

New records of microfungal genera from Mt. Strandzha in Bulgaria (south-eastern Europe). II

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Abstract. Twenty species of ascomycetous and anamorphic fungi from twenty genera are reported for the first time from Mt. Strandzha in Bulgaria.

Key words: *Pezizomycotina*, anamorphic fungi, Bulgaria, fungal diversity, Mt. Strandzha

Introduction

In 2005 during field investigations in Mt. Strandzha in Bulgaria twenty genera that included twenty species of non-lichenized *Pezizomycotina* and anamorphic fungi were collected and identified. These collections are reported herein. All genera of these fungi are new records for the mycobiota of Bulgaria.

Materials and methods

Specimens of the fungi were taken to the laboratory and examined under a Leica DM-E compound microscope. Sections were hand cut using a razor blade. The fungi were identified using the relevant literature (Popushoy 1971; Shvartsman *et al.* 1973; Shvartsman & Kazhiyeva 1976; Shkarupa 1980; Dennis 1981; Holubová-Jechová 1984; Ellis & Ellis 1987; Huhndorf & Haris 1996; Ignatavičiūtė & Treigienė 1998; Mel'nik 2000; Miller & Huhndorf 2004; Wu & Zhuang 2005; Vasilyeva *et al.* 2007; Rogers *et al.* 2008). The author abbreviations of fungi are according to

Index Fungorum (www.indexfungorum.org, accessed 2011). Host plants were identified using the *Flora of Turkey and East Aegean Islands* (Davis 1965–1985). Taxa, its families and author citations were listed according to Cannon & Kirk (2007), Kirk *et al.* (2008), and *Index Fungorum* (www.indexfungorum.org, accessed 2011). Families and species names are listed in alphabetical order in text. All specimens are deposited at the Mycological Collection of the Arts and Sciences Faculty of Ahi Evran University (AhEUM), Kırşehir, Turkey.

Abbreviation: EH: Collection number of Elşad Hüseyin.

List of specimens

Bolinales

Boliniaceae

Camaropella lutea (Alb. & Schwein.) Lar.N. Vassiljeva

Stromata erumpent, yellowish-cream, then the surface blackening, rounded or ellipsoid, 1.5–2.5 cm in diam. Ascospores immersed, black, globose, 450–500 µm in diam. Asci 8-spored, cylindrical, 50–60 × 4–5 µm. Ascospores

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unicellular, monostichous, olivaceous, fusiform, with round ends, 13–15 × 1.5–2 µm.

On rotten wood of *Carpinus betulus* L. Bulgaria: Bourgas Distr., Vitanovo Reserve, 42°00'123" N, 27°26'327" E, 355 m, 21 Jun 2005, EH (AhEUM 125).

Capnodiales

Mycosphaerellaceae

Septocylindrium leucum Bayl. Ell. & O.P. Stansf. [anamorphic *Mycosphaerella*]

Colonies white, densely. Mycelia hyaline, septate, branched, mostly endophytic. Conidiophores very short, hyaline, simple. Conidia hyaline, in repeatedly branched chains, 1–3-septate, cylindrical, truncate at each end, 10–15 × 1.5–2 µm.

On squamule of fallen cone of *Pinus nigra* Arn. subsp. *pallasiana* (Lamb.) Holmboe. Bulgaria: Bourgas Distr., Malko Turnovo, Chereskata, 42°00'572" N, 27°31'932" E, 456 m, 20 Jun 2005, EH (AhEUM 87a).

Chaetosphaeriales

Chaetosphaeriaceae

Dictyochaeta fertilis (S. Hughes & W.B. Kendr.) Hol.-Jech. [anamorphic *Chaetosphaeria*]

Colonies prostrate, greyish brown to dark brown, pilose. Conidiophores pale brown, septate, straight, 70–100 × 3–5 µm. Conidia hyaline, unicellular, curved, fusiform, cylindrical with rounded ends, 12.5–15 × 2–2.5 µm, with 5–10 µm long one setula at both ends.

On fallen acorns and cupules of *Quercus hartwissiana* Steven. Bulgaria: Bourgas Distr., between Gramatikovo and Kondolovo, 41°05'799" N, 27°38'442" E, 266 m, 22 Jun 2005, EH (AhEUM 145a).

Eurotiales

Trichocomaceae

Paecilomyces variotii Bainier [anamorphic *Byssochlamys*]

Colonies yellowish or brownish, prostrate. Conidiophores septate, mostly short, form a biwhorled penicillium, 12–20 × 3–3.5 µm. Conidia unicellular, hyaline, then yellowish or brownish, ellipsoid, fusiform, 4.5–6.5 × 2–2.5 µm.

On rottened wood of *Fagus orientalis* Lipsky. Bulgaria: Bourgas Distr., Malko Turnovo, Sredoka Reserve, 42°01'095" N, 27°31'857" E, 256 m, 20 Jun 2005, EH (AhEUM 102), together with *Bactrodesmium longisporum* M.B. Ellis, EH (AhEUM 102b).

Helotiales

Dermateaceae

Cenangella hartzii Rostr.

Ascomata superficial, gregarious, sessile, wax-like, clay-coloured or cream, patelliform, 300–300 µm in diam. Asci 8-spored, cylindrical-clavate, (55–) 65–75 × 5–5.5 µm (including pedicel). Ascospores hyaline, distichous, 1-septate, fusiform, 9–11 (–12) × 2–2.5 µm.

On dead branches of *Carpinus betulus*. Bulgaria: Bourgas Distr., between Gramatikovo and Kondolovo, 42°05'805" N,

27°38'427" E, 266 m, 22 Jun 2006, EH (AhEUM 147e), together with *Glonium lineare* De Not., EH (AhEUM 147d).

Helotiaceae

Pseudospiropes bachijoensis Matsush. [anamorphic *Strossmayeria*]

Colonies broad prostrate, dark brown, velvet-like. Conidiophores solitary, upright, straight, unbranched, with sympodial proliferation, dark brown, 90–115 µm long, 6–7 µm in width at the base and 5–6 in width at the apex. Conidia moderate brown, 6–7-pseudoseptate, with 3–4 µm width navel, widely fusiform, 33–42 × 10–12 µm.

On very wet wood of *Carpinus betulus*. Bulgaria: Bourgas Distr., Vitanovo Reserve, 42°00'123" N, 27°26'327" E, 355 m, 22 Jun 2005, EH (AhEUM 126).

Hyaloscyphaceae

Brunnipila clandestina (Bull.) Baral

Ascomata superficial, solitary, scattered or in small groups, grayish brown or yellowish brown, globose, then patelliform, 0.2–0.7 mm in diam, with septate, clear brown, 70–120 × 5 µm hairs. Asci 8-spored, stenoclavate, 40–50 × 4–5 µm. Ascospores hyaline, unicellular, distichous, fusiform, 4–5 × 1–1.5 µm.

On damp decorticated wood of *Fagus orientalis*. Bulgaria: Bourgas Distr., Malko Turnovo, Sredoka Reserve, 42°01'095" N, 27°31'857" E, 256 m, 20 Jun 2005, EH (AhEUM 102a).

Hypocreales

Nectriaceae

Gibberella baccata (Wallr.) Sacc.

Stromata immersed becoming erumpent, subglobose. Ascomata in groups, dark-blue, spherical, 250–300 µm in diam. Asci 8-spored, oblong-clavate, 70–90 × 9–10 µm. Ascospores light yellowish, 1–3-septate, ellipsoid, occasionally fusiform, 15–30 × 6.5–7.7 µm.

On thin dead branches of *Sambucus nigra* L. Bulgaria: Bourgas Distr., Vitanovo Reserve, 42°00'505" N, 27°26'721" E, 320 m, 21 Jun 2005, EH (AhEUM 112).

Incertae sedis

Bactrodesmium longisporum M.B. Ellis [anamorphic *Stuartella*]

Sporodochia scattered, shining, black. Conidiophores bundle-shaped, simple or branched, septate, hyaline to pale brown, 15–20 (–50) × 1–3 µm. Conidia pale brown to brown, 8–20-septate, awl-shaped or stenoclavate, 60–70 × 7–7.5 µm.

On rotten wood of *Fagus orientalis* Lipsky. Bulgaria: Bourgas Distr., Malko Turnovo, Sredoka Reserve, 42°01'095" N, 27°31'857" E, 256 m, 20 Jun 2005, EH (AhEUM 102b), together with *Paecilomyces varioti* Bainier, EH (AhEUM 102).

Ellisembia leptospora (Sacc. & Roum.) W.P. Wu [anamorphic *Sordariomycetes*]

Colonies prostrate, greenish brown, bristly. Stromata occasionally formed. Conidiophores moderate brown to dark

brown, straight or curved, simple, septate, filiform, 35–100 × 3.5–5 µm. Conidia pale brown or straw coloured, 7–11 septate, obclavate, 40–47 × 7.5–9 µm.

On decorticated dead branches of *Sambucus nigra*. Bulgaria: Bourgas Distr., Mt. Strandzha, Vitanovo Reserve, 42°00'109" N, 27°26'444" E, 336 m, 21 Jun 2005, EH (AhEUM 123).

Monodictys castaneae (Wallr.) S. Hughes [anamorphic *Dothideomycetes*]

Colonies broadly prostate, dark grey to black. Conidiophores unbranched or irregular branched, straight or sinuate, hyaline to brown. Conidia moderate reddish brown to dark-reddish brown, warty, pyriform, clavate, almost globose or irregular, 17–40 (–57) × (10–) 15–27 µm.

On decorticated wood of *Quercus robur* L. subsp. *robur*. Bulgaria: Bourgas Distr., Malko Turnovo, Chereskata, 42°00'623" N, 27°31'985" E, 438 m, 20 Jun 2005, EH (AhEUM EH 93).

Mycothyridium lividum (Pers.) Petr.

Ascomata scattered, black, immersed, erumpent with ostioles, cymbiform or ellipsoid, 0.7–0.8 mm long, 250–300 µm high. Asci 8-spored, cylindrical, 100–115 × 12–15 µm. Ascospores monostichous, brown, with 5 transverse and 2 complete or incomplete longitudinal septa, ellipsoid, 15–17.5 × 7.5–9 µm.

On dead branches of *Rhododendron ponticum* L. subsp. *ponticum*. Bulgaria: Bourgas Distr., Ouzounboudzhak Reserve, 41°58'213" N, 27°47'293" E, 260 m, 23 Jun 2005, EH (AhEUM EH 172).

Stilbospora macrosperma Pers. [anamorphic *Pezizomycotina*]

Conidiomata acervulata, immersed, becoming erumpent, dark chestnut, black, convex, round, 1–3 mm in diam. Conidiophores hyaline, septate, cylindrical, 15–60 × 5–6.5 µm. Conidia dark olivaceous brown, 3-septate, cylindrical with round ends, 37–45 × 10–12 µm.

On dead thin branches of *Carpinus betulus*. Bulgaria: Bourgas Distr., between Gramatikovo and Kondolovo, 42°05'805" N, 27°38'424" E, 260 m, 22 Jun 2005, EH (AhEUM 147a).

Strigulaceae

Oletheriostrigula papulosa (Durieu & Mont.) Huhndorf & R.C.Harris [anamorphic *Dothideomycetes*]

Ascomata amphigenous, numerous, immersed, black, globose, 130–150 µm in diam. Asci 8-spored, short clavate, 65–85 × 13–15 µm. Ascospores hyaline or pale coloured, distichous, 3-septate, 4-guttulate, straight or slightly curved, ellipsoid-fusiform, 18–20 × 5–5.5 µm.

On living leaves of *Rhododendron ponticum*. Bulgaria: Bourgas Distr., Silkosiya Reserve, 42°05'321" N, 27°45'267" E, 270 m, 20 Jun 2005, EH (AhEUM 155a), together with *Bactrodesmium longisporum* M.B. Ellis, EH (AhEUM 102b).

Pezizales

Pyronemataceae

Trichophaeopsis bicuspis (Boud.) Korf & Erb

Ascomata sessile, light-brown, patelliform, 1–3 mm in diam, with 500–600 × 15 µm dark brown septate setae. Asci 8-spored, cylindrical, 240–250 × 16–18 µm. Ascospores hyaline, unicellular, monostichous, 1-guttulate, widely-ellipsoid, almost oval, 16–20 × 11–15 µm.

On rotten wood of *Carpinus betulus*. Bulgaria: Bourgas Distr., Vitanovo Reserve, 42°00'123" N, 27°26'277" E, 355 m, 21 Jun 2005, EH (AhEUM 125).

Pleosporales

Mytilinidiaceae

Lophium mytilinum (Pers.) Fr.

Ascomata in groups, superficial, black, shining, like tiny muscules, 1–1.5 mm in long and, 0.5–0.6 mm in width. Asci 8-spored, cylindrical, 180–200 × 6–9 µm. Ascospores hyaline or straw coloured, parallel, up to 21-septate, 170–180 × 2–2.5 µm.

On squamules of fallen cones of *Pinus nigra* subsp. *pallasiana*. Bulgaria: Bourgas Distr., Malko Turnovo, Chereskata, 42°00'572" N, 27° 31'932" E, 456 m, 20 Jun 2005, EH (AhEUM 87).

Sordariales

Helminthosphaeriaceae

Echinospaeria canescens (Pers.) A.N. Mill. & Huhndorf

Ascomata superficial, gregarious, with unicellular, pale brown setae, globose or depressed-globose, 320–400 µm in diam. Asci 8-spored, spindle-clavate, 120–150 × 10–12 µm. Ascospores monostichous, unicellular, occasionally 1-septate, hyaline, guttulate, cylindrical, 30–35 × 4–5 µm.

On rotten wood of *Fagus orientalis*. Bulgaria: Bourgas Distr., Silkosiya Reserve, 41°05'340" N, 27°45'168" E, 305 m, 22 Jun 2005, EH (AhEUM 150d).

Trichosphaeriales

Trichosphaeriaceae

Brachysporium obovatum Keissl. [anamorphic *Cryptadelphia*]

Colonies prostate, downy, brown to dark brown. Conidiophores brown to dark brown, straight or curved, unbranched, septate, 110–380 × 6–8 µm. Conidia 2-septate, obovoid, 15–22 × 7–10 (–12) µm, basal cell almost hyaline, apical cell brown or pale brown.

On rotten wood of *Fagus orientalis*. Bulgaria: Bourgas Distr., Malko Turnovo, Sredoka Reserve, 42°01'095" N, 27°31'857" E, 256 m, 20 Jun 2005, EH (AhEUM 102).

Xylariales

Incertae sedis

Dinemasporium pleurospora (Sacc.) Shkarupa [anamorphic *Phomatospora*]

Conidiomata scattered, solitary or per 2–3, black, slightly immersed, globose-conical or pyriform, 180–250 µm in diam. Conidiophores hyaline, branched, filiform, 25–40 ×

1.5–2.5 µm. Conidia hyaline, unicellular, short cylindrical, ovoid or ellipsoid, 3–5 × 1.5–2 µm.

On dead wood of *Sorbus aucuparia* L. Bulgaria: Bourgas Distr., Ouzounboudzhak Reserve, 41°58'627" N, 27°47'167" E, 242 m, 23 Jun 2005, EH (AhEUM 171b).

Xylariaceae

Nemania diffusa (Sowerby) Gray

Stromata brownish black, flattened, in group, oblong, 1–3 cm long. Ascomata subglobose, with medium papilla, 300–350 µm in diam. Asci 8-spored, cylindrical, 90–100 × 6–7.5 µm; Ascospores monostichous, unicellular, blackish brown, biguttulate, ovoid, ellipsoid or fusiform, 12.5–15 × 5–6 µm.

On bark of thick dead attached branches and decorticated wood of *Alnus glutinosa* (L.) Gaertner subsp. *glutinosa*. Bulgaria: Bourgas Distr., entrance of Vitanovo Reserve, Ayu valley, 42°00'433" N, 27°26'747" E, 330 m, 21 Jun 2005, EH (AhEUM 109c).

Discussion

The fungi described in this work were in consort relationships with 9 higher plants species from 6 families. The collected 20 species belong to three trophic groups. Xylotrophs (16 species) are richest in the number of species and dominant among the trophic groups. Carpotrophs include *Dictyochoeta fertilis*, *Lophium mytilinum* and *Septocylindrium leucum*. Phyllostrophs are represented by *Oletheriostrigula papulosa* only. The collection includes generally holarctic and paleoarctic elements of boreal geographical type.

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