



A new record for the *Physalacriaceae* family in Turkey

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Türkiye’deki *Physalacriaceae* familyası için yeni bir kayıt

Abstract: *Cryptomarasmius minutus* (Peck) T.S. Jenkinson & Desjardin, is given as new record for the mycobiota of Turkey with a short description and figures related to its macro and micromorphology. This species is the second member of the genus *Cryptomarasmius* T.S. Jenkinson & Desjardin in Turkey and characterized by small, red-brown pileus, distant, often reduced lamellae, ellipsoid to narrowly ellipsoid basidiospores, and the presence of pileocystidia, dimorphic cheilocystidia, pleurocystidia, and caulocystidia.

Key words: *Agaricales*, *Basidiomycota*, biodiversity, new record, taxonomy

Özet: *Cryptomarasmius minutus* (Peck) T.S. Jenkinson & Desjardin, kısa bir betimleme ve makro ve mikromorfolojisine ilişkin şekillerle Türkiye mikobiyotası için yeni kayıt olarak verilmiştir. Bu tür *Cryptomarasmius* T.S. Jenkinson & Desjardin cinsinin Türkiye’deki ikinci üyesidir, ve küçük, kırmızı-kahverengi şapka, aralıklı, çoğunlukla indirgenmiş lameller, elipsoit veya dar elipsoit bazidiyosporlar, ve pilosistidlerin, çift morfolojide cheilosistidlerin, ve caulosistidlerin varlığı ile karakterizedir.

Anahtar Kelimeler: *Agaricales*, *Basidiomycota*, biyoçeşitlilik, yeni kayıt, taksonomi

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1. Introduction

Cryptomarasmius T.S. Jenkinson & Desjardin is an agaricoid fungal genus in the family *Physalacriaceae*. It was first proposed by Thomas S. Jenkinson & Dennis E. Desjardin (Jenkinson et al., 2014). All the members of the genus were previously placed in *Marasmius* Fr., section *Hygrometrici* characterized by a smaller pileus that is well-pigmented and broom cells mostly of the Rotalis-type or often in a combination with smooth cells, free to adnate attachment of lamellae, absence of collarium, a central and insititious stipe, usually presence of pleuro- and cheilocystidia, neither amyloid or dextrinoid nature of the pileus, lamellae or stipe trama, and medium-sized basidiospores (Singer, 1976; Dutta and Acharya, 2018).

Index Fungorum (2021) lists 15 *Cryptomarasmius* species among which only *C. corbariensis* (Roum.) T.S. Jenkinson & Desjardin is known to exist in Turkey. This species was first reported from by Nizip district of Gaziantep province by Uzun et al. (2017). Within the following year Bozok et al. (2018) also presented this species from Osmaniye province with molecular data.

Here we present *C. minutus* (Peck) T.S. Jenkinson & Desjardin as the second member of the genus *Cryptomarasmius* in Turkey. The current checklist (Sesli et al., 2020) and the latest contributions (Akçay, 2020; Çağlı and Öztürk, 2020; Keleş, 2020; Sesli, 2020; Yeşil et al., 2020; Acar et al., 2021; Doğan, 2021; Kaygusuz et al., 2021; Sesli, 2021; Uzun, 2021) on Turkish mycobiota indicate that, *C. minutus* hadn’t been reported from Turkey before, and this is the first distributional record of this species in Turkey. The study aims to make a contribution to the mycobiota of Turkey.

2. Materials and Method

The basidiocarps of *C. minutus* were collected during a field study in Silifke district of Mersin province. The material was photographed in the field using a Sony HX400V digital camera and extensive notes on the basidiomata were taken before drying. Then the collected samples were transferred to the fungarium within paper boxes and dried in an air conditioned room. Microscopic investigations were performed under a Nikon Eclipse Ci-S trinocular microscope by preparing free-hand sections of dry specimens. Identification was performed by comparing the obtained data with the available literature (Gilliam, 1976; Breitenbach and Kränzlin, 1991; Antonin and Noordeloos, 2010).

The specimens are kept at Karamanoğlu Mehmetbey University, Science Faculty, Department of Biology, Karaman.

3. Results

Fungi R.T. Moore

Basidiomycota R.T. Moore

Agaricales Underw.

Physalacriaceae Corner

Cryptomarasmius minutus (Peck) T.S. Jenkinson & Desjardin, *Mycologia* 106(1): 92 (2014)

Syn: [*Chamaeceras capillipes* (Sacc.) Kuntze, *Chamaeceras minutus* (Peck) Kuntze, *Marasmius capillipes* Sacc., *Marasmius capillipes* var. *macrosporus* Kühner, *Marasmius minutus* Peck]

Macroscopic features: Pileus 0.6-2.5 mm in diam., almost hemispherical to deeply convex when young, becomes

conic convex, plano-convex to plane at maturity, often with a depressed central disc, radially striate or distantly striate, when fresh pale red brown with a darker centre, dark brown when dry, margin incurved when young, undulating at maturity. Flesh membranous. Lamellae almost invisible when young, distant, free to narrowly adnexed, without collar, whitish to light brownish. Taste and odor not distinguishable. Stipe 5-19.5 × 0.05-0.2 mm, central, filiform, equal, curved, twisted or curled, solid, brown to black-brown (Fig 1), somewhat lighter to whitish toward the pileus.

Microscopic features: Basidia 16-23 × 5-7.5 μm, cylindric-clavate, with 4-spored with a basal clamp (Fig

2a), basidiospores 11-19 × 3.5-8.5, cylindrical-clavate to clavate. Basidiospores 6-8 × 2.2-4 μm, ellipsoid to narrowly ellipsoid, some amygdaliform, smooth, hyaline, inamyloid (Fig 2b). Pileipellis hymeniform, mainly composed of broadly clavate to pyriform, vesiculose or cylindrical broom cells of the Rotalis-type 10-21 × 6-15 μm, with numerous 0.8-2.3 long projections (Fig 2c). Pileocystidia 17-26 × 4-6.5 μm (Fig 2d), interspeaded among pileipellis. Cheilocystidia of two types: 1-broom cells of Rotalis-type, 10-16.5 × 6-11 μm, broadly clavate to vesiculose with 0.7-2 μm long projections; 2- fusiform to lageniform, smooth, 20-31 × 6.5-13 μm (Fig. 2e). Pleurocystidia 17-30 × 4-8 μm fusiform, ventricose or lageniform, smooth (Fig 2f).



Figure 1. Basidiocarps of *Cryptomarasmius minutus*

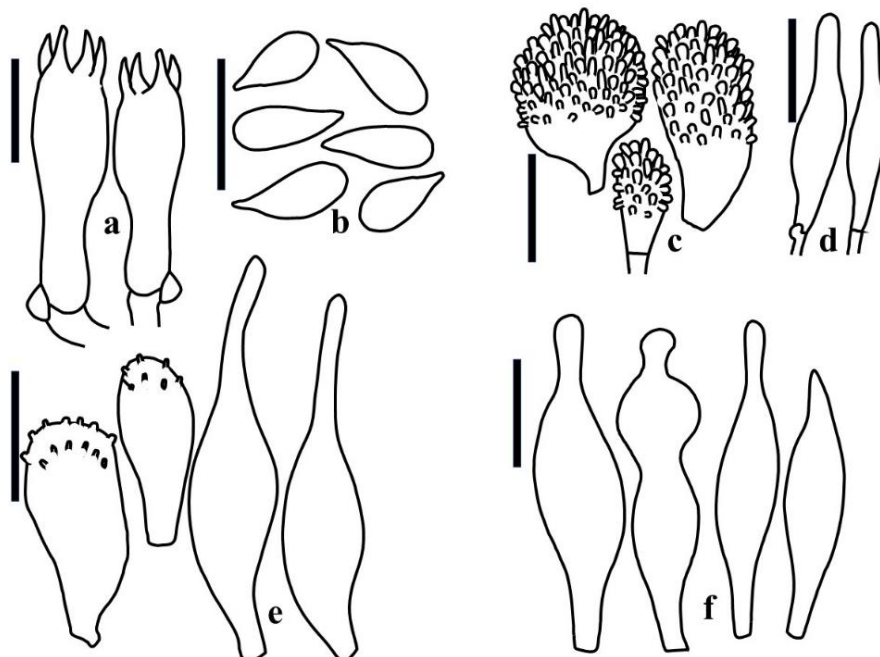


Figure 2. Basidia (a), basidiospores (b), pileipellis (c), pileocystidia (d), cheilocystidia (e) and pleurocystidia (f) of *Cryptomarasmius minutus* (bars: 10 μm)

Cryptomarasmium minutus was reported to grow on fallen or decaying leaves of various deciduous trees such as *Populus* L., *Salix* L., *Fraxinus* L., *Ulmus* L., *Acer* L., *Syringa* L., especially of *Populus* and *Salix* spp. in damp, shady places (Gilliam, 1976; Breitenbach and Kränzlin, 1991; Antonin and Noordeloos, 2010; Jenkinson et al., 2014).

Specimens examined: Mersin, Silifke, Değirmendere village, Göksu river bank, on fallen *Populus* sp. leaves. 36°24'N-33°48'E, 40m, 09.11.2019, DerKap-305.

4. Discussions

Cryptomarasmium minutus was presented as a new member of the genus *Cryptomarasmium* in Turkey. In general, macro and micromorphology are in agreement with those given in literature (Gilliam, 1976; Breitenbach and Kränzlin, 1991; Antonin and Noordeloos, 2010; Jenkinson et al., 2014).

Though it has rarely been recorded, *C. minutus* is thought to be a widespread species in the temperate zone of Northern hemisphere and has been recorded from many European countries such as Austria, Czech Republic, France, Germany, Italy, Netherlands and Spain. Due to the tiny and easily drying-up fruit bodies which become almost indistinguishable from the substrate, it is an easily overlooked species (Antonin and Noordeloos, 2010).

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Marasmius pseudominutus Singer and *M. pichinchensis* Singer are similar to *C. minutus*. But slightly larger spores (6.5-10 × 4.0-5.0 µm) of *M. pseudominutus* and the presence of rhizomorphs from which stipes arise, and the monotypic cheilocystidia of *M. pichinchensis* differ them from *C. minutus* (Antonin and Noordeloos, 2010).

Cryptomarasmium minutus is the second member of the genus *Cryptomarasmium* in Turkey. The previously reported Turkish species of the genus, *C. corbariensis*, have a larger fruit body (a pileus of 2-9 mm in diameter and a stipe of 10-30 × 0.2-0.3 mm), larger basidia (22-30 × 8-9.5 µm) and larger basidiospores (8-10 3.5-5.5 µm), though most other micro characters agree. The substrate of *C. corbariensis* was also different (Antonin, 2007; Uzun et al., 2017). *Cryptomarasmium corbariensis* was reported on rotting *Olea* L. sp. leaves, while *C. minutus* is largely confined to fallen *Populus* or *Salix* sp. leaves, and was collected on rotting *Populus* sp. leaves (Uzun et al., 2017; Henrici, 2018).

Conflict of Interest

Authors have declared no conflict of interest.

Authors' Contributions

The authors contributed equally.

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