

Contributions to the macrofungi of Bingöl, Turkey

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Abstract: The present study was carried out on macrofungi samples collected from Bingöl Province between 2006 and 2010. As a result of field and laboratory investigations 112 species belonging to Ascomycota and Basidiomycota were determined. Ten of them are new records for the Turkish mycobiota: *Orbilia auricolor* (A. Bloxam) Sacc.; *Orbilia luteorubella* (Nyl.) P. Karst.; *Mollisia lividofusca* (Fr.) Gillet; *Calycina languida* (P. Karst.) Baral, R. Galán & G. Platas; *Vibrissea filisporia* (Bonord.) Korf & A. Sánchez; *Iodophanus carneus* (Pers.) Korf; *Amanita gilbertii* Beauseign.; *Conocybe brachypodii* (Velen.) Hauskn. & Svrček; *Coprinopsis cordispora* (T. Gibbs) Gminder; and *Paxillus vernalis* Watling.

Key words: Macrofungi, new records, taxonomy, Bingöl, Turkey

1. Introduction

Scientific studies on Turkish macromycota have a history of approximately 100 years. Such studies increased considerably in the last 20 to 30 years and checklists were prepared by Sesli and Denchev (2014). Additional contributions were also made to these checklists by Sesli and Moraeu (2015), Acar et al. (2015), Akata and Doğan (2015), Akata et al. (2016), Demirel et al. (2016), and Sesli et al. (2016).

This study aims to make a contribution to the mycobiota of Turkey by determining the macrofungal diversity of Bingöl Province.

2. Materials and methods

Macrofungi samples were collected from different localities of Bingöl Province between 2006 and 2010. Bingöl is an Eastern Anatolian province of Turkey, surrounded by Erzurum and Erzincan to the north, Tunceli and Elazığ to the west, Diyarbakır to the south, and Muş to the east (Figure 1). The province falls in the Irano-Turanian phytogeographical region and a large part of it is located in B8 according to the grid square system of Davis (1965). The majority of the forested areas are covered by oak forest; in this regard, Bingöl is one of the richest provinces of Eastern Anatolia. Pine forests are dominant, especially in southern parts of Genç district. Cedar, pine, fir, poplar,

willow, alder, crab-apple, and apricot trees are some other trees related to the macrofungal growth in the region.

During field studies geographical positions and the features of samples related to morphology and ecology were recorded. Specimens were also photographed with a Canon (EOS 60D) camera equipped with Tokina 100 mm macro lens.

Microscopic studies were performed at Yüzüncü Yıl University according to Clémençon (2009). Dried specimens were sectioned with new bistouries under a Leica EZ4 stereo microscope; obtained sections were stained with Congo red, Melzer's reagent, and KOH (5 %) and examined under a Leica DM500 research microscope. Color images of microscopic characters were obtained with a Leica ICC50 HD camera and Leica Application Suite (version 3.2.0) software was used for measurements. The specimens were identified according to Breitenbach and Kränzlin (1984–2000), Kränzlin (2005), Thompson (2013), Beug et al. (2014), and Kuo and Methven (2014). All specimens were deposited in the fungarium of Yüzüncü Yıl University (VANF).

3. Results

The systematics of the species are given in accordance with Cannon and Kirk (2007), Kirk et al. (2008), and the MycoBank Database and Index Fungorum internet

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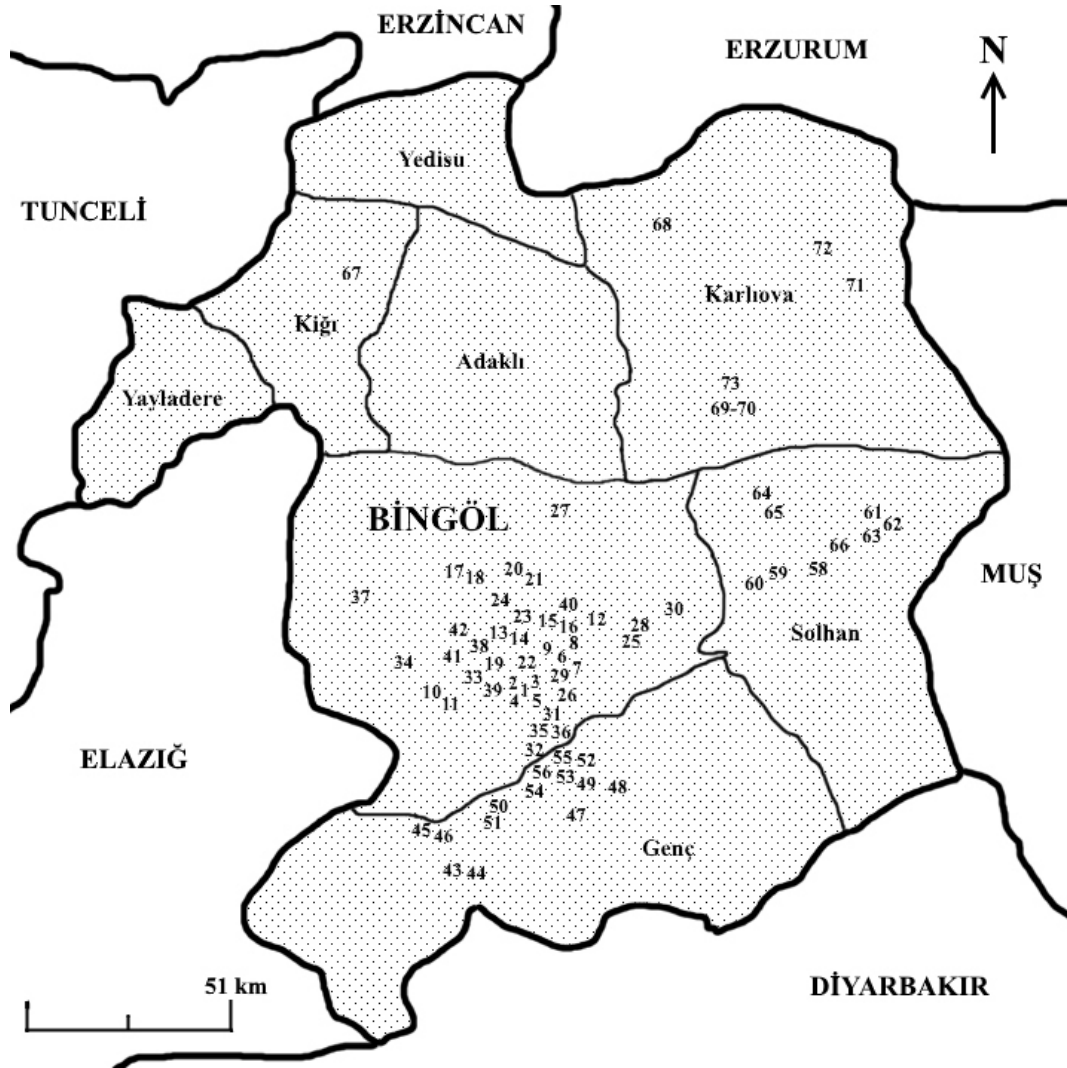


Figure 1. Research area.

sources (accessed 1 January 2017). The species are listed in alphabetical order together with their habitats, localities, collection date, and collector numbers (Uz-B. means Uzun-Bingöl). New records are marked with an asterisk and described briefly.

ASCOMYCOTA

Orbiliomycetes

Orbiliiales

Orbiliaceae Nannf.

3.1. **Orbilina auricolor* (A. Bloxam) Sacc.

On dead decorticated branch of oak, Genç, Tarlabası village, 38°41.473'N, 40°29.391'E, 1165 m, 14.10.2010, Uz-B. 1239.

Macroscopic and microscopic features

Fruiting body 0.3–0.9 mm diam., superficial, sessile, pale cream, smooth, plane, margin even. **Ectal excipulum** composed from base to margin of globose or subglobose

cells, 6.3–12 µm diam., with thin or slightly thickened walls. **Asci** 30–45 × 3.5–5 µm in dead state, cylindrical-clavate, tapered and often forked at the base, apex rounded or truncate-rounded, 8-spored. **Ascospores** 9–12 × 1–1.5 µm, hyaline, banana-shaped or narrowly clavate, medium curved, broadest above and slightly tapered to the rounded basal end, nonseptate. **Paraphyses** hyaline, cylindrical-clavate, septate in the lower part, 1.5–2 µm diam. (Figure 2).

3.2. **Orbilina luteorubella* (Nyl.) P. Karst.

On dead decorticated branch of willow, Bingöl, Ekinyolu village, streamside, 38°54.575'N, 40°34.568'E, 1050 m, 09.11.2008, Uz-B. 1055.

Macroscopic and microscopic features

Fruiting body nearly plane, often depressed in the centre, sessile, 0.2–1.5 mm diam., smooth and waxy, semitranslucent, initially pallid, then orange, pale

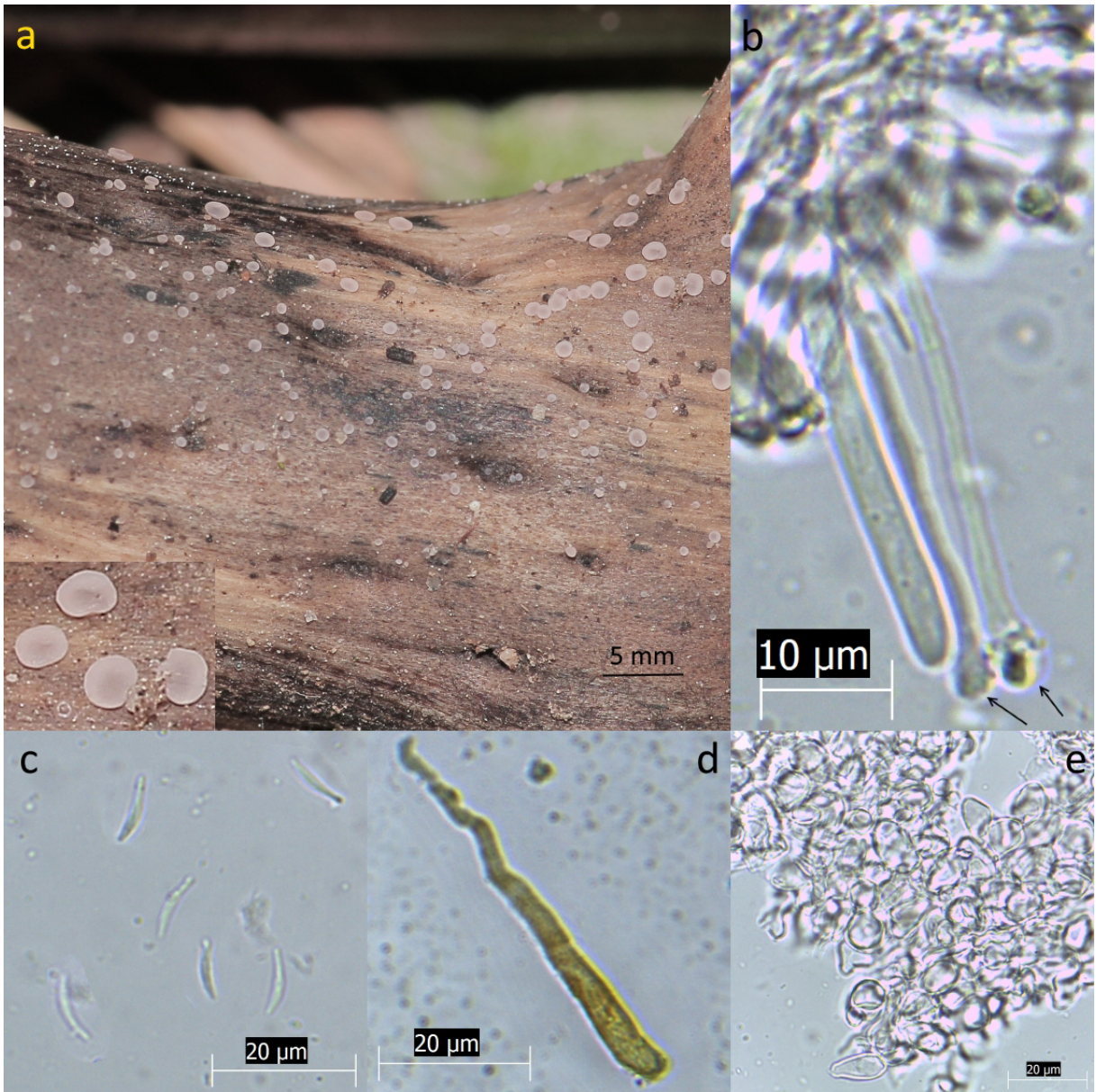


Figure 2. *Orbilia auricolor*: a) fruiting bodies, b) ascus and paraphyses (KOH), c) ascospores (KOH), d) ascus (IKI), e) excipulum (KOH).

yellowish red, pinkish orange or yellowish brown. **Asci** $30\text{--}40 \times 4\text{--}5 \mu\text{m}$, 8-spored, cylindrical, clavate. **Ascospores** $6\text{--}11 \times 1\text{--}1.7 \mu\text{m}$, fusoid, filiform, biseriata, hyaline, sometimes guttulate. **Paraphyses** filiform, quite slender, with distinctly swollen spherical to pear shaped tips, $2\text{--}2.5 \mu\text{m}$ at tips (Figure 3).

Pezizomycetes

Helotiales

Dermateaceae Fr.

3.3. *Mollisia lividofusca (Fr.) Gillet

On dead corticated branch of oak, Genç, conifer forest, $38^{\circ}44.795'N$, $40^{\circ}34.305'E$, 1143 m, 14.10.2010, Uz-B. 1236.

Macroscopic and microscopic features

Fruiting body $0.5\text{--}2.5 \text{mm}$, closed and globular at first, then saucer-shaped to irregularly disk-shaped, slightly cupuliform to subterminalized at the end, resting sessile and on a dark brown subiculum, hymenium off-white to gray, margin somewhat lighter, subhymenium brown, in intricate texture, formed of parallel hyphae, loosely arranged, septate and sometimes having a bulge on either side of the septum, about $2\text{--}4 \mu\text{m}$ in diam. **Asci** $45\text{--}55 \times 5\text{--}7 \mu\text{m}$, 8-spored. **Ascospores** $7\text{--}12 \times 2\text{--}3 \mu\text{m}$, cylindrical-fusiform to fusiform, straight to slightly curved, hyaline, without septa. **Paraphyses** $55\text{--}60 \times 2\text{--}3 \mu\text{m}$, filiform,

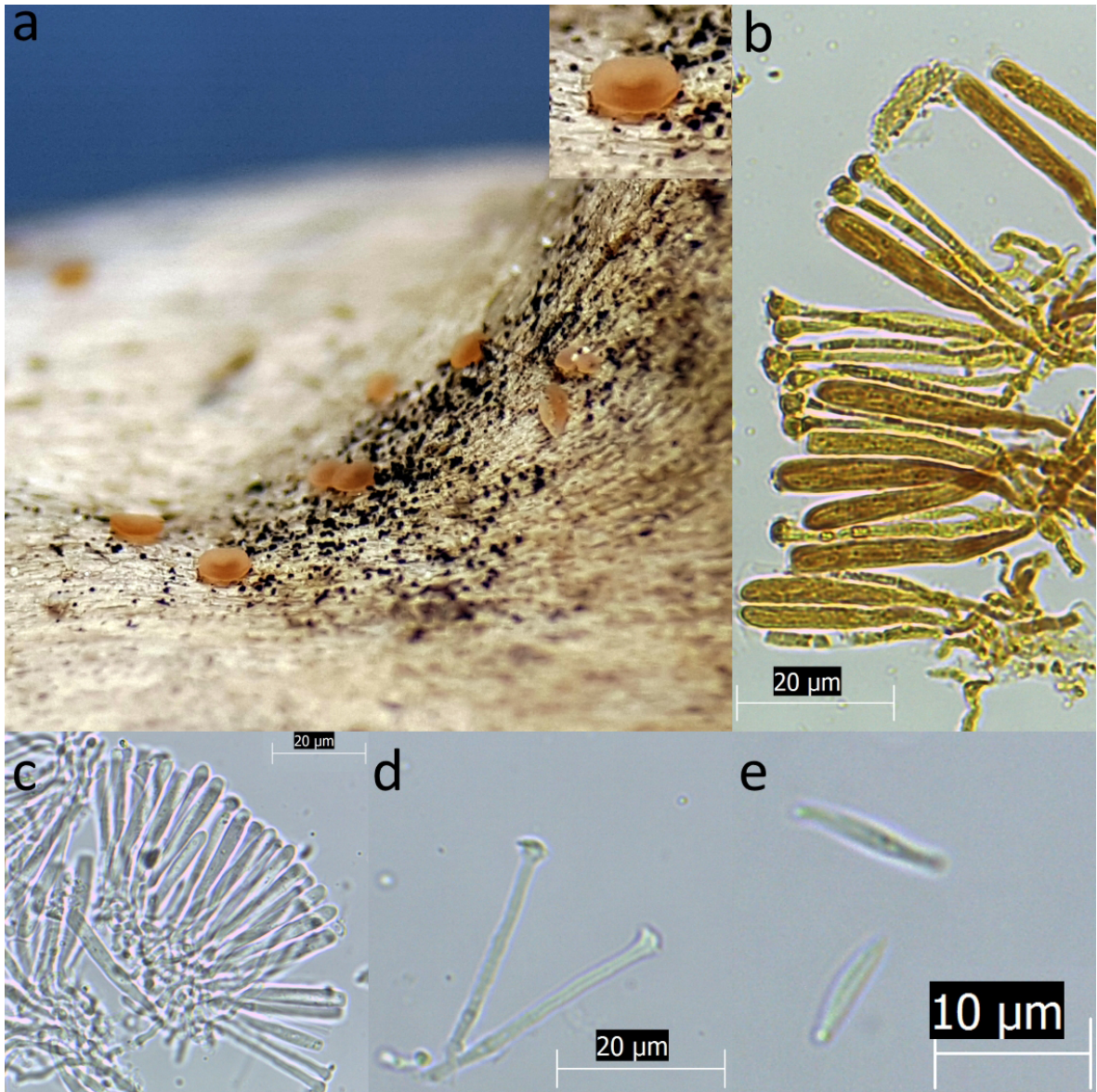


Figure 3. *Orbilia luteorubella*: a) fruiting bodies, b) asci and paraphyses (IKI), c) asci and paraphyses (KOH), d) paraphyses (KOH), e) ascospores.

sometimes slightly enlarged at the apex, unbranched (Figure 4).

Hyaloscyphaceae Nannf.

3.4. **Calycina languida* (P. Karst.) Baral, R. Galán & G. Platas

On dead branch of oak, Genç, Cumhuriyet neighborhood, 38°45.154'N, 40°34.049'E, 1017 m, 08.11.2008, Uz-B. 1045.

Macroscopic and microscopic features

Fruiting body 0.2–0.4 mm, white-yellowish pale cream, whitish when dry, generally smooth, sessile or with a stalk up to 0.4 mm. **Asci** clavate, 60–80 × 4.5–6 µm, eight-spored, pore blue in IKI. **Ascospores** biseriolate, 6–7.5(–9)

× 2–3 µm, cylindrical, ellipsoid-clavate, narrowed towards the base with 1–2 drops in each end. **Paraphyses** filiform, 1.5–2 µm (Figure 5).

Lachnaceae Raitv.

3.5. *Capitotricha bicolor* (Bull.) Baral

On dead branch of oak, Genç, Tarlabası village exit, 38°41.580'N, 40°29.291'E, 1276 m, 05.05.2009, Uz-B.1231.

Vibrisseaceae Korf

3.6. **Vibrissea filisporia* (Bonord.) Korf & A. Sánchez

On dead branch of willow, Bingöl, Aftor location, the gardens, 38°52.390'N, 40°31.633'E, 1049 m, 05.05.2008, Uz-B. 582.

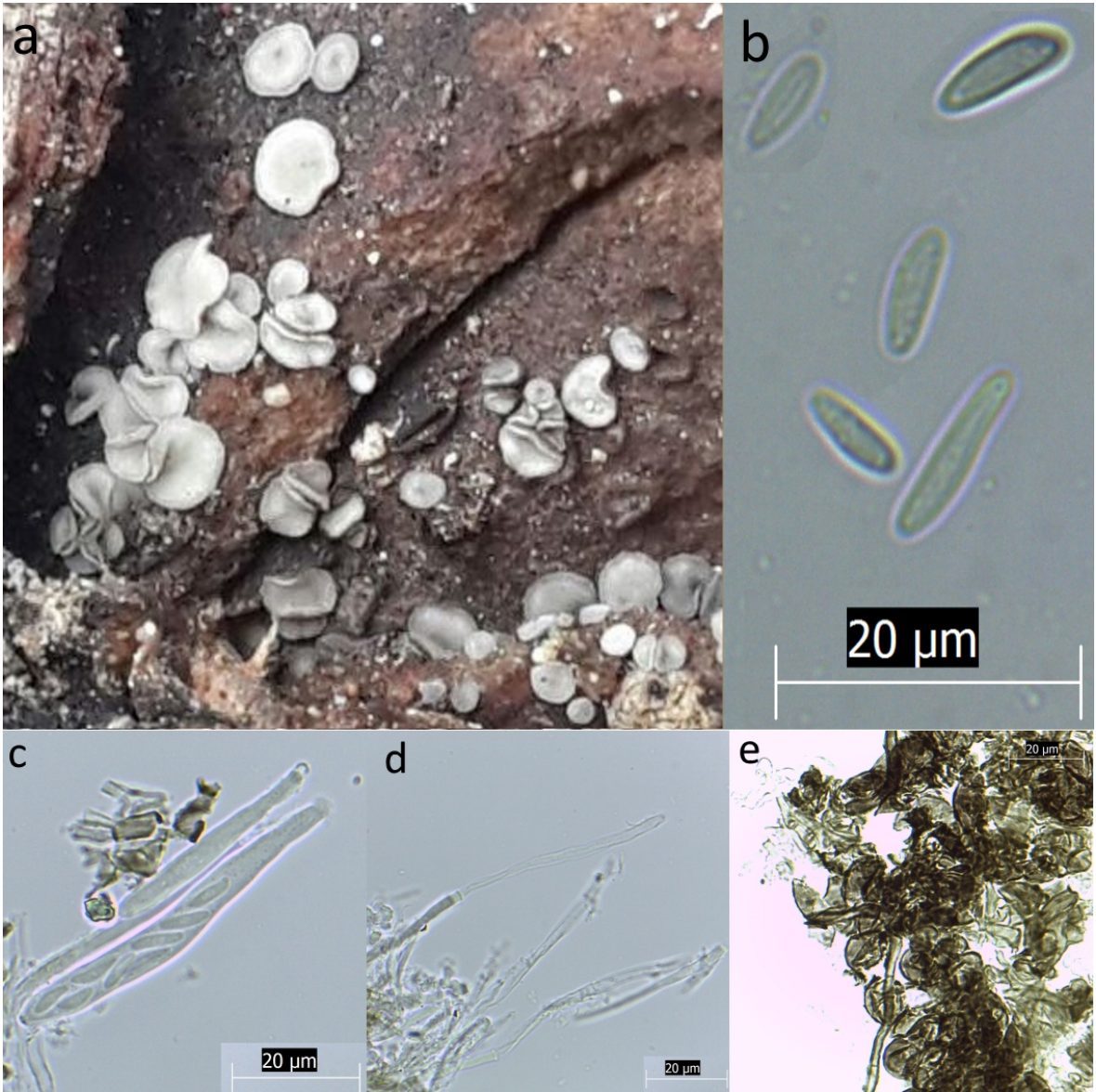


Figure 4. *Mollisia lividofusca*: a) fruiting bodies, b) ascospores, c) asci (KOH), d) paraphyses (KOH), e) excipulum (KOH).

Macroscopic and microscopic features

Fruiting body 0.4–1.5 mm, spherical at first, cup to plate-shaped with flat disk when mature, generally as tall as broad, sessile, hymenium smooth, pale grayish, margin and outer surface red-brownish to dark brown and finely granular. **Asci** cylindrical, $185\text{--}200 \times 6\text{--}7 \mu\text{m}$, eight-spored, spores lying parallel, no color change in IKI. **Ascospores** $150\text{--}185 \times 1\text{--}1.5 \mu\text{m}$, filiform, multiply septate, hyaline, smooth, ends rounded. **Paraphyses** cylindrical, septate, sometimes branched with clavate thickenings toward the tips (Figure 6).

Pezizales

Helvellaceae Fr.

3.7. *Helvella acetabulum* (L.) Quél.

Under poplar, Bingöl, Ekinyolu village, $38^{\circ}54.578'N$, $40^{\circ}34'525'E$, 1051 m, 19.05.2007, Uz-B. 282; under oak, Solhan, Yüzen island hamlet, $38^{\circ}58.284'N$, $40^{\circ}56.667'E$, 1338 m, 30.04.2009, Uz-B. 1084.

3.8. *Helvella lacunosa* Afzel.

Under poplar, Bingöl, Güveçli village, streamside, $38^{\circ}50.881'N$, $40^{\circ}31.602'E$, 1046 m, 28.05.2006, Uz-B. 23; Bingöl, Ekinyolu village, $38^{\circ}54.578'N$, $40^{\circ}34.525'E$, 1051 m, 19.05.2007, Uz-B. 283; Bingöl, Aşağı Çarşı neighborhood, side of Çapakçur stream, $38^{\circ}53.652'N$, $40^{\circ}28.621'E$, 1138 m, 20.05.2007, Uz-B. 315; Bingöl, Horsan hamlet, side of Horsan stream, $38^{\circ}56.071'N$,

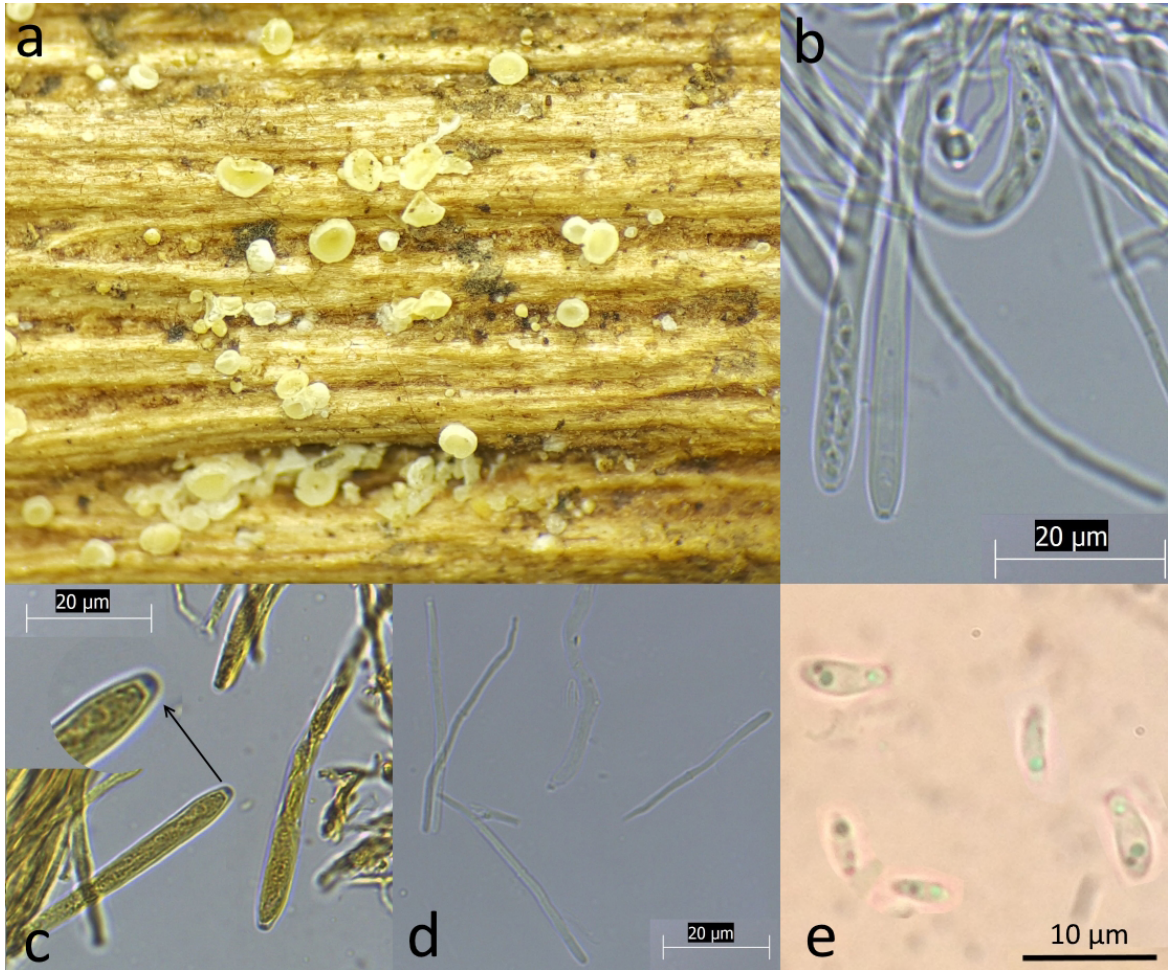


Figure 5. *Calycina languida*: a) fruiting bodies, b) asci and paraphyses (KOH), c) ascus apex (IKI), d) paraphyses (KOH), e) ascospores (living state).

40°38.883'E, 1093 m, 20.05.2007, Uz-B. 333; under mixed willow and poplar trees, Bingöl, Ekinyolu village, garden of Ali Atala, 38°53.056'N, 40°33.837'E, 1016 m, 01.05.2009, Uz-B. 1132.

3.9. *Helvella solitaria* (P. Karst.) P. Karst.

Under poplar, Bingöl, Ekinyolu village, roadside, 38°54.549'N, 40°34.573'E, 1054 m, 05.05.2007, Uz-B. 232.

3.10. *Paxina queletii* (Bres.) Stangl

Under poplar, Bingöl, Ekinyolu village, garden of Ali Atala, 38°53.056'N, 40°33.837'E, 1016 m, 19.05.2007, Uz-B. 293b; Bingöl, Ekinyolu village, roadside, 38°54.549'N, 40°34.573'E, 1054 m, 20.05.2008, Uz-B. 750; under willow, Bingöl, Abdulkadir Sarı recreation site, streamside, 38°54.123'N, 40°33.219'E, 1027 m, 23.04.2008, Uz-B. 531.

Morchellaceae Rchb.

3.11. *Morchella angusticeps* Peck

Under willow, Bingöl, Abdulkadir Sarı recreation site, 38°53.740'N, 40°36.681'E, 1055 m, 23.04.2008, Uz-B. 530.

3.12. *Morchella deliciosa* Fr.

Under mixed willow and poplar trees, Bingöl, Sariçiçek village, 38°53.959'N, 40°36.920'E, 1057 m, 01.05.2009, Uz-B. 1097.

3.13. *Morchella esculenta* (L.) Pers.

Under mixed willow and poplar trees, Bingöl, Ekinyolu village, garden of Ali Atala, 38°53.056'N, 40°33.837'E, 1016 m, 01.05.2009, Uz-B. 1122a.

3.14. *Verpa bohemica* (Krombh.) J. Schröt.

Under poplar, Bingöl, Ekinyolu village, roadside, 38°54.549'N, 40°34.573'E, 1054 m, 06.05.2007, Uz-B. 234.

3.15. *Verpa conica* (O.F. Müll.) Sw.

Among mosses, Bingöl, Sariçiçek village, streamside, 38°53.977'N, 40°36.901'E, 1056 m, 24.04.2008, Uz-B. 545.

Pezizaceae Dumort.

3.16. **Iodophanus carneus* (Pers.) Korf

On dung, Genç, Tarlabası village, 38°41.473'N, 40°29.391'E, 1165 m, 14.10.2010, Uz-B. 1240.

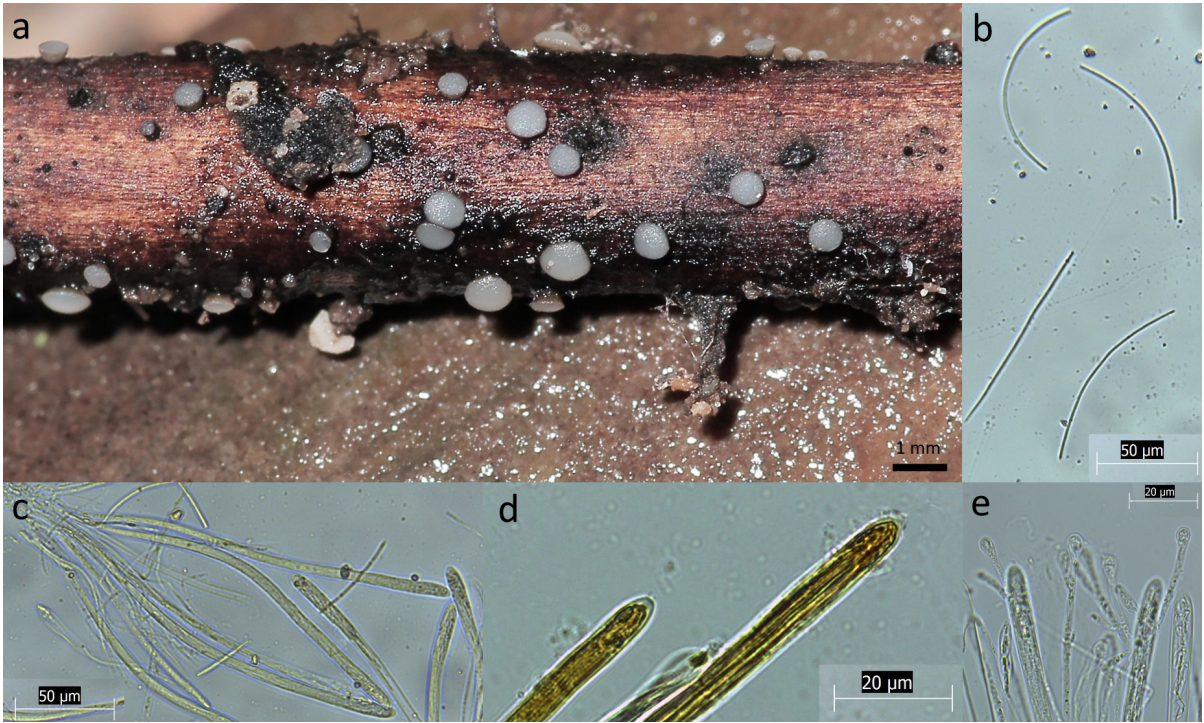


Figure 6. *Vibrissea filisporia*: a) fruiting bodies, b) ascospores, c) asci and ascospores, d) ascus apices (IKI), e) asci and paraphyses.

Macroscopic and microscopic features

Fruiting body 0.5–1.5 mm wide, knoblike when young, then turbinate, resting stalkless on the substrate, hymenium rough, convex to cushion-like, pale pink to salmon-colored, brownish when old, margin uneven, outer surface the same color, growing gregariously. **Asci** 190–210 × 25–28 μm , 8-spored, spores biserial, amyloid. **Paraphyses** slender, septate, tips thickened to 10 μm . **Ascospores** 19–23 × 11–13 μm , elliptical, hyaline, verrucose, without drops (Figure 7).

Pyronemataceae Corda

3.17. *Scutellinia scutellata* (L.) Lambotte

On remains of willow, Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 20.05.2008, Uz-B. 755.

BASIDIOMYCOTA

Agaricales

Agaricaceae Chevall.

3.18. *Agaricus bitorquis* (Quél.) Sacc.

Sandy area, near of willow, Solhan, Arakonak town, roadside, sandy area, 38°56.534'N, 41°08.794'E, 1654 m, 27.05.2006, Uz-B.4.

3.19. *Agaricus litoralis* (Wakef. & A. Pearson) Pilát

In meadow, Bingöl, Çukurca village, 38°55.252'N, 40°31.029'E, 1248 m, 14.05.2008, Uz-B. 634.

3.20. *Agaricus macrocarpus* F.H. Møller

In meadow, Genç, Genç petrol station side, mosque garden, 38°44.929'N, 40°33.206'E, 1003 m, 03.05.2009, Uz-B. 1200.

3.21. *Agaricus moelleri* Wasser

Under poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 917.

3.22. *Agaricus sylvicola* (Vittad.) Peck

In meadow, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 02.05.2009, Uz-B. 1156.

3.23. *Bovista plumbea* Pers.

Under oak, Bingöl, Şehitlik forest, 38°52.225'N, 40°31.001'E, 1093 m, 11.11.2006, Uz-B. 130; in meadow, Bingöl, Kaleönü, Yekmal neighborhood, 38°54.487'N, 40°31.935'E, 1075 m, 14.04.2008, Uz-B. 430b; Bingöl-Genç highway, Göynük 2 hamlet, 38°51.714'N, 40°31.921'E, 1038 m, 20.04.2008, Uz-B. 485; Bingöl, Kültür neighborhood, İnalı place, 38°52.639'N, 40°31.321'E, 1081 m, 20.05.2008, Uz-B. 769; Kiğı, center, roadside, 39°18.498'N, 40°20.865'E, 1495 m, 26.05.2008, Uz-B. 811; Karlıova, Karabalçık village, 39°10.591'N, 40°53.477'E, 1614 m, 05.10.2008, Uz-B. 897; Genç, Yoldaşan neighborhood, 38°43.939'N, 40°30.414'E, 996 m, 19.10.2008, Uz-B. 970; Bingöl, entrance of Güveçli village, streamside, 38°51.297'N, 40°30.807'E, 1110 m, 02.05.2009, Uz-B. 1144; Genç, Genç petrol station side, 38°44.929'N, 40°33.206'E, 1003 m, 04.05.2009, Uz-B. 1201.

3.24. *Chlorophyllum agaricoides* (Czern.) Vellinga

In meadow, Bingöl, Kültür neighborhood, İnalı place, 38°52.639'N, 40°31.321'E, 1081 m, 14.05.2008, Uz-B. 593; Kiğı, center, roadside, 39°18.498'N, 40°20.865'E, 1495 m, 20.09.2008, Uz-B. 825; Bingöl, Uydukent neighborhood,

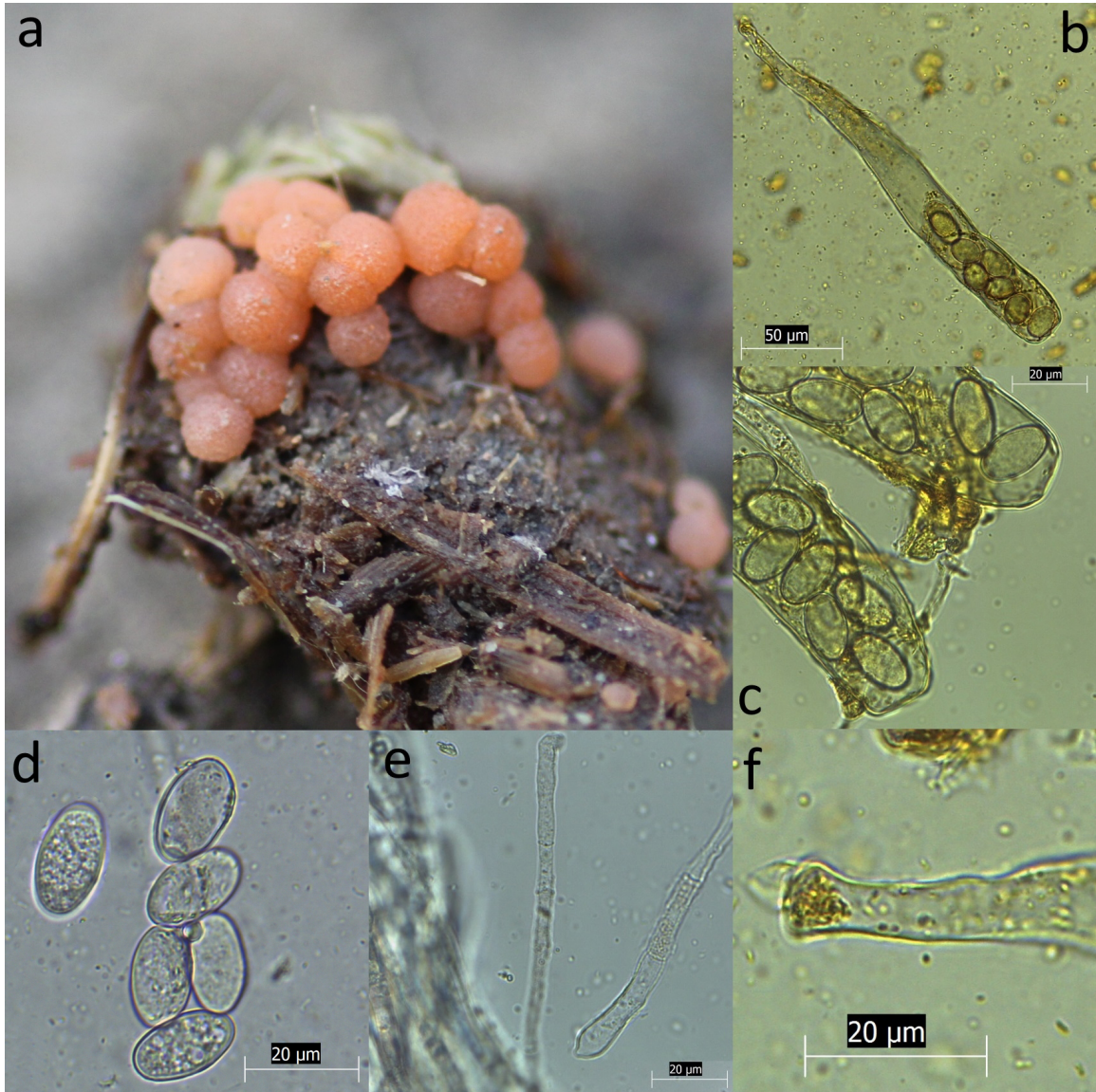


Figure 7. *Iodophanus carneus*: a) fruiting bodies, b) asci (IKI), c) asci apex (IKI), d) ascospores, e) paraphyses, f) base of ascus (IKI).

Selahattin Eyyubi mosque garden, 38°54.188'N, 40°29.580'E, 1150 m, 21.09.2008, Uz-B. 833.

3.25. *Coprinus calyptratus* Peck

In meadow, Bingöl, Kardeşler village, 38°55.302'N, 40°30.474'E, 1222 m, 01.05.2009, Uz-B. 1091.

3.26. *Cyathus olla* (Batsch) Pers.

On branch of poplar, Bingöl, Güveçli village, streamside, the gardens, 38°50.872'N, 40°31.654'E, 1047 m, 18.10.2008, Uz-B. 932.

3.27. *Cystodermella cinnabarina* (Alb. & Schwein.) Harmaja

Under pine, Bingöl, behind Yeni neighborhood, 38°52.734'N, 40°28.956'E, 1227 m, 04.10.2008, Uz-B. 876.

3.28. *Lepiota clypeolaria* (Bull.) P. Kumm.

In meadow, Bingöl-Karlıova highway, Kalencik village, 39°08.848'N, 40°52.451'E, 1726 m, 24.05.2008, Uz-B. 778.

3.29. *Lepiota cristata* (Bolton) P. Kumm.

Under poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 915; Bingöl, Abdulkadir Sarı recreation site, streamside, 38°54.123'N, 40°33.219'E, 1027 m, 01.11.2008, Uz-B. 997; on wood remains, Bingöl, outside of Güveçli village, streamside, 38°50.950'N, 40°31.802'E, 1055 m, 18.10.2008, Uz-B. 945.

3.30. *Leucoagaricus barsii* (Zeller) Vellinga

Under willow, Bingöl, Büyüktekoren village, 38°50.012'N, 40°34.466'E, 1011 m, 04.10.2008, Uz-B. 875.

3.31. *Leucoagaricus leucothites* (Vittad.) Wasser
Under willow, Solhan-Bingöl highway, Alpet petrol station back, 38°57.318'N, 40°59.020'E, 1273 m, 10.11.2006, Uz-B. 93b; in meadow, Kiğı, center, roadside, 39°18.498'N, 40°20.865'E, 1495 m, 20.09.2008, Uz-B. 824; Bingöl, Uydukent neighborhood, Selahattin Eyyubi mosque garden, 38°54.188'N, 40°29.580'E, 1150 m, 21.09.2008, Uz-B. 832; under poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 918; Genç Yoldaşan neighborhood, Murat river side, 38°43.961'N, 40°30.314'E, 988 m, 19.10.2008, Uz-B. 972.

3.32. *Leucocoprinus badhamii* (Berk. & Broome) Loçq.
In meadow, Kiğı, center, roadside, 39°18.498'N, 40°20.865'E, 1495 m, 26.05.2008, Uz-B. 815.

3.33. *Lycoperdon pratense* Pers.
In meadow, Kiğı, center, roadside, 39°18.498'N, 40°20.865'E, 1495 m, 26.05.2008, Uz-B. 808; Genç, Yoldaşan neighborhood, streamside, 38°45.152'N, 40°34.048'E, 1017 m, 19.10.2008, Uz-B. 954.

3.34. *Lycoperdon utriforme* Bull.
Under pine, Bingöl, Aşağı Çarşı neighborhood, side of Çapakçur stream, 38°53.652'N, 40°28.621'E, 1138 m, 20.05.2007, Uz-B.307.

3.35. *Macrolepiota konradii* (Huijsman ex P.D. Orton) M.M. Moser
Under oak, Bingöl, Şehitlik forest, 38°52.225'N, 40°31.001'E, 1093 m, 11.11.2006, Uz-B. 126.

3.36. *Mycenastrum corium* (Guers.) Desv.
In meadow, Karlhova, Serpmekaya village, 39°15.676'N, 41°02.735'E, 1794 m, 24.05.2008, Uz-B.796.

Amanitaceae R. Heim ex Pouzar

3.37. **Amanita gilbertii* Beauseign.
Pileus 50–140 mm, pure white at first, then dirty white, slightly ocher and yellowish at the end, covered with large, membranous, and thin patches, conical when young, then hemispherical, rarely depressed, margins rarely striate, usually hanging with whitish veil remnants, flesh thick even up to the margin. **Lamellae** white to cream-colored, broad, adnexed to free and rounded at the margin. **Stipe** 75–190 × 20–35 mm, cylindrical, smooth, whitish, base usually with a distinct bulb, turnip-like and rooting at base, membranous and large annulus on the upper third, volva remnants on the bulb form a limb as they become dry and shrink. **Spores** 10–15 × 9–10 µm, broadly elliptic to cylindrical, amyloid, hyaline. **Basidia** 45–60 × 9–12 µm, clavate, with 4 sterigmata and without basal clamp (Figure 8).

Bolbitiaceae Singer

3.38. *Bolbitius titubans* (Bull.) Fr.
In meadow, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B.

920; Genç, Ham place, 38°44.564'N, 40°32.736'E, 1007 m, 04.05.2009, Uz-B. 1225.

3.39. *Conocybe aporos* Kits van Wav.
Under poplar, Karlhova, Şerafettin mountains, 39°04.984'N, 41°10.105'E, 2114 m, 24.05.2008, Uz-B. 791; Bingöl, side of Çapakçur stream, 38°53.635'N, 40°28.671'E, 1134 m, 01.05.2009, Uz-B. 1135.

3.40. *Conocybe arrhenii* (Fr.) Kits van Wav.
In meadow, Bingöl, Aşağı Çarşı neighborhood, side of Çapakçur stream, 38°53.652'N, 40°28'621'E, 1138 m, 04.05.2008, Uz-B. 1141.

3.41. **Conocybe brachypodii* (Velen.) Hauskn. & Svrček
Under willow, in meadow, Bingöl-Genç highway, Göynük 2 hamlet, 38°51.714'N, 40°31.921'E, 1038 m, 18.05.2008, Uz-B. 721.

Macroscopic and microscopic features

Pileus 6–15 mm, campanulate, then convex-umbonate, smooth, hygrophanous, pale clay-brown, light gray with brownish hue, darker on disk, on drying light ochraceous gray, light gray with ochraceous tinge, striate nearly to centre when fresh. **Lamellae** narrowly adnate, ventricose, to 2 mm broad, fairly crowded, rust brown, with paler flocculose margin. **Stipe** 24–50 × 0.7–1.5 mm, cylindrical, basis clavate, pale brown with gray hue, light brownish, becomes darker below, pruinose-striate, hollow. **Spores** 7.2–9.5 × 4.1–5 µm, elliptic in face-view, somewhat flattened on one side in profile, fairly thin-walled, pale honey-brown in water, light reddish brown in alkali, germ-pore central. **Cheilocystidia** lecythiform, 17–23 × 7–13 µm, with relatively short neck and capitula 3.5–6.0 µm wide. **Stipitipellis** mainly consisting of lecythiform caulocystidia, in between some cylindrical to clavate-subglobose elements. **Pileipellis** hymeniform consisting of spheropedunculate elements (21–40 × 14–22 µm), in between often lecythiform pileocystidia similar to cheilocystidia, but narrower and longer up to 40 µm (Figure 9).

3.42. *Conocybe rickenii* (Jul. Schäff.) Kühner
In meadow, Bingöl, Aşağı Çarşı neighborhood, side of Çapakçur stream, 38°53.652'N, 40°28.621'E, 1138 m, 04.05.2008, Uz-B. 578.

Entolomataceae Kotl. & Pouzar

3.43. *Entoloma clypeatum* (L.) P. Kumm.
In meadow, Genç, conifer forest, forest clearance, 38°44.585'N, 40°34.432'E, 1117 m, 03.05.2009, Uz-B. 1190.

3.44. *Entoloma lucidum* (P.D. Orton) M.M. Moser
Under poplar, Bingöl, side of Çapakçur stream, 38°53.635'N, 40°28.671'E, 1134 m, 01.05.2009, Uz-B. 1134.

3.45. *Entoloma politum* (Pers.) Donk
Under poplar, Bingöl, Elmalı village, roadside, 39°01.944'N, 40°44.579'E, 1244 m, 25.05.2008, Uz-B. 800.



Figure 8. *Amanita gilbertii*: a) basidiocarp, b) elements from the veil remnants on the pileal surface (Congo red) basidiospores (KOH), d) basidia (KOH).

3.46. *Entoloma sepium* (Noulet & Dass.) Richon & Roze
Under apricot trees, Genç, Çukur neighborhood, the gardens, 38°45.124'N, 40°33.785'E, 1011 m, 20.04.2008, Uz-B. 512.

3.47. *Entoloma sericeoides* (J.E. Lange) Noordel
Under poplar, Bingöl, Horsan hamlet, side of Horsan stream, 38°56.071'N, 40°38.883'E, 1093 m, 20.05.2007, Uz-B. 342.

Hymenogastraceae Vittad.

3.48. *Hebeloma mesophaeum* (Pers.) Quél.
Under willow, Karlıova center, roadside, 39°17.994'N, 41°00.645'E, 1847 m, 05.10.2008, Uz-B. 893; under apricot trees, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 02.05.2009, Uz-B. 1151.

3.49. *Hebeloma populinum* Romagn.
Under poplar, Bingöl-Genç highway, behind Koç petrol station, 38°48.004'N, 40°33.007'E, 1030 m, 12.11.2006, Uz-B. 166; Bingöl, outside of Güveçli village, streamside,

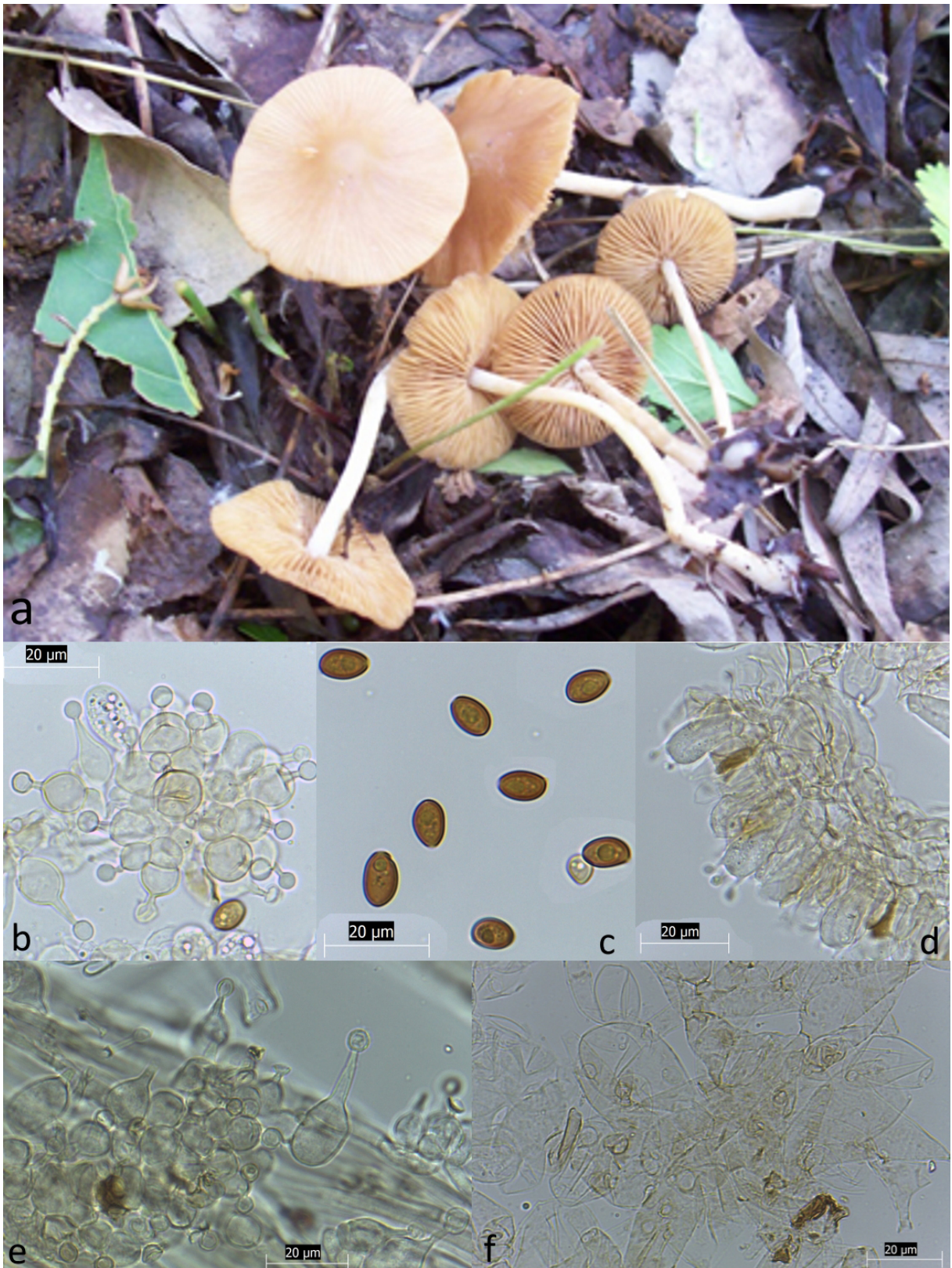


Figure 9. *Conocybe brachypodii*: a) basidiocarps, b) cheilocystidia (KOH), c) basidiospores (KOH), d) basidia (KOH), e) stipitipellis and caulocystidia, f) pileipellis.

38°50.950'N, 40°31.802'E, 1055 m, 18.10.2008, Uz-B. 941; Bingöl, industrial sites side, the gardens, 38°54.331'N, 40°32.010'E, 1063 m, 01.11.2008, Uz-B. 986.

3.50. *Hebeloma sinapizans* (Fr.) Sacc.

Under crabapple trees, Bingöl-Karlıova highway, Kalencik village, the gardens, 39°08.829'N, 40°52.477'E, 1722 m, 24.05.2008, Uz-B. 779.

Hygrophoraceae Lotsy

3.51. *Hygrocybe punicea* (Fr.) P. Kumm.

Under alder, Bingöl, side of Çapakçur stream, 38°53.635'N, 40°28.671'E, 1134 m, 04.10.2008, Uz-B. 887.

Inocybaceae Jülich

3.52. *Inocybe adaequata* (Britzelm.) Sacc.

Under poplar, Bingöl, Ekinyolu village, garden of Ali Atala, 38°53.056'N, 40°33.837'E, 1016 m, 19.05.2007, Uz-B. 296a.

3.53. *Inocybe dulcamara* (Alb. & Schwein.) P. Kumm.

Under poplar, Bingöl, Ekinyolu village, garden of Ali Atala, 38°53.056'N, 40°33.837'E, 1016 m, 19.05.2007, Uz-B. 296b; Bingöl, Elmalı village, roadside, 39°01.944'N, 40°44.579'E, 1244 m, 25.05.2008, Uz-B. 799; under willow, Bingöl, Abdulkadir Sarı recreation site, streamside, 38°54.123'N, 40°33.219'E, 1027 m, 23.04.2008, Uz-B. 537.

3.54. *Inocybe erubescens* A. Blytt

Under willow, Bingöl, Ekinyolu village, roadside, 38°54.549'N, 40°34.573'E, 1054 m, 20.05.2008, Uz-B. 752.

3.55. *Inocybe perlata* (Cooke) Sacc.

Under mixed willow and poplar trees, Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 09.11.2008, Uz-B. 1059.

3.56. *Inocybe sindonia* (Fr.) P. Karst.

Under mixed willow and poplar trees, Bingöl, Ekinyolu village, garden of Ali Atala, 38°53.056'N, 40°33.837'E, 1016 m, 01.05.2009, Uz-B. 1123.

3.57. *Phaeomarasmium erinaceus* (Fr.) Scherff. ex Romagn.

On branch of oak, Genç, Tarlabası village exit, 38°41.580'N, 40°29.291'E, 1276 m, 05.05.2009, Uz-B.1234.

Incertae sedis

3.58. *Panaeolus ater* (J.E. Lange) Kühner & Romagn.

On dung, Solhan entrance, roadside, 38°58.066'N, 41°05.637'E, 1482 m, 30.04.2009, Uz-B. 1075.

3.59. *Panaeolus papilionaceus* (Bull.) Quéf.

On cow dung, Bingöl, Çayboyu village, 38°54.121'N, 40°30.468'E, 1058 m, 12.04.2008, Uz-B. 404; Bingöl, industrial sites side, the gardens, 38°54.331'N, 40°32.010'E, 1063 m, 01.11.2008, Uz-B. 984; Solhan entrance, streamside, the gardens, 38°58.066'N, 41°05.637'E, 1482 m, 30.04.2009, Uz-B. 1065; on horse dung, Genç, conifer forest, 38°44.795'N, 40°34.305'E, 1143 m, 02.05.2009, Uz-B.1171; Genç, Doğrular village, 38°39.234'N, 40°29.794'E, 1263 m, 04.05.2009, Uz-B. 1213.

Marasmiaceae Roze ex Kühner

3.60. *Marasmius oreades* (Bolton) Fr.

Under willow, Solhan, Dilektepe village, Yetkinoğlu petrol station side, 38°57.235'N, 40°58.604'E, 1276 m, 27.05.2006, Uz-B. 6; under poplar, Bingöl, Beyaztoprak village, 38°54.964'N, 40°37.515'E, 1058 m, 14.04.2008, Uz-B. 426; in meadow, Bingöl, Yolçatı village, 38°56.714'N, 40°17.433'E, 1644 m, 10.05.2008, Uz-B. 594; Kiğı, center, roadside, 39°18.498'N, 40°20.865'E, 1495 m, 26.05.2008, Uz-B. 812.

3.61. *Marasmius rotula* (Scop.) Fr.

On leaf remnants, Bingöl, Aydınso neighborhood, 38°52.426'N, 40°31.617'E, 1055 m, 11.11.2006, Uz-B. 151; Solhan, Arakonak town, roadside, 38°56.576'N, 41°08.714'E, 1652 m, 06.05.2007, Uz-B. 246.

Mycenaceae Roze

3.62. *Mycena polygramma* (Bull.) Gray

On dead wood of oak, Bingöl, Aşağı Çavuşlar village, 38°55.960'N, 40°45.368'E, 1333 m, 10.11.2006, Uz-B. 109.

Omphalotaceae Bresinsky

3.63. *Gymnopus erythropus* (Pers.) Antonín, Halling & Noordel.

Under oak, Bingöl, Ekinyolu village, 38°54.578'N, 40°34.525'E, 1051 m, 19.05.2007, Uz-B. 284.

Physalacriaceae Corner

3.64. *Armillaria ostoyae* (Romagn.) Herink

Under willow, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 940.

Pluteaceae Kotl. & Pouzar

3.65. *Pluteus salicinus* (Pers.) P. Kumm.

On dead wood, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 910.

3.66. *Volvariella pusilla* (Pers.) Singer

Under poplar, Bingöl, Ekinyolu village, garden of Ali Atala, 38°53.056'N, 40°33.837'E, 1016 m, 19.05.2007, Uz-B. 299; Bingöl, Horsan hamlet, side of Horsan stream, 38°56.071'N, 40°38.883'E, 1093 m, 20.05.2007, Uz-B. 346.

Psathyrellaceae Vilgalys, Moncalvo & Redhead

3.67. *Coprinellus disseminatus* (Pers.) J.E. Lange

Around stump of poplar, Solhan entrance, Beyaz bridge side, 38°58.044'N, 41°03.828'E, 1387 m, 10.11.2006, Uz-B. 71; Bingöl, Horsan hamlet, side of Horsan stream, 38°56.071'N, 40°38.883'E, 1093 m, 20.05.2007, Uz-B. 330; around stump of willow, Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 20.05.2008, Uz-B. 765; Solhan entrance, streamside, the gardens, 38°58.066'N, 41°05.637'E, 1482 m, 30.04.2009, Uz-B. 1069; Bingöl, Kaleönü, Yekmal neighborhood, 38°54.487'N, 40°31.935'E, 1075 m, 04.10.2008, Uz-B. 859; Genç, Cumhuriyet neighborhood, 38°45.154'N, 40°34.049'E, 1017 m, 13.05.2009, Uz-B. 1198.

3.68. *Coprinellus domesticus* (Bolton) Vilgalys, Hopple & Jacq. Johnson

Around stump of willow Bingöl, Abdulkadir Sarı recreation site, streamside, 38°54.123'N, 40°33.219'E, 1027 m, 23.04.2008, Uz-B. 541; Bingöl, Çukurca village, the gardens, 38°55.278'N, 40°31.148'E, 1250 m, 24.04.2008, Uz-B. 550; Solhan entrance, streamside, the gardens, 38°58.066'N, 41°05.637'E, 1482 m, 30.04.2009, Uz-B. 1067.

3.69. *Coprinellus xanthothrix* (Romagn.) Vilgalys, Hopple & Jacq. Johnson

Under willow, Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 20.05.2008, Uz-B. 746.

3.70. **Coprinopsis cordispora* (T. Gibbs) Gminder

On dung, Karlıova, Serpmekaya village, 39°15.676'N, 41°02.735'E, 1794 m, 24.05.2008, Uz-B. 791.

Macroscopic and microscopic features

Pileus closed and globose, subglobose or ovoid when young, up to 10 × 6 mm, then campanulate to convex-campanulate, finally flat, up to 15 mm in diam., grooved, completely covered by whitish or pale pinkish brown powdery veil, at margins hairy-floccose. **Lamellae** free, at first whitish then grayish to black. **Stipe** 20–45 × 0.5–1 mm, cylindrical, swollen at the base, whitish, hyaline. **Flesh** thin, whitish. **Spores** 7–11.5 × 6–10 × 4–6 µm, rectangular lemon-shaped, lentiform, dark red-brown, with central germ pore. **Basidia** 15–30 × 6.5–10 µm, 4-spored. **Pleurocystidia** 40–80 × 15–30 µm, subglobose to ellipsoid. **Cheilocystidia** 25–48 × 16–35 µm, utriform, subglobose to ellipsoid or subcylindrical. Clamp-connections absent (Figure 10).

3.71. *Coprinopsis picacea* (Bull.) Redhead, Vilgalys & Moncalvo

Under poplar, Bingöl, Horsan hamlet, side of Horsan stream, 38°56.071'N, 40°38.883'E, 1093 m, 20.05.2007, Uz-B. 349.

3.72. *Psathyrella candolleana* (Fr.) Maire

Under poplar, Bingöl, Güveçli village, Pala petrol station side, 38°50.875'N, 40°31.640'E, 1048 m, 27.05.2006, Uz-B. 16; Bingöl, Ekinyolu village, 38°54.578'N, 40°34.525'E, 1051 m, 19.05.2007, Uz-B. 287; Bingöl, Aşağı Çarşı neighborhood, side of Çapakçur stream, 38°53.652'N, 40°28.621'E, 1138 m, 20.05.2007, Uz-B. 324; Bingöl, Çukurca village, the gardens, 38°55.278'N, 40°31.148'E, 1250 m, 24.04.2008, Uz-B. 551; Karlıova, Serpmekaya village, 39°15.676'N, 41°02.735'E, 1794 m, 24.05.2008, Uz-B. 794; Solhan entrance, streamside, the gardens, 38°58.066'N, 41°05.637'E, 1482 m, 30.04.2009, Uz-B. 1073; Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 02.05.2009, Uz-B. 1159; Genç, Şehit village, 38°39.917'N, 40°29.856'E, 1275 m, 04.05.2009, Uz-B. 1217.

3.73. *Psathyrella olympiana* A.H. Sm.

Under poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 02.05.2009, Uz-B. 1149.

3.74. *Psathyrella phegophila* Romagn.

On dead wood, Bingöl-Genç highway, Göynük 2 hamlet, 38°51.714'N, 40°31.921'E, 1038 m, 18.05.2008, Uz-B. 730.

3.75. *Psathyrella prona* (Fr.) Gillet

Under mixed willow and poplar trees, Bingöl, Ekinyolu village, roadside, 38°54.549'N, 40°34.573'E, 1054 m, 02.10.2008, Uz-B. 841.

3.76. *Psathyrella spadiceogrisea* (Schaeff.) Maire

Under poplar, Solhan entrance, streamside, the gardens, 38°58.066'N, 41°05.637'E, 1482 m, 30.04.2009, Uz-B. 1074; Solhan, Yüzen island hamlet, mosque garden, 38°58.166'N, 40°56.530'E, 1354 m, 30.04.2009, Uz-B. 1089.

Schizophyllaceae Quéf.**3.77. *Schizophyllum commune*** Fr.

On stump of willow, Bingöl, Aftor location, the gardens, 38°52.390'N, 40°31.633'E, 1049 m, 05.05.2008, Uz-B. 581; on stump of cherry (*Prunus cerasus*), Bingöl, Kaleönü, Yekmal neighborhood, the gardens, 38°54.481'N, 40°31.894'E, 1078 m, 04.10.2008, Uz-B. 862; on stump of poplar, Bingöl, industrial sites side, the gardens, 38°54.331'N, 40°32.010'E, 1063 m, 01.11.2008, Uz-B. 989.

Strophariaceae Singer & A.H. Sm.**3.78. *Agrocybe molesta*** (Lasch) Singer

Under poplar, Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 19.05.2007, Uz-B. 289.

3.79. *Agrocybe paludosa* (J.E. Lange) Kühner & Romagn.

On dead wood, Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 20.05.2008, Uz-B. 742.

3.80. *Deconica merdaria* (Fr.) Noordel.

On dung, Bingöl, Kültür neighborhood, İnalı place, 38°52.639'N, 40°31.321'E, 1081 m, 14.05.2008, Uz-B. 643.

3.81. *Leratiomyces squamosus* (Pers.) Bridge & Spooner

Under fir, Genç, Tarlabası village exit, 38°41.580'N, 40°29.291'E, 1276 m, 05.05.2009, Uz-B.1233.

3.82. *Pholiota aurivella* (Batsch) P. Kumm.

On willow, Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 09.11.2008, Uz-B. 1060.

3.83. *Pholiota conissans* (Fr.) M.M. Moser

Under poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 924.

3.84. *Pholiota gummosa* (Lasch) Singer

Under willow, Solhan-Bingöl highway, Alpet petrol station back, 38°57.318'N, 40°59.020'E, 1273 m, 10.11.2006, Uz-B. 95.

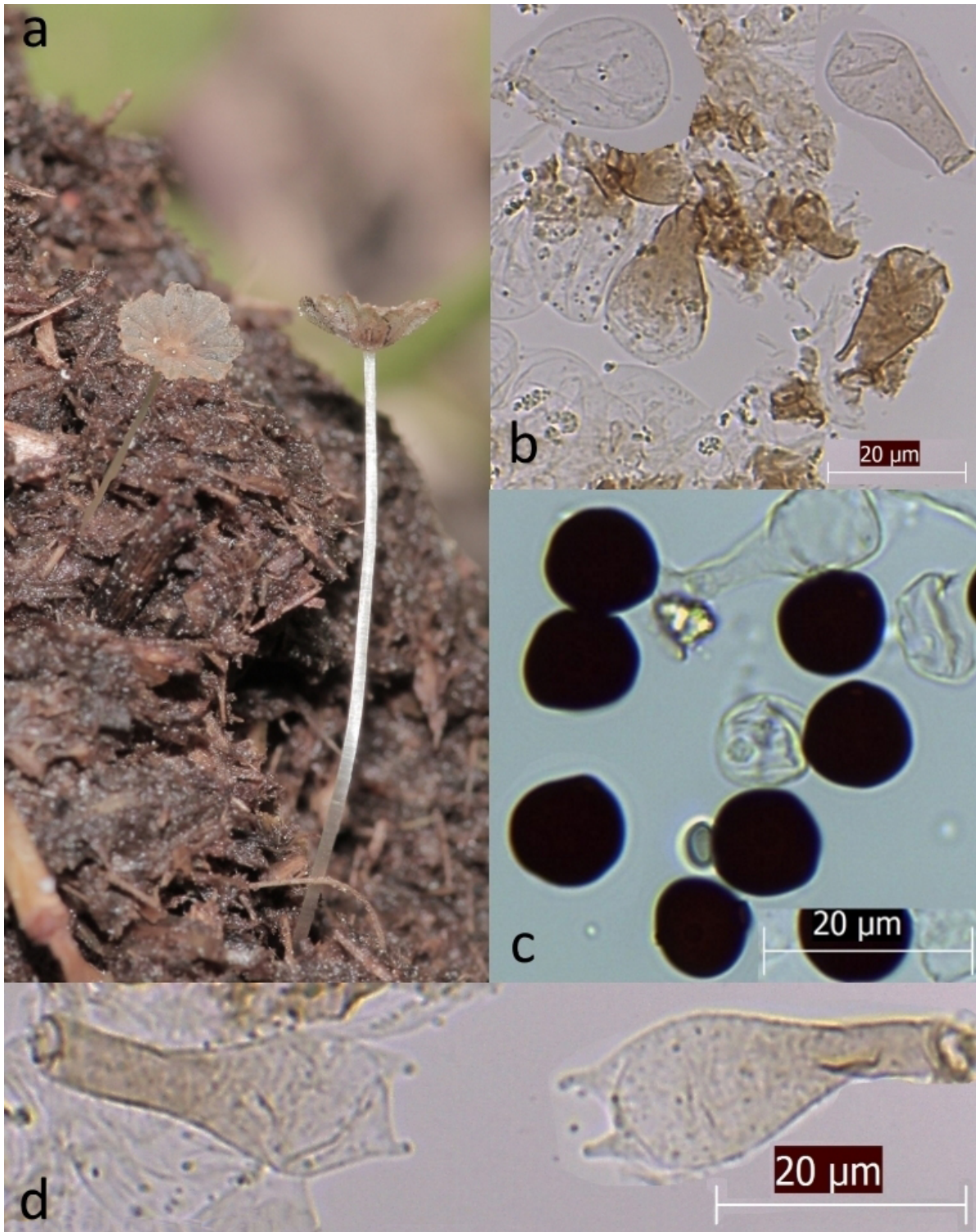


Figure 10. *Coprinopsis cordispora*: a) mature basidiocarps, b) cystidia, c) basidiospores, d) basidia.

3.85. *Pholiota tuberculosa* (Schaeff.) P. Kumm.
On remnants of willow, Bingöl, Aydınso neighborhood,
38°52.426'N, 40°31.617'E, 1055 m, 11.11.2006, Uz-B. 146;

on dead wood, Bingöl, Aşağı Çarşı neighborhood, side
of Çapakçur stream, 38°53.652'N, 40°28.621'E, 1138 m,
18.10.2007, Uz-B. 370.

Tricholomataceae R. Heim ex Pouzar**3.86. *Bonomyces sinopicus*** (Fr.) Vizzini

Under pine, Genç, conifer forest, 38°44.795'N, 40°34.305'E, 1143 m, 17.05.2008, Uz-B.683.

3.87. *Clitocybe costata* Kühner & Romagn.

Under pine, Bingöl, Aşağı Çarşı neighborhood, side of Çapakçur stream, 38°53.652'N, 40°28.621'E, 1138 m, 20.05.2007, Uz-B.310.

3.88. *Clitocybe rivulosa* (Pers.) P. Kumm.

Under poplar, Bingöl-Genç highway, Göynük 2 hamlet, 38°51.714'N, 40°31.921'E, 1038 m, 18.05.2008, Uz-B. 727.

3.89. *Lepista nuda* (Bull.) Cooke

Under oak, Bingöl, Şehitlik forest, 38°52.225'N, 40°31.001'E, 1093 m, 11.11.2006, Uz-B. 124.

3.90. *Melanoleuca humilis* (Pers.) Pat.

Under pine, Genç, conifer forest, 38°44.795'N, 40°34.305'E, 1143 m, 12.11.2006, Uz-B.179.

3.91. *Resupinatus applicatus* (Batsch) Gray

On dead branch of pine, Genç, conifer forest, 38°44.795'N, 40°34.305'E, 1143 m, 14.10.2010, Uz-B.1238.

3.92. *Resupinatus trichotis* (Pers.) Singer

On dead branch of pine, Genç, conifer forest, 38°44.795'N, 40°34.305'E, 1143 m, 14.10.2010, Uz-B.1235.

3.93. *Tricholoma apium* Jul. Schäff.

Under pine, Genç, conifer forest, 38°44.795'N, 40°34.305'E, 1143 m, 17.05.2008, Uz-B. 671.

3.94. *Tricholoma populinum* J.E. Lange

Under poplar, Bingöl, Aşağı Çavuşlar village, 38°55.960'N, 40°45.368'E, 1333 m, 10.11.2006, Uz-B. 108; Bingöl, Aydınsu neighborhood, 38°52.426'N, 40°31.617'E, 1055 m, 11.11.2006, Uz-B. 156; Bingöl-Genç highway, behind of Kandemir petrol station, 38°45.052'N, 40°32.418'E, 982 m, 12.11.2006, Uz-B. 177; Bingöl, industrial sites side, the gardens, 38°54.331'N, 40°32.010'E, 1063 m, 01.11.2008, Uz-B. 985.

Boletales**Boletaceae** Chevall.**3.95. *Hortiboletus rubellus*** (Krombh.) Simonini, Vizzini & Gelardi

Under poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 914.

Coniophoraceae Ulbr.**3.96. *Coniophora arida*** (Fr.) P. Karst.

On stump of poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 935.

Paxillaceae Lotsy**3.97. *Paxillus involutus*** (Batsch) Fr.

Under mixed willow and poplar trees, Solhan-Bingöl highway, Alpet petrol station back, 38°57.318'N, 40°59.020'E, 1273 m, 10.11.2006, Uz-B. 100; under

poplar, Bingöl, Aşağı Çavuşlar village, 38°55.960'N, 40°45.368'E, 1333 m, 10.11.2006, Uz-B. 107; Bingöl-Genç highway, behind of Kandemir petrol station, 38°45.052'N, 40°32.418'E, 982 m, 12.11.2006, Uz-B. 176; Bingöl, Aşağı Çarşı neighborhood, side of Çapakçur stream, 38°53.652'N, 40°28.621'E, 1138 m, 18.10.2007, Uz-B. 378; Bingöl, industrial sites side, the gardens, 38°54.331'N, 40°32.010'E, 1063 m, 02.10.2008, Uz-B. 845; Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 948; Bingöl, industrial sites side, the gardens, 38°54.331'N, 40°32.010'E, 1063 m, 01.11.2008, Uz-B. 987; under oak, Bingöl, Şehitlik forest, 38°52.225'N, 40°31.001'E, 1093 m, 11.11.2006, Uz-B. 141; under willow, Kiğı, center, roadside, 39°18.498'N, 40°20.865'E, 1495 m, 20.09.2008, Uz-B. 827.

3.98. **Paxillus vernalis* Watling

Under poplar, Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 929.

Macroscopic and microscopic features

Pileus 60–200 mm across, depressed to funnel shaped, sometimes flattened, smooth or scaly, pale ochraceous, ochraceous brown, yellowish brown, cap margin in-rolled, tomentose to smooth. **Lamellae** running down the stipe; crowded; often becoming convoluted or pore-like at the stipe; yellowish to pale cinnamon or pale olive; bruising brown to reddish brown. **Stipe** 3–9 × 2.5–4 cm; smooth or finely hairy; colored like the cap or paler; bruising brownish to reddish brown. **Spores** 7.5–10 × 5–6 µm; smooth; elliptical (Figure 11).

Rhizopogonaceae Gäum. & C.W. Dodge**3.99. *Rhizopogon roseolus*** (Corda) Th. Fr.

Under pine, Genç, conifer forest, 38°44.795'N, 40°34.305'E, 1143 m, 18.05.2008, Uz-B.712.

Suillaceae Besl & Bresinsky**3.100. *Suillus brevipes*** (Peck) Kuntze

Under pine, Bingöl, behind Yeni neighborhood, 38°52.734'N, 40°28.956'E, 1227 m, 15.06.2008, Uz-B. 818.

Phallales**Phallaceae** Corda**3.101. *Phallus impudicus*** L.

Under willow, Bingöl, Aşağı Çavuşlar village, 38°55.960'N, 40°45.368'E, 1333 m, 10.11.2006, Uz-B. 103.

Polyporales**Fomitopsidaceae** Jülich**3.102. *Laetiporus sulphureus*** (Bull.) Murrill

On willow, Bingöl, Büyüktökören village, 38°50.012'N, 40°34.466'E, 1011 m, 04.10.2008, Uz-B. 867; Karlıova center, roadside, 39°17.994'N, 41°00.645'E, 1847 m, 05.10.2008, Uz-B. 889; Bingöl, Bilaloğlu village, 38°55.372'N, 40°23.814'E, 1294 m, 17.10.2008, Uz-B. 903; Bingöl, Güveçli village, streamside, 38°50.881'N, 40°31.602'E, 1046 m, 18.10.2008, Uz-B. 909.

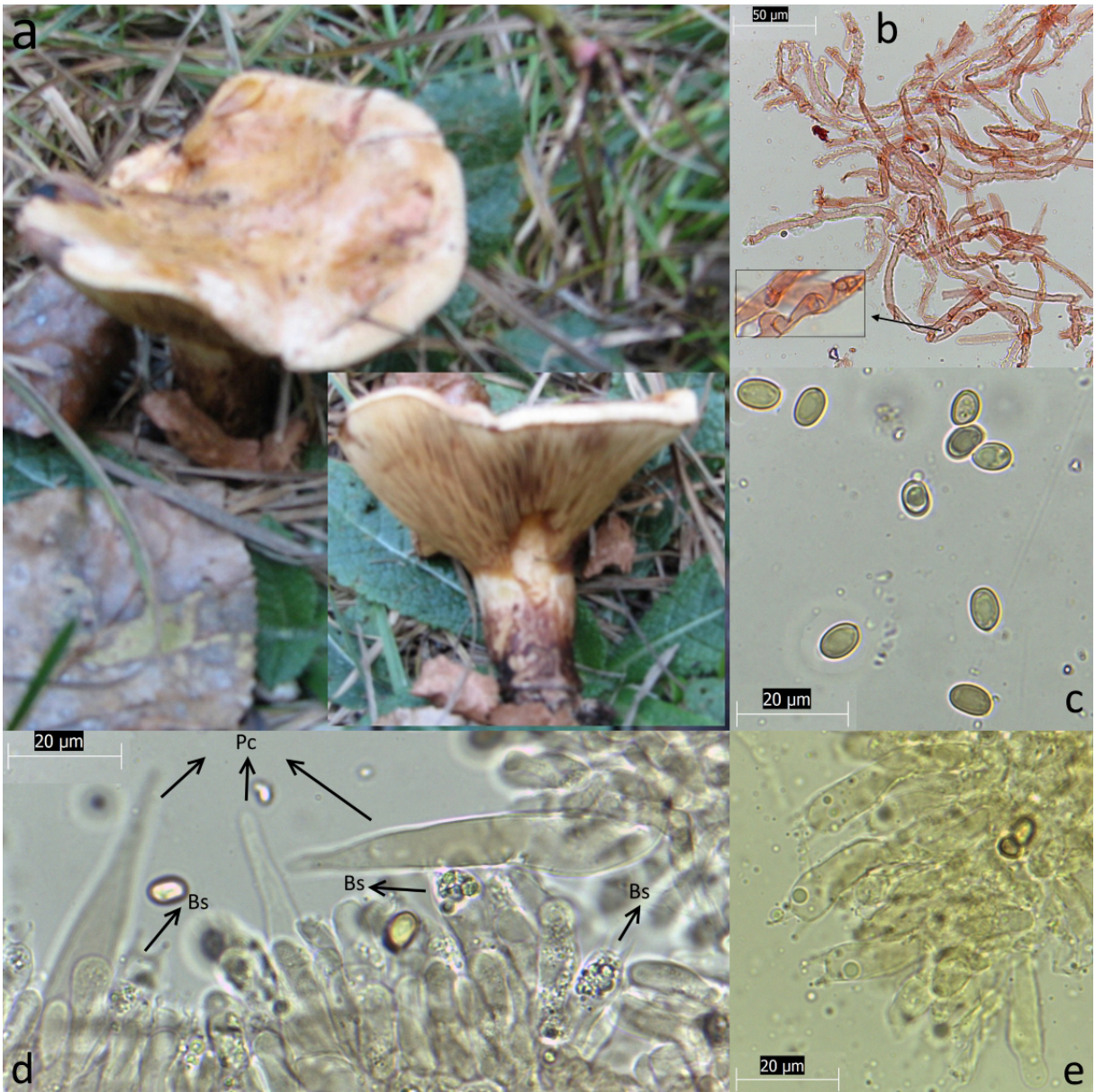


Figure 11. *Paxillus vernalis*: a) basidiocarp, b) pileipellis and clamp (Congo red + distilled water), c) basidiospores (distilled water), d) basidia (Bs) and pleurocystidia (Pc) (KOH), e) basidia (Melzer's reagent).

Ganodermataceae Donk

3.103. *Ganoderma applanatum* (Pers.) Pat.

On stump of poplar, Bingöl-Genç highway, Göynük 2 hamlet, 38°51.714'N, 40°31.921'E, 1038 m, 13.04.2008, Uz-B. 419.

Meruliaceae P. Karst.

3.104. *Atheliachaete calotricha* (P. Karst.) Tura, Zmitr., Wasser & Spirin

On dead branch of oak, Genç, Tarlabası village exit, 38°41.580'N, 40°29.291'E, 1276 m, 05.05.2009, Uz-B.1229.

Polyporaceae Fr. ex Corda

3.105. *Cerioporus squamosus* (Huds.) Quél.

On stump of poplar, Bingöl, Kadran village, streamside, 38°54.339'N, 40°28.259'E, 1097 m, 26.05.2007, Uz-B. 366.

3.106. *Lentinus brumalis* (Pers.) Zmitr.

On dead branch of oak, Genç, Tarlabası village exit, 38°41.580'N, 40°29.291'E, 1276 m, 05.05.2009, Uz-B.1232.

3.107. *Picipes badius* (Pers.) Zmitr. & Kovalenko

On willow, Bingöl, Aydınso neighborhood, 38°52.426'N, 40°31.617'E, 1055 m, 11.11.2006, Uz-B. 148.

3.108. *Trametes trogii* Berk.

On stump of poplar, Bingöl, DSİ garden, 38°54.069'N, 40°30.356'E, 1064 m, 06.05.2007, Uz-B. 251; Bingöl, Ekinyolu village, 38°54.578'N, 40°34'525'E, 1051 m, 19.05.2007, Uz-B. 285; on stump of willow, Bingöl, side of Çapakçur stream, 38°53.635'N, 40°28.671'E, 1134 m, 04.10.2008, Uz-B. 879.

Russulales**Stereaceae Pilát****3.109. *Stereum hirsutum* (Willd.) Pers.**

On dead branch of oak, Genç, Tarlabası village exit, 38°41.580'N, 40°29.291'E, 1276 m, 05.05.2009, Uz-B.1228.

3.110. *Stereum rugosum* Pers.

On dead branch of oak, Genç, Tarlabası village exit, 38°41.580'N, 40°29.291'E, 1276 m, 05.05.2009, Uz-B.1227.

Thelephorales**Thelephoraceae Chevall.****3.111. *Thelephora terrestris* Ehrh**

Under pine, Bingöl-Genç highway, Şeyh Ahmet streamside, 38°46.540'N, 40°32.235'E, 1000 m, 27.05.2006, Uz-B. 11.

Tremellales**Tremellaceae Fr.****3.112. *Tremella mesenterica* Schaeff.**

On dead branch of poplar, Bingöl, Ekinyolu village, streamside, 38°54.575'N, 40°34.568'E, 1050 m, 20.05.2008, Uz-B. 759.

4. Discussion

As a result of the studies carried out on 1241 samples collected during field surveys within the boundaries of Bingöl Province, 112 species belonging to 10 orders, 38 families, and 68 genera were identified. Seventeen of them belong to Ascomycota and 95 to Basidiomycota.

Eighty-nine species have previously been reported from the region by local studies (Uzun et al., 2009, 2010a, 2010b, 2013, 2014; Kaya et al., 2010). Together with the

newly determined 112 species, the total current taxa number is increased to 201.

The most populous families in the region are Agaricaceae (19), Psathyrellaceae (10), Tricholomataceae (9), and Strophariaceae (8), respectively. This distribution conforms to the climatic characteristics and vegetation of the region.

Forty-five of the determined taxa are edible, 49 are inedible, and 18 are poisonous (Figure 12). However, only 15 species, *Agaricus arvensis*, *A. bisporus*, *A. bitorquis*, *A. campestris*, *A. litoralis*, *A. macrocarpus*, *A. sylvicola*, *Lepiota clypeolaria*, *L. erminea*, *Leucoagaricus leucothites*, *M. procera*, *Pleurotus eryngii*, *P. ostreatus*, *Lentinus tigrinus*, and *Lactarius controversus*, are collected and consumed by local residents.

Some local names for macrofungi are also used by the locals. Macrofungi growing on trees or wood residues are called "sung" and those growing on soil are called "klawek". *Pleurotus eryngii* is called "kankor", especially in the Karlıova district, and *P. ostreatus* is known as "darwela" in the Genç district. Brown and blackish macrofungi such as *Melanoleuca* and *Pluteus* species are generally called "yılan mantarı". *Coprinus comatus* and *Coprinellus micaceus* are known as "eşek mantarı" and regarded as poisonous. *Stropharia coronilla* is regarded as inedible and called "kefgarik". *Fomes fomentarius* is known as "puya" and elderly citizens mention its use as fire fuel in historic times. Although *Morchella* species are favored for eating in many other provinces of Turkey, they are known as poisonous in this region.

Species identified in the province were compared with the studies carried out close to the region by Yıldız and Ertekin (1997), Demirel et al. (2003), Keleş and Demirel (2010), Akçay et al. (2010), Acar et al. (2015), and Demirel et al. (2016) and almost 50% similarity was observed between the determined taxa in these regions and Bingöl.

Ten of the determined species (*Orbilina auricolor*,

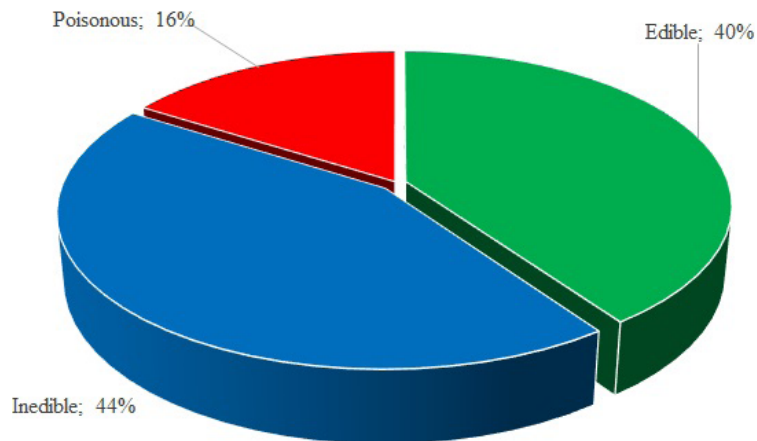


Figure 12. Edibility status of the determined species.

O. luteorubella, *Mollisia lividofusca*, *Calycina languida*, *Vibrissea filisporia*, *Iodophanus carneus*, *Amanita gilbertii*, *Conocybe brachypodii*, *Coprinopsis cordispora*, and *Paxillus vernalis*) were identified for the first time from Turkey. Among them *Iodophanus carneus* is new at the genus level.

Orbilina species grow on rotten wood of hardwoods (Cannon and Kirk, 2007). *O. curvatispora* also has curved ascospores like *O. auricolor*, but spores of *O. curvatispora* are narrower and the apothecium is urceolate when young (Breitenbach and Kränzlin, 1984), whereas the apothecia of *O. auricolor* are never urceolate. *O. luteorubella* and *Hyalorbilia inflatula* are quite similar, but *H. inflatula* has unstalked asci arising from croziers, an excipulum of textura prismatica, and filiform paraphyses a bit clavate but not knob-headed as in most species of *Orbilina* (Baral, 1994; Beug et al., 2014).

Mollisia lividofusca is similar to *M. cinerea* morphologically, but its spores are longer and its asci are shorter than those of the other, and the spores show biseriate or irregular arrangement depending on the preparation method. Moreover, *M. cinerea* grows on the ruins of oak and beech trees, while *M. lividofusca* has been identified on a wide range of deciduous substrates (Breitenbach and Kränzlin, 1984; Thompson, 2013).

Vibrissea filisporia differs from the more common *V. leptospora* by shorter asci and spores. It is closely related to *V. guernisacii*, which has asci of 160–190 µm and spores 100–145 µm in length (Breitenbach and Kränzlin, 1984).

Iodophanus carneus is easily observed when cultivated on various kinds of dung. The salmon-pink color and the bluing of the hymenium as well as the ascus walls in iodine are reliable identifying characteristics. The fine punctuation of the spores can be observed with certainty only under oil-immersion (Breitenbach and Kränzlin, 1984).

Calycina languida, *Pezizella parilis*, and *P. vulgaris* are quite similar in appearance, but they can be distinguished easily from each other by ascospore features. The ascospores of *P. parilis* are 8–14 × 1.5–2 µm, 1-septate,

and constricted (Thompson, 2013), while the ascospores of *P. vulgaris* are 5.5–9 × 0.9–1.4 µm, curved, inequilateral, and with 1 or 2 small apical guttules. *P. vulgaris* also has inamyloid asci (Morozova, 2014).

Amanita gilbertii is the most similar to *A. cylindrispora* Beardslee morphologically. Recent molecular studies support morphological studies concerning a close relationship between the two species (Justo et al., 2010), but *A. cylindrispora* has elongate bulbs, narrow spores, and fruiting bodies deeply inserted in the soil, often associated with “leaky” ecosystems (Tulloss, 2005).

Conocybe brachypodii grows mostly in rather moist deciduous forests, along roadsides, or in herbal layers, and more rarely in grassy places under shrubs, in grasslands, or in grassy coniferous forests (Hausknecht, 2009). The closest species to *C. brachypodii* morphologically is *C. mesospora*, but it has a brighter colored (yellow-orange to brownish orange) cap, slightly larger spores, and a constantly negative ammonia reaction.

Coprinopsis cordispora differs from similar species (*C. cardiasporus*, *C. ephemeroideis*, *C. patouillardii*) in the presence of lageniform cheilocystidia. Moreover, *C. patouillardii* does not occur on dung, *C. ephemeroideis*, may sometimes also possess sparse lageniform cheilocystidia and has a small ring, and *C. cardiasporus* has differently shaped spores, which are heart-shaped and much narrower (Prydiuk, 2011).

Paxillus vernalis grows scattered or gregariously and is mycorrhizal with quaking aspen or paper birch; it is apparently also capable of existing as a saprobe on wood and woody debris. *P. vernalis* and *P. involutus* are morphologically very similar, but *P. vernalis* has a thicker stipe and the length of the pleuro- and cheilocystidia are longer at about 15–20 µm (Lincoff, 2008).

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