RESEARCH NOTE

# Newly Recorded Macrofungi from Taebaeksan National Park in Korea

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## ABSTRACT

Mt. Taebaeksan extends from Gangwon-do Province (Taebaek-si, Youngwon-gu, and Jeongseon-gun) to Gyeongsangbuk-do Province (Bongwha-gun), South Korea. Indigenous fungi present in the park were investigated between 2019 and 2022. All collected specimens were identified to the species level based on their morphological characteristics and molecular phylogenetic analysis using sequences from the internal transcribed spacer (ITS) and large subunit (LSU) of ribosomal DNA. Among them, 17 species—*Cyanosporus bifarius*, *Dacryobolus angiospermarum*, *Entoloma sericeum*, *Flammulina rossica*, *Fuscopostia leucomallella*, *Homophron helvolescens*, *Hygrophorus queletii*, *Hymenochaete huangshanensis*, *Inocybe albodiscoides*, *Lactarius fulvihirtipes*, *Lepiota ignivolvata*, *Physisporinus eminens*, *Ramaria gracilis*, *Russula albolutea*, *Russula cremicolor*, *Stropharia lignicola*, and *Tengioboletus subglutinosus*—were newly recorded macromycota in Korea.

**Keywords:** Macrofungal flora, Taebaeksan National Park, Unrecorded species



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Mt. Taebaeksan extends from Gangwon-do Province (Taebaek-si, Yeongwol-gun, and Jeongseon-gun) to Gyeongsangbuk-do Province (Bongwha-gun) in South Korea and has an area of 70,052 km$^2$. Of Korea's 22 national parks, Mt. Taebaeksan is the most recently designated. Taebaeksan National Park is home to a variety of wildlife, including several endangered species, such as *Egretta eulophotes* Swinhoe, *Pelophylax chosenicus* Okada, and *Lutra lutra* L. The higher plains are covered by alpine vegetation. Although macrofungi surveys have been conducted in other national parks with support from the national government, little research has been conducted on macrofungi in the Taebaeksan National Park. Nevertheless, because the vegetation of the park is diverse, a variety of macrofungi was expected to be distributed throughout. Through research done in the park from 2019 to 2022, 999 specimens of macrofungi were obtained, first identified based on their macroscopic morphology, followed by accurate identification through microstructural observation using a microscope. In addition, more objective and precise identification was performed using rDNA sequence analysis. The survey identified 286 species that were classified into 2 phyla, 6 classes, 18 orders, 75 families, and 167 genera. Among these, 17 species—*Lepiota ignivolvata* Bousset & Joss. ex Joss., 1990; *Entoloma sericeum* Quél., 1872; *Hygrophorus queletii* Bres., 1881;

*Inocybe albodiscoides* Matheny, 2022; *Flammulina rossica* Redhead & R. H. Petersen, 1999; *Homophron helvolescens* (S. Imai) Beker & U. Eberh, 2022; *Stropharia lignicola* E. J. Tian, 2021; *Tengioboletus subglutinosus* Yang Wang, Bo Zhang & Yu Li, 2022; *Ramaria gracilis* (Pers.) Quél., 1888; *Hymenochaete huangshanensis* S.H. He & Y.C. Dai, 2012; *Dacryobolus angiospermarum* S.H. He, 2018; *Physisporinus eminens* (Y.C. Dai) F. Wu, Jia J. Chen & Y.C. Dai, 2017; *Cyanosporus bifarius* (Spirin) B.K. Cui & Shun Liu, 2021; *Fuscopostia leucomallella* (Murrill) B.K. Cui, L.L. Shen & Y.C. Dai, 2018; *Lactarius fulvihirtipes* X.H. Wang, 2018; *Russula albolutea* B. Chen & J.F. Liang, 2021; and *Russula cremicolor* G.J. Li & C.Y. Deng, 2020—were recorded for the first time in Korea. Microscopic measurements and images of the 17 species were obtained using an Olympus CX43 microscope (Olympus, Tokyo, Japan). Twenty randomly selected mature basidiospores and basidia from each specimen were evaluated and compared to previously published descriptions [1-14]. Taxonomic classification of species and associated nomenclature were performed using the MycoBank database (http://www.mycobank.org/). For molecular identification, total DNA was extracted from the dried specimens using an AccuPrep Genomic DNA Extraction Kit (Bioneer, Daejeon, Korea). The nuclear large subunit rDNA D1–D2 domains (28S) of *Tengioboletus subglutinosus* were amplified using primer sets LR0R/LR5 [15,16]. The ITS regions of the other 16 species were amplified using primer sets ITS1F and ITS4B [16]. PCR amplification was performed as previously described [17]. Twenty-four nucleotide sequences of these 17 species have been deposited in GenBank (accession numbers: OR565247–OR565251, OR565254–OR565271, OR54006) and compared with GenBank reference sequences (Table 1). We used MEGA 7 to assemble, proofread, and edit the DNA sequences [18]. The sequences obtained in this study were compared with reference sequences from GenBank A neighbor-joining phylogenetic analysis was performed using MEGA 7 software with Kimura 2-parameter correction. The robustness of the inferred neighbor-joining topologies was tested using 1000 bootstrap replicates (Fig. 1). Using a combination of morphological and phylogenetic analyses, one specimen (NIBRFG0000513774) formed a monophyletic clade with the reference sequence *Lepiota ignivolvata* (bootstrap=100%; sequence similarity: 100%). One specimen (NIBRFG0000509002) formed a monophyletic clade with the reference sequence of *Entoloma sericeum* (bootstrap=86%; sequence similarity: 99.7%). Two specimens (NIBRFG0000513807 and NIBRFG0000513813) formed a monophyletic clade with the reference sequences of *Hygrophorus queletii* (bootstrap=100%; sequence similarity: 100%). One specimen (NIBRFG0000513812) formed a monophyletic clade with the reference sequence of *Inocybe albodiscoides* (bootstrap=99%; sequence similarity: 99.3%). Two specimens (NIBRFG0000513790 and NIBRFG0000514550) formed a monophyletic clade with the reference sequences of *Flammulina rossica* (bootstrap support=97%; sequence similarity: 99.7-99.9%). One specimen (NIBRFG0000508845) formed a monophyletic clade with the reference sequence of *Homophron helvolescens* (bootstrap support=95%; sequence similarity: 99.9%). Two specimens (NIBRFG0000509011 and NIBRFG0000513712) formed a monophyletic clade with the reference sequences of *Stropharia lignicola* (bootstrap support=100%; sequence similarity: 100%). One specimen (NIBRFG0000513708) formed a monophyletic clade with

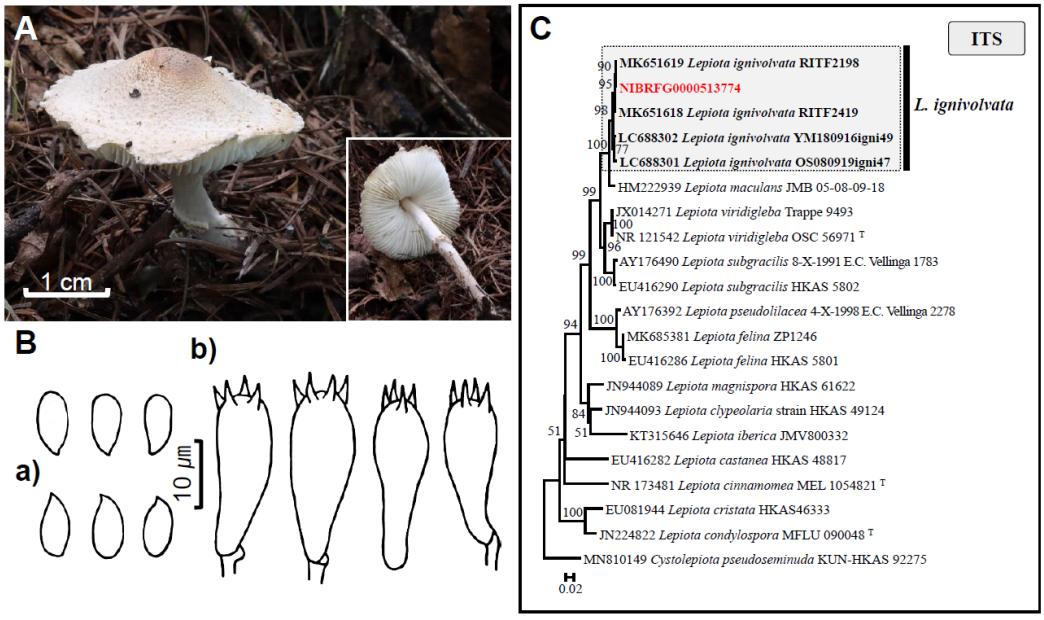
the reference sequence of *Tengioboletus subglutinosus* (bootstrap support=100%; sequence similarity: 100%). Two specimens (NIBRFG0000508844 and NIBRFG0000513701) formed a monophyletic clade with the reference sequences of *Ramaria gracilis* (bootstrap support=100%; sequence similarity: 100%). One specimen (NIBRFG0000511214) formed a monophyletic clade with the reference sequence of *Hymenochaete huangshanensis* (bootstrap support=100%; sequence similarity: 100%). Two specimens (NIBRFG0000505734 and NIBRFG0000510350) formed a monophyletic clade with the reference sequences of *Dacryobolus angiospermarum* (bootstrap support=100%; sequence similarity: 99.8-100%). One specimen (NIBRFG0000511205) formed a monophyletic clade with the reference sequence of *Physisporinus eminens* (bootstrap support=100%; sequence similarity: 99.7%). One specimen (NIBRFG0000513779) formed a monophyletic clade with the reference sequence of *Cyanosporus bifarius* (bootstrap support=84%; sequence similarity: 99.2%). One specimen (NIBRFG0000513753) formed a monophyletic clade with the reference sequences of *Fuscopostia leucomallella* (bootstrap support=100%; sequence similarity: 99.5%). Three specimens (NIBRFG0000508975, NIBRFG0000508989, and NIBRFG0000509020) formed a monophyletic clade with the reference sequences of *Lactarius fulvihirtipes* (bootstrap support=87%; sequence similarity: 99.4%). One specimen (NIBRFG0000508947) formed a monophyletic clade with the reference sequence of *Russula albolutea* (bootstrap support=100%; sequence similarity: 99.5%). One specimen (NIBRFG000051121) formed a monophyletic clade with the reference sequence of *Russula cremicolor* (bootstrap support=100%; sequence similarity: 100%). Here, 17 newly confirmed unrecorded species were added to the Korean National Species List [19]. Photographs of fruiting bodies, drawings of microscopic features (Fig. 1), and descriptions and discussions of these species are presented.

**Table 1.** Closest GenBank matches of 17 undescribed species in this study.

| Voucher No. | Genbank accession No. | The closest GenBank Taxa | Identity (%) | gene |
|---|---|---|---|---|
| NI BRFG0000513774 | OR565247 | *Lepiota ignivolvata* | 100 | ITS |
| NI BRFG0000509002 | OR565248 | *Entoloma sericeum* | 99.7 | ITS |
| NI BRFG0000513807 | OR565249 | *Hygrophorus queletii* | 100 | ITS |
| NI BRFG0000513813 | OR565250 | *Hygrophorus queletii* | 100 | ITS |
| NI BRFG0000513812 | OR565251 | *Inocybe albodiscoides* | 99.3 | ITS |
| NI BRFG0000513790 | OR565254 | *Flammulina rossica* | 99.9 | ITS |
| NI BRFG0000514550 | OR565255 | *Flammulina rossica* | 99.7 | ITS |
| NI BRFG0000508845 | OR565256 | *Hornophron helvolescens* | 99.9 | ITS |
| NI BRFG0000509011 | OR565257 | *Stropharia lignicola* | 100 | ITS |
| NI BRFG0000513712 | OR565258 | *Stropharia lignicola* | 100 | ITS |
| NI BRFG0000513708 | OR554006 | *Tengioboletus subglutinosus* | 100 | LSU |
| NI BRFG0000508844 | OR565259 | *Ramaria gracilis* | 100 | ITS |
| NI BRFG0000513701 | OR565260 | *Ramaria gracilis* | 100 | ITS |
| NI BRFG0000511214 | OR565261 | *Hymenochaete huangshanensis* | 100 | ITS |
| NI BRFG0000505734 | OR565262 | *Dacryobolus angiospermarum* | 99.8 | ITS |
| NI BRFG0000510350 | OR565263 | *Dacryobolus angiospermarum* | 100 | ITS |
| NI BRFG0000511205 | OR565264 | *Physisporinus eminens* | 99.7 | ITS |
| NI BRFG0000513779 | OR565265 | *Cyanosporus bifarius* | 99.2 | ITS |
| NI BRFG0000513753 | OR565266 | *Fuscopostia leucomallella* | 99.5 | ITS |
| NI BRFG0000508975 | OR565267 | *Lactarius fulvihirtipes* | 99.4 | ITS |
| NI BRFG0000508989 | OR565268 | *Lactarius fulvihirtipes* | 99.4 | ITS |
| NI BRFG0000509020 | OR565269 | *Lactarius fulvihirtipes* | 99.4 | ITS |
| NI BRFG0000508947 | OR565270 | *Russula albolutea* | 99.5 | ITS |
| NI BRFG0000511221 | OR565271 | *Russula cremicolor* | 100 | ITS |

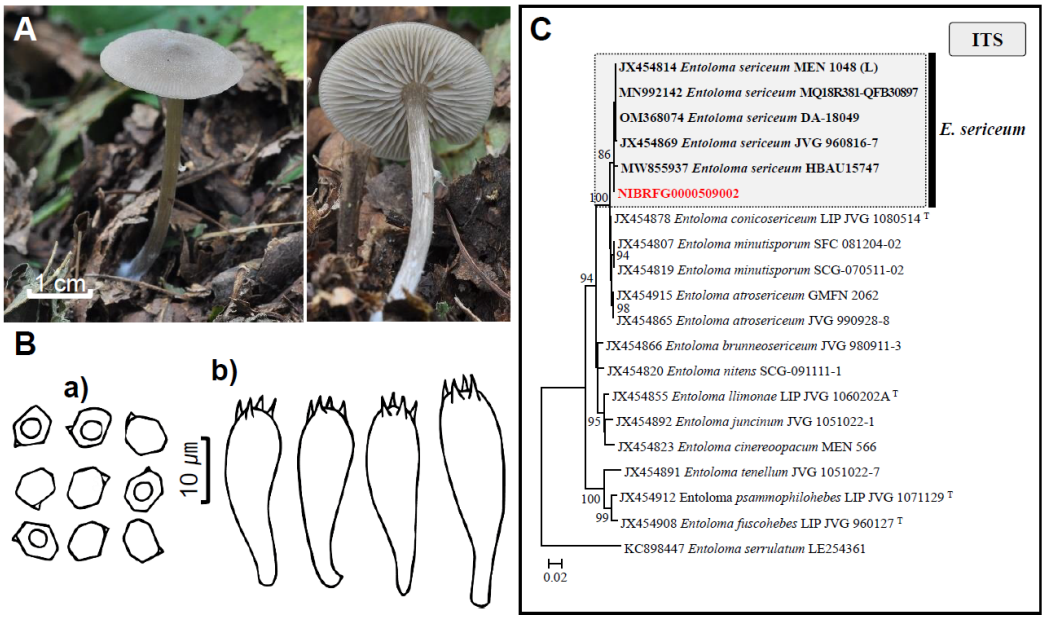
ITS: internal transcribed spacer, LSU: large subunit rDNA

## *Lepiota ignivolvata*




B: a) basidiospore, b) basidia

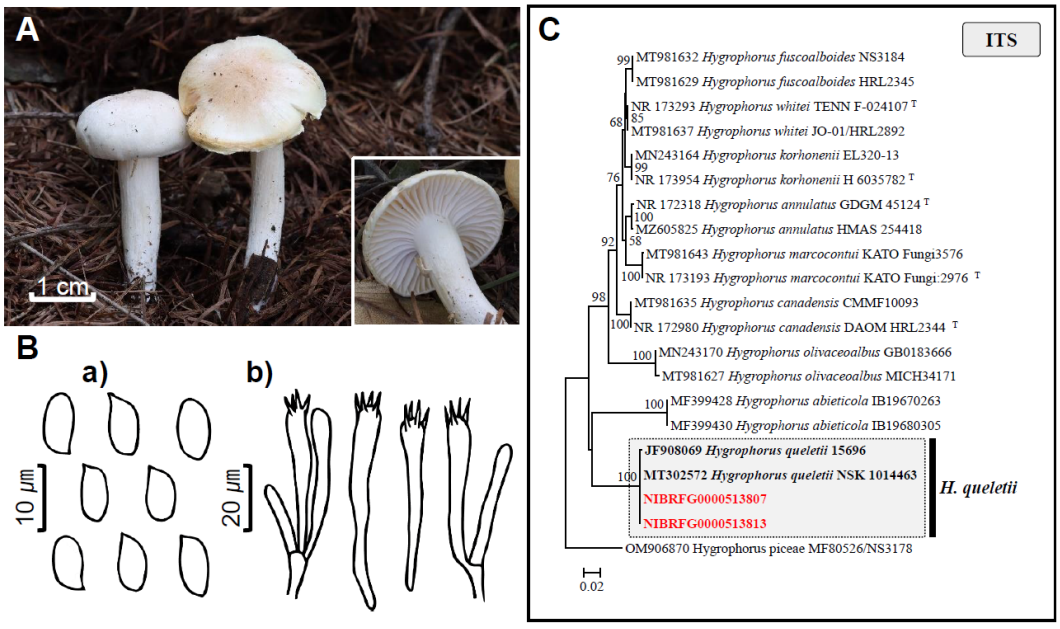
## *Entoloma sericeum*




B: a) basidiospore, b) basidia

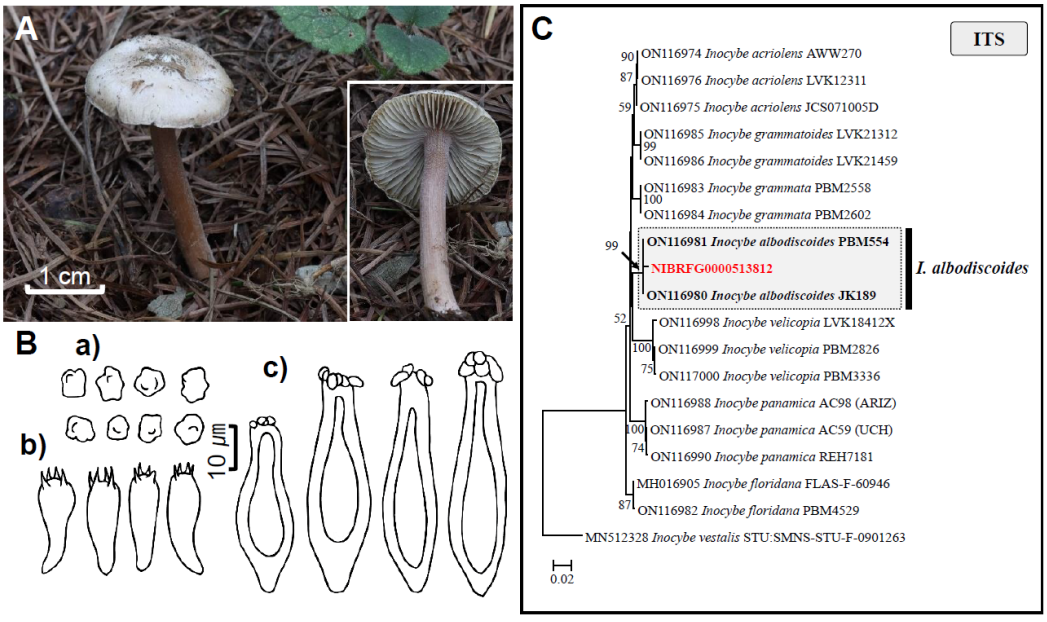
**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)

## *Hygrophorus queletii*




B: a) basidiospore, b) basidia

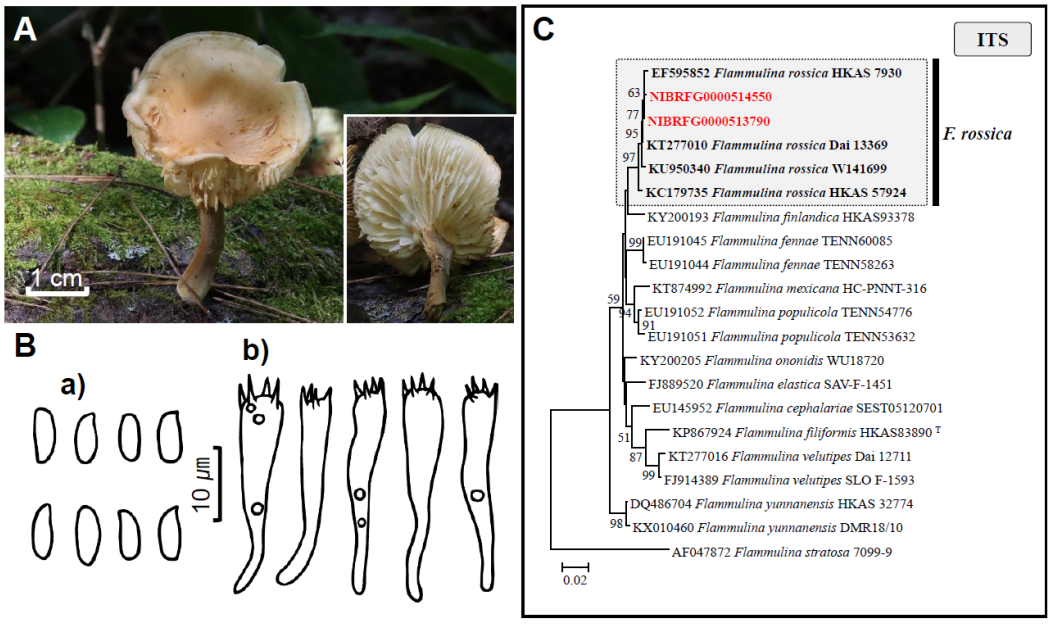
## *Inocybe albodiscoides*




B: a) basidiospore, b) basidia, c) pleurocystidia

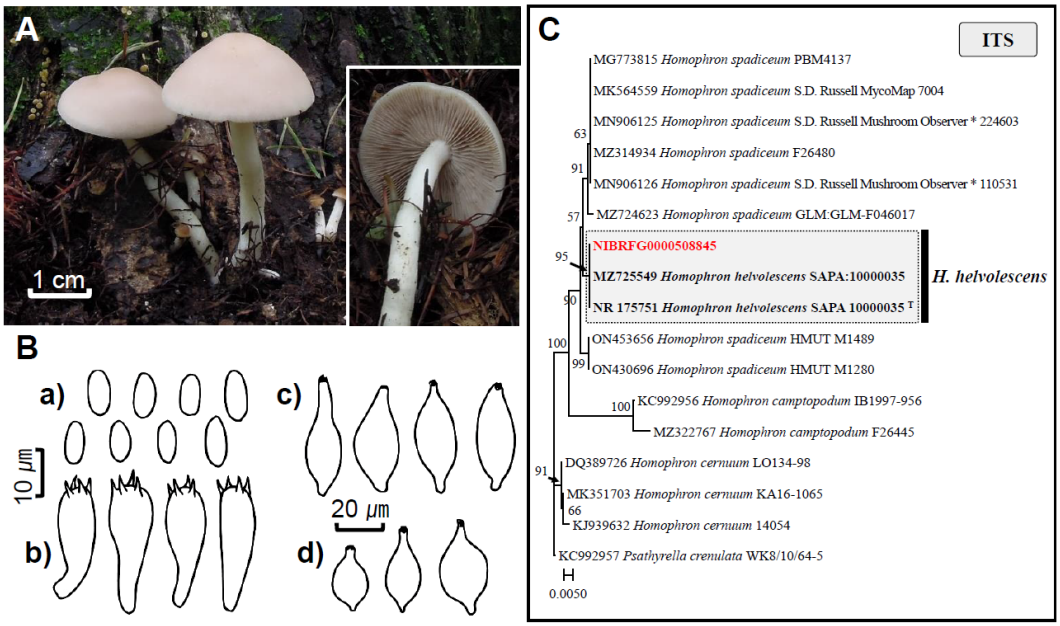
**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)

## *Flammulina rossica*




B: a) basidiospore, b) basidia

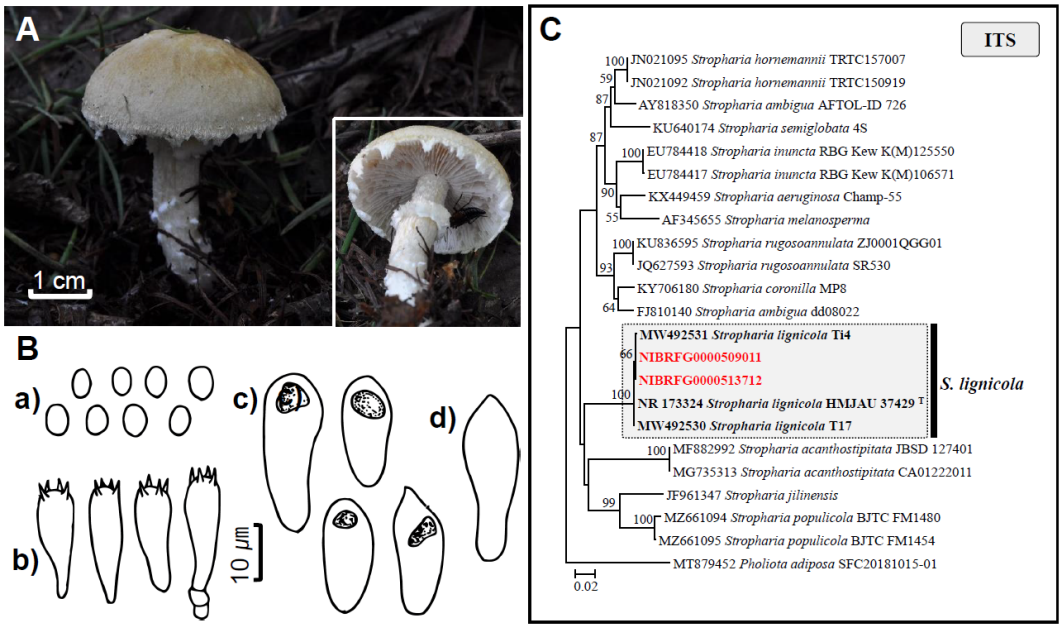
## *Homophron helvolescens*




B: a) basidiospore, b) basidia, c) pleurocystidia , d) cheilocystidia

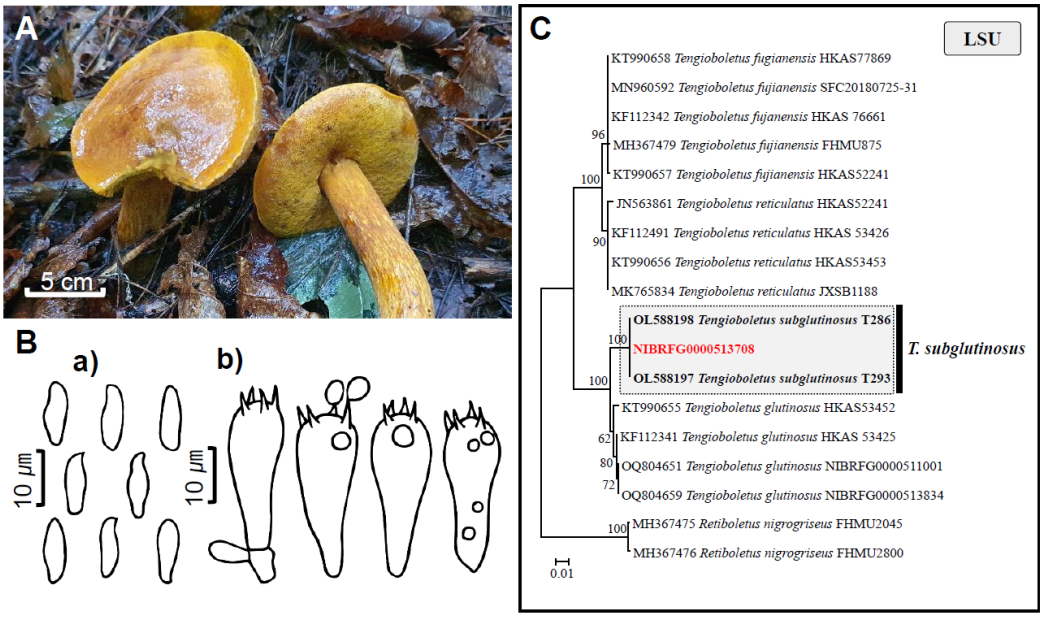
**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)

***Stropharia lignicola***




B: a) basidiospore, b) basidia, c) pleurocystidia , d) cheilocystidia

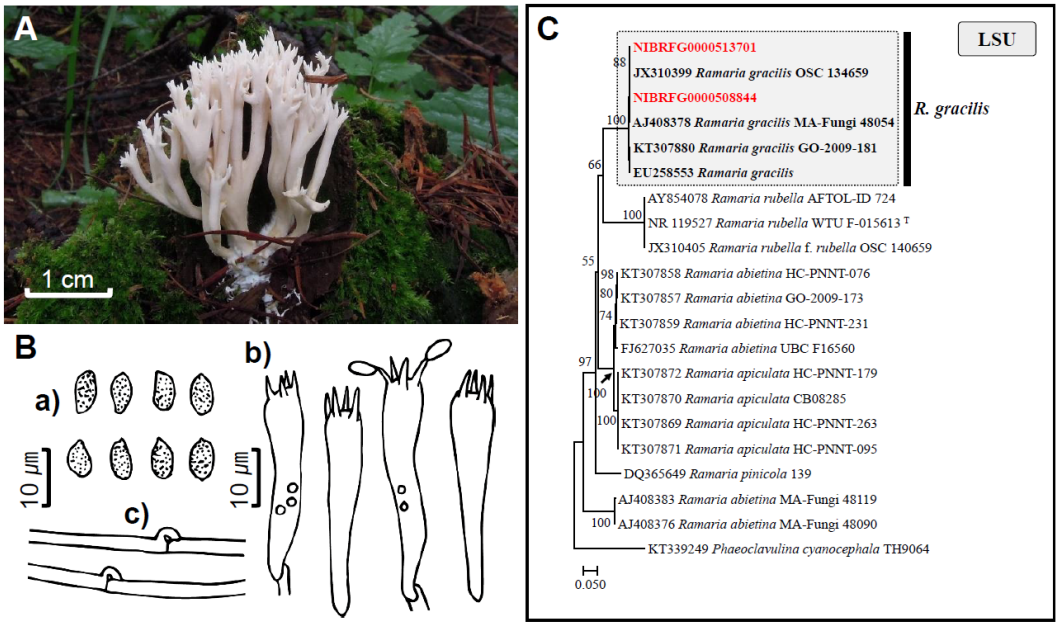
***Tengioboletus subglutinosus***




B: a) basidiospore, b) basidia

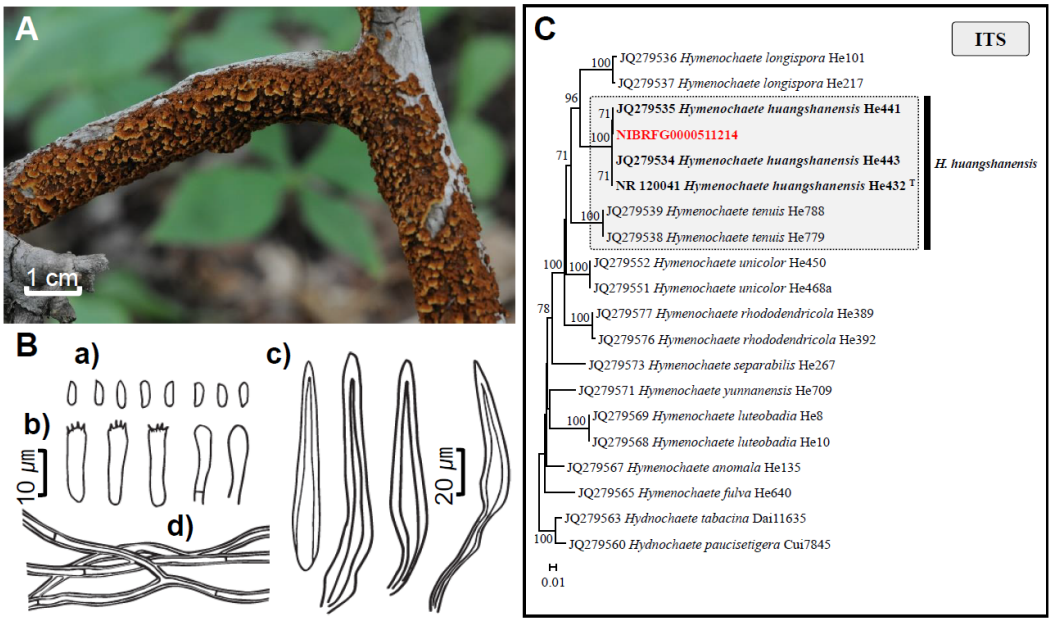
**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)

## *Ramaria gracilis*




B: a) basidiospore, b) basidia, c) hyphae

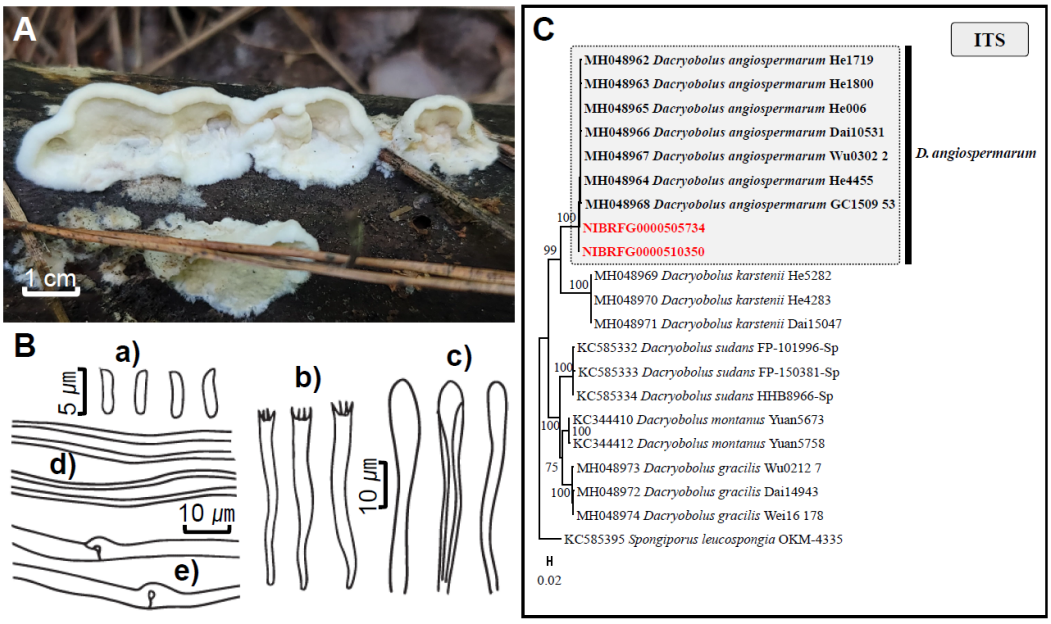
## *Hymenochaete huangshanensis*




B: a) basidiospore, b) basidia, c) setae, d) hyphae

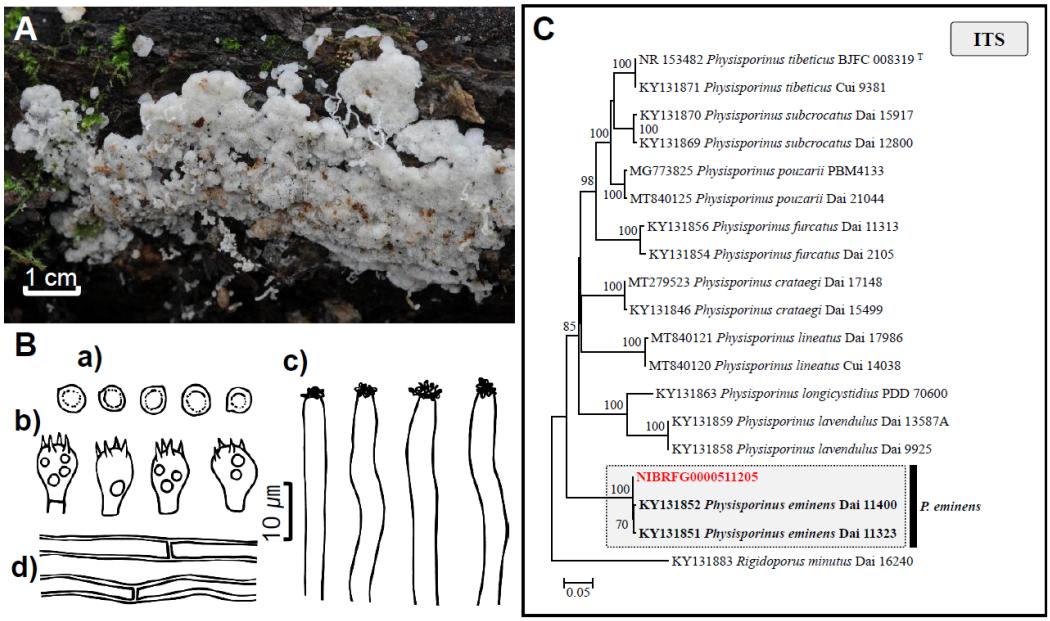
**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)

## *Dacryobolus angiospermarum*




B: a) basidiospore, b) basidia, c) skeletocystidia, d) skeletal hyphae, e) generative hyphae

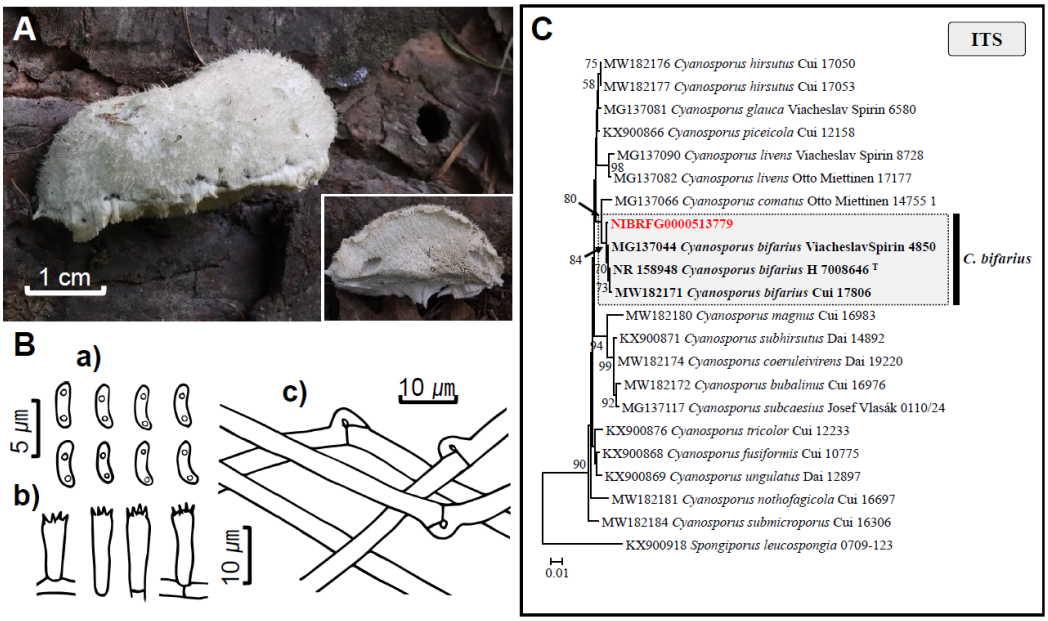
## *Physisporinus eminens*




B: a) basidiospore, b) basidia, c) hyphoid cystidia, d) subicular hyphae

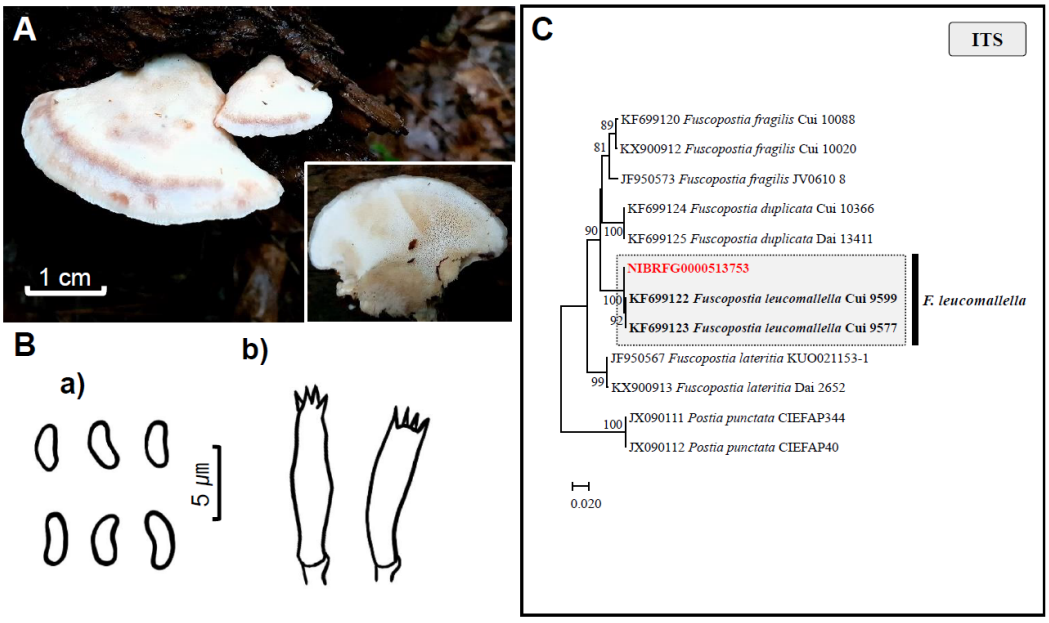
**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)

## *Cyanosporus bifarius*




B: a) basidiospore, b) basidia, c) hyphae

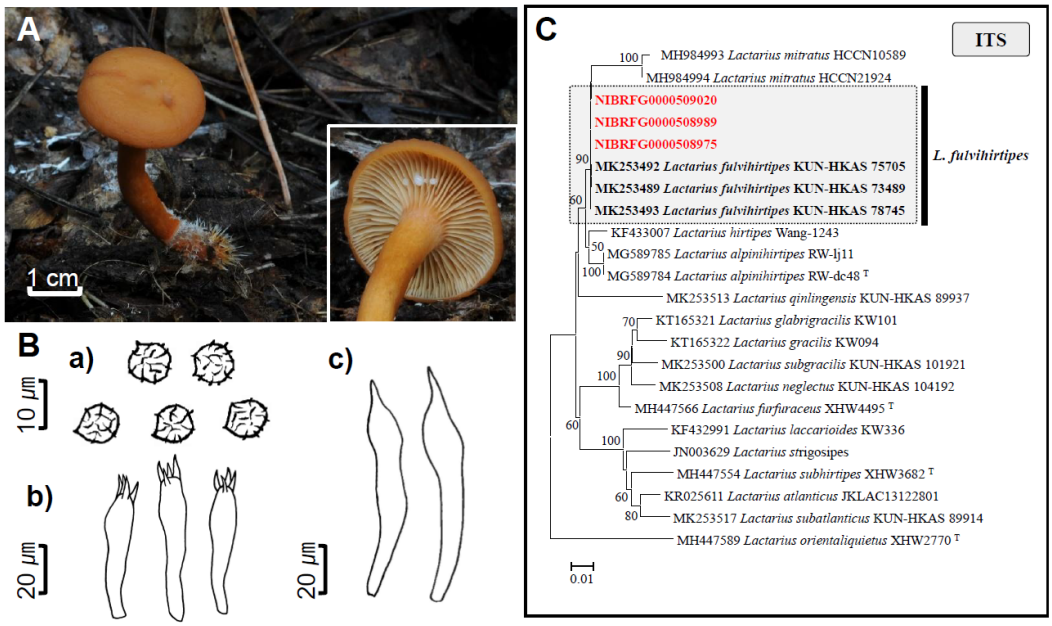
## *Fuscopostia leucomallella*




B: a) basidiospore, b) basidia

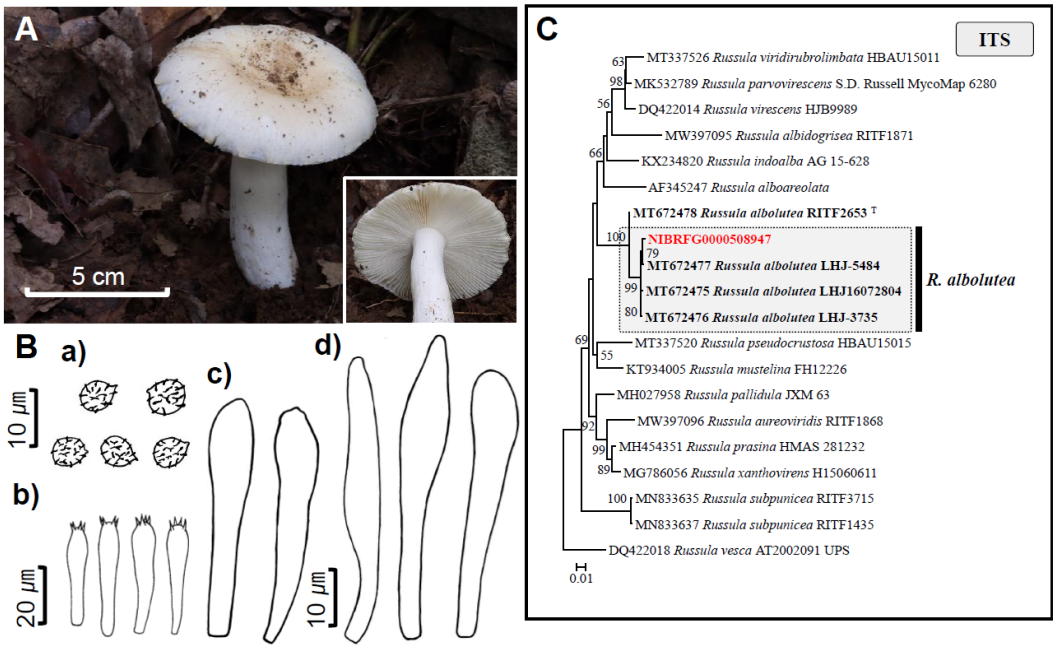
**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)

## *Lactarius fulvihirtipes*



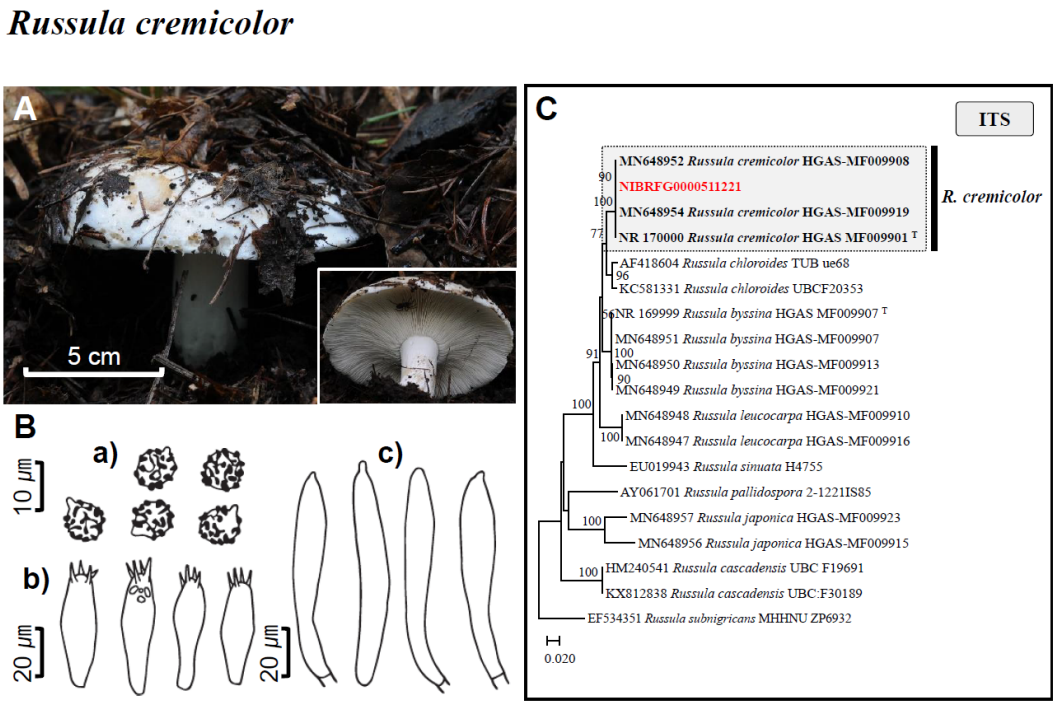

B: a) basidiospore, b) basidia, c) pleurocystidia

## *Russula albolutea*




B: a) basidiospore, b) basidia, c) pleurocystidia, d) cheilocystidia

**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit. (continued)




B: a) basidiospore, b) basidia, c) pleurocystidia

**Fig. 1.** Fruiting bodies (A), microscopic features (B), and neighbor-joining tree (C) of 17 unrecorded species: *Lepiota ignivolvata*, *Entoloma sericeum*, *Hygrophorus queletii*, *Inocybe albodiscoides*, *Flammulina rossica*, *Homophron helvolescens*, *Stropharia lignicola*, *Tengioboletus subglutinosus*, *Ramaria gracilis*, *Hymenochaete huangshanensis*, *Dacryobolus angiospermarum*, *Physisporinus eminens*, *Cyanosporus bifarius*, *Fuscopostia leucomallella*, *Lactarius fulvihirtipes*, *Russula albolutea*, and *Russula cremicolor*. (C) Bootstrap scores > 50 are shown at the nodes. The scale bar indicates the number of nucleotide substitutions per site. ITS, internal transcribed spacer; LSU, large subunit.

## TAXONOMY

### Basidiomycota R.T. Moore
### Agaricomycetes Doweld
### Agaricales Underw.
### Agaricaceae Chevall.

### 1. *Lepiota ignivolvata* Bousset & Joss. ex Joss., Rivista di Micologia 33 (1): 30 (1990)

**Korean name.** Bul-Geun-Teok-Bat-I- Gat-Beo-Seot, nom. nov. (붉은턱받이갓버섯)

**Pileus** 40-90 mm in diam., hemispherical to obtusely conical when young, convex to plane with an obtuse umbo when old; upper surface ocher to reddish brown in the center, concentrically light cream-colored to ocher scale on a whitish background toward the margin, with white veil remnants; flesh white. **Lamellae** free, subclose to close, white when young, cream-colored when old. **Stipe** 70-110×7-14 mm, cylindrical, surface above the annulus white with white-fibrillose, whitish to brownish squamules below, hollow, annulus fibrillose-membranous.

**Basidiospores** 9.1-11.0-14.1×4.4-5.2-6.3 μm, Q=1.94-2.27, ellipsoid, pale cream-colored, smooth, hyaline. **Basidia** 29.8-32.7-35.1×8.1-9.8-11.6 μm, clavate, with 4-sterigmata and basal clamp.

**Remarks**: *Lepiota ignivolvata* is characterized by an obtuse umbo and an ocher to reddish-brown pileus in the basidiocarp [1].

## Entolomataceae Kotl. & Pouzar

## 2. *Entoloma sericeum* Quél., Mém. Soc. Émul. Montbéliard Ser. 2, 5: 119 (1872)

**Korean name**. Myeong-Ju-Oe-Dae-Beo-Seot, nom. nov. (명주외대버섯)

**Pileus** 25-45 mm in diam., plano-convex when young, applanate with slight umbo when old; upper surface dark gray to black-brown, finely radially fibrillose, margin striate with tuberculate; flesh gray-brown. **Lamellae** ascending and narrowly adnate, subclose, gray-white when young, gray-brown with a pink tint when old. **Stipe** 30-60×2-4 mm, cylindrical, gray-brown to dark brown, solid when young, hollow when old, longitudinally whitish-fibrillose, base with white-tomentose.

**Basidiospores** 7.2-8.4-9.3×6.1-7.0-8.0 μm, Q=1.15-1.26, 5-6 angled, brown-pink. **Basidia** 35.1-38.7-42.3×9.4-11.0-12.4 μm, clavate to ventricose, with 4-sterigmata and basal clamp.

**Specimen examined:** Korea. Gangwon-do Jeongseon-gun, Taebaeksan National Park, 37°12'22.41"N 128°54'54.53"E, 1,301 m, 10 Sep 2020, C. Kim, M. Kim & C. Ahn, NIBRFG0000509002 (GenBank accession no. OR565248).

**Remarks:** *Entoloma sericeum* is characterized by a dark gray to black-brown color with a fine radially fibrillose pileus and a longitudinally whitish-fibrillose stipe [1].

## Hygrophoraceae Losty

## 3. *Hygrophorus queletii* Bres Fungi Tridentini 1 (1):11 (1881)

**Korean name**. Yeon-Bun-Hong-Beot-Ggot-Beo-Seot, nom. nov. (연분홍벚꽃버섯)

**Pileus** 25-65 mm in diam., convex when young, plane when old; upper surface pink to flesh-colored at center, paler to cream-white toward the margin, smooth, finely radially fibrillose when young, fibrillose scales, margin crenate; flesh light cream-colored. **Lamellae** decurrent, subdistant, white when young, yellowish-cream color when old. **Stipe** 40-70×7-15 mm, slightly conic, tapered toward the base, surface whitish, with white longitudinal fibrils.

**Basidiospores** 7.8-8.9-9.9×4.5-5.1-6.1 μm, Q=1.58-1.94, ellipsoid, smooth, hyaline. **Basidia** 45.1-55.4-66.5×5.8-7.3-8.9 μm, slenderly clavate, with 4-sterigmata.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°05'12.2"N 128°57'44.8"E, 920 m, 27 Sep 2022, J. Y. Park & D. G. Choi, NIBRFG0000513807 (GenBank accession no. OR565249); *Ibid*, 37°05'12.0"N 128°57'44.0"E, 923 m, 27 Sep 2022, J. Y. Park & D. G. Choi, NIBRFG0000513813 (GenBank accession no. OR565250).

**Remarks:** *Hygrophorus queletii* is pink to flesh-colored in the center of the pileus and stipe with white longitudinal fibrils [1].

## Inocybaceae Jülich

### 4. *Inocybe albodiscoides* Matheny, Brittonia 10.1007/s12228-022-09720-0: [13] (2022)

**Korean name**. Hoe-Baek-Saek-Ddam-Beo-Seot, nom. nov. (회백색땀버섯)

**Pileus** 35-60 mm in diam., conical to campaniform or plano-convex when young, plane when old, margin declinate to straight; upper surface grayish white to pinkish gray, fibrillose to fibrillose-scaly around the center and towards the margin; flesh white, firm. **Lamellae** sinuate to adnexed, close, light gray when young, pale brown to brown when old. **Stipe** 45-75×5-10 mm, cylindrical, with a basal bulb, surface pale ochraceous buff, or very pale brown undertone, pruinose; flesh white, solid.

**Basidiospores** 5.0-6.5-8.0×4.2-5.3-7.2 μm, Q=1.11-1.36, 1-6 angled, light yellowish brown, slightly thick-walled. **Basidia** 22.3-26.7-29.6×6.5-8.2-9.5 μm, clavate, with 4-sterigmata, hyaline. **Pleurocystidia** 42.2-54.0-66.1×12.8-16.0-18.8 μm, fusiform to fusiform-ventricose, or obclavate, thick-walled, apices obtuse, crystalliferous.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°05'12.4"N 128° 57'44.3"E, 920 m, 27 Sep 2022, J. Y. Park & D. G. Choi, NIBRFG0000513812 (GenBank accession no. OR565251).

**Remarks:** *Inocybe albodiscoides* is morphologically similar to *I. albodisco* but can be distinguished from it by a larger and more robust basidiocarp and smaller basidiospores [2].

## Physalacriaceae Corner

### 5. *Flammulina rossica* Redhead & R.H. Petersen, Mycotaxon 71: 290 (1999)

**Korean name**. Hwang-Saek-Paeng-Na-Mu-Beo-Seot, nom. nov. (황색팽나무버섯)

**Pileus** 30-70 mm in diam., convex when young, then plane when old; upper surface ochraceous brown to ochraceous at center, dull yellow to cream at margin, viscid when wet. **Lamellae** adnate, close, white when young, cream to yellowish when old. **Stipe** 30-70×3-7 mm, subcylindric, densely covered with bro wn to dark brown velvety hairs on a blackish background; flesh whitish.

**Basidiospores** 6.0-7.5-8.8×2.9-3.6-4.4 μm, Q=1.83-2.33, ellipsoid to oblong, ellipsoid, smooth, hyaline, thin-walled. **Basidia** 22.6-29.3-37.9×4.9-5.7-7.0 μm, narrowly clavate, hyaline, thin-walled, with 4-sterigmata.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°05'29.4"N 128° 57'55.1"E, 930 m, 27 Sep 2022, J. Y. Park & D. G. Choi, NIBRFG0000513790 (GenBank accession no. OR565254); *Ibid,* 37°09'04.8"N 128°58'04.8"E, 772 m, 26 May 2020, J. Y. Park, NIBRFG0000514550 (GenBank accession no. OR565255).

**Remarks:** *Flammulina rossica* is characterized by its plane, ochraceous brown to ochraceous pileus, and subcylindrical stipe, densely covered with brown to dark-brown velvety hairs [3].

## Psathyrellaceae Vilgalys, Moncalvo & Redhead
## *Homophron* (Britzelm.) Örstadius & E. Larss., 2015
## Korean name. Mu-Reun-Ju-Reum-Beo-Seot-Sok, nom. nov. (무른주름버섯속)
## Type: *Homophron spadiceum* (P. Kumm.) Örstadius & E. Larss. 2015

### 6. *Homophron helvolescens* (S. Imai) Beker & U. Eberh., Mycological Progress 21 (1): 467 (2022)

**Korean name**. Yeon-Bun-Hong-Mu-Reun-Ju-Reum-Beo-Seot, nom. nov. (연분홍무른주름버섯)

**Pileus** 40-80 mm in diam., campaniform when young, convex when old; upper surface flesh-colored, cream color to pale pink, smooth, not hygrophanous. **Lamellae** adnate, close, concolorous with pileus surface or grayish pink. **Stipe** 50-80×8-15 mm, equal or slightly enlarged at base, surface white, smooth. **Context** white.

**Basidiospores** 7.6-8.9-10.4×3.9-4.7-5.7 µm, Q=1.75-2.03, ellipsoid, thin-well, smooth, pale brown. **Basidia** 22.2-27.5-32.3×7.1-8.5-10.8 µm, clavate, with 4-sterigmata. **Pleurocystidia** 40.5-50.6-55.7×11.1-15.5-20.6 µm, metuloid, thin-walled, smooth. **Cheilocystidia** 31.8-39.4-45.8×14.1-19.8-20.1 µm, metuloid, thin-walled, smooth.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°07'17.72"N 128°53'48.8"E, 994 m, 01 Jul 2020, C. Kim, M. Kim & C. Ahn, NIBRFG0000508845 (GenBank accession no. OR565256).

**Remarks:** *Homophron helvolescens* is characterized by a cream-colored to pale-pink pileus and metuloid pleurocystidia [4].

## Strophariaceae Singer & A.H. Sm.

### 7. *Stropharia lignicola* E.J. Tian, Phytotaxa 505 (3): 293 (2021)

**Korean name**. Bi-Neul-Po-Do-Beo-Seot, nom. nov. (비늘포도버섯)

**Pileus** 30-75 mm in diam., hemispheric to convex when young, broadly convex with an incurved margin when old; upper surface grayish yellow, paler towards the margin, covered with pale gray squamulose, margin with pale yellow veil remnants when young; flesh whitish. **Lamellae** adnate, close, flesh color to cream color. **Stipe** 40-60×10-20 mm, equal or slightly enlarged at base, surface white, covered with recurved yellowish squamules towards base, white basal mycelium and rhizomorphs; annulus yellowish membranous.

**Basidiospores** 4.7-5.8-6.4×3.4-4.0-4.6 µm, Q=1.31-1.60, ellipsoid to subovate, smooth. **Basidia** 19.2-23.6-31.9×5.7-7.7-9.0 µm, clavate, hyaline, with 4-sterigmata. **Pleurocystidia** 15.3-24.2-33.5×7.7-10.0-12.0 µm, clavate, thin-walled, smooth, hyaline, with an amorphous highly refractive yellowish brown

content. **Cheilocystidia** 18.4-28.0-38.2×10.9-12.5-13.9 μm, clavate, thin-walled, smooth.

**Specimen examined:** Korea. Gangwon-do Jeongseon-gun, Taebaeksan National Park, 37°12'22.41"N 128°54'54.53"E, 1,301 m, 10 Sep 2020, C. Kim, M. Kim, & C. Ahn, NIBRFG0000509011 (GenBank accession no. OR565257).; Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°05'32.3"N 128° 57'51.1"E, 945 m, 31 Aug 2022, J. Y. Park & D. G. Choi, NIBRFG0000513712 (GenBank accession no. OR565258).

**Remarks:** *Stropharia lignicola* is easily identifiable and strongly covered with squamulose on the pileus and stipe [5].

## Boletales E.-J. Gilbert
## Boletaceae Chevall.

### 8. *Tengioboletus subglutinosus* Yang Wang, Bo Zhang & Yu Li, Journal of Fungi 8 (3, no. 218): 14 (2022)

**Korean name**. A-Gyo-Ssi-Geu-Mul-Do-Beo-Seot, nom. nov. (아교씨그물버섯아재비)

**Pileus** 65-90 mm in diam., hemispherical when young, applanate when old; upper surface brownish yellow to yellowish brown, glabrate, viscid when wet; flesh deep yellow. **Pore surface** vivid yellow to olive yellow, sinuate to decurrent, staining blue when bruised; pores angular, 2-3 per mm. **Stipe** 70-150×15-20 mm, clavate to subcylindrical, surface concolorous with pileus surface, basal mycelium yellow; flesh deep yellow.

**Basidiospores** 9.6-11.4-12.9×3.6-4.6-5.3 μm, Q=2.28-2.68, elongate ellipsoid, smooth. **Basidia** 27.6-33.5-39.8×8.9-11.1-13.1 μm, clavate, 2- and 4-sterigmata, hyaline, guttulate.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°05'28.6"N 128° 57'57.1"E, 909 m, 31 Aug 2022, J. Y. Park & D. G. Choi, NIBRFG0000513708 (GenBank accession no. OR554006).

**Remarks:** *Tengioboletus subglutinosus* is characterized by its brownish yellow to yellowish brown pileus and pore surface staining blue when bruised [6].

## Gomphales Jülich
## Gomphaceae Donk

### 9. *Ramaria gracilis* (Pers.) Quél., Flore mycologique de la France et des pays limitrophes: 463 (1888)

**Korean name**. Ga-Neun-Dae-Ssa-Ri-Beo-Seot, nom. nov. (가는대싸리버섯)

**Fruiting body** 40-60×30-50 mm, rootlike base, branched like a coral, basal trunk 10-15×3-5 mm, with white rhizomorphs, dichotomously branched many times toward the top, branches ending in multiply branched, light ocher-yellowish to cream color.

**Basidiospores** 5.5-6.3-7.6×3.3-3.6-4.0 μm, ellipsoid, finely verrucose, hyaline. **Basidia** 23.9-28.4-33.4

×5.8-6.5-7.5 μm, slenderly clavate, with 4-sterigmata and basal clamp. **Hyphal system** monomitic, hyphae thin-walled, 2.7-3.7 μm wide, septa with clamps.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°07'17.72"N 128° 53'48.8"E, 961 m, 1 Jul 2020, C. Kim, M. Kim, & C. Ahn, NIBRFG0000508844 (GenBank accession no. OR565259); Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°05'27.8"N 128°57'58.1"E, 904 m, 31 Aug 2022, J. Y. Park & D. G. Choi, NIBRFG0000513701 (GenBank accession no. OR565260).

**Remarks:** *Ramaria gracilis* is characterized by light ocher-yellowish to cream-colored fruiting bodies and white rhizomorphs [1].

## Hymenochaetales Oberw
## Hymenochaetaceae Donk

### 10. *Hymenochaete huangshanensis* S.H. He & Y.C. Dai, Fungal Diversity 56: 83 (2012)

**Korean name**. U-Dan-So-Na-Mu-Bi-Neul-Beo-Seot, nom. nov. (우단소나무비늘버섯)

**Basidiocarps** annual, effuse-reflexed or pileate, imbricate, flexible. **Pileus** flabelliform to semicircular, usually confluent, 4×10 mm wide; upper surface rust brown to dark brown, silky, slightly concentrically zonate; margin narrow, curving down when dry. **Hymenophore** smooth or hydnoid, cinnamon to yellowish brown, margin thinning out, indistinct, narrow, paler or concolorous with hymenophore surface. **Context** yellowish brown to rust brown, membranous.

**Basidiospores** 5.0-5.9-7.0×2.1-2.3-2.5 μm, Q=2.44-2.75, cylindrical or allantoid, hyaline, thin-walled, smooth. **Basidia** 17.7-18.8-19.9×4.1-4.3-4.5 μm, clavate, with 4-sterigmata and a simple septum at the base; basidioles 13.1-17.4-21.2×3.5-4.2-5.1 μm, clavate. **Setae** 62.8-97.6-153.5×7.5-11.6-14.5 μm, subulate or fusiform with long and narrow tails, reddish brown or dark brown. **Hyphal system** monomitic; generative hyphae 2.22-2.73 μm wide simple septate, tissue darkening.

**Specimen examined:** Korea. Gangwon-do Jeongseon-gun, Taebaeksan National Park, 37°13'02"N 128° 54'41.58"E, 1,246 m, 31 Aug 2021, M. Kim & C. Ahn, NIBRFG0000511214 (GenBank accession no. OR565261).

**Remarks:** *Hymenchaete huangshanensis* is characterized by small, flexible basidiocarps, large setae, and basidiospores [7].

## Polyporales Gäum.
## Dacryobolaceae Jülich

### 11. *Dacryobolus angiospermarum* S.H. He, Phytotaxa 365 (2): 190 (2018)

**Korean name**. Mil-Nab-Hu-Chu-GoYak-Beo-Seot, nom. nov. (밀납후추고약버섯)

**Basidiocarps** annual, effused to slightly effused-reflexed, cereous to membranous when fresh, coriaceous to soft corky when dry, adnate when young, effused along substrates when old. **Pileus** projecting

up to 10 mm; upper surface white to pale cream color, glabrous, margin indistinct. **Hymenophore** slightly tuberculate, grayish yellow, grayish white when fresh, brownish yellow to pale brown when dry; margin abrupt, concolorous or slightly pale and thicker than hymenophore.

**Basidiospores** 4.7-5.2-5.6×1.2-1.5-1.7 μm, Q=3.23-3.90, narrowly cylindrical or allantoid, hyaline, thin-walled, smooth. **Basidia** 32.8-35.8-38.9×1.8-2.1-2.3 μm, narrowly cylindrical, hyaline, with 4-sterigmata and a basal clamp. **Skeletocystidia** up to 40 μm long, 4.6-7.3 μm wide, cylindrical, hyaline, thin-walled at the apex, thickening toward the base. **Hyphal system** dimitic; skeletal hyphae 3.28-7.79 μm wide, hyaline, slightly to distinctly thick-walled, straight, unbranched, aseptate; generative hyphae 1.9-2.8 μm wide, with clamp connection, hyaline, thin-walled.

**Specimen examined:** Korea. Gyeongsangbuk-do Bonghwa-gun, Taebaeksan National Park, 37°04'17.47"N 128°58'10.43"E, 693 m, 20 Aug 2019, M. S. Park, J. Y. Park & S. N. Yoo, NIBRFG0000511234 (GenBank accession no. OR565262); *Ibid*, 37°03'39.67"N 128°59'46.5"E, 599 m, 22 Jul 2021, Y. W. Lim & Y. H. Cho, NIBRFG0000510350 (GenBank accession no. OR565263).

**Remarks:** *Dacryobolus angiospermarum* is characterized by its slightly effused-reflexed, cereous to membranous, and coriaceous to soft corky basidiocarps [8].

## Meripilaceae Jülich
## *Physisporinus* P. Karst., 1889
## Korean name. Ggeop-Jil-Gu-Meong-Beo-Seot-Sok, nom. nov. (껍질구멍버섯속)
## Type: *Physisporinus vitreus* (Pers.) P. Karst., 1889

### 12. *Physisporinus eminens* (Y.C. Dai) F. Wu, Jia J. Chen & Y.C. Dai, Mycologia 109 (5): 760 (2017)

**Korean name**. Dol-Gi-Ggeop-Jil-Gu-Meong-Beo-Seot, nom. nov. (돌기껍질구멍버섯)

**Basidiocarps** annual, resupinate, soft, watery, easily separated from substrate, soft corky to fragile when dry; margin narrow. **Surface** poroid, white to cream when fresh, cream to buff when dry, pale brown when bruised; pores almost angular and irregular in parts, 7-8 per mm, lacerate to dentate.

**Basidiospores** 4.5-4.9-5.5×4.4-4.8-5.1 μm, Q=1.01-1.04, globose, thin-walled, hyaline, smooth, guttule. **Basidia** 11.3-13.8-16.1×5.2-6.1-6.7 μm, broadly clavate to barrel-shaped, with 4-sterigmata. **Hyphoid cystidia** abundant, arising from trama, 3.7-6.1 μm in diam., clavate, apically encrusted with fine or coarse crystals, thick to very thick-walled. **Subicular hyphae** 3.7-4.4 μm wide, hyphae thin- to thick-walled, simple-septate.

**Specimen examined:** Korea. Gangwon-do Jeongseon-gun, Taebaeksan National Park, 37°13'02"N 128°54'41.58"E, 1,246 m, 31 Aug 2021, M. Kim & C. Ahn, NIBRFG0000511205 (GenBank accession no. OR565264).

**Remarks:** *Physisporinus eminens* is characterized by its white to cream-colored, soft corky to fragile basidiocarp [9].

## Polyporaceae Fr. ex Corda
## *Cyanosporus* McGinty, 1909
## Korean name. Pu-Reun-Sal-Beo-Seot-Sok, nom. nov. (푸른살버섯속)
## Type: *Cyanosporus caesius* (Schrad.) McGinty, 1909

### 13. *Cyanosporus bifarius* (Spirin) B.K. Cui & Shun Liu, Frontiers in Microbiology 12 (no. 631166): 16 (2021)

**Korean name**. Li-Saek-Pu-Reun-Sal-Beo-Seot-Sok, nom. nov. (이색푸른살버섯)

**Basidiocarps** annual, dimidiated, conchiform, solitary, sessile; upper surface light gray when young, ochraceous hues when old, covered with hispid. **Pore surface** white to cream-colored when fresh, light ochraceous tings when dry; pores angular, 6-8 per mm. **Context** 2-4 mm thick, white.

**Basidiospores** 3.3-4.2-5.3×1.0-1.2-1.7 μm, Q=3.00-3.97, cylindrical, slightly curved, thin-walled, hyaline, smooth, guttule. **Basidia** 10.3-12.9-15.3×3.1-3.8-4.6 μm, clavate, with 4-sterigmata. **Hyphal system** monomitic; generative hyphae 3.0-4.8 μm wide, with clamp connections.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°07'13.8"N 128° 53'47.5"E, 1,005 m, 26 Sep 2022, J. Y. Park & D. G. Choi, NIBRFG0000513779 (GenBank accession no. OR565265).

**Remarks:** *Cyanosporus bifarius* is morphologically similar to *Tyromyces chioneus*. However, *C. bifarius* (6-8 per mm) has smaller pores than *T. chioneus* (3-4 per mm) [10,11].

## Postiaceae B.K. Cui, Shun Liu & Y.C. Dai
## *Fuscopostia* B.K. Cui, L.L. Shen & Y.C. Dai, 2018
## Korean name. Gal-Saek-Son-Deung-Beo-Seot-Sok, nom. nov. (갈색손등버섯속)
## Type: *Fuscopostia fragilis* (Fr.) B.K. Cui, L.L. Shen & Y.C. Dai, 2018

### 14. *Fuscopostia leucomallella* (Murrill) B.K. Cui, L.L. Shen & Y.C. Dai, Persoonia 42: 119 (2018)

**Korean name**. Yeo-Rin-Gal-Saek-Son-Deung-Beo-Seot, nom. nov. (여린갈색손등버섯)

**Basidiocarps** annual, pileate, dimidiate, applantae, solitary, sessile; upper surface light brown to brownish-orange, sulcate, faintly zonate, glabrous, margin concolorus, acute, entire. **Pore surface** grayish white when fresh, changing to pale yellowish when dry, margin concolorus; pores angular to round, 4-6 per mm, dissepiments entire, thickness; context orange white, soft and fleshy when fresh, hard and brittle when dry.

**Basidiospores** 3.1-3.8-4.9×1.1-1.4-1.2 μm, Q=2.43-3.97, cylindrical to suballantoid, hyaline, thin-walled, smooth, guttule. **Basidia** 9.6-15.2×2.7-4.3 μm, clavate, thin-walled, with with 4-sterigmata and basal clamp. **Hyphal system** monomitic; generative hypahe hyaline, thin- to thick-walled, clamped.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°05'14.4"N 128° 57'44.0"E, 925 m, 31 Aug 2022, J. Y. Park & D. G. Choi, NIBRFG0000513753 (GenBank accession no. OR565266).

**Remarks:** *Fuscopostia* is the first genus reported in Korea in this study. *Fuscopostia leucomallella* is morphologically similar to *Tyromyces chioneus* which has a dimitic hyphal system, whereas *F. leucomallella* has a monomitic hyphal system [11].

## Russulales Kreisel ex P.M. Kirk, P.F. Cannon & J.C. Davi
## Russulaceae Lotsy

### 15. *Lactarius fulvihirtipes* X.H. Wang, Cryptogamie Mycologie 39 (4): 428 (2018)

**Korean name**. Jin-Hwang-Saek-Jeot-Beo-Seot, nom. nov. (진황색젖버섯)

**Pileus** 20-40 mm in diam., convex when young, plano-convex when old; upper surface dull yellow, brownish orange, brownish yellow, hygrophanous. **Lamellae** decurrent, medium distant, nearly concolorous with the pileus or cream colored. **Stipe** 40-80×5-6 mm, cylindrical, hollow, gradually enlarged towards base; surface concolorous with the pileus or more orange, grayish orange, reddish brown, base strigose with cream-colored, brownish orange hairs. Latex white.

**Basidiospores** 7.6-8.9-10.0×7.0-8.1-9.1 µm, Q=1.05-1.16, subglobose to broadly ellipsoid, ornamentation. **Basidia** 35.7-55.1-65.7×8.6-10.2-11.7 µm, clavate, with 4-sterigmata. **Pleurocystidia** 44.2-49.5-53.8×9.4-10.5-11.7 µm, subfusiform.

**Specimen examined:** Korea. Gyeongsangbuk-do Bonghwa-gun, Taebaeksan National Park, 37° 04'18.98"N 128°58'8.81"E, 694m, 9 Sep 2020, C. M. Kim, M. K. Kim & C. R. Ahn, NIBRFG0000508975 (GenBank accession no. OR565267); Korea. Gangwon-do Jeongseon-gun, Taebaeksan National Park, 37°12'22.41"N 128°54'54.53"E, 1,301 m, 10 Sep 2020, C. M. Kim, M. K. Kim & C. R. Ahn, NIBRFG0000508989 (GenBank accession no. OR565268); *Ibid*, 10 Sep 2020, C. M. Kim, M. K. Kim & C. R. Ahn, NIBRFG0000509020 (GenBank accession no. OR565269).

**Remarks:** *Lactarius fulvihirtipes* is characterized by a brownish-orange, brownish yellow pileus, and a stipe base covered with cream-colored to brownish orange hairs [12].

### 16. *Russula albolutea* B. Chen & J.F. Liang, Mycological Progress 20 (8): 995 (2021)

**Korean name**. Hwang-Baek-Saek-Mu-Dang-Beo-Seot, nom. nov. (황백색무당버섯)

**Pileus** 50-75 mm in diam., semiorbicular when young, convex with a depressed center when old, margin incurved; upper surface yellowish white at the center, margin white, smooth, glabrous, slightly viscous when wet. **Lamellae** adnate, moderately distant, white, edge entire and concolor. **Stipe** 30-40×8-15 mm, cylindrical or clavate, curved and slightly inflated at the base, white with yellowish tinge. **Context** white.

**Basidiospores** 5.8-6.7-8.6×5.0-5.6-6.7 µm, Q=1.08-1.30, subglobose to broadly ellipsoid to ellipsoid, ornamentation. **Basidia** 29.9-35.1-40.1×6.6-7.5-8.0 µm, clavate or fusiform, mostly 4-sterigmata, some 2- and 3- sterigmata. **Pleurocystidia** 32.0-42.2-56.1×7.1-7.8-8.6 µm, clavate or fusiform, apically usually

obtuse. **Cheilocystidia** 47.2-50.8-53.8×6.7-7.9-8.7 μm, clavate or fusiform, apically usually obtuse.

**Specimen examined:** Korea. Gyeongsangbuk-do Bonghwa-gun, Taebaeksan National Park, 37° 04'18.98"N 128°58'8.81"E, 838 m, 09 Sep 2020, C. Kim, M. Kim & C. Ahn, NIBRFG0000508947 (GenBank accession no. OR565270).

**Remarks:** *Russula albolutea* is easily identified by its yellowish white color at the center of the pileus [13].

### 17. *Russula cremicolor* G.J. Li & C.Y. Deng, Mycosystema 39 (4): 628 (2020)

**Korean name**. Keu-Rim-Saek-Mu-Dang-Beo-Seot, nom. nov. (크림색무당버섯)

**Pileus** 40-80 mm in diam., convex when young, plano-convex, umbilicate to infundibuliform when old, upper surface whitish tinged, white when young, cream color when old, smooth, dull; margin inrolled to decurved when young, expanded when old, uneven to undulate. **Lamellae** adnate, crowded, white when young, cream color when old. **Stipe** 25-45×20-35 mm, cylindrical, rarely slightly ventricose towards the base, white. **Context** white to cream color.

**Basidiospores** 7.9-9.0-9.8×7.5-7.9-8.5 μm, Q=1.09-1.18, subglobose to broadly ellipsoid, rarely globose, hyaline, ornamentation. **Basidia** 41.1-55.6-68.5×11.2-14.2-16.2 μm, subclavate to clavate, rarely cylindrical, 4-sterigmata. **Pleurocystidia** 63.0-71.2-78.0×9.5-11.1-12.3 μm, subfusoid to subcylindrical, apex rounded to obtuse, thin-walled.

**Specimen examined:** Korea. Gangwon-do Taebaek-si, Taebaeksan National Park, 37°14'32.43"N 128° 55'45.08"E, 1,220 m, 31 Aug 2021, M. Kim & C. Ahn, NIBRFG0000511221 (GenBank accession no. OR565271).

**Remarks:** *Russula cremicolor* is characterized by its umbilicate to infundibuliform, cream-colored pileus, and crowded, cream-colored lamellae [14].

## CONFLICT OF INTERESTS

The authors declare no conflict of interests

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