

A Note on Two Species of *Physcia* in Antarctica

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南極産ムカデゴケ属地衣の2種

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要旨: 生物担当の夏隊員として、第16次南極地域観測に従事した中西は1975年1月中旬から2月上旬にかけて、宗谷海岸やプリンスオラフ沿岸の露岩地でコケ類、地衣類の調査を行った。この時に採集した地衣類標本の中に成熟した子器をつけたムカデゴケ属の1標本のあるのを発見した。筆者らの一人柏谷がそれを検討した結果、それは日本、ヨーロッパ、北米から知られているコフキンロムカデゴケ (*Physcia caesia* (HOFFM.) HAMPE) であることが判明した。南極でこの種の子器が発見されたのははじめてである。また、南極地域から未報告の *Physcia dubia* (HOFFM.) LETT. を採集していることもわかった。

Abstract: Under the project of JARE-16, the senior author made field works in the ice-free areas of Sôya Coast and Prince Olav Coast, Antarctica in January-February of 1975. Among the lichens collected, we found a specimen of *Physcia caesia* (HOFFM.) HAMPE with developed apothecia, though fertile specimen had never been collected before in Antarctica. The morphology of apothecia and spores of the Antarctic specimen is quite identical with that of *P. caesia* collected in Japan as well as in Europe and North America. Among his collection, we also found four specimens of *Physcia dubia* (HOFFM.) LETT., which had not been reported from Antarctica.

Under the project of the 16th Japanese Antarctic Research Expeditions, the senior author made field studies on the lichen and moss communities in the ice-free areas of Sôya Coast and Prince Olav Coast, Antarctica in January-February of 1975. In his field works, he collected about 450 specimens of lichens. Among them, there are some noteworthy species to the lichen flora of Antarctic regions. The present paper treats the two species of *Physcia*.

1. *Physcia caesia* (HOFFM.) HAMPE in Fürnr. Naturh. Topogr. Regensberg, 2, 250 (1859).

The occurrence of this species in Antarctica was first reported by FILSON (1974), though it had been reported from Antarctic regions under various other names as

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Parmelia coreyi DODGE et BAKER, *P. johnstoni* DODGE et BAKER, and *P. variolosa* DODGE et BAKER (DODGE and BAKER, 1938; FILSON, 1966; KASHIWADANI, 1970). FILSON treated these three as synonyms of *Physcia caesia* mainly based on the external morphology of lobes.

The senior author collected a plant of *Physcia* with semi-globose soralia on exposed rock near a stream at elevation about 25 m in Langhovde of Sôya Coast. Although the specimen is rather small (1.2×0.7 cm), it bears some 14 apothecia, of which three are well developed being about 1.2 mm in diameter. The spores are brown, 1-septate and of the *Physcia* type and are similar to those of other species of the series *Tenellae* (LYNGE) KASH. of the section *Physcia* of the genus *Physcia* (KASHIWADANI, 1975). Apothecia and spores of the present specimen are quite identical in shape and size

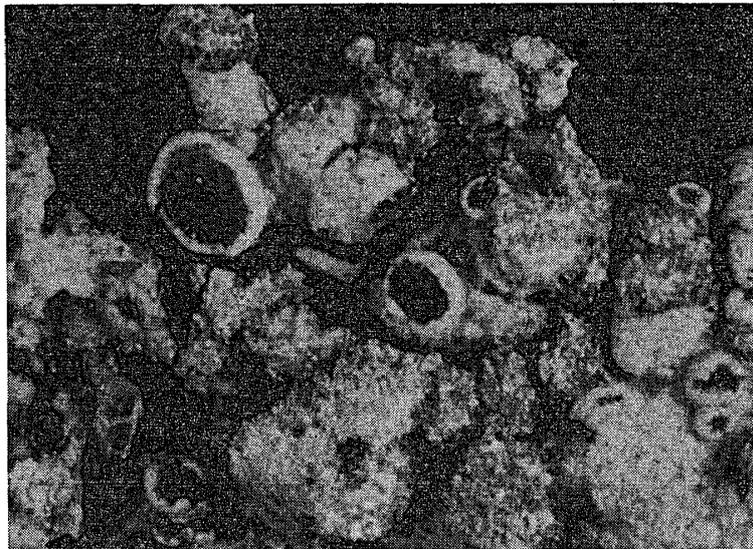


Fig. 1. *Physcia caesia* (HOFFM.) HAMPE with developed apothecia (S. NAKANISHI B-17), ×10.

with those of *P. caesia* collected in Japan, Europe and North America. In addition, the thallus has paraplectenchymatous upper cortex and lower cortex composed of hyphae running more or less parallel to the surface, which both are characteristic of the series *Tenellae* (KASHIWADANI, 1975). Microchemical and TLC tests show that it contains atranorin, leucotylin, zeorin, *Physcia*-1, and *Physcia*-2 (KASHIWADANI, 1975). Therefore, the present specimen can be clearly identified as *P. caesia*.

Physcia caesia is apparently one of the most common lichens in Antarctica, but its fertile specimen has never been reported from this area. The description of apothecia and spores of our Antarctic specimen is as follows.

Apothecia up to 1.2 mm in diameter; margins smooth, entire; disc reddish brown, caesio-pruinose; amphithecium without retrorse rhizines; hypothecium pale brown to

hyaline, 43–52 μ thick; hymenium 58–82 μ high; asci clavate, 15–17 \times 58–75 μ , 8-spored; spores of the *Physcia* type, brown, 2-celled, 8–11 \times 17–20 μ .

In the previous report, KASHIWADANI (1970) reported the common occurrence of *Parmelia coreyi* and *P. leucoblephara* in ice-free areas of Sôya Coast and Prince Olav Coast. However, these specimens are now identified as *Physcia caesia* without doubt. This species has been also collected in Antarctica at Kaname Island by Dr. T. HOSHIAI, and at Skarvsnes and Akarui Point by the senior author.

This species seems to be nitrophilous growing well on the stones near sea bird's nests. In Skarvsnes, it occurs only on stones near the nests of skua and snow petrel.

Specimens examined. Prince Olav Coast: Akarui Point, S. NAKANISHI E-23 (TNS); Sôya Coast: Yukidori Valley, Langhovde, S. NAKANISHI 52 (TNS), Simo-kama, Langhovde, S. NAKANISHI B-17 (TNS), Torinosu Cove, Skarvsnes, S. NAKANISHI C-23 (TNS); Lützow-Holm Bay: Kaname Island, T. HOSHIAI s.n. (TNS).

2. *Physcia dubia* (HOFFM.) LETT., Hedwigia, 52, 254 (1912)

Four specimens of *Physcia* are clearly separated from *P. caesia* by having dark gray thalli and terminal lip-shaped soralia. These specimens can be identified with *P. dubia*. The specimens from Antarctica are rather small (less than 1 \times 1.5 cm), loosely attached to rocks and associated with *P. caesia*, *Lecidea* sp. etc. The thallus has paraplectenchymatous upper cortex and lower cortex composed of hyphae more or less parallel to the surface. It contains atranorin, leucotylin, zeorin, *Physcia*-1 and *Physcia*-2. No fertile specimen was unfortunately found in the collection. The occurrence of this species in Antarctica is very interesting from the plant geographical point of view, since it has been known only from temperate to boreal regions in the Northern Hemisphere.

So far as the senior author's investigations are concerned, this species seems to be a nitrophilous lichen like *Physcia caesia*.

Specimens examined. Sôya Coast: Langhovde, S. NAKANISHI A-38 (TNS); Simo-kama, Langhovde, S. NAKANISHI B-16 (TNS); A peak near Torinosu Cove, Skarvsnes, S. NAKANISHI D-70 (TNS); Lützow-Holm Bay: Kaname Island, T. HOSHIAI s.n. (TNS).

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