

Notes on Three Species of the Laboulbeniales Newly Collected in Korea (2005)

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Three species of the Laboulbeniales from Korea are described. They are new to the mycological flora of Korea. *Corethromyces purpurascens* on several parts of *Ochtheophilum densipenne*, *Laboulbenia barbara* on the metasternum of *Philonthus longicornis* and *L. compressa* on the elytra of *Harpalus tinctulus* were found.

KEYWORDS: *Corethromyces*, *Laboulbenia*, Laboulbeniales, Korea

Korean Laboulbeniales were known 68 species belong to 17 genera so far. Among these species and genera, one species of *Corethromyces* and thirty three species of *Laboulbenia* were only reported (Lee *et al.*, 2004). The authors had an opportunity to examine some materials of the Laboulbeniales found on the two families of Coleoptera from three regions of South Korea. In this paper, one species of *Corethromyces* and two species of *Laboulbenia* were described, illustrated and identified, and they were new to Korea. All specimens were deposited in the private herbarium of the first author, Department of Biology, College of Education, Chosun University.

Description of Species

1. *Corethromyces purpurascens* Thaxter, Proc. Amer. Acad. Arts Sci. 35: 433. 1900. (Fig. 1)

Thalli 328~350 μm long to the top of perithecium. Receptacle consisting of the basal and the distal portions, 125~130 μm long; the basal portion composed of two superposed one celled layers, forming basally a blackish foot, 75 μm long; cell I 30 μm long (including the foot), 10~13 μm thick, brownish or blackish translucent, cylindrical; cell II 20~40 μm long, 15 μm thick, blackish, posteriorly more deeply blackened, separated by oblique septae from cell I and from the stalk-cell of the perithecium, connected by a horizontal septum from the distal portion of the receptacle; the distal portion of the receptacle 70~75 μm long, almost wholly blackened (in young thallus), composed of three superposed layers; cell III and IV consisting of third and fourth layers of receptacle, one-celled, cell V and VI consisted of the distal layer, broader than length.

Appendages produced on the distal end of the recepta-



Fig. 1. *Corethromyces purpurascens* on *Ochtheophilum densipenne* (Scales: 100 μm).

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cle, filamentous, hyaline, basally blackened in young individuals, 90~100 μm long.

Perithecium consisting of perithecium proper and the stalk-cells; perithecium proper composed of four layers, second and third layers deeply blackish brown, mostly stout, straight, slightly inflated towards the basal portion, tapering gradually to the blunt symmetrical apex, 180~193 μm long, 35~50 μm thick; the stalk cells composed of two layers, the basal cell 2 times longer than the subbasal cells, hyaline, tapering gradually to the blackish basal portion, cylindrical, 70 μm long, 30 μm thick, the subbasal cells of the perithecium stalk composed of two cells arranged horizontally, slightly darkened, shorter than the basal cells, nearly diametrical, slightly darker than the basal cells, 35 μm long, 15 μm thick. Antheridia not observed.

Host genus: *Biocrypta* and *Cryptobium* (as syn. *Ochthephilum*) (Coleoptera, Staphylinidae).

Host species in Korea: *Ochthephilum densipenne* (Sharp)

Distribution: Brazil, Korea and West Indies.

Specimen examined: A valley near Temple Hwaom, Mt. Jiri, Jeonnam Prov., July 11, 1998, Coll. Lee, Na, Lim, Park, L-Y-1597, 1598, 1599 and 1600.

This species is closely related to *Corethromyces crytobii*, *C. brasiliensis* and *C. shazawae*, parasites of the beetles of the genus *Ochthephilum*. All of them have elongated, slender perithecium proper and blackish receptacle (Thaxter, 1896, 1908, 1931). However, *C. purpurascens* is well distinguished from *C. shazawae* in having the deeply blackish brown perithecium proper inflated gradually from the rounded apex to the subbasal portion, whereas in the latter it has a slightly brownish perithecium proper elongated cylindrically. This species is also different from *C. crytobii* and *C. brasiliensis* in having only the wholly hyaline appendages on the distal end of the receptacle, whereas in two species of the latter they have both together two kinds of the hyaline and blackish appendages.

According to the figures of the Thaxter (1900), this species has the perithecium being sometimes distinctly inflated basally and the wholly hyaline appendages.

Authors determine consistently the Korean specimens with *C. purpurascens* because of the former's morphological characters of this fungus. Insects were collected under the small stone of valley stream, Mt. Jiri. Thalli were found on the several parts of the hosts.

2. *Labulbenia barbara* Middelheok et Boelens, Nedrl. Kruidk. Arch. 53: 99, 1943; Balazuc, Bull. Soc. Linn. Lyon 43: 15, 1974; Majewski, Polish Bot. Stud. 7: 112, 1994. (Fig. 2)

Total length to the top of perithecium 240~260 μm long. Thallus amber-yellow. Receptacle consisting of the basal and the distal portion; receptacle proper with stout or slender stalk, 130~160 μm long, 65~70 μm thick; the basal



Fig. 2. *Labulbenia barbara* on *Philonthus longicornis* (Scales: 100 μm).

portion composed of five cells and the insertion cell; cell I bent anteriorly, tapering downwards foot, broadening upwards, producing the blackish foot on the tip of the basal portion, 35~40 μm long, 20~30 μm thick; cell II broadening upward, more or less elongated, connected obliquely with the basal cell of perithecial stalk, 30~35 μm long, 40 μm thick; cell III slightly longer than broad, 40~45 μm long, 25~35 μm thick; cell IV isodiametric, 35~40 μm long; cell V nearly as long as cell IV, obtrianangular, 20 μm long, 5 μm thick; the insertion cell darkened, constricted, 5~7 μm long, 15 μm thick; the distal portion of receptacle composed of two appenages arranged anterior-posteriorly; the basal cells secondarily divided, giving rise to many branchlets; the basal cell of outer appendages stout larger than those of inner appendages, 15 μm long, 8~10 μm thick. Antheridia formed on lower parts of branchlets of the inner appendage filamentous, 10 μm long, 5 μm thick.

Perithecium consisting of the perithecium proper and the stalk cells; perithecium ovate or nearly ellipsoidal, half-free, tapering gradually upwards with subapical blackening and prominent rounded posterior lips, 100~120 μm long, 55~60 μm thick; the stalk of perithecium composed of a large basal cell and one or three (rarely) subbasal cells, the basal cell (cell VI) 20~30 μm long, 20~30 μm thick.

Host genus: *Philonthus* (Coleoptera, Staphylinidae).

Host species in Korea: *Philonthus longicornis* Stephens

Distribution: France, Holland, Korea and Poland.

Specimens examined: Swamp Upo, Gyeongnam Prov., August 10, 1996, Coll. Lee, Na, Lim, Park, L-Y-1283-1 and 1283-2

Three species of the genus *Labulbenia* were reported on Korean representatives of the genus *Philonthus*. They are *L. philonthi* (Lee and Na, 1998), *L. stenolophi* (Lee and Na, 1998) and *L. barbara* (this paper). *L. barbara*

described by Middelheek (1943), Balazuc (1974) and Majewski (1994) has the elliptical, narrow, elongated perithecia that 4/5 freed from the receptacle, whereas in the present materials it has ovate, stout, inflated perithecia that half freed from the receptacle. The outer appendages of the former are blackened anteriorly, however, they are slightly blackened anteriorly or hyaline in the Korean materials.

Although some morphological differences between these specimens mentioned above are noticed, authors determine consistently the Korean specimens with *L. barbara* because of the biological specialization with respect to host and the morphological characters of this fungus. Hosts were collected on muddy exposed pondside. Thalli were found on the metasternum of the hosts.

3. *Laboulbenia compressa* Thaxter, Proc. Amer. Acad. Arts Sci. 28: 165, 1893; Huldén, Karstenia 23: 52, 1983.

(Fig. 3)

Total length to the top of the perithecium 450~460 μm long. Receptacle bright yellowish, consisting of the basal and the distal portions; the basal portion cylindrical, tapering towards the end, forming a blackish foot at the end, composed of five cells and the insertion cell, 210~215 μm long, 60~70 μm in diameter; cell I about 2 times longer than broad, 55~60 μm long, 30~35 μm thick; cell II larger than the other cells, 60~70 μm long, 40~45 μm thick; cell III isodiametric, longer than broad, 35~45 μm long, 25~30 μm thick; cell IV nearly isodiametric, 40~42 μm long, 30~35 μm thick; cell V small, oval, 20 μm long, 10~13 μm thick. The insertion cell dark flated, 10 μm long, 10~13 μm thick; the distal portion of the receptacle composed of two branches arranged anterior-posteriorly; the outer appendage once ramified on the subbasal cell, the

basal cell nearly equal or slightly larger than the subbasal cell, the basal and the subbasal cells slightly blackish yellow; two branchlets hyaline exception the basal cell of outer branchlet, 235~250 μm long; the inner appendage third or fourth ramified on the basal cell, which is bearing the sterile or the fertile branchlets; the sterile branchlets extremely longer than the fertile, exceeding the apex of perithecium, 110~150 μm long; the fertile branchlets bearing antheridia on the distal portions, slightly darkened, not exceeding the apex of perithecium, 70 μm long.

Perithecium composed of the perithecium proper and the stalk; perithecium ellipsoidal, cylindrical, blackish brown yellow, half free from the receptacle on its posterior side, blackish and slightly constricted in the subapical part; the posterior lip-cell forming a rounded termination of the apex; the stalk of perithecium consisting of two or three subbasal cells and a large basal cell, each cells connected laterally under the septum of the cell of the receptacle, the basal cell, 30~35 μm long, 25~30 μm thick.

Antheridia cylindrical, tapering towards the distal end, 18~20 μm long, 3~5 μm thick. Spores not observed.

Host genus: *Ansodactylus* and *Harpalus* (Coleoptera, Carabidae)

Host species in Korea: *Harpalus tinctulus* Bates

Distribution: Finland, Korea, U S A. and U S S R.

Specimens examined: Gosiri, Hancheonmyeon, Hwasun, Jeonnam Prov., June 14, Coll. Lee, Na, Lim, Park, 2003, L-Y-2009-1, 2009-2 and 2009-3

The present species is closely related to *L. filifera* and *L. polyphaga*, but it differs in the following features; 1) The outer appendages of receptacle in the former are much shorter than those of *L. filifera* and the apex of the perithecium is terminated slightly hyaline towards the distal end and the subapical portion is slightly constricted, whereas in the latter it is rounded, darkened towards the distal end and the subapical portion is inflated. 2) The inner appendages of receptacle in *L. compressa* are exceeding the apex of perithecium, whereas in *L. polyphaga* they are not exceeding it.

Antheridia of this species illustrated by Thaxter (1893) are bearing on the lateral side of subapical cell of inner fertile appendages and in Huldén's materials (1983) they are bearing on the apical cells. In the present specimens they agreed with the Huldén's materials. Thalli were found on the elytra of the hosts.

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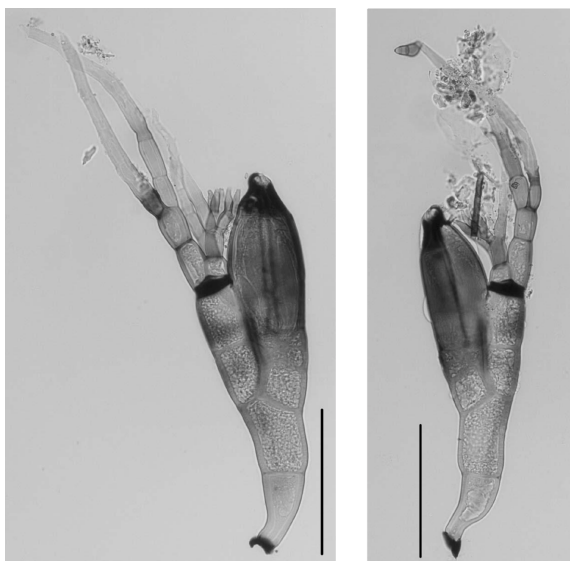


Fig. 3. *Laboulbenia compressa* on *Harpalus tinctulus* (Scales: 100 μm).

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