

## Unrecorded Species of *Cordyceps* used Oriental Medicine Resources

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### ABSTRACT

Many higher fungi were collected at Mt.Sunun, Mt.Kangchon and Mt.Moak from June, 1991 to April, 2003. They were identified and surveyed with references. According to the result, *Cordyceps clavata*, *C. cocciniocapite*, *C. ryougamimontanna*, *C. tuberculata f. moelleri* and *C. yakushimensis* are unrecorded species to Korea. They were designed Korean common names by authors.

**Common names :** *Cordyceps clavata*, *C. cocciniocapite*, *C. ryougamimontanna*, *C. tuberculata f. moelleri*, *C. yakushimensis*, unrecorded species, common names.

### INTRODUCTION

*Cordyceps* means fungi which are developed from insects, but in narrow sense it means common *Cordyceps* of China.

The *Cordyceps* is parasite fungus on dead insect which is underground or on soil. Its nutrition is supplied from protein of insect. Its name is originated from worm-form in winter and grass-form in summer(Cho, 1997. Cho, 2000).

*Cordyceps* are utilized to the roborant, fatigue recovery and perpetual youth long years ago in China. Recently it is used for prevention of hypertension, and diabetes in adult disease(Cho,1997).

In Korea, diversity on taxonomy of *Cordyceps* is reported 76 species (Sung, 1996) and 60 (Lee and Lee, 2000) and general work is reported Cho(1997) and Cho (2000).

Many *Cordyceps* were collected at Mt. Sunun, Mt. Kangchon and Mt. Moak from 1991 to 2000 for oriental medicine resources. They were identified with references of Shimizu(1994), Kobayasi (1940) and Shimizu & Kobayasi (1983).

#### *Cordyceps clavata* Kobayasi et Shimizu

Shimizu, Col. Icon. Veg. Was. & Pl. Worm. 256, no. 181. Pl. 65p. Fig. 124. 1994.

Fruiting body 1.7-2.5cm high, projecting form, light cream color. head 6-9mm high, 3-5mm diameter. Stipe 1.8-2.2mm diameter, light cream, cylindrical, hard flesh. Ascocarp 420-550x230-330 $\mu$ m, hemi naked-shaped, ostiole oval, hemiglobose, projecting. Asci 3 $\mu$ m diameter, cylindrical, head round-shaped, secondary spores 5-9x1.5 $\mu$ m, rod-shaped, cortex of head irregular square, cortex of stipe cylindrical or irregular square-shaped.

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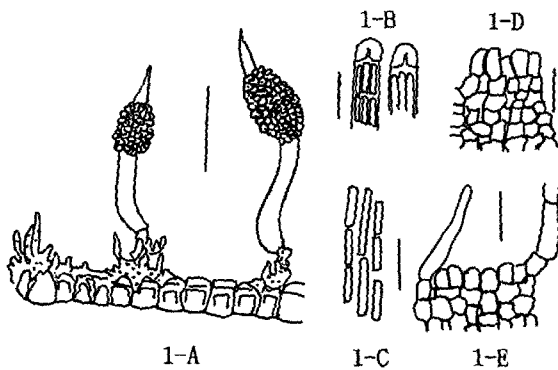


Fig. 1. *Cordyceps clavata* Kobayasi et Shimizu  
1-A, fruiting body (bar : 1cm. 1-B, head of asci. 1-C, spores, 1-D, cotex of head. 1-E, pith of head (the other bars : 10 $\mu$ m)

Habitat : Fruiting bodies of one or two to seven from larva of Tenebrionidae.

Distribution : Korea (Mt. Kangchon) and Japan.

Korean name : bangmangi-dongchung-ha-cho

Specimens studied : CHO-2021 (1991. 6. 6) used collected at Mt. Kangchon Provincial park of Sunchang-kun in Chollabukdo.

***C. cocciniocapite* Kobayasi et Shimizu**

Shimizu, Col. Icon. Veg Was. & Pl.Worm. 240,no.150, Pl.53p. Fig.104. 1994.

Fruiting body 3.5-8cm high, clavate, head 2-6cm high, 4-7mm diameter, bulbose, seldom irregular cylindrical-fusiform, beautiful pink. Ascocarp 600-700x270-300 $\mu$ m, naked, density, ostiole oval. Stipe 2-5mm diameter, cylindrical, elastic flesh, branched fine inner land, yellowish white or light orange. Asci 4 $\mu$ m diameter, head of asci 3 $\mu$ m diameter, secondary spores 4-5x5-1 $\mu$ m, rod-shaped. Cortex of stipe irregular cylindrical.

Habitat : Abdomen of larva in *Coleoptera*. September to October. Especially rarely.

Distribution : Korea ( Mt.Sunun) and Japan.

Korean name : bbalgang-meri-dongchung-ha-cho

Specimens studied : CHO-7022 (2000.7.17) used

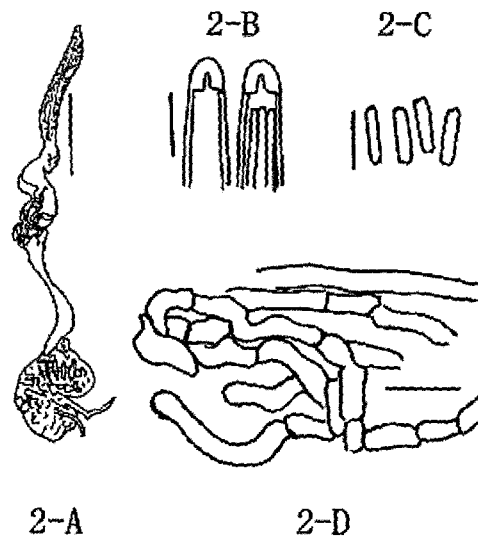


Fig. 2. *C. cocciniocapite* Kobayasi et Shimizu  
2-A, fruiting body (bar : 1cm). 2-B, head of asci. 2-C, spores. 2-D, cortex of stipe (the other bars : 10 $\mu$ m).

collected at Mt.Sunun Provincial park of Kochang-kun in Chollabukdo.

***C. ryougamimontanna* Kobaysi**

Shimizu, Col. Icon. Veg Was. & Pl.Worm. 166. no.2. Pl.10p, Fig.2. 1994.

Fruiting body 2-2.5cm high, 1.5-3 mm diameter, clavate, first light orange yellow to darkish when adult, fiber flesh. Head 6-12mm high, 1.8-2.5mm diameter. upper, bulbose, seldom cylindrical. Stipe 1.5-2mm diameter, cylindrical, Ascocarp 400-460x270-290 $\mu$ m, embedding, fine projecting, ostiole oval. Asci 5 $\mu$ m diameter, cylindrical, secondary spores 6-10x1.1-2 $\mu$ m, rod-shaped, with fine of granules and spots. section of head flask-shaped. cortex of stipe cylindrical. with fine spots.

Habitat : 2-15 fruiting bodies from from genus *cicada*.

Distribution : Korea (Mt. Moak) and Japan

Korean name : gum-dengi-dongchung-ha-cho

Specimens studied : CHO-6672 (2000.6.14) used collected at Mt.Sunun Provincial park of Kochang-kun

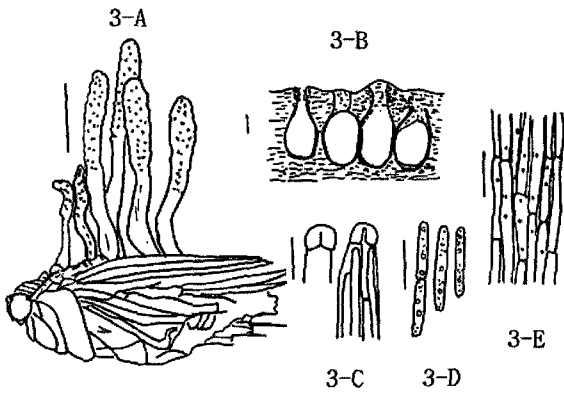


Fig. 3. *C. ryougamimontanna* Kobayasi  
3-A, fruiting body (bar : 1cm). 3-B, section of head (bar : 1mm). 3-C, head of asci. 3-D, spores. 3-E, cortex of stipe (the other bars : 10 $\mu$ m).

in Chollabukdo.

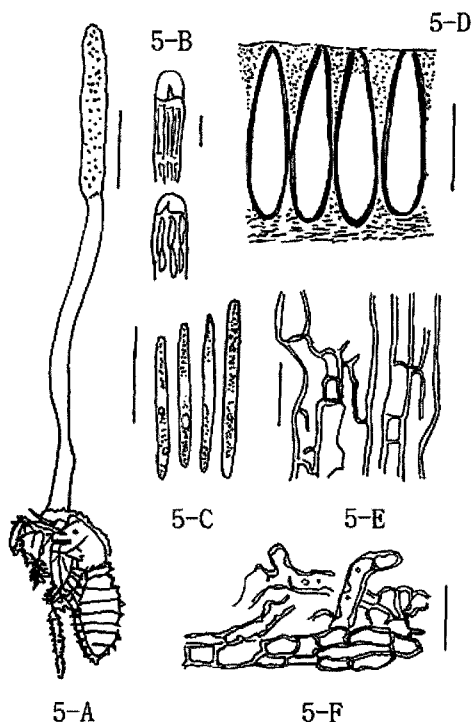


Fig. 5. *C. yakushimensis* Kobayasi et Shimizu  
5-A, fruiting body (bar : 1cm). 5-B, ascus. 5-C, spores. 5-D, section of ascocarp. 5-E, cortex of stipe. 5-F, cortex of head (the other bars : 10 $\mu$ m).

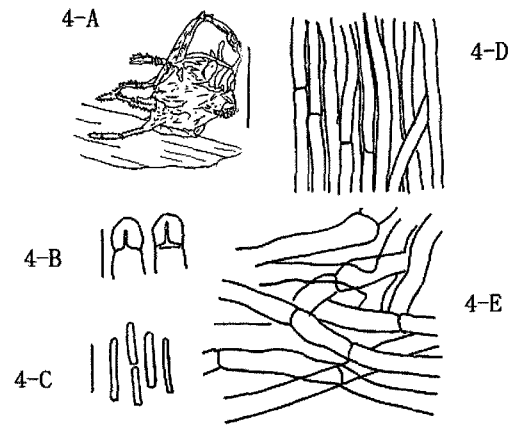


Fig. 4. *C. tuberculata* f. *moelleri* (Hen.)Kobayasi  
4-A, fruiting body (bar : 1cm). 4-B, head of asci. 4-C, spores. 4-D, pith of stipe. 4-E, cortex of stipe (the other bars : 10 $\mu$ m).

***C. tuberculata* f. *moelleri* (Hen.)Kobayasi**

Shimizu, Col. Icon. Veg Was. & Pl.Worm. 220,no.110. Pl.48p. Fig.72. 1994. Fruiting body 3-7mm high, 0.6-1.6mm diameter, irregular clavate, white. Ascocarp 460-500x200-215 $\mu$ m, naked, light yellow, long elliptical. Stipe irregular twist, fiber flesh. Asci 5 $\mu$ m diameter, cylindrical, secondary spores 3.5-8.5x1-1.2 $\mu$ m, rod-shaped, pith and cortex of stipe cylindrical.

Habitat : One to seven from mosquito.

Distribution : Korea (Mt.Moak), Japan and all over the world.

Korean name : gakeun-hok-dongchung-ha-cho.

Specimens studied : CHO-4109 (1995.8.10) used collected at Mt.Sunun Provincial park of Kochang-kun in Chollabukdo.

***C. yakushimensis* Kobayasi et Shimizu 홍두깨동충하초 (신칭)**

Shimizu, Col. Icon. Veg Was. & Pl.Worm. 174. no.16. Pl.14-15p. Fig.13. 1994.

Fruiting body 6-8cm high,. Head 1.5- 2.5cm high, 3.2-5mm diameter, more or less bulbose, cylindrical shaped, light brown, cortex pseudo-tissue.

Ascocarp 740-800x170-230 $\mu$ m, hemi-naked, fine,

projecting, density, ostiole narrow oval, cervical region absent. section of ascocarp clavate. Stipe 1.5-2mm diameter, cylindrical, hard fibriform, more or less light ocher. Asci 270-350x5-7 $\mu$ m, cylindrical, head 6-6.5 $\mu$ m, round-shaped, secondary spores 8-15 $\mu$ m, rod-shaped, cortex of stipe head irregular cylindrical, membrane thick.

Habitat : One or two from head of larava. July to October, Rarely.

Distribution : Korea (Mt.Sunun) and Japan.

Korean name : hongdu-ke-dongchung-ha-cho.

Specimens studied : CHO-7018 (2000.7.17) used collected at Mt.Sunun Provincial park of Kochang-kun in Chollabukdo.

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