Anatolian Journal of Botany
8(1): 46-49 (2024)
Research article *doi: 10.30616/ajb.1414991*

Simocybe centunculus, a new record for the mycobiota of Türkiye

Faruk YEŞİLYURT[1], Yakup KARADUMAN[2], Yasin UZUN[3*], Abdullah KAYA[4]
[1]*Yenice quarter, Yeşilyurt street, No: 4, Trabzon, Türkiye*
[2]*Çubuklu quarter, Engürübağı avenue, Katar street, No: 17/3, Beykoz, İstanbul, Türkiye*
[3]*Karamanoğlu Mehmetbey University, Ermenek Uysal and Hasan Kalan Health Services Vocational School, Department of Pharmacy Services, 70400 Karaman, Türkiye*
[4]*Gazi University, Science Faculty, Department of Biology, 06560 Ankara, Turkiye*
**yuclathrus@gmail.com, [1]farukyy@hotmail.com, [2]yakupkaraduman86@gmail.com, [4]kayaabad@hotmail.com*

Received : 05.01.2024
Accepted : 20.02.2024
Online : 23.02.2024

Simocybe centunculus, Türkiye mikobiyotası için yeni bir kayıt

Abstract: *Simocybe centunculus* is reported for the first time from Türkiye, based on the identification of the specimens collected from the Beykoz (İstanbul) district. This species is the first member of the genus *Simocybe* reported from Türkiye. A brief description of the presented species is provided, together with the photographs illustrating its macro- and micromorphologies.

Key words: Biodiversity, *Crepidotaceae,* new record, Türkiye

Özet: *Simocybe centunculus* Beykoz (İstanbul)'dan toplanan örneklerin teşhis edilmesine bağlı olarak Türkiye'den ilk kez rapor edilmiştir. Bu tür, *Simocybe* cinsinin Türkiye'den rapor edilen ilk üyesidir. Belirlenen türün kısa bir betimlemesi, türün makro ve mikromorfolojilerine ilişkin fotoğrafları ile birlikte verilmiştir.

Anahtar Kelimeler: Biyoçeşitlilik, *Crepidotaceae,* yeni kayıt, Türkiye

Citation: Yeşilyurt F, Karaduman Y, Uzun Y, Kaya A (2024). *Simocybe centunculus,* a new record for the mycobiota of Türkiye. Anatolian Journal of Botany 8(1): 46-49.

1. Introduction

Simocybe P. Karst. is a genus in the family *Crepidotaceae* (*Agaricales*). Species of the genus are characterized by small, brown basidiomes with minutely pruinose or micaceous pileus lacking veil remnants, emarginate or subdecurrent brown lamellae, central or eccentric pruinose stipe without veil remnants, conspicuous cheilocystidia and caulocystidia and smooth, brown, ovoid, amygdaliform or phaseoliform spores usually without a germ pore (Pegler and Young, 1975; Horak and Ronikier, 2011).

Early classifications placed *Simocybe* and its allies within the *Cortinariaceae* (Breitenbach and Kränzlin, 2000), but phylogenetic analyses indicate that *Simocybe* is monophyletic and closely related to *Crepidotus* and is thus much better placed in the *Crepidotaceae* (Moncalvo et al. 2002; Aime et al. 2005; Petersen et al. 2010). Although confirmed records of *Simocybe* are not so frequent, the geographical range of locality records spans from tropical-subtropical regions to arctic-alpine habitats (Horak and Ronikier, 2011).

IndexFungorum (2023) lists 71 confirmed species names within the genus *Simocybe,* but the current checklists (Sesli et al., 2020; Solak and Türkoğlu, 2022) and the latest contributions (Keleş et al., 2022; Işık et al., 2023; Kaygusuz et al., 2023; Sesli, 2023; Yeşilyurt et al., 2023) indicate that any member of the genus *Simocybe* has yet been reported from Türkiye.

The study aims to contribute to the knowledge of the mycobiota of Türkiye.

2. Materials and Method

The fresh basidiomata of *Simocybe* were collected from the Beykoz district in İstanbul province during a field survey in 2023. In the field, the specimens were photographed and documented. Then they were transferred to the fungarium in the paper bags, and dried in an air conditioned room. Microscopic investigations were conducted using a Leica DM 2500 trinocular compound microscope on dry specimens mounted on slides in pure water. Congo Red, Melzer's reagent and 3% KOH were used for additional observations. Measurements of microscopic structures were performed at least 20 times, on slides prepared in pure water. The samples were identified by comparing the obtained data with literature (Breitenbach and Kränzlin, 2000; Kuo, 2007; Senn-Irlet, 2008; Desjardin et al., 2014; Desjardin and Perry, 2016; Siegel and Schwarz, 2016). Voucher specimens are preserved at Karamanoğlu Mehmetbey University, Science Faculty, Department of Biology.

3. Results

Basidiomycota R.T. Moore

Agaricales Underw.

Crepidotaceae (S. Imai) Singer

Simocybe centunculus (Fr.) P. Karst., Bidr. Känn. Finl. Nat. Folk 32: 420 (1879)

Syn: [*Agaricus centunculus* Fr., *A. centunculus* var. *concolor* Fr., *A. centunculus* var. *enchymosus* Fr., *A. enchymosus* (Fr.) Fr., *Agrocybe centunculus* (Fr.) Romagn., *A. centunculus* var. *luxurians* (Romagn.) Romagn., *A. Laevigata* (J. Favre) Romagn., *Hylophila centunculus* (Fr.) Quél., *Naucoria centunculus* (Fr.) P. Kumm., *N. centunculus* f. *luxurians* Romagn., *N. centunculus* var. *laevigata* J. Favre, *N. centunculus* var. *obscura* Romagn.,

N. enchymosa (Fr.) Sacc., *N. laevigata* (J. Favre) Kühner & Romagn., *N. laevigata* var. *maritima* Bon, *Ramicola centunculus* (Fr.) Watling, *R. Laevigata* (J. Favre) Watling, *R. Maritima* (Bon) Bon, *R. obscura* Romagn. ex Watling, *Simocybe centunculus* var. *laevigata* (J. Favre) Senn-Irlet, *S. centunculus* var. *maritima* (Bon) Senn-Irlet, *S. centunculus* var. *obscura* Romagn. ex Senn-Irlet, *S. Laevigata* (J. Favre) P.D. Orton, *S. laevigata* var. *maritima* (Bon) Courtec., *S.laevigata* var. *maritima* (Bon) Courtec., *S. obscura* Romagn. ex D.A. Reid].

Macroscopic and microscopic features: Pileus 10-25 mm in diameter, initially convex then becoming plano-convex to almost plane, with a somewhat depressed or slightly umbonate center, surface minutely pruinose to velvety when young, dark yellowish brown to olive-brown at maturity, paler, somewhat striate or cracked at the marginal zone. Flesh thin, almost concolorous with the surface. Taste and odor not distinct. Lamellae adnate to adnexed, subdistant up to three-seried, pale brown to olive-brown with paler or white pruinose edges. Stipe 10-35 × 2.2-4.2 mm, cylindrical, somewhat slightly tapering upwards, hollow, almost concolorous with the cap, pruinose to striate pubescent, partially glabrescent in age, with a conspicuous tuft of white mycelium at the base (Fig. 1).

Basidia 19-23 × 7–8.6 µm, clavate, 4-sterigmate (Figs. 2a,b). Basidioles clavate. Basidiospores (5.7) 5.73 - 6.6 (6.8) × (3.7) 3.9 - 4.6 (4.7) µm, Q = 1.4 - 1.6 (1.7), ellipsoid

Figure 1. Basidiocarps of *Simocybe centunculus*

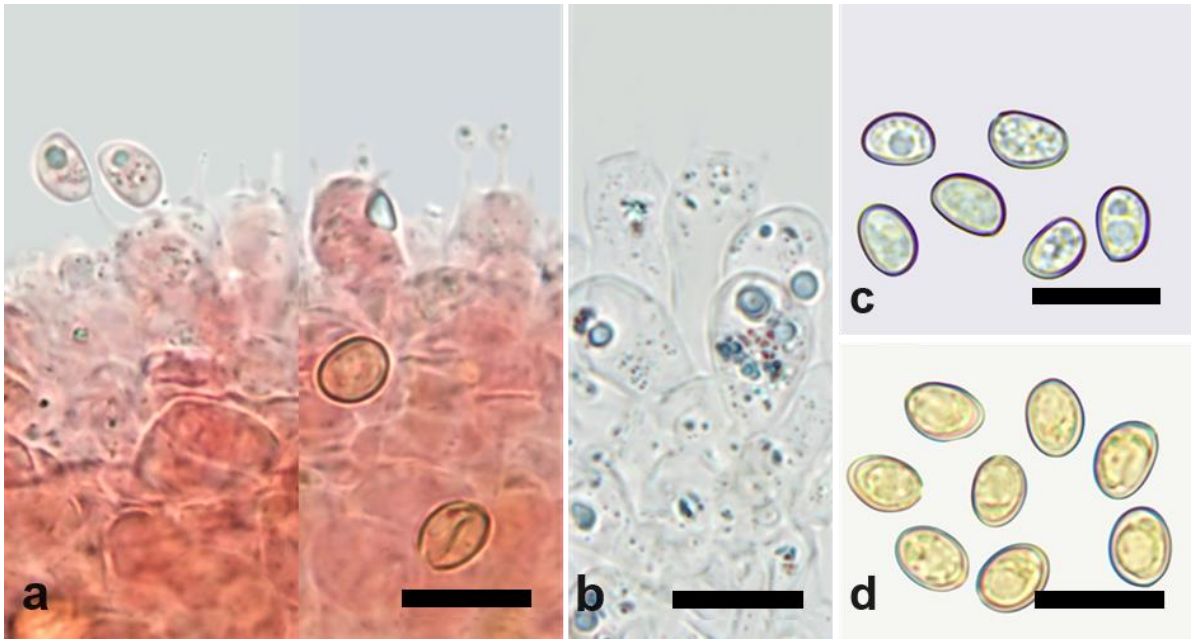

Figure 2. Basidia and basidioles (a,b) and basidiospores (c,d) of *S.centunculus* (bars 10 µm) (a in Congo Red, b in %3 KOH, c in water, d in Melzer)

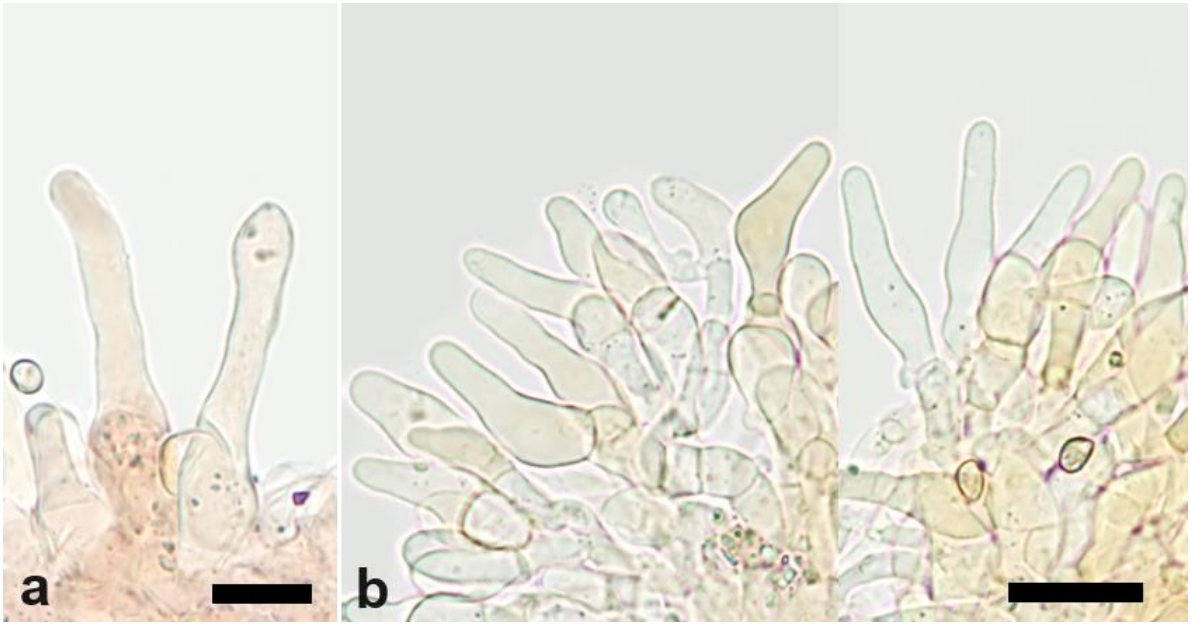

Figure 3. Cheilocystidia (a) and pileipellis (b) of *S. centunculus* (bars a- 10 µm, b- 20 µm) (a in Congo Red, b in %3 KOH)

to mostly phaseoliform or reniform without a germ pore, smooth (Figs. 2c,d). Spore print brown. Cheilocystidia abundant, generally cylindrical to subventricose, hyaline (Fig. 3a). Pleurocystidia were not observed. Pileipellis nearly a palisade with numerous subcylindrical to fusoid-ventricose or lageniform, obtuse, hyaline and erect pileocystidia arising from inflated to vesiculose cells (Fig. 3b). Clamp connections are present at some septa.

Simocybe centunculus is reported to grow as solitary or scattered in small troops on stumps and decaying hardwood branches and logs, especially of *Quercus* L. and *Lithocarpus* Blume members, from fall to late spring (Kuo, 2007; Desjardin et al., 2014; Desjardin and Perry, 2016; Siegel and Schwarz, 2016).

Specimen examined: İstanbul, Beykoz, Polonezköy, on decaying *Quercus* sp. stump in mixed forest composed of *Carpinus*, *Fagus*, *Castanea* and *Pinus* L. spp., 41.118580N - 29.190857E, 250 m, 14.10.2023, YKaraduman 012.

4. Discussions

Simocybe centunculus has been presented as a new addition to the mycobiota of Türkiye, marking the first presence of the genus *Simocybe* in the country. General characteristics of the Turkish collection are in agreement with Breitenbach and Kränzlin (2000), Kuo (2007), Desjardin et al. (2014), Desjardin and Perry (2016) and Siegel and Schwarz (2016).

This species is easily distinguished by its minutely pruinose to velvety, dark yellowish brown to olive-brown pileus; concolorous and cylindrical stipe with a conspicuous tuft of white mycelium at the base; adnate to adnexed, subdistant, pale brown to olive-brown lamellae with paler or white pruinose edges; ellipsoid to phaseoliform or reniform, yellowish brown basidiospores, a palisade-type pileipellis with subcylindrical to fusoid-ventricose pileocystidia, cylindrical to subventricose cheilocystidia, and its growth on rotten wood. *Simocybe haustellaris* (Fr.) Watling and *S. sumptuosa* (P.D. Orton) Singer may share similar habitat with *S. centunculus.* But *S. haustellaris* has larger spores (7-10 x 4.5-6.5 µm), and *S. sumptuosa* has larger fruit bodies with cheilocystidia having broad round heads and tapered bases (Siegel and Schwarz, 2016; Marchadier, 2023).

Simocybe centunculus is somewhat similar to *Naucoria fusco-olivacea* Bres. & Roum. but the latter species have longer (60-70 mm) and reddish brown stipe (Desjardin and Perry, 2016). With a similar macromorphology, *Callistosporium luteo-olivaceum* also has olive colors. However this species differs from *S. centunculus* by having larger basidiomata, smooth pileus, white spores, and growth on conifer wood (Siegel and Schwarz, 2016). In terms of general macromorphology, *S. centunculus* may resemble some species of *Mycena* (Pers.) Roussel and small species of *Pluteus* Fr. But they are easily distinguished from *S centunculus* by the colour of their spores. *Mycena* species have white spores, and *Pluteus* species have pinkish brown spores (Desjardin et al., 2014).

Conflict of Interest

Authors have declared no conflict of interest.

Authors' Contribution

Authors contributed equally.

References

Aime MC, Vilgalys R, Miller OK Jr (2005). The *Crepidotaceae* (*Basidiomycota*, *Agaricales*): phylogeny and taxonomy of the genera and revision of the family based on molecular evidence. American Journal of Botany 92(1): 74-82.

Breitenbach J, Kränzlin F (2000). Fungi of Switzerland. Vol 5. Agarics 3rd part, *Cortinariaceae.* Luzern: Verlag Mykologia.

Desjardin DE, Perry BA (2016). Dark-spored species of Agaricineae from Republic of São Tomé and Príncipe, West Africa. Mycosphere 7(3): 359-391.

Desjardin DE, Wood MG, Stevens FA (2014). California Mushrooms: The Comprehensive Identification Guide. Portland: Timber Press.

Horak E, Ronikier A (2011). *Simocybe montana* (*Crepidotaceae, Agaricales*), a new species from the alpine belt in the Swiss Alps and the Romanian Carpathians. Mycological Progress 10: 439-443.

Index Fungorum. (2023). http://www.indexfungorum.org/names/Names.asp / [accessed 25 December 2023].

Işık H, Şengül Demirek MŞ, Türkekuk İ (2023). *Melanoleuca castaneofusca* (Agaricales, Basidiomycota): a rare *Melanoleuca* species new to Turkey. Nova Hedwigia DOI: 10.1127/nova_hedwigia/2023/0842.

Kaygusuz O, Bandini D, Knudsen H, Türkekul İ (2023). *Pseudosperma pamukkalense* (Inocybaceae: Agaricomycetes), a new species from Turkey. Phytotaxa 599(4): 225-238.

Keleş A, Uzun Y, Kaya A (2022). *Chlorophyllum hortense*, a new record for Turkish Mycobiota. Mantar Dergisi 13(1): 62-65.

Kuo M (2007, February). *Simocybe centunculus*. Retrieved from the MushroomExpert.Com Web site: http://www.mushroomexpert.com/simocybe_centunculus.html / [accessed 15 December 2023].

Marchadier M (2023). Champignons de Charente-Maritime. https://www.mycocharentes.fr/pdf1/2626.pdf/ [accessed 25 December 2023].

Moncalvo JM, Vilgalys R, Redhead SA, Johnson JE, James TY, Aime MC, Hofstetter V, Verduin SJW, Larsson E, Baroni TJ, Thorn RG, Jacobsson S, Clémençon H, Miller OK Jr (2002). One hundred and seventeen clades of euagarics. Molecular Phylogenetics and Evolution 23: 357-400.

Pegler DN, Young TWK (1975). Basidiospore form in the British species of *Naucoria*, *Simocybe* and *Phaeogalera.* Kew Bulletin 30(2): 225-240.

Petersen G, Knudsen H, Seberg O (2010). Alignment, clade robustness and fungal phylogenetics – *Crepidotaceae* and sister families revisited. Cladistics 26: 62-71.

Seenn-Irlet B (2008). *Simocybe.* In Knudsen, H., Vesterholt, J. (eds.). Funga Nordica, agaricoid, boletoid and cyphelloid genera. Copenhagen: Nordsvamp.

Sesli E (2023). *Pseudoporpoloma pes-caprae* (Tricholomataceae): A new record for Türkiye. Anatolian Journal of Botany 7(1): 29-31.

Sesli E, Asan A, Selçuk F. (edlr.) Abacı Günyar Ö, Akata I, Akgül H, Aktaş S, Alkan S, Allı H, Aydoğdu H, Berikten D, Demirel K, Demirel R, Doğan HH, Erdoğdu M, Ergül CC, Eroğlu G, Giray G, Halikî Uztan A, Kabaktepe Ş, Kadaifçiler D, Kalyoncu F, Karaltı İ, Kaşık G, Kaya A, Keleş A, Kırbağ S, Kıvanç M, Ocak İ, Ökten S, Özkale E, Öztürk C, Sevindik M, Şen B, Şen İ, Türkekul İ, Ulukapı M, Uzun Ya, Uzun Yu, Yoltaş A (2020). Türkiye Mantarları Listesi. Ali Nihat Gökyiğit Vakfı Yayını. İstanbul.

Siegel N, Schwarz C (2016). Mushrooms of the Redwood Coast. Berkeley: Ten Speed Press.

Solak MH, Türkoğlu A (2022). Macrofungi of Turkey. Checklist Volume III. İzmir: Bornova-İzmir.

Yeşilyurt F, Uzun Y, Kaya A (2023). *Pseudoboletus parasiticus* (Bull.) Šutara, a New Record for Turkish Mycobiota. Biological Diversity and Conservation 16(1): 70-74.