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A New Record For *Otidea* Genus From Turkey

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Abstract: *Otidea onotica* (Pers.) Fuckel was collected from the fir forest located at Ankara- Kızılcahamam Soğuksu National Park. This is the sixth *Otidea* species for Turkey. A short whitish stalk and having dimensions of 12-13 x 5-6 µ characterize it. In this study, the distribution map and table for species of Genus *Otidea* in Turkey are also given.

Key words: *Otidea onotica*, New record, Kızılcahamam, National Park, Turkey.

Türkiye'den *Otidea* Cinsi için Yeni Bir Kayıt

Özet: *Otidea onotica* (Pers.) Fuckel Ankara- Kızılcahamam Soğuksu Milli Parkı göknar ormanından toplandı. Bu Türkiye'de altıncı *Otidea* tür kaydıdır. Kısa beyazımsı bir sap ve 12-13 x 5-6 µ boyutlarındaki askosporu karakteristiktir. Bu çalışmada, *Otidea* cinsi türlerinin Türkiye'deki yayılış haritası ve tablosu verilmiştir.

Anahtar Kelimeler: *Otidea onotica*, Yeni kayıt, Kızılcahamam, Milli Park, Türkiye

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Introduction

According to Sesli and Denchev (2009), five *Otidea* species were reported in Turkey. The first data on the distribution of *Otidea* genus in Turkey was given in 1982 by Gücin and Öner. They had collected *Otidea leporina* (Batsch) Fuckel and *O.cochleata* (Huds.) Fuckel in pine forest at Manisa-Gördes, but latter species was published as *O. umbrina* (Pers.) Bres. which is the synonym of *O.cochleata*. *O. cochleata* was found second time by Gücin *et* al. (1995) in a conifer forest in West Anatolia Region. Abatay (1988) found *O.leporina* in a mixed forest at Zonguldak province. Later, Sesli (1998) contributed to related literature by adding

O.concinna (Pers.)Sacc. and *O. cochleata* found in pine forest at the Trabzon and Giresun area of Eastern Black Sea Region. Demirel *et* al. (2004) found *O.alutacea* (Pers.) Massee in a conifer forest located in Artvin province.

Uzun *et* al. (2006) also reported the existence of this species in Gümüşhane. *O.bufonia* (Pers.) Boud was found by Allı *et* al. (2008) at Denizli province in Western Anatolia.

The latest contribution is the present study at Kızılcahamam Soğuksu National Park near Ankara at Central Anatolia region (Fig. 1 and Table 1).

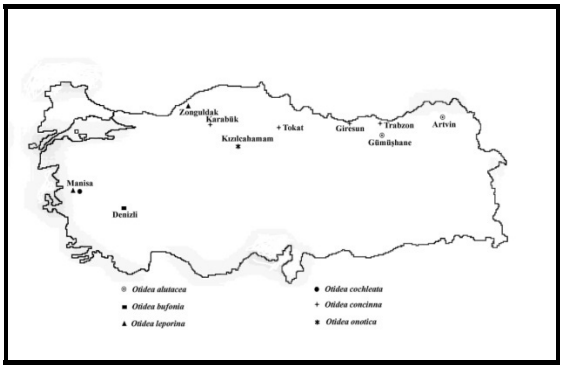

Figure1. Distribution map of Otidea species in Turkey

Species	Locality	Habitat	Authors
Otidea alutacea	Artvin-Şavşat	Conifer forest	Demirel *et* al.
	Gümüşhane	Conifer forest	Uzun *et* al.
O. bufonia	Denizli, Buldan, Çatak	On mossy place	Allı *et* al.
O. leporina	Manisa-Gördes	Pine forest	Gücin & Öner
	Zonguldak	Mixed forest	Abatay,
O.cochleata (*Otidea umbrina*)	Manisa-Gördes	Pine forest	Gücin & Öner
O.cochleata	West Anatolia	Conifer forest	Gücin *et* al.
O. concinna	Trabzon-Maçka	Birch forest	Sesli
	Giresun-Bulancak	On mosses	Sesli
	Tokat	Mixed forest	Türkekul & Sesli
	Karabük	Mixed forest	Yağız *et* al.
Otidea onotica (Pers.) Fuckel	Ankara-Kızılcahamam Soğuksu National Park	Fir forest	Present data

Material and Methods

The materials were collected from Kızılcahamam Soğuksu National Park (Fig. 1). The habitat and morphological features of the samples were recorded in the field. The identification of fungus was done by light microscopy. Reagents such as I (as KI), 5 % KOH and cotton blue were used. Light microphotographs of ascospores were produced. Species identification was performed as described by Cetto (1991), Hansen and Knudsen (2000).

The material is deposited at the Herbarium of Ankara University (ANK), Faculty of Science, Department of Biology, Ankara.

Results

Regnum: Fungi

Divisio: Ascomycota Caval.-Sm.

Subdivisio: Pezizomycotina O.E. Erikss. & Winka

Classis: *Pezizomycetes* O.E. Erikss. & Winka

Subclassis: *Pezizomycetidae* Locq.

Ordo: Pezizales J. Schröt.

Famillia: *Pyronemataceae* Corda

Species: Otidea *onotica* (Pers.) Fuckel *Jb. nassau. Ver. Naturk.* 23–24: 330 (1870)

Syn. *Peziza onotica* Pers., *Pseudotis abietina* (Pers.) Boud, *Scodellina onotica* (Pers.) Gray

Fruiting body is 3–5.5 cm wide (Fig 2), 4-9 cm high, irregular ear shaped, attached to the substrate with a short whitish stalk. Hymenium is orange to light carrot coloured, ochraceous – pinkish, outer surface is the same and it is slightly scurfy. Flesh is thin and white. Spores are hyaline, broadly elliptical (Fig 3), smooth, containing two oil drops, 12–13 x 5-6 µ. Ascus is cylindrical, 240–250 x 9–10 µ, not stained blue by iodine.

Material examined were collected from Ankara-Kızılcahamam Soğuksu National Park (Ankara), İncegeliş Ridge–Harmandoruk Hill, on soil, in *Abies nordmanniana* subsp. *bornmuelleriana* forest, 1640 m, N 40° 27′ -E 32º 35′ , 07 September 2002, Akata 435.

Discussion

According to relevant studies, there are five *Otidea* species in Turkey. With this study, the number of reported *Otidea* species will be six in Turkey. Considering that this figure is the result of studies performed in a 25 years period, it can be concluded that *Otidea* species are not so common in Turkey (Table 1). *O.cochleata* was recorded twice, and other species were collected only once since 1982 (Table 1).

They may be overlooked by the scientists during the field trips, because of their shorter life and their rare occurrence in the field. The resemblance of *O.leporina* and *O.onotica* among all identified species in Turkey is notable. Although there are some macroscopical differences, their microscopic features are almost the same *O.onotica* has an orange or ochraceous – pinkish coloured fruiting body, while *O.leporina* has dark yellow to cinnamon-brown. *O.onotica* is also bigger (4–9 cm high) than *O.leporina* (2–5 cm).

As a result, with this study we contributed to the Turkish macromycota.

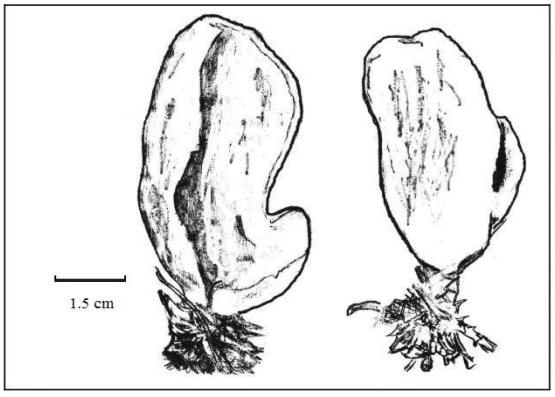

Fig 2. Macroscopic drawing of Otidea onotica (Scale bar = 1.5 cm).

Fig 3. Ascus and Ascospores of Otidea onotica (Scale bar= 20 µ).

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Farelerde Kadmiyum ve Karbon Tetraklorür ile Oluşturulan Oksidatif Hasara Kefirin Etkisinin Belirlenmesi

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Özet: Bu çalışmanın amacı karbon tetraklorid (CCl_4), kadmiyum (Cd), CCI_4-kefir, ve Cd-kefir verilen farelerin eritrositlerindeki glutatyon peroksidaz (GSH-Px) ve katalaz (CAT) aktivitesini ölçmek, redükte glutatyon (GSH) düzeylerini saptamak ve lipid peroksidasyonunun bir indikatörü olan tiyobarbitürik asit ile reaksiyon veren maddelerin (TBARS) düzeylerini belirlemektir. Fareler, her grupta 10 adet hayvan olacak şekilde 5 gruba ayrıldı. Grup I farelerine normal diyet, grup II'ye CCl_4 içeren su, grup III'e $CdCl_2$ içeren su, grup IV'e CCl_4+kefir içeren su ve grup V'e $CdCl_2$+kefir içeren su verildi. Grup II ve grup III'de kontrol grubuna kıyasla plazma TBARS ve GSH düzeyleri önemli oranda ($P<0.001$) daha yüksek bulundu. Eritrositlerdeki GSH-Px aktivitesi kefir verilen gruplarda (grup IV ve V) sadece Cd ve CCI_4 verilen gruplara göre daha düşük bulunurken kefir verilen gruptaki eritrosit CAT aktivitesinde ise artış görüldü. Bu da CCI_4 ve Cd verilen farelerdeki oksidatif stresin azalmasında kefirin etkili olduğunu göstermekte ve kefirin Cd ile CCI_4 toksisitesinden dolayı artan tiyobarbitürik asit substratlarındaki azalmalara önemli bir etkide bulunabileceğini düşündürmektedir.

Anahtar sözcükler: Kefir, Kadmiyum, Karbon Tetraklorid, Antioksidan Enzimler, Serbest Radikaller

Determination of Effect of Kefir on Cadmium and Carbon Tetrachloride-induced Oxidative Damage in Mice

Abstract: The aim of our study was to determine the levels of thiobarbituric acid reactive substances (TBARS) as an indicator of lipid peroxidation, to measure the activity of glutathione peroxidase (GSH-Px), catalase (CAT) and to establish the levels of reduced glutathione (GSH) in the red blood cells (RBC) of carbon tetrachloride-treated mice (CCl_4), cadmium (Cd), CCl_4-kefir, Cd-kefir. Mice were divided into 5 groups as 10 animals in each group. The group I was given a normal diet and the group II was given tap water with CCl_4 and the group III was given tap water with $CdCl_2$ and the group IV was given tap water with CCl_4+kefir and the group V was given tap water with $CdCl_2$+kefir. The TBARS and GSH level in the plasma was significantly higher in the group II and III than control group ($P<0.001$). GSH-Px activity in RBC was lower in the kefir groups (group IV and V) than Cd only and CCl_4-only groups only. However, the CAT activity of RBC in kefir administered group was increased. Therefore, the present study demonstrates the effectiveness of kefir in reducing oxidative stress in CCl_4 and Cd-treated mice and suggestes that reductions in increased TBARS due to Cd and CCl_4 toxicity may be an important factor in the action of kefir.

Keywords: Kefir, Cadmium, Carbon Tetrachloride, Antioxidant Enzymes, Free Radicals

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