

Notes on the Laboulbeniales collected in Korea (Species from Kwangneung, Kyeonggido)

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한국에서 채집된 총생자낭균류에 관하여 (경기도 광릉지역을 중심으로)

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ABSTRACT: Five species belong to three genera of the Laboulbeniales were collected on Blattidae (Blattodea), Nitidulidae and Carabidae (Coleoptera) from Kwangneung Kyeonggido and some the others. They are *Herpomyces periplanetae* Thaxter on *Periplaneta japonica* Karny, *Herpomyces stylopygae* Spegazzini on *Blatta orientalis* (L.), *Laboulbenia yamadae* Ishikawa ex Terada on *Chlaenius variicornis* Morawitz, *Rickia pallodina* Thaxter on *Pallodes umbratilis* Reitter and *Rickia papuana* Thaxter on *Pallodes umbratilis* Reitter. Among these species, *Herpomyces periplanetae* Thaxter and *Rickia pallodina* Thaxter are new to Korea.

KEYWORDS: *Herpomyces*, *Laboulbenia*, *Rickia*, *Laboulbeniales*, Korea

Description of the Species

1. *Herpomyces periplanetae* Thaxter, Proc. Amer. Acad. Arts Sci. 38: 13, 1902; Mem. Amer. Acad. Arts Sci 13: 285, 1908; 16: 86, 1931; Sugiyama, Journ. Jap. Bot. 53: 154, 1978; Sugiyama & Majewski, Trans. Mycol. Soc. Japan 26: 134, 1985; Tavares, Mycol. Mem. 9: 228, 1985; Majewski, Trans. Mycol. Soc. Japan 29: 38, 1988; Polish Bot. Stud. 7: 42, 1994. (Fig. 3 and 4)

Species dioecious. Female thallus hyaline, consisting of Primary, secondary reptacles and perithecia; primary reptacle four celled;

secondary reptacle forming a bilobed, asymmetrical protective shield 110~130×105~110 μm, wide but pointed distally. Perithecia 1~6 per thallus, 165~190×35~45 μm, with wider base than in *H. stylopygae* and with broader lateral wall cells in the lower part of perithecial neck.

Male thallus hyaline, consisting of four superposed cells 30×5 μm. The distal and subdistal cells of the reptacle giving rise to sparse short branches and branchlets that bear simple elongate antheridia.

Host genus: *Periplaneta* (Blattodea, Blattidae).

Host Species in Korea: *Periplaneta japonica* Karny

Distribution: Africa, North, Central and South America, Asia, (Japan, Korea), Eu-

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rope (France, Spain).

Specimens examined: Kwangneung, Kyeonggi pref. August 5, 1995, L-Y-1200, 1201; September 12, 1995, 1202 and 1203.

This species was reported erroneously from *Blatta orientalis* at Kwangju great city by Lee Y-B et Park H-S (1991) and Lee et Choi (1992); in fact, this was *Herpomyces stylopygae*. This species is widely distributed in the world, often mistaken for *H. stylopygae*.

The main characters of the present species are the protective shield hyaline, pointed apically and the lateral wall cells in the lower part of perithecial neck wide.

2. *Herpomyces stylopygae* Spegazzini, *Anales Mus. Nac. Hist. Nat. Buenos Aires* 29: 551, 1917; De kesel & Rammeloo, *Belgian Journal of Botany* 124: 212, 1991, (ut *H. periplanetae*); Lee & Park, *Kor. J. Mycol.* 19(1): 19, 1991, (ut *H. periplanetae*); Lee & Choi; *Proceeding of the Asian Mycological Symposium, Seoul, Korea*: 90, 1992b, (ut *H. periplanetae*); Majewski, *Polish Bot. Stud.* 7: 42, 1994. (Fig. 1 and 2)

Species dioecious. Female thallus hyaline, consisting of primary, secondary receptacles and perithecia. Primary receptacle, cylindrical, composed of four superposed cells, terminated by a minute spine, 20~25 μ m long; secondary receptacle multicellular, forming a billowed protective shield, rounded distally and blackened basally; perithecia 1~6 per thallus, 140~250 \times 25~34 μ m, slightly asymmetrical, inflated in the lower part, tapering gradually to a thin, slightly bent apex subtended by a short tooth, with narrow lateral wall cells in the lower part of the neck.

Male thallus similar to that of *H. periplanetae*.

Host genus: *Blatta* (*Blattodea*, *Blattidae*).

Host species in Korea: *Blatta orientalis* (L).

Distribution: Argentina, Europe, America, Korea

Specimens examined: Kwangneung, Kyeonggi Pref. January, 13, 1994, L-Y-1195, 1196, 1197, 1198 and 1199.

Lee & Park (1991) and Lee et Choi (1992) reported this species from the Kwangju great city as *H. periplanetae* Thaxter. This species is characterized by the protective shield blackened at the base, rounded apically and the lateral wall cells in the lower part of perithecial neck narrow.

3. *Laboulbenia yamadae* Ishikawa ex Tera-da, *Mycoscience* 36: 297, 1995.

Syns. *Laboulbenia yamadai* Ishikawa (nom. nud.), *Coll. Breed.* 10: 313 (305), 1948; *Laboulbenia exigua* non Thaxter sensu Sugiyama, *Ginkgoana* 2: 48, 1973; *Laboulbenia exigua* non Thaxter sensu Lee, *Kor. J. Plant Tax.* 16: 135, 1986. (Fig. 6)

Total length to the top of perithecium 220~230 mm. Thallus dark-spotted or streaked on the lower part of the perithecium and on the upper receptacle. Perithecium, upper receptacle and upper part of cell I deeply suffused with gray brown or yellowish gray-brown; cell II, lower part of cell I and appendages yellowish gray brown or grayish yellow; foot, insertion cell and subapical part of perithecium blackish.

Cell I pale in color at the base, darker and spotted on the upper part, cylindrical, 83 \times 28~33 mm; Cell II subcylindrical, with lateral sides subequal in length, subequal to cell I in length, sometimes longer than cell I; Cell III deeper in color than cell II, usually roundish in optical section, 38~35 \times 20~23 mm; Cell IV subequal to cell III in Color and Size; Cell V wedge-shaped, much smaller than cell IV. Insertion cell 10~15 mm broad, free from the perithecial wall and situated

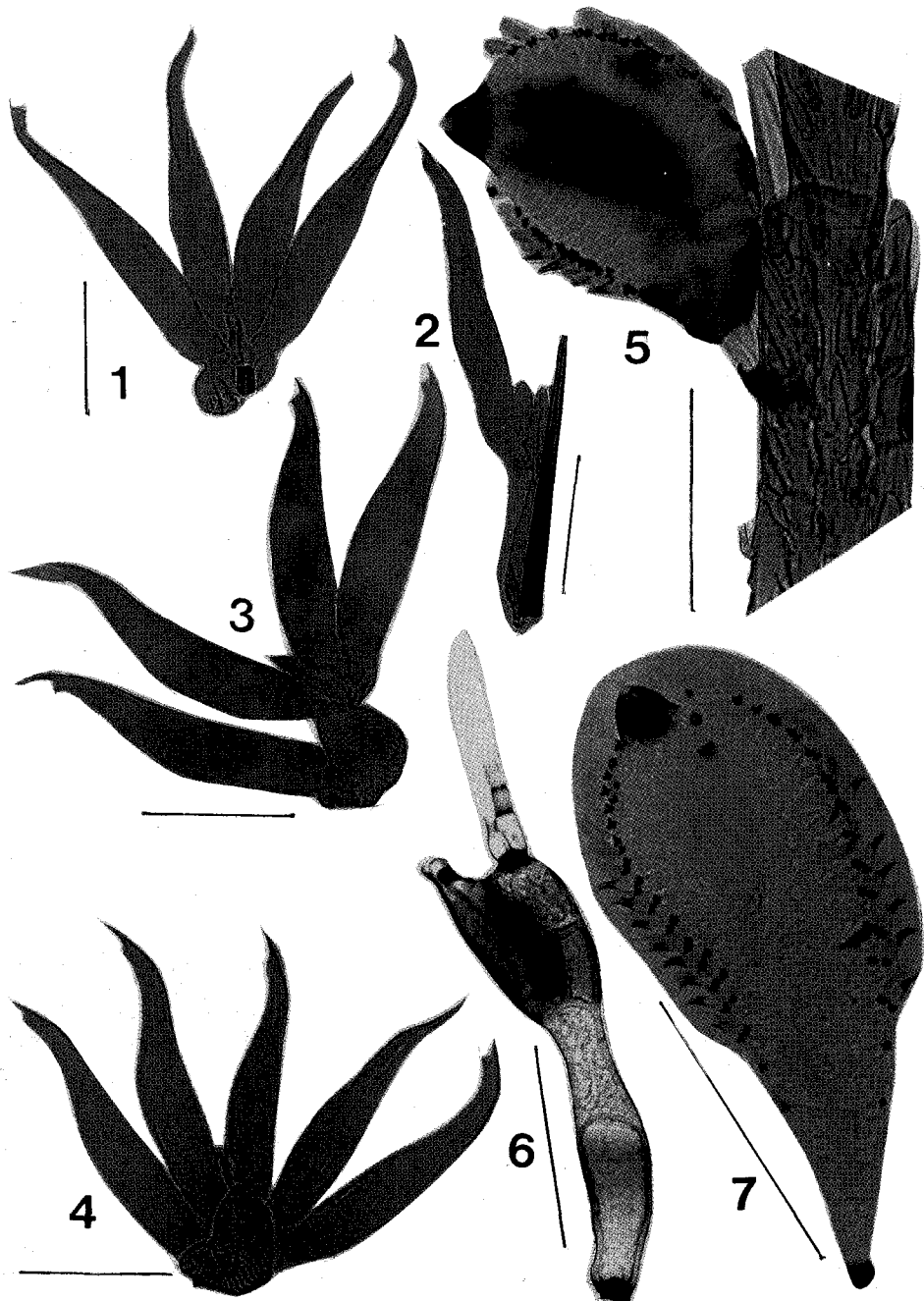


Fig. 1 and 2: *Herpomyces stylopygae* Spegazzini on *Blatta orientalis* (L.)

- 1: Mature female thallus with four perithecia.
- 2: Immature female thallus with secondary receptacle on the bristle of host's antenna.
- 3 and 4: *Herpomyces periplanetae* Thaxter on *Periplaneta japonica* Karny.
- 3: Mature female thallus with the protective shield of receptacle and four perithecia.
- 4: Mature female and male thalli; the male thallus is between second and third perithecium.
- 5: *Rickia papuana* Thaxter on the leg of *Pallodes umbratilis* Reitter.

near or above the middle of the perithecium in forms.

Out appendage simple, 175 μm ; basal cell more or less cubical and slightly convex on the lateral sides, sometimes short-cylindrical; suprabasal cell short-cylindrical, 2 times shorter than the basal cell, having upper and lower septa constricted and conspicuously blackened; other septa unblackened. Inner appendage simple; basal cell short-cylindrical, shorter than the outer basal cell.

Perithecium upper 1/2 or 1/3 free; apical posterior part of perithecium bilobed; lobes hyaline above the basal blackish band, bending toward the anterior side; apical anterior part of perithecium laterally directed; cell VI subequal to cell V in size, much smaller than cell III, situated beside cell III.

Host genus: *Chlaenius* (Carabidae, Coleoptera)

Host species in Korea: *Chlaenius varicornis* Morawitz

Distribution: Japan and Korea

Specimens examined: Kwangneung, Kyeonggi Pref., July 13, 1995, L-Y-1210, 1211 and 1212.

Terada suggested that *Laboulbenia exigua* group comprised seven species, at recently (1995). This species may be closely allied to *Laboulbenia torta* Sugiyama, according to his paper, in having the suprabasal cell of outer appendage shorter than outer basal cell, and the constricted upper and lower septa. But it is different from the latter by the distance of the insertion cell situated on the lateral side of perithecium, perithecium free, and the forms, size of receptacle cells. Thallus was found on the proleg and right margin of proelytra of hosts.

4. *Rickia pallodina* Thaxter, Mem. Amer. Acad. Arts Sci. 15: 489, 1926. (Fig. 7)

Thallus hyaline, yellowish brown, spothu-

late or longitudinal clavate, the widest near the middle of the distal portion, gradually tapering towards the base, 120~213 \times 40~70 μm .

Receptacle wholly hyaline, yellowish brown, consisting of the basal and distal portions; the basal portion uniseriate, composed of two cylindrical cells; the first one-celled, stalk-like, distally sustaining the second, basally bearing the blackish foot, 15~28 \times 10~15 μm ; the second one-celled, sustaining the distal portion of receptacle, 10~15 \times 10~15 μm ; the distal portion triseriate, anterior, median and posterior series; the anterior and posterior series diseriare to the second cell of the basal portion, triseriate from the mostly middle portion of the second and third cell to the distal portion; the anterior and posterior series composed of 13~19 cells; the median series 10~15 cells, differentiated from the mostly middle portion of the second and third cell to the nearly tip of the perithecium.

Perithecium subsymmetrically long-elliptical, hyaline except the blackish brown of the rounded apex, 60~83 \times 20~28 μm , more than half basal portion located between the distal ends of the anterior, median and posterior of receptacle.

Antheridia hyaline brownish, pointed, bottle-shaped, with the blackish brown distal portion and the basal septa, 13 \times 4 μm .

Appendages hyaline, with the blackish basal septa, 15 \times 4 μm formed on the lateral outside of the anterior and posterior series of receptacle.

Host genus: *Pallodes* (Nitidulidae, Coleoptera)

Host species in Korea: *Pallodes umbratilis* Reitter

Distribution: Los Banos, Luzon and Korea

Specimens examined: Mt. Choge, Suncheon City, September 10, 1994, L-Y-1073, 1074,

1075, 1076 and 1077; Kwangneung, Kyeonggi: Pref., July 13, 1995, L-Y-1200, 1201, 1202, 1203, 1204 and 1205.

This species is characterized by the two cylindrical cells of basal portion of the receptacle. Although *R. papuana* Thaxter was found too on same host (*Pallodes umbratilis* Reitter), it is distinguished from this species by the basal portion of the receptacle having only one cell.

5. *Rickia papuana* Thaxter, Proc. Amer. Acad. Arts Sci. 52: 38, 1916 et Mem. Amer. Acad. Arts Sci 15: 490, 1926; Sugiyama and Mochizuka, Trans. Mycol. Soc. Japan 20: 352, 1979; Lee, A Festschrift Celebrating sixtieth of Dr. Ji-Jul, Lee: 121, 1982; Lee, Y-B, Kor. J. Plant. Tax. 16(2): 34, 1986; Lee, Y-B and Choi, D-S, Proceedings of the Asian Mycological Symposium, Seoul, Korea: 74, 1992a. (Fig. 7)

Thallus broadly spathulate, tapering continuously from the height of the perithecium to the base, 150~202×50~92 μm. Receptacle mostly hyaline, composed of the basal and distal portions, 72~150×68~92 μm; the basal portion consisting of a hyaline stalk-like basal cell with blackish foot; the distal portion triseriate; the anterior and posterior similar, comprising about 20 cells, the middle series 9~14 cells.

Perithecium dark brown, 81~108×30~37 μm, surrounded with the anterior and posterior series of the receptacle, free from the receptacle only at the apex. Antheridia hyaline, brownish, bottle-shaped, with blackish basal septa, formed on lateral side of the anterior and posterior series of the receptacle. Appendages hyaline, more or less brownish.

Host genera: *Haptoncus* and *Pallodes* (Nitidulidae, Coleoptera)

Host species in Korea: *Pallodes umbratilis*

Reitter

Distribution: Britain, Korea and Malaysia

Specimens examined: Kwangneung, Kyeonggi Pref., June 17, 1994, L-Y-1188, 1189, 1190, 1191, 1192, 1193 and 1194.

This species was originally found on the genus *Haptoncus* from Britain and Malaysia, but found on only the genus *pallodes* in Korea. Although this species is similar to *R. xanthophaea* Thaxter, it is distinguished from the latter by the short and broad receptacle which is narrowed gradually towards the base.

적 요

충생자낭균류(Laboulbeniales)의 3屬에 속하는 5種이 광릉지방과 다른 지역으로부터 Blattidae, Carabidae와 Nitidulidae의 곤충들 위에서 채집되어졌다. 그것들은 다음과 같다.

Herpomyces periplanetae Thaxter는 *Periplaneta japonica* Karny에서, *Herpomyces stylopygae* Spegazzini는 *Blatta orientalis* (L)에서, *Laboulbenia yamadae* Ishikawa ex Tera-da는 *Chlaenius variicornis* Morawitz에서, *Rickia pallodina* Thaxter와 *Rickia papuana* Thaxter는 *Pallodes umbratilis* Reitter에서 채집되었다. 1991년과 1992년에 저자 등에 의하여 발표된 *Herpomyces Periplanetae* Thaxter는 표본을 재조사 同定한 결과 *Herpomyces Stylopygae* Spegazzini로 판명되었으며, 위의 種들 중에서 *Herpomyces periplanetae* Thaxter와 *Rickia pallodina* Thaxter는 우리나라에서 처음으로 기록된 種들이다.

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