



Hohenbuehelia mastrucata, a new basidiomycete record for Türkiye

İnci YORULMAZLAR¹, Yasin UZUN², Abdullah KAYA*³

ORCID: 0000-0003-0155-5641; 0000-0002-6423-6085; ORCID: 0000-0002-4654-1406

¹ Graduate School of Natural and Applied Sciences, Gazi University, 06560 Ankara, Türkiye

² Pharmacy Services Department, Ermenek Uysal and Hasan Kalan Health Services Vocational School, Karamanoğlu Mehmetbey University, 70400, Ermenek, Karaman, Türkiye

³ Biology Department, Science Faculty, Gazi University, 06560 Ankara, Türkiye

Abstract

The pleurotoid species, *Hohenbuehelia mastrucata* (Fr.) Singer (Pleurotaceae, Agaricales) was presented as a new record for Turkish macrofungi, based on the specimens collected from Beypazarı district of Ankara province. It is the ninth member of the genus *Hohenbuehelia* Schulzer in Türkiye. A brief description of the species is provided together with the photographs, related to the macroscopy and microscopy,

Keywords: Biodiversity, new record, Beypazarı, Ankara

----- * -----

Hohenbuehelia mastrucata, Türkiye için yeni bir bazidiyomiset kaydı

Özet

Pleurotoid bir tür olan *Hohenbuehelia mastrucata* (Fr.) Singer (Pleurotaceae, Agaricales) Ankara'nın Beypazarı ilçesinden toplanan örneklerle dayanılarak Türkiye makromantarları için yeni kayıt olarak sunulmuştur. Tür, *Hohenbuehelia* Schulzer cinsinin Türkiye'deki dokuzuncu üyesidir. Türün kısa bir betimlemesi, makroskopi ve mikroskobisine ilişkin fotoğrafları ile birlikte verilmiştir.

Anahtar kelimeler: Biyoçeşitlilik, yeni kayıt, Beypazarı, Ankara

1. Introduction

Hohenbuehelia Schulzer is a genus of the family Pleurotaceae Kühner within the order Agaricales. Members of the genus are cosmopolitan in distribution and are characterized by pleurotoid basidiomata with a reduced or not sharply differentiated stipe, white spore print, hyphae with clamp connections, lecythiform cheilocystidia, thick-walled metuloidal pleurocystidia, smooth, inamyloid, acynophilic basidiospores [1-4].

Index Fungorum lists more than 190 taxon names under *Hohenbuehelia*, but 50 of them are currently accepted as separate species [4-5].

Though eight species of *Hohenbuehelia* Schulzer (*H. atrocoerulea* (Fr.) Singer, *H. cyphelliformis* (Berk.) O.K. Mill., *H. longipes* (Boud.) M.M. Moser, *H. myxotricha* (Lév.) Singer, *H. petaloides* (Bull.) Schulzer, *H. semiinfundibuliformis* (P. Karst.) Singer, *H. tremula* (Schaeff.) Thorn & G.L. Barron and *H. unguicularis* (Fr.) O.K. Mill.) are currently known to exist in Türkiye, the current check-list [6] and the latest contributions [7-13] indicate that *H. mastrucata* (Fr.) Singer hasn't been presented from Türkiye before. The study aims to contribute to the mycobiota of Türkiye.

* Corresponding author / Haberleşmeden sorumlu yazar: Tel.: +903122121235; Fax.: +903122122279; E-mail: kayaabd@hotmail.com

2. Material and Method

The specimens of *H. mastrucata* were collected during a routine field trip within the boundaries of Beypazarı district of Ankara province in 2024. The basidiomata were photographed in situ. Related data about the ecology and locality were noted. The specimens were put in paper boxes and brought to the laboratory. Macromorphological descriptions are based exclusively on collected fresh materials. Micromorphological studies were performed on dried material using freehand sections of specimens mounted in 10% KOH. The microcharacters were photographed by using a 20 MP camera with Risingcam Sony imx 1" sensor, connected to a Leica DM 2500 trinocular compound microscope. Identification was performed by comparing the obtained data by Kuo [14], Elborne [15], Henrici [16], Siegel and Schwarz [17], Consiglio et al. [18] and Siegel et al. [19]. The collections are deposited in Biology Department, Science Faculty, Gazi University.

3. Results

Hohenbuehelia mastrucata (Fr.) Singer, Lilloa 22: 255 (1951) [1949]

Syn: *Acanthocystis mastrucata* (Fr.) Konrad & Maubl., *Agaricus echinatus* Sowerby, *Agaricus mastrucatus* Fr., *Calathinus mastrucatus* (Fr.) Quél., *Dendrosarcus echinatus* Kuntze, *Geopetalum mastrucatum* (Fr.) Kühner & Romagn., *Hohenbuehelia atrocoerulea* var. *mastrucata* (Fr.) Krieglst., *Phyllostus mastrucatus* (Fr.) P. Karst., *Pleurotus mastrucatus* (Fr.) Sacc.

Macroscopic and microscopic features: Cap 20-50 mm across, convex to planoconvex with an inrolled margin, circular, semicircular, shell-shaped or fan to kidney-shaped, some becomes wavy and lobed at maturity. Gray, bluish gray, brownish gray to buff, covered with a dense tomentum that forms a reticulate pattern. Flesh thin, gelatinous to rubbery when dry, whitish gray, taste mild, odor not distinct. Gills radiating from the attachment point, subdecurrent to adnate, close to subdistant, whitish to whitish gray. Spore print white. Stem absent or with an indistinct stipe, fruit body laterally attached to the wood. Basidia 26–41 × 7–9 μm, cylindrical-clavate, hyaline, 4-spored. Cheilocystidia 30–43 × 4.5–6.7 μm, clavate-capitate to lageniform, with necks 2–2.5 μm across. Pleurocystidia up to 70–100 × 15–19 μm; lanceolate, fusiform, thick-walled metuloid with apical or sheathing encrustations. Basidiospores 6.8–8.7 × 3.5–5.5 μm, ellipsoid to cylindrical, rarely ovoid, smooth, inamyloid.



Figure 1. Basidiocarps of *Hohenbuehelia mastrucata*

Hohenbuehelia mastrucata, a new basidiomycete record for Türkiye
İnci YORULMAZLAR, Yasin UZUN, Abdullah KAYA

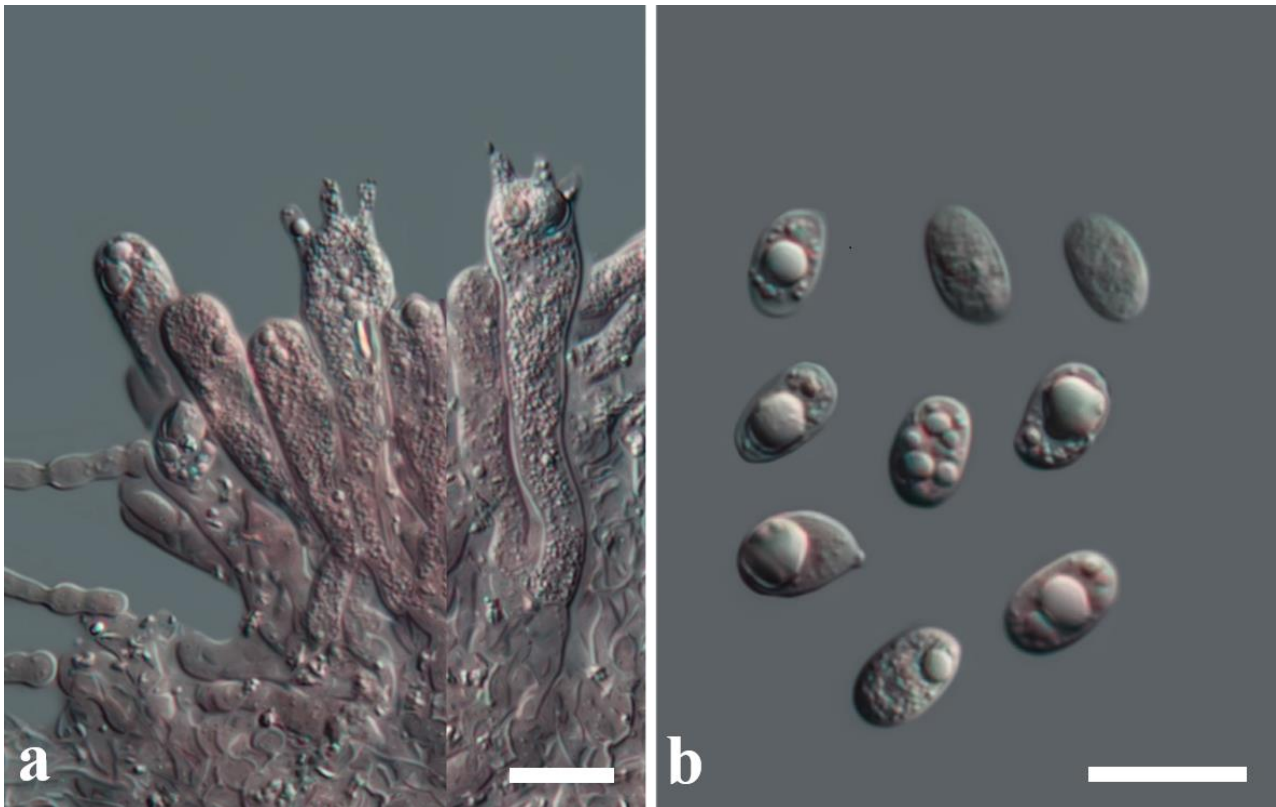


Figure 2. Basidia, basidioles (a) and basidiospores (b) of *Hohenbuehelia mastrucata* (bars: 10 μm)

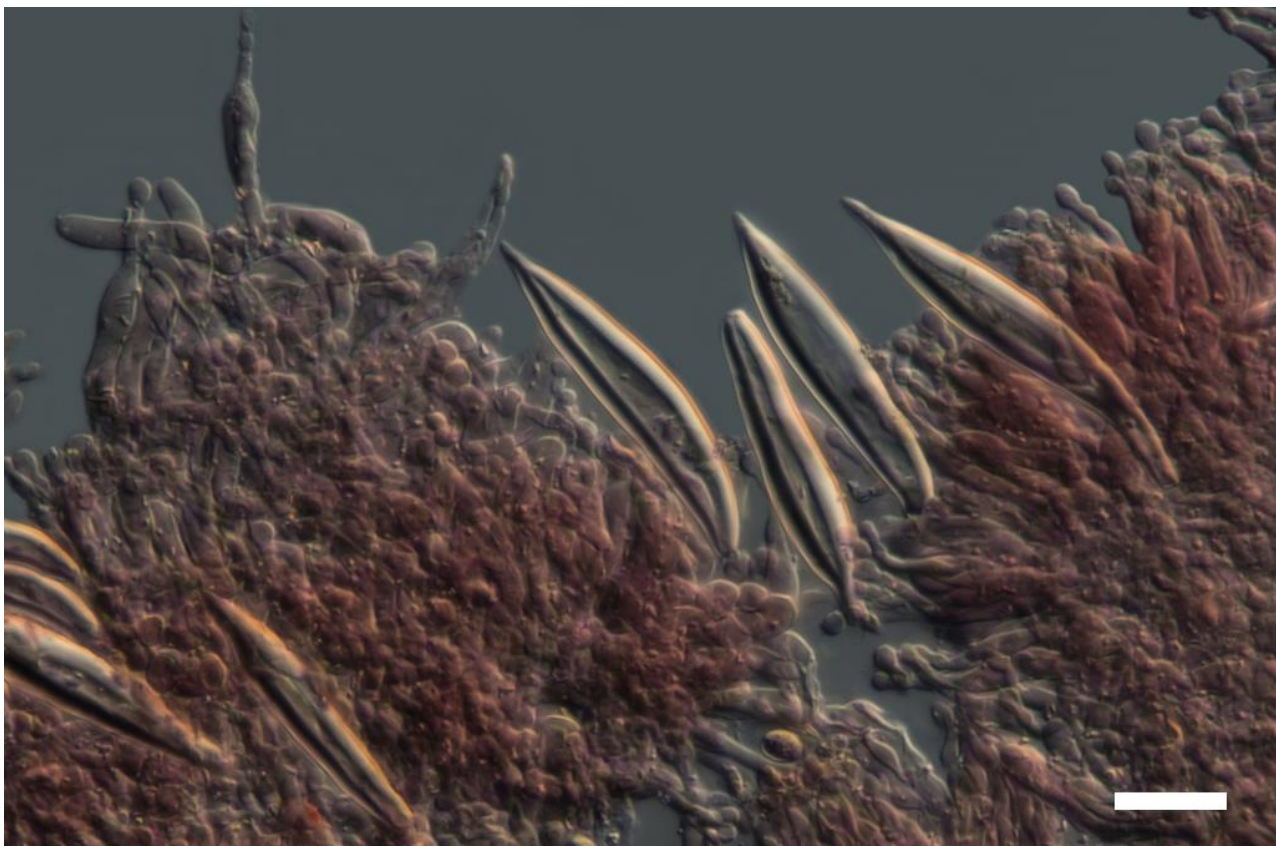


Figure 3. Cheilocystidia and pleurocystidia of *Hohenbuehelia mastrucata* (bar: 20 μm)

Hohenbuehelia mastrucata was reported to grow as solitary to scattered on well-decayed hardwoods such as *Alnus* Mill., *Betula* L., *Notholithocarpus* Manos, Cannon & S.H.Oh, *Populus* L., *Quercus* L. and *Salix* L. species [14, 15, 17, 19]. *Hohenbuehelia mastrucata* currently known from Hungary [2], Italy [4], Britain [16], USA [17, 19], Spain [20], Denmark, Finland, Norway, Sweden [21].

Specimen examined: Ankara, Beypazarı, Karaören village, on decaying *Populus* sp. stump, 40°16'N-31°54'E 1239 m, 19.05.2024, İnci 955.

Suggested Turkish name for this species is “Gümüş dirsekmantarı”.

4. Conclusions and discussions

Hohenbuehelia mastrucata was reported as a new record for Turkish mycobiota. General characteristics of the Turkish collection are generally in agreement with Kuo [14], Elborne [15], Henrici [16], Siegel and Schwarz [17], Consiglio et al. [18] and Siegel et al. [19].

Hohenbuehelia mastrucata is a distinct species by its pleurotoid, gray to brownish-grey cap covered with whitish gray to silky tomentum, a distinct gelatinous layer under the cap cuticle, lecythiform cheilocystidia and pileipellis lacking metuloidal cystidia. As similar members of the *Hohenbuehelia*, *H. grisea* (Peck) Singer, *H. petaloides* (Bull.: Fr.) Schulz. and *H. odorata* C.K. Pradeep & C. Bijesh can be compared with *H. mastrucata*. *Hohenbuehelia grisea* is recognized by a smaller (10–25 mm broad), greyish-black to dark grayish-brown cap, and cylindrical-elliptical basidiospores (6.0–9.0 × 3.0–4.0 µm) [19, 22, 23]. *Hohenbuehelia petaloides* has brown and large fruiting body [17]. Smaller and yellowish white to pinkish/grayish orange cap, and subglobose to broadly ellipsoid basidiospores (5.2–7.6 × 4.8–6.4 µm) distinguishes *H. odorata* from *H. mastrucata* [2].

Acknowledgements

The authors would like to thank Faruk YEŞİLYURT for his kind help for micromorphological photography.

References

- [1] Corner, E.J.H. (1994). On the Agaric genera *Hohenbuehelia* and *Oudemansiella* Part I: *Hohenbuehelia*. *Gardens' Bulletin (Singapore)*, 46, 1-47.
- [2] Bijesh, C., Manoj Kumar, A., Pradeep, C.K. & Vrinda, K.B. (2019). A new species of *Hohenbuehelia* (Pleurotaceae) from India. *Phytotaxa*, 420(1), 056-64.
- [3] Holec, J. & Zehnálek, P. (2020). Taxonomy of *Hohenbuehelia auriscalpium*, *H. abietina*, *H. josserandii*, and one record of *H. tremula*. *Czech Mycology*, 72(2), 199-220.
- [4] Phonemany, M., Vadthanart, S., Raghonundon, B., Thongklang, N. & Raspe, O. (2023). Additions to *Hohenbuehelia* (Basidiomycota, Pleurotaceae): two new species and notes on *H. tristis* from northern Thailand. *MycKeys*, 99, 109-130. <https://doi.org/10.3897/mycokeys.99.10531>
- [5] Index Fungorum. (2024). <http://www.indexfungorum.org/Names/Names.asp>. Accessed 15 September 2024.
- [6] Sesli, E., Asan, A., Selçuk, F., (Eds.), Abacı Günyar, Ö., Akata, I., Akgül, H., Aktaş, S., Alkan, S., Allı, H., ... Yoltaş, A. (2020). *Türkiye Mantarları Listesi (The Checklist of Fungi of Turkey)*. İstanbul: Ali Nihat Gökyiğit Vakfı Yayını.
- [7] Kuru, S., & Allı, H. (2023). Ortaca (Muğla) İlçesi Makrofungusları. *Türler ve Habitatlar*, 4(1), 29-42. <https://doi.org/10.53803/turvehab.1281885>
- [8] Sesli, E. (2023). *Pseudoporpoloma pes-caprae* (Tricholomataceae): A new record for Türkiye. *Anatolian Journal of Botany*, 7(1), 29-31. <https://doi.org/10.30616/ajb.1244401>
- [9] Aslan, A. M., Uzun, Y., & Kaya, A. (2024). *Agaricus brunneofibrillosus*, A New Record for Turkish Mycobiota. *Mantar Dergisi*, 15(1), 12-15. <https://doi.org/10.30708/mantar.1394962>
- [10] Çelik, A., Türkekul, İ., & Kaygusuz, O. (2024). First record of the deadly poisonous *Galerina venenata* (Hymenogastreae, Agaricomycotina) from Türkiye. *Anatolian Journal of Botany*, 8(1), 34-38. <https://doi.org/10.30616/ajb.1396300>
- [11] Dalkıran, A., Türkekul, İ., & Işık, H. (2024). Macromycetes determined in Yıldız Mountain (Sivas). *Anatolian Journal of Botany*, 8(2), 128-133. <https://doi.org/10.30616/ajb.1454882>
- [12] Keleş, A., Akçay, M. E., Uzun, Y., Sadullahoğlu, C. & Kesici, S. (2024). Macromycetes determined in Baykan (Siirt) District. *Anatolian Journal of Botany*, 8(1), 77-83. <https://doi.org/10.30616/ajb.1451545>

- [13] Karaduman, Y., Uzun, Y., Yeşilyurt, F. & Kaya, A. (2024). First record of *Xerocomellus cisalpinus* for Turkish Mycobiota. *Biological Diversity and Conservation*, 17(2), 156-159. <https://doi.org/10.46309/biodicon.2024.1400062>
- [14] Kuo, M. (2007, April). *Hohenbuehelia mastrucata*. Retrieved from the MushroomExpert.Com Web site:http://www.mushroomexpert.com/hohenbuehelia_mastrucata.html
- [15] Elborne, S.A. (2008). *Hohenbuehelia*. In: Knudsen, H. & Vesterholt, J. (eds.): *Funga Nordica*, Copenhagen: Nordsvamp.
- [16] Henrici, A. (2009). The genus *Hohenbuehelia* in Britain. *Field Mycology*, 10(4), 130-139.
- [17] Siegel, N. & Schwarz, C. (2016). *Mushrooms of the Redwood Coast*. Berkeley: Ten Speed Press.
- [18] Consiglio, G., Setti, L. & Thorn, R.G. (2018). New species of *Hohenbuehelia*, with comments on the *Hohenbuehelia atrocoerulea* – *Nematoctonus robustus* species complex. *Persoonia*, 41, 202-212.
- [19] Siegel, N., Vellinga, E.C., Schwarz, C., Castellano, M.A. & İkedá, D. (2019). *A Field Guide to the Rare Fungi of California's National Forests*. Minneapolis: Bookmobile.
- [20] Suay, I., Arenal, F., Asensio, F.J., Basilio, A., Angeles Cabello, M., Teresa D'íez, M., ... Francisca Vicente, M. (2000). Screening of basidiomycetes for antimicrobial activities. *Antonie Van Leeuwenhoek* 78, 129–140. <https://doi.org/10.1023/A:1026552024021>
- [21] Knudsen, H. & Vesterholt, J. ed. (2008). *Funga Nordica: Agaricoid, boletoid and cyphelloid genera*. Nordsvamp: Copenhagen, Denmark.
- [22] Desjardin, D.E., Wood, M.G. & Stevens, F.A. (2015). *California Mushrooms: The Comprehensive Identification Guide*. Portland: Timber Press.
- [23] Wood, M. & Stevens, M. (2005-2021). *The Fungi of California*. https://www.mykoweb.com/CAF/species/Hohenbuehelia_grisea.html Accessed 15 September 2024.