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Notes on the genus *Entoloma* of Korea(Ⅶ)

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韓國産 외대버섯屬의 記錄(Ⅶ)

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Abstract

Seven species of the genus *Entoloma* were collectted from the areas of Mt. Naejang National Park, Mt. Jiri National Park, Mt. Sunun Provincial Park and Mt. manduck from June, 1991 to September, 1991. These species were identified new to Korea : *Entoloma subvile, E. bruneomarginatum, E. minutoalbum, E. subplanum, E. melleipes, E. perabidum,* and *E. pyrinum.*

KEYWORDS : *Entoloma subvile, E. bruneomaginatum, E. minutoalbum, E. subplanum, E. melleipes, E. peralbidum and E. pyrinum.*

There are forests of *Torreya nucifera* and *Daphninphyllum macropodom* of Natural Monument in Mt. Naejang National Park. Partculary there are famous forests of maple tress. Bammoki-Kol is preservated and controled with natural rest by authodroity of National Park. The species of *Entoloma* were collected from areas around Naejang-Sa and along Bammoki-Kol.

In Mt. Jiri National Park, there are dominant forests of *Carpinus laxifera, Quercus serrata, Q. mongalica* and *Abies nephroleis.* In Mt. Jiri National Park, the species were collected from around areas of Whaom-Sa and along the hiking route.

In Mt. Sunun Provincial Park, there forests of *Camellia japonica* and deciduous forests. The species were collected from around of Sunun-Sa and along Sunun-Sa valley. In Mt. Manduck, there are the Forestry Experiment of Station of Chonbuk-Do and are composed mixed deciduous and needle. The species were collected from the areas of road sides of Gomti-Jae.

Total twenty species were collected from four places from June to September, 1991. Among them, seven species were identified new to Korea.

E. subvile Hesler 안정외대버섯아재비(신칭)
Hesler, Beih. Nova Hedwigia 23 : 42, fig. 169, 1967.

Clitopilus subviles Pk., N.Y. State Mus. Ann. Rept. 38 : 109, 1885.

Agaricus rhodopolius umbilicatus Pk.N.Y. State Mus. Ann. Rept. 38 : 109, 1885.

Leptoniella subvilis (Pk.) Murr., North Amer. Flora 10 : 96, 1917.

Leptonia subvilis (Pk.) Murr., Mycologia 9 : 180, 1917.

Pileus 1.0－2.0㎝ broad, slightly broadly umbonate to depressed at first, finally umbilicate with age, grayish brown with darkish, darkish brown when moist, slightly glabrous, margin inrolling, entire. Context white, thin. Odor indistinctive, taste slightly farinaceous. Lamellae adnate or slightly decurrent, broad or slightly medium broad, crowded, white at first, finally pallid pinkish, edges even, concolorous. Stipe 3.5－4.0㎝ long, 3.0－4.0㎜ thick, equal, grayish brown, glabrous, hollow, concolorous with surface.

Spores 7.0－11×6.5(－5.0)－7.0㎛, elliptical in out line, mostly with six angles in side view, rarelly with five angles, angles obtuse, rarelly with one guttulate, basidia 37－39.5×7.5－8.5m, clavate, rarelly ventricose, subhymenium distinctive, hypae from lamellae trama 37.5－50×5.0－7.5㎛, equal, parallel, filamentous, rarelly swollen, pileipellis 32.5－57.5×7.5－12.5㎛, clavate, terminal cells round, swollen, stipe trama 42.5－122.5×3.8－12.5㎛, filamentous, slender cylindrical.

Habitat : Clustered on soils of forests. Summer. Edibility unknown.

Distribution : Mt. Naejang National Park.

Specimens studies : CHO－2245 collected from areas between Naejang－Sa and Wonjok－Am on the 19th of July, 1991.

E. bruneomarginatum **Hesler 갈색둘레외대버섯(신칭)**

Hesler, Beith. Nova Hedwigia 23 : 117, figs. 36－37, 1967.

Pileus 1.7－3.5㎝ broad, convex, nearly hemispheric, umbilicate or depressed with a small papillate or small umbo, grayish brown, papillate darkish brown, hygrophanous, shining, darker when moist, disc scaly, margin fine striate. Context brownish, thin. Odor mild, taste slightly or absent. Labellae adnexed, white to pallid pinkish, dingy whitish to dull flesh color, broad, ventricose or broad behind, subdistant, mixed short and long, edges brown, fimbriate. Stipe 2.7－6.3㎝ long, 2.0－4.0㎜ thick, flexible, equal, white to pallid whitish, with slightly grayish brown, shining, apex purinose, elsewhere glabrous, base slender, pure white, solid, white.

Spores 9.0(－8.5)－10×5.0－7.0㎛, elliptical in out line, mostly with 5～6 angles in side view, angles obtuse, basidia 30－35×7.5－8.8㎛, clavate, ventricose, subhymenium distinctive, 4－spored, hyphae from lamellae trama 27.5－42.5×7.5－10㎛, equal, subparallel, clamp connection absent, cheilocystidium 30×13.8㎛, fusoid, pleurocystidia 86.3×15㎛, clavate, present rarelly, pileipellis 60×5.0－6.3㎛, cylindrical, end of terminal cells round, stipe trama 32.5－75×3.8－5.0㎛, cylindrical, filamentous.

Habitat : Scattered on soils of mixed dicidous forests and needle. Summer. Edibility unknown.

Distribution : Mt. Naejang National Park.

Specimen studied : CHO－2243 collected from areas at Bammoki－Kol of Mt. Naejang on the 19th of July, 1991.

Discussions : This is characteriged chiefly by its brown lamellae－edges, adnexed lamellae, and medium sized spores. It is near *E. fuliginosum* which has smoky lamellae－edges, short－decurrent lamellae, and spores 9.0－12.5×6.0－8.0㎛, with 5－7 angles in side view(Hesler, 1967).

E. minutoalbum **Horak 애백색외대버섯(신칭)**

Horak, Beith. Nova Hedwigia 65 : 62, pl.9, fig.24, 1980.

***E. sordidulum* Horak, Beih. Nova Hedwigia 43 : 12, 1973.**

Pileus 4.2－4.8㎝ broad, broadly umbonate, convex to depressed at the center, or slightly umbilicate, whitish yellow, umbo light yellow to pale yellow, radially fibrillose or velvety, hygrophanous dry membranous, magin striate. Context white, thin. Odor indistinctive, taste slightly farinaceous. Lamellae sparse, broad, adnate to subdecurrent, white to whitish pink, edges even, concolorous. Stipe 10.5－11㎝ long, 0.9－10㎜ thick, cylindrical, white with yellow, rarelly beige brownish, slightly twisted, base slightly slender, white rhizoids attaching at base, glabrous, yollow, white.

Spores 9.5－11.5×9.5－11㎛, quadrate, mostly with four angles in side view, angles obtuse, quadrate in out line, with one or two oil drops rarelly, basidia 4－spored, 40－45×10－12.5㎛, clvate, cheilocystidia and pleurocystidia absent, hyphae from lamellae trama 75－100×8.8－11.3㎛, subparallel.

Habitat : Clustered on soils under fallen leaves forests. Summer. Edibility unknown.

Distribution : Mt. Naejang National Park.

Specimens studies : CHO－2415 collected along the road of the Naejang－Sa to the Bammoki－Kol on 10th the of August, 1991.

Discussions : This species have cuboid－spores. Horak says that this fungus was collected on rotten wood.

***E. subplanum* Hesler 평평외대버섯아재비(신칭)**

Hesler, Beith. Nova Hedwigia 23 : 30, figs. 29, 191, 1967.

***Clitopilus subplanus* Pk., N.Y. State Mus. Bull. 122 : 18, 1908.**

***Pleuropus subplanus* (Pk.) Murr., North Amer. Flora 10 : 103, 1917.**

Pileus 2.2－3.0㎝ broad, broadly convex to plane depressed, becoming plane and slightly to deeply depressed, shining, fine purinose, densely white－fibrillose to silky, white to pallid white with yellow, or whitish yellow, disc yellowish brown, nargin fine striate, uneven, slightly incurved. Context thin, white. Odor and taste mile, or slightly, then somewhat fishy, Lamellae adnate or subdecurrent, slightly sinuate, sparse or slightly close, mixed short and long, whitish to pallid pinkish, medium broad, ventricose, edges even, concolorous. Stipe 4.0－9.0㎝ long, 2.0－3.0㎜ thick, equal, cylindrical, rarelly tapering upwards, white, silky, apex purinose, attaching white mycellium at base, fragil, solid, white.

Spores 10(－8.0)－12(－13)×6.0－7.0(－7.5)㎛, long elliptical in outline, mostly with six angles is side view, slightly nodulose, angles, obtuse, basidia 26.3－30×8.8－10㎛, clavate, subhymenium distinctive, hyphae from lamellae trama 35×6.3－7.5㎛, filamentous, with echinate, with pigment, peleipellis 5.0－7.5㎛ broad, with pigment, stipe trama 45－60×5.0－6.3㎛, cylindrical, membrane double walls, rarelly with pigment.

Habitat : Clustered on rotton stump or soils of road sides with forests. Summer, Edibility unknown, Distribution : Nt. Manduck.

Specimen studied : CHO－2214 collected from areas of Gomti－Jae in Mt. Manduck on the 17th of July, 1991.

Discussions : The pileus is at first white but soon assumes a distinct gray tint. The flesh rather firm, and not fragile as in *E. albinellum*. It is related to *E. floridanum*, which has a strong farinaceous odor and taste.

***E. melleipes* Hesler 꿀외대버섯(신칭)**

Hesler, Beih, Nova Hedwigia 23 : 60－61, 1967.

***Leptoniella melleipes*(Murr.) Murr., Lloydia 9 : 330, 1946.**

Pileus 1.8−2.2cm broad, broasdly convex with a small paillate to slightly extended, papillate, margin striate to disc, inrolling, fibrillose, dry darkish brown or darkish gray to grayish brown, disc with papillate darker, Context membranous, pale melleous. Odor none, taste farinaceous. Lamellae 2.0mm wide, white to pallid pinkish, slightly close, emerginate−adnate, pale melleous, ventricose, distant, entire, edges even, concolorous. Stipe 4.0 −5.0cm long, 3.5−4.0mm thick, equal slightly flexible, longitudinally striate, whitish gray or pale melleous, apex surfy, elsewhere glabrous, solid to stuffed, finally hollow, white to concolorus with surface.

Spores 9.0(−8.0)×7.0(−6.0)−8.0(−9.0)μm, subglobose, slightly isodiametric, mostly with 5−6 angles in side view, basidia 35−37.5×7.5−8.5μm, fusoid, 4−spored, subhymenium distinctive, pileipellis 22.5−50×6.3−7.5μm, cylindrical, subparallel, stipe trama 70−105×10−16.3μm, cylindrical.

Habitat : Clustered on soils with fallen leaves. Summer. Edibility unknown.

Distribution : Mt. Jiri National Park.

Specimen studied : CHO−2179 collected from areas of Whaom−Sa valley in Mt. Jiri on the 13th of July, 1991.

Discussions : The charterristics of it have papillate and subglobose or subisodiametric spores. Colors of carophores are melleous.

***E. peralbidum* Horak 순백외대버섯(신칭)**

Horak, Beih. Nova Hedwigia 43 : 58, fig. 35, 1973.

Horak, Beih. Nova Hedwigia 65 : 68, pl.10, fig.30, 1980.

Pileus 1.5−3cm broad, slightly broadly convex to plane, finally depressed, umbilicate, pure wihite when young, whitish gray with pinkish, fibrillose, dry, disc darker, tomentose, striate near the margin. Context white, changing surface color, odor and taste acidulous. Lamellae decurrent or broadly adnate, sinuate, white to pale pink close or slightly sparse, white to pale pinkish, edges concolorous, fimbriate.

Stipe 2.5−4.0cm long, 1.0−3.0mm thick, cylindrical, equal, dirty white pallid white, flexible, glabrous, attaching white mycellium at base, fistulose, hollow, white.

Spores 8.0−10(−11)×6.0(−5.5)−7.0μm, elliptical or broadly elliptical, mostly with 5∼6 angles, rerelly with guttulate, angles, basidia 4−spored, 25−32.5×7.5−8.8μm, clavate, subhymenium slightly distinctive, hyphae from lamellae trama 50−87.5×3.8−5.0μm, clamp connection present, parallel or slihgtly subparallel, cheilocystidia 37.5−70×10−16.3μm, clavate, anticulate, pileipellis 7.5−17.5μm broad, cylindrical terminal cells clavate or lageniforms.

Habitat : Clustered on soils with fallen leaves of deciduous forests. Summer. Edibility unknown.

Distribution : Mt. Jiri National Park.

Specimen studied : CHO−2178 collected from areas of Whaom−Sa valley on the 13th of July, 1991.

Discussions : This species is similar *E. albidum*, Murrill and *E. murrillii* Hesler, both native in North America. Horak(1973) states that this species from New Zealand, however, is distinguished by its more robust habit, conspicuous cheilocystidic and persence of clamp connection.

***E. pyrinum* (B. & C.) Hesler 돌외대버섯(신칭)**

Hesler, Beih. Nova Hedwigia 23 : 37, fig. 26, 1967.

***Agaricus pyrinus* Berk. & Curt., Ann. Mag. Nat. Nat. Hist. Ⅲ. 4 : 291, 1859.**

Eccilia pyrina (B. & C.) Sacc., Syll. Fung. 5 : 732, 1887,

Pileus 1.5−4.0㎝ broad, convex−campanulate, expanding, slightly depressed with a small umbo, whitish gray, disc darkish, margin grayish or whitish, elsewhere pale brown, appressed fibrillose, translucently striate from margin to disc, margin teeth, inrolled when young. Context thin, odor of ripe pear, taste mild. Lamellae decurrent or subdecurrent, close, medium broad, white to flesh pink, edges even, concolorous. Stipe 3.7−6.0㎝ long, 2.0−5.0㎜ thick, dingy brown, slightly twisted, longitudinally striate, white to pallid white, slightly equal, apex thicker than below, glabrous, slightly compressed, flabby fragil, flexible, attaching white mycellium at base, stuffed to horrow.

Sporeds 9.0(−8.5)−10(−10.5)×5.5−6.5(−7.0)㎛, elliptical in out line, mostly with six angles in side view, rarelly with 5 or 7 angles, angles obtuse, basidia 32−37.5×8.8−10㎛, clavate, ventricose, 4−spored, subhymenium distinctive, hypae form lamellae trama 10−12.5㎛ broad, parallel, clamp connection absent, cheilocystidia and pleurocystidia absent, pileipellis 42.5−50×12.5−17.5㎛, clavate, pilocystidia similar to pileipellis, stipe trama 60−87.5×10−13.8㎛, slightly cylindrical, filamentous.

Habitat : Clustered or cespitose on soils of deciduous forests. Summer. Edibility unknown.

Distribution : Mt. Naejang National Park.

Specimen studied : CHO−2242 collected from areas between Naejang−Sa and Wonjok−Am on the 19th of July, 1991.

Discussions : The pileus color and the odor of ripe pears are distinctive characters. Hesler(1967) states that this species was collected at swamp and pine woods but author colleced at decidrous woods.

摘　　要

1991년 6월부터 9월까지 내장산국립공원, 지리산국립공원, 선운산도립공원과 전주근교의 만덕산에서 다수의 외대버섯을 채집하여 동정한 결과 다음의 것들이 한국산 미기록종으로 확인되었다.

E. subvile(안정외대버섯아재비) : 균모는 소형으로 둥근형에서 배꼽형으로 된다. 회갈색이며 습기가 있을 때는 검은색을 나타낸다. 매끈하며 가장자리는 안으로 말린다. 주름살은 바른주름살이고 밀생하며 분홍색이다. 자루는 원통형이고 포자는 타원형이며 연낭상체와 측낭상체는 없으나 균모의 발생은 숲속의 흙에 군생한다.

E. bruneomarginatum(갈색둘레외대버섯) : 균모는 소형이며 원추 또는 반구형이나 젖꼭지를 갖고 있는 배꼽형이다. 회갈색이며, 젖꼭지는 검은 갈색이며 중앙은 인편이 있으며 줄무늬가 있다. 주름살은 올린 주름살이며 배불뚝이 모양이며 주름살 간격은 보통이다. 주름살의 가장자리는 갈색이고 미세털이 있다. 자루는 휘어지며 백색이고 매끈하다. 포자는 중형이며 타원형이고 연낭상체와 측낭상체가 있다. 여름에 낙엽수림과 침엽수림의 혼합림의 흙에 산생한다.

E. minutoalbum(애백색외대버섯) : 균모는 소형이며, 둥근형에서 차차 평평하여지며 가운데는 배꼽형이다. 백색 또는 황백색이며 줄무늬가 있다. 주름살은 바른주름살에서 내린주름살로 되며 처음은 백색이나 분홍색으로 된다. 자루는 길고 원통형이며 거의 백색이다. 약간 비틀리고 표면은 매끈하며 속은 비었다.

포자는 사각형이고 중형이며 연낭상체와 측낭상체는 없다. 발생은 숲속의 낙엽속의 흙에 군생한다.

E. subplanum(평평외대버섯아재비) : 균모는 소형이며 원추형에서 평평하여진다. 미세분말 또는 섬유상 인편이다. 가장자리에는 줄무늬가 있으며 안으로 말린다. 주름살은 바른주름살 또는 약간 내린구름살, 주름살의 간격은 넓다. 자루는 원통형, 약간 팽이꼴인 것도 있다. 포자는 중형 또는 약간 대형이며, 긴 타원형이며 결절형인 것도 있다. 균사에 침이 나 있는 것도 있다. 연낭상체와

측낭체는 없다. 여름에 숲속의 고목 또는 흙에 군생한다.

E. mellipes(꿀외대버섯) : 균모는 소형이며 젖꼭지를 가진 원추형이며, 섬유상으로 줄무늬가 있다. 흑갈색 또는 회흑색에서 회갈색으로 된다. 가운데는 진하다. 주름살은 흰색에서 분홍색으로 되며 주름살의 간격은 보통이며 바른주름살이다. 자루는 세포줄이 있으며 회백색이며 윗쪽은 인편이 있으나 그 외에는 밋밋하다. 포자는 중형이며 구형이다. 연낭상체와 측낭상체는 없다. 여름에 낙엽속의 흙에 군생한다.

E. peralbidum(순백외대버섯) : 균모는 소형이며 원추형에서 평평하고 오목하거나 배꼽형이다. 어릴때는 백색이며 섬유상이고 줄무늬가 있다. 주름살은 내린주름살 또는 바른주름살이며 분홍색이다. 주름살의 간격은 보통이고 가장자리는 털이 있다. 자루는 원통형이고 휘어지며 매끈하다. 포자는 중형이고 타원형이며 고리(꺽쇠)가 있으며 연낭상체는 있으나 측낭상체는 없다. 여름에 낙엽활엽수림의 낙엽속의 흙에 군생한다.

E. pyrinum(돌외대버섯) : 균모는 소형이고 종모양에서 차차 펴지면서 오목하나 가운데에 조그만 혹이 있다. 회백색이며 가운데는 검으며 섬유상이다. 가장자리는 투명한 줄무늬가 있고 안으로 말린다. 주름살은 내린주름살이고 백색에서 분홍색으로 된다. 자루는 짙은 갈색, 약간 비틀리며, 세로줄이 있다. 속은 차 있다가 빈다. 포자는 중형이며 타원형이고 연낭상체와 측낭상체는 없다. 여름에 낙엽수림의 흙에 군생 또는 속생한다.

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(1993년 2월 10일)

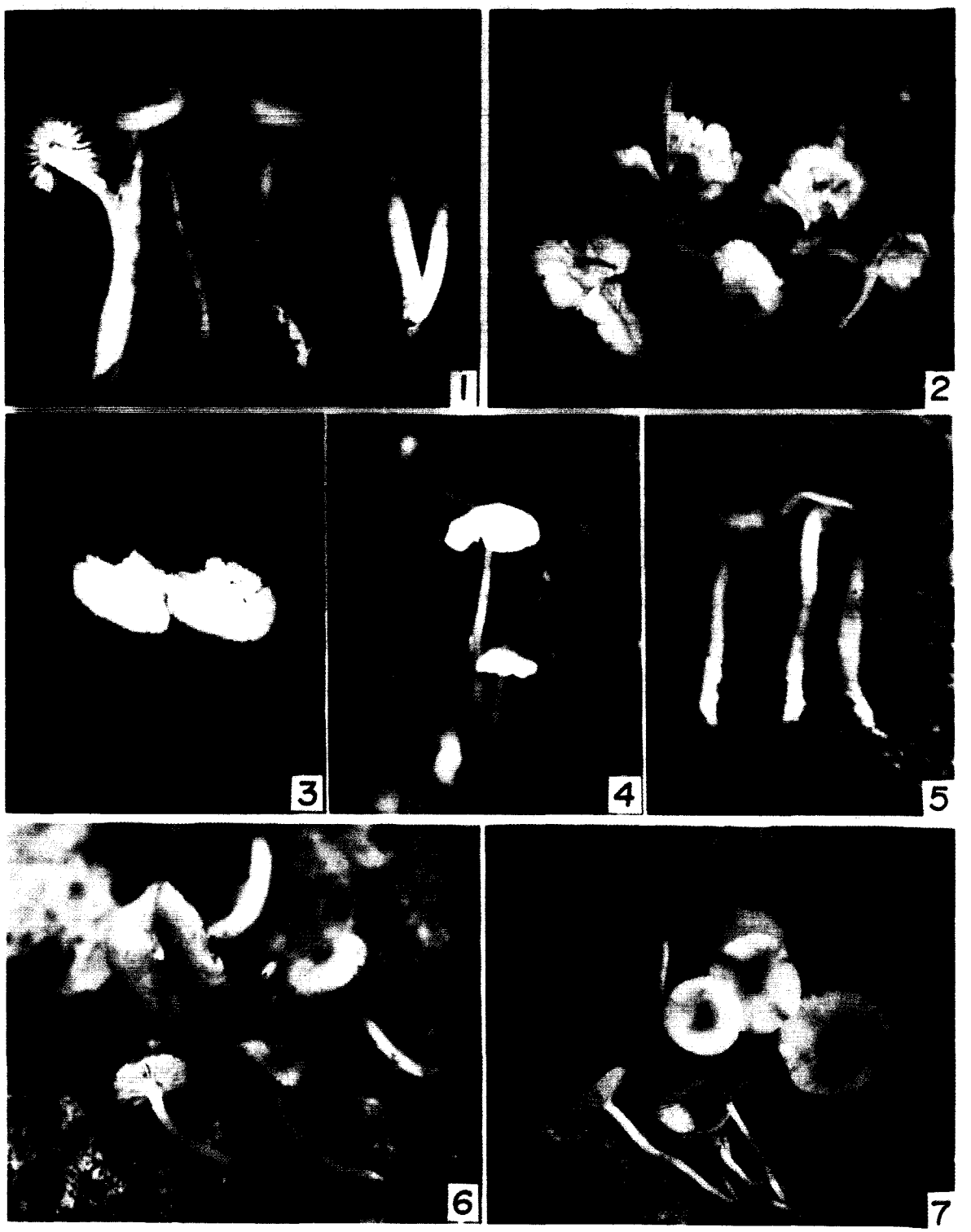
Plate I

The Explanations of Plate

1. *Entoloma subvile*
2. *E. bruneomarginatum*
3. *E. minutoalbum*
4. *E. subplanum*
5. E. melleipes
6. *E. peralbidum*
7. *E. pyrinum*

※ Natural size 1/2

Plate



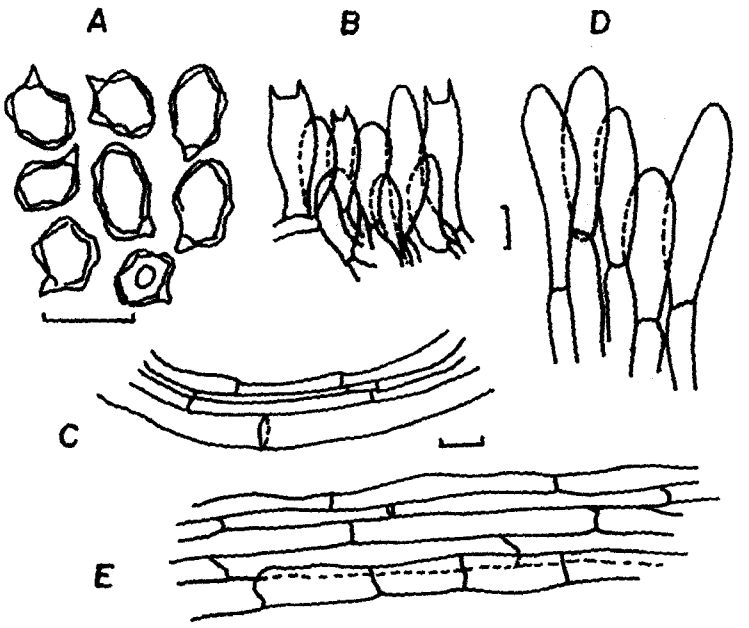


Fig. 1. Microscopic features of *E. subvile* (bar 10㎛)
A. spores, B. basidia C. hyphae from lamellae trama D. pileipellis E. stipe trama

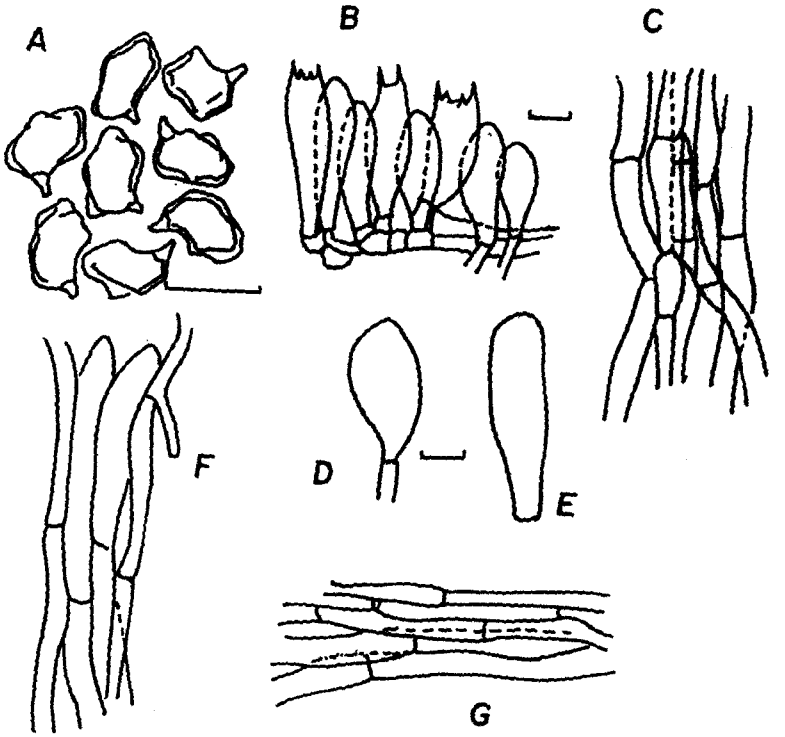


Fig. 2 Microscopic features of *E. bruneomarginatum*(bar 10㎛)
A. spores B. basidia C. hyphae from lamellae trama D. cheilocystidia E. pleurocystidia
F. pileipellis G. stipe trama

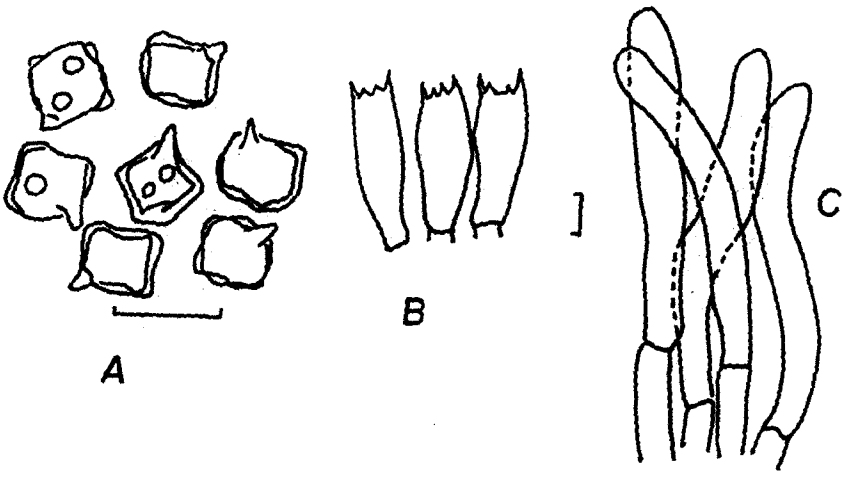


Fig. 3 Microscopic features of *E. minutoalbum*(bar 10㎛)
A. spores B. basidia C. hyphae from lamellae trama

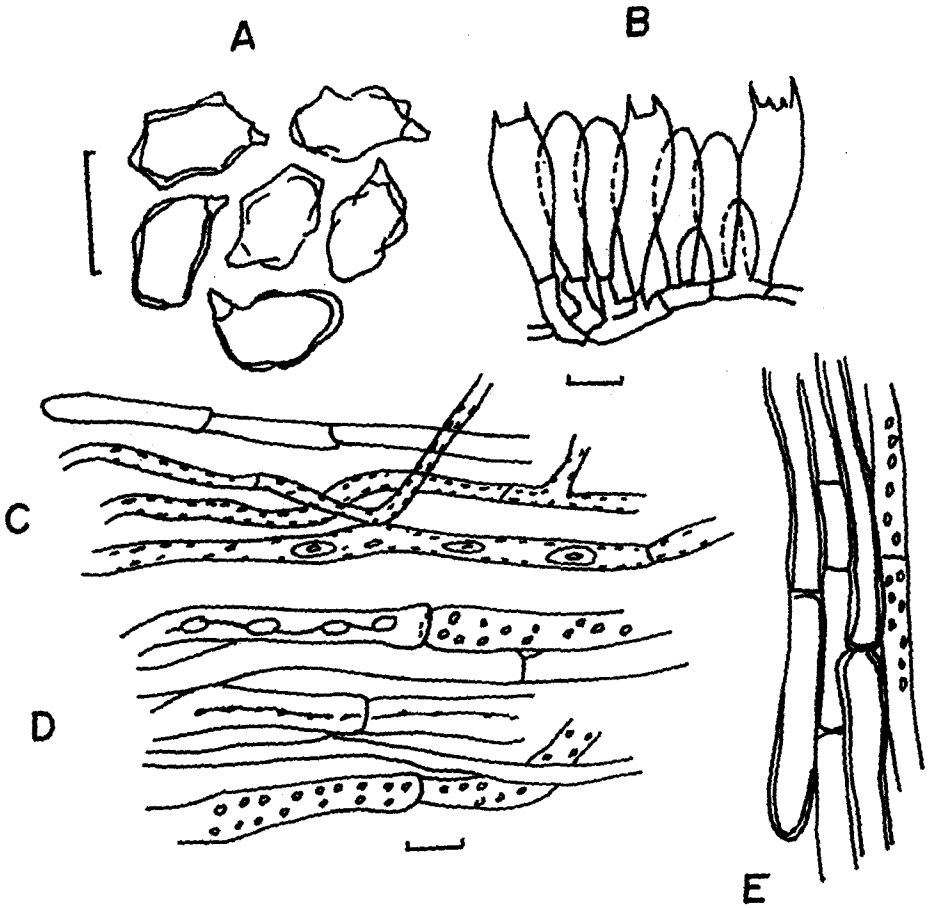


Fig. 4 Microscopic features of *E. subplanum*(bar 10㎛)
A. spores B. basidia C. hyphae from lamellae trama D. pileipellis E. stipe trama

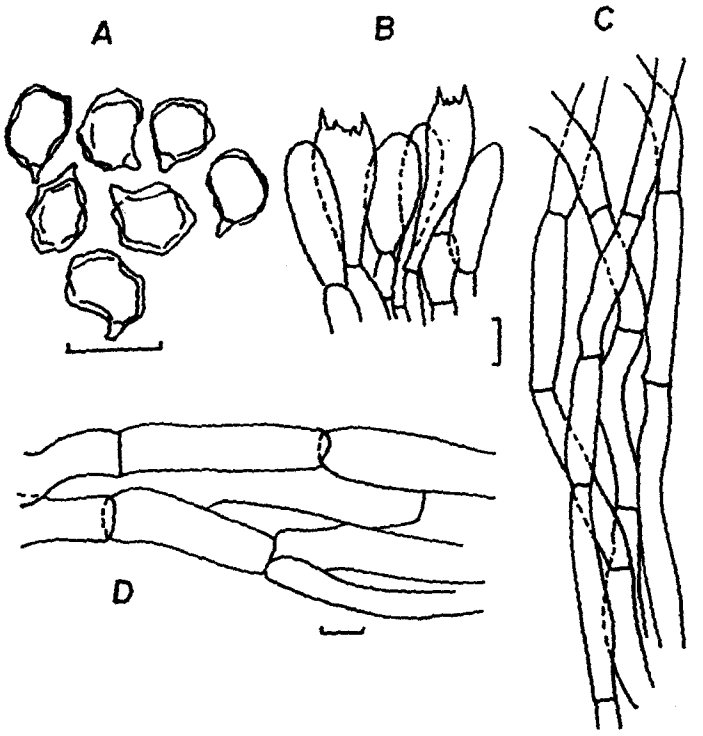


Fig. 5 Microscopic features of *E. melleipes* (bar 10㎛)
A. spores B. basidia C. pileipellis D. stipe trama.

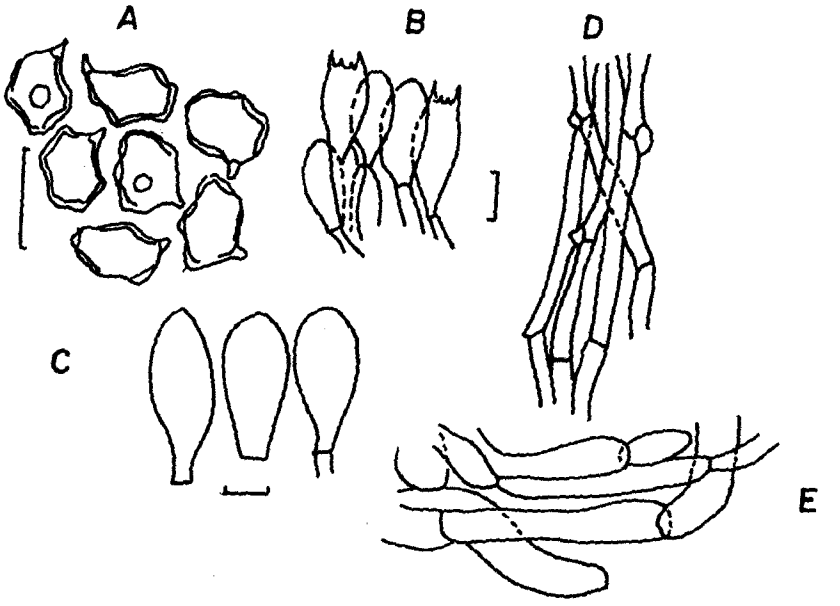


Fig. 6 Microscopic features of *E. peralbidum*(bar 10㎛)
A. spores B. basidia C. cheilocystidia D. hyphae from lamellae trama E. pileipellis

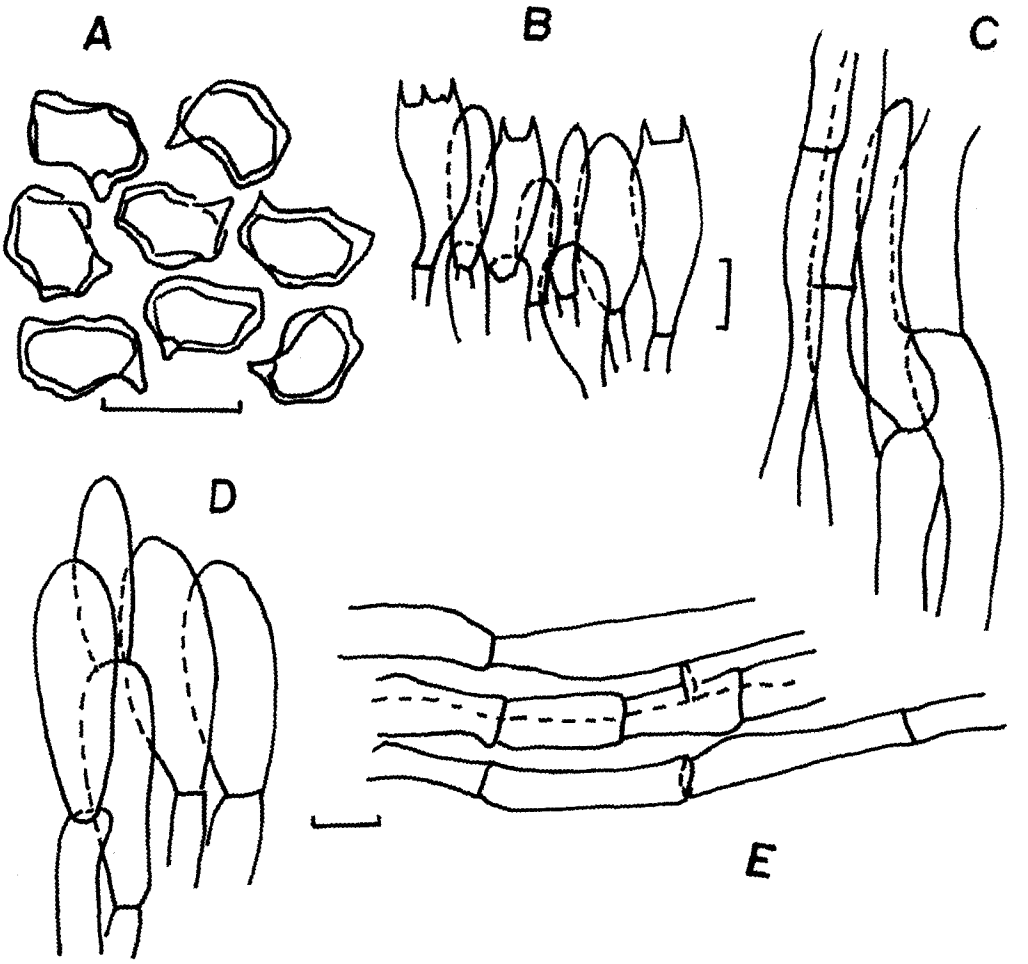


Fig. 7. Microscopic features of *E. pyrinum*(bar 10㎛)
A. spores B. basidia C. hyphae from lamellae trama D. pileipellis E. stipe trama.