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Some pyrenomycetous fungi new to China

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Abstract — Nine new records of pyrenomycetous fungi from China are reported. Most of these were known previously only from eastern Russia. *Melanconis marginalis* (and not *M. alni*) is recognized as occurring on *Duschekia* spp. in the northern portion of eastern Asia, and *Diatrype macounii* is acknowledged as distinct from *D. bullata*.

Key words — *Sordariomycetes,* taxonomy

Introduction

The eastern portion of Asia along the Pacific coast between 35 and 50 degrees north latitude is a unique territory that is characterized by the presence of a distinct assemblage of pyrenomycetous fungi. Evidence for this is the large number of new genera and species described from eastern Russia in recent years (Ju et al. 1999, 2009; Vasilyeva 2001, 2007; Stadler et al. 2005; Vasilyeva & Stephenson 2007; Vasilyeva & Stadler 2008). These taxa might be expected to occur in the northeastern portion of China where similar types of vegetation are found.

The pyrenomycetous fungi (*Sordariomycetes*, *Ascomycota*: Lumbsch & Huhndorf 2007) are poorly investigated in northeastern China. Thus, Teng (1939) reported nine species for Heilongjiang Province and 17 species for Jilin (Kirin) Province, with a total of 23 species for both provinces. Later, 25 species for these two provinces were added (Kobayashi & Zhao 1989, Doi et al. 2001, Bau 2005, Dai & Bau 2007). Still later, three new species (*Leucodiaporthe*

juglandis Lar.N. Vassiljeva, *Leucostoma pseudoniveum* Lar.N. Vassiljeva, *Phragmodiaporthe padi* Lar.N. Vassiljeva) were described from Heilongjiang Province, and two new species [*Diaporthella corylina* Lar.N. Vassiljeva, *Leucodiaporthe maackii* (Lar.N. Vassiljeva) M.E. Barr & Lar.N. Vassiljeva] described from adjacent areas in Russia were also found in the latter province (Vasilyeva et al. 2007). Another species (*Xylaria primorskensis* Y.M. Ju et al.) was added recently (Ju et al. 2009).

This paper was prepared when the monograph "Fungi of Ussuri River Valley" was submitted for publication. The latter contains check-lists of various groups of fungi, and 27 species of pyrenomycetes are reported from China for the first time, although many of these are widely distributed. Collectively, 81 pyrenomycetous species were listed as occurring in northeastern China, and an additional 9 new records are described in this paper. Most of the latter lacked English descriptions before and were known only from eastern Russia. In contrast, *Melanconis marginalis* has a wider known distribution, but its occurrence in China entailed the re-identification of all east-Asian specimens of '*Melanconis alni*' collected previously. *Diatrype macounii* is included herein because of contradictory opinions about its taxonomic status.

Material and methods

The material considered in this paper was collected by the first author in 2003–04 (Heilongjiang Province) during field surveys carried out by mycologists of the Institute of Biology and Soil Science, Far East Branch of the Russian Academy of Sciences, Vladivostok (Russia), and the Institute of Mycology, Jilin Agricultural University, Changchun (China) in the context of a joint project entitled "Studies of fungi in Ussuri River Valley". Additional specimens were collected in 2008 (Jilin Province) during an excursion to the Changbai Mountain that took place after the China-Japan Pan Asia Pacific Mycology Forum. Relevant specimens collected earlier in Russia and Japan are also included. All specimens are deposited in the Herbarium of the Institute of Biology and Soil Science (VLA). Microscopic analyses were carried out using standard techniques. Photographs were taken using a Nikon D40x (with DG macro-objective SIGMA EX 105 mm F2.8) digital camera and Leica MZ75 and Leica DM 4500B microscopes.

The new records

1. ***Biscogniauxia mandshurica*** Lar.N. Vassiljeva,
Nizshie Rasteniya, Griby i Mokhoobraznye Dalnego Vostoka Rossii, Griby. Tom 4. Pirenomitsety i Lokuloaskomitsety (Sankt-Petersburg): 84 (1998) Fig. 1

Stromata erumpent from the bark, discoid to elliptical, 5–7 mm diam., mostly solitary, surface slightly concave, sometimes flat, grayish brown or black,

smooth, ostioles umbilicate, rarely finely papillate and often surrounded by a ring-like shallow furrow; margins dark brown, distinctly raised, irregularly dentate, originating from outer dehiscing layer. Perithecia obovoid to tubular, 0.5–0.7 mm high, 0.3–0.4 mm wide. Asci cylindrical, 80–90 × 5–6 µm. Ascospores brown, unicellular, narrow-elliptical, 8–12(–13) × 3.5–4 µm, with straight germ slit spore length.

Specimens examined: CHINA. Jilin Province: Changbai Mountain, dead branch of *Malus* sp., 4.VIII.2008, VLA P-2290. – JAPAN. Tochigi Prefecture: Chuzenziko Lake, dead branch of *Malus* sp., 25.VI.1999, VLA P-1431. – RUSSIA. Primorsky Territory: Sikhote-Alinsky Nature Reserve, dead branches of *M. manshurica* (Maxim.) Kom., 3.VIII.1985 (HOLOTYPE); Lazovsky Nature Reserve, dead branches of *M. manshurica*, 23.VII.1986, VLA P-1769; Kedrovaya Pad Biosphere Reserve, dead branches of *M. manshurica*, 20.X.1987, VLA P-1770; Ussuriysk Nature Reserve, dead branches of *M. manshurica*, 27.VIII.1989, VLA P-41; Amur Region: Khingansky Nature Reserve, dead branches of *M. baccata* (L.) Borkh., 28.VIII.1992, VLA P-1771; Blagoveshchensk vicinity, dead branches of *M. baccata*, 31.VIII.1999, VLA P-1772.

Comments—The record of *B. mandshurica* for Japan included herein is also the first one for that country. A complex of closely related species of *Biscogniauxia* occurs in eastern Russia and the members of the complex are restricted to certain kinds of host trees. *B. repanda* (Fr.) Kuntze is a comparatively rare species that is found on *Sorbus pohuashanensis* (Hance) Hedl., and *S. sibirica* Hedl. in the Amur and Kamchatka regions as well as in Khabarovsk Territory. *B. pezizoides* (Ellis & Everh.) Kuntze prefers dead branches of *Ulmus* spp., but the species sometimes occurs on *Acer mono* Maxim. in the Primorsky Territory and the Amur region. Although the name *B. pezizoides* is reduced to a synonym of *B. repanda* (Ju et al. 1998), the two entities are hardly conspecific, and *B. pezizoides* can be easily distinguished by its coarsely papillate ostioles; it also has smaller stromata that are discoid and concave, while stromata of *B. repanda* are often irregularly flat. The substrate preferences of two species were already emphasized by Pouzar (1979), who called them the American and European 'populations' of *B. repanda* on *Ulmus* and *Sorbus,* respectively. Both species occur in eastern Asia but are restricted to their host plants, and *B. pezizoides* displays a 'Grayan disjunction' with respect its global distribution.

B. mandshurica occurs only on *Malus* spp. This species has small stromata as in *B. pezizoides*, but its ostioles are umbilicate, not coarsely papillate. The specimens from Russia on *Malus* spp. were identified as *B. repanda* (Ju et al. 1998), but they differ in the more narrow spores and the smooth surface of the relatively smaller stromata. Since *B. marginata* (Fr.) Pouzar is found on both *Malus baccata* and *Sorbus pohuashanensis*, this species has a host distribution that encompasses those of *B. mandshurica* and *B. repanda*. However, it is easily distinguished due to the widely ellipsoid or almost globose ascospores with curved germ slits.

2. ***Chromendothia citrina*** Lar.N. Vassiljeva,
Nizshie Rasteniya, Griby i Mokhoobraznye Dalnego Vostoka Rossii, Griby. Tom 4. Pirenomitsety i Lokuloaskomitsety (Sankt-Petersburg): 172 (1998) Figs. 7–8

Stromata immersed, valsoid, erumpent through the bark with bright-yellow, pulvinate ectostromatic disc 2–4 × 1.5–2 mm, studded with greenish or olivaceous ostioles at the surface becoming dark in age; perithecia polystichous, 300–400 µm diam. Asci paraphysate, cylindrical, p. sp. 40–45 × 4–5 µm, stalks up to 40 µm long, apical ring chitinoid. Ascospores uniseriate, one-celled, ellipsoid, brownish, 5–7 × 3–3.5 µm.

Specimens examined: CHINA. Heilongjiang Province: Hulin, 854 State Farm, dead branches of *Quercus mongolica* Fisch. ex Turcz., 2.IX.2003, VLA P-1460. – RUSSIA. Primorsky Territory: Khasan region, Ryazanovka vicinity, dead branches of *Q. dentata* Thunb., 10.VIII.1991 (HOLOTYPE); Vladivostok vicinity, dead branch of *Q. mongolica*, 3.VI.2000, BPI 747935.

Comments—The description given above is so similar to that of *Camarops lutea* (Alb. & Schwein.) Shear that the manuscript presenting *Chromendothia citrina* as a new species was initially rejected. This only indicates just how imperfect our knowledge is of the extensive parallelism of features that exists in different groups of pyrenomycetes. Since the genus *Camarops* was considered to be heterogeneous all the same (Vasilyeva 1988, 1994) and since *C. lutea* seemed to be surely not congeneric with its type-species *C. polysperma* (Mont.) J.H. Mill., the combination *Chromendothia lutea* (Alb. & Schwein.) Lar.N. Vassiljeva was suggested (Vasilyeva 1993). However that decision turned out to be wrong, as indicated by the results of further investigations.

The fungal complex '*Camarops* s.l.' is very similar to the situation that exists for diatrypaceous fungi in their development within tissues of hardwoods, their subsequent eruption, as well as the hard consistency of their stromata. In contrast, the genus *Chromendothia*, represented by its type-species *C. appendiculata* Lar.N. Vassiljeva and *C. citrina*, is characterized by soft and brightly colored stromata of the same consistency that is shared by hypocreaceous fungi and some diaporthalean members (*Endothia*, *Cryphonectria*) that were segregated into the family *Cryphonectriaceae* recently (Gryzenhout et al. 2006).

Although *Chromendothia* was placed near *Endothia* and *Cryphonectria* (*Hypocreales*: *Hypocreaceae*: *Endothieae*) previously (Vasilyeva 1998), this arrangement does not seem appropriate today, since both hypocreaceous and cryphonectriaceous pyrenomycetes have aparaphysate asci. Species of *Chromendothia* possess paraphysate asci in fascicles, as do, for example, the type-species of *Mollicamarops* (Vasilyeva 2007). These genera comprise a group that does not fit into any family and order of pyrenomycetous fungi.

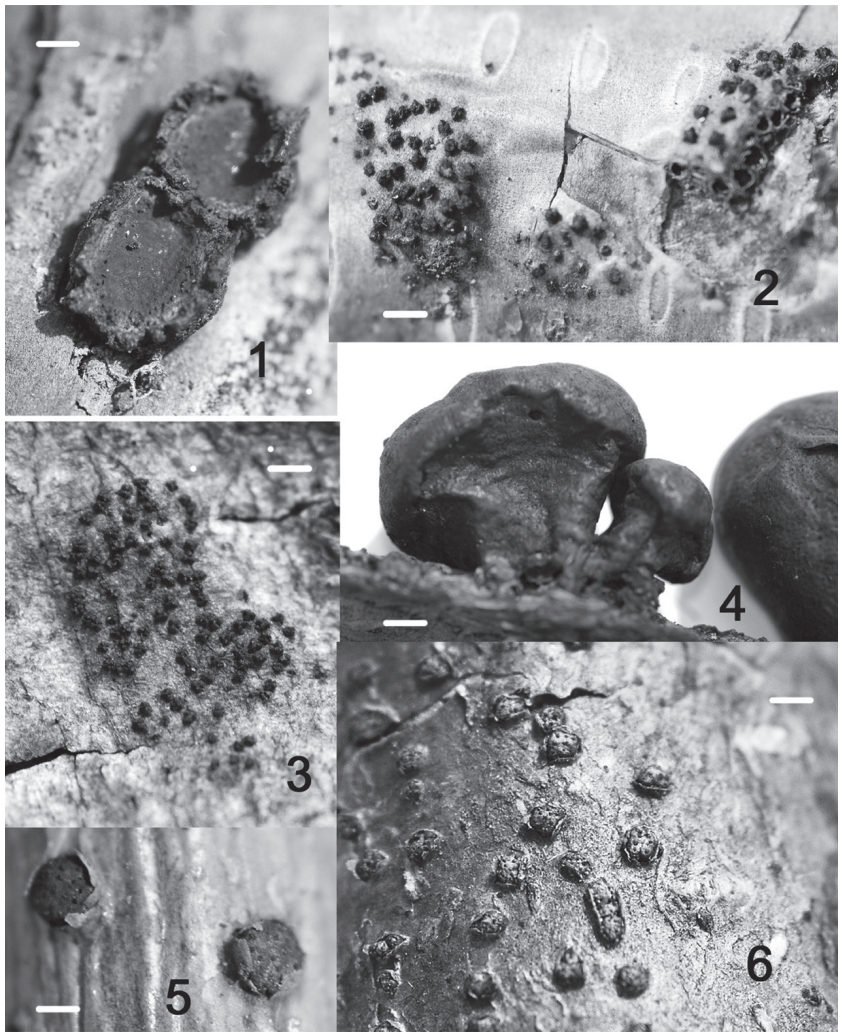
In view of the fascinating parallelism of features in different orders, we may venture to suggest that the whole array of orders including members with soft and brightly colored stromata represents another example that needs to be examined. The *Hypocreales* in this array might be considered as parallel to the *Xylariales* (cf. stromata of *Hypocrea* and *Hypoxylon*, *Nectria* and *Rosellinia*, *Podostroma* and *Xylaria* within two orders, respectively). The family *Cryphonectriaceae* might deserve being placed in its own order, which is parallel to the *Diaporthales*, whereas *Chromendothia* and *Mollicamarops* might be assigned to the order that is parallel to the *Diatrypales* (or *Boliniales*).

3. ***Cryptosphaeria exornata*** Lar.N. Vassiljeva,
Nizshie Rasteniya, Griby i Mokhoobraznye Dalnego Vostoka Rossii, Griby. Tom 4. Pirenomitsety i Lokuloaskomitsety (Sankt-Petersburg): 115 (1998) Fig. 3

Stromata immersed in the bark remaining unchanged or becoming inflated and darkened, widely effused or spot-shaped, recognized by the crowded but separately emerging tops of perithecial beaks (ostioles) which are rather prominent, up to 500 μm diam., black and divided in a cross-shaped manner; perithecia scattered or aggregated, 350–500 μm diam. Asci cylindrical, paraphysate, 90–100 × 10–12 μm. Ascospores one-celled, allantoid, brownish, 22–24 × 3.5–4 μm.

specimens examined: CHINA. Heilongjiang Province: Hulin: Dongfanghong, dead branches of *Fraxinus* sp., 3.IX.2003, VLA P-1477; Jilin Province: Changbai Mountain, dead branch of *Fraxinus* sp., 4.VIII.2008, VLA P-2177. – RUSSIA. Primorsky Territory: Sikhote-Alinsky Nature Reserve, dead branches of *Fraxinus* sp., 6.IX.1985, VLA P-304; Lazovsky Nature Reserve, dead branches of *Fraxinus* sp., 25.VII.1986, VLA P-294; Kedrovaya Pad Biosphere Reserve, dead branches of *Fraxinus* sp., 16.X.1987, VLA P-303; Ussuriysk Nature Reserve, dead branches of *Fraxinus* sp., 23.VIII.1989 (HOLOTYPE); Khanka Nature Reserve, dead branches of *F. mandshurica* Rupr., 21.VI.2003, VLA P-289; Khabarovsk Territory: Big Khekhtsir Nature Reserve, *F. mandshurica*, 24.VIII.1983, VLA P-290; Komsomolsky Nature Reserve, *Fraxinus* sp., 1.VII.1986, VLA P-291; Amur Region: Khingansky Nature Reserve, *F. mandshurica*, 30.VIII.1992, VLA P-288.

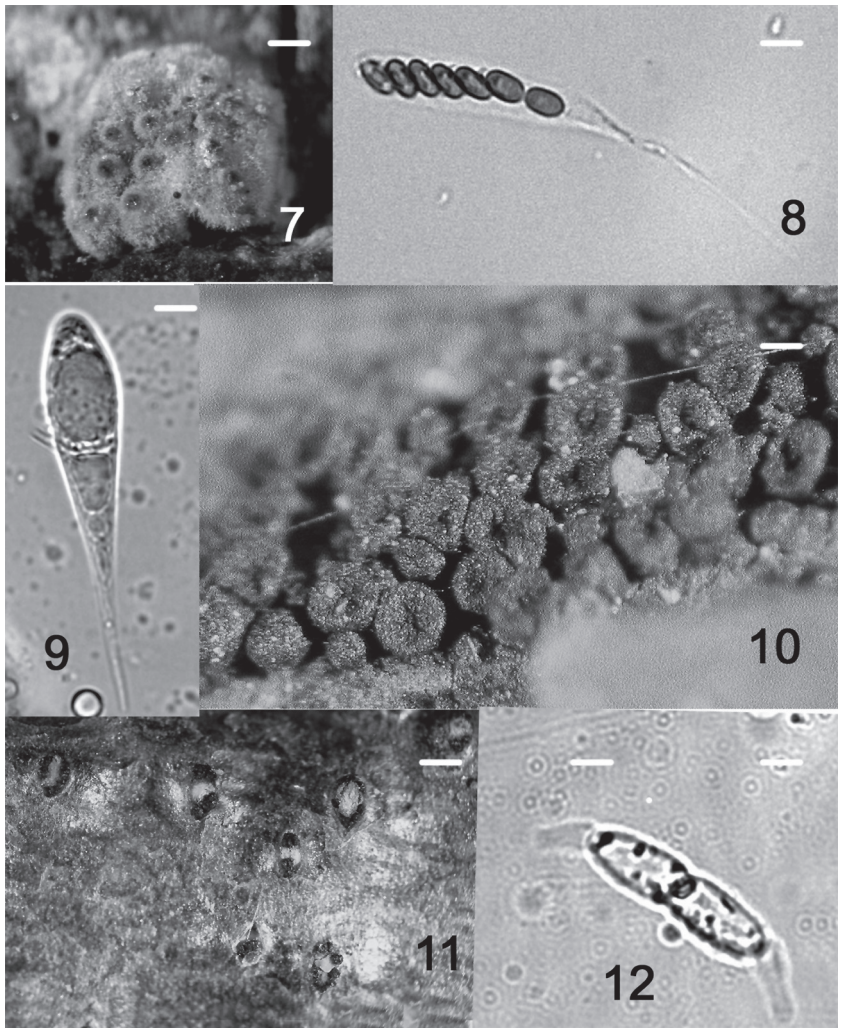
Comments—This species is similar to *Cryptosphaeria eunomia* var. *fraxini* (Richon) Rappaz in having rather large ascospores, but these are never septate as is the case for that taxon. In addition, another feature distinguishing *C. exornata* is the character of the ostioles, which are conical, prominent and deeply sulcate. Nitschke (1867) described ostioles of *C. eunomia* (Fr.) Fuckel as very small ('minutissimo, punctiformi') and non-sulcate ('hemispherico'). Höhnel (1923) wrote that *C. eunomioides* (G.H. Otth) Höhn. (= *C. eunomia* var. *fraxini*) had ostioles that were even less furrowed than those of *C. eunomia*, and



Figs. 1—Stromata of *Biscogniauxia mandshurica*. 2—Stellate ostioles of *Cryptosphaeria venusta* on the bark surface. 3—Stellate ostioles of *Cryptosphaeria exornata* on the bark surface. 4—Stromata of *Daldinia gelatinoides*. 5—Stromata of *Diatrype macounii*. 6—Stromata of *Melogramma corylina*.

Scale bars: 1 = 2 mm, 2,3,5,6 = 1 mm, 4 = 3 mm (Nikon D40x and DG macro-objective SIGMA EX 105 mm F2.8).

one can conclude that ostioles in both varieties of *C. eunomia* can be slightly wrinkled (cf. also Rappaz 1987), but the latter condition is far removed from the large and strongly divided ostioles of *C. exornata*. The difference in ostiole size



Figs. 7–8. *Chromendothia citrina*: 7—stroma, 8—ascus with ascospores. 9–10. *Loranitschkia viticola*: 9—ascospore, 10—ascomata. 11–12. *Melanconis marginalis*: 11—ostioles at the bark surface, 12—ascospore.

Scale bars: 7 = 0.6 mm, 10, 11 = 0.2 mm (digital camera Leica DFC300FX and microscope Leica MZ75), 8, 9 = 6 µm, 12 = 5 µm (Leica DFC300FX and microscope Leica DM 4500B).

was used by Rappaz (1987) for species delimitation in the family *Diatrypaceae*, and logic demands the separation of *C. exornata* and *C. eunomia* var. *fraxini* on this same basis.

4. ***Cryptosphaeria venusta*** Lar.N. Vassiljeva,
Nova Hedwigia, 43: 374 (1986) Fig. 2

Stromata immersed in the bark becoming slightly inflated, delimited by a black zone in the substrate, usually spot-shaped, recognized by the crowded but separately emerging tops of perithecial beaks ('ostioles') which are rather prominent, black and divided in a cross-shaped manner; perithecia scattered or aggregated, 350–500 µm diam. Asci cylindrical, paraphysate, p. sp. 35–45 × 6–7 µm, with stalks up to 50 µm long. Ascospores one-celled, allantoid, hyaline, 7–10 × 1.5–2 µm.

Specimens examined: CHINA. Jilin Province: Changbai Mountain, Dayangcha, dead branch of *Betula* sp., 4.VIII.2008, VLA P-2174. – JAPAN. Tochigi Prefecture: Ashio, dead branches of *Betula* sp., 28.VI.1999, VLA P-1480. – RUSSIA. Primorsky Territory: Sikhote-Alinsky Nature Reserve, dead branches of *B. platyphylla* Sukaczev, 12.VIII.1985, VLA P-309; Lazovsky Nature Reserve, dead branches of *B. platyphylla*, 29.VII.1986, VLA P-310; Kedrovaya Pad Biosphere Reserve, dead branches of *Betula* sp., 17.X.1987, VLA P-307; Ussuriysk Nature Reserve, dead branches of *Betula* sp., 13.VIII.1989, VLA P-312; Khabarovsk Territory: Big Khekhtsir Nature Reserve, dead branches of *Betula* sp., 28.VIII.1983 (HOLOTYPE); Amur Region: Khingansky Nature Reserve, dead branches of *Betula* sp., 25.VIII.1992, VLA P-311; Kurile Isles: Kunashir Island, dead branches of *Betula* sp., 16.VIII.1987, VLA P-316.

Comments—The record for Japan listed herein is also the first one for that country. It was found there in a rather high elevation *Betula* forest in a mountainous region (Ashio). This beautiful species is rather common, and it is surprising that it was not described long ago.

5. ***Daldinia gelatinoides*** Lar.N. Vassiljeva,
Nizshie Rasteniya, Griby i Mokhoobraznye Dalnego Vostoka Rossii, Griby. Tom 4. Pirenomitsety i Lokuloaskomitsety (Sankt-Petersburg): 177 (1998) Fig. 4

Stromata turbinate, usually sessile, solitary or in groups, smooth or wrinkled, 1–3.5 × 0.5–3 cm, filled with viscous liquid when fresh, after drying hollow inside; surface brown vinaceous, ostioles inconspicuous, KOH-extractable pigments violet; perithecia tubular, 1–1.3 × 0.3–0.5 mm. Asci p. sp. 80–110 × 7–8 µm, stipe 50–70 µm long, with amyloid ring 3 × 0.5–0.7 µm. Ascospores ellipsoid-equilateral with broadly rounded ends, brown, (9–)12–14(–16) × 6–8 µm, with straight germ slit spore-length.

specimen examined: CHINA. Heilogjiang Province: Sanjiang Nature Reserve, Dongxing Cun, logs, 5.VIII.2004, VLA P-1786. – RUSSIA. Ussuriysk Nature Reserve, dead branches of *Carpinus cordata* Blume, 10.VIII.1989 (HOLOTYPE); Vladivostok city, living tree of *Fraxinus* sp., 12.IX.1996, VLA P-1785; Vladivostok vicinity, Sirenevka, dead trunk of *Kalopanax septemlobus* (Thunb.) Koidz. and living tree of *Quercus mongolica*, 26.IX.1999, VLA P-1788 & P-1974.

Comments—This species display a tendency to parasitize living deciduous trees, but it appears to display no special preference for particular types of trees as in the case for seemingly saprotrophic species *Daldinia singularis* Y.M. Ju et al. and *D. carpinicola* Lar.N. Vassiljeva & M. Stadler (both on *Carpinus cordata* in eastern Russia) or *D. loculata* (Lév.) Sacc. (on *Betula* spp.).

6. ***Diatrype macounii*** Ellis & Everh.,
Proc. Acad. Nat. Sci. Phila. 1890: 224 (1890) Fig. 5

Stromata discrete, scattered, flat, disc-shaped, circular or oval in outline, usually 1–1.8 mm diam., erumpent by tearing of periderm into sepaloid scraps, with dark brown ectostromatic disc, inside white above perithecia and brownish below, delimited by a black zone in the substrate; perithecia at several levels in stromata, 300–400 μm diam., opening through black, indistinctly sulcate ostioles. Asci clavate, p.sp. 25–30 × 3–4 μm, stipes up to 40–50 μm long. Ascospores allantoid, yellowish, 4–6 × 0.7–1 μm.

specimen examined: CHINA. Heilongjiang Province: Hulin, Dongfanghong, dead branches of *Salix* sp., 3.IX.2003, VLA P-1503.

Comments—The first record of this species for China is also the first for all of East Asia, even Eurasia. It was described from the Agassiz in British Columbia (Fraser Valley), supposedly on *Acer rubrum* L., but the substrate was later recognized as *Salix* sp. (Rappaz 1987). The name of this species was reduced to a synonym of *Diatrype bullata* (Hoffm.) Fr. (Glawe & Rogers 1984, Rappaz 1987, Vasilyeva 1998), but *D. macounii* was described with ascospores 4–6 μm long (cf. Ellis & Everhart 1892) whereas typical specimens of *D. bullata* have ascospores 6–10 μm long (Nitschke 1867, Saccardo 1882, Winter 1887). A range in ascospore length of 4–6 μm distinguishes many diatrypaceous fungi such as *D. hypoxyloides* De Not., *Diatrypella decorata* Nitschke, *Eutypa limiformis* (Schwein.) Berk. and other examples. The appearance of stromata in *Diatrype macounii* suggests at once an entity that is different from *D. bullata*, since the stromata are rather small and discoid in comparison with the larger and shield-shaped ones of the latter species, which often have a sinuous, undulate outline.

In contrast to many species having a 'Grayan disjunction' in their global distribution, *D. macounii* seems to have a nothern-amphipacific or 'Bering disjunction' as do *Biscogniauxia bartholomaei* (Peck) Lar.N. Vassiljeva, *Hypoxylon alnicola* (see below), *Nectria pithoides* Ellis et Everh. and certain other species of pyrenomycetous fungi.

7. ***Loranitschkia viticola*** Lar.N. Vassiljeva,
Mikologiya i Fitopatologiya 24: 207 (1990) Fig. 9–10

Ascomata 260–320 μm diam., superficial on scanty subiculum or simply on the substrate, gregarious or scattered, pear-shaped, collapsing to become cupulate,

non-ostiolate, black, without hairs or bristles. Asci clavate, aparaphysate, on short stalks, 90–110 × 20–24 µm. Ascospores biseriate, hyaline, clavate, with a septum below the middle, 25–33 × 10–12 µm, rounded at the apex, attenuated below in a tail-like appendage 24–26 µm long.

SPECIMEN EXAMINED: CHINA. Jilin Province: Changbai Mauntain: Dayangcha, dead twigs of *Vitis amurensis* Rupr., 4.VIII.2008, VLA P-2172. – RUSSIA. Kurile Islands, Kunashir Island, dead twigs of *V. cognetiae* Pulliat ex Planch., 23.VIII.1987 (HOLOTYPE); Primorsky Territory: Ussuriysk Nature Reserve, dead twigs of *V. amurensis*, 27.VIII.1989, VLA P-235; District Shkotovo, Anisimovka vicinity, dead twigs of *V. amurensis*, 2.IX.1993, VLA P-2317; Jewish Autonomous Region: Bastak Nature Reserve, dead twigs of *V. amurensis*, 19.VIII.2004, VLA P-334.

8. ***Melanconis marginalis*** (Peck) Wehm.,
Papers Michig. Acad. Sci. Arts Lett., 6: 382 (1926) FIG. 11–12

≡ *Diaporthe marginalis* Peck, Rep. New York State Mus., 39: 52 (1886)

≡ *Melanconis alni* var. *marginalis* (Peck) Wehm., Univ. Michig. Stud. Sci., 9: 27 (1941)

Stromata immersed, valsoid, erumpent through the bark with whitish or creamy ectostromatic disc about 0.1–0.3 mm diam. that is surrounded or penetrated by a cluster of black protruding ostioles; perithecia circinate, 400–500 µm diam. Asci fusoid-clavate, sessile, 70–90 × 15–20 µm. Ascospores irregularly biseriate, fusoid-ellipsoid, two-celled, hyaline, constricted at the septum, ends rounded, 20–24 × 5–6.5 µm, often with terminal elongated appendages up to 5–7 µm.

SPECIMENS EXAMINED: CHINA. Jilin Province: Changbai Mountain, dead branch of *Duschekia* sp. 3.VIII.2008, VLA P-2180. – RUSSIA. Amur region: Zeisky State Nature Reserve, dead branches of *D. fruticosa* (Rupr.) Pouzar, 3. VIII.1988, VLA P-1835; Magadan region: Bilibino district, Lake Nizhniy Ilirney, dead branches of *D. fruticosa,* 21.VIII.1980, VLA P-2305; Kamchatka region: Kronotsky National Biosphere Reserve, dead branches of *D. fruticosa,* 6.VIII.1981, VLA P-1834; Sakhalin region: Sakhalin Island, dead branches of *D. fruticosa,* 1.VIII.2000, VLA P-268.

COMMENTS—This species seems to prefer dead branches of *Duschekia* (= *Alnus* subgenus *Alnobetula*) to the same degree as does *Apioporthella bavarica* Petr., which was described from *D. alnobetula* (Ehrh.) Pouzar (Petrak 1929) and much later found in northern Russia on *D. fruticosa* (Vasilyeva 1987).

At present, all specimens of '*Melanconis alni* Tul.' found on dead branches of *Duschekia* in the northern part of eastern Russia (Vasilyeva 1998) should be assigned to *M. marginalis*. Some Japanese collections of this species (Kobayashi 1970) are also reported from host plants belonging in the genus *Duschekia*, namely *D. maximowiczii* (Callier) Pouzar [= *Alnus crispa* subsp. *maximowiczii* (Callier) Hultén].

Peck (1886) described *Diaporthe marginalis* on dead branches of *Alnus viridis* (Chaix) DC. (also known as *Duschekia alnobetula*). The type specimen of Peck's species was collected in eastern North America (New York: Elizabeth town). Wehmeyer (1941) listed this species as *Melanconis alni* var. *marginalis*

and noted as host plants not only members of *Alnus* subgenus *Alnobetula* [*Alnus crispa* (Aiton) Pursh, *A. mollis* Fernald, *A. viridis*], but also *A. tenuifolia* Nutt. (subgenus *Alnus*) and even *Corylus rostrata* Aiton (albeit with questionable identification). His list of localities included not only the eastern portion of the United States of America (Michigan, New Hampshire, New York) and eastern provinces of Canada (Ontario, Nova Scotia) but also the western state of Idaho.

Jansen (1984) indicated *Melanconis marginalis* as occurring on *Alnus tenuifolia* in Idaho and concluded that "there appear to be at least three groups in *M. marginalis*, one from eastern North America and two from Idaho" (Jansen 1984: 279). Some specimens from Idaho have ascospores up to 30 µm, which would be exceptionally long for *M. marginalis*. Others ('normal-spored') probably could be assigned to *M. alni*. The conjecture can be made that only specimens of *M. marginalis* from eastern North America on *Duschekia* represent that species on both biogeographical and ecological grounds.

Biogeographically, *Melanconis marginalis* could be considered as having a 'Grayan disjunction' in its global distribution, being restricted to northeastern Asia and the region around the Great Lakes (Michigan, Minnesota, New York, Ontario) as well as some adjacent areas of North America. It is exactly this region that is the most promising with respect to expectations of finding those species that also occur in eastern Russia, Japan, north-eastern China and on the Korean Peninsula. For example, *Diaporthella platasca* (Peck) Wehm., known previously from the state of New York (Wehmeyer 1933) was found recently in eastern Russia (Sakhalin Island), and this species is not conspecific with *D. aristata* (Fr.) Petr. (cf. Barr 1978).

Ecologically, some closely related species of pyrenomycetous fungi seem to replace each other on related host plants and display a peculiar vicarious pattern of distribution. As such, *Alnus hirsuta* (Spach) Turcz. ex Rupr. in the Russian Far East never supports *Melanconis marginalis*; instead, *M. thelebola* (Fr.) Sacc. is often found on dead branches of that host plant. Another example of closely related and ecologically vicarious species on *Alnus* and *Duschekia* in the Russian Far East is represented by *Hypoxylon multiforme* (Fr.) Fr. and *H. alnicola* Lar. N. Vassiljeva (= *H. multiforme* var. *alaskense* Y.M. Ju & J.D. Rogers). The latter species has a restricted distribution on *Duschekia fruticosa* (Vasilyeva 1998) at high latitudes in east northern Asia (Kurile Isles, Magadan and Kamchatka regions of Russia) and is also reported on *Alnus sitchensis* (Regel) Sarg. [= *A. viridis* = *Duschekia alnobetula*] in Alaska (Ju & Rogers 1996). Consequently, the distribution of *Hypoxylon alnicola* extends across what has been referred to as Beringia (the land mass that once connected Alaska and the Russian Far East), whereas the true *H. multiforme* occurs on *Alnus hirsuta* and *Betula* spp. of eastern Russia.

9. ***Melogramma corylina*** Lar.N. Vassiljeva,
Nizshie Rasteniya, Griby i Mokhoobraznye Dalnego Vostoka Rossii, Griby. Tom **4**. Pirenomitsety i Lokuloaskomitsety (Sankt-Petersburg): 94 (1998) Fig. 6

Stromata small, truncate, erumpent by cream-brownish ectostromatic disc 0.5–1.5 mm diam., studded with dark ostioles, with reddish tissue inside, without stromatic zone in the substrate. Perithecia in the upper part of stromata, 150–200 µm diam. Asci cylindrical-clavate, sessile, 60–70 × 12–15 µm, J-negative, no visible apical ring. Ascospores overlapping parallel to each other, cylindrical, with conical ends, often slightly curved, greenish or brownish, 3–5-septate, 46–56 × 5–5.5 µm.

Specimens examined: CHINA. Heilongjiang province: Sanjiang Nature Reserve, Dongxing Cun, dead branch of *Corylus* sp., 5.VIII.2004, VLA P-1693. – RUSSIA. Amur region: Khingansky Nature Reserve, dead branches of *C. heterophylla* Fisch. ex Trautv., 8.VIII.1992 (HOLOTYPE).

Comments—*Melogramma campylosporum* Fr. was reported to occur mainly on *Carpinus* spp. in Europe and eastern North America but was also supposed to be found rarely on *Corylus avellana* L. (Laflamme 1975). We have seen the stromata of *M. campylosporum* (as *M. vagans* De Not.) on *Corylus* sp. in the exsiccate collection (Tranzschel & Serebrianikow's Mycotheca Rossica N. 30). Asci and ascospores were not obtained because the material was old, but stromata, which are larger and more uneven, are surely different from those of *M. corylina* from northeastern Asia.

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Literature cited

Barr ME. 1978. The *Diaporthales* of North America with emphasis on *Gnomonia* and its segregates. Mycologia Memoir 7: 1–232.

Bau T. 2005. Higher taxa of *Ascomycota* in Jilin Province, China. Journal of Fungal Research 3: 1–6. (in Chinese)

Dai YC, Bau T. 2007. *Hypocreopsis lichenoides* (*Ascomycetes*) new to China. Journal of Fungal Research 5: 63–65.

Doi Y, Liu PG, Tamura M. 2001. A new species of the *Hypocreales* (*Ascomycota*) from Mt. Changbaishan, northeast China. Bull. Nat. Sci. Mus., ser. B, 27: 57–63.

Ellis JB, Everhart BM. 1892. The North American Pyrenomycetes. Newfield, New Jersey. 793 p.

Glawe DA, Rogers JD. 1984. *Diatrypaceae* in the Pacific Northwest. Mycotaxon 20: 401–460.

Gryzenhout M, Myburg H, Wingfield BD, Wingfield MJ. 2006. *Cryphonectriaceae* (*Diaporthales*), a new family including *Cryphonectria*, *Chrysoporthe*, *Endothia* and allied genera. Mycologia 98: 239–249.

Höhnel F. 1923. Fragmente zur Mykologie. Nr. 1215–1225. Sitz. Akad. Wiss. Wien, Math. Nat. Kl., Abt. I, 132: 89–118.

Jensen JD. 1984. *Melanconis marginalis* from northern Idaho. Mycotaxon 20: 275–281.

Ju YM, Rogers JD. 1996. A revision of the genus *Hypoxylon*. Mycologia Memoir 20: 1–365.

Ju YM, Rogers JD, San Martín F, Granmo A. 1998. The genus *Biscogniauxia*. Mycotaxon 66: 1–98.

Ju YM, Vasilyeva L, Rogers JD. 1999. *Daldinia singularis* sp. nov. from eastern Russia and notes on some other taxa. Mycotaxon 71: 405–412.

Ju YM, Hsieh HM, Vasilyeva LN, Akulov A. 2009. Three new *Xylaria* species from Russian Far East. Mycologia 101: 548–553.

Kobayashi T. 1970. Taxonomic studies of Japanese *Diaporthaceae* with special reference to their life-histories. Bull. Gov. Forest Exp. Station 226: 1–242.

Kobayashi T, Zhao JZ. 1989. Notes on diseases of woody plants and their causal fungi in Heilongjiang Province, China (1). Trans. Mycol. Soc. Japan 30: 277–293.

Laflamme G. 1975. Les genres *Melogramma* Fries et *Melanamphora* gen. nov., Sphaeriales. Sydowia 28: 237–274.

Lumbsch HT, Huhndorf SM. 2007. Outline of *Ascomycota* – 2007. Myconet 13: 1–58.

Nitschke T. 1867. Pyrenomycetes Germanici. Breslau 1(1): 1–320.

Peck CH. 1886. Plants not before reported. New York State Mus. Rep. 39: 38–53.

Petrak F. 1929. Mykologische Notizen X. Ann. Mycol. 27: 324–410.

Pouzar Z. 1979. Notes on taxonomy and nomenclature of *Nummularia* (Pyrenomycetes). Ceská Mykol. 33: 207–218.

Rappaz F. 1987. Taxonomie et nomenclature des Diatrypacees à asques octospores (1). Mycologia Helvetica 2: 285–648.

Saccardo PA. 1882. Sylloge Fungorum. Vol. 1. Patavii. 766 p.

Stadler M, Læssøe T, Vasilyeva L. 2005. The genus *Pyrenomyxa* and its affinities to other cleistocarpous *Hypoxyloideae* as inferred from morphological and chemical traits. Mycologia 97: 1129–1139.

Teng SC. 1939. A contribution to our knowledge of the higher fungi of China. Academia Sinica, Bejing. 614 p.

Vasilyeva LN. 1987. Pyrenomycetes and loculoascomycetes of the northern Far East. Nauka, Leningrad. 255 p. (in Russian).

Vasilyeva LN. 1988. The taxonomic position of *Camarops polysperma* (Mont.) J.H. Miller and *Biscogniauxia* O. Kuntze in the Far East. Mikologiya i Fitopatologiya 22: 388–396 (in Russian).

Vasilyeva LN. 1993. *Chromendothia* – a new genus of the family *Hypocreaceae*. Mikologiya i Fitopatologiya 27: 1–7 (in Russian).

Vasilyeva LN. 1994. The system of pyrenomycetes. Dal'nauka, Vladivostok. 424 p. (in Russian).

Vasilyeva LN. 1998. Pyrenomycetes and loculoascomycetes. In: Lower plants, fungi, and bryophytes of the Russian Far East. Vol. IV (ed. Azbukina ZM). Nauka, Saint-Petersburg 419 p. (in Russian).

Vasilyeva L. 2001. Pyrenomycetes of the Russian Far East – Additions and corrections. 1. *Rossmania ukurunduensis* gen. et sp. nov. Mycoscience 42: 399–401.

Vasilyeva LN. 2007. Pyrenomycetes of the Russian Far East 2. *Mollicamarops stellata* gen. et sp. nov. Mycotaxon 99: 159–162.

Vasilyeva LN, Rossman AY, Farr DF. 2007 New species of the *Diaporthales* from eastern Asia and eastern North America. Mycologia 99: 852–859.

Vasilyeva L, Stadler M. 2008. Pyrenomycetes of the Russian Far East 3. Three new *Daldinia* species (*Xylariaceae*). Mycotaxon 104: 287–296.

Vasilyeva LN, Stephenson SL. 2007. *Cryptovalsaria* gen. nov. and its two new species from eastern Asia and south central North America. Sydowia 59: 154–160.

Wehmeyer LE. 1933. The genus *Diaporthe* Nitschke and its segregates. Univ. Michig. Stud. Sci. 9: 1–349.

Wehmeyer LE. 1941 A revision of *Melanconis*, *Pseudovalsa*, *Prosthecium* and *Titania*. Univ. Michig. Stud. Sci. 14: 1–161.

Winter G. 1887. Pilze: Ascomyceten. Rabenhorsts's Kryptogamen-Flora von Deutschland, Oesterreich und der Schweiz, 2. Aufl., 1(2). Leipzig.