

JUNGERMANNIA (SOLENOSTOMA) FLAGELLARIS AMAK. IN INDIA

Jungermannia (Solenostoma) flagellaris Amak.—a taxon earlier introduced from Nepal (Amakawa, 1966), is being reported for the first time from India (Eastern Himalayas). The binomials included under the subgenus *Solenostoma* and the section *Nematocaulon* to which the present taxon also belongs (see also Jirivana, 1975), are distinguished by filiform plants with slender stem, rhizoids not forming fascicle and small distant leaves.

The fertile plants without sporogonia collected from eastern Himalayas (Tongloo) during January, 1970 totally match with the Type of *Jungermannia (Solenostoma) flagellaris* obtained through the courtesy of Dr. S. Hattori of Japan. The present addition of this species in the hepatic flora of India now makes a total of 20 taxa of *Jungermannia* subgenus *Solenostoma* in this country. Relevant details of the taxon have been provided.

Taxonomic description

Jungermannia (Solenostoma) flagellaris Amak. *Journ. Hattori Bot. lab.* **29** : 258 (1966)

Plants small, brown, filiform, 3.7-5.0 mm long, 0.4-0.7 mm wide in fertile shoot; 5.1-7.5 mm long, 0.3-0.4 mm wide in sterile shoot. Stem ascending flexuous, filiform, slender, dark brown, 0.12 mm thick, 7-8 cells across diameter; flagelliform branches present. Rhizoids very few, hyaline, only at base, rarely towards apex. Leaves succubous, alternate distant, subtransversely inserted, somewhat decurrent at both the sides, obliquely spreading, concave when flattened, broadly ovate, gradually smaller towards base, 0.4-0.5 mm long, 0.3-0.4 mm wide in fertile shoot, 0.25-0.3 mm long, 0.18-0.23 mm wide in sterile shoot. In fertile shoot the marginal cells of leaf $10.2-13.6 \times 6.8-13.6 \mu\text{m}$, median cells $13.6-23.8 \times 11.9-20.4 \mu\text{m}$ and basal cells $20.4-44.2 \times 10.2-17.0 \mu\text{m}$, walls thin, trigones distinct, small, acute angled; cuticle smooth. In sterile shoot marginal cells of leaf $13.6-17.0 \times 13.6-17.0 \mu\text{m}$, median cells $17.0-23.8 \times 13.6-17.0 \mu\text{m}$ and basal cells $13.6-27.2 \times 13.6-17.0 \mu\text{m}$, thin-walled, with small and acute angled distinct trigones. Dioecious. Perianth irregularly pyriform, some times elongated also, 0.47-0.9 mm long, 0.23-0.50 mm wide, plicae indistinct, mouth crenulate, beak not well developed. Apical cells of perianth $10.2-17.0 \times 6.8-10.2 \mu\text{m}$, median cells $17.0-27.2 \times 13.6-20.4 \mu\text{m}$ and basal cells $17.0-47.0 \times 13.6-20.4 \mu\text{m}$. Bracts one pair, larger than cauline leaves, broadly ovate with 1-2-(3) subfloral innovations present below the perianth or female bracts. Male inflorescence not seen.

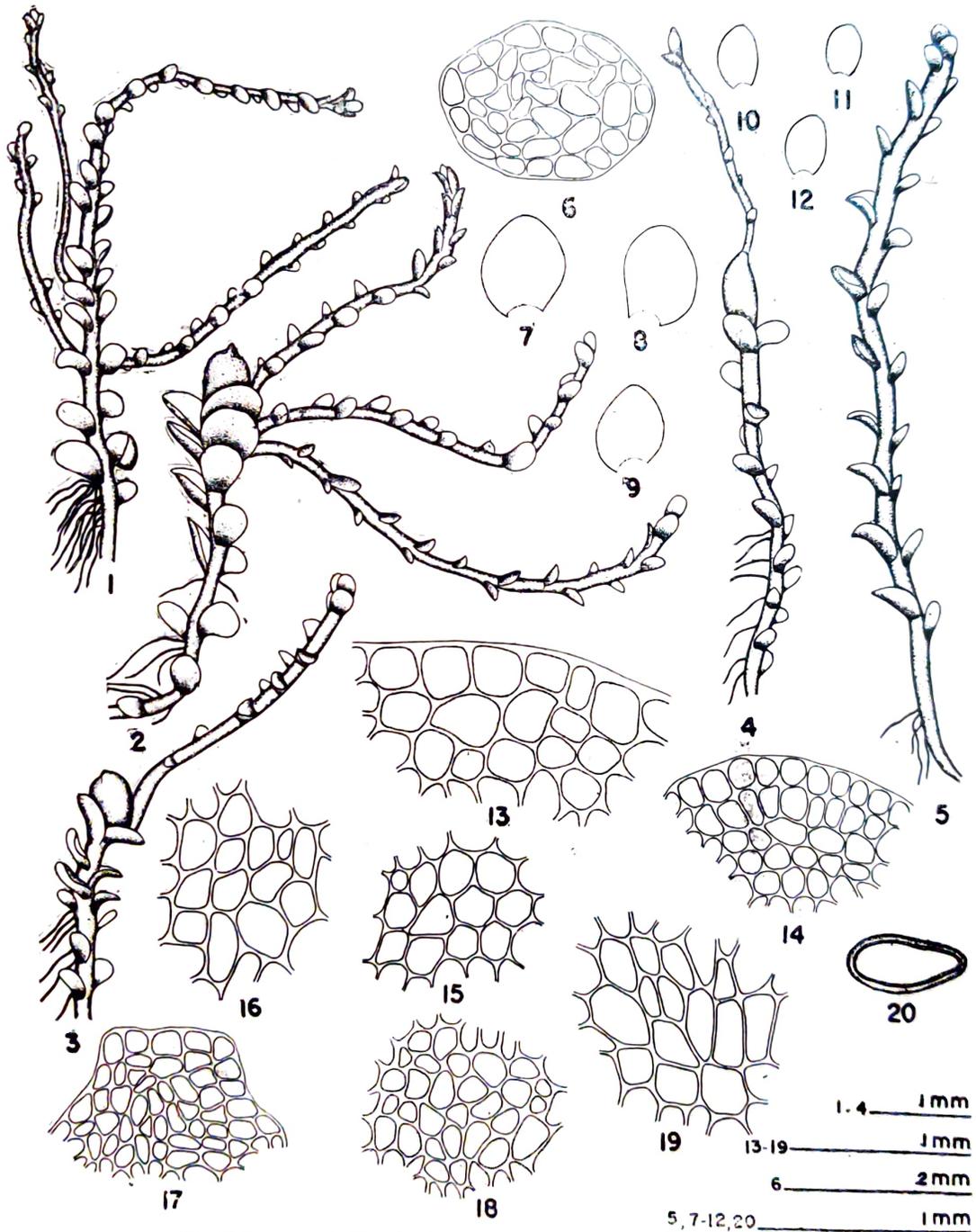
Specimens examined—LWU 113/70 *Jungermannia (Solenostoma) flagellaris* Amak. *Legit.*: R. Udar and party.

Locality—Tongloo, Eastern Himalayas, India.

Habitat—on moist soil in association with *J. (Solenostoma) subrubra* Steph. and *J. (Solenostoma) appressifolia* var. *nigricans* Amak. *Det.* S. C. Srivastava and P. Singh.

Other specimens examined—NICH 276488 Typus *Jungermannia (Solenostoma) flagellaris* Amak., Nepal vorhimalaya, Okhaldunga. *Abies Rhododendron*. Wald um Thodung, serring, am Block, 3200 m. *Leg.* Poelt 1962, H30.

J. (Solenostoma) flagellaris is closely related to *J. (Solenostoma) pseudocyclops* Inoue. However, the latter may be distinguished by more wider plants (1.2 mm wide), larger collenchymatous leaf cells with bulging trigones, verrucose cuticle and pyriform perianth with typical beak. It is interesting that in addition to sexual reproduction, the plants may also reproduce vegetatively by means of flagelliferous branches so frequently formed in this taxon (Fig. 1).



J. (Solenostoma) flagellaris Amak. (Figs. 1-15)

Text-fig. 1-1. Sterile plant (dorsal view) showing flagelliferous branches; 2. Female plant (dorsal view) with perianth and three subfloral innovations; 3. Female plant (dorsal view) with one subfloral innovation; 4. Female plant (dorsal view) showing continued growth of the shoot through the perianth; 5. Sterile shoot; 6. T.S. Stem; 7-9. Leaves from fertile shoot; 10-12. Leaves from sterile shoot; 13. Marginal cells of leaf (sterile shoot); 14. Marginal cells of leaf (fertile shoot); 15. Median cells of leaf (fertile shoot); 16. Basal cells of leaf (sterile shoot); 17. Apical cells of leaf (sterile shoot); 18. Median cells of perianth; 19. Basal cells of Perianth; and 20. T. S. of perianth.

A peculiar condition has been observed in one of the plants (Fig. 3) described here showing the continued growth of the female shoot through the perianth seemingly exhibiting an anacrogynous condition rather rare in leafy liverworts. However the exact nature of the perianth and position of archegonia in the present specimen may be ascertained only through the examination of serial microtome sections of the apical region of the female shoot.

Acknowledgement

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References

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