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Araştırma Makalesi

Macrofungi of Osmaniye Province

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Abstract

The materials of this study comprise macrofungi specimens collected from different localities in Osmaniye Province in the years of 2006 and 2008. As a result of field and laboratory studies, 52 taxa under 25 families belonging to *Ascomycetes* and *Basidiomycetes* classes are described: 2 of them; *Hebeloma vejlense* Vesterh and *Lyophyllum fumosum* (Pers.) P.D. Orton are new records for Turkey.

Key Words: Macrofungi, taxonomy, new records, Osmaniye, Turkey.

Osmaniye İlinin Makrofungusları

Özet

Bu çalışmanın materyalini 2006-2008 yıllarında Osmaniye iline ait farklı lokalitelerden toplanan makrofungus örnekleri oluşturmaktadır. Arazi ve laboratuvar çalışmaları sonucu *Ascomycetes* ile *Basidiomycetes* sınıfında 25 familyaya ait 52 takson tespit edilmiştir. Bunlardan 2' si; *Hebeloma vejlense* Vesterh ve *Lyophyllum fumosum* (Pers.) P.D. Orton Türkiye için yeni kayıttır.

Anahtar Sözcükler: Makrofunguslar, taksonomi, yeni kayıtlar, Osmaniye, Türkiye

Introduction

Osmaniye is situated at the southern part of Turkey. It is a small city in the Çukurova region of Turkey. It occupies a place between 30.00 - 37.08 in northern parallels and 36.13 - 36.20 eastern meridians. It has borders with Gaziantep in east, with Hatay (Antakya) in south, with Adana in west, in the north Kahramanmaraş provinces (Figure 1). Osmaniye has a mild Mediterranean climate and is surrounded by fertile agricultural fields and forests. Summers are very hot and dry, and winters are warm and very rainy. Because of the special climate characteristics agriculture is developed. In the province annual temperature average is 19° C. The highest temperature is in August month with average 29° C and the lowest temperature is in December with average 9° C. Annual average of rainfall is 99.28 Kg/ m^2.Between 1852 and December 2008, 484 articles were published and approximately 2400 macrofungi taxa were reported from Turkey (Solak et al., 2007; Sesli & Denchev, 2009). Except for our study there is one in the area (Günay & Demirel 2006). The present study aimed to identify the macrofungal flora of the district and to contribute to the Turkish mycobiota.

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Materials and Methods

During the field trips in the area (Figure 1), morphological and ecological characteristics of macrofungi were recorded and collections were photographed in their natural habitats before being taken to the laboratory for identification. Specimens were identified by examining their macroscopic and microscopic features, using references by Marchand, (1971-1986), Orton and Watling (1979), Watling (1982), Moser (1983), Capelli (1984), Breitenbach and Kränzlin (1984-2000), Orton (1986), Watling and Gregory (1987, 1989), Ellis and Ellis (1990), Brensinsky and Besl (1990), Phillips (2006), and Knudsen and Vesterholt (2008). All collected specimens are now deposited in the Fungarium of Biology Department, Faculty of Science and Arts, Muğla University.

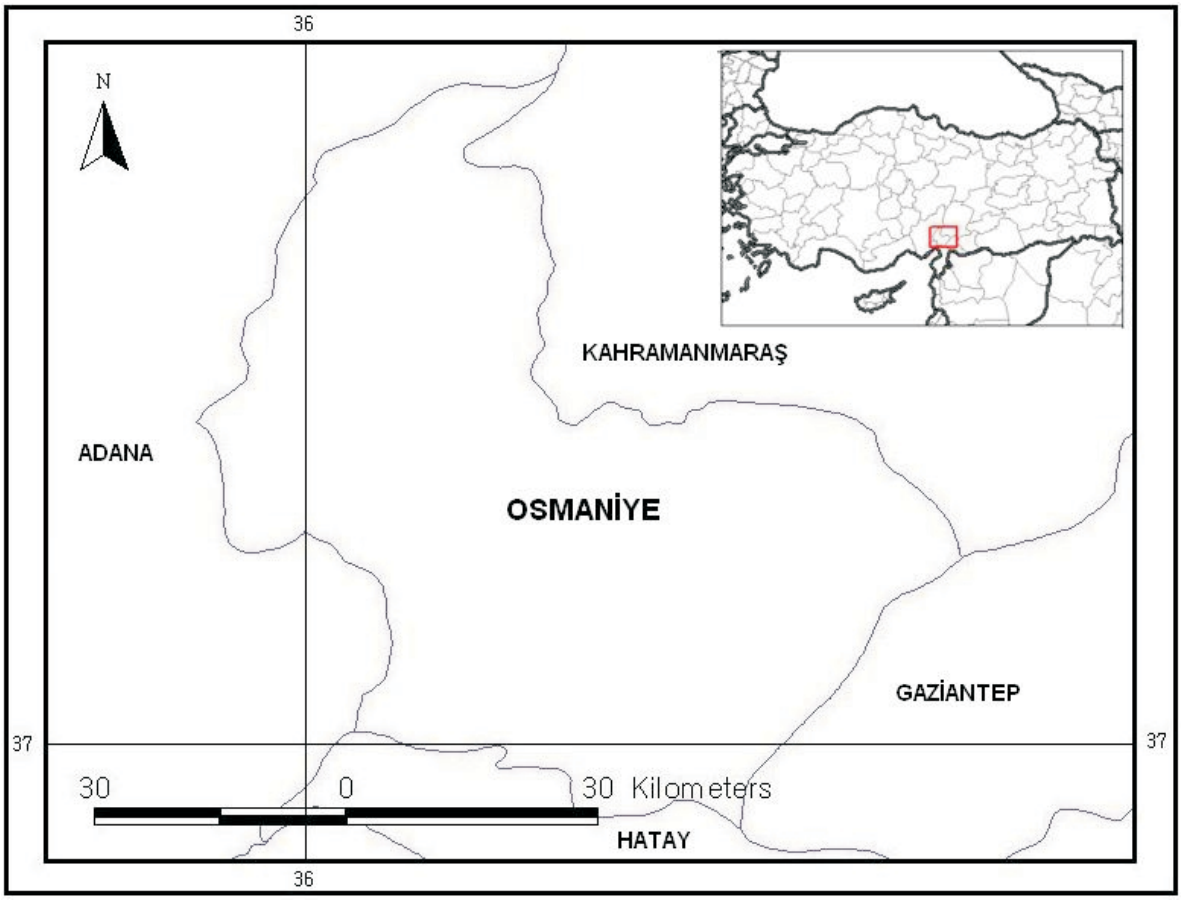

Figure 1. Map of the research area

Results

Of the 52 taxa of macrofungi collected and identified from the study area, 15 belong to *Ascomycetes* and 37 to *Basidiomycetes*. *Hebeloma vejlense* Vesterh and *Lyophyllum fumosum* (Pers.) P.D. Orton are new records for Turkey.

List of Taxa

ASCOMYCETES

Discinaceae

1. Gyromitra esculenta (Pers.) Fr.
Center, Kaypak village, in *Pinus brutia* forest, 24.3.2006, *Solak* 1836; 21.4.2007, Center, Kaypak village, in *Pinus brutia* forest, *Solak* 3194. Poisonous (Brensinsky & Besl 1990).

Helvellaceae

2. Helvella leucomelaena (Pers.) Nannf.
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3181. Poisonous (Phillips 2006).

Morchellaceae

3. Morchella angusticeps Peck
Center, Kaypak village, in *Pinus brutia* forest, 24.3.2006, *Solak* 1842; *Solak* 1843; Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3168; Yarpuz village, in *Pinus brutia* forest, 13.4.2008, Solak 3713. Edible.

4. Morchella esculenta var. atrotomentosa M.M.Moser
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3177. Edible.

5. Morchella vulgaris (Pers) Boud.
Center, Kaypak village, in *Pinus brutia* forest, 24.3.2006, *Solak* 1835; Kaypak village, 24.3.2006, *Solak* 1844a; Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3169; *Solak* 3170; *Solak* 3176; *Solak* 3179. Edible.

6. Morchella crassipes (Vent.) Pers.
Center, in *Pinus brutia* forest, Kalecik, 21.4.2007, *Solak* 3171. Edible.

7. Morchella deliciosa Fr.
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3178. Edible.

8. Morchella elata Fr.
Center, Kaypak village, in *Pinus brutia* forest, 24.3.2006, *Solak* 1844b; *Solak* 3172. Edible.

9. Morchella esculenta (L.) Pers.
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3167. Edible.

10. Morchella eximia f. **schizocostata** Jacquet.
Center, Kaypak village, in *Pinus brutia* forest, 24.3.2006, *Solak* 1845; *Solak* 1847. Edible.

11. Morchella hortensis Boud.
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 1600. Edible.

12. Morchella pseudoviridis Jacquet.
Center, Kalecik, 21.4.2007, in *Pinus brutia* forest, *Solak* 3175; Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3173. Edible.

Pezizaceae

13. Peziza depressa Pers.
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3184. Edible.

14. Sarcosphera coronaria (Jacq.) J. Schröt.
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3193; Zorkun High Plateau, in *Pinus brutia* forest, 12.4.2008, *Solak* 3676. Poisonous (Brensinsky & Besl 1990).

Pyronemataceae

15. Geopora sumneriana (Cooke) M. Torre
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3182. Poisonous (Brensinsky & Besl 1990).

BASIDIOMYCETES

Agaricaceae

16. Lepiota clypeolaria (Bull.) P.Kumm.
Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3452. Inedible.

17. Lycoperdon perlatum Pers.
Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3467. Edible.

18. Macrolepiota procera (Scop.) Sing.
Center, Kaypak village, in *Pinus brutia* forest,17.11.2007, *Solak* 3451. Edible.

Auriculariaceae

19. Auricularia auricula-judae (Bull.) J. Schröt.
Center, Kaypak village, on stumps of *Quercus* sp., 24.3.2006, *Solak* 1839; Center, Kaypak village, 21.4.2007, *Solak* 3183. Edible.

Bolbitiaceae

20. Hebeloma sarcophyllum (Peck) Sacc.
Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3446. Inedible.

21. Hebeloma vejlense Vesterh. (Figure 2)
Cap 3-7cm, at first hemispherical, later convex, without an umbo, smooth, slight viscid to almost dry, at first dull and appearing greyish pruinose, with age somewhat shiny, not hygrophanous, but may lose colour with age, dark greyish buff or greyish brown or clay buff, in the centre to dark fawn, at extreme margin whitish to pale pinkish buff. Lamellae emarginate, crowded, at first dark pinkish buff, later clay-buff, edge whitish, without droplets. Stipe 4-5 x 1-1.5cm, cylindrical or slightly narrower towards the base, hollow, flocculose, dry, whitish to pale pinkish buff, but sometime with fawn spots near the base. Flesh whitish. Smell raphanoid. Spores 9-13 x 5-7µ, broadly amygdaloid to citriform, greyish brown, ornamentation distinct, dextrinoid. Cheilocystidia 30-60 x 6-10µ, subclavate. Ecology in pasture.
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3200. Inedible.

Cortinariaceae

22. Cortinarius subtorvus Lamoure
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3191. Inedible.

Geastraceae

23. Geastrum sessile (Sowerby) Pouzar
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3166. Inedible.

Gomphidiaceae

24. Chroogomphus rutilus (Schaeff.)O.K. Mill.
Zorkun High Plateau, *Pinus brutia* in forest, 12.4.2008, *Solak* 3671; Ellek village, Şekerdere road, in *Pinus brutia* forest, 12.4.2008, *Solak* 3683. Edible.

Hymenochaetaceae

25. Phellinus torulosus (Pers.) Bourd.: Galz
Zorkun High Plateau 8.km, on *Quercus* sp., 12.4.2008, *Solak* 3673. Inedible.

Inocybaceae

26. Inocybe flocculosa Sacc. var. **crocifolia** (Herink) Kuyper
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3202. Poisonous (Breitenbach and Kränzlin 2000).

27. Inocybe maculata Boud.
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3163; *Solak* 3187; *Solak* 3190; *Solak* 3192; *Solak* 3196; *Solak* 3197; *Solak* 3203. Poisonous (Breitenbach and Kränzlin 2000).

28. Inocybe sindonia (Fr.) P.Karst.
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3195. Poisonous (Breitenbach and Kränzlin 2000).

Lyophyllaceae

29. Lyophyllum decastes (Fr.) Singer
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3165. Edible.

30. Lyophyllum fumosum (Pers.) P.D.Orton (Figure 3)
Cap 2-10cm, convex when young, soon plane, slightly umbonate, irregularly undulating when old, surface smooth, dull, radially fibrillose, dark to light gray brown, hazel brown, paler to ocherish toward the margin, center darker, margin acute. Flesh whitish, brownish under the cuticula, odor sourish-herbaceous. Gills whitish to light cream colored, broadly adnate to somewhat notched. Stem 3-10 x 0.5-1.5cm, cylindric, surface smooth, longitudinally fibrillose, whitish, cream-colored, to light brownish, gray-brown when old, white powdered at the apex, sometimes eccentric. Spores 6-7 x 5.5-7µ, globose to subglobose, smooth, hyaline. Spore print white colored. Ecology in gardens and parks, in open forests, among grass or on bare soil. Summer-fall.
Center, Kalecik, 21.4.2007, in *Pinus brutia* open forest, *Solak* 3180. Edible.

Mycenaceae

31. Mycena seynesii Quél.
Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3441. Inedible.

Marasmiaceae

32. Armillaria mellea (Vahl) P.Kumm
Center, Kaypak village, on stumps of *Populus nigra*, 17.11.2007, *Solak* 3428. Poisonous (Brensinsky & Besl 1990).

33. Macrocystidia cucumis (Pers.) Joss. Center, Kaypak village, on the twig, in conifer forest, 17.11.2007, *Solak* 3444. Inedible.

Pleurotaceae

34. Pleurotus eryngii (DC.) Quél. var. **eryngii**
Center, Kaypak village, on *Eryngium* sp. 21.4.2007, *Solak* 3211;

Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3453; Yarpuz village, in *Pinus brutia* forest, 13.4.2008, *Solak* 3718. Edible.

35. Pleurotus ostreatus (Jacquin: Fr.) Kummer
Center, Kaypak village, on *Quercus* sp., 24.3.2006, *Solak* 1830; Center, Kaypak village, on *Populus* sp., 21.4.2007, *Solak* 3210. Edible.

36. Pluteus romellii (Britzelm.) Lapl.
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3205. Inedible.

Psathyrellaceae

37. Coprinellus disseminatus (Pers.) J.E.
Center, Kaypak village, on stumps of *Morus*, 24.3.2006, *Solak* 1829. Inedible.

38. Coprinellus micaceus (Bull.) Vilgalys.
Center, Kaypak village, on stumps of *Morus*, 24.3.2006, *Solak* 1826; Center, on stumps of *Morus*, 13.4.2008, *Solak* 3708. Inedible.

39. Psathyrella candolleana (Fr.) Maire
Center, 24.3.2006, *Solak* 1825; 24.3.2006; *Solak* 1831; *Solak* 1833; Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3438, Toprakkale, in *Pinus pinea* forest, and in *Pinus brutia* forest, 12.4.2008, *Solak* 3662; Zorkun High Plateau, in *Pinus brutia* forest, 12.4.2008, *Solak* 3664; Solak 3668; *Solak* 3672; Center, on stump of *Morus* sp.;13.4.2008, *Solak* 3707. Inedible.

40. Psathyrella marcescibilis (Britz.) Sing.
Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3434. Inedible.

Polyporaceae

41. Trichaptum biforme (Fr.) Ryvarden
Zorkun High Plateau, 20.km, on deciduous tree, 12.4.2008, *Solak* 3679. Inedible. .

42. Trametes pubescens (Fr.) Pil.
Zorkun High Plateau, 20.km, on stumps of *Quercus* sp. 12.4.2008, Solak 3681. Inedible.

Rhizopogonaceae

43. Rhizopogon roseolus (Corda) Th. Fr.
Center, Kaypak village, in *Pinus brutia* forest, 21.4.2007, *Solak* 3186; Ellek village, Şekerdere road in *Pinus brutia* forest, 12.4.2008, *Solak* 3684. Edible.

Schizophyllaceae

44 Schizophyllum commune Fr.
Center, Kaypak village, on *Quercus* sp., 24.3.2006, *Solak* 1827; Center, Kaypak village, on *Pinus brutia*, 24.3.2006, *Solak* 1837; Center, Kaypak village, on *Morus* sp., 17.11.2007, *Solak* 3433. Inedible.

Stereaceae

45. Stereum hirsutum (Willd.) Pers.
Center, Kaypak village, on *Quercus* sp., 24.3.2006, *Solak* 1828; Center, Kaypak village, on *Quercus* sp., 17.11.2007, *Solak* 3431; Zorkun High Plateau, on *Quercus* sp., 12.4.2008, *Solak* 3666. Inedible.

Strophariaceae

46. Galerina badipes (Pers.) Kühner
Center, Kaypak village in *Pinus brutia* forest, 17.11.2007, *Solak* 3460. Inedible.

Suillaceae

47. Suillus bellinii (Inz.) Watling.
Center, Kalecik in *Pinus brutia* forest, 21.4.2007, *Solak* 3161. Edible.

48. Suillus collinitus (Fr.) Kuntze
Center, Kaypak village in *Pinus brutia* forest, 17.11.2007, *Solak* 3445; Toprakkale, in *Pinus brutia* 12.4.2008, *Solak* 3661. Edible.

Tricholomataceae

49. Hemimycena pseudogracilis (Kühner & Maire) Singer
Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3440. Inedible.

50. Melanoleuca melaleuca (Pers.) Murrill
Center, Kaypak village, in meadow, 21.4.2007, *Solak* 3201. Edible.

51. Melanoleuca stridula (Fr.) Singer
Center, Kaypak village, in *Pinus brutia* forest, 17.11.2007, *Solak* 3459. Edible.

52. Tricholoma terreum (Schaeff.) P. Kumm.
Center, Kalecik, in *Pinus brutia* forest, 21.4.2007, *Solak* 3162. Edible.

Discussion

In this study, 52 macrofungi taxa belonging to 25 families collected from Osmaniye district have been reported: 15 (29%) of them belong to *Ascomycetes* and 37 (71%) to *Basidiomycetes*.

The distribution of the taxa to families is as follows: *Morchellaceae* 10, *Agaricaceae* 3, *Tricholomataceae* 4, *Inocybaceae* 3,

Pleurotaceae 3, *Bolbitiaceae* 2, *Lyophyllaceae* 2, *Marasmiaceae* 2, *Pezizaceae* 2, *Polyporaceae* 2, *Psathyrellaceae* 4, *Suillaceae* 2, *Auriculariaceae* 1, *Cortinariaceae* 1, *Discinaceae* 1, *Geastraceae* 1, *Gomphidiaceae* 1, *Helvellaceae* 1, *Hymenochaetaceae* 1, *Mycenaceae* 1, *Pyronemataceae* 1, *Rhizopogonaceae* 1, *Schizophyllaceae* 1, *Stereaceae* 1, *Strophariaceae* 1.

There are some similar studies (Işıloğlu & Watling (1992), Işıloğlu & Öder (1995), Kaya (2006; 2009), in neighboring regions, but ours is the first detailed study on macrofungi in Osmaniye province. Our research demonstrates that there are certain similarities between the macrofungi found in Osmaniye and those reported from the adjacent areas, which is indubitably a result of the similar habitats and flora. The current study represents significant contribution to the knowledge of Turkish macromycota.

Twenty six of the 52 taxa are edible (Pacioni 1985, Bon 1987, Dähncke 1993, Gerhardt 1997, Phillips 2006), but *Morchella* sp. (Kuzu göbeği) and *Pleurotus eryngii* var. *eryngii* (Çakşır) is known as edible mushrooms by local people. About 13% (7 taxa) of the taxa are poisonous and 37% (19 species) are inedible but none of them are recognised by local people. No poisoning incidents were recorded from the area. Lignicolous macrofungi represented 38% of the species (20 taxa) in the area. Some live as parasites on the living trees and cause organic product loss and structural damage to the host trees. The common taxa were *Auricularia auricula-judae, Fomes fomentarius, Phellinus torulosus, Armillaria mellea, Pleurotus eryngii, Pleurotus ostreatus, Hirschioporus pergamenus, Trametes pubescens, Schizophyllum commune* and *Stereum hirsutum.*

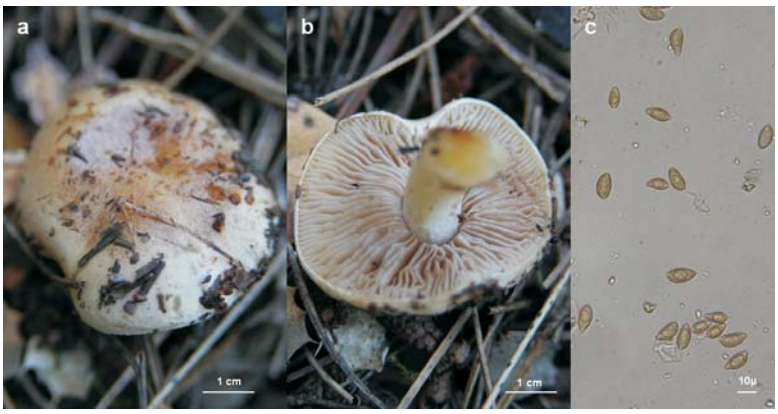

Figure 2. *Hebeloma vejlense* a) basidiocarps b) gills c) spores

Figure 3. *Lyophyllum fumosum* a) basidiocarps b) gills c) spores

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