

Notes on the Laboulbeniales (Ascomycetes) from the Czech Republic

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Previous records of Laboulbeniales from the former Czechoslovakia are revised and 24 new records. – are added to the list of species for the Czech Republic. These are: *Asaphomyces cholevae* Thaxter, *Chitonomyces aculeifer* Spegazzini, *Colonomyces appendiculatus* R.K. Benjamin, *Corethromyces henrotii* Balazuc ex Balazuc, *Hydraeomyces halipli* (Thaxter) Thaxter, *Laboulbenia argutoris* Cépède & Picard, *L. cristata* Thaxter, *L. eubradycelli* Huldén, *L. fasciculata* Peyritsch, *L. flagellata* Peyritsch, *L. nana* K. Sugiyama, *L. notiophili* Cépède et Picard, *L. pedicellata* Thaxter, *L. philonthi* Thaxter, *Monoicomyces athetae* Thaxter, *Peyritschiella princeps* (Thaxter) I.I. Tavares, *Rhachomyces canariensis* Thaxter, *R. furcatus* (Thaxter) Thaxter, *Rhadinomyces pallidus* Thaxter, *Rickia peyerimhoffii* Maire, *Stigmatomyces asteiae* W. Rossi & Cesari, *S. oecothaeae* Thaxter, *Trenomycetes histophthorus* Chatton & Picard, and *Zodiomyces vorticellarius* Thaxter. *Euphoriomyces liodivorus* (Huggert) I.I. Tavares and *Stigmatomyces scaptomyzae* Thaxter are reported for the first time from Slovakia and new records of *S. scaptomyzae* Thaxter from various countries are also given.

Key words: arthropod-associated fungi, fungal distribution, Slovakia.

Laboulbeniales are a peculiar group of fungi growing on living insects and on a few other arthropods. For this reason they are seldom collected by the standard mycological methods. They were overlooked in the key of the cryptogamous plants of the former Czechoslovakia (Svrček *et al.*, 1976) and also in the list of the cryptogamous plants of Slovakia (Marhold & Hindák, 1998), both including otherwise comparatively detailed treatments of fungi. However, the sparse data from the former Czechoslovakia were included by Santamaria *et al.* (1991) in their survey on the distribution of European Laboulbeniales.

In the present paper a revision of previous findings is carried out and records are sorted out according to present-day countries (Czech Republic, Slovakia). Twenty four new records from Czech Republic and two new records from Slovakia, together with

comments on some of the species, are also reported. When possible, names of the localities are followed by numbers according to the faunistic and floristic grid mapping system widely used in central Europe (e. g. Ehrendorfer & Hamann 1965, Pruner & Míka 1996).

Field research was carried out in the Czech Republic only. The records from Slovakia were collected from the peer-reviewed literature and are noted separately.

Materials and Methods

Most of the material studied for this work was collected in the field by one of the authors (J. M.) by standard entomological methods, chiefly by hand collecting. The remaining material was collected either by W. R. and by Czech entomologists, or found in entomological collections. The fungi were removed from their hosts and mounted on slides following the techniques described by Benjamin (1971). Permanent slides are kept in the collection of Jan Máca, unless otherwise stated.

Taxonomy

Arthrorhynchus diesingii Kolenati

Published record. – Kolenati 1857: Moravia, locality not specified, on *Acrocholidia vexata* Westwood (Diptera, Nycteribiidae) parasitizing the bat *Vespertilio murinus* (L.).

Asaphomyces cholevae Thaxter – (Figs. 1 – 2)

Distribution. – This parasite was described from the USA on *Sciodrepoides fumatus* ssp. *terminans* (LeConte) (sub *Choleva terminans* Lec.); it was subsequently reported, sometimes under the synonym *Asaphomyces tubanticus* (Middelh. & Boelens) Scheloske, from several European countries and from Morocco on various genera of Coleoptera Leiodidae Cholevinae (*Catops*, *Catopidius*, *Sciodrepoides*, *Nemadus*) (Santamaria & Rossi 1999).

New records. – Bohemia, Meziměstí env., 1.5 Km NW to Vižňov (5363), 15 – 30 Jul 1992, J. Růžička leg., on *Catops coracinus* Kellner; Šumava Mts., Dešenice env., Městiště (6745), pitfall, 10 – 25 Oct 1989, J. Růžička leg., on *C. kirbyi* (Spence); Ještědský ridge, 1.5 Km E to Jitrava vill., PR Velký Vápenný, Západní cave (5255), pitfall, 4 Jun 1998 – 27 Apr 1999, J. Růžička & P. Vonička leg., on *C. nigricans* Spence; Frýdland near PR Křížový Vrch (5056), 8 Jul 2004, P. Vonička leg., on the elytra of *C. nigrita* Erichson; Krkonoše Mts., Obří důl valley, (former) Kovárna env. (5260c), pitfall, 15 Jun – 11 Aug 2004, J. Růžička leg., on *C. subfuscus* Kellner and

C. tristis (Panzer); Orlické hory Mts., Vrchní Orlice near Bartošovice v Orlických horách env., Polom Mt. (5865 a), pitfall, 25 Aug – 27 Nov 2004, O. Nakládal leg., on *C. westi* Krogerus.

Additional records. – U.S.A.: IL, Cook Co., Western Springs, Benis Woods North, 2 – 16 Jul 1994, A. Newton & M. Thayer leg.; IL, Cook Co., Swallow Cliff Woods, NW of Palos Park, north site, alt. 215 m, 41°40.6'N 87°51.9'W, 12 – 26 Jun 1996, M. Thayer & al., on two females and two males of *Sciodrepoides fumatus* ssp. *terminans*. Hosts identified by P. Giachino (Turin, Italy). Slides nos. 2872, 2873, 2874a, 2874b & 2875 in WR collection.

Note. – Examination of a large number of parasites obtained from a few American specimens of *Sciodrepoides fumatus* ssp. *terminans*, which is the host of the type series, showed a certain variability of the thalli depending on the age and on the position of the fungi on the hosts. For example, older perithecia are more inflated than the young ones and the number of the same is higher, on average, in thalli growing on the ventral side of the host insects. This makes insignificant the differences claimed for distinguishing *Asaphomyces cholevae* from *A. tubanticus*.

***Chitonomyces aculeifer* Spegazzini**

Distribution. – Recorded from Europe (Germany, Italy, Poland, Spain), from Argentina, and from China (Santamaria 2003).

New record. – Bohemia, Vlkov, Vlkovská pískovna (6854), 28 May 2004, W. Rossi leg., on the underside of the margin of the right elytron, near the prosternum, of a male specimen of *Haliphus variegatus* Sturm (Coleoptera, Halipidae); slide no. 2710 in WR collection.

Note. – A single, mature thallus of *Chitonomyces aculeifer* was found, together with several thalli of *Hydraeomyces halipli* (see further on) scattered all over the body of the same host insect.

***Colonomyces appendiculatus* R.K. Benjamin**

Distribution. – Reported so far only from the U.S.A. (type), Germany and Sweden (Santamaria *et al.* 1991).

New record. – Moravia, Adamov (6665-6), date unknown, E. et G. Mazur leg., on *Colon murinum* Kraatz (Coleoptera, Leioididae) (W. Szymczakowski det.). The parasite was identified by T. Majewski (Warszaw) and the slide (now in the collection of J.M.) was kindly sent to us by R. Krejzová (Praha).

***Corethromyces henrotii* Balazuc ex Balazuc – (Figs. 3 – 4)**

Distribution. – Reported from France (type), Italy, Finland, Belgium and Spain on *Choleva* spp. (Santamaria 2003).

New record. – Bohemia, Janovice nad Úhlavou (6645), 7–9 Oct 1989, J. Růžička leg., on *Choleva oblonga* Latreille (Coleoptera, Leiodidae).

Note. – The new record makes it possible to single out two important characters which have never been reported so far. One is the presence of a long appendage, which is simple in most cases (Figs. 3 & 4), but may also be branched. The other is a second perithecium borne above the first, which is present in 11 of the 63 examined thalli (Fig. 3).

Diphymyces niger (T. Majewski) I. I. Tavares

Published record. – Huggert 1973: Bohemia, Podledec (? recte Podletic = Podlesice near Podbořany) (5745-6), on *Ptomaphagus sericatus* (Chaudoir) (Coleoptera, Leiodidae, Cholevinae).

Hydraeomyces halipli (Thaxter) Thaxter

Distribution. – This parasite was found in several European countries, in North Africa, in Asia, and in North and South America (Majewski 1994).

New record. – Bohemia, Vlkov, Vlkovská pískovna (6854), 28 May 2004, W. Rossi leg., all over the body of a few specimens of *Haliplus fluviatilis* Aubé and *H. variegatus*.

Laboulbenia argutoris Cépède & Picard

Distribution. – Reported from several European countries and from Japan (Majewski 1994); however, some old records are questionable (Santamaria 1995).

New records. – Bohemia, Třebovice, NR (= Nature Reserve) Hrádeček (6950), 25 Oct 2002, J. Máca leg., on *Phonias* (= *Pterostichus*) *ovoideus* (Sturm) (Coleoptera, Carabidae); Střížovice nr. Kunžak (6856), 11 Mar 2003, J. Máca leg., on *P. taksonyis* Csiki.

Laboulbenia clivinalis Thaxter

Published record. – Huldén 1985: Moravia, Paskau (Paskov) (6275), on *Clivina collaris* (Herbst) (Coleoptera, Carabidae).

Additional record. – Bohemia, Mečichov (6649), 27 Apr 2005, J. Máca leg., on *Clivina fossor* (Linnaeus).

Laboulbenia cristata Thaxter

Distribution. – Very common cosmopolitan species, reported from all continents (Santamaria 1998).

New records. – Bohemia, Záhostice nr. Chýnov (6554), 23 March 2004, J. Máca leg., on abdomen and legs of one specimen of *Paederus riparius* (Linnaeus) (Coleoptera, Staphylinidae); Vlkov, Vlkovský rybník (6854), 28 May 2004, W. Rossi leg., on two specimens of *P. riparius*.

***Laboulbenia egens* Spegazzini**

Published record. – Huldén 1985: Moravia, Paskau (Paskov) (6275), on *Elaphropus* (= *Tachys*) *quadrisignatus* (Duftschmidt) (Coleoptera, Carabidae).

***Laboulbenia eubradycelli* Huldén**

Distribution. – Reported from several European countries, from Madeira and from Mexico (Santamaria 1998).

New record. – Bohemia, Volary env., Mrtvý Luh peat-bog (7149), 30 Jul – 2 Aug 2002, Aleš Bezděk leg., on *Bradycellus harpalinus* (Serville) (Coleoptera, Carabidae); Horusice (6854), 12 Apr 1999, J. Máca leg., on *B. caucasicus* (Chaudoir).

***Laboulbenia fasciculata* Peyritsch**

Distribution. – Cosmopolitan species reported throughout Europe, Africa, Asia, and America (Majewski 1994).

New record. – Bohemia, Planá nad Lužnicí (NR Ostrov Markéta) (6654), 17 Sep 1992, J. Máca leg., on *Patrobis atrorufus* (Ström) (Coleoptera, Carabidae).

Note. – Erroneously reported from Czechoslovakia by Santamaria *et al.* (1991). The place where it was found by Banhegyi (1949), i. e. Tusnádfürdő (= Tusnad nr. Brasov), is in Romania.

***Laboulbenia flagellata* Peyritsch**

Distribution. – A common cosmopolitan species, reported on very many different genera and species of ground beetles (Carabidae) (Majewski 1994).

New records. – Bohemia, near Soběslav (6754), 1 Apr 2003, J. Máca leg., on *Europhilus thoreyi* (Dejean); Besednice (7253), 29 Mar 2001, J. Máca leg., on *E. fuliginosus* (Panzer); Veselí n. Lužnicí (6854), 29 Mar 2003, J. Máca leg., on *Platynus assimilis* (Paykull). Moravia, Rancířov (7059), 25 Apr 2003, J. Máca leg., on *Paranchus albipes* (Fabricius).

Fig. 1 – 2. *Asaphomyces cholevae*: 1. Thallus from *Catops nigrita*; 2. Thallus from *Scioldreporides fumatus* ssp. *terminans*. **3 – 4.** *Corethromyces henrotii*: 3. Young thallus with two immature perithecia; 4. Mature thallus. **5.** *Laboulbenia nana*. **6.** *Stigmatomyces entomophilus*. Bars = 50 µm. Specimens represented in Figs. 1 – 4 were stained with acid fuchsin.

