Abstract: This study aims to determine macrofungi species of Thrace, the European part of Turkey. Samples were collected between the years 1985 and 1997. A total of 67 species were identified and are listed here.

Key Words: Macrofungi, Thrace, Turkey.

Introduction

Macrofungi studies have long been of interest to scientists as well as the public due to their important roles in human life, such as their beneficial and harmful effects on forests, their use in the pharmacology industry, and the mass production of cultivated fungi in the food industry, as well as their vital role in biodegradation.

Despite the fact that a great deal of work has been conducted on Turkish macrofungi flora (1), there is still much to be done in all regions of Turkey. Some well known studies are mentioned in the text (2-4).

Studies on this subject, in fact, are being carried out in different countries (5-7), and new species for the world macrofungi flora have been recorded (8-10).

Thrace was chosen because there are few records in the literature. Although some reports (11-13) have been made on the European part of Istanbul, only one study (14) concerning forest areas of Thrace appears to have been reported in the literature. More species are expected to be found in the region in addition to the 42 species identified in this study.

The aim of this study is to determine macrofungi species in the research area and thus provide more data on the macrofungi flora of Turkey.

Description Of The Research Area

The thrace region (Figure 1) is 23,485 km² and it covers 3% of the superficies of the Turkish mainland.

The climate of Thrace is humid and semi-humid Mediterranean type (15). The rainfall in the region is 550-1500 mm. Hills above 1,035 m (i.e. Mahya Mountain) take up to 1400 mm rain, and in the town of Iğneada town the annual average is 962 mm. The annual average temperature is 8-15°C. The common soil types in the region are limeless brown soils and grumusols (16). There are a number of streams, lakes and saturated soils in region.

Thrace is in the Mediterraneann flora sector phytogeographically within the holoarctic flora kingdom (16). It is comprised of four main vegetation types: 1. humid forests, 2. dry forests, 3. anthropogenic steppe, 4. maquis, pseudomaquis and coastal forests. The humid forest area is mainly characterised by Fagus orientalis Lipsky and partly by Quercus L. The forest floor is...
characterized by *Rhododendron ponticum* L. and *Ilex aquifolium* L. *Quercus* forests are widely distributed in the humid forest area on the Northern slopes of Istranca Mountain, starting from 300 m down to the shore. Dry forests mainly occur on the southern slopes and plateaux at the southern skirts of the Istranca mountains, between an altitude of 200 to 500 or 600 m (16).

A typical vegetation section of the region can be seen between the village of Yeniceköy and the town of Demirköy. It is characterized by an agricultural area up to 450 m in the south, and *Quercus* and *Carpinus* L. bushes at 450-600 m. The height and density of trees increase after 600 m. Major plants are *Quercus-Carpinus* and *Fagus* mixed forests. The proportion of *Fagus orientalis* Lipsky in the total flora increases and forms unions near the summit after an altitude of 700-750 m.

**Materials and Methods**

Macrofungi samples were removed from the ground with a great care to avoid damage to the base and other fragments. Soil was removed using a soft brush. Samples were placed in a separate wicker containers to avoid mixing. Colour, locality and characteristics of habitat etc. were noted during the collection. Insecticide spray was used for protecting fresh samples from insect larvae contamination. Samples were dried and preserved in polythene bags containing thymol crystal. In the laboratory, morphological features, especially the spore properties of dry and fresh macrofungi species, were identified using identification keys (17-19). The orders determined by Moser (17), Gams & Moser (20) and Breitenbach & Kranzlin (21) were followed in preparing the list. Davis’s Grid Square System (22) is used in the citation of the specimens.

Samples are kept in the herbarium of Department of Biology, University of Trakya, Edirne, Turkey.

**Results**

Species found in the research area are given below. The numbers indicate the herbarium numbers.

<table>
<thead>
<tr>
<th>ASCOMYCETES</th>
<th>BASIDIOMYCETES</th>
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<tbody>
<tr>
<td><strong>Morchellaceae</strong></td>
<td><strong>Agaricaeae</strong></td>
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4. *A. campestris* Fr. ex. L. 
A1E Edirne-Süleoglu 12. Km., Süleoglu

A1E Edirne, Süleoglu, Tağlisekban Village, 01.11.1994, 296.


A1E Edirne, Süleoglu, Taşlısekban Village, 01.11.1994, 296.


9. *Macrolepiota mastoidea* (Fr.) Sing.


10. *M. procura* (Scop.) Fr. Sing.


11. *M. rhacodes* (Vitt.) Sing.

A1E Edirne, Trakya University, Medicinal Faculty Garden, 21.11.1990, 277.


13. *Volvoriella bombycina* (Schaeff.: Fr.) Sing.


15. *A. muscaria* (L. ex Fr.) Hooker.


16. *Armillariella tabescens* (Scop.: Fr.) Sing.


17. *Lactarius deliciosus* (Fr.) S.F. Gray.


18. *L. piperatus* (Scop) Fr.


20. *R. olivaceae* (Schff. ex Secr.) Fr.


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295. Host; *Populus nigra* L. A1E Kırklareli, İgneada, Longos Forest, 10.09.1989, 188.

33. *Coriolus versicolor* (L. ex Fr.) Quel.

34. *Daedaleopsis confragosa* (Bolt.: Fr.) Schroet.
A1E Kırklareli, Vize, Vaşındere, 14.02.1990, 255 Host: *Salix alba* L.

35. *Fomes fomentarius* (Linn.) Fr.

36. *Fomitopsis cytisina* (Berk.) Bond & Sing. (Syn.: *Ferreniopora fraxinea* (Fr.) Ryv.


38. *Panus stipticus* (Bull. ex Fr.) Fr.

39. *P. tigrinus* (Bull. ex Fr.) Sing.

40. *Polyporus arcularius* (Batsch) Fr.
A1E Edirne, Trakya University, Medicinal Faculty Garden, 11.05.1990, 279. Host: *Quercus sp.* A1E Kırklareli, Kofçaz, Kula Village, 16.07.1985, 56.

41. *P. brumalis* (Pers.) Fr.

51. *B. versicolor* Rostk.
A1E Kırklareli, İgneada Town, Longos Forest, 10.09.1989, 189.

A1E Kırklareli, İgneada (Limanköy), 17.06.1985, 101.

53. *Xerocomus subtomentosus* (L. ex Fr.) Quel.
A1E Edirne, Süleoglu, Taşlıkaban village, 01.11.1994, 284. Host: *Quercus sp.*


55. *Clavaria flavia* (Schaeff) Fr.

56. *C. formosa* (Pers) Fr.

57. *Ganoderma adspersum* (Schultz.) Donk.

58. *G. lucidum* (Leyss.: Fr.) Karst.

59. *G. resinaceum* Boud.
Discussion

Most of the species determined in this study were collected in natural areas of the Istranca (Yıldız) Mountains. It was found that the distribution of macrofungi species was low in the hot and dry season whilst they were rich in numbers in spring and autumn season in relation to humid climate as well as the richness of the flora in these seasons (16, 23, 24).

Although Amanita Pers. species are known to be mainly distributed in forest areas, they can also be found in pasture lands, meadows and even agricultural areas in low numbers (9). However, in this study, all samples were collected from forest areas.

The macrofungi flora of Turkey is similar to that of Europe, with some small differences. Macrofungi species growing on trees are particularly similar (25).

As a food supply, macrofungi collection by local people is not common. However, local residents have reported that huge numbers of macrofungi are collected by non-residents for trade (24).

A total of 3,086 macrofungi poisoning incidents in Turkey were reported between 1970 and 1985, causing 90 deaths. There has been no such report to date concerning Thrace. However, a poisonous species, Amanita muscaria, found in the vicinity of the town of Demirköy, represents a danger for public health.

Furthermore, in the surrounding area of the region, for instance in Istanbul, about 200 poisoning incidents were reported between 1990 and 1994, causing 20 deaths (26). The main reason for a high macrofungi poisoning rate is little knowledge of residents on poisonous species. By contrast, in Europe, the number of people poisoned by macrofungi consumption is too low, for instance, in England, this number is two or less in a year (26). This clearly shows that people should be more aware of danger of eating such macrofungi collected in the field. In this context, we hope that this study contributes to macrofungi flora of Turkey as well as providing information on the species distributed in the area in order to prevent such poisoning incidents.

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References


