

Macrofungi of Türkmenbaba Mountain (Eskişehir)

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Abstract: The macrofungi collected from the Türkmenbaba mountain area in 2001-2003 were investigated. As a result of field and laboratory studies, 84 taxa belonging to 30 families were identified. Seven species belong to the class *Ascomycetes* and 77 species to *Basidiomycetes*. Seven of these taxa are new records for the Turkish macromycota.

Key Words: Macrofungi, Turkish Macromycota, Türkmenbaba Mountain

Türkmenbaba Dağı (Eskişehir) Makrofungusları

Özet: Bu çalışmada, Türkmenbaba Dağında 2001-2003 yılları arasında yapılan arazi çalışmalarıyla toplanan makrofunguslar araştırılmıştır. Arazi ve laboratuvar çalışmaları sonucunda 30 familyaya ait 84 takson belirlenmiştir. Belirlenen taksonlardan 7'si *Ascomycetes*, 77'si *Basidiomycetes* sınıfına aittir. Bu taksonlardan 7 tanesi Türkiye makromikotasi için yeni kayıttır.

Anahtar Sözcükler: Makrofunguslar, Türkiye Makromikotasi, Türkmenbaba Dağı

Introduction

Although many studies have been carried out on the macrofungi flora of Turkey, there are numerous regions which have not been investigated yet. Türkmenbaba mountain, chosen as the study area, is near the Eskişehir-Kütahya highway, 25 km from Eskişehir (Figure 1). *Pinus nigra* J.F.Arnold, *Pinus sylvestris* L. and *Quercus cerris* L. are very common plants in the region. Climatic factors, plant distributions and field features of this area provide appropriate conditions for mushroom growth. Based on a review of the relevant literature, it appears that no previous macrofungi studies have been carried out in this area. The aims of this study were to determine the macrofungi taxa of this district, to identify edible, inedible and poisonous species and to make a contribution to the macrofungal flora of Turkey.

Materials and Methods

During field trips to Türkmenbaba mountain, macrofungi samples were collected periodically during all

seasons between 2001 and 2003. All species were photographed and their morphological and ecological features and localities were noted in the field. Specimens were then taken to the laboratory. Spore prints were obtained and spore dimensions were measured using an ocular micrometer. Samples were dried under suitable conditions and preserved in polyethylene bags containing thymol crystal. Identification of the specimens was carried out according to Phillips (1981), Moser (1983), Breitenbach and Kränzlin (1984, 1986, 1991, 1995), Cetto (1988) and Ellis and Ellis (1990). After identification of the specimens, some comparative studies were carried out on the macrofungi flora of Turkey (Baytop, 1994; Mat & Gücin, 2000; Afyon & Konuk, 2001; Doğan et al., 2001; Huseyinov et al., 2001; Kaşık et al., 2001; Kaya, 2001; Öztürk et al., 2001; Solak et al., 2001; Afyon & Konuk, 2002; Asan et al., 2002; Demirel et al., 2002; Doğan et al., 2002; Kaşık et al., 2002; Öztürk, 2002; Öztürk et al., 2002; Solak & Yılmaz, 2002; Solak et al., 2002; Yılmaz & Işiloğlu, 2002; Aktaş et al., 2003; Demirel et al., 2003; Doğan et

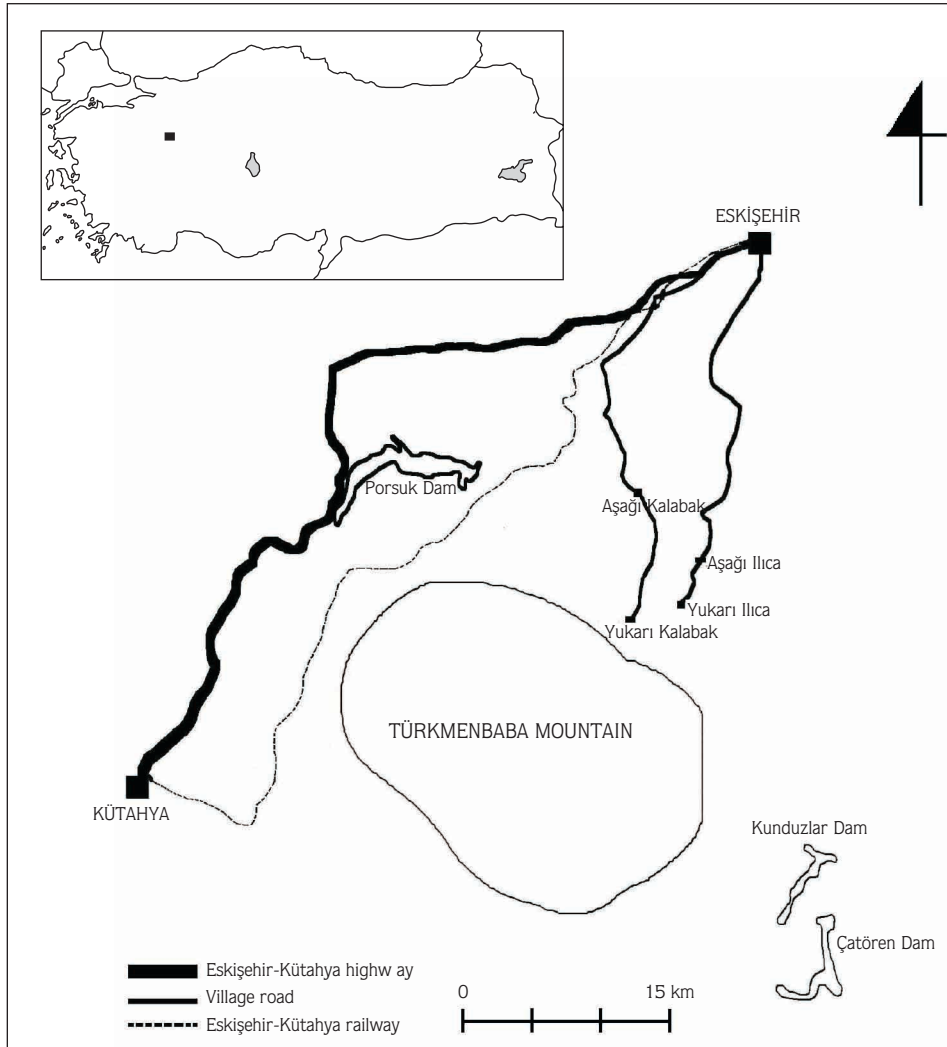


Figure 1. Map of the study area.

al., 2003; Kaşık et al., 2003; Öztürk et al., 2003; Pekşen & Karaca, 2003; Solak & Yılmaz Ersel, 2003; Solak et al., 2003; Türkekul, 2003; Türkekul & Sesli, 2003; Yılmaz Ersel et al., 2003; Afyon & Yağız, 2004; Demirel & Uzun, 2004; Demirel et al., 2004; Kaya et al., 2004; Yılmaz Ersel & Solak, 2004; Uzun et al., 2004). The specimens were prepared as herbarium materials and stored in the Fungiculture laboratory at the Department of Biology, Eskişehir Osmangazi University.

Results

Species determined in the research area are listed below. The numbers refer to the herbarium numbers and

an asterisk (*) means that the taxon is new for the Turkish macromycota.

ASCOMYCETES

Helvellaceae

1. *Gyromitra esculenta* (Pers.) Fr.

Hızardere district, in pine forest, 1110 m, 31.05.2003, Köstekci 590.

2. *Gyromitra infula* (Schaeff.) Quél.

Efsunbaba district, in mixed woodlands, 1150 m, 23.11.2002, Köstekci 481.

3. *Helvella acetabulum* (L.) Qué.Syn: *Peziza acetabulum* L.*Paxina acetabulum* (L.) Kuntze*Acetabula vulgaris* FuckelKaklık deresi district, in meadows, 1102 m,
28.04.2003, Köstekci 576.**4. *Helvella lacunosa* Afzel.**Hızardere district, in meadows, 1170 m,
28.10.2002, Köstekci 315.**Humariaceae****5. *Aleuria aurantia* (Pers.) Fuckel**Hızardere district, near stream, 1170 m,
19.10.2002, Köstekci 282.**Pezizaceae*****6. *Peziza violacea* Pers.**Hızardere district, after fire in burnt sites, 1170 m,
05.04.2003, Köstekci 548.**Diatrypaceae****7. *Diatrype disciformis* (Hoffm.) Fr.**Efsunbaba district, on deciduous tree, 1150 m,
23.11.2002, Köstekci 489, Hızardere district, 1170 m,
04.12.2002, Köstekci 530.**BASIDIOMYCETES****Tremellaceae****8. *Exidia truncata* Fr.**Karatepe district, on deciduous tree, 1348 m,
24.03.2002, Köstekci 08.**Nidulariaceae****9. *Crucibulum laeve* (Huds.) Kambly**Syn: *Crucibulum vulgare* Tul. & C.Tul.Kaklık deresi district, on deciduous tree, 1102 m,
28.09.2002, Köstekci 166.**10. *Cyathus olla* (Batsch) Pers.**Kaklık deresi district, on deciduous tree, 1102 m,
28.09.2002, Köstekci 165.**Sphaerobolaceae*****11. *Sphaerobolus stellatus* Tode**Hızardere district, on deciduous tree, 1170 m,
19.10.2002, Köstekci 283.**Rhizopogonaceae****12. *Rhizopogon luteolus* Fr.**Kaklık deresi district, in mixed woodlands, 1102 m,
12.10.2002, Köstekci 210.**13. *Rhizopogon roseolus* (Corda) Th.Fr.**Karatepe district, in mixed woodlands, 1217 m,
21.04.2002, Köstekci 21.**Lycoperdaceae****14. *Handkea excipuliformis* (Scop.) Kreisel**Syn: *Calvatia excipuliformis* (Scop.) Perdeck*Calvatia saccata* (Vahl) MorganHızardere district, in meadows, 1170 m,
31.05.2003, Köstekci 597.**15. *Lycoperdon pyriforme* Schaeff.**Kaklık deresi district, on pine stumps, 1102 m,
28.09.2002, Köstekci 156.**16. *Lycoperdon perlatum* Pers.**Syn: *Lycoperdon gemmatum* BatschKaklık deresi district, in meadows, 1102 m,
28.09.2002, Köstekci 159.***17. *Lycoperdon pedicellatum* Peck**Kaklık deresi district, in meadows, 1102 m,
28.09.2002, Köstekci 502.**18. *Lycoperdon umbrinum* Pers.**Kaklık deresi district, in meadows, 1102 m,
28.09.2002, Köstekci 130.**19. *Bovista plumbea* Pers.**Kaklık deresi district, in meadows, 1102 m,
28.09.2002, Köstekci 136; Kaklık deresi district, 1130
m, 12.10.2002, Köstekci 224; Yukarı Kalabak village
district, 1160 m, 16.11.2002, Köstekci 430.***20. *Bovista aestivalis* (Bonord.) Demoulin**Keltepe district, in meadows, 1110 m, 02.11.2002,
Köstekci 395.**Sclerodermataceae****21. *Scleroderma cepa* Pers.**Efsunbaba district, near stream, 1560 m,
07.07.2002, Köstekci 96.

22. *Scleroderma verrucosum* (Bull.) Pers.
Kaklık deresi district, under pine trees, 1102 m,
28.04.2003, Köstekci 579.

23. *Scleroderma areolatum* Ehrenb.

Kaklık deresi district, under deciduous tree, 1102 m,
12.10.2002, Köstekci 207.

Thelephoraceae

24. *Boletopsis leucomelaena* (Pers.) Fayod

Hızardere district, in pine forest, 1170 m,
19.10.2002, Köstekci 271.

25. *Sarcodon imbricatus* (L.) P.Karst.

Kaklık deresi district, near stream, 1130 m,
28.09.2002, Köstekci 117, 1102 m, 12.10.2002,
Köstekci 261.

Boletaceae

26. *Boletus edulis* Bull.

Kaklık deresi district, in mixed woodlands, 1102 m,
12.10.2002, Köstekci 236.

27. *Boletus chrysenteron* Bull.

Syn: *Xerocomus chrysenteron* (Bull.) Quél.

Kaklık deresi district, in mixed woodlands, 1110 m,
28.09.2002, Köstekci 185.

28. *Suillus luteus* (L.) Gray

Kaklık deresi district, in pine forest, 1102 m,
12.10.2002, Köstekci 210.

29. *Suillus bovinus* (Pers.) Kuntze

Syn: *Ixocomus bovinus* (L.) Quél.

Hızardere district, in pine forest, 1170 m,
28.10.2002, Köstekci 309.

30. *Suillus bellinii* (Inzenga) Watling

Kaklık deresi district, in pine forest, 1102 m,
12.10.2002, Köstekci 231.

Hymenochaetaceae

31. *Phellinus pini* (Brot.) Bondartsev & Singer

Kaklık deresi district, on wood of live pine, 1102 m,
28.09.2002, Köstekci 186.

Polyporaceae

*32. *Albatrellus subrubescens* (Murrill) Pouzar

Hızardere district, in pine forest, 1170 m,
28.10.2002, Köstekci 320.

33. *Pycnoporus cinnabarinus* (Jacq.) Fr.

Syn: *Trametes cinnabarina* (Jacq.) Fr.

Kaklık deresi district, on deciduous tree, 1102 m,
28.09.2002, Köstekci 184.

34. *Gloeophyllum abietinum* (Bull.) P.Karst.

Syn: *Lenzites abietina* (Bull.) Fr.

Kaklık deresi district, on pine stumps, 1102 m,
19.04.2003, Köstekci 564.

35. *Polyporus varius* (Pers.) Fr.

Efsunbaba district, on pine, 1150 m, 23.11.2002,
Köstekci 474.

36. *Polyporus arcularius* (Batsch) Fr.

Syn: *Polyporus anisoporus* Delastre & Mont.

Efsunbaba district, on broadleaved tree, 1230 m,
23.11.2002, Köstekci 438.

37. *Trametes versicolor* (L.) Lloyd

Syn: *Coriolus versicolor* (L.) Quél.

Kaklık deresi district, on poplar stumps, 1102 m,
28.09.2002, Köstekci 188.

38. *Trametes hirsuta* (Wulfen) Pilát

Kaklık deresi district, on deciduous tree, 1102 m,
28.04.2003, Köstekci 587.

Hydnaceae

39. *Hydnum repandum* L.

Syn: *Dentinum repandum* (L.) Gray

Kaklık deresi district, in pine forest, 1102 m,
26.10.2002, Köstekci 295.

Corticiaceae

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

Domuzgölü hill, on pine stumps, 1250 m,
16.03.2002, Köstekci 07.

Ramariaceae

41. *Ramaria fumigata* (Peck) Corner

Syn: *Ramaria versatilis* Quél.

Hızardere district, in pine forest, 1170 m,
28.10.2002, Köstekci 321.

42. *Ramaria flava* (Tourn. ex Battarra) Quél.

Syn: *Clavaria flava* (Tourn. ex Battarra) Schaeff.

Kaklık deresi district, in pine forest, 1102 m, 12.10.2002, Köstekci 211.

Clavariaceae

43. *Clavariadelphus truncatus* (Quél.) Donk

Kirazlı road district, in mixed woodlands, 1102 m, 13.10.2002, Köstekci 192.

44. *Clavariadelphus pistillaris* (L.) Donk

Efsunbaba district, in mixed woodlands, 1560 m, 23.11.2002, Köstekci 495.

Schizophyllaceae

45. *Schizophyllum commune* Fr.

Keltepe district, on pine stumps, 1110 m, 02.11.2002, Köstekci 365.

Entolomataceae

46. *Entoloma hirtipes* (Schumach.) M.M.Moser

Kaklık deresi district, in pine forest, 1102 m, 28.04.2003, Köstekci 568.

Russulaceae

47. *Russula delica* Fr.

Kaklık deresi district, in pine forest, 1102 m, 12.10.2002, Köstekci 194.

48. *Lactarius chrysorrheus* Fr.

Efsunbaba district, under *Quercus* trees, 1560 m, 23.11.2002, Köstekci 482.

49. *Lactarius deliciosus* (L.) Gray

Kaklık deresi district, in pine forest, 1102 m, 28.09.2002, Köstekci 133; 12.10.2002, Köstekci 193.

50. *Lactarius deterrimus* Gröger

Kaklık deresi district, in pine forest, 1102 m, 12.10.2002, Köstekci 191.

Coprinaceae

51. *Coprinus comatus* (O.F.Müll.) Gray

Kaklık deresi district, in meadows, near cow dung, 1102 m, 12.10.2002, Köstekci 237.

52. *Coprinus micaceus* (Bull.) Fr.

Keltepe district, on rotten poplar stumps, 1115 m, 31.05.2003, Köstekci 620.

Gomphidiaceae

53. *Chroogomphus rutilus* (Schaeff.) O.K.Mill.

Syn: *Gomphidius viscidus* (L.) Fr.

Gomphidius rutilus (Schaeff.) S.Lundell

Kaklık deresi district, in pine forest, 1102 m, 28.09.2002, Köstekci 116-131.

Strophariaceae

54. *Hypholoma fasciculare* (Huds.) Quél.

Syn: *Nematoloma fasciculare* (Huds.) P.Karst.

Kaklık deresi district, on pine stumps, 1120 m, 28.09.2002, Köstekci 162.

55. *Stropharia aeruginosa* (Curtis) Quél.

Hızardere district, in mixed woodlands, 1170 m, 28.10.2002, Köstekci 313.

56. *Stropharia caerulea* Kreisel

Keltepe district, in meadows, 1110 m, 02.11.2002, Köstekci 345.

Agaricaceae

57. *Agaricus impudicus* (Rea) Pilát

Kaklık deresi district, near road, in meadows, 1102 m, 28.09.2002, Köstekci 148.

Paxillaceae

58. *Paxillus involutus* (Batsch) Fr.

Kirazlı road district, the bank of stream, 1210 m, 28.09.2002, Köstekci 122; Kaklık deresi district, 1102 m, 12.10.2002, Köstekci 146; Keltepe district, 1250 m, 26.10.2002, Köstekci 246.

Hygrophoraceae

59. *Hygrocybe nigrescens* (Quél.) Kühner

Kaklık deresi district, in meadows, 1102 m, 12.10.2002, Köstekci 205.

60. *Hygrophorus chrysodon* (Batsch) Fr.

Hızardere district, in pine forest, 1170 m, 19.10.2002, Köstekci 296; Yukarı Kalabak village, 1260 m, 16.11.2002, Köstekci 430, Karatepe district, 1230 m, 30.11.2002, Köstekci 503.

61. *Hygrophorus agathosmus* (Fr.) Fr.

Keltepe district, under deciduous tree, 1250 m, 02.11.2002, Köstekci 267.

62. *Hygrophorus hypothejus* (Fr.) Fr.

Hızardere district, in mixed woodlands, 1170 m, 28.10.2002, Köstekci 319.

63. *Hygrophorus camarophyllus* (Alb. & Schwein.) Dumée, Grandjean & Maire

Syn: *Hygrophorus caprinus* (Scop.) Fr.

Hızardere district, in pine forest, 1170 m, 19.10.2002, Köstekci 265.

64. *Hygrophorus discoideus* (Pers.) Fr.

Kaklık deresi district, in pine forest, 1102 m, 12.10.2002, Köstekci 204.

Amanitaceae

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

Kaklık deresi district, in pine forest, 1102 m, 28.09.2002, Köstekci 118.

66. *Amanita pantherina* (DC.: Fr.) Krombh.

Kaklık deresi district, in pine forest, 1102 m, 28.09.2002, Köstekci 120. Kaklık deresi district, 1102 m, 12.10.2002, Köstekci 195.

Lepiotaceae

67. *Leucoagaricus leucothites* (Vittad.) M.M.Moser ex Bon

Syn: *Leucoagaricus pudicus* (Bull.) Bon

Kaklık deresi district, in meadows, 1102 m, 28.09.2002, Köstekci 121.

68. *Macrolepiota procera* (Scop.) Singer

Kaklık deresi district, in pine forest, 1102 m, 28.09.2002, Köstekci 183; Kaklık deresi district, 1120 m, 19.04.2003, Köstekci 591.

69. *Macrolepiota excoriata* (Schaeff.) M.M.Moser

Keltepe district, in pine forest, 1110 m, 02.11.2002, Köstekci 329.

Tricholomataceae

70. *Strobilurus tenacellus (Pers.) Singer

Syn: *Pseudohiatula tenacella* (Pers.) Métrod

Collybia tenacella (Pers.) P.Kumm.

Kaklık deresi district, in pine forest, 1102 m, 21.04.2003, Köstekci 572.

71. *Melanoleuca graminicola* (Velen.) Kühner & Maire

Syn: *Tricholoma graminicola* Velen.

Hızardere district, in meadows, 1170 m, 19.10.2002, Köstekci 303.

72. *Pseudoclitocybe cyathiformis* (Bull.) Singer

Kaklık deresi district, in pine forest, 1102 m, 12.10.2002, Köstekci 248; Efsunbaba district, 1560 m, 23.11.2002, Köstekci 462.

73. *Lepista nuda* (Bull.) Cooke

Syn: *Tricholoma nudum* (Bull.) P.Kumm.

Rhodopaxillus nudus (Bull.) Maire.

Keltepe district, in pine forest, 1230 m, 02.11.2002, Köstekci 373.

74. *Cystoderma carcharias* (Pers.) Fayod

Keltepe district, in pine forest, 1110 m, 02.11.2002, Köstekci 369.

75. *Cystoderma amianthinum* (Scop.) Fayod

Hızardere district, in pine forest, 1170 m, 19.10.2002, Köstekci 307.

76. *Clitocybe geotropa* (Bull.) Quél.

Kirazlı road district, in pine forest, 1210 m, 13.10.2002, Köstekci 203.

77. *Mycena epipterygia* (Scop.) Gray

Hızardere district, in pine forest, 1170 m, 19.10.2002, Köstekci 258.

78. *Mycena polygramma* (Bull.) Gray

Keltepe district, under deciduous trees, 1110 m, 02.11.2002, Köstekci 331.

79. *Marasmius androsaceus* (L.) Fr.

Kaklık deresi district, on pine twigs, 1102 m, 12.10.2002, Köstekci 228, Keltepe district, 1110 m, 02.11.2002, Köstekci 367, Yukarı Kalabak village district, 1250 m, 16.11.2002, Köstekci 407.

80. *Marasmius recubans Quél.

Keltepe district, on *Quercus* sp. leaves, 1110 m, 02.11.2002, Köstekci 366.

81. *Tricholoma equestre* (L.) P.Kumm.

Syn: *Tricholoma auratum* (Paulet) Gillet

Kaklık deresi district, in pine forest, 1125 m, 28.09.2002, Köstekci 174.

82. *Tricholoma fracticum* (Britzelm.) Kreisel

Syn: *Tricholoma batschii* Gulden

Tricholoma subannulatum (Batsch) Bres.

Keltepe district, in pine forest, 1240 m, 02.11.2002, Köstekci 255.

83. *Collybia dryophila* (Bull.) P.Kumm.

Karatepe district, in mixed woodlands, 1150 m, 30.11.2002, Köstekci 498.

84. *Armillariella mellea* (Vahl) P.Kumm.

Kirazlı road district, in mixed woodlands, 1160 m, 12.10.2002, Köstekci 227.

Discussion and Conclusion

In this study, 84 species of macrofungi were identified, 7 of which belong to the class *Ascomycetes* and 77 to *Basidiomycetes*. When our results are compared with other studies carried out near the research area, the similarity between the mycota of Türkmenbaba mountain and neighbouring regions is not significant. Only 10 species determined in the present study were previously

reported from Ankara (Watling & Gregory, 1977; Özdal & İlbay, 2000; Güler & Mutlu, 2002) and 12 species from Bolu (Lohwag & Ünligil, 1957; Niemela & Uotila, 1977; Watling & Gregory, 1977; Sümer, 1982). This could be because of differences in vegetation, climate and flora. Forty-six of the 84 macrofungus species found in the area are considered edible, 9 are poisonous and 29 are inedible.

With this study, 7 species (*Peziza violacea*, *Sphaerobolus stellatus*, *Lycoperdon pedicellatum*, *Bovista aestivalis*, *Albatrellus subrubescens*, *Strobilurus tenacellus* and *Marasmius recubans*) were added to the Turkish macromycota as new records.

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