

New records of Diaporthales in Bulgaria. I

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Abstract. One genus (*Ditopellina*) and three species (*Ditopellina saccardiana*, *Gnomonia nantensis*, and *G. rosae*) of Diaporthales are reported as new to Bulgaria. Nine species (*Apiognomonium errabunda*, *Apioplagiostoma carpnicolum*, *Apioporthella vepris*, *Ditopellina saccardiana*, *Gnomonia comari*, *G. nervisequa*, *G. rosae*, *Hypospilina pustula*, and *Plagiostoma arnastadiense*) are established on new substrata, and 21 species are recorded from new Bulgarian localities.

Key words: ascomycetes, Bulgaria, Diaporthales, fungal diversity

I dedicate this article to Assoc. Prof. Violeta Fakirova (1936–2004), my teacher in ascomycete taxonomy.

Introduction

The present article is a contribution to the study of the species composition and distribution of Diaporthales in Bulgaria. The genus *Ditopellina* is established as new for Bulgaria. Data on 24 species are given. Three of them are reported for the first time from the country, viz. *Ditopellina saccardiana*, *Gnomonia nantensis*, and *G. rosae*. Nine species are established on new substrata (asterisked in the text). New Bulgarian localities are reported for 21 species. The new species for Bulgaria are presented with concise descriptions and are illustrated. The same is also done for two other species, which have been previously reported with chorological data only (Fakirova 1978; Sameva 1982).

Records on the distribution of Diaporthales in Bulgaria have been previously published by Malkov (1906), Sameva (1981), Fakirova (1993, 1996, 1997), Stoikov (2000, 2002), Stoikov & Fakirova (2001).

Materials and Methods

The majority of investigated specimens were collected in 1998–2004. Perithecia, asci, and ascospores of the examined

specimens were observed and measured by light microscopy. Squash mounts were made in lactophenol with blue cotton according to Kirk *et al.* (2001). The apical annulus of the ascus is also observed in aquatic solution of red congo (following Monod 1983: 9). The measurements of ascospores are given in the form: min-max (mean \pm 1 standart deviation). Drawings were made with a camera lucida on an Amplital Carl-Zeiss microscope.

The specimens cited in this article are preserved in the Mycological Collection of the Institute of Botany, Bulgarian Academy of Sciences (SOMF). For the determination of the fungi regional monographs, taxonomic studies and nomenclatural works were used such as Reid & Booth (1967), Barr (1978, 1990, 1991), Monod (1983), Fakirova (1995). Nomenclature of the host plants follows Jordanov (1966, 1973, 1979).

New species records from Bulgaria

Ditopellina saccardiana (Traverso & Spessa) J. Reid & C. Booth, *Canad. J. Bot.* 45(9): 1481, 1967. (Fig. 1)

Perithecia 210–270 \times 140–300 μ m, ellipsoid, globose, single or in small groups. **Beak** 120–230 \times 95–140 μ m, conic, papilliform. **Asci** (85–) 95–140 (–170) \times (13–) 15–26 (–31) μ m, 8-spored, broad-clavate, broadly rounded and slightly thickened above and tapering abruptly below to a short, broad stipe; with parallel spores in different height.

Ascospores 46–82 × 5–9 (62.1±7.2 × 6.5±0.7) µm ($n = 50$), hyaline, scolecosporous, oblong-cylindric, 1–3 (–5)–septate, contents granular.

Known distribution: Europe (Portugal).

On overwintered apical branches of *Fraxinus* sp. Sredna Gora Mts: Mt Lozenska Planina, Kokalyane village, 17 Feb 1980, leg. V. Fakirova (VF) (20 717).

Note. Asci of the Bulgarian specimen of *D. saccardiana* are smaller in width than those, cited in the original description (Reid & Booth 1967). The host genus *Fraxinus* is a new substratum for *D. saccardiana*.

Gnomonia nantensis M. Monod, Sydowia, Beih. 9(2): 118, 1983. (Fig. 2)

Perithecia 310–560 µm in diam, black, globose, immersed in the tissues of the stems. **Beak** 240–340 × 70–125 µm, straight or little curved, central, flattened across when dry. **Asci** 35–55 × (4.5–) 5.5–10 (–11) µm, oblong ellipsoidal, 8-spored, with apical ring 1.5 µm. **Ascospores** 9–17.5 × 2.2–3.3 (12.6±1.7 × 2.9±0.4) µm ($n = 100$), fusoid, straight, slightly rounded at the ends, septum median, without appendages, overlapping biseriate in the ascus. Each cell with 2–3 globules.

On overwintered stems and petioles of *Geranium* sp. Black Sea coast: Dobrich distr., between Bulgarevo village and Bolata Dere locality, 19 May 1999, D. Stoykov (DS) [as *Gnomonia geranii* Hollós] (22 481).

Gnomonia rosae Fuckel, Jahrb. Nassauischen Vereins Naturk. 23/24: 122, 1870. (Fig. 3)

Perithecia 210–370 µm in diam, black to brownish, flattened ellipsoidal to globose, scattered, single, immersed in the tissues of the leaf blade, leaf veins, and petioles. **Beak** (385–) 560–1200 (–1400) × (26–) 32–52 (–56) µm, filliform, black, straight or little curved, enlarged near base to 65–75 µm, central. **Asci** 21–29 (–31) × 4–5.5 (–7) µm, fusiform, 8-spored, with apical ring 1 µm. **Ascospores** 14.5–23 × 1–1.5 (17±1.9 × 1.2±0.2) µm ($n = 100$), narrowly filliform, straight, septum median, with or without appendages at both ends, obliquely fasciculate in the ascus. Mature spores with 2 groups of small globules per cell.

On overwintered stems and leaves of *Agrimonia eupatoria* L. Sredna Gora Mts: Mt Lozenska Planina, above Dolni Pasarel village, along Rakita river, 28 May 1999, DS (25 016); above Pancharevo lake, 28 Jun 2004, DS (25 373).

On overwintered stem of *Agrimonia procera* Wallr. Sredna Gora Mts: Mt Lozenska Planina, above Pancharevo lake, 17 Jun 1998, DS (25 046).

On overwintered leaf of *Potentilla micrantha* Ramond ex DC. Forebalkan: Lovech distr., Golyama Zhelyazna village, Gachevski Ogradi locality, 26 May 2000, DS (24 952).

On overwintered leaf of *Rubus rivularis* Wirtg. & Mueller. Sredna Gora Mts: Mt Lozenska Planina, above Novi Han village, Pechourkata locality, 31 May 2000, DS (25 029).

Note. *Potentilla micrantha* and *Rubus rivularis* are new substrata of *Gnomonia rosae*.

New substrata and new Bulgarian localities (the new substratum records are asterisked)

Apiognomonia errabunda (Roberge) Höhn., Ann. Mycol. 16: 51, 1918.

On overwintered leaves of *Fagus sylvatica* L. Forebalkan: Lovech distr., Golyama Zhelyazna village, Toplya cave locality, 5 Jun 1998, DS (25 114). Sofia region: Sofia, park of Vrana, 18 May 2000, DS (25 103). Rila Mts: Borovets, Ski Shantsata locality, alt. ca 1400 m, 20 Jun 2000, DS (24 915).

On overwintered leaf of **Quercus rubra* L. Sofia region: Sofia, nearby the glasshouse of the Institute of Botany, 20 May 2002, DS (25 105).

Apiognomonia petiolicola (Fuckel) M. Monod, Sydowia, Beih. 9(2): 64, 1983.

On overwintered leaves and petioles of *Tilia tomentosa* Moench. Sofia region: Sofia, park of Vrana, 18 May 2000, DS (25 102).

Apiognomonia ostryae (De Not.) M. Monod, Sydowia, Beih. 9(2): 50, 1983.

On overwintered leaves of *Ostrya carpinifolia* Mill. The Rhodopes (central): Chervenata Stena Reserve, above Bachkovo monastery, 5 Jul 2004, DS (25 386).

Apioplagiostoma aceriferum (Cooke) M. E. Barr, Mycol. Mem. 7: 103, 1978.

On overwintered leaves of *Acer campestre* L. Sredna Gora Mts: Mt Lozenska Planina, above Dolni Pasarel village, along Rakita river, 28 May 1999, DS (22 565, 25 019).

Apioplagiostoma carpinicolum (Höhn.) M. E. Barr, Mycol. Mem. 7: 103, 1978.

On overwintered leaves of *Carpinus betulus* L. Forebalkan: Lovech distr., Golyama Zhelyazna village, Gachevski Ogradi locality, 26 May 2000, DS (24 948). Balkan Range (central): Lovech distr., Oreshak village, above Troyan monastery, 15 May 2002, leg. B. Assyov (25 396). Sredna Gora Mts: Mt Lozenska Planina, above Dolni Pasarel village, along the track to Kosharite locality, 28 May 1999, DS (25 012).

On overwintered leaves and squames of **C. orientalis* Mill. Forebalkan: Lovech distr., Golyama Zhelyazna village, Toplya cave locality, 5 Jun 1998, DS (25 390).

Apioporthella vepri (Delacr.) M. E. Barr, Mycotaxon 41: 288, 1991. (Fig. 4)

Perithecia (200–) 220–310 (–350) × (210–) 245–365 (–390) µm in diam, black to brownish, globose to subglobose, single or in groups, immersed in the tissues of the stems, subepidermal, later becoming erumpent. **Beak** (105–) 170–300 (–430) × (35–) 55–85 (–110) µm, straight or curved, convergent, central, often coalescent. **Asci** (22–) 24–40 (–45) × 4.5–7.7 (–10) µm, ellipsoid, with apical annulus 1 µm. **Ascospores** 6–13 × 1.5–3 (9.1±0.9 × 2.1±0.2) µm ($n = 500$), hyaline, ellipsoid fusoid, straight or slightly curved,

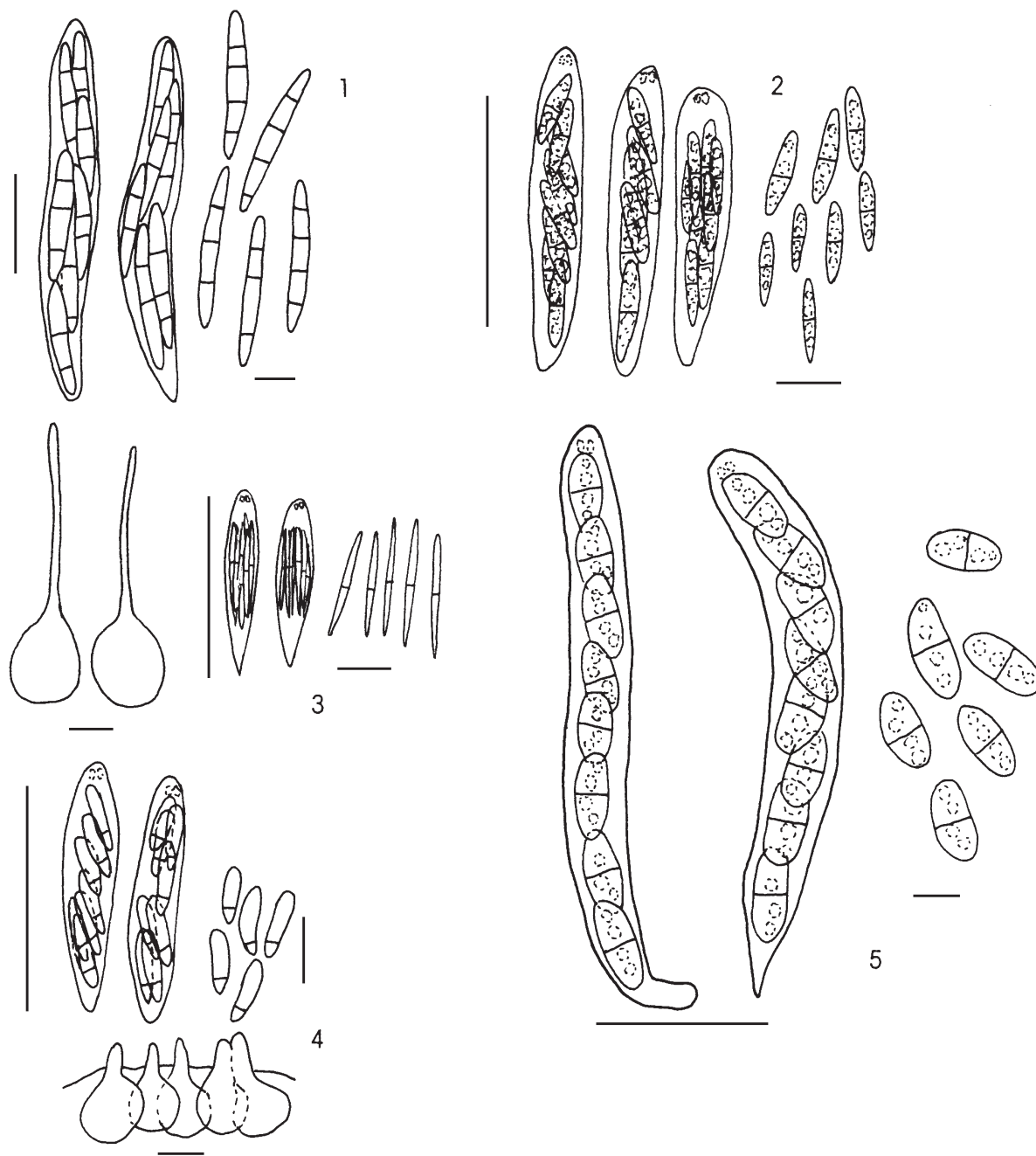


Fig. 1. *Ditopellina saccardiana* – asci and ascospores. Fig. 2. *Gnomonia nantensis* – asci and ascospores. Fig. 3. *Gnomonia rosae* – perithecia, asci, and ascospores. Fig. 4. *Apioporthella vepris* – perithecia, asci, and ascospores. Fig. 5. *Sydowiella fenestrans* – asci and ascospores. Scale bars = 200 μ m for perithecia, 40 μ m for asci, and 10 μ m for ascospores

unequilateral; septum submedian, appendages narrow, setose when present, overlapping uniseriate to biseriata in the ascus; bigger cell oriented towards an apical ring in the ascus, with 2 globules.

On overwintered stems of **Rubus caesius* L. Rila Mts: Borovets, alt. ca 1400 m, 20 Jun 2000, DS (24 926).

On overwintered stems of *R. idaeus* L. Balkan Range (central): in the vicinity of the town of Etropole, Yamna village, 4 Jul 1978, VF (13 790) & 3 Jun 1979, VF (20 687) [both as *Apioporthella vepris* (Delacr.) Wehm.]. Vitosha region: Vitosha Mt, Bistrishko Branishte Reserve, in the surroundings of Aleko chalet, 14 Jul 1998, DS (24 946). Rila Mts: Borovets, alt. ca 1400 m, 20 Jun 2000, DS (24 921).

On overwintered stems of *Verbascum* sp. Vitosha region: Vitosha Mt, nearby Aleko chalet, 5 Jun 1979, E. Sameva [as *Apioporthes vepris*] (14 433).

Gnomonia betulina Vleugel, Svensk Bot. Tidskr. 11: 305, 1917.

On overwintered leaves and petioles of *Betula pendula* Roth. Sofia region: Sofia, Zapaden Park locality, 12 Jun 2000, DS (25 005). Rila Mts: along the road from Partizanska Polyana locality to Ribnite Ezera lakes, 19 Jul 1998, DS (22 566). Sredna Gora Mts: Mt Lozenska Planina, above Novi Han village, Kaminata locality, 31 May 2000, DS (25 031 & 25 035).

Gnomonia comari P. Karst., Mycol. Fenn. 2: 122, 1873.

On overwintered stems and petioles of *Agrimonia eupatoria* L. Balkan Range (western): Vitinya locality, nearby the highway, 30 Jun 2002, DS (25 366). Thracian Lowland: Besaparski Ridove locality, above Gara Ognyanovo railway station, 9 Jun 2004, DS (25 285).

On overwintered stems and petioles of *Potentilla reptans* L. Sofia region: Sofia, Forest Research Institute, 1 Jul 2002, DS (25 365).

On overwintered leaf of *Rubus caesius*. Sofia region: above the town of Buchovo, 2 Nov 1999, leg. Y. Chervenкова (24 669).

Gnomonia geranii Hollós, Anales Mus. Nat. Hung. 7: 52, 1909.

On overwintered stems and petioles of *Geranium sanguineum* L. Vitosha region: Lyulin Mt, along the road from Bonsovi Polyani locality to Gorna Banya, 26 May 2004, DS (25 391).

Gnomonia geranii-macrorrhizi Fakirova, Mycotaxon 54: 329, 1995.

On overwintered stems and petioles of *Geranium macrorrhizum* L. Sofia region: Sofia, park of Vrana, 18 May 2000, DS (25 101). The Rhodopes (western): Shiroka Polyana locality, on slope above the dam lake, in pine-tree forest, 15 Aug 2002, DS (25 115).

Gnomonia gnomon (Tode : Fr.) J. Schröt., Krypt.-Fl. Schles. 3(2): 390, 1894.

On overwintered leaves and petioles of *Corylus avellana* L. Forebalkan: Lovech distr., Golyama Zhelyazna village, along the track to Toplya cave, 4 Jun 1998, DS (25 116). Sofia region: Sofia, park of Vrana, 18 May 2000, DS (25 100). Rila Mts: Borovets, Ski Shantsata locality, alt. ca 1400 m, 20 Jun 2000, DS (24 925). The Rhodopes (central): Chervenata Stena Reserve, above Bachkovo monastery, along the track to Ayazmoto locality, 5 Jul 2004, DS (25 372).

Gnomonia leptostyla (Fr. : Fr.) Ces. & De Not., Comment. Soc. Crittog. Ital. 1(4): 232, 1863.

On overwintered leaves of *Juglans regia* L. Thracian Lowland: Besaparski Ridove locality, above Gara Ognyanovo railway station, along the road to Karierite locality, 9 Jun 2004, DS (25 383). The Rhodopes (central): Asenovgrad, Kuru Dere locality, 3 Jul 2004, DS (25 375).

Gnomonia nervisequa (Wallr.) Fuckel, Jahrb. Nassauischen Vereins Naturk. 23/24: 122, 1870.

On overwintered leaves of *Alnus glutinosa* (L.) Gaertn. Vitosha region: Vitosha Mt, Bistritsa, 3 Jul 1994, VF (24 128).

On overwintered leaves of *Carpinus betulus*. Balkan Range (central): Troyan distr., Oreshak village, above Troyan monastery, 15 May 2002, leg. B. Assyov (25 396). Sofia region: above Belidie Han village, 16 Jun 2000, DS (24 955).

On overwintered leaves of *Juglans regia* (cult.). Forebalkan: Lovech distr., Golyama Zhelyazna village, Lakite locality, 6 Jun 1998, DS (25 071) & 30 Apr 2001, DS (25 074). Sofia region: Sofia, Forest Research Institute, 1 Jul 2002, DS (25 098).

Gnomonia rostellata (Fr. : Fr.) Wehm., Canad. J. Res. 20: 572, 1942.

On leaves of *Rubus caesius*. Rila Mts: Borovets, alt. ca 1400 m, 20 Jun 2000, DS (24 689).

Gnomonia setacea (Pers. : Fr.) Ces. & De Not., Comment. Soc. Crittog. Ital. 1(4): 232, 1863.

On overwintered leaves of *Quercus cerris* L. Forebalkan: Lovech distr., Patreshko village, Vasilkovoto locality, 14 Aug 2004, DS (25 397). Balkan Range (central): above the town of Troyan, Kapincho locality, 2 May 2002, DS (25 398). Sofia region: Sofia, Borisova Gradina locality, 2 Jul 2001, DS (25 399).

Hypospilina pustula (Pers. : Fr.) M. Monod, Sydowia, Beih. 9(2): 189, 1983.

On overwintered leaves of *Quercus cerris*. Danubian Plain: Nivyanin village, in oak forest above artificial lake, 2-3 km after the village, 11 May 2004, leg. P. Stanimirova (25 400). Forebalkan: Lovech distr., Patreshko village, Vasilkovoto locality, 14 Aug 2004, DS (25 401). Sredna Gora Mts: Lozenska Planina Mt, above Dolni Pasarel village, 28 May 1999, DS (25 014).

On overwintered leaves of *Q. dalechampii* Ten. The Rhodopes (central): Chervenata Stena Reserve, above Bachkovo monastery, along the track to Ayazmoto locality, 5 Jul 2004, DS (25 382).

On overwintered leaves of *Q. frainetto* Ten. Danubian Plain: in the vicinity of Nivyanin village, 11 May 2004, leg. P. Stanimirova (25 402). The Rhodopes (eastern): Kurdzhali distr., between the villages of Oreshari and Sladkodoum, 22 Apr 2002, leg. B. Assyov (25 403). The Rhodopes (central): Plovdiv distr., in the vicinity of the Novakovo village, 18 May 2004, leg. P. Stanimirova (25 381).

On overwintered leaves of **Q. rubra*. Black Sea coast: between the town of Ahtopol and Sinemorets seaside resort, 23 Aug 2003, DS (25 392). Forebalkan: Lovech distr., Golyama Zhelyazna village, Lakite locality, 5 Jun 2004, DS (25 378). Sofia region: between the villages of Voynegovtsi and Lokorsko, 4 Sep 2002, DS (25 394). Vitoshka region: Lyulin Mt, along the road from Bonsovi Polyani locality to Gorna Banya, 26 May 2004, DS (25 395). Sredna Gora Mts: Mt Lozenska Planina, above Pancharevo lake, 28 Jun 2004, DS (25 369).

Plagiostoma alneum (Fr. : Fr.) Arx, Antonie van Leeuwenhoek Ned. Tijdschr. Hyd. 17: 264, 1951.

On overwintered leaves of *Alnus glutinosa*. Forebalkan: Lovech distr., Golyama Zhelyazna village, along Toplya river, 5 Jun 1998, DS (25 055).

Plagiostoma arnstadtense (Auersw.) M. Monod, Sydowia, Beih. 9(2): 143, 1983.

On overwintered leaves and fruit squames of *Carpinus betulus*. Forebalkan: Lovech distr, Golyama Zhelyazna village, Lakite locality, 30 Jun 1999, DS (24 222). Sofia region: Sofia, Zapaden Park, 28 Mar 1998, DS (24 231); above the village of Belidie Han, 16 Jun 2000, DS (24 960). The Rhodopes (central): Chervenata Stena Reserve, above Bachkovo monastery, along the track to Ayazmoto locality, 5 Jul 2004, DS (25 371).

On overwintered leaves and fruit squames of **C. orientalis*. Forebalkan: Lovech distr., Golyama Zhelyazna village, Toplya cave locality, 5 Jun 1998, DS (25 370). Sredna Gora Mts: nearby the village of Mouhovo, 11 May 1978, E. Sameva (13 709).

Plagiostoma bavaricum (Rehm) M. E. Barr, Mycol. Mem 7: 112, 1978.

On overwintered leaves of *Acer pseudoplatanus* L. var. *villosum* (C. Presl) Parl. Forebalkan: Lovech distr., Golyama Zhelyazna village, along the track to Toplya cave locality, 5 Jun 1998, DS (25 404).

On overwintered leaves of *A. hyrcanum* Fisch. & C. A. Mey. Forebalkan: Lovech distr., Golyama Zhelyazna village, Toplya cave locality, 5 Jun 1998, DS (25 389). The Rhodopes (central): above Bachkovo monastery, Chervenata Stena Reserve, along the track to Ayazmoto locality, 5 Jul 2004, DS (25 374).

Plagiostoma inclinatum (Desm.) M. E. Barr, Mycol. Mem. 7: 115, 1978.

On overwintered leaves of *Acer campestre*. Forebalkan: Lovech distr., Golyama Zhelyazna village, Kasapskoto locality, 24 Jun 2000, DS (24 987). Balkan Range (central): above the town of Troyan, Kapincho locality, 2 May 2002, DS (25 405). Sofia region: Belidie Han village, 16 Jun 2000, DS (24 959); Sofia, park of Vrana, 18 May 2000, DS (25 406).

On overwintered leaves of *A. campestre* subsp. *leiocarpum* (Opiz) Pax var. *austriacum* (Tratt.) DC. Forebalkan: Golyama

Zhelyazna village, Kasapskoto locality, 26 Jun 2000, DS (24 990).

Sydowiella fenestrans (Duby) Petr., Ann. Mycol. 21: 30, 1923. (Fig. 5)

Perithecia 380-420 (-470) μm in diam, black, ellipsoid, upright, separate or in small groups, immersed in the stems, becoming partially erumpent at maturity, flattened when dry. **Beak** 200-450 \times (110-) 175-210 (-220) μm , black, central. **Asci** (92-) 121-143 (-154) \times (9-) 10-12 (-13) μm , cylindroid, rounded at the top, apical annulus 3 μm . **Ascospores** 15.4-22.7 \times 6.6-9.9 (18.5 \pm 1.6 \times 8.1 \pm 0.9) μm ($n = 260$), hyaline, broadly ellipsoid, septum median, slightly constricted at the septum, overlapping uniseriately in the ascus, contents with \pm distinct globules per cell.

On dead stems of *Epilobium angustifolium* L. Rila Mts: Borovets, 22 Jul 1993, VF (21 129). The Rhodopes (central): Rozhen locality, 5 Oct 1996, leg. VF (25 041).

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