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A Note on *Ileodictyon gracile* (Clathraceae) in Korea

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During the study of mushroom flora in Hongneung Arboretum, *Ileodictyon gracile* was confirmed as new to Korea and described based on morphological and microscopic characteristics in here. This species has subhypogeous, clathrate structure, and obovoid spores. The clathrate structures have 4~12 polygonal meshes.

KEYWORDS: Clathrate, *Ileodictyon gracile*

Hongneung Arboretum in Korea Forest Research Institute is the first National Botanical Garden of Korea, which was established in 1922. The arboretum has 2035 taxa of native and endemic plants in 44 ha (Oh *et al.*, 1999).

Yajiriki (1940), Japanese botanist, reported 92 species of wild mushrooms from this area for the first time. Twenty years later, Lee and Rhee (1957, 1958) and Lee (1959) recorded 104 species of mushrooms from Chongnyangni area in their reports "A list of Korean fungi part I-III".

During the study of mushroom flora in Hongneung Arboretum from 2002 to 2003, the fruit body of *Ileodictyon gracile*, white basket fungus, was found in fertile soil under oak trees. The basket fungus was confirmed as an unrecorded species in Korea and detailed descriptions of the fungus with Korean name are given here.

Specimens were collected directly from the field in Hongneung Arboretum, and observed macroscopic features with stereo-microscope (Leica MZFL III). The specimen was cut 15 μm transverse and longitudinal sections with freezing microtome (Leica CM 1900), and examined morphological features with compound-microscope (Leica DMRE). All sliced samples were mounted water, lactic acid, cotton blue and Melzer's reagent, and then examined the micro-morphological characteristics and took photograph by Leica camera system (Leica DMLD) with ASA 100 Kodak film. The mushroom specimens were preserved in the specimen room of Korea Forest Research Institute and the Korea Mycology Institute.

Description

Ileodictyon gracile Berk., London J. Bot. 4: 69. 1845. 흰바구니버섯 (신칭) Fig. 1

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Clathraceae	바구니버섯과
Clathrus	바구니버섯속
Linderia	발톱버섯속
Lysurus	새주둥이버섯속
Pseudocolus	세발버섯속
Ileodictyon	흰바구니버섯속

Enexpanded basidiocarps (Fig. 1-A, B) subhypogeous, subglobose, 2.5~3.5 cm diam., 6.8~9.5 g fresh weight, surface white, smooth, mycelial strands extending into soil. In the juvenile stage (Fig. 1-C, D) clathrate structure and spores are tightly packed within two layers, gelatinous (inner) and membranous (outer). The clathrate is folded sinuously in the egg. Clathrate (Fig. 1-E) emerges from the upper side of egg, 4~5.2 cm diam., 4~12 polygonal meshes, about 2 cm diam. per mesh. Clathrate structure (Fig. 1-C, D) is white or light brown covered with dark greenish brown spores, 2~4 mm diam. The cross section of arm (Fig. 1-F) has hollow (1~2 chambers), 310~520 μm layer thickness, hyphal tissue type textura globulosa (spongy arm), hyphae hyaline to white. Thickness of arm cell wall is 2 μm. Spores (Fig. 1-G, H) have slimy mass inside surface of the arms, dark greenish brown. Spore (Fig. 1-H) is obovoid, 2~2.5 μm × 4~5 μm, 1-celled, very light green, smooth. Spore is bright orange green in Melzer's reagent.

Habit and habitat : Late in July to early in September, subhypogeous, solitary on the fertile soil under oak trees.

Materials examined : Mt. Chunjang in Hongneung Arboretum, Seoul, July 26, 2002, KFRI-313; September 4, 2003, KFRI-314.

Commentary : Four genera and 5 species have been reported from the Clathraceae up to now in Korea (Com-

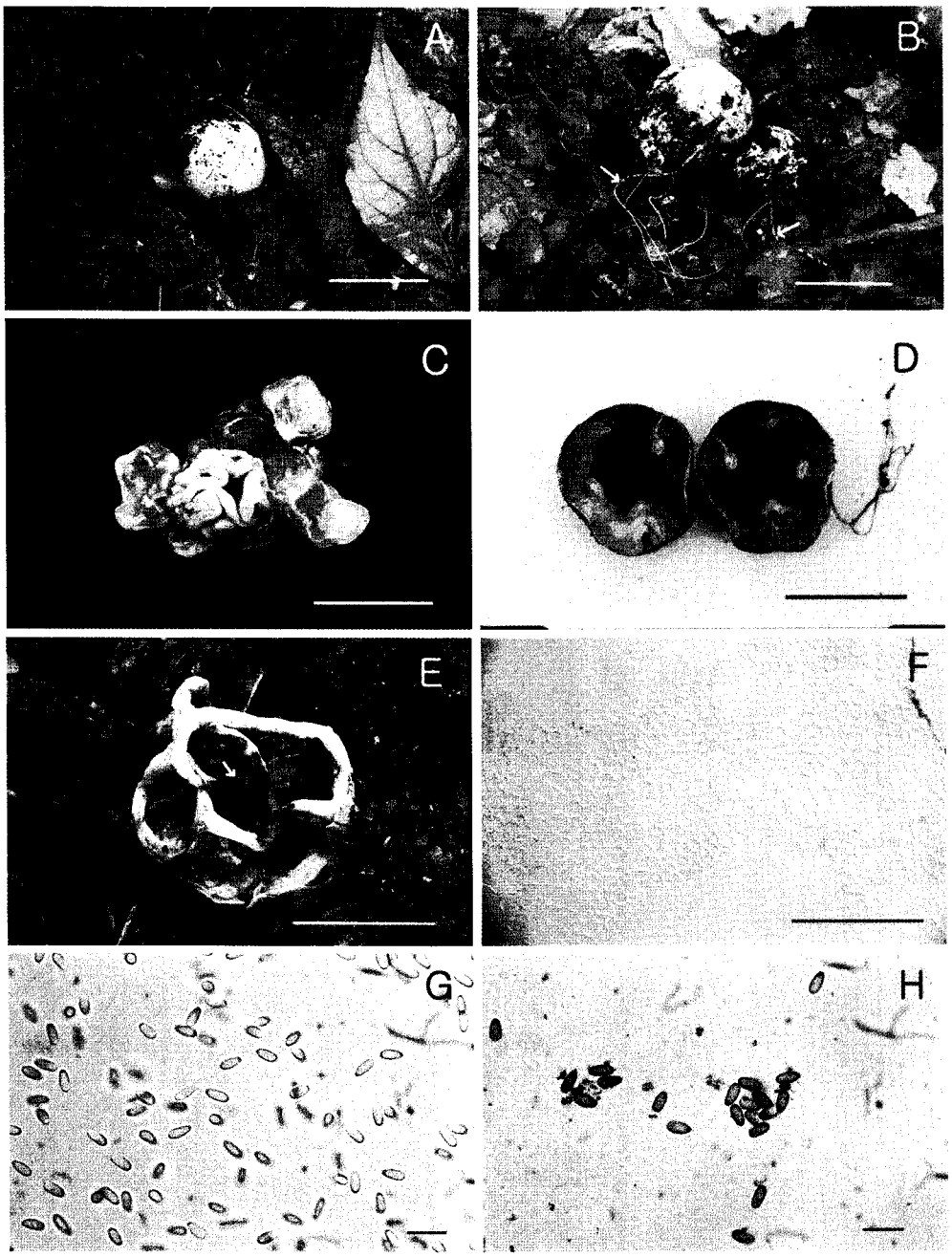

Fig. 1. Morphological characteristics of *Ileodictyon gracile*. A, Enexpanded basidiocarp, bar = 3 cm. B, Enexpanded basidiocarps with mycelial strands (arrows), bar = 3 cm. C, Arms folded sinuously in egg with jelly-like inner layer and membrane outer layer, bar = 3 cm. D, Vertical section of enexpanded basidiocarp and arm (arrow), bar = 3 cm. E, Mature basidiocarp with three dimensional network covered with dark greenish brown spores, 12 meshes. F, Longitudinal section of arm with spongy tissue, bar = 300 μm (×100). G, Obovoid spores with very light green color, bar = 10 μm (×1,000). H, The narrower end of obovoid spores in cotton blue dye was more blue than more or less rounded side, bar = 10 μm (×1,000).

mittee for the suggestions on standard Korean name of mushrooms, 1978; Seok *et al.*, 1995). Among them *Clathrus ruber*, which has red fruit body (Lee, 1988), resembles to *I. gracile* in fruit body structure and the *I. gracile* is very similar to *I. cibarium* in structure. However, *I. gracile* differs from *I. cibarium* in having large egg and concertina-like fashion arms(http://fungimap.rbg.vic.gov.au). In Asia, the *I. gracile* is known to occur in Japan and China (Liu, 1984; Imazeki *et al.*, 1995). The mature fruit body becomes free from single layer peridium and has very strong smell because of slimy spores.

References

Fungimap. 2000. *Ileodictyon gracile* group.(http://fungimap.rbg.vic.gov.au).

Horne, D. 2000. Mushrooms and Other fungi of New Zealand. Reed Publishing Ltd. 84p plus cxix.

Imazeki, R., Otani, Y. and Hongo, T. 1995. Fungi of Japan. Yama-Kei Publishers Co., Ltd. 14th. 623p.

Committee for the suggestions on standard Korean name of mushrooms. 1978. Suggestions on "Standard Korean name of mushrooms" in Korea. *Kor. J. Mycol.* **2**(1): 43-55.

Lee, J. Y. 1988. Coloured Korean Mushrooms. Academic Books. 365p.

Lee, T. S. and Rhee, Y. U. 1957. A list of the Korean fungi part I. Forest Experiment Station. 48p.

_____ and _____. 1958. A list of the Korean fungi part II. Forest Experiment Station. 33p. plus Index.

Lee, Y. W. 1959. A list of the Korean fungi part III. Forest Experiment Station. 9p.

Liu, Bo. 1984. The Gasteromycetes of China. Nova Hedwigia Heft 76. J. Cramer. 235p.

Oh, J. S., Choi, M. S., Lee, M. B. and Im, J. H. 1999. Hongneung Arboretum. Forestry Research Institute. 35p.

Seok, S. J., Kim, Y. S., Ryu, Y. J. and Park, D. S. 1995. Higher fungi in Korea (I). *Kor. J. Mycol.* **23**(2): 144-152.

鏑木德二(Yajiriki, T.). 1940. 鮮滿實用林業便覽. Pp. 339-368. 朝鮮總督府林業試驗場刊行會.