Glyphomitrium ( Glyphomitriaceae, Bryopsida) species newly found in Japan

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Abstract. Two species of Glyphomitrium, G. calycinum (Mitt.) Cardot and G. canadense Mitt. are new additions to the moss flora of Japan. Key to Japanese species of Glyphomitrium is given.

Introduction

Iwatsuki (2004) listed three species of Glyphomitrium, G. crispifolium Nog., G. humillimum (Mitt.) Cardot and G. minutissimum (S. Okam.) Broth. from Japan. In this paper, I report two species of Glyphomitrium that are newly found in Japan. As a result, Glyphomitrium in Japan now includes five species. All collections are deposited in the Herbarium of the Hattori Botanical Laboratory (NICH). Descriptions, specimens examined, distributions, key to the species, and illustrations of 2 species are included.

1. Glyphomitrium calycinum (Mitt.) Cardot, Rev. Bryol. 40: 42 (1913). Fig. 1.

Plants yellowish green in dense tufts. Stems simple or branched, 2.8 – 3.8 mm long. Leaves crisped when dry, spreading when moist, oblong-lanceolate, 1.9 – 2.4 mm long, acuminate; margins plane or slightly recurved below, incrassate, with 2 layers of cells; costa stout, excurrent; lamina unistratose, occasionally bistratose; upper cells quadrate to rectangular, 11.0 – 16.0 μm long, 7.5 – 12.5 μm wide, moderately thick-walled; perichaecial leaves long-acuminate from a long, involute, sheathing base, 2.2 – 3.5 mm long. Autoicous; setae straight, 1.8 – 2.5 mm long; capsules ovoid, urn 0.7 – 0.9 mm long; exothecial cells around the mouth for several layers horizontally rectangular, 10 – 15 μm long, 37.5 – 57.5 μm wide, below suddenly changed to elongate-rhomboid or rectangular, 37.5 – 60.0 μm long, 12.5 – 20.0 μm wide; operculum rostrate, 0.7 – 0.9 mm long; peristome teeth 16, united in pairs, inserted some distance below mouth, red-brown, lanceolate, reflexed when dry, 240 – 280 μm long; spores 50.0 – 82.5 μm in diam., multicellular, coarsely papillose; calyptra campanulate, lobed at base, about 2 mm long, slightly plicate.


Specimens examined: Honshu, Aichi-ken, Shinshiro-shi, Sakurabuchi Park, 40 m alt., on calcareous
2. *Glyphomitrium canadense* Mitt., J. Linn. Soc. Bot. 8: 21 (1864). Fig. 2.

Plants yellowish green in dense tufts on tree trunks or branches. Stems simple, 5–8 mm long. Leaves loosely crisped when dry, erect-spreading when moist, oblong-lanceolate, 2.0–2.7 mm long, acuminate; margins plane or recurved below, incrassate, composed of 2 layers of cells; costa stout, percurrent; lamina unistratose; upper cells quadrate to rectangular, 7.5–15.0 μm long, 7.5–12.5 μm wide, collenchymatous; perichaetial leaves long-acuminate from a long, involute, sheathing base, 3.6–4.4 mm long. Autoicous; seta 2.5–3.8 mm long, yellowish; capsules oblong, 0.7–1.1 mm long; exothecial cells around the mouth for several layers, irregularly quadrate to hexagonal, 10–15 μm long, below suddenly changing to rectangular, 35.0–62.5 μm long, 12.5–15.0 μm wide; operculum conic-rostrate, about 0.5 mm long; peristome teeth 16, inserted some distance below mouth, lanceolate, not reflexed when dry, 250–285 μm long, orange-brown; spores 42.5–50.0 μm in diam., multicellular, papillose; calyptra completely covering the capsule, campanulate-mitrate, lobed at base, distinctly plicate, about 2 mm long.

Additional description: Grout 1933, 3, pl. 1, B.

Specimens examined: Honshu, Tochigi-ken, Nikko-shi, Segawa, Suginamiki Kaido, 400 m alt., on tree trunk, Kamiyama 4922, 5094.

Distribution: North America; new to Japan (Honshu).

**Key to the species of *Glyphomitrium* in Japan**

1. Leaf costae ending far below the leaf apex .......................................................... *G. minutissimum*
2. Leaf costae excurrent ........................................................................................................ 2
1. Leaf margins strongly incrassate, 2–3 layers of cells .............................................................. 3
2. Leaf margins scarcely incrassate, unistratose or bistratose ..................................................... 4
3. Calyptra distinctly plicate; laminal cells usually smooth .................................................. *G. canadense*
3. Calyptra slightly plicate; laminal cells often mammillose ................................................... *G. crispifolium*
4. Upper laminal cells 11–16 μm long, 7.5–12.5 μm wide; peristome teeth 240–280 μm long ................. *G. calycinum*
4. Upper laminal cells 3.5–9.0 μm long, 3.5–5.0 μm wide; peristome teeth about 350 μm long ........ *G. humillimum*

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Literature cited

Fig. 1. *Glyphomitrium calycinum* (Mitt.) Cardot: a, leaf. b, cells at leaf apex. c, basal marginal cells. d, cross section of leaf. e, capsule. f, exothecial cells. g, stoma. h, i, spores. j, peristome teeth. k, operculum. l, calyptra. All figures drawn from *T. Suzuki 60990* in NICH.
Fig. 2. *Glyphomitrium canadense* Mitt.: a, habit. b, leaf. c, cells at leaf apex. d, basal cells of leaf. e, cross section of leaf. f, cross section of stem. g, capsule. h, peristome teeth. i, spores. j, calyptra. All figures taken from Kamiyama 5094 in NICH.