

## Notes on Species of the Laboulbeniales (Ascomycotina) Collected in Korea

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### 한국산 총생자낭균류의 미기록종에 관하여

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**ABSTRACT:** Three species which belong to two genera of the Laboulbeniales were collected on Dytiscidae (Coleoptera) and Carabidae (Coleoptera) from south Korea. Occurrence of these species has not been recorded in Korea. They are *Chitonomyces orientalis* Thaxter on *Laccophilus lewisius* sharp, *Chitonomyces zonatus* Thaxter on *Laccophilus lewisius* sharp and *Laboulbenia gebleri* Terada on *Haplochlaenius constiger* Chaudoir. Major characters of the three species are described and illustrated.

**KEYWORDS:** *Chitonomyces*, *Laboulbenia*, *Laboulbeniales*

### Descriptions of species

1. *Chitonomyces orientalis* Thaxter, Mem. Amer. Acad. Ants sci. 14: 398. 1924; 15: 528. 1926; Majewski, Trans. Mycol. Soc. Japan 29: 256. 1988. (Fig. 3 & 4)

Thallus hyaline, yellowish brown, arcuated. Total length to the top of the perithecium 134~142  $\mu\text{m}$  long, 38~43  $\mu\text{m}$  thick. Receptacle cylindrical, consisting of the basal and distal portions, 121~132  $\mu\text{m}$  long, 21~26  $\mu\text{m}$  thick; the basal portion stalk-like, composed of two superimposed one-cell layers; the first layer two times longer than broad, slender, tapering towards the basal obconical foot, 26~27  $\mu\text{m}$  long, 14~18  $\mu\text{m}$  thick; the second layer slightly flattened, 11~13  $\mu\text{m}$  long, 21~22  $\mu\text{m}$  thick; the distal portion of the receptacle

formed above the posterior side of the distal end of its basal portion, consisting of three layers of cells; the first layer 45~57  $\mu\text{m}$  long, 12~15  $\mu\text{m}$  thick; the second layer consisting of the cell with a blackish top and the other cell with third layer on its, the former cell smaller than the latter one; the third layer rounded distally, with the blackish top, 14~16  $\mu\text{m}$  long, 12~14  $\mu\text{m}$  thick.

Perithecium composed of a stalk and perithecium proper; the perithecium proper with the elongated projection bented anteriorly at the apical portion, 80~88  $\mu\text{m}$  long, 24~29  $\mu\text{m}$  thick; the stalk of perithecium consisting of three cells, the cells arranged parallelly on the second layer of the receptacle, the outer cell smaller than the middle cell and the inner one united to the third layer laterally, the outer cell 7~10  $\mu\text{m}$  long, 8~11  $\mu\text{m}$  thick, the middle cell 11  $\mu\text{m}$  long, 12~15  $\mu\text{m}$  thick,

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the inner cell 17~19  $\mu\text{m}$  long, 9~12  $\mu\text{m}$  thick.

Host genus: *Laccophilus* (Dytiscidae, Coleoptera).

Host species in Korea: *Laccophilus lewisius* Sharp.

Distribution: China, Japan and Korea (new record).

Specimens examined: Pond, Junam, Changnyoung, Kyeongnam, Pref., September 17, 1996, L-Y-1468, 1469 and 1471.

This species is characterized by the elongated projection of the perithecium. This fungus were collected from the posterior foot of host. In respect to the essential traits it corresponded to the descriptions of Thaxter (1924) and Majewski (1988).

**2. *Chitonomyces zonatus* Thaxter, Mem. Amer. Acad. Arts Sci. 15: 535.1926; Sugiyama & Phanchapol, Nat. Hist. Bull. Siam Soc. 32: 66. 1984; Sugiyama & Nagasawa, Trans. Mycol. Soc. Japan 26: 10. 1985. (Fig. 1 & 6)**

Thallus hyaline with tint of yellowish brown, 112~117  $\mu\text{m}$  long, 20~21  $\mu\text{m}$  thick. Receptacle cylindrical, consisting of the basal and distal portions, 70~72  $\mu\text{m}$  long, 9~10  $\mu\text{m}$  thick; the basal portion stalk-like, composed of two superimposed one-cell layers, 22~33  $\mu\text{m}$  long, 9~10  $\mu\text{m}$  thick; the first layer slender, tapering towards the basal obconical foot, 17~18  $\mu\text{m}$  long, 7~8  $\mu\text{m}$  thick; the second layer 5  $\mu\text{m}$  long, 9~10  $\mu\text{m}$  thick; the distal portion of the receptacle formed above the posterior side of the distal end of its basal portion, with blackish tubercular transverse bands at about the middle portion, consisting of four layers of cells, 51~54  $\mu\text{m}$  long, 6~8  $\mu\text{m}$  thick; the first layer 9~11  $\mu\text{m}$  long, 5~7  $\mu\text{m}$  thick; the second layer 19~20  $\mu\text{m}$  long, 7  $\mu\text{m}$  thick; the third layer comprising two cells arranged antero-posteriorly and separated by an oblique septum, blackened in distal one-thirds, 10~13  $\mu\text{m}$  long, 7~8

$\mu\text{m}$  thick; the fourth layer rounded terminally, with a small blackish apical prominence, 10~12  $\mu\text{m}$  long, 7  $\mu\text{m}$  thick.

Perithecium relatively large, cylindrical, composed of a stalk and perithecium proper, 76~90  $\mu\text{m}$  long, 15  $\mu\text{m}$  thick; the perithecium proper isodiametric at basal two-thirds, tapering towards the coarse tip at the upper portion and often curved posteriorly in this portion, united to the second and third layer of the distal portion of receptacle, forming a horn-shaped projection at the subapical portion of the anterior side, often with transverse blackish bands which are continuous from those of the receptacle, 58~76  $\mu\text{m}$  long, 10~11  $\mu\text{m}$  thick; the perithecial projection concolorous with the perithecium, irregularly curved, tapering towards the thinly rounded tip, 20~35  $\mu\text{m}$  long, 4~5  $\mu\text{m}$  thick; the stalk consisting of two superimposed cells, formed above the anterior side of the distal end of the second layer of the receptacle, 10~12  $\mu\text{m}$  long, 5~6  $\mu\text{m}$  thick.

Host genus: *Laccophilus* (Dytiscidae, Coleoptera).

Host species in Korea: *Laccophilus lewisius* Sharp.

Distribution: China, Thailand and Korea (new record).

Specimens examined: Pond Yongsu, Cheju Island, August 28, 1994, L-Y-1047, 1049, 1050 and 1051.

The main characters of this species are the slender form of thallus, the elongated projection of perithecium and the transverse blackish strips of receptacle. This species is distinguished from the similar species, *C. appendiculatus* Thaxter and *C. dentifer* Thaxter by the strips of receptacle. This fungus can be distinguished from *C. striatus* Thaxter, another related species, by the elongated projection of perithecium. The specimens were collected from the margin of

anterior portion of the elytra, and the same host with the several species (*C. chinensis*, *C. melanurus* and *C. paradoxus*) of the genus *Chitonomyces*.

3. *Laboulbenia gebleri* Terada, Mycoscience 36(3): 305. 1995. (Fig. 2 & 5)

Thallus dark-spotted or streaked, gray-brown or yellowish gray-brown. Total length to the top of perithecium 216~268  $\mu\text{m}$  long. Receptacle composed of a receptacle proper and two appendages; the receptacle proper cylindrical, consisting of four layers of cells and a insertion cell; each layer one-celled except for the fourth one; the first and second layers forming a stout stalk of thallus; the stalk nearly equal in diameter, rounded basally, more or less tapering towards the distal end; the first layer forming basally a subconical foot, 68~87  $\mu\text{m}$  long, 30~38  $\mu\text{m}$  thick; the second layer more or less shorter or subequal to the first one in length, 50~71  $\mu\text{m}$  long, 32~37  $\mu\text{m}$  thick; the third layer nearly oblong in optical section, 40~59  $\mu\text{m}$  long, 20~28  $\mu\text{m}$  thick; the fourth layer shorter than the third one in length, subequal in diameter, consisting of two cells arranged antero-posteriorly; the posterior cell 34~42  $\mu\text{m}$  long, 22~26  $\mu\text{m}$  thick; the anterior cell smaller, subtriangular, placed obliquely at distal portion of the posterior cell, 12~14  $\mu\text{m}$  long, 8~12  $\mu\text{m}$  thick; the insertion cell blackish, band-shaped, 5~6  $\mu\text{m}$  long, 15~19  $\mu\text{m}$  thick; the outer appendage simple, above 100  $\mu\text{m}$  long; the basal cell short-cylindrical; the suprabasal cell short-cylindrical, subequal to the basal cell in length, with upper and lower septa hardly constricted and unblackened; other septa also unblackened; the inner appendage simple, long and slender; the basal cell short-cylindrical, shorter than the outer basal cell; the suprabasal cell narrow, cylindrical, sometimes becoming dark at the base. Antheridium not discovered.

Perithecium darker than the receptacle, composed of a stalk and perithecium proper; the perithecium proper not nearly free from the receptacle, 101~108  $\mu\text{m}$  long, 37~43  $\mu\text{m}$  thick; the apical posterior part of perithecium bilobed; lobes hyaline above the basal blackish band, slightly bending toward the anterior side; the apical anterior part of perithecium simple, with slightly blackish outer edge reaching the tip; the stalk composed of a basal cell and two distal cells; the basal cell much larger than distal cells, much smaller than the third layer of receptacle, much larger than the anterior cell of fourth layer of receptacle, situated slightly

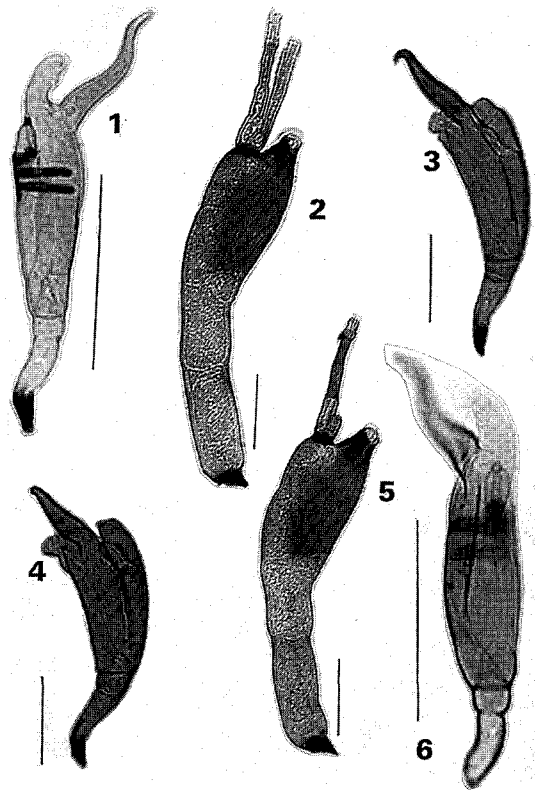


Fig. 1. 1 & 6: *Chitonomyces zonatus* Thaxter on *Laccophilus lewisius* Sharp.  
2 & 5: *Laboulbenia gebleri* Terada on *Haplochlaenius constiger* Chaudoir.  
3 & 4: *Chitonomyces orientalis* Thaxter on *Laccophilus lewisius* Sharp. Scales: 50  $\mu\text{m}$ .

lower or beside the third layer of receptacle; the distal cells arranged anterto-posteriorly, the posterior cell not forming a rounded protrusion. Ascospores hyaline, 1-septate, 58~50  $\mu\text{m}$  long, 4  $\mu\text{m}$  thick.

Host genus: *Chlaenius* and *Haplochlaenius* (new record) (Carabidae, Coleoptera).

Host species in Korea: *Haplochlaenius constiger* Chaudoir (new record)

Distribution: Japan and Korea (new record)

Specimens examined: Sungpanak, Mt. Halla, Cheju Island, August 27, 1994, L-Y-1033, 1034, 1035, and 1036.

This species is closely related to *L. torta* Sugiyama on *Haplochaenius constiger* Chaudoir (1979), but differs in the following features; 1) the posterior cell of distal portion of perithecial stalk is not forming a rounded protrusion in *L. gebleri* Terada, while it is forming the latter in *L. torta* Sugiyama; 2) the basal cell of perithecial stalk situated slightly lower or beside the third layer of receptacle in *L. gebleri* Terada, while it is situated lower the latter in *L. torta* Sugiyama; 3) the basal cell of outer appendage is subequal to the suprabasal cell in length, upper and lower septa is hardly constricted and unblackened in *L. gebleri* Terada, while that of *L. torta* Sugiyama is longer than the suprabasal cell, upper and lower septa are strongly constricted and blackened. The specimens were found from the anterior abdomen of hosts.

## 적 요

우리나라에서 충생자낭균류의 미기록 3종을 다음과 같이 보고한다.

*Chitonomyces orientalis* Thaxter와 *Chitonomyces zonatus* Thaxter는 수서 갑충인 *Laccophilus lewisius* Sharp로부터 채집되었으며, 전자는 숙주의 뒷다리 말단부 근처에서, 후자는 숙주의 초시 전방부분 가장자리에서 발견되었다. *Laboulbenia gebleri* Terada는 지상성 갑충인 *Haplochlaenius constiger* Chaudoir의 앞가슴으로부터 발견되었다.

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