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Macrofungi Determined in Köyceğiz (Muğla) District

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Abstract: In this study, 282 macrofungi samples were collected from ten localities in Köyceğiz (Muğla) between the years 2016 and 2018. As a result of field and laboratory studies, a number of 125 species belonging to 82 genus, 43 families and 2 divisions were listed. 5 of them belong to the *Ascomycota* and 120 to *Basidiomycota*. The list of identified species is given along with localities, habitats, collection dates and collection numbers.

Key words: Macrofungi, Biodiversity, Köyceğiz, Turkey

Köyceğiz (Muğla) İlçesi'nden Belirlenen Makrofunguslar

Öz: Bu çalışmada, Köyceğiz (Muğla) yöresinde on lokaliteden 2016-2018 yılları arasında 282 makrofungus örneği toplanmıştır. Arazi ve laboratuvar çalışmaları sonucunda 82 cins, 43 familya ve 2 şubeye ait toplam 125 tür belirlenmiştir. Bunlardan 5'i *Ascomycota*, 120'si ise *Basidiomycota* bölümüne aittir. Belirlenen türlerin listesi, lokaliteler, habitatlar, toplanma tarihleri ve koleksiyon numaraları ile birlikte verilmiştir.

Anahtar kelimeler: Makrofunguslar, Biyoçeşitlilik, Köyceğiz, Türkiye

Introduction

Köyceğiz, with a surface area of 1.758 km, is surrounded by Sandras Mountain to the north, Marmaris to the west, Ortaca and Dalaman district to the east and Akdeniz coast to the south (Figure 1). The Köyceğiz region, is located in the transition zone of the Mediterranean phytogeographical region. While the coastal regions of the study area are influenced by a Mediterranean climate, a continental climate is observed through out the mountainous regions. Winters are cold, rainy and temperate. On the contrary, summers are quite dry and hot. The annual average temperature and rainfall are 18.3 °C and 650 mm respectively. The rainy period is observed between December and January while dry period is July and August (Güçlü 2001). Forest vegetation is mainly dominated by *Pinus brutia* Ten., *Pinus nigra* J.F. Arnold. and *Liquidambar orientalis* Mill. Due to its climatic and habitat and floristic characteristics, study area is very suitable for macrofungal growth. The purpose of this study is to make a contribution to the macrofungal diversity of Turkey. According to current

checklist (Sesli and Denchev, 2008) approximately 2500 macrofungi species have so far been reported from Turkey. However, many studies have been conducted in recent years and new data were also added to this list from different part of the country (Acar et al., 2019; Akata and Uzun, 2017; Akata and Gürkanlı, 2018; Akata et al., 2019; Allı et al., 2016; Allı et al., 2017; Demirel et al., 2017; Doğan and Öztürk, 2015; Doğan and Kurt, 2016; Doğan et al., 2018; Doğan and Allı, 2019; Güngör and Allı, 2016; Güngör et al., 2016; Kaşık et al., 2017; Kaya, 2015; Kaya and Uzun, 2018; Öztürk et al, 2017; Solak et al., 2015; Tırpan et al., 2018; Uzun and Acar, 2018; Uzun and Kaya 2018).

Materials and methods

Macrofungi specimens were collected from the Köyceğiz district (Muğla) during the field studies between 2016 and 2018 (Table 1). Macroscopic and ecological features of the fresh fungal samples, which were photographed in their natural habitats.

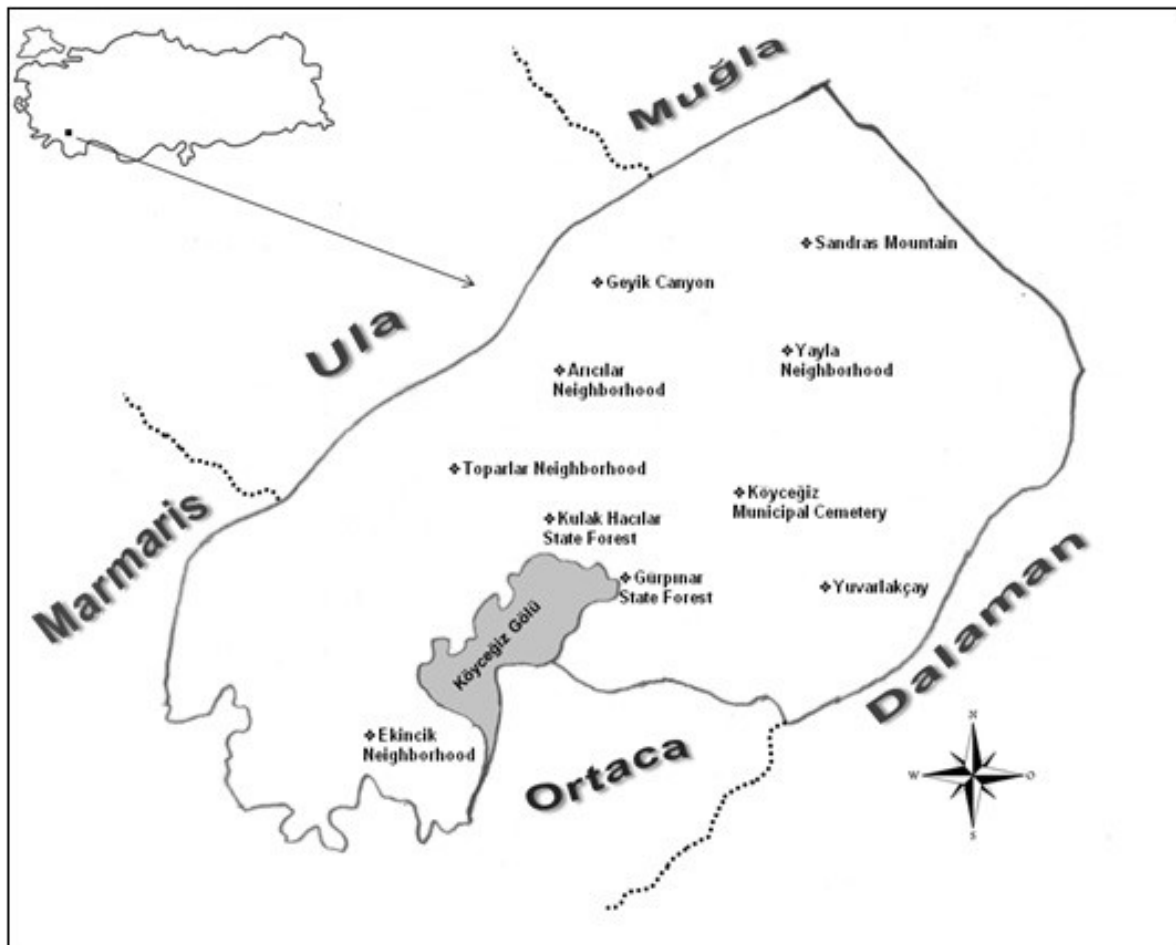


Figure 1. Map of Köyceğiz District

Table 1. Collection localities

No	Localities	Coordinates	Altitudes (m)
1	Kulak Hacılar State Forest	36°57'N-28°40'E	5-15
2	Gürpınar State Forest	36°57'N-28°41'E	5-20
3	Toparlar Neighborhood	36°59'N-28°38'E	10-15
4	Ekincik Neighborhood	36°50'N-28°32'E	35-75
5	Köyceğiz Municipal Cemetery	36°58'N-28°42'E	60-70
6	Yuvarlakçay	36°56'N-28°48'E	100-245
7	Arıcılar Neighborhood	37°06'N-28°35'E	320-335
8	Geyik Canyon	37°08'N-28°36'E	350-550
9	Yayla Neighborhood	37°01'N-28°45'E	800-850
10	Sandras Mountain	37°03'N-28°48'E	1700-1800



Macro and micro-chemical reactions were conducted, reagents such as Melzer's reagent, H₂SO₄, 5% KOH, Congo red and Cotton blue etc. were used for investigations. Identification of the fungal samples was performed according to; Breitenbach and Kränzlin (1984 - 2000), Buczacki (1989), Dähncke (1993), Ellis and Ellis (1990), Hansen and Knudsen (2000), Kränzlin (2005), Knudsen and Vesterholt (2008), Noordeloos (1992), Moser (1983), Pacioni (1985), Phillips (1981). The identified samples were kept at the fungarium of Muğla Sıtkı Koçman University.

Results

The systematics of the taxa are given in accordance with www.mycobank.org (access date 20 November 2018).

Ascomycota Caval.-Sm.

Helvellaceae Fr.

1. *Helvella leucomelaena* (Pers.) Nannf.

Locality 6, *P. brutia* - *L. orientalis* mixed forest, 212 m, 13.04.2017, GNZ 22.

Morchellaceae Rchb.

2. *Morchella angusticeps* Peck

Locality 3, *L. orientalis* forest, 14 m, 07.04.2018, GNZ 191.

Pezizaceae Dumort.

3. *Peziza vesiculosa* Bull.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 10 m, 24.10.2017, GNZ 61.

4. *Sarcosphaera coronaria* (Jacq.) J. Schröt.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 9 m, 24.10.2017, GNZ 56.

Xylariaceae Tul. & C. Tul

5. *Xylaria hypoxylon* (L.) Grev.

Locality 10, *Pinus nigra* J.F. Arnold forest, on branch of *P. nigra*, 1700 m, 09.11.2018, GNZ 281.

Basidiomycota R.T. Moore

Agaricaceae Chevall.

6. *Agaricus bitorquis* (Quél.) Sacc.

Locality 4, *P. brutia* forest, meadow area, 60 m, 17.03.2018, GNZ 186.

7. *Agaricus campestris* L.

Locality 6, *P. brutia* - *L. orientalis* mixed forest, meadow area, 135 m, 26.03.2018, GNZ 187.

8. *Agaricus xanthodermus* Genev

Locality 3, *L. orientalis* forest, 12 m, 23.12.2017, GNZ 164.

9. *Bovista plumbea* Pers.

Locality 3, *L. orientalis* forest, 10 m, 31.10.2017, GNZ 116.

10. *Chlorophyllum molybdites* (G. Mey.) Masee

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, meadow area, 1715 m, 09.11.2018, GNZ 257.

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

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* L. mixed forest, 400 m, 04.11.2017, GNZ 126.

12. *Crucibulum laeve* (Huds.) Kambly

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on branch of *P. brutia*, 500 m, 28.10.2017, GNZ 84.

13. *Cyathus olla* (Batsch) Pers.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, on branch of *P. brutia*, 7 m, 10.09.2017, GNZ 31.

14. *Echinoderma asperum* (Pers.) Bon

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1720 m, 09.11.2018, GNZ 267.

15. *Leucoagaricus leucothites* (Vittad.) Wasser

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, meadow area, 500 m, 28.10.2017, GNZ 95; Locality 3, *L. orientalis* forest, meadow area, 14 m, 31.10.2017, GNZ 102.

16. *Leucocoprinus cepistipes* (Sowerby) Pat.

Locality 3, *L. orientalis* forest, 15 m, 06.10.2018, GNZ 229.

17. *Lycoperdon molle* Pers.

Locality 5, *P. brutia* forest, 70 m, 10.12.2017, GNZ 132.

18. *Lycoperdon perlatum* Pers.

Locality 4, *P. brutia* forest, 10.05.2017, GNZ 24.

19. *Macrolepiota procera* (Scop.) Singer

Locality 3, *L. orientalis* forest, 12 m, 31.10.2017, GNZ 117.

20. *Panaeolus fimicola* (Pers.) Gillet

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 7 m, 24.10.2017, GNZ 69.

21. *Tulostoma brumale* Pers.

Locality 1, *P. brutia* - *L. orientalis* mixed forest, 10 m, 25.11.2018, GNZ 282.

Amanitaceae R. Heim ex Pouzar

22. *Amanita caesarea* (Scop.) Pers.

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1700 m, 09.11.2018, GNZ 280.

23. *Amanita muscaria* (L.) Lam.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 10 m, 10.09.2017, GNZ 30.

24. *Amanita pantherina* (DC.) Krombh.

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1710 m, 09.11.2018, GNZ 263.

25. *Amanita vaginata* (Bull.) Lam.

Locality 5, *P. brutia* forest, 65 m, 10.12.2017, GNZ 147.

**Auriculariaceae** Fr.**26. Auricularia auricula-judae** (Bull.) Quél.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on *Quercus* sp, 515 m, 28.10.2017, GNZ 89.

27. Auricularia mesenterica (Dicks.) Pers.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on *Quercus* sp, 520 m, 28.10.2017, GNZ 79.

Bolbitiaceae Singer**28. Bolbitius titubans** (Bull.) Fr.

Locality 3, *L. orientalis* forest, 15 m, 23.12.2017, GNZ 157.

29. Conocybe filaris (Fr.) Kühner.

Locality 1, *P. brutia* - *L. orientalis* mixed forest, 10 m, 03.06.2018, GNZ 200.

Boletaceae Chevall.**30. Cyanoboletus pulverulentus** (Opat.) Gelardi, Vizzini & Simonini

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, 500 m, 28.10.2017, GNZ 80.

31. Xerocomellus chrysenteron (Bull.) Šutara

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 10 m, 07.10.2017, GNZ 46.

Cantharellaceae J. Schröt.**32. Cantharellus cibarius** Fr.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 5 m, 10.09.2017, GNZ 33.

Clavulinaceae Donk**33. Clavulina coralloides** (L.) J. Schröt.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 7 m, 10.09.2017, GNZ 36.

Cortinariaceae R. Heim ex Pouzar**34. Cortinarius trivialis** J.E. Lange

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 10 m, 07.10.2017, GNZ 45.

Cyphellaceae Lotsy**35. Chondrostereum purpureum** (Pers.) Pouzar

Locality 5, *P. brutia* forest, on stump of *P. brutia*, 60 m, 10.12.2017, GNZ 154.

Dacrymycetaceae J. Schröt.**36. Calocera cornea** (Batsch) Fr.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *P. brutia*, 505 m, 28.10.2017, GNZ 74.

Fomitopsidaceae Jülich**37. Phaeolus schweinitzii** (Fr.) Pat.

Locality 3, *L. orientalis* forest, on stump of *L. orientalis*, 8 m, 06.10.2018, GNZ 231.

Ganodermataceae Donk**38. Ganoderma adspersum** (Schulzer) Donk

Locality 6, *P. brutia* - *L. orientalis* mixed forest, on *P. brutia*, 200 m, 17.09.2017, GNZ 41.

39. Ganoderma applanatum (Pers.) Pat.

Locality 3, *L. orientalis* forest, on *L. orientalis*, 12 m, 15.10.2017, GNZ 49.

40. Ganoderma carnosum Pat.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on *L. orientalis*, 455 m, 28.10.2017, GNZ 90.

41. Ganoderma lucidum (Curtis) P. Karst.

Locality 3, *L. orientalis* forest, on *L. orientalis*, 15 m, 06.03.2017, GNZ 19.

42. Ganoderma resinaceum Boud.

Locality 3, *L. orientalis* forest, on *L. orientalis*, 15 m, 15.10.2017, GNZ 50.

Geastraceae Corda**43. Geastrum fimbriatum** Fr.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, 415 m, 06.10.2018, GNZ 226.

44. Geastrum rufescens Pers.

Locality 9, *P. brutia* forest, 830 m, 01.06.2018, GNZ 195.

45. Geastrum triplex Jungh.

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1710 m, 05.06.2017, GNZ 28.

46. Sphaerobolus stellatus Tode

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *P. brutia*, 500 m, 28.10.2017, GNZ 71.

Gloeophyllaceae Jülich**47. Gloeophyllum trabeum** (Pers.) Murrill

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on root of *P. brutia*, 410 m, 28.10.2017, GNZ 97.

Gomphidiaceae Maire ex Jülich**48. Chroogomphus rutilus** (Schaeff.) O.K. Mill.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, 530 m, 04.11.2017, GNZ 118.

Hygrophoraceae Lotsy**49. Hygrocybe cantharellus** (Fr.) Murrill

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 9 m, 24.10.2017, GNZ 62.

50. Hygrocybe conica (Schaeff.) P. Kumm.

Locality 4, *P. brutia* forest, 45 m, 10.05.2017, GNZ 27.

51. Hygrophorus pudorinus (Fr.) Fr.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, 415 m, 04.11.2017, GNZ 124.

Hymenochaetaceae Imazeki & Toki**52. Fuscoporia torulosa** (Pers.) T. Wagner & M. Fisch.

Locality 3, *L. orientalis* forest, on *L. orientalis*, 13 m, 06.03.2017, GNZ 237.

53. Inonotus hispidus (Bull.) P. Karst.



Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, on *P. brutia*, 15 m, 24.10.2017, GNZ 51.

54. *Phellinus igniarius* (L.) Quél.

Locality 3, *L. orientalis* forest, on *L. orientalis*, 10 m, 06.10.2018, GNZ 20.

Inocybaceae Jülich

55. *Crepidotus appianatus* (Pers.) P. Kumm.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *L. orientalis*, 375 m, 06.10.2018, GNZ 225.

56. *Crepidotus epibryus* (Fr.) Quél.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *P. brutia*, 385 m, 28.10.2017, GNZ 72.

57. *Crepidotus mollis* (Schaeff.) Staude.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *P. brutia*, 390 m, 28.10.2017, GNZ 78.

58. *Crepidotus variabilis* (Pers.) P. Kumm.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *P. brutia*, 450 m, 06.10.2018, GNZ 227.

59. *Inocybe erubescens* A. Blytt

Locality 5, *P. brutia* forest, 67 m, 10.12.2017, GNZ 144.

60. *Inocybe lacera* (Fr.) P. Kumm.

Locality 5, *P. brutia* forest, 68 m, 10.12.2017, GNZ 143.

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

Locality 5, *P. brutia* forest, 70 m, 10.12.2017, GNZ 146.

Marasmiaceae Roze ex Kühner

62. *Baeospora myosura* (Fr.) Singer

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, on cones of *P. brutia*, 15 m, 10.09.2017, GNZ 37.

63. *Marasmius epiphyllus* (Pers.) Fr.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on branch of *P. brutia*, 525 m, 28.10.2017, GNZ 73.

Meruliaceae Rea

64. *Abortiporus biennis* (Bull.) Singer

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, on stump of *P. brutia*, 14 m, 24.10.2017, GNZ 58.

Mycenaceae Overeem

65. *Mycena epipterygia* (Scop.) Gray

Locality 3, *L. orientalis* forest, on stump of *L. orientalis*, 10 m, 06.10.2018, GNZ 241.

66. *Mycena pura* (Pers.) P. Kumm.

Locality 4, *P. brutia* forest, 50 m, 10.05.2017, GNZ 26.

67. *Mycena rosella* (Fr.) P. Kumm.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 13 m, 07.10.2017, GNZ 48.

68. *Mycena seynii* Quél.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on cones of *P. brutia*, 472 m, 28.10.2017, GNZ 82.

69. *Mycena silvae-nigrae* Maas Geest. & Schwöbel

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, on branch of *P. brutia*, 18 m, 24.10.2017, GNZ 52.

Omphalotaceae Bresinsky

70. *Marasmiellus ramealis* (Bull.) Singer

Locality 5, *P. brutia* forest, on branch of *P. brutia*, 66 m, 10.12.2017, GNZ 141.

71. *Omphalotus olearius* (DC.) Singer

Locality 9, on *Platanus orientalis* L., 825 m, 05.06.2017, GNZ 29.

Phallaceae Corda

72. *Clathrus ruber* P. Micheli ex Pers.

Locality 6, *P. brutia* - *L. orientalis* mixed forest, 212 m, 13.04.2017, GNZ 21.

73. *Colus hirudinosus* Cavalier & Séchier

Locality 5, *P. brutia* forest, 60 m, 10.12.2017, GNZ 139.

74. *Phallus impudicus* L.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 15 m, 10.09.2017, GNZ 32.

Phanerochaetaceae Jülich

75. *Terana coerulea* (Lam.) Kuntze

Locality 6, *P. brutia* - *L. orientalis* mixed forest, on stump of *P. brutia*, 245 m, 17.09.2017, GNZ 40.

Physalacriaceae Corner

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

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on root of *P. brutia*, 420 m, 28.10.2017, GNZ 88.

Pleurotaceae Kühner

77. *Hohenbuehelia petaloides* (Bull.) Schulzer

Locality 3, *L. orientalis* forest, 11 m, 23.12.2017, GNZ 160.

Pluteaceae Kotl. & Pouzar

78. *Pluteus chrysophaeus* (Schaeff.) Quél.

Locality 3, *L. orientalis* forest, on stump of *L. orientalis*, 15 m, 28.04.2018, GNZ 193.

79. *Pluteus petasatus* (Fr.) Gillet

Locality 1, *P. brutia* - *L. orientalis* mixed forest, on stump of *P. brutia*, 15 m, 03.06.2018, GNZ 209.

80. *Volvopluteus gloiocephalus* (DC.) Vizzini, Contu & Justo

Locality 1, *P. brutia* - *L. orientalis* mixed forest, 5 m, 03.06.2018, GNZ 216.

Polyporaceae Fr. ex Corda

81. *Daedaleopsis confragosa* (Bolton) J. Schröt.

Locality 1, *P. brutia* - *L. orientalis* mixed forest, on branch of *P. brutia*, 14 m, 03.06.2018, GNZ 204.

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



Locality 1, *P. brutia* - *L. orientalis* mixed forest, on *L. orientalis*, 14 m, 03.06.2018, GNZ 211.

83. *Lentinus arcularius* (Batsch) Zmitr.

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, on stump of *P. brutia*, 10 m, 24.10.2017, GNZ 59.

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

Locality 3, *L. orientalis* forest, on stump of *L. orientalis*, 10 m, 31.10.2017, GNZ 99.

85. *Trametes versicolor* (L.) Lloyd

Locality 3, *L. orientalis* forest, on stump of *L. orientalis*, 13 m, 15.10.2016, GNZ 5.

Psathyrellaceae Vilgalys, Moncalvo & Redhead

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

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *P. brutia*, 405 m, 28.10.2017, GNZ 77.

87. *Coprinellus domesticus* (Bolton) Vilgalys, Hopple & Jacq. Johnson

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 17 m, 10.09.2017, GNZ 38.

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

Locality 3, *L. orientalis* forest, 15 m, 23.12.2016, GNZ 12.

89. *Coprinellus silvaticus* (Peck) Gminder

Locality 3, *L. orientalis* forest, 10 m, 23.12.2017, GNZ 172.

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

Locality 4, *P. brutia* forest, 35 m, 10.05.2017, GNZ 25.

91. *Coprinopsis lagopus* (Fr.) Redhead, Vilgalys & Moncalvo

Locality 3, *L. orientalis* forest, 10 m, 31.10.2017, GNZ 115.

92. *Coprinopsis variegata* (Peck) Redhead, Vilgalys & Moncalvo

Locality 1, *P. brutia* - *L. orientalis* mixed forest, 5 m, 03.06.2018, GNZ 214.

93. *Psathyrella candolleana* (Fr.) Maire

Locality 3, *L. orientalis* forest, 12 m, 23.12.2017, GNZ 188.

Rhizopogonaceae Gäum. & C.W. Dodge

94. *Rhizopogon luteolus* Fr.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. mixed forest, 457 m, 28.10.2017, GNZ 70.

95. *Rhizopogon roseolus* (Corda) Th. Fr.

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. mixed forest, 457 m, 28.10.2017, GNZ 92.

Russulaceae Lotsy

96. *Lactarius deliciosus* (L.) Gray

Locality 3, *L. orientalis* forest, 8 m, 23.12.2017, GNZ 183.

97. *Lactarius sanguifluus* (Paulet) Fr.

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1755 m, 09.11.2018, GNZ 256.

98. *Russula delica* Fr.

Locality 3, *L. orientalis* forest, 5 m, 23.12.2017, GNZ 158.

99. *Russula rosea* Pers.

Locality 5, *P. brutia* forest, 55 m, 10.12.2017, GNZ 138.

100. *Russula torulosa* Bres.

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1765 m, 09.11.2018, GNZ 268.

101. *Russula queletii* Fr.

Locality 2 *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 10 m, 24.10.2017, GNZ 55.

Schizophyllaceae Quéll.

102. *Schizophyllum commune* Fr.

Locality 4, *P. brutia* forest, on stump of *P. brutia*, 58 m, 10.05.2017, GNZ 23.

Sclerodermataceae Corda

103. *Pisolithus arhizus* (Scop.) Rauschert

Locality 3, *L. orientalis* forest, 9 m, 06.10.2018, GNZ 238.

Sparassidaceae Herter

104. *Sparassis crispa* (Wulfen) Fr.

Locality 10, *P. nigra* - *Quercus* sp. mixed forest, on stump of *P. nigra*, 1761 m, 09.11.2018, GNZ 265.

Stereaceae Pilát

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

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. mixed forest, on stump of *P. brutia*, 368 m, 28.10.2017, GNZ 76.

Strophariaceae Singer & A.H. Sm.

106. *Agrocybe dura* (Bolton) Singer

Locality 9, on stump of poplar, 826 m, 01.06.2018, GNZ 198.

107. *Agrocybe praecox* (Pers.) Fayod

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, on stump of *P. orientalis*, 413 m, 04.11.2017, GNZ 125.

108. *Cyclocybe aegerita* (V. Brig.) Vizzini

Locality 10, on stump of poplar, 1787 m, 20.08.2018, GNZ 220.

109. *Cyclocybe cylindracea* (DC.) Vizzini & Angelini

Locality 10, on stump of poplar, 1787 m, 20.08.2018, GNZ 222.

110. *Stropharia melanosperma* (Bull.) Gillet

Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 17 m, 24.10.2017, GNZ 64.

Suillaceae Besl & Bresinsky

111. *Suillus collinitus* (Fr.) Kuntze

Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, 367 m, 28.10.2017, GNZ 83.

112. *Suillus luteus* (L.) Roussel

Locality 5, *P. brutia* forest, 56 m, 10.12.2017, GNZ 133.

Tapinellaceae C. Hahn



113. *Tapinella panuoides* (Fr.) E.-J. Gilbert
Locality 9, on stump of *P. orientalis*, 833 m, 04.11.2018, GNZ 252.

Tricholomataceae R. Heim ex Pouzar

114. *Clitocybe costata* Kühner & Romagn.
Locality 5, *P. brutia* forest, 65 m, 10.12.2017, GNZ 140.

115. *Clitocybe fragrans* (With.) P. Kumm.
Locality 5, *P. brutia* forest, 68 m, 10.12.2017, GNZ 150.

116. *Infundibulicybe geotropa* (Bull.) Harmaja.
Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1745 m, 09.11.2018, GNZ 255.

117. *Leucopaxillus gentianeus* (Quél.) Kotl.
Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1763 m, 09.11.2018, GNZ 269.

118. *Lepista nuda* (Bull.) Cooke
Locality 3, *L. orientalis* forest, 9 m, 23.12.2017, GNZ 180.

119. *Lepista sordida* (Schumach.) Singer
Locality 3, *L. orientalis* forest, 11 m, 23.12.2017, GNZ 167.

120. *Melanoleuca excissa* (Fr.) Singer
Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 18 m, 30.05.2018, GNZ 194.

121. *Melanoleuca humilis* (Pers.) Pat.
Locality 5, *P. brutia* forest, 67 m, 10.12.2017, GNZ 155.

122. *Melanoleuca stridula* (Fr.) Singer
Locality 8, *P. brutia* - *L. orientalis* - *Quercus* sp. - *P. orientalis* mixed forest, 518 m, 04.11.2017, GNZ 127.

123. *Paralepista flaccida* (Sowerby) Vizzini
Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1747 m, 09.11.2018, GNZ 272.

124. *Tricholoma fracticum* (Britzelm.) Kreisel
Locality 2, *P. brutia* - *L. orientalis*- *Quercus* sp. mixed forest, 11 m, 24.10.2017, GNZ 60.

125. *Tricholoma terreum* (Schaeff.) P. Kumm.
Locality 10, *P. nigra* - *Quercus* sp. mixed forest, 1750 m, 09.11.2018, GNZ 264.

Discussion

In this study, 125 species belonging to 82 genus, 43 families and 2 divisions were listed. The percentages of edible, inedible and poisonous species were given in the Figure 2.

Seventeen of 125 species; *Agaricus campestris* (çayır mantarı), *Amanita caesarea* (imparator mantarı), *Armillaria mellea* (bal mantarı), *Auricularia auricula-judae* (kulak mantarı), *Cantharellus cibarius* (kaz ayağı, tavuk bacağı), *Coprinus comatus* (söbelen), *Cyclocybe aegerita* (kavak mantarı), *Cyclocybe cylindracea* (kavak mantarı), *Infundibulicybe geotropa* (balkadın, etçe mantarı), *Lactarius deliciosus* (çintar), *Lepista nuda* (mavi cincile), *Macrolepiota procera* (şemsiye mantarı), *Morchella angusticeps* (kuzu göbeği), *Rhizopogon luteolus* (domalan), *Rhizopogon roseolus* (tavşan böbreği), *Russula delica* (ak çintar) and *Sparassis crispa* (karnibahar mantarı) are consumed in the region by local people. Except those 22 species; *Agaricus bitorquis*, *Agrocybe dura*, *Agrocybe praecox*, *Auricularia mesenterica*, *Bovista plumbea*, *Chroogomphus rutilus*, *Clavulina coralloides*, *Helvella leucomelaena*, *Hohenbuehelia petaloides*, *Hygrocybe cantharellus*, *Hygrophorus pudorinus*, *Lactarius sanguifluus*, *Leucoagaricus leucothites*, *Lycoperdon molle*, *Lycoperdon perlatum*, *Phallus impudicus*, *Pluteus petasatus*, *Suillus collinitus*, *Suillus luteus*, *Tricholoma terreum*, *Volvoluteus gloiocephalus* and *Xerocomellus chrysenteron* are edible.

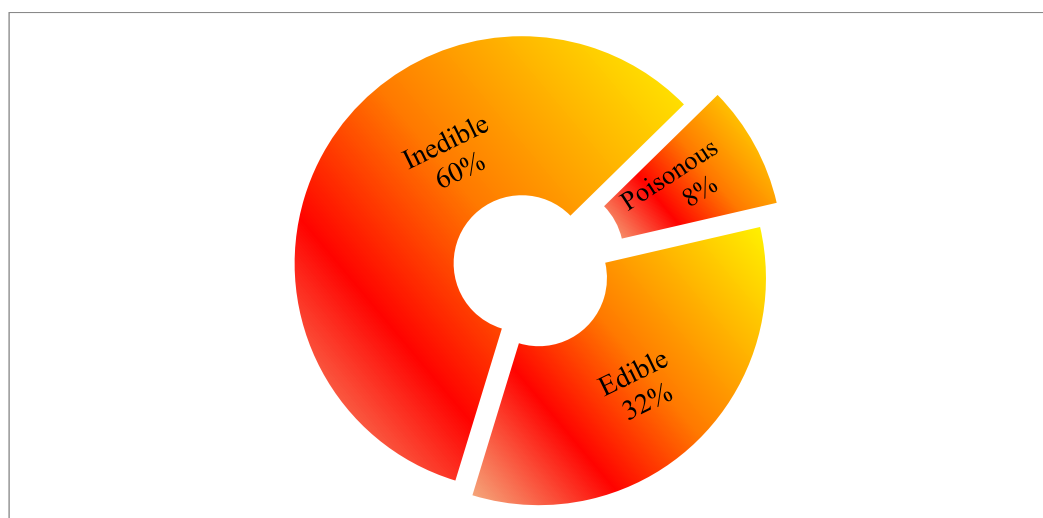


Figure 2. Edibility of the macrofungi of Köyceğiz District



There were also 11 poisonous fungi in the research area; *Agaricus xanthodermus*, *Amanita muscaria*, *Amanita pantherina*, *Chlorophyllum molybdites*, *Coprinopsis atramentaria*, *Cyanoboletus pulverulentus*, *Echinoderma asperum*, *Mycena pura*, *Omphalotus olearius*, *Panaeolus fimicola* and *Sarcosphaera coronaria*.

The distribution of the species in their families are as follows; *Agaricaceae* 16, *Tricholomataceae* 12, *Psathyrellaceae* 8, *Inocybaceae* 7, *Russulaceae* 6, *Ganodermataceae*, *Mycenaceae*, *Polyporaceae* and *Strophariaceae* 5, *Amanitaceae* and *Geastraceae* 4,

Hygrophoraceae, *Hymenochaetaceae*, *Phallaceae* and *Pluteaceae* 3, *Auriculariaceae*, *Boletaceae*, *Bolbitiaceae*, *Marasmiaceae*, *Omphalotaceae*, *Pezizaceae*, *Rhizopogonaceae* and *Suillaceae* 2, *Cantharellaceae*, *Clavulinaceae*, *Cortinariaceae*, *Cyphellaceae*, *Dacrymycetaceae*, *Fomitopsidaceae*, *Gloeophyllaceae*, *Gomphidiaceae*, *Helvellaceae*, *Meruliaceae*, *Morchellaceae*, *Phanerochaetaceae*, *Physalacriaceae*, *Pleurotaceae*, *Schizophyllaceae*, *Sclerodermataceae*, *Sparassidaceae*, *Stereaceae*, *Tapinellaceae* and *Xylariaceae* 1 (Figure 3).

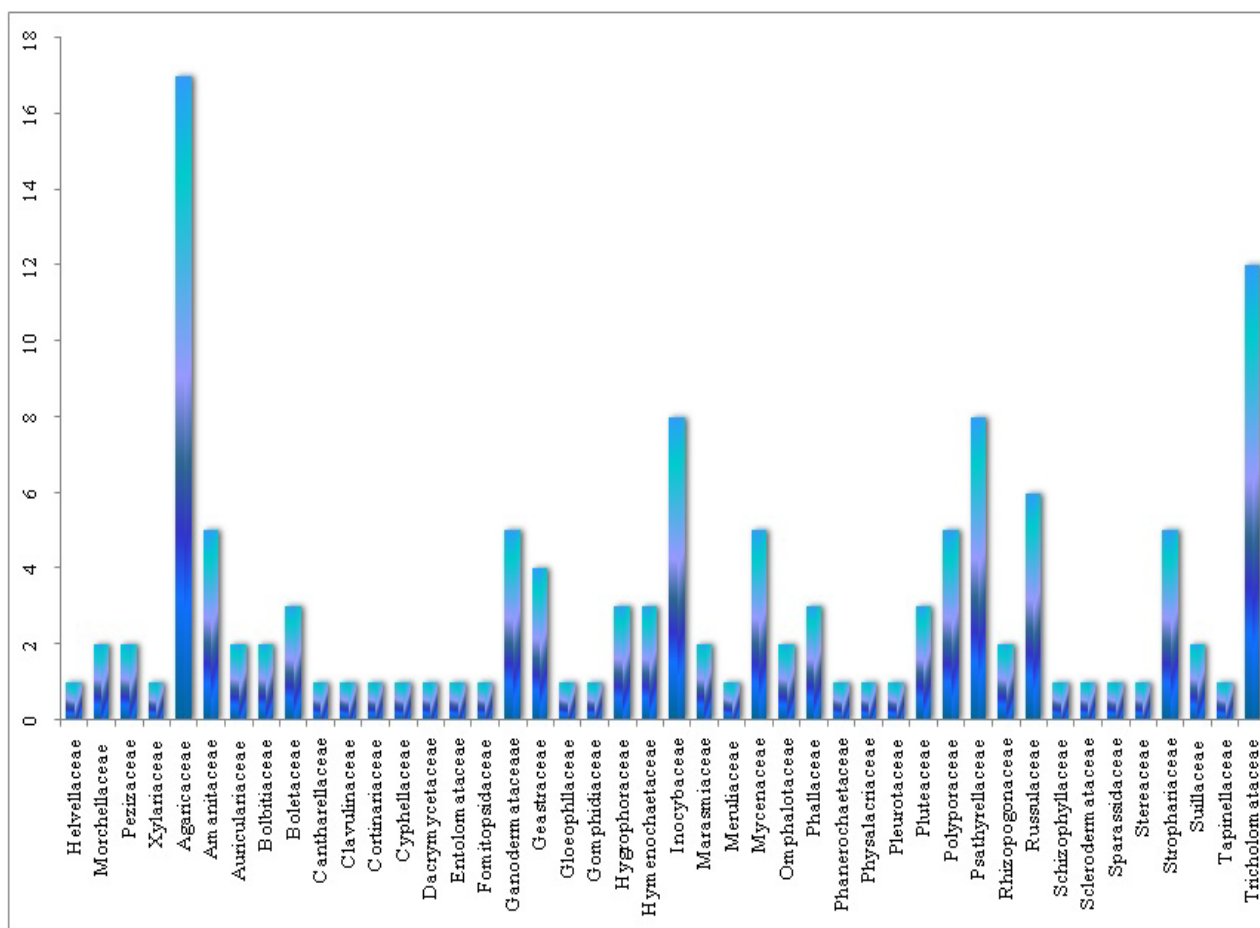


Figure 3. The distribution of the species in their families

The results of this study were compared with the data of the other studies carried out in its close environs and number of the determined species and similarity

percentages are presented in Table 2. These similarities may be due to similarities in climate, flora and vegetation.



Table 2. Similarity percentages of neighbouring studies with Köyceğiz District

Investigations	Research Area	Total taxa	Identical taxa	Similarity (%)
Allı ve Işıloğlu (2000)	Muğla Province	32	15	46.87
Işıloğlu (2001)	Sandras Mountain	76	33	43.42
Güngör vd. (2016)	Muğla Province	211	50	23.69
Güngör ve Allı (2016)	Muğla Province	40	19	47.50
Tırpan (2018)	Datça Peninsula	102	36	35.29

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