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Four Interesting Records of *Pezizales* of the Macrofungal Flora of Turkey

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Abstract: *Peziza succosa* Berk, *Otidea concinna* (Pers.) Sacc. and *Humaria hemisphaerica* (Wiggers:Fr.) Fuckel were recorded for the first time for the Macrofungal Flora of Turkey, and *Gyromitra infula* ((Schaeff.:Pers.) Quél. was studied taxonomically.

Key Words: *Pezizales*. Flora, Turkey.

Türkiye Makrofungus Florası İçin Dört İlginç *Pezizales* Kaydı

Özet: *Peziza succosa* Berk, *Otidea concinna* (Pers.) Sacc. ve *Humaria hemisphaerica* (Wiggers:Fr.) Furckel Türkiye makrofungus florası için ilk kez kaydedildi ve *Gyromitra infula* (Schaeff.:Pers.) Quél. taksonomik olarak çalışıldı.

Anahtar Sözcükler: *Pezizales*, Flora, Türkiye.

Introduction

Macrofungi specimens were collected in the Maçka district of the province of Trabzon (Fig.1). The district of Maçka is divided into two regions by the Değirmendere River. The areas located on the southern slopes of the river receive more heat than those on the northern slopes. A decrease in temperature is seen from the river level to the mountains. The area has a Black Sea climate and so is rainy all seasons. It is cool in the summer and tepid in the winter. The coldest regions in Maçka are the high plateaux near the boundary of the provinces of Bayburt and Gümüşhane.

Precipitation, mostly in the form of rain, is distributed throughout the year and ranges between 100 and 150 cm annually. Because of the climate and moderate temperatures, humidity is high and forests have thick undergrowth in most places. The growing season in this area is long, lasting up to eight months, and there is a rich diversity of plant and fungi species.

The aim of this study is to contribute to the macrofungal flora of Turkey by introducing new records and a description of an interesting species previously recorded only once.

Material and Methods

The material of this study was collected the district of Maçka in September, 1995. Various specimens at different stages of macrofungal development were collected. The different species were packed separately in order to prevent contamination in spores. The ecological and morphological features of the specimens were noted in the field.

A Nikon research microscope was used. Preparation of the material for microscopic investigation was performed either by cutting with a razor blade or by squashing into small fragments. A drawing apparatus was used for the production of the microscopic figures.

Finally, the fruit bodies were dried with an electrical drying apparatus for preservation and deposited in plastic boxes in the Herbarium in the Fatih Education Faculty at Karadeniz Technical University, Trabzon.

Identifications were made according to Breitenbach and Kranzlin (1) and Lincoff (2).

Taxonomy and Description of the Species

According to Bold, Alexopoulos and Devevorias (3), the systematics of the species are as follows.

Kingdom : *Myceteae*

Division : *Amastigomycota*

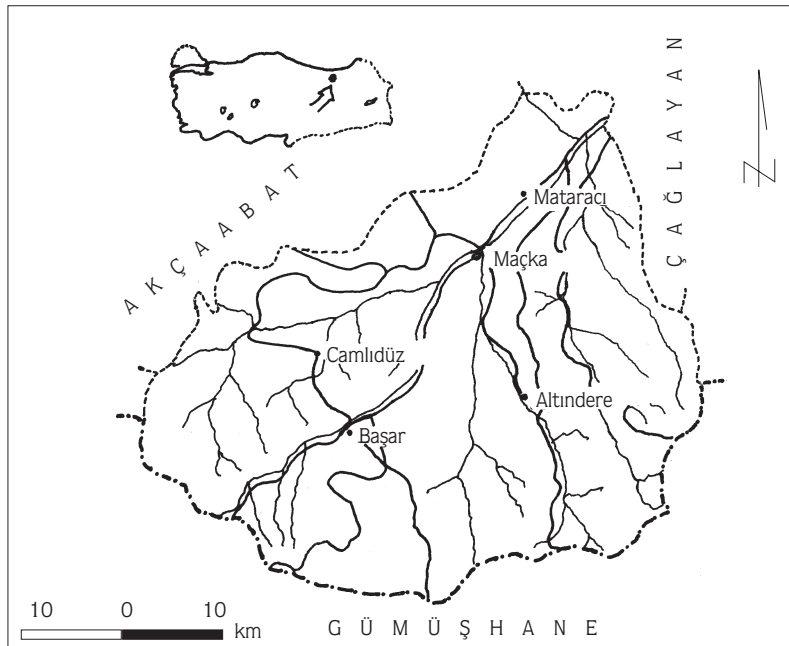


Figure 1. The collection sites of the specimens

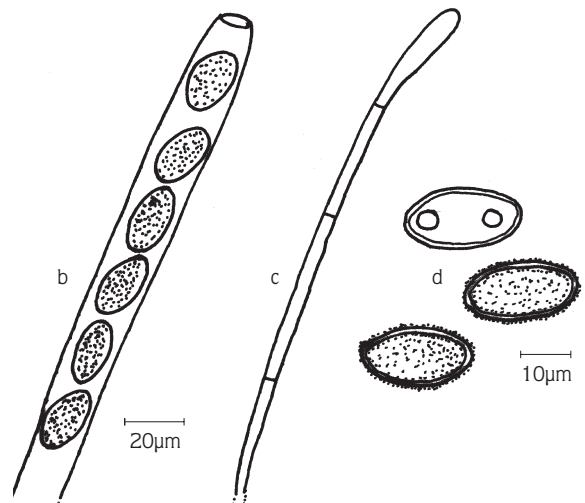


Figure 2. *Peziza succosa*: a. Fruit bodies, b. Ascus, c. Paraphysis, d. Spores.

Subdivision : *Ascomycotina*
 Class : *Ascomycetes*
 Subclass : *Hymenoascomycetidae*
 Order : *Pezizales*
 Family : *Pezizaceae*

Peziza succosa Berk

Macroscopic features: Fruit body 1-8 cm, irregularly

cup-to saucer-shaped (Fig. 2a), expanded in mature specimens, inner surface dull, hazelnut or light brown. Flesh firm, exuding a juice when injured. The outer surface of the fruit body lighter, finely brownish or yellowish toward the margin.

Microscopic features: Asci include 8 spores (Fig. 2b), paraphyses septate (Fig. 2c). Spores hyaline, elliptical, 16-22x8-13 µm, some with two drops, coarsely warty (Fig. 2d.).

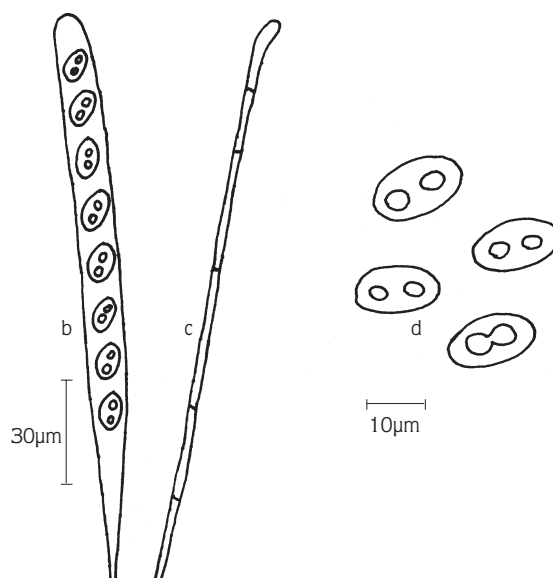
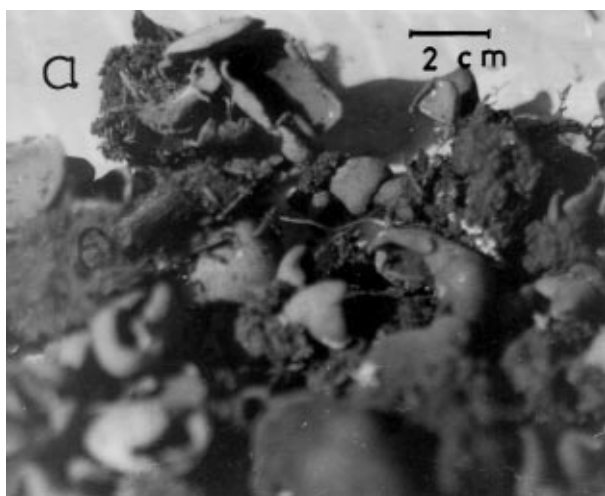


Figure 3. *Otidea concinna*: a. Fruit bodies, b. Ascus, c. Paraphysis, d. Spores.

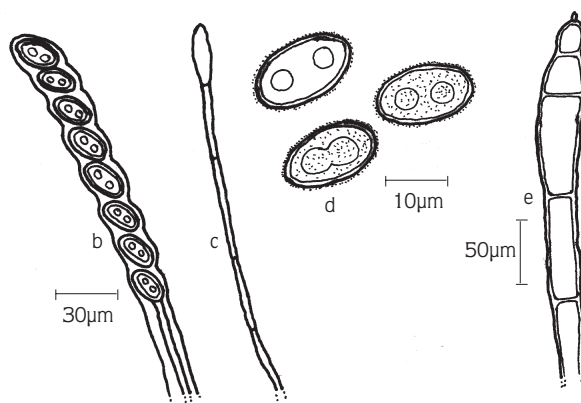
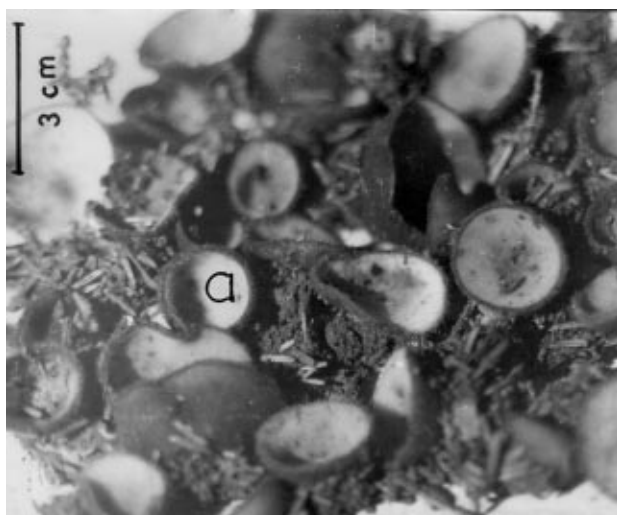


Figure 4. *Humaria hemisphaerica*: a. Fruit bodies, b. Ascus, c. Paraphysis, d. Spores, e. Hair.

Habitat: Under birches.

Distribution: Trabzon, Maçka, Mataracı Village, 1 September 1995, SES 324.

According to our observations fruitbodies must be looked for carefully on ground in wood debris.

Because it is widespread in Europe (1) between June and October, the presence of it in Turkey is normal.

Otidea concinna (Pers.) Sacc.

Macroscopic features: Fruit body 1-6x1-8 cm, generally slit laterally, somewhat inrolled, cup- to ear-

shapes (Fig. 3a), yellowish, flesh white and surface smooth, without buried and distinct stipe.

Microscopic features: Asci eight-spored (Fig. 3b). Paraphyses bent at the tips (Fig. 3c). Spores 8-13x4.5-6.0 μm, hyaline, elliptical and with two oil drops (Fig. 3d).

Habitat: Under birches.

Distribution: Trabzon, Maçka, Çamlıdüz Village, 12 September 1995, SES 403.

This species is not common in Europe (1) and the presence of it in Turkey is interesting since it grows in specific habitats.

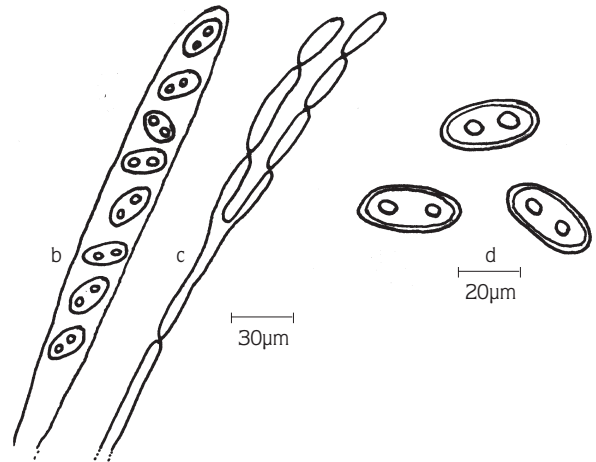
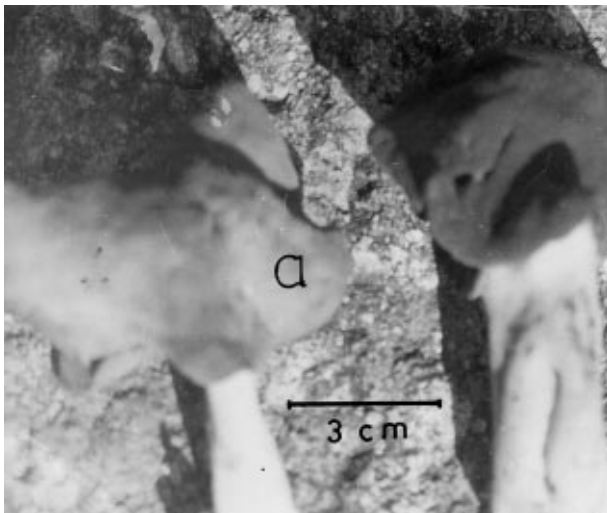


Figure 5. *Gyromitra infula*: a. Fruit bodies, b. Ascus, c. Paraphysis, d. Spores.

Family : *Humariaceae*

Humaria hemisphaerica (Wiggers: Fr.) Fuckel

Syn. : *Lachnea hemisphaerica* (Wigg.:Fr.) Gill.

: *Mycolachnea hemisphaerica* (Wigg.:Fr.) Maire

: *Peziza hemisphaerica* Wigg.: S.F.Gray

Macroscopic features: Cup 1-3 cm wide, 0.5-1.5 cm high, fruit body cup- or saucer-shaped (Fig. 4a), attached to the ground, without a stipe, outer surface fringed with stiff, brownish hairs and covered with pointed dark brown hairs, distinctly hair on the margin, inner surface whitish or greyish.

Microscopic features: Asci eight-spored (Fig. 4b), paraphyses with clavate thickenings (Fig. 4c), spores 22-27x12-15 µm, broadly elliptical, hyaline, with two drops (Fig. 4d). Hairs thick walled, multiply septate (Fig. 4e).

Habitat: Under hazel.

Distribution: Trabzon, Maçka, Başar Village, 10 September 1995, SES 401.

This species can be easily identified by its deep cup shape and whitish interior and brown hairs.

Because it is distributed throughout North America (2) and Europe (1) its presence in Turkey is normal.

Family : *Helvellaceae*

Gyromitra infula (Schaeff.: Pers.) Quél.

Syn.: *Physomitra infula* (Sch.:Fr.) Boud.

Macroscopic features: Cap 5-10 cm wide, 4-10 cm high, saddle-shaped (Fig. 5a), irregularly folded, up to 3

lobes, with incurved edge, cinnamon, redish-brown to dark brown. The interior is hollow. The flesh is whitish and brittle. Stipe 1-6 cm long, 2 cm thick, smooth, whitish to buff, hollow, finely felty toward the base, flesh fragile.

Microscopic features: Asci eight-spored (Fig. 5b). Paraphyses commonly forked toward the tips (Fig. 5c). Spores 18-24x7-9 µm, elliptical with two large oil drops (Fig. 5d).

Habitat: Under spruce on buried wood.

Distribution: Trabzon, Maçka, Altindere Village, 25 September 1995, SES 420.

This species is distributed throughout North America (2) and Europe (1). It was first described by Öner (4) in Izmir.

Discussion

The number of *Pezizales* species in Turkey is difficult to estimate since not enough research has been done in this area. However, it can be estimated that the number of *Pezizales* species recorded accounts for about 20 percent of the total present in Turkey.

According to the literature, (5) *Peziza succosa*, *Otidea concinna* and *Humaria hemisphaerica* have not previously been recorded in the Macrofungal Flora of Turkey. *Peziza succosa* and *Otidea concinna* belong to the family *Pezizaceae*, and *Humaria hemisphaerica* to the family *Humariaceae*. The other taxa of this family are *Otidea leporina* Fuckel, *O. umbrina* (Pers.) Bres., *Peziza badia* Pers., *P. badia-confusa* Pers., *P. Cerea* Pers., *P. repanda*

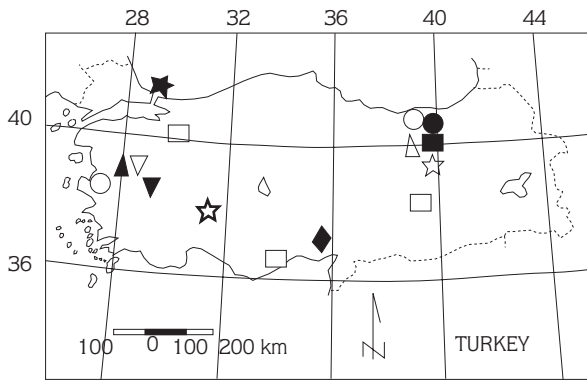


Figure 6. The distribution of the taxa [○ *Gyromitra infula*, ● *Humaria hemisphaerica*, △ *Otidea concinna*, ▲ *O. Leporina*, ▽ *O. umbrina*, ▼ *Peziza badia*, □ *P. badia-confusa*, ■ *P. cerea*, ◆ *P. repanda*, ☆ *P. succosa*, ★ *P. varia*, ☆ *P. vesiculosa*]

Pers., *P. varia* Bres. and *P. vesiculosa* Bull. (Fig. 6) which have previously been reported by Gücin and Öner (6), Gücin (7), Öztürk et al (8), Işiloğlu and Watling (9), Baydar and Sesli (10), Sümer (11) and Afyon (12).

The species *Gyromitra infula* was first described by Öner (4) in İzmir, 25 years ago. This is the first time it has been reported since then.

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