



A Morphotaxonomic detail of *Jungermannia* (*Solenostoma*) *Stricta*- being reported for the first time for India.

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Jungermannia (*Solenostoma*) *Stricta* is being reported for the first time from India. The species belongs to the section *Desmorhiza* of Subgenus *Solenostoma*. Plants 12-14 mm long, 1.6-1.8 mm wide. Rhizoids decurrent along the stem forming a distinct fascicle (except in poorly developed plants). Leaves are ovate and sinuately inserted, leaf cells thin walled, trigones prominently bulging. Perianth clavate, tetra-plicate, Subfloral innovations present. The study is based on the Eastern Himalayas and South India (Singh. P 1991).

JUNGERMANNIA (SOLENOSTOMA) STRICTA (SCHIFFN.) STEPH.

Jungermannia (*Solenostoma*) *Stricta* (Schiffn.) Steph., Spec. Hepat. 2: 80 (19010; Amakawa, Journ. Hatt. Bot. Lab. No. 31: 103(1968).

Aplozia stricta Schiffn., Denkschr. Akad. Wiss. 67: 194 (1898).

(Plate-1, Figs. 1-5; Plate-2, Figs. 1-16)

Plants in turfs, 5-10 mm long, 1.0-1.3 mm wide, greenish brown. Stem erect, simple or rarely branched, branching lateral intercalary, 0.2-0.25 mm or 6-8 cells across the diameter, 1-(2) layers of cortical cells thick walled, 20-30 x 25-40 μ m, medullary cells thin walled, 20-25 x 30-50 μ m. Subfloral innovation present. Rhizoids numerous, decurrent along the stem forming a distinct fascicle, brown (or poorly developed, not fascicle in poorly developed plants). Leaves succubous, canaliculately concave, ovate, entire, 0.6-0.9 mm long, (0.6) 0.8-1.1 mm wide, cells 13.6-27.2 x 13.6-30.6 μ m along the leaf margins, 17.0-34.0 x 13.6-27.2 μ m in the middle and 27.2-47.6 x 17.0-27.2 μ m at the base, walls thin, trigones bulging, cuticle smooth. Oil bodies 2-3 per cell, spherical or oval, 10.5-14.0 x 7.0-10.5 μ m (where oval) or 7.0-8.75 μ m in diameter (where spherical), homogeneous to faintly granular.

Dioecious. Male inflorescence intercalary, bracts 5-6 pairs, ventricose, 0.5-0.7 mm long, 0.7-0.9 mm wide, tetra-plicate, $\frac{1}{2}$ exerted, mouth crenulate, beak present, perigynium undeveloped. Apical cells of perianth 13.6-27.2 x 13.6-17.0 μ m, middle cells

17.0-34.0 x 13.6-23.8 µm and basal cells 34.0-64.0 x 13.6-27.2 µm. Female bracts one pair similar to cauline leaves, 0.9-1.0 mm long and 1.0-1.2 mm wide.

Habitat: Terricolous.

Distribution in India: Eastern Himalayas: Sikkim-Gangtok, Heegyathang, Rang-Rang: W. Bengal- Darjeeling.

South India: Tamil Nadu- Avalanche.

Range: Java, Sumatra (Stephani, 1901) new to India.

Characteristics of the species:

1. Plants 12-14 mm long, 1.6-1.8 mm wide.
2. Rhizoids decurrent along the stem forming a distinct fascicle (except in poorly developed plants).
3. Leaves are ovate and sinuately inserted, leaf cells thin-walled, trigones prominently bulging.
4. Perianth clavate, tetra-plicate, subfloral innovation present.

Following specimens have been examined:

LWU 205/72, Bryophytes from South India, *Jungermannia (Solenostoma) stricta* (Schiffs.) St. Loc: Avalanche, alt. ca 2300 m, Habitat: on soil, Leg.: R. Udar & Party, Date: 2.1.1972, Det.: S.C. Srivastava and P. Singh.

LWU 8395/78, Bryophytes from Eastern Himalayas, *Jungermannia (Solenostoma) stricta* (Schiffs.) St., Loc.: Darjeeling, alt. ca 2000 m, Habitat: on soil in association with *Scapania* sp., *Cephalozia* sp., Leg.: S.C. Srivastava, Date: 21.5.1978, Det.: S.C. Srivastava & P. Singh.

LWU 9518, 9529, 9544/88, Bryophytes from Eastern Himalayas, *Jungermannia (Solenostoma) stricta* (Schiffs.) St., Loc.: Sikkim: Rang-Rang, alt. ca 2000 m, Habitat: on soil in association with *Jungermannia kanaii* Amak., Leg.: U.S. Awasthi, Date: 17.4.1988, Det.: S.C. Srivastava & P. Singh.

LWU 2599, 9610/88, Bryophytes from Eastern Himalayas, *Jungermannia (Solenostoma) stricta* (Schiffn.) Steph., Loc.: Sikkim: Heegyathang, alt. ca 2000 m, Habitat: on soil in association with *Ptychanthus* sp., *Lejeunea* sp., Leg.: U.S. Awasthi, Date: 20.4.1988, Det.: S.C. Srivastava & P. Singh.

Following specimens from foreign herbarium has been examined:

Farlow herbarium 23140, *Haplozia stricta* Schiffn. (*Aplozia stricta*) Loc.: Java, H.S. & C. 461.

Jungermannia (Solenostoma) stricta (Schiffn.) Steph., was introduced by Stephani (1901) from Java & Sumatra. Later on Amakawa (1968) described this species and included *Aplozia stricta* Schiffn. as its synonym.

Jungermannia (*Solenostoma*) *stricta* is related to *J.* (*Solenostoma*) *subrubra* (*Schiffn.*) *Steph.* (of the same section in having ovate leaves. But *J. subrubra* differs from *J. stricta* in having plants tinged with red, leaves obliquely inserted with acute trigones and leaf cells, large, 34.0-54.4 x 20.4- 44.2 μm (in the middle) while *J. stricta* is not tinged with red, but the leaves are sinuately inserted, and leaf cells are comparatively smaller, 17.0-34.0 x 13.6-27.2 μm (in the middle). The ovate leaves are also found in *J. appressifolia* var. *minor* (*Amak.*) *Vana*; but the plants and so also the leaves are very small and the leaves are subtransversely inserted.

J. stricta, earlier known from Java & Sumatra, is being reported for the first time from India (Eastern Himalayas and South India). The vegetative plants of this taxon from India and abroad some-times fail to form the fascicled rhizoids. On the other hand the mature plants fascicled rhizoids.



Plate-1

Jungermannia (Solenostoma) stricta (Schiffn.) Steph.

(Figs. 1-5)

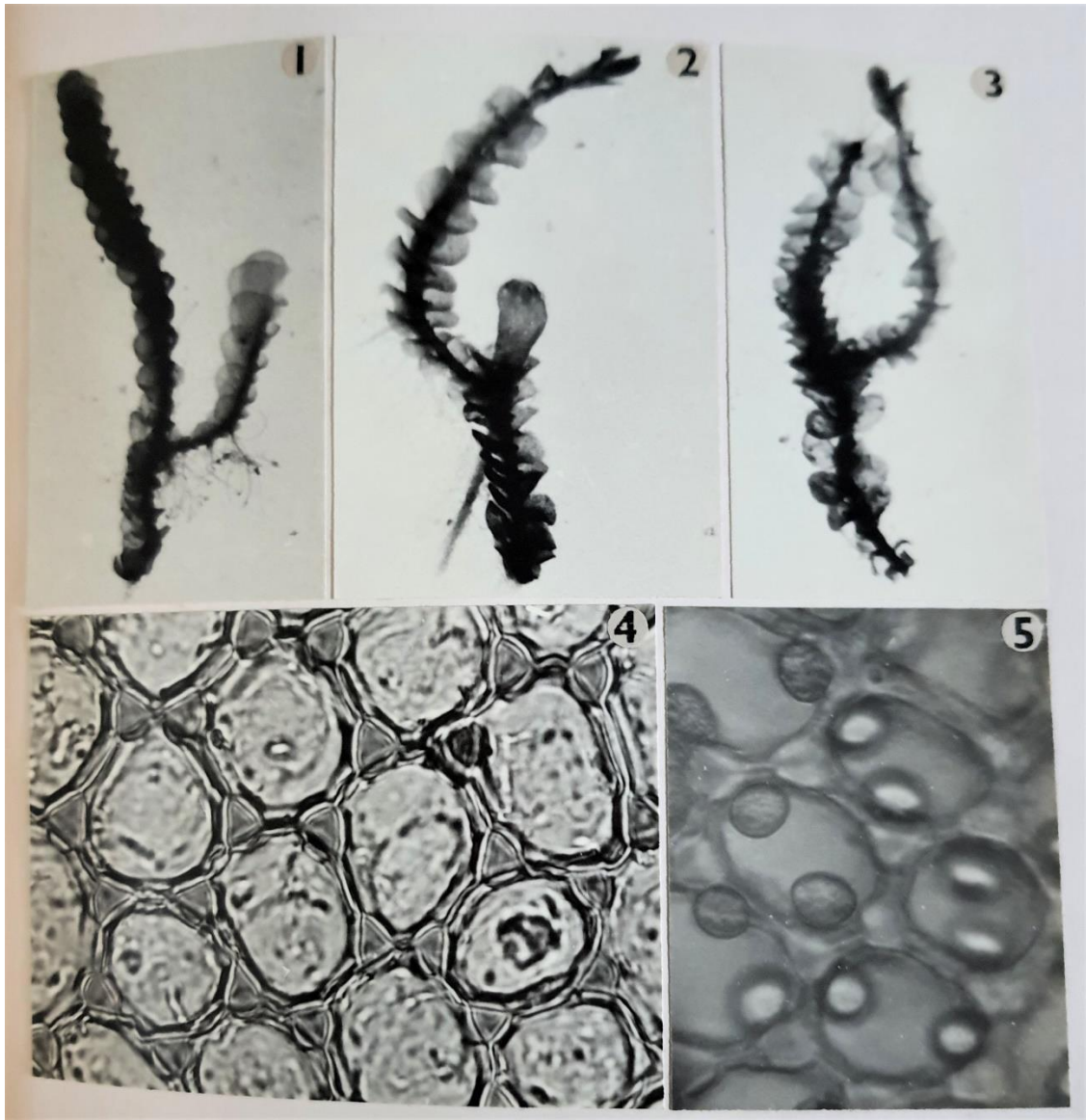


Fig. 1. A vegetative plant (x 7.8)

Fig. 2. A female plant (x 6.3)

Fig. 3. A male plant (x 15)

Fig. 4. Leaf cells (x 745)

Fig. 5. Oil-bodies (x 826)

(Microphotographs 2, 3 from LWU 8395/78 and 1,4 & 5 from LWU 9642/88)

Plate-2

Jungermannia (Solenostoma) stricta (Schiffn.) Steph.

(Figs. 1-16)

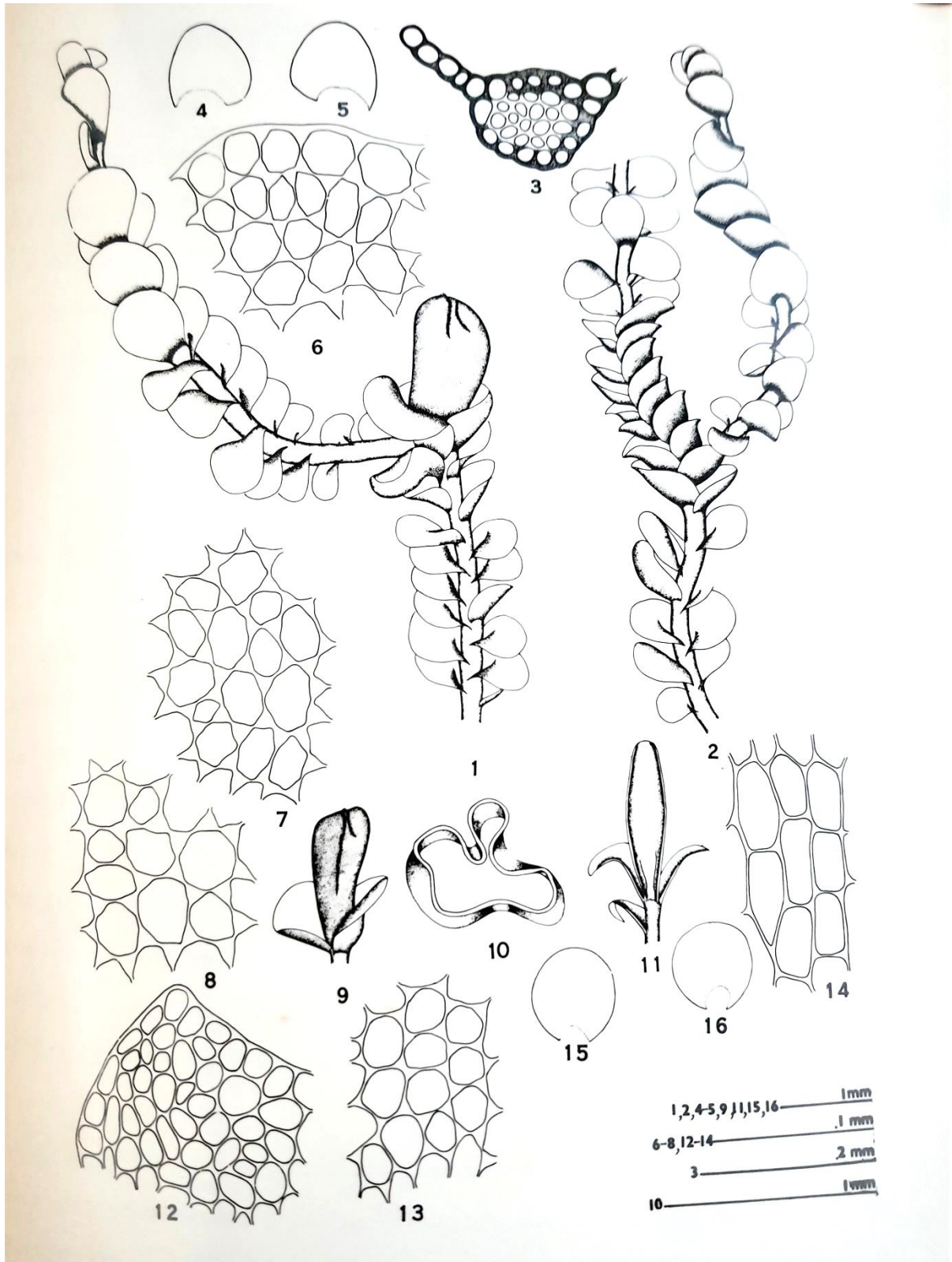


Fig. 1. A female plant.

Fig. 2. A male plant.

Fig. 3. Cross section of plant.

Fig. 4,5. Leaves.

Fig. 6. Marginal cells of leaf.

Fig. 7. Median cells of leaf.

Fig. 8. Basal cells of leaf.

Fig. 9. Perianth.

Fig. 10. T.S. perianth.

Fig. 11. L.S. perianth.

Fig. 12. Apical cells of perianth.

Fig. 13. Median cells of perianth.

Fig. 14. Basal cells of perianth.

Fig. 15, 16. Female bracts.

Figures 1, 2, 9-16 drawn from LWU 8395/78.

Figures 3-8 drawn from LWU 9642/88.

References:

Amakawa, T (1968) New or little-known Asiatic species of the family Jungermanniaceae IV. Journ. Hattori. Bot. Lab. 31: 101-112.

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Stephani, F (1901) Species Hepaticarum. II. Geneve et Bale.