

**FUNARIA HYGROMETRICA HEDW. (FUNARIACEAE)
FROM BANGLADESH**

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Abstract

Funaria hygrometrica Hedw. an Acrocarpous moss of the family Funariaceae under the order Funariales is described and illustrated with a short note and its world-wide distribution. This moss is autoicous, bright green, leaves rosette at the apex on short slender stem. Capsule, strongly asymmetric, often arcuate, pyriform. Peristome teeth epicranoid, spirally arranged. Operculum without apiculus. Calyptra cucullate. Spores spherical, small and smooth.

Funaria hygrometrica Hedw. is one of the most known species among Acrocarpous mosses. It is a cosmopolitan species which is present all over the world and usually found in hilly areas thriving best in tropical and temperate zones.

While working with mosses of Tangail and Mymensingh districts the author came across with an interesting group of plants collected from damp soil, Ghatail, Tangail. The plants were carefully separated out, and they looked like *Physcomitrium* (Brid.) Fuernr. species by their gametophytic appearance but the sporophyte was distinctly different. After a thorough and careful examination the plant was identified as *Funaria hygrometrica* Hedw. of the family Funariaceae under the order Funariales following the description and illustration given by Gangulee (1974) in his monograph. The author expected and always looked for this moss as two other genera of Funariaceae *Physcomitrium* (Brid.) Fuernr. and *Entosthodon* Schwaegr. which are very close to *Funaria* are quite common in Bangladesh. They grow on damp soil and are abundant during winter season (Banu 1991).

While dealing with Acrocarpous mosses of Bangladesh Banu-Fattah and Hadiuzzaman (1998) dealt with the family Funariaceae where five species of *Physcomitrium* and two species of *Entosthodon* have been described and illustrated. The author previously enlisted *Funaria hygrometrica* Hedw. on a Checklist of Acrocarpous mosses of Bangladesh (Banu-Fattah and Hadiuzzaman 1994) and Bryophytes of Bangladesh (Banu-Fattah 2001) after its collection and identification in 1992, but it was not fully described and published before. So now *Funaria hygrometrica* is described and illustrated with a short note and its distribution outside Bangladesh.

***Funaria hygrometrica* Hedw. Sp. Musc.: 172 (1801)**

Mnium hygrometricum (Hedw.) With. in syst. Arr. Br. Pl. ed. 4, 3: 787 (1801)

Funaria angustifolia Brid. in Sp. Musc., 3: 71 (1817)

F. androgyna Brid. in Bryol. Univ., 2: 58 (1827)

F. gracilescens Schimp. ex C. Muell. in Bot. Zeit., 16: 154 (1858)

F. marginata Kindb. in Bih. K. Svensk. Vet. Ak. Handl., 7: 79 (1883)

F. megapoda C. Muell. in Bull. Herb. Bioss., 5: 175 (1897)

F. globicarpa C. Muell. in Nuov. Giorn. Bot. Ital. n. ser., 5: 161 (1898)

F. lonchopelma C. Muell. in Hedwigia, 38: 61 (1899)

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Autoicous. Plants tufted, scattered, mixed with *Physcomitrium* sp., bright green, up to 5.3 mm long and 3 mm broad. Stem slender, short, erect with rosette of leaves at the apex. Lower leaves smaller, upper leaves bigger, erect to spreading, often concave, oblong-lanceolate to ovate-lanceolate, c. 3 mm long and 1 mm broad. Margin flat, entire below, dentate above. Apex acuminate with acute apex. Costa strong, percurrent, 49 - 66 μm broad at base. Laminal cells thin

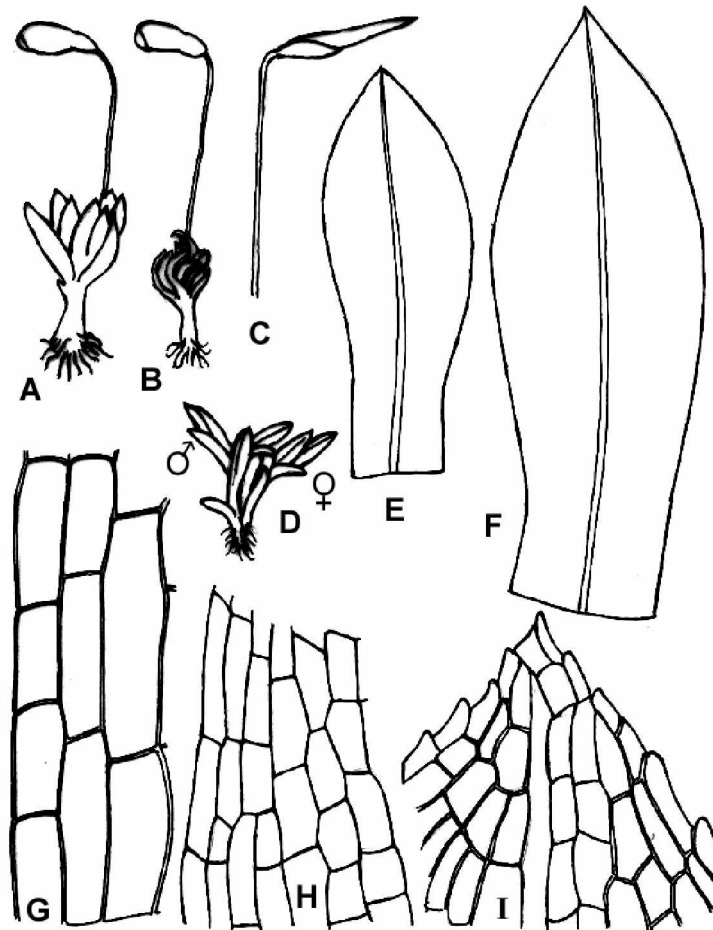


Plate 1

Figs. A - I: *Funaria hygrometrica* Hedw. A. wet plant with sporophyte ($\times 5$); B. dry plant with sporophyte ($\times 5$); C. part of seta with young capsule and calyptra ($\times 5$); D. autoicous plant showing male and female shoot ($\times 5$); E. leaf from male shoot ($\times 15$); F. leaf from female shoot ($\times 15$); G. basal laminal cells ($\times 112.5$); H. middle laminal cells ($\times 112.5$); I. leaf apex ($\times 112.5$).

walled, smooth, basal cells large, broad rectangular, 120 - 160 μm long and 24 - 40 μm broad, middle cells short rectangular to hexagonal 40 - 72 μm long and 24 μm broad with marginal cells narrower, 96 μm long and 12 μm broad, upper cells 36 - 68 μm long and 20 μm broad.

Perichaetial leaves not differentiated. Seta long, slender, arcuate at top, reddish, 7 mm long. Capsule pyriform, asymmetrical with the narrow mouth oblique, apophysis distinct with stomata, 2 - 3 mm long and 0.9 - 1.2 mm in diameter. Exothecial cells transversely rectangular, c. $40 \times 4 \mu\text{m}$ at mouth and elongated, hexagonal, $32 - 60 \times 20 \mu\text{m}$ at middle portion. Peristome teeth typical epicranoid, double, exostome reddish, spirally arranged, up to $500 \mu\text{m}$ high and $120 \mu\text{m}$ wide at base, endostome smaller, thinner, whitish, about $420 - 450 \mu\text{m}$ high. Operculum concave, smooth, white, but red at base, about 0.8 mm in diameter at base; Annulus present, c. $90 \mu\text{m}$ broad. Calyptra cucullate, c. 3 mm long. Spores spherical, small, smooth, c. $10 \mu\text{m}$ in diameter. Male plant with cluster of antheridia along with paraphyses at the apex of the male shoot, antheridia c. $250 \mu\text{m}$ long and $80 \mu\text{m}$ broad.

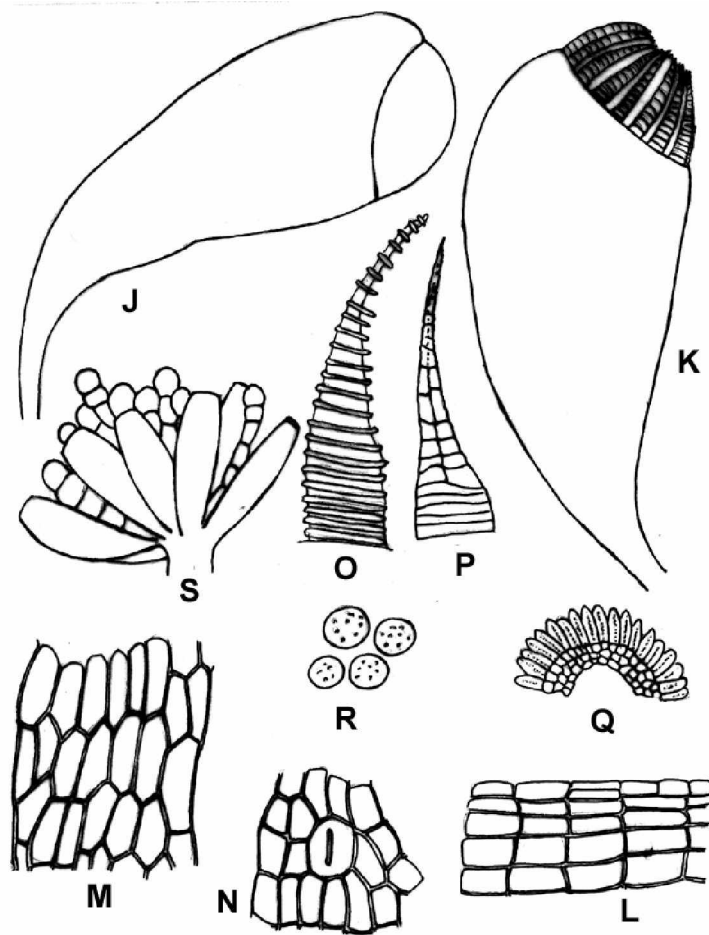


Plate 2

Figs. J - S: *Funaria hygrometrica* Hedw. J. wet capsules with operculum ($\times 15$); K. wet capsules with mouth open ($\times 15$); L. exothecial cells at the base of capsule ($\times 112.5$); M. exothecial cells at the middle of capsule ($\times 112.5$); N. exothecial cells at the base of capsule showing stoma ($\times 112.5$); O. exostome ($\times 50$); P. endostome ($\times 50$); Q. annulus ($\times 50$); R. spores ($\times 225$); S. cluster of antheridia with paraphyses ($\times 50$).

Note: Strongly asymmetric, often arcuate, elongated, pyriform capsule with apophysis; diplolepidous, epicranoid peristome with hyaline inner teeth; plano-concave operculum without apiculus are some distinguishing characters which separate the species from the rest of genera of the family Funariaceae.

Specimen examined: **Tangail**, Ghatail, on damp soil, Khurshida Banu-Fattah and Sujan Kumer Sarker, 5.12.1992.

Distribution: A cosmopolitan species. Reported from Afganistan, Africa, Australia, China, Europe, India, Japan, Korea, Myanmar, Nepal, New Zealand, North and South America, Oceania, Pakistan, Siberia, Sri Lanka, Taiwan, Thailand and Tibet.

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