



## An Interesting Half-Free Morel Record for Turkish Mycobiota (*Morchella populiphila* M. Kuo, M.C. Carter & J.D. Moore)

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**Abstract:** *Morchella* species that are known as "Kuzu göbeği" in many regions of Turkey are among the mushrooms consumed all around the world. Moreover, Morels are a group of mushrooms attracting people's interest because of its high economic value. Our study material, *Morchella populiphila* M. Kuo, M.C. Carter & J.D. Moore was firstly reported in Van province in 2017. Short depiction and the photographs of the species are provided and discussed briefly.

**Key words:** Mycobiota, *Morchella populiphila*, New record, Van

### Türkiye Mikobiyotası İçin İlginç Bir Yarı-Serbest Morel Kaydı (*Morchella populiphila* M. Kuo, M.C. Carter & J.D. Moore)

**Öz:** Türkiye'de birçok bölgede "Kuzu göbeği" mantarı olarak bilinen *Morchella* türleri tüm dünyada tüketilen mantarlar arasında yer alır. Moreller ekonomik değeri yüksek olmasından dolayı da insanların ilgisini çeken bir mantar grubudur. Çalışma materyalini oluşturan *Morchella populiphila* M. Kuo, M.C. Carter & J.D. Moore 2017 yılında yapılan arazi çalışmasında ilk kez Van ilinde rapor edilmiştir. Türün kısa betimi ve fotoğrafları verilmiş, kısaca tartışılmıştır.

**Anahtar kelimeler:** Mikobiyota, *Morchella populiphila*, Yeni kayıt, Van

#### Introduction

Morels are divided into two groups such as true and false. The true morels includes the *Morchella* genus and the false ones covers the *Mitrophora*, *Verpa* and *Gyromitra* genera. *Morchella* and *Gyromitra* members have ascocarp which usually attaches to the stipe, while the *Verpa* species have free of ascocarp. Morels are divided black and yellow species of *Morchella* ( Kuo, 2005; Negi, 2006). *Morchella* species are saprophytic fungi living in both conifer and broad leaf temperate forest (Negi, 2006). In the research area, we observed that samples of *Morchella populiphila* species are morphologically similar to *Verpa* species In

previous studies, this species was reported in Canada and the United States by Kuo et al. (2012) in China by Li et al. (2013) and in Spain anonymously (2013). According to the checklists of Turkish macrofungi (Solak et al., 2015; Sesli and Denchev, 2014) and contributed data recently (Uzun et al., 2014; Acar et al., 2015; Akata and Doğan, 2015; Akata et al., 2015; Akata 2017; Akata and Uzun 2017; Acar and Uzun, 2016; Akçay and Uzun, 2016; Demirel et al., 2016; Doğan et al., 2016; Sesli et al, 2016; Taşkın et al., 2016 and Allı et al., 2017), *Morchella populiphila* has not been previously reported in Turkey.



The purpose of this study is to make contribution to the Turkish Mycobiota by adding new reported species, *Morchella populiphila*.

### Materials and Methods

Macrofungi species were collected from Çatak (Van) in 2017. Relevant ecological and morphological properties of the specimen were noted and their photographs were taken in natural habitats. The samples were carried to the fungarium of Yüzüncü Yıl University in Van (VANF). for detailed studies. Distilled water, IKI, and 5% KOH were used to investigate microscopic structures. Microphotographs of apothecia were taken under a light microscope (Leica DM 1000). The species were identified by using publications of Kuo (2012), Kuo et al. (2012) and Kuo and Methven (2014). The identified sample was deposited at the Fungarium of Yüzüncü Yıl University in Van (VANF).

### Results

Short depictions, photographs of apothecia, and microphotographs of asci, paraphyses, excipulum and spores are provided as follows.

#### Pezizales

#### *Morchellaceae* Rchb.

#### *Morchella populiphila* M. Kuo, M.C. Carter & J.D. Moore

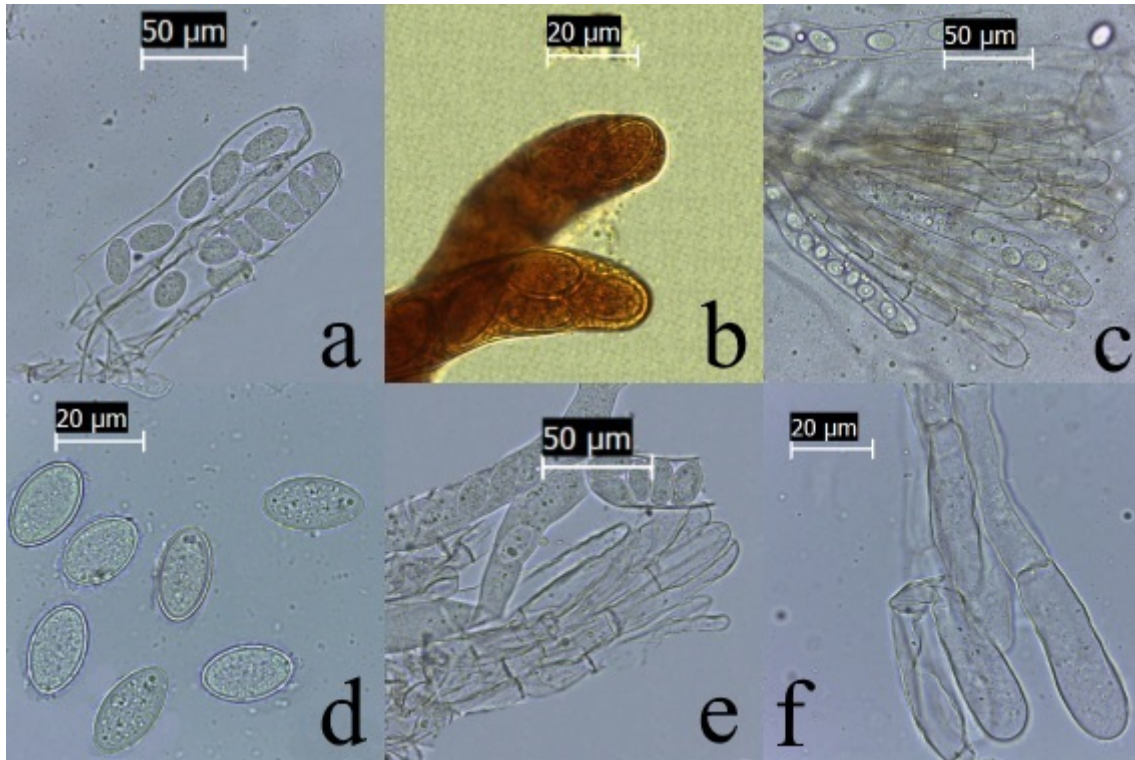
### Macroscopic and microscopic features

**Ascocarp:** 30-60 × 20-45 mm diam.; conoid or broadly conoid; dimpled and protruding, with the pits primarily collocated in the perpendicular; when young with glabrous, flattened, honey brown to pale brownish ledges, and whitish to brownish holes; when mature developing flattened to sharpened, dark brown to black ledges and yellowish to brownish holes; connected in a skirt-like manner to the stipe, about halfway from the top. **Stipe:** 25-100 × 10-55 mm diam.; often concealed under the ascocarp when young, but extending dramatically with maturity; particularly toward the base swollen when wet; white to aqueous brownish; usually floury with whitish granules that sometimes darken to brown (Figure 1). **Ascospores:** 20-27 × 11-16.5 µm; smooth; elliptic; without oil droplets; with homogeneous table of contents. **Asci:** 15-25 × 220-330 µm, 8-spored. **Paraphyses:** cylindrical with rounded, subacute, or subclavate apices, septate, hyaline in KOH. **Elements on sterile ridges:** 100-170 × 9-20 µm, septate; firmly packed in an even layer; brownish to brown in KOH. **Terminal cell:** widely clavate to subrectangular with a flattened to widely rounded apex (Figure 2).

Van, Çatak, Kanisipi, under *Populus* sp., 38°31'041"N, 43°30'135"E, 1684 m, 10.05.2017, Acar. 958.



Figure 1. Ascocarps of *Morchella populiphila*



**Figure 2.** *Morchella populiphila* **a.** Asci in distilled water, **b.** Asci apices in IKI, **c.** Asci and paraphyses in KOH, **d.** Ascospores in distilled water, **e.** Paraphyses in KOH, **f.** Elements on sterile ridges

### Discussion

Half-free morels are morphologically very similar to each other. However, their microscopic features and habitats are different. *Morchella populiphila* and *M. punctipes* are half-free morels. *Morchella populiphila* shows association with *Populus* sp. while *M. punctipes* grows under hardwoods. At the same time, elements on sterile ridges of *M. populiphila* 100-170 × 9-20 µm while elements on sterile ridges of *M. punctipes* 50-100 × 10-25 µm. *Verpa bohemica* looks similar to these species, but its cap hangs

completely free, like a thimble sitting top of a pencil (Kuo and Methven, 2014). Furthermore, *Mitrophora semilibera* similar to these species, but its spores 22-30 × 12-18 µm, asci up to 450 µm and paraphyses are branched (Jordan, 2004). *Morchella populiphila* is recorded in Turkey after the North America, China and Spain. According to Sesli and Denchev, 2014; Doğan et al., 2016 and Taşkın et al., 2016 the number of *Morchella* species which is 26 has increased to 27 with this study.

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