

On the genus *Didonia* Vel. (Helotiales)
O rodu *Didonia* Vel. (Helotiales)

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The authentic material of all species of the discomycetous genus *Didonia* Vel. (1934) was examined and results are discussed.

Je pojednáno o sedmi druhoch rodu *Didonia* Vel. (1934) na základě revize typového materiálu.

The genus *Didonia* Velenovský (1934:296), considered by its author as member of the family *Hyaloscyphaceae*, was characterized as follows: "Apothecia minuta, sessilia, patellaria, glabra, laete colorata vel alba, basi fusca vel nigra, parenchymate ad marginem usque (sine prosench.), basi obscure fusco, tentacula longa, stricta, fusca, septata, lumine capillari (membranis incrassatis) gerenti. Asci clavati, paraphyses filiformes, simplices. Sporae ellipticae, tenues, unicellulares." The type species of this genus was not designated, but according to the Velenovský's handwritten manuscripts which I have for disposal cannot be doubt that *Didonia* was established for the species *Didonia picea* Vel., perfectly agreeing with the generic diagnosis. The most important generic features are the long, firm, brown-coloured, septate, thick-walled, bristle-like hyphae, named by Velenovský as „tentacula", and present at base of apothecia. In addition, four other species were described in 1934 (*Didonia juniperina*, *D. quercina*, *D. crataegi* and *D. carlinae*), and in 1947 two further species, *D. betulina* and *D. carpinacea* were added.

In Herbarium Mycologicum of National Museum in Prague (PRM) all type-specimens of these *Didonia* species are preserved which I revised in recent years.

The etymology of *Didonia* is rather unclear, Velenovský named it either in honour of French theologian and writer Henri Didon (born 1840) or according to a mythical goddess Dido.

***Didonia picea* Vel., Mon. Discom. Boh. p. 297, 1934 (sine fig.)**

This species was selected by me as the type species of the genus. Of two specimens (both conspecific) in PRM is No. 151276 considered for the lectotypus: Bohemia centralis, Hrusice prope Mnichovice, „supra lateritiam", ad acus deiectos *Piceae abietis*, 7. V. 1929 leg. et det. J. Velenovský (ut *Iubilea picea* Vel., nom. nud. in herb.). The specimen consists of one spruce-needle with several apothecia now 200 - 300 µm diam., up to 320 µm across when moisted, dully yellowish-brown, broadly sessile, almost disciform, narrowly marginate, glabrous, scattered or contiguous, without conidiophores. Excipulum of textura prismatica in the basal part, composed of isodiametric, polygonal, thin-walled, hyaline

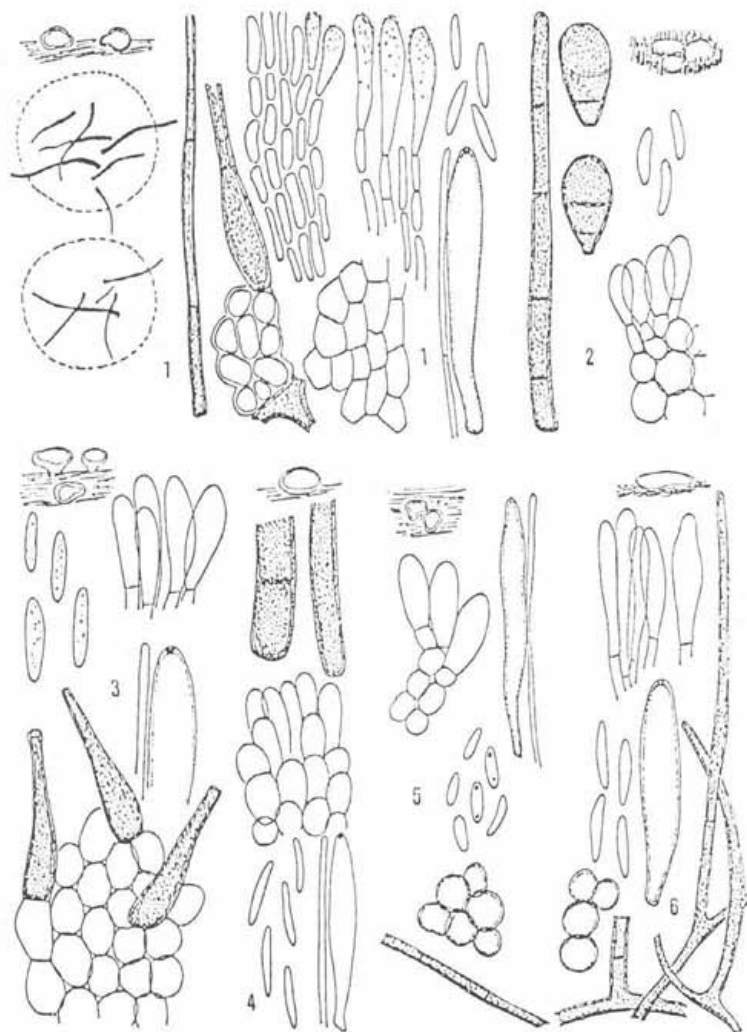
cells up to $15 \times 9 \mu\text{m}$, passing in thick-walled glassy hyphae $1.5 - 2 \mu\text{m}$ wide, resembles *textura oblita*, passing into marginal excipular zone of cylindrical or slightly clavate, thin-walled, often sparsely granulate short hyphae up to $15 \times 2 - 4 \mu\text{m}$ large. At base of the excipulum a group of isodiametric, thick-walled ($\sim 1.5 \mu\text{m}$), brown-coloured cells only $2 - 5 \mu\text{m}$ across is present, from which long cylindrical hyphae ("tentacula" according to Velenovský) are growing, up to $160 \times 3 - 4.5 \mu\text{m}$, mostly slightly curvate, sparsely septate, dark brown, sometimes somewhat enlarged below, obtuse at the tip. It cannot be said with certainty that brown isodiametric small basal cells are a part of excipulum or not. The excipulum is not dextrinoid. Asci $30 - 35 \times 4 - 5 \mu\text{m}$, subcylindrical, thickly stipitate, the pore strongly amyloid (deep blue by Melzer's reagent). Paraphyses $1.5 \mu\text{m}$ thick, not enlarged at the tip, straight, hyaline, not longer than the asci. Ascospores $5 - 7 \times 1.5 - 2 \mu\text{m}$, fusiform, straight, obtuse at both ends, eguttulate, hyaline.

Also the second specimen PRM 151275: Bohemia centr., Mnichovice, in *acubus piceis* (*Picea abies*), 25. V. 1931 leg et det. Velenovský (ut *Iubilea picea* Vel., nom. nud. in herb.) consists of one spruce needle with several apothecia not different from the lectotype specimen. Although in both cases no conidia at the tips of so-called „tentacula" has been observed, they can be considered with a high probability conidiophores. The taxonomic position of this discomycete is unclear and it is hardly a representative of *Hyaloscyphaceae*.

Didonia betulina Vel., Novit. mycol. novis. p. 140, 1947 (sine fig.)

Holotypus PRM 150706: Bohemia centr., Mnichovice (Božkov - „Bílá skála"), *Betula (pendula)*, VI. 1942, leg. et det. J. Velenovský.

Two fragments of some rotten wood (a conifer cannot be excluded) with about 20 helotioid apothecia $200 - 300 \mu\text{m}$ diam., somewhat fleshy, saucer-shaped, shortly attenuated below, pale yellowish, smooth, disc almost concave, basal part dark coloured. Apothecia scattered, sessile on blackish surface (perhaps remnants of an old hyphomycete?). Excipulum *textura prismatica*, composed of more or less polygonal cells up to $10 \mu\text{m}$ diam., elongated towards the base ($\sim 15 \mu\text{m}$), thin-walled, pale brown, forming a layer at base of the excipulum almost blackish-brown coloured. Excipulum by Melzer's reagent not dextrinoid, but deeply chestnut-brown coloured. At the margin and on the ectal part of excipulum numerous cells, $15 - 20 \times 5 - 10 \mu\text{m}$ large, obtusely fusoid, pale brown, are present, and the flanks of the receptacle are covered with rather numerous, oblong-lageniform, up to $25 \times 4 \mu\text{m}$ large, brownish, slightly thick-walled cells resembling conidiophores of *Chalara* sp.; they are attenuated above in a neck truncate at the tip but no conidia were observed. These *Chalara*-cells are most probably so called "corpuscula" mentioned in the original description of *D. betulina*, while "aculei" recorded also for it



1. *Didonia picea* Vel. (lectotype). Two apothecia, Schematic outline of two apothecia from below showing dark conidiophores of a dematioid hyphomycete, conidiophores of this hyphomycete growing on excipular (?) cells, marginal part of excipulum with encrusted cells, basal part of excipulum, ascospores, paraphyses, ascus. - 2. *Didonia quercina* Vel. (holotype). One conidiophore and two conidia of this hyphomycete, three apothecia amongst conidiophores of a dematiaceous hyphomycete, ascospores, marginal part of the excipulum. - 3. *Didonia betulina* Vel. (holotype). Apothecia, ascospores, marginal excipular cells, apical part of one paraphysis and ascus, excipular cells with three *Chalara*-conidiophores. - 4. *Didonia carlinae* Vel. (holotype). One apothecium, two fragments of some conidiophores, marginal excipular cells, ascospores, paraphysis, ascus. - 5. *Didonia crataegi* Vel. (holotype). Apothecia, marginal excipular cells, ascus, paraphysis, ascospores, basal excipular cells, subicular hypha. - 6. *Didonia juniperina* Vel. (holotype). One apothecium, marginal excipular cells, ascospores, ascus, excipular basal cells, thickwalled brown branched hyphae ("tentacula").

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could not to be found. Asci 45-60 6-8 μm , subcylindrical, obtuse above, thickly stipitate below, the large pore (1.5 μm) strongly amyloid (deeply blued by Melzer's reagent). Paraphyses unbranched, 2-2.5 μm thick, straight, not enlarged at the tip, not longer than the asci, hyaline. Ascospores 10 - 12 x 2.5 - 3 μm , oblong, almost cylindrical, obtuse, straight, minutely granulate inside, hyaline.

The excipular structure suggests the genus *Ciliolarina* Svr.

Didonia carpinaea Vel., Novit. mycol. novis. p. 140, 1947

Holotypus PRM 150707: Bohemia centr., Mnichovice, "Hanzlovka" ad lignum *Carpini betuli*, 29. X. 1942 leg. et det. Velenovský (these informations are absent in the original description).

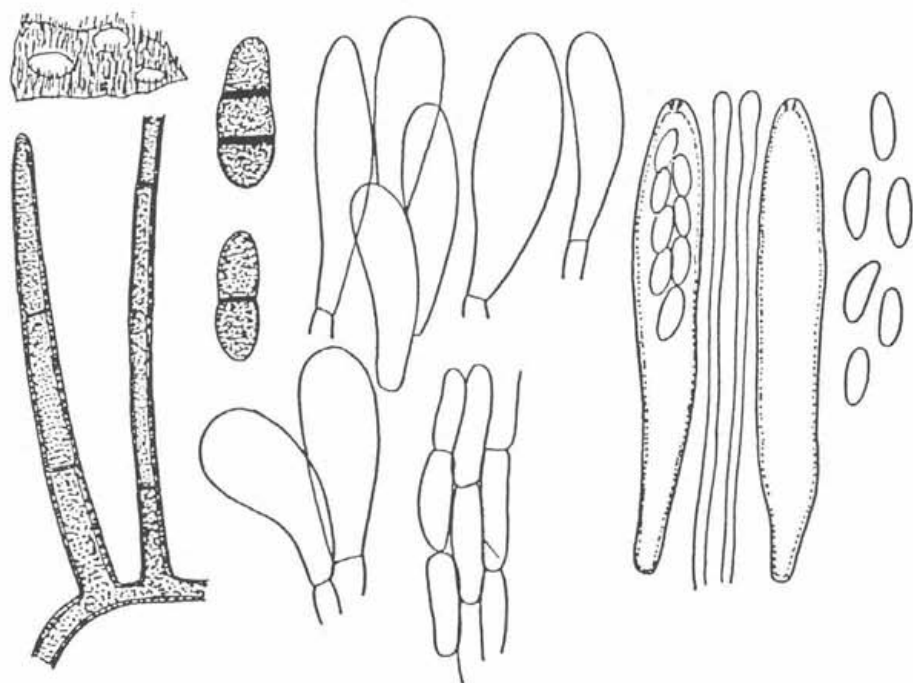
The holotype consists of one small piece of wood densely covered with black straight conidiophores and scattered *Hyaloscypha*-like apothecia. Apothecia when moistened 300 - 400 μm diam., yellowish broadly sessile, disc almost flat, margin and ectal part of the receptacle without distinct hairs. Excipulum textura prismatica, composed of polygonal cells up to 7 x 3 μm large, thin-walled, hyaline, the flanks of the receptacle covered with numerous unicellular, up to 18 x 3 - 6 μm large cells, shortly clavate or subcylindrical, sometimes largely fusoid-clavate, thin-walled, hyaline, smooth. Asci 40 - 45 x 4 - 5 μm , 8-spored (ascospores biseriata), oblong clavate or subcylindrical, shortly and thickly stipitate, above largely obtuse, the pore distinctly amyloid (blued by Melzer's reagent). Paraphyses not enlarged above, unbranched, straight, hyaline, 2 - 3 μm thick. Ascospores (in asci only) 3 - 4 x 1.5 - 1.8 μm , narrowly oblong ellipsoidal, unaequilateral, aguttulate, hyaline. Conidiophores sparsely growing at base of apothecia are up to 90 x 3.5 - 4 μm , unbranched, only below sometimes fasciculate, dark brown, thick-walled, septate, intermingled with 2 - 5-cellular, brown, cylindrical-ellipsoidal conidia 12 - 14 x 4 - 6 μm large.

The original description of this species is incomplete and partly incorrect, without the size of ascospores, which I found in asci only and thus immature. I could not find capilliform hairs ("pili capillares") and conidiophores, in original diagnosis called "aculei" which evidently produce conidia of another form as those seen by me. The excipular structure of this species suggest much the genus *Cystopezizella* Svr.

Didonia carlinae Vel., Mon. Discom. Boh. p. 297, 1934 (sine fig.)

Holotypus PRM 151278: Bohemia centr., Mnichovice, silva "Jidášky" in foliis *Carlinae acaulis*, 29. VII. 1931 leg. et det. J. Velenovský (ut *Iubilea carlinae* Vel., nom nud. in herb.).

On a dead leaf of *Carlina acaulis* only two mollisoid apothecia were found, now dark grey, when moistened in water pale grey, 250 μm diam., broadly sessile, plane, smooth,



Didonia carpinacea Vel. (holotype). Apothecia amongst conidiophores of some dematiaceous hyphomycete, conidiophores and two conidia of this hyphomycete, superficial excipular cells and polygonal cells of the excipulum, asci, paraphyses, ascospores.

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without a subiculum. Excipulum textura globulosa, dark chestnut brown, not dextrinoid, composed of globose cells up to 9 μm diam., their contiguous walls are up to 2.5 μm thick, slightly smaller towards the margin and almost colourless, the margin even, composed of shortly cylindrical, 3.5 - 6 (-8) μm wide, hyaline or pale brownish thin-walled hyphae. Subicular hyphae absent. Asci 28 - 38 x 4 - 4.5 μm , narrowly clavate, shortly stipitate, the pore distinctly amyloid (blued by Melzer's reagent). Paraphyses 2 μm thick, obtuse, without oil globules, not longer than the asci. Ascospores 6 - 8 x 1.3 - 1.5 μm , narrowly fusoid, attenuated at base, straight or slightly curved, eguttulate. At the base of excipulum only fragments of inferior parts of two conidiophores were found, they were septate, thick-walled, blackish-brown. So-called "tentacula" described in the protologue I was not able to find (with regard to the scanty type material I examined a half of one apothecium only). Already J. Velenovský in his manuscript has a note that this discomycete "is similar to a *Mollisia*". In fact, it is a true *Mollisia* sp., morphologically indistinguishable from *Mollisia revincta* (Karst.) Rehm, commonly occurring on stems of various herbs.

Didonia crataegi Vel., Mon. Disc. Boh. p. 297, 1934 (sine fig.)

Bohemia centr., Mnichovice, Hubáčkov, in caudicibus *Crataegi* sp., 4. XI. 1933, leg. et dat. J. Velenovský (holotypus PRM 150708).

Several small pieces of rotten wood with several tens of mollisioid apothecia 0.8 - 1 μm diam., now greyish or yellowish, often with a whitish, lacerate margin, broadly sessile on felt-like brown hypothallus. Excipulum textura globulosa, the marginal cells 5 - 8 μm diam., globose, hyaline, thin-walled, towards the base somewhat larger and thick-walled, golden-yellow, not dextrinoid, but in some parts of excipulum relatively large and almost polygonal (- 10 μm diam.), colourless, the margin composed of unicellular, oblong clavate, hyaline, thin-walled, smooth, often fusoid cells or hyphae 12 - 15 x 3 - 5 μm . Hyphae of the hypothallus long, 2 - 3.5 μm wide, thick-walled, septate, dark brown. Asci 50 x 5 - 6 μm , narrowly clavate, 8-spored (ascospores 1- or partly 2-seriate), the pore very slightly amyloid by Melzer's reagent. Hypothecium small-celled (cells 2 - 3.5 μm across), hyaline. Paraphyses 1.5 - 2 μm thick, obtuse, not longer than the asci, without oil drops. Ascospores 4 - 6.5 x 2 μm , shortly cylindrical or obtusely cuneiform, straight or slightly curvate, often with two minute globules in the poles.

This is a typical *Tapesia*-species, remarkable by its golden-yellow, and at base only somewhat brownish coloured excipulum. "Setae" described in the original diagnosis could refer to the subicular hyphae.

Didonia juniperina Vel., Mon. Discom. Boh. p. 296, fig. 60, 61, tab. 16, 1934.

Holotypus PRM 151279: Bohemia centr., Mnichovice, in acubus marcidis juniperinis, 3. V. 1928 leg. et det. J. Velenovský (ut *Iubilaea juniperina* Vel., nom nud. in herb.).

I found only one apothecium, 400 μm diam. when moistened, flat, thin, colourless, sessile on the surface of a fragment of (a coniferous-needle? *Juniperus*). The apothecium is not marginate, broadly sessile with its whole inferior part, at base are present hyphae 150 - 200 \times 3 - 3.5 μm , 4 - 4.5 μm below (and there sometimes branched), thick-walled, septate, dark brown, obtuse (2.5 μm) at the tip, quite similar to conidiophores but no conidia observed. Excipulum textura globulosa, composed of almost globose or polygonal cells 6 - 10 μm diam., hyaline, not dextrinoid (pale yellow in Melzer's reagent), slightly thick-walled, smaller and more elongated towards the margin, the marginal cells forming a row of cylindrical or elongated cylindrical, hyaline hyphae up to 30 \times 2 - 3.5 μm , smooth or sparsely and minutely granulate. Asci 35 - 40 \times 4 - 5 μm , 8-spored (partly biseriata), cylindrical-clavate, obtuse, the pore very minute (0.7 - 0.8 μm diam.), amyloid. No paraphyses found. Ascospores 7 - 8 \times 1.5 - 2 μm , narrowly fusoid, straight, eguttulate, hyaline.

The observed features agree with the original description of *D. juniperi* only in part, still the illustrations (tab. 16, fig. 61) are in full accordance with them. The only one apothecium examined by me has no doubt the basal hyphae named by Velenovský "tentacula". In this case we cannot exclude possibility either that this apothecium grows by chance in the spot where some conidiophores erupt in fascicles from the host epidermis or that exists a close relation between apothecium and conidiophores (anamorph - teleomorph of one fungus species). An idea regarding parasitism between this discomycete and hyphomycete may be also considered, still this relationship seems to be less probable. The interpretation of "tentacula" as a part of excipular structure is hardly acceptable. The type-specimen contains in addition one microscopic slide (unfortunately useless for a re-examination), and one spruce-needle (*Picea abies*), now without apothecia, both separated by the Swedish mycologist L. Holm (Uppsala) in 1973 during his revision of *D. juniperina*, as well as one needle (perhaps of *Juniperus communis*) in an original small packet indicated by Velenovský's handwriting.

The excipular structure and other features suggest some affinity with the genus *Calycellina* Höhnelt.

Didonia quercina Vel., Mon. Discom. Boh. p. 297, tab. 16, fig. 62 - 64, 1934.

Holotypus PRM 151277: Bohemia centr., Mníchovice, Hubáčkov, in ramis et truncis quercinis 22. VIII. 1931, leg., et det. J. Velenovský (ut *Iubilaea quercina* Vel. nom. nud. in herb.)

Two fragments of decorticated rotten wood overgrown with black, upright conidiophores and numerous, gregarious and often contiguous or confluent mollisoid apothecia 0.5 - 1 μm diam., sessile, disc bluish or whitish. Excipulum textura globulosa, light brown, composed of globose, up to 14 μm diam. thin-walled not dextrinoid cells, the

marginal cells shortly clavate, 4 - 6 μm wide, hyaline or brownish, thin-walled, smooth, arranged in rows. Asci 50 - 60 x 4 - 5 μm , narrowly clavate, 8-spored (ascospores mostly biseriata), the pore amyloid. Paraphyses 3 - 3.5 μm thick, obtuse, not enlarged at the tip, not longer than the asci, hyaline. Ascospores 6 - 10 x 2 - 2.5 μm , unbranched, septate, thick-walled, blackish-brown, producing 3-celled, pyriform or obovate, 17 - 22 x 9 - 10 μm large, brown, conidia at their apices.

There is no doubt that Velenovský's "tentacula" described by him in the protologue of *D. quercina* are conidiophores mentioned above, and "corpuscula pyriformia" are conidia produced by these conidiophores, as it is also evident from cited illustrations. Apothecia of this taxon present a typical *Mollisia*-species.

As a result of the examination of all species studied of the genus *Didonia* it is clear that the only one feature of these taxa is the presence of hyphae which are conidiophores of some dematioid hyphomycetes or superficial mycelial hyphae respectively, close to apothecia or growing on surface of the ectal excipulum, namely in its basal part. The origin of these hyphae is not always clear - are they conidiophores of an associated anamorph or only present an accidental occurrence of another fungus growing together with apothecia on the same substratum? Theoretically, a parasitic dependence cannot be excluded, too. The most conspicuous is this close relation especially in *Didonia picea* selected by me as a lectotype for *Didonia*, a species agreeing perfectly with the generic diagnosis. The *Chalara*-conidiophores growing directly from the excipular cells as well as the long hyphae, or perhaps - conidiophores in *Didonia juniperina* and *D. carpineae* at basal part of the excipulum present also some close relation between apothecia and another fungus. In *Didonia quercina*, a similar connexion exists as in *Dematiocorypha dematiicola* (Berk. et Br.) Svrček (1977) occurring always amongst dematiaceous hyphomycete *Haploglyphium delicatum* Berk. et Br. (Hughes 1953, 1958, M. B. Ellis 1971) or in *Strossmayeria basitricha* (Sacc.) Dennis intimately associated with conidiophores of *Pseudospiropes simplex* (Kunze ex Pers.) M. B. Ellis (M. B. Ellis et J. P. Ellis 1985) (Syn.: *Helminthosporium simplex* Kunze, secundum Dennis 1978). From taxonomic point of view the genus *Didonia* is doubtless a heterogeneous genus embracing species without any affinity and belonging into different families of inoperculate Discomycetes (*Helotiales*). The term "tentaculum" used by Velenovský for so morphologically different hyphae observed and described by him in *Didonia*-species, can be hardly explained. According to W. T. Stearn (1966) tentaculum is a "sensitive glandular hair, as in *Drosera*". Really surprising is the fact that not a single one of seven *Didonia*-species has been found repeatedly exclusively *D. carlinae*, most probably identical with *Mollisia revincta*. The possibility that the presence of various strange hyphae present in various parts of excipulum has been overlooked is also worth considering. Perhaps some of the mentioned species left aside as

"indeterminata", too, with regard to their unclear value. Except for *Didonia picea*, collected twice, all species were found only once in the years 1928 - 1942, consequently during the period when J. Velenovský was most intensively concerned with the study of Discomycetes, and many thousands of specimens passed through his hands.

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