomycota R.T. Moore

Agaricomycetes Doweld

Agaricales Underw.

Agaricaceae Chevall.

3. *Agaricus campestris* L. var. *campestris*

Sarız, Kıskaçlı village, meadow, 38°33'N-36°28'E, 1905 m, 20.05.2012, Y.114.

4. *Bovista plumbea* Pers.: Pers.

Sarız, Kıskaçlı village, meadow, 38°33'K-36°28'E, 1905 m, 20.05.2012, Y.113; Günesen quarter, meadow, 38°28'N-36°30'E, 1569 m, 29.05.2012, Y.255; Çörekdere village, meadow, 38°28'N-36°28'E, 1579 m, 29.05.2012, Y.256.

5. *Calvatia gigantea* (Batsch) Lloyd

Sarız, Kıskaçlı village, meadow, 38°33'N-36°28'E, 1905 m, 20.05.2012, Y.73.

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

Sarız, Kıskaçlı village, meadow, 38°33'N-36°28'E, 1905 m, 20.05.2012, Y.109; Küçük Kabaktepe village, meadow, 38°30'N-36°22'E, 1861 m, 21.05.2012, Y.137.

7. *Lepiota erminea* (Fr.) Gillet

Sarız, Kıskaçlı village, meadow, 38°33'N-36°28'E, 1905 m, 20.05.2012, Y.77; Küçük Kabaktepe village, meadow, 38°30'N-36°22'E, 1861 m, 21.05.2012, Y.129; Sarız, Bahçeli

quarter, meadow, 38°28'N-36°29'E, 1563 m, 28.05.2012, Y.220.

8. *Lepiota oreadiformis* Velen.

Sarız, Yedioluk village, under mixed wood, 38°33'N-36°28'E, 1905 m, 28.05.2012, Y.226.

9. *Leucoagaricus leucothites* (Vittad.) Wasser

Sarız, merkez, bahçe kenarı, çayırılık, 38°28'N-36°29'E, 1576 m, 30.10.2012, Y-362.

10. *Lycoperdon molle* Pers

Sarız, Kıskaçlı village, in pine forest, 38°33'N-36°28'E, 1905 m, 20.05.2012, Y.90.

11. *Lycoperdon perlatum* Pers

Sarız, Kıskaçlı village, under mixed wood, 38°33'N-36°28'E, 1905 m, 20.05.2012, Y.111.

12. *Macrolepiota excoriata* (Schaeff.: Fr.) Wass.

Sarız, Kıskaçlı village, in pine forest, 38°33'N-36°28'E, 1905 m, 28.05.2012, Y.154; Günesen quarter, meadow, 38°28'N-36°30'E, 1569 m, Y.171.

Bolbitiaceae Singer

13. *Conocybe apala* (Fr.) Arnolds

Sarız, Yedioluk village, meadow, 38° 34'N-36° 25'E, 1766 m, 28.05.2012, Y.189.

Cypellaceae Lotsy

14. *Chondrostereum purpureum* (Pers.) Pouzar

Sarız, Günesen quarter, on poplar stump, 38°28'N-36°29'E, 1576 m, 30.10.2012, Y.363.

Incertae cedis

15. *Panaeolus papilionaceus* (Bull.) Quél. var. *papilionaceus*

Sarız, Kıskaçlı village, pine forest, 38°33'N-36°28'E, 1905 m, 28.05.2012, Y.173.

Inocybaceae Jülich

16. *Inocybe dulcamara* (Alb. & Schwein.) P. Kumm.

Sarız, Yedioluk village, meadow, 38°34'N-36°25'E, 1766 m, 28.05.2012, Y.209.

17. *Inocybe rimosa* (Bull.) P. Kumm.

Sarız, Çörekdere village, meadow, 38°28'N-36°28'E, 1579 m, 29.05.2012, Y.260.

Lyophyllaceae Jülich

18. *Calocybe gambosa* (Fr.) Donk

Sarız, Çörekdere village, mixed wood, 38°29'N-36°27'E, 1612 m, 20.05.2012, Y.89.

Marasmiaceae Roze ex Kühner

19. *Gymnopus dryophilus* (Bull.) Murrill

Sarız, Ayranlık village, under *Quercus* sp., 38°24'N-36°28'E, 1670 m, 13.10.2012, Y.266.

20. *Macrocystidia cucumis* (Pers.) Joss.

Sarız, Kıskaçlı village, meadow, 38°33'N-36°27'E, 1849 m, 20.05.2012, Y.103.

Physalacriaceae Corner

21. *Armillaria mellea* (Vahl) P. Kumm.

Sarız, İncemağara village, under *Populus* sp., 38°23'N-36°27'E, 1510 m, 13.10.2012, Y.268.

22. *Flammulina velutipes* (Curtis : Fr.) Singer

Sarız, Kamer village, on *Populus* sp. remains, 38°21'N-36°25'E, 1490 m, 30.10.2012, Y.357.

Pleurotaceae Kühner

23. *Pleurotus eryngii* (D.C.: Fr.) Quél.

Sarız, Yedioluk village, on decaying remains among grass, 38°33'N-36°26'E, 1776 m, 04.07.2011, Y.17.

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

Sarız, Yedioluk village, on *Populus* sp. stump, 38°33'N-36°26'E, 1781 m, 24.10.2011, Y.30; Kıskaçlı village, 38°33'N-36°27'E, 1849 m, 24.10.2011, Y.33; Küçük Kabaktepe village, 38°30'N-36°22'E, 1861 m, 25.10.2011, Y.57; İncemağara village, 38°23'N-36°27'E, 1509 m, 29.05.2012, Y.254. Ayranlık village, on *Salix* sp. stump, 38°24'N-36°27'E, 1533 m, 24.10.2011, Y.45.

Pluteaceae Kotl. & Pouzar

25. *Pluteus romellii* (Britzelm.) Sacc.

Sarız, Yedioluk village, meadow, 38°34' N-36°25' E, 1766 m, 28.05.2012, Y.207.

26. *Volvopluteus gloiocephalus* (DC.) Justo

Sarız, Karayurt köyü, bahçe kenarı, çayırık alan, 38°23'N-36°26'E, 1518 m, 30.12.2012, Y-360.

Psathyrellaceae Vilgalys, Moncalvo & Redhead

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

Çörekdere village, under *Populus* sp., 38°28' N-36°28' E, 1579 m, 27.10.2012, Y.303.

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

Sarız, Bahçeli quarter, streamside, under *Populus* sp., 38°28'N-36°29'E, 1563 m, 20.04.2011, Y.6; Kabaktepe village, 38°30'N-36°22'E, 1861 m, 15.05.2011, Y.10; Yedioluk village, 38°33'N-36°26'E, 1781 m, 06.07.2011, Y.19; Kıskaçlı village, meadow, 38°33'N-36°27'E, 1849 m, 19.05.2012, Y.68; Karayurt village, 38°23'N-36°26'E, 1528 m, 20.05.2012, Y.86; Çörekdere village, 38°28' N-36°27' E, 1650 m, 20.05.2012, Y.95.

29. *Coprinopsis atramentaria* (Bull.) Redhead, Vilgalys & Moncalvo

Sarız, Yedioluk village, under *Populus* sp., 38°33'N-36°26'E, 1781 m, 09.07.2011, Y.25; Kıskaçlı village, 38°33'N-36°27'E, 1849 m, 24.10.2011, Y.37; Bahçeli quarter, 38°28'N-36°29'E, 1563 m, 28.05.2012, Y.219.

30. *Coprinopsis cinerea* (Schaeff. : Fr.) Redhead, Vilgalys & Moncalvo

Sarız, Yedioluk village, on cow dung, 38°34'N-36°25'E, 1766 m, 28.05.2012, Y.235.

31. *Coprinopsis nivea* (Pers.) Redhead, Vilgalys & Moncalvo

Sarız, Yedioluk village, on cow dung, 38°33'N-36°26'E, 1764 m, 28.05.2012, Y.149; Günesen quarter, 38°28'N-36°30'E, 1569 m, 29.05.2012, Y.252.

32. *Parasola auricoma* (Pat.) Redhead, Vilgalys & Hopple
Sarız, Yedioluk village, manured meadow, 38°34'N-36°25'E, 1766 m, 28.05.2012, Y.190.

33. *Psathyrella candolleana* (Fr.) Maire

Sarız, Yedioluk village, meadow, 38°34'N-36°25'E, 1766 m, 28.05.2012, Y.185.

Schizophyllaceae Quél.

34. *Schizophyllum commune* Fr.

Sarız, Yedioluk village, on decaying wood remains, 38°33'N-36°28'E, 1905 m, 19.05.2012, Y.59.

Strophariaceae Singer & A.H. Sm.

35. *Agrocybe cylindracea* (DC.) Maire

Sarız, Yedioluk village, under *Populus* sp., 38°33' N-36°26' E, 1764 m, 07.07.2011, Y.22.

36. *Hebeloma populinum* Romagn.

Sarız, Kamer village, under *Populus* sp., 38°21'N-36°25'E, 1490 m, 30.10.2012, Y.358.

37. *Hypholoma fasciculare* (Huds.) P. Kumm.

Sarız, Çörekdere village, on decaying wood remains, 38°29'N-36°27'E, 1611 m, 20.05.2012, Y.98.

38. *Pholiota aurivella* (Batsch) P. Kumm.

Sarız, Yedioluk village, on *Salix* sp. stump, 38°33'N-36°26'E, 1781 m, 20.04.2011, Y.7; Kıskaçlı village, 38°33'N-36°27'E, 1849 m, 24.10.2011, Y.35, Ayranlık village, 38°24'N-36°27'E, 1533 m, 24.10.2011, Y.41; Küçük Kabaktepe village, 25.10.2011, 38°30'N-36°22'E, 1861 m, Y.56.

39. *Pholiota gummosa* (Lasch) Singer

Sarız, Ayranlık village, on *Populus* sp. stump, 38°24'N-36°27'E, 1533 m, 20.05.2012, Y.76.

40. *Psilocybe coprophila* (Bull.) P. Kumm.

Sarız, İncemağara village, on dung remain in meadow, 38°-23'N-36°-27'E, 1509 m, 20.05.2012, Y.79.

41. *Stropharia coronilla* (Bull.) Quél.

Sarız, Yedioluk village, among grass, 38°33'N-36°26'E, 1781 m, 20.05.2012, Y.80; Çörekdere village, meadow, 38°28'N-36°27'E, 1650 m, 20.05.2012, Y.81; Ayranlık village, 38°24'N-36°27'E, 1533 m, 28.05.2012, Y.150; Kıskaçlı village, 38°33'N-36°28'E, 1905 m, 28.05.2012, Y.183; Günesen quarter, 38°28'N-36°30'E, 1569 m, 29.05.2012, Y.250.

Tricholomataceae R. Heim ex Pouzar

42. *Lepista nuda* (Bull.) Cooke

Sarız, Karayurt village, among grass near garden, 38°23'N-36°26'E, 1518 m, 30.12.2012, Y.359.

43. *Lepista personata* (Fr.: Fr.) Cke.

Sarız, Çörekdere village, among leaf litter in garden, 38°29'N-36°27'E, 1611 m, 20.05.2012, Y.88.

44. *Melanoleuca excissa* (Fr.) Singer

Sarız, Küçük Kabaktepe village, meadow, 38°30'N-36°22'E, 1861 m, 15.05.2011, Y.11; Yedioluk village, 38°33'N-36°26'E, 1781 m, 29.05.2012, Y.265.

45. *Tricholoma populinum* J.E. Lange

Sarız, İncemağara village, under *Populus* sp., 38°23'N-36°27'E, 1510 m, 13.10.2012, Y.269.

Boletales E.-J. Gilbert

Paxillaceae Lotsy

46. *Paxillus involutus* (Batsch) Fr.

Sarız, Küçük Kabaktepe village, among leaf litter in garden, 38°30'N-36°22'E, 1861 m, 25.10.2011, Y.54.

Hymenochaetales Underw.

Hymenochaetaceae Donk

47. *Phellinus igniarius* (L.) Quél.

Sarız, Kıskaçlı village, on *Salix* sp. stump, 38°33'N-36°27'E, 1849 m, 24.10.2011, Y.34; Kabaktepe village, 38°30'N-36°22'E, 1861 m, 25.10.2011, Y.55.

Meruliaceae P. Karst.

48. *Bjerkandera adusta* (Willd.) P. Karst.

Sarız, Yedioluk village, on decaying *Populus* sp. stump, 38°33'N-36°26'E, 1764 m, 20.05.2012, Y.101.

Polyporaceae Fr. Ex Corda

49. *Fomes fomentarius* (L.) Fr.

Sarız, Yedioluk village, on *Populus* sp. stump, 38°33'N-36°26'E, 1776 m, 20.04.2011, Y.5; Kıskaçlı village, 38°33'N-36°27'E, 1849 m, 24.10.2011, Y.34; Küçük Kabaktepe village, 38°30'N-36°22'E, 1861 m, 25.10.2011, Y.55; Ayranlık village, on *Salix* sp. stump, 38°24'N-36°27'E, 1533 m, 24.10.2011, Y.46.

50. *Lentinus tigrinus* (Bull.) Fr.

Sarız, Daridere village, streamside, on *Salix* sp. remains, 38°26'N-36°28'E, 1576 m, 30.10.2012, Y.361.

51. *Polyporus squamosus* (Huds.) Fr.

Sarız, Kıskaçlı village, on *Salix* sp. remains, 38°33'N-36°27'E, 1849 m, 19.05.2012, Y.60; Çörekdere village, 38°28'N-36°28'E, 1579 m, 19.05.2012, Y.61.

52. *Trametes trogii* Berk.

Sarız, Yedioluk village, on *Populus* sp. stump, 38°34'N-36°25'E, 1766 m, 17.10.2010, Y.2; Ayranlık village, 38°24'N-36°27'E, 1533 m, 24.10.2011, Y.47.

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

Russulaceae Lotsy

53. *Lactarius controversus* (Pers.) P. Karst.

Sarız, İnce mağara village, under *Populus* sp., 38°23'N-36°27'E, 1510 m, 13.10.2012, Y.270.

Stereaceae Pilát

54. *Stereum hirsutum* (Willd.) Pers.

Sarız, Ayranlık village, on *Quercus* sp. stump, 38°24'N-36°28'E, 1670 m, 13.10.2012, Y.267.

4. Conclusions

Fifty four macromycete taxa belonging to two classes, 6 orders, 22 families and 45 genera in *Ascomycota* and *Basidiomycota* were identified. Two of them belong to *Pezizomycetes* (1 *Helvellaceae*, 1 *Morchellaceae*) and 51 to *Agaricomycetes* (10 *Agaricaceae*, 7 *Psathyrellaceae*, 7 *Strophariaceae*, 4 *Polyporaceae*, 4 *Tricholomataceae*, 2 *Inocybaceae*, 2 *Marasmiaceae*, 2 *Physalacriaceae*, 2 *Pleurotaceae*, 2 *Pluteaceae*, 1 *Bolbitiaceae*, 1 *Cyphellaceae*, 1 *Helvellaceae*, 1 *Hymenochaetaceae*, 1 *Incertae Cedis*, 1 *Lyophyllaceae*, 1 *Meruliaceae*, 1 *Morchellaceae*, 1 *Paxillaceae*, 1 *Russulaceae*, 1 *Schizophyllaceae*, 1 *Stereaceae*). All of the taxa are new records for the district.

Thirty two (%59.3) of the determined taxa are edible, 14 (%25.9) are inedible and 8 (%14.8) are more or less poisonous. Seven of them (*Agaricus campestris*, *Bovista plumbea*, *Calvatia gigantea*, *Lycoperdon molle*, *Pleurotus eryngii*, *P. ostreatus* ve *Stropharia coronilla*) are collected and consumed in the region.

When compared the taxa determined in the district bare similarities with the findings of the studies conducted its close environs. These studies and the similarity percentages are given in Table 1. The reason of this similarity may be the common climate and vegetation.

Table 1. Similarity percentages of neighboring studies with Sarız district

Tablo 1. Yakın çevrede gerçekleştirilen çalışmaların Sarız ile benzerlik oranları

	Number of identical taxa	Total taxa	Similarity percentage (%)
Işıloğlu ve Öder (1995)	26	54	48.1
Kaşık et al. (2002a)	23	53	43.4
Kaşık et al. (2002b)	12	45	26.7
Kaşık et al. (2003)	21	94	22.3
Türkoğlu ve Gezer (2006)	13	69	18.8
Kaya (2005)	32	77	41.6
Kaya et al. (2009)	43	105	41.0
Kaya et al. (2012)	27	53	50.9

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