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RESEARCH PAPER

Irpex lacteus: A New Record for the Turkish Mycota

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Abstract

Basidiomata of *Irpex lacteus* collected from Sevinç neighbourhood of Maçka district in Trabzon province represent a new record for the Turkish mycota. New record is characterized by cream-colored, whitish, slightly yellowish semi-pileate or pileate, tomentose and zoned basidiomata; smooth, cylindrical, ellipsoid, hyaline and 4.5−7 × 2−3 µm basidiospores.

INTRODUCTION

Irpex Fr. species are corticioid fungi growing like a crust on dead hardwoods and sometimes conifers. Irpicioid spore-bearing surfaces have irregular and flattened teeth. *Irpex* is the type genus of Irpicaceae and distinguished from closely related genera by the simple septa found in the generative hyphae. It was erected by Fries and over time included 13 hydnoid, irpicioid and poroid hymenophores (Ryvarden & Melo, 2014; Ryvarden, 2020). It is currently represented with more than 250 records worldwide (Kirk et al., 2008) and with only one species [*I. litschaueri* (Bourdot & Galzin) Kotir. & Saaren.] in Türkiye before the present study (Sesli et al., 2020). Ryvarden (2020) evaluated the taxonomic position of about 180 taxa described in the genus and limited it into two species as *I. lacteus* (Fr.) Fr. and *I. hydnoides* Y.W.Lim & H.S.Jung (Li et al., 2022). *Irpex lacteus* is a white-rot fungus that inhabits especially angiosperm woods and it is a common crust fungus distributed at the temperate regions. Due to this variability and abundance, it is not very easy to identify it without the genomic sequence. It was first described by Elias Magnus Fries as *Sistotrema lacteum* Fr. (Fries, 1818; 1828) and later was transferred to *Irpex* Fr. (Kirk et al., 2008). The aim of the present study is to contribute to the Turkish mycota by illustrating the micro- and macromorphology of *I. lacteus* growing in Türkiye.

MATERIALS and METHODS

Basidiomata of *I. lacteus* were found in Sevinç neighbourhood of Maçka district in Trabzon province on 18.10.2022. Field photos were taken, colour, size and macroscopic characters were described; some of them collected and brought to the laboratory. To obtain spore prints, a basidioma was placed on a white sheet of paper, covered with a glass and waited for 5-6 hours. The basidiomata were dried with an electrical heater, labelled and placed in the fungarium cabinet for further examination. Basidiospores and other structures were examined and measured with Zeiss Axio Imager A2 research microscope and related equipment.

Dried specimens were sectioned with a new razor blade to visualize and measure the microscopic structure such as basidia, hyphae and marginal cells. Sections were kept in 5% ammonia solution before examining. Identification was made by comparing the macro- and micromorphological data obtained from the material and the related references (Breitenbach & Kränzlin, 1986; Ryvarden, 2020). Dried materials are kept at a personal fungarium of Fatih Faculty of Education in Trabzon University.

RESULTS and DISCUSSION

Taxonomy

Irpicaceae / Gerdanlıgiller
Irpex lacteus (Fr.) Fr., Elench. Fung. (Greifswald) 1: 142 (1828) / Zildişlek (Figure 1).

Basidiomata of this species are kidney-shaped to irregular, semi-pileate to pileate, whitish to greyish, cream coloured, pale yellowish, 10−20 × 5−20 mm and spread on fallen hardwood branches and logs. Underside of basidiomata is tooth-like and fruiting bodies develop shelf or bracket like when growing on the logs. Upper surface of the fruiting body is velvety to hairy, tomentose-pilose and slightly zoned. The flesh is thin, leathery, fibrous, whitish and tough. Basidiospores are smooth; ellipsoid to subcylindric, hyaline, 4.5−7 × 2−3 µm and inamyloid. Basidia are cylindric-clavate, 4 spored, without clamps and 20−30 × 3−4 µm. Marginal cells are conspicuous and 50−110 × 5−10 µm. Generative hyphae are thin- or thick walled, generally branching and 2-4 µm wide. Skeletal hyphae are thick walled, rarely branching and 2.5−7 µm wide. This fungus is saprobic and causes white rot of angiosperms, rarely also conifers, occasionally parasitic on the living wood of trees, appearing year-round.

Material Examined

This material was collected from Türkiye, Trabzon, Maçka, Sevinç neighbourhood, on dead branches of *Corylus* L., *Carpinus* L., *Quercus* L., *Fraxinus* L. etc., on 18.10.2022.

The new record is characterised by cream colored, pale yellowish, kidney-shaped to The

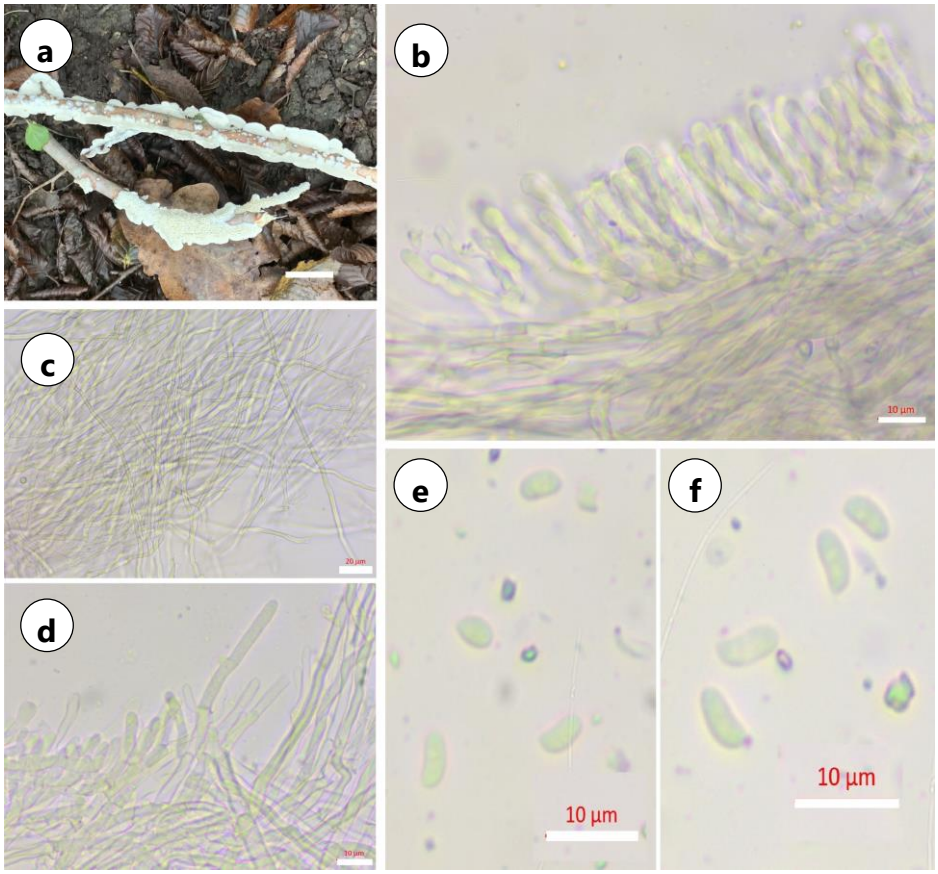

Figure 1. *Irpex lacteus*: **a)** basidiomata, **b)** hymenium with basidia, **c,d)** facial section, **e,f)** basidiospores (scale bars: **a:** 20 mm; **b,d,e,f:** 10 µm; **c:** 20 µm).

irregular, semi-pileate to pileate and 10−20 × 5−20 mm basidiomata; cylindric-clavate, clampless and 20−30 × 3−4 µm basidia; smooth, ellipsoid to subcylindric, hyaline and 4.5−7 × 2−3 µm basidiospores. A close species *I. jinshaensis* Z.B. Liu, X.M. Tian & Y.C. Dai has subglobose to globose, hyaline, thin-walled, smooth and 4–5 × 3.5–4 µm basidiospores; 16–18 × 4–5 µm basidia; 80 × 25 mm, white to cream, salmon to cinnamon basidiomata; conspicuous, abundant and thick-walled hymenial cystidia (Tian *et al*., 2022). Another similar but different species, *I. subulatus* (Ryvarden) Z.B. Liu & Y.C. Dai has 4–5 × 2–2.5 µm basidiospores; white to cream-colored fruiting body and subulate cystidia. Another species, *I. vellereus* Berk. & Broome has 2.8–3.4 µm wide basidiospores. *Irpex hydnoides* Y.W.Lim & H.S.Jung differs with 250 mm, cream to yellow, ochraceous, hydnoid basidiomata; conspicuous, abundant, thick- walled, apically incrusted, cylindrical to conical cystidia; ellipsoid, hyaline, smooth and 5.5–6.5 × 3.5–4 µm basidiospores. *Irpex alboflavescens* Y.Li, Nakasone & S.H.He has a smooth or slightly tuberculate, white to orange white, pale orange to greyish orange basidiomata; subcylindrical, colorless, thin-walled, smooth, clamped, four spored and 13–26 × 3.5–6.5 µm basidia; ellipsoid to broadly ellipsoid, colorless, thin-walled, smooth and 3.8–6 × 2.5–3.5 µm basidiospores. *I. rosea* (C.L.Zhao) Y.Li & S.H.He has smooth, odontioid or irpicoid, greyish orange to greyish red basidiomata; broadly ellipsoid to ovoid, colorless, thin-walled, smooth and 3.5–5.5 × 2.8–4 µm basidiospores (Ryvarden & Melo, 2014; Ryvarden, 2020; Chen et al., 2021; Li et al., 2022; Tian et al., 2022).

CONCLUSION

Irpex lacteus was recorded for the first time from Türkiye according to the field, laboratory and literary studies. Before the present study only one species in this genus (*I. litschaueri*) was recorded from Türkiye. *I. lacteus* grows saprobic on the branches of deciduous trees, such as *Quercus*, *Corylus* and *Carpinus* in the collection site. The new record is distinguished with cream colored, pale yellowish, kidney-shaped to irregular, semi-pileate to pileate and 10−20 × 5−20 mm basidiomata; 20−30 × 3−4 µm basidia and 4.5−7 × 2−3 µm basidiospores. "Zildişlek" Turkish name was assigned to *Irpex lacteus,* according to the Turkish plants database of Nezahat Gökyiğit Botanical Garden (Sesli et al., 2020). After this study, the genus *Irpex* distributed in Türkiye is represented by two species, *as I. lacteus* and *I. litschaueri*.

The rich biodiversity of the region shows that more new records or new species related to this genus may be described in future.

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