Study on the Laboulbeniales (Ascomycetes) of Taiwan (III)

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ABSTRACT

Five species of Laboulbeniales (Ascomycetes), namely Laboulbenia aristata Thaxter, L. flagellata Peyritsch, L. japonica Thaxter, L. polyphaga Thaxter, L. vulgaris Peyritsch are identified and illustrated. Among these L. japonica and L. polyphaga are described as new records from Taiwan.

Key words: Laboulbenia, Laboulbeniales, Taiwan.

Introduction

The Laboulbeniales (Ascomycetes) are widely distributed throughout the world and are especially abundant in tropical regions. Members of the Laboulbeniales are known as the perithecial obligate exoparasites of Arthropoda. The genus Laboulbenia is composed of many species and varieties, the receptacle normally possessing two cells below the third layer and the phialides (antheridium) are chiefly borne on branches of the inner appendages (Tavares, 1985). This paper is a report of our continuous current works (Juan and Chien, 1994, 1995 & 1996).

Materials and Methods

All insect specimens were examined by a binocular dissecting microscope. Their thalli on the body of insects were removed by a watch makers-needle and mounted on slide by adding a drop of glycerol lacto-phenol plus cotton blue for preparation. All specimens and permanent slides are deposited in the Mycological Collections, Department of Biology, National Taiwan Normal University, Taipei, Taiwan, R.O.C.

Results and Discussion

Key to the species of Laboulbenia
1. The fifth layer of the receptacle distinctly blackened
   2. Posterior branch of the receptacle usually simple
      3. Perithecium with bulbous tip..................................................L. aristata
      3. Perithecium without bulbous tip
         4. Posterior branch of the receptacle branched at the third or upper cell.........L. vulgaris
         4. Posterior branch of the receptacle branched at the second cell..............L. polyphaga
   2. Posterior branch of the receptacle branched........................................L. flagellata
1. The fifth layer of the receptacle concolorous with the thallus, perithecia opaque,
   wholly blackish.................................................................L. japonica

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Ascoma monoeccious, total length 171 µm. Receptacle consisting of five layers of cells; all layers one-celled except the fourth one, the first layer 45 x 9-15 µm, the second layer 33 x 15-27 µm, the third layer 21 x 9-12 µm, the fourth layer composed of two cells, arranged in antero-posteriorly 27 x 15-18 µm, the fifth layer flat and blackish 3 x 9 µm. Appendage with anterior (inner) and posterior (outer) branch 135 x 9 µm. Outer branch is simple and single, bent towards perithecium, the basal cell more twice longer than broad, inner branch consisting of a small basal cell which bearing a terminal simple type of antheridium. Perithecium straight and less than one half free from the receptacle, the tip well distinguished by rounded and blackish lip-cells, 84 x 24 µm.

Host: Colpodes sp. (Coleoptera; Carabidae); on the dorsal thorax of the host.

Specimens examined: Wulai, Taipei County; JLY-154, Apr. 9, 1995.

Distribution: East Indies, Taiwan.

Note: This species is characterized by the pale thalli, equal-sized basal cells of the inner and outer appendages; the appendages are usually highly branched. Numerous variations of this species were found on members of Carabidae of the world.

Laboulbenia japonica Thaxter, Mem. Amer. Acad. Arts & Sci. 13:365, 1908; Sugiyama, Ginkgoana 2:54, 1973 (Figure 5)

Ascoma monoeccious, total length 300 µm long. Receptacle consisting of five layers of cells; each layer one-celled except the fourth on is two-celled, the first layer hyaline, forming basally a blackish foot, the second layer to the fifth one are too backish to observe. Appendage with fine dichotomous branchlets, 195 µm. Perithecium proper 138 x 72 µm, entirely blackish, cylindrical with blunt apex, often inflated laterally and egg-shaped.

Host: Brachinus sp. (Coleoptera; Carabidae); on the legs of the host. The host contains another two species of Laboulbenia, namely L. fasciculata Peyr. and L. rougetii Mont. et Robin.


Distribution: Japan, Taiwan.

Note: The fungus is characterized by the short receptacle and finely divided dichotomous branches of the receptacle. This species is apparently allied to L. pusilla Thaxter and L. orientalis Thaxter, because they have similar branches of receptacles. However, it is easily distinguished from L. pusilla Thaxter and L. orientalis Thaxter by the wholly blackish perithecium.
Laboulbenia polyphaga Thaxter, Mem. Amer. Acad. Arts Sci 13:342, 1908; Sugiyama, Ginkgoana 2:59, 1973; Lee, Kor. J. Plant Tax. 16(2):139, 1986 (Figure 6)

Ascoma monoecious, total length 270-315μm. Receptacle consisting of five layers of cells; all layers are one-celled except the fourth one; the first layer 60-75×15-21μm, the second layer 39-66×27-30μm, the third layer 45-48×15-21μm, the fourth layer composed of two cells, arranged in antero-posteriorly, 33-42×18-21μm; the fifth layer flat and blackish, 6×15-18μm. Appendage with anterior (inner) and posterior(outer) branches 420μm, the outer branch simple and single or branched, the inner branch short and dichotomous. Peritheciurn cylindrical, 120-183×45μm.

Host: Harpalus sp. and Bembidion sp. (Coleoptera, Carabidae); on the elytra of the host.


Distribution: Cosmopolitan.

Note: The main character of this species is the blackish perithecium and blackish upper portion of the receptacle.

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References


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**Figure 1. & 2.** *Laboulenia flagellata* Peyritsch.(bar=25μm)
**Figure 3.** *Laboulenia vulgaris* Peyritsch.(bar=50μm)
**Figure 4.** *Laboulenia aristata* Thaxter.(bar=25μm)
**Figure 5.** *Laboulenia japonica* Thaxter.(bar=50μm)
**Figure 6.** *Laboulenia polyphaga* Thaxter.(bar=50μm)
臺灣產蟲囊真菌研究(III)

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摘要

本文報導 Laboulbenia aristata Thaxter、L. flagellata Peyritsch、L. japonica Thaxter、L. polyphaga Thaxter 及 L. vulgaris Peyritsch 等五種蟲囊菌鑑定並做形態及分類學上的記述。其中 L. japonica 和 L. polyphaga 爲臺灣新記錄種類。

關鍵詞：蟲囊菌屬(Laboulbenia)、蟲囊菌目(Laboulbeniales)、臺灣