

New records of non-lichenized ascomycetes from Mt. Strandzha in Turkey (south-eastern Europe)

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Received 24 April 2007 / Accepted 30 October 2007

Abstract. Twenty species of non-lichenized ascomycetes are reported from Mt. Strandzha in Turkey. Fifteen of these species are recorded from the Turkish part of this mountain area for the first time.

Key words: ascomycetes, fungal diversity, microfungi, Mt. Strandzha, Turkey

Introduction

Field investigations in Mt. Strandzha in Turkey were carried out in April - June 2007 and resulted in the collection and identification of twenty species of non-lichenized ascomycetes. Data on these collections are reported herein. Among all studied, fifteen species, asterisked in the text, represent new records for the ascomycetes of Mt. Strandzha in Turkey.

Material and Methods

The investigations were carried out on dried specimens, rehydrated in water. Microscopic features were observed in distilled water and in lactophenol on an Amplival Carl-Zeiss microscope. Taxonomic studies, regional monographs, and contributions on ascomycetes have been used for determination of the listed species (Müller 1950; Holm 1952, 1957; Arx & Müller 1954; Munk 1957; Greenhalgh & Morgan-Jones 1964; Gremmen 1966; Barr 1978; Dennis 1978; Monod 1983; Shoemaker 1984; Sivanesan 1984; Rogers *et al.* 2002). The specimens are housed in SOMF (Mycological Collection of the Institute of Botany, Bulgarian Academy of Sciences, Sofia).

New records

Annulohyphoxylon multifforme (Fr. : Fr.) Y.M. Ju, J.D. Rogers & H.M. Hsieh

On bark of branches from *Fagus orientalis* Lipsky: Kuru Dere valley, 11 Apr 2007, D. Stoykov (DS) (SOMF 26 189).

**Apiognomonina acerina* (Starbäck) M. Monod

Ascomata 260-375 × 135-210 µm, black, elliptic, immersed in leaf tissue. **Beak** 265-310 × 45-65 µm, central to lateral, straight or curved, black. **Asci** 60-75 × 9-16 µm, 8-spored, apical ring *ca* 3.5 µm. **Ascospores** 17-23 × 4-5.5 µm, curved, septum at 1/4 of the spore length; with two or many guttules per cell.

On dead leaves of *Acer pseudoplatanus* L.: along the road to Kuru Dere, 11 Apr 2007, DS (SOMF 26 177).

**A. errabunda* (Roberge) Höhn.

Ascomata 170-210 µm in diam, black, globose, immersed in leaf tissues, veins, and petioles. **Beak** 110-230 × 35-55 µm, central, black, in the upper end brownish. **Asci** 32-55 × 7-11 µm, 8-spored, apical ring *ca* 3 µm. **Ascospores** (12-) 13-17 × (2-) 2.5-3.5 (-4) µm, hyaline, septum at 1/6 of the spore length, without appendages.

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On dead leaves of *Fagus orientalis*: along the road to Kuru Dere, 11 Apr 2007, DS (SOMF 26 178).

**Apiosporopsis carpinea* (Fr. : Fr.) Traverso

Ascomata 100 × 115 µm, dark, spheroid, immersed in leaf tissues. **Asci** 55-65 × 11-12 µm, apical ring *ca* 2.5 µm, 8-spored. **Ascospores** 14.3-16.5 × 4.4-7.7 (15.5 ± 0.8 × 6.1 ± 0.8) (*n* = 50) µm, hyaline, broadly ellipsoid, biseriolate in the ascus, guttulate.

On leaves and petioles of *Carpinus betulus* L.: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 152); Kadın Kule valley, along Velika river, 12 Apr 2007, DS (26 172, 26 312).

**Botryosphaeria visci* (Kalchbr.) Arx & E. Müll. [Anam.: *Sphaeropsis visci* (Alb. & Schwein.) Sacc.]

Conidiomata 250-500 µm in diam, darkened, stromatic, erumpent, scattered in leaf tissues, immersed below the epidermis, single. **Conidia** 35-55 × 16-27 µm, numerous, ovoid to sometimes irregular, one celled, hyaline to yellowish.

On dry leaves and twigs of *Viscum album* L.: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 154).

Daldinia concentrica (Bolton : Fr.) Ces. & De Not. s. lat.

Stromata depressed-globose, solitary, with inconspicuous perithecial mounds, 2-3 cm diam, 1.2-1.8 cm high; blackened. The tissue between perithecia greyish brown to brown, woody; the tissue below the perithecial layer composed of alternating zones, the darker zones dark brown, woody, 0.2-0.6 mm thick, the lighter zones brown, persistent, 0.5-1 mm thick.

On dead branch of oak tree: flooded forests of İğneada, 13 Apr 2007, DS (SOMF 26 192).

Diatrype disciformis (Hoffm.) Fr.

Stromata 2-3 × 1-1.5 mm, circular, erumpent, scattered on the substratum, dark brown. **Asci** 27-30 (-33) × (5-) 7.5-11 µm. **Ascospores** (9-) 10-12 × 1.5-2 µm, almost hyaline.

On twigs of *Fagus orientalis*: Kuru Dere, 11 Apr 2007, DS (SOMF 26 302); Kadın Kule valley, 12 Apr 2007, DS (SOMF 26 156).

**D. stigma* (Hoffm.) Fr.

Stromata broadly expanded, irregular, brownish. **Asci** 45-60 × 4.5-7 µm, 8-spored, stipitate. **Ascospores** 8.5-13 × 1.5-2.5 µm, hyaline.

On dead twigs of *Fagus orientalis*: Kuru Dere valley, 11 Apr 2007, DS (SOMF 26 157); Kadın Kule valley, 12 Apr 2007, DS (SOMF 26 158).

**Gnomonia comari* P. Karst.

Ascomata 180-270 µm, black, globose, immersed in stem tissues. **Beak** 240-350 × 40-85 µm, black, central, papillate. **Asci** 30-37 × 4.5-5.5 µm, 8-spored, apical ring *ca* 1 µm. **Ascospores** 7.5-10 (-11) × 2-2.2 µm, two celled, straight, septum submedian.

On dead stems of *Sanguisorba officinalis* L.: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 159).

**G. gnomon* (Tode : Fr.) J. Schröt.

Ascomata 200-280 µm diam, black, depressed globose, collapsing cupulate around the base of beak when dry, immersed in leaf tissue, veins and petioles. **Beaks** 240-560 × 25-45 µm, central. **Asci** 24-35 × 5.5-9 µm, 8-spored, apical ring *ca* 1 µm. **Ascospores** 14-18 × 1.3-2.2 µm, straight, with supramedian septum, with 2 guttules per cell.

On dead leaves of *Corylus avellana* L.: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 179); old iron mine near Demirköy, 12 Apr 2007, DS (SOMF 26 160).

G. leptostyla (Fr. : Fr.) Ces. & De Not.

Ascomata 200-350 µm. **Beak** 175-250 × 30-45 µm, straight, light brownish, hyaline at the tip. **Asci** 35-55 × 5.5-9.5 µm, 8-spored, apical ring *ca* 3.5 µm. **Ascospores** 15-17 (-21) × 3-3.5 (-4) µm, straight, with median septum, without appendages.

On leaves of *Juglans regia* L.: in the yard of Demirköy Forest Office, 12 Apr 2007, DS (SOMF 26 161); in the yard of forest-tree nursery, not so far from flooded forests of İğneada, 13 Apr 2007, DS (SOMF 26 162).

**G. setacea* (Pers. : Fr.) Ces. & De Not.

Ascomata 140-250 µm, black, single or in groups, immersed in leaf tissues, veins and petioles. **Beak** 400-560 × 25-50 µm, central to eccentric, black, straight to little curved. **Asci** (25-) 28-30 × 7.5-9 µm, 8-spored, apical ring *ca* 1-1.5 µm. **Ascospores** (10-) 11-13.5 × 2-2.5 (-3) µm, straight to little curved, two celled, with appendages at both ends, with 2 globules per cell.

On dead leaves of *Quercus cerris* L. and *Q. polycarpa* Schur: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 163, 26 180, 26 196); ditto, 2 Jun 2007, DS (SOMF 26 303); Kadın Kule valley, along Velika river, 12 Apr 2007, DS (SOMF 26 304); below Mehiada peak, alt. *ca* 820 m, 1 Jun 2007, DS (SOMF 26 197); old iron mine near Demirköy, 12 Apr 2007, DS (SOMF 26 164), between Demirköy and İğneada, 12 Apr 2007, DS (SOMF 26 194). On dead leaves of *Q. cerris*: Kuru Dere, 1 Jun 2007, DS (SOMF 26 190).

**Hypospilina pustula* (Pers. : Fr.) M. Monod

Stromatic capsules swollen, protruding pustuliform above the leaf surface, brown to dark-brown, containing only one ascoma. **Ascomata** perithecioid, 250-400 × 180-230 µm, elliptic, brownish to black. **Beak** 150-200 × 200 µm, short, papillate, lateral, dark colored. **Asci** (50-) 55-70 × 9-13.5 µm, 8-spored, apical ring *ca* 3 µm. **Ascospores** 18-24 (-26) × (3.5-) 4-5 µm, straight, septum median; with two big globules per cell; appendages not present.

On leaves of *Quercus dalechampii* Ten.: old iron mine near Demirköy, 12 Apr 2007, DS (SOMF 26 165). On a leaf of *Q. rubra* L.: in the yard of Demirköy Forest Office, 12 Apr 2007, DS (SOMF 26 166). On leaves of *O. polycarpa*: between Demirköy and İğneada, 12 Apr 2007, DS (SOMF 26 167).

**Kretzschmaria deusta* (Hoffm. : Fr.) P.M.D. Martin

Stromata irregular or crust formed, up to 2-3 mm thick, black, brittle. **Ascomata** with papillate ostioles. **Asci** 250-320 × 13-15 (-17), cylindric, 8-spored. **Ascospores** 25-35 (-40) × 6-10 (-11), fusiform, dark.

On bark of *Fagus orientalis*: Kadın Kule valley, along Velika river, 12 Apr 2007, DS (SOMF 26 168).

**Leptosphaeria acuta* (Fuckel) P. Karst.

Ascomata 350-500 µm in diam, black, immersed in stem tissues. **Beak** papillate, conical. **Asci** (100-) 120-135 × 9-13 µm, 8-spored. **Ascospores** 40-46 × 5.5-6 (-7) µm, (6-) 8-10-septate, hyaline to yellowish, narrowly parabolically rounded at both ends, constricted at the septa.

On dead stems of *Urtica dioica* L., nearby a tree of *Taxus baccata* L.: Kuru Dere, 11 Apr 2007, DS (SOMF 26 169).

**Paraphaeosphaeria rusci* (Wallr.) O. Erikss.

Ascomata 180-230 µm in diam, immersed in plant tissues. **Asci** (52-) 55-80 × 7.5-8.5 (-9.5) µm, 8-spored. **Ascospores** (22.5-) 25-31 × 4.5-5.5 µm (the measure of the widest cell included), fusoid, 4-septate, with many small guttules per cell.

On dry cladodes of *Ruscus aculeatus* L.: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 170) & 2 Jun 2007, DS (SOMF 26 191); flooded forests of Igneada, 1 Jun 2007, DS (SOMF 26 188).

**Plagiostoma alneum* (Fr. : Fr.) Arx

Ascomata 150-230 µm, black, ellipsoid, immersed in leaf tissue, veins and petioles. **Beak** not present. **Asci** 48-55 (-60) × 10-11 (-12) µm, apical ring ca 4 µm. **Ascospores** (16.5-) 17.5-21 × 4-4.5 (-5) µm, straight, with 2 guttules per cell.

On dead leaves of *Alnus glutinosa* (L.) Gaertn.: Kadın Kule valley, along Velika river, 12 Apr 2007, DS (SOMF 26 171).

**P. arnstadtense* (Auersw.) M. Monod

Ascomata 110-185 × 65-110 µm, ellipsoid, immersed in leaves, veins and petioles, abundant. **Beak** not present. **Asci** 45-55 (-60) × 7.5-11 µm, apical ring ca 4 µm. **Ascospores** 15-22 × 3-4.5 µm, straight, with short disciform appendages at both ends; each cell with two big guttules.

On dead leaves of *Carpinus betulus*: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 152); ditto, 2 Jun 2007, DS (SOMF 26 313); Kadın Kule valley, along Velika river, 12 Apr 2007, DS (26 172); below Mehiada peak, alt. ca 820 m, 1 Jun 2007, DS (SOMF 26 200).

**P. inclinatum* (Desm.) M.E. Barr

Ascomata 340-410 µm in diam, black, depressed globose. **Beak** (260-) 400-450 × 35-45(-53) µm, black. **Asci** (35-) 45-50 × (8-) 9-10.5 µm, apical ring ca 3 µm. **Ascospores** 15-18 × 2.2-2.5 (-3) µm, straight, with long filiform appendages at both ends.

On leaves of *Acer campestre* L.: Dupnisa cave, 10 Apr 2007, DS (SOMF 26 173). On leaves of *A. pseudoplatanus*: Kadın Kule valley, 12 Apr 2007, DS (SOMF 26 174); in the yard of Demirköy Forest Office, 12 Apr 2007, DS (SOMF 26 193).

Trochila ilicina (Nees : Fr.) Courtec.

Ascomata 300-500 µm in diam, erumpent, with a circular to broadly elliptical epidermal lid. **Asci** (37-) 62-78 (-90) × (4.6-) 5-7.5 (-9) µm. **Ascospores** (11-) 14-16 × 4.5-5.6 µm, ellipsoid.

On dead leaves of *Ilex aquifolium* L.: Kuru Dere valley, 1 Jun 2007, DS (SOMF 26 314).

Acknowledgements. The field investigation in Turkey has been carried out in the framework of the project *Conservation and sustainable use of biodiversity in Mt. Strandzha* (MAB, UNESCO Contract no. 8759406/2006). The study of C.M. Denchev was supported by the National Science Fund, Bulgarian Ministry of Education and Science (Project no. B-1302). The authors are indebted to an anonymous reviewer for the corrections and comments.

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