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Two New Records of the Lichen Genus *Placynthiella* Elenkin in South Korea

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This study describes two new records of the lichen genus *Placynthiella* (*P. hyporhoda* and *P. icmalea*) from South Korea. A brief taxonomic description and comments are provided for the new records. An artificial key is also provided for known species of this genus in South Korea.

KEYWORDS : Biodiversity, New records, Taxonomy, Trapeliaceae

The lichen genus *Placynthiella*, with seven species worldwide, belongs to the family Trapeliaceae [1]. The genus is characterized by crustose, effuse, granular-verrucose or isidiate-granular, brownish to blackish thallus; biatorine to lecideine, red-brown to black apothecia; pseudoparenchymatous exciple; dark brown epihymenium; colorless to pale brown hymenium; brown hypothecium; *Trapelia*-type asci with 8 ascospores that are simple (rarely 1-septate), hyaline, ellipsoid; simple to abundantly branched paraphyses with dark brown to red-brown apically swollen tips.

A single species of this genus [*P. uliginosa* (Schrad.) Coppins & P. James] has been reported from South Korea [2]. After examining the herbarium material housed at the Korean Lichen Research Institute (KoLRI), we found two additional taxa belonging to this genus: *P. hyporhoda* (Th. Fr.) Coppins & P. James and *P. icmalea* (Ach.) Coppins & P. James. A brief taxonomic description along with the chemistry, ecological data, and illustrations are provided. A key to all known taxa of *Placynthiella* in South Korea is also provided.

Specimens were examined using standard microscopical techniques and were hand-sectioned under a Nikon C-PS 1068908 dissecting microscope (Nikon, Tokyo, Japan). All measurements were performed on material mounted in water, and lactophenol cotton blue was used only as a stain. Anatomical descriptions based on these preparations were made under a Nikon Eclipse E 200 compound microscope. Measurements of thallus layers, apothecia, and ascospores were made at ×400 and ×1,000 magnifications. Spot test reactions were performed on hand sections of thalli and apothecia under a microscope (BX 50; Olympus, Tokyo, Japan). Secondary metabolites were identified by standard thin layer chromatography, as described by Orange *et al.* [3] using solvent system C.

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Taxonomic Treatment of the Species

***Placynthiella hyporhoda* (Th. Fr.) Coppins & P. James (Fig. 1A)**
Lichenologist 16: 244 (1984).

Diagnostic characters. *Thallus* terricolous, compact to verruculose, of irregular granules that coalesce to form a continuous to ± areolate crust, subgelatinous, dark brown. Apothecia usually abundant, often coalescing, rounded to slightly deformed, sessile or immersed among verrucules, 0.2~0.3 (~0.4) mm in diameter, disc blackish (even when moist), flat to weakly convex, margin soon excluded. Epihymenium brown. Hymenium pale to dark brown. Hypothecium dark brown. Asci 8-spored, ascospores hyaline, ellipsoid, simple, 9.5~12 × 4~5 μm.

Chemistry. Spot tests: thallus K–, C–, KC–, Pd–. Hymenium I+ reddish-orange. Hypothecium K+ purple-violet. Secondary metabolites: none detected.

Ecology. This species was found growing on acidic soil at an elevation of 550 m.

Geographical distribution. Europe, Scandinavia, North America [4, 5].

Remarks. This species is characterized by a C–, subgelatinous, non-coralloid, granular thallus; numerous dark black apothecia and a deep brown-red hypothecium that reacts K+ purple-violet. *Placynthiella icmalea* and *P. uliginosa*, the other known *Placynthiella* species from South Korea, should not be confused with *P. hyporhoda*. The K+ reddish-brown reaction of the hypothecium in case of *P. uliginosa* separates it from *P. hyporhoda*, whereas presence of isidioid granules, C+ red reaction of the thallus, and secondary metabolites in *P. icmalea* separates it from

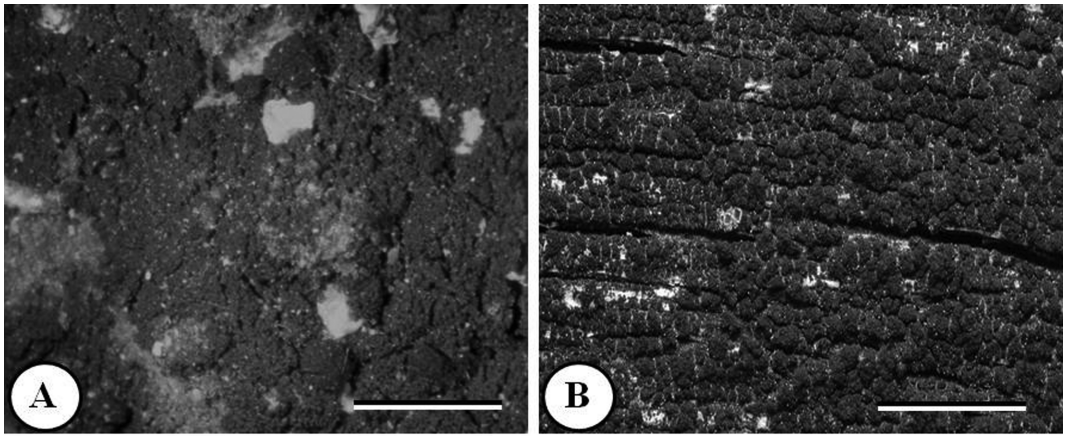

Fig. 1. Habits of *Placynthiella hyporhoda* (Th. Fr.) Coppins & P. James (scale bar = 1.5 mm) (A) and *Placynthiella icmalea* (Ach.) Coppins & P. James (scale bar = 1 mm) (B).

P. hyporhoda.

Specimen examined. South Korea, Jeollanam Prov., Jangheung Co., Gwansan-eup, Mt. Cheongwan, 34°32'09.1" N, 126°55'32.3" E, alt. 550 m, on soil, October 6, 2005, L. Lökös, 050652 (BP, KoLRI).

***Placynthiella icmalea* (Ach.) Coppins & P. James (Fig. 1B)**
Lichenologist 16: 244 (1984).

Diagnostic characters. *Thallus* corticolous, continuous, effuse, composed of isidiate to minutely coralloid-elongated granules, greenish- or blackish-brown. Apothecia common, scattered, rarely crowded and confluent, sessile or immersed among granules, 0.2~0.3 (~0.4) mm in diameter, disc brownish-black (even when moist), flat, margin paler than the disc, thin. Epihymenium brown. Hymenium pale brown. Hypothecium pale brown. Asci 8-spored, ascospores hyaline, ellipsoid, simple, 8~12 × 4~5 μm.

Chemistry. Spot tests: thallus K–, C+ red, KC+ red, Pd–. Hymenium I+ reddish-orange. Hypothecium K–. Secondary metabolites: gyrophoric acid.

Ecology. This species was found growing between elevations of 115 to 970 m on *Zelkova* bark and dead wood.

Geographical distribution. Antarctica, Europe, Macaronesia, North America, Asia, Africa, Australia [4, 6, 7].

Remarks. This species is characterized by a wide-spreading brown, isidiate crust growing among other lichens. It is easily demarcated form other known South Korean *Placynthiella* species by bearing isidiate-coralloid goniocysts and the C+ red reaction of the thallus due to presence of gyrophoric acid.

Specimens examined. South Korea, Jeollanam Prov., Jangheung Co., Gwansan-eup, Mt. Cheongwan, 34°32'47.2" N, 126°55'39.6" E, alt. 300 m, on *Zelkova* bark, October 6, 2005, L. Lökös, 050641 (BP, KoLRI); Suncheon City, Maegok-dong, Sunchon National University, 34°58'00.4" N, 127°28'32.9" E, alt. 115 m, on dead wood, October 8, 2005, L. Lökös, 050673 (BP, KoLRI). Kangwon Prov., Taebaek City, Mungoksodo-dong, Mt. Taebaek, Danggol-Manggyeong-sa, 37°06'08.3" N, 128°57'05.4" E, alt. 970 m, on bark, October 14, 2005, L. Lökös, 050732 (BP, KoLRI).

Artificial key of the lichen genus *Placynthiella* in South Korea
(species highlighted in bold are new to South Korea)

1. Thallus composed of isidioid granules, C+ red; apothecial margin persistent, paler than disc; gyrophoric acid, lecanoric acid and 5-*O*-methylhiascic acid present ····· ***P. icmalea***
1a. Thallus otherwise, C–; apothecial margin soon excluded, concolorous with the disc; lichen substances absent ····· 2
2. Hypothecium K+ reddish brown; apothecia often coalescing, pinkish-brown to dark red-brown (rarely blackish), margin soon disappearing, discs becoming strongly convex ····· *P. uliginosa*
2a. Hypothecium K+ purple-violet; apothecia blackish (even when wet), with prominent incurved margins and concave discs that later become plane or slightly convex ····· ***P. hyporhoda***

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