

**TRICHOCOLEA UDARII SINGH — A NEW HEPATIC FROM JAINTIA HILLS
(MEGHALAYA), INDIA**

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INTRODUCTION

The genus *Trichocolea* Dumort., a member of the Order Jungermanniales, is quite distinct in its feathery appearance. As most of the species of the genus are known either in vegetative conditions or only with their male reproductive structures, the taxonomy of the genus is more or less exclusively based on the gametophytic features viz. branching pattern, presence or the absence of paraphyllia, stem anatomy and the morphology of leaves and underleaves. Sometimes number of the whorls of the bracts present in a male inflorescence also provides a tangible diagnostic characteristic.

In India the genus has so far been represented by three species, which are: *Trichocolea indica* Udar et Singh, *T. tenera* Udar et Singh and *T. tomentella* (Ehrh.) Dumort. corr. Nees. Of these the first two are reported from Darjeeling in E. Himalayas (Udar & Singh, 1977) and the last, in addition to E. Himalayas, is also known from South India (Parihar, 1961-62; Udar & Srivastava, 1975). Recently, a detailed study of the specimens of the genus collected from Jarain (ca 1450 m), situated in the South western part of the Jaintia Hills district of Meghalaya (25°4' North latitude and 92°14' East longitude), revealed it to be distinct from the known species and hence deserved the status of a new taxon. It is being described and illustrated in this paper.

The species is named after Prof. Ram Udar in dedication to his contributions to the Indian bryology.

DESCRIPTION AND DISCUSSION

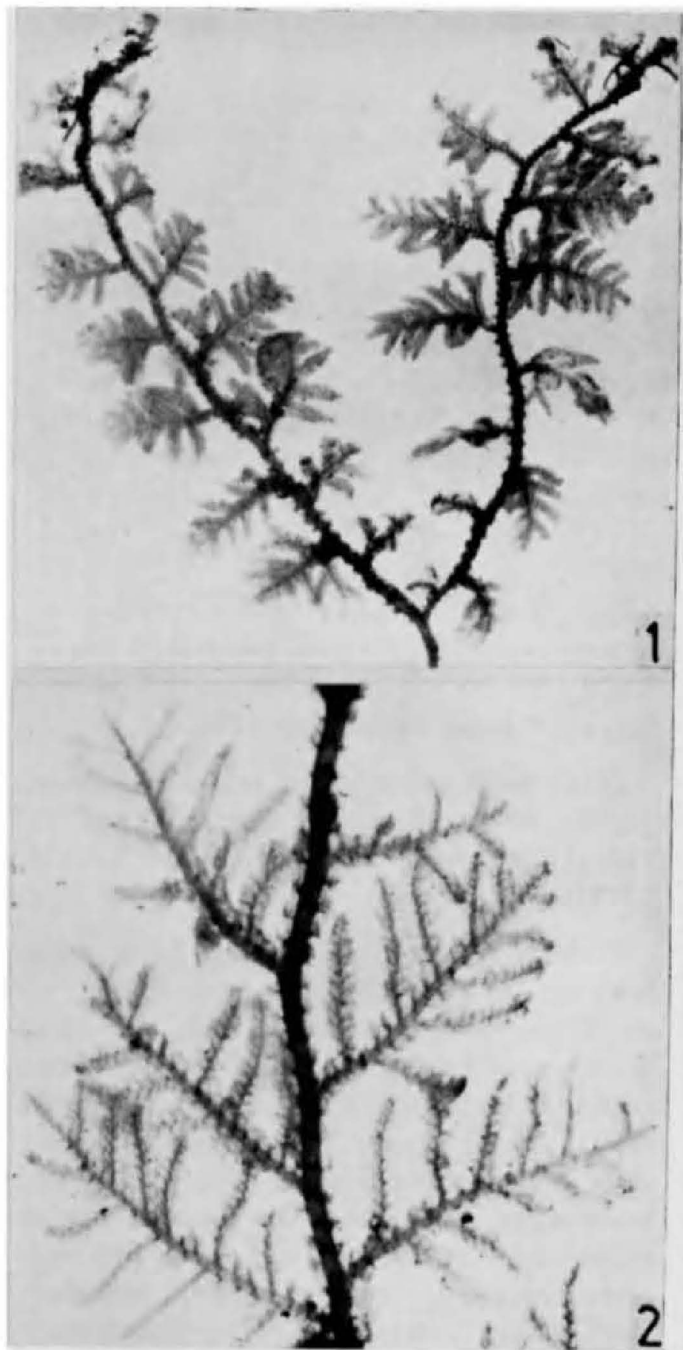
***Trichocolea udarii* Singh, sp. nov.**

Plantae viridescens, laxae caespitosae, robustae, prostratae, ad 12 cm longae; caulis regulariter bipinnatus vel rarissimus tripinnatus, transdiametrum 15-18 cellulatus, cortex 1(-2) stratosus, cellulis corticis 22 μ m, medullosis 41 μ m diam.; paraphyllia et rhizoidea carentia; folia lateralalia asymmetricalia, arcuato-incumbentia, 5-7 lobata, lamina 350-496 μ m lata, 48-112 μ m (1-2 cellulis) longa; folia inferioria asymmetricalia vel subsymmetricalia, erecto-patentia, 4 lobata, lamina 208-288 μ m lata, 40-96 μ m (2-3 cellulis) longa. Plantae fertilis non visae.

D. K. Singh 11012, prope Jarain, ca 1450 m, Jaintia Hills, Meghalaya, India, April 24, 1981 (Holotypus — CAL; Isotypus — ASSAM, LWU).

Plants light green, forming loose tufts, prostrate, often dichotomously branched, up to 12 cm long, to 1 cm wide including branches, regularly bipinnate to sometimes tripinnately branched, branching 'Frullania type'. Stem robust, cortex and medullary cells nontrigonal, cuticle finely striolate; main stem in cross-section suborbicular to ellipsoidal, 288-448 $\times$ 336-480 μ m, 15-18 cells across, cortex 1(-2) layered, cells uniformly thick-walled, subquadrate to rectangular-elliptical, (6-)10-28 $\times$ 12-36 μ m, medullary cells comparatively thick-walled towards periphery, polygonal, (8-)16-48 $\times$ (20-)28-60 μ m; primary branch 0.4-0.6 cm long, in cross-section

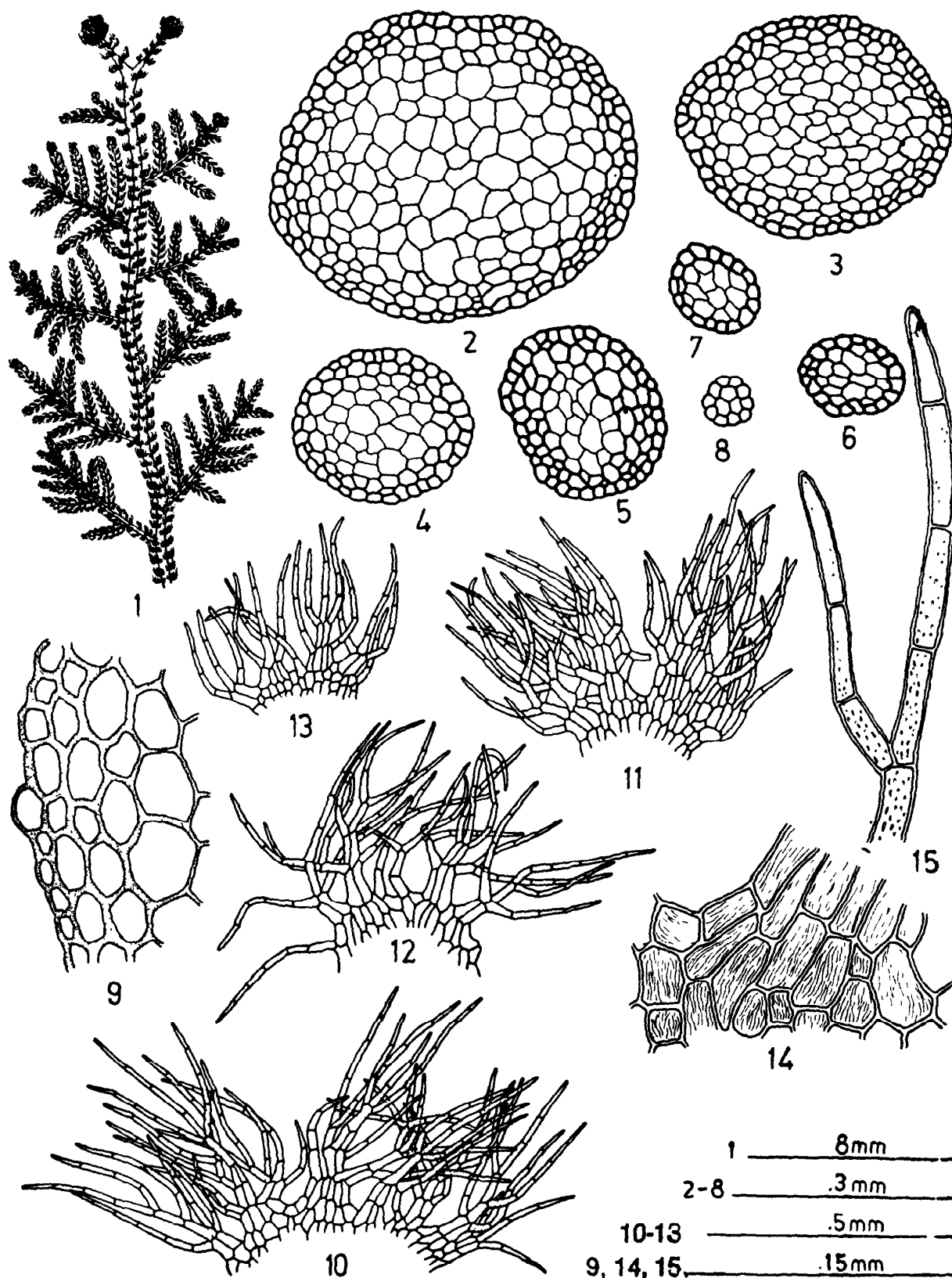
tion, suborbicular to ellipsoidal, $200-216 \times 220-240 \mu\text{m}$, 9-12 cells across, cortex single layered, cells uniformly thick-walled, oval to polygonal, $8-20 \times (8-14-24) \mu\text{m}$, medullary cells thick-walled towards periphery, subquadrate to polygonal, $(12-16-36 \times (16-24-44$



Trichocolea udarii Singh, sp. nov.

Plate I: 1,2. 1. A portion of the plant showing branching pattern $\times 25$. 2. A part of the same $\times 7$.

μm ; secondary branch 0.05-0.3 cm long, delicate in cross-section oval to elliptical, $96-132 \times 132-160 \mu\text{m}$, 5-7 cells across, cortex single layered, cells uniformly thick-walled, subquadrate to rectangulate — oval, $6-24 \times 14-26 \mu\text{m}$, medullary cells more or less thin-walled, polygonal, $8-28 \times 12-36 (-44) \mu\text{m}$; tertiary branch rare, delicate, up to 0.1 cm long, in cross-section, orbicular to suborbicular, $59-64 \times 69-85 \mu\text{m}$, 4-5 cells across, cortex single layered, cells thick-walled, more or less isodiametrical, $12-18 \mu\text{m}$ in diameter, medullary cells polygonal, $15-20 \times 22-25 \mu\text{m}$. Leaves in three rows, cuticle over the lamina and the lobes conspicuously striolate, feebly verruculose to papillose over the capillary segments and cilia, cells nontrigonous; lateral leaves approximate, asymmetrical, curved — incumbent to the stem, obtrapezoidal to subreniform, alternate — succubous, more or less transversely attached to the axis, slightly decurrent on the dorsal surface of the stem, postical margin sometimes innated with the underleaves, 0.5-0.57 mm long, 0.75-1.12 mm wide, 5-7 lobed, lobes conspicuous, descending up to $5/6-6/7$ of the total leaf length, further resolved into secondary lobes or capillary segments ultimately ending into long filaments armed with opposite cilia, lamina wider than long, $350-496 \mu\text{m}$ wide, $48-112 \mu\text{m}$ [1-2 (-3) cells] long, cells rectangulate to polygonal $(20-24-64 \times (8-16-28(-32) \mu\text{m}$, cells of the lobes usually rectangulate, $48-84 \times 8-28 \mu\text{m}$, cells of the cilia $48-104 \times 8-24 \mu\text{m}$; branch leaves more or less imbricated, smaller and often less lobed, otherwise similar to stem leaves; underleaves smaller, asymmetrical to subsymmetrical, erect 1/m spreading, transversely inserted over the axis, 0.35-0.43 mm long, 0.45-0.9 mm wide, 4 lobed, lobes descending up to $4/5-5/6$ of the total length, resolved into sparsely ciliated segments, lamina wider than long, $40-96 \mu\text{m}$ [(1-2-3 cells] long, $208-288 \mu\text{m}$ wide, cells subquadrate to rectangulate (-polygonal), $24-80 \times 16-32 \mu\text{m}$, cells of the lobes more or less rectangulate, $(32-48-88 \times 12-28 \mu\text{m}$, cells of the cilia $(40-56-96 \times$



Trichocolea udarii Singh, sp. nov.

Figs. 1-15 : 1. Habit sketch (only a portion drawn in dorsal view). 2-3. T.S. main stem. 4-5. T.S. primary branch. 6-7. T.S. of secondary branch. 8. T.S. of a tertiary branch. 9. A portion of the T.S. stem magnified to show the striolate nature of the cuticle. 10. Leaf from the main stem. 11. The same from a branch. 12-13. Underleaves. 14. A portion of the leaf lamina and lobe highly magnified. 15. A magnified cilium of the leaf.

8-20(-24) μm , underleaves on the branches smaller. Asexual as well as sexual reproductive structures not seen. (Text-figs. 1-15; Plate I: 1, 2).

D. K. Singh 11012, April 24, 1981, Jarain, ca 1450 m, Jaintia Hills district, Meghalaya, India. Det. D. K. Singh (Holotype — CAL; Isotypes — ASSAM, LWU).

Habitat: In loose tufts on the bark of trees or on moist soil, along the bank of a perennial stream, along with *Lepidozia* sp. *Bazzania* sp. and *Riccardia tenuicostata* Schiffn.

Trichocolea udarii differs considerably from hitherto all the known Indian species of the genus in the absence of paraphyllia from the stem surface. It further differs from its close allies in the stem anatomy. In the present species the stem is 15-18 cells across with 1-2 layered cortex unlike 21-23 cells across in *T. indica* with 2-3 layered cortex, 8-12 cells across in *T. tenera* with a single layered cortex and 25-35 cells across in *T. tomentella* with 3-5 layered cortex (Udar & Singh, 1977; Hatcher, 1957; Schuster, 1966). It also differs from these species in the size of leaves and underleaves and that of the cells of their lamina, lobes and cilia. Apart from that, *T. udarii* differs widely from all the other species of the genus known so far, though showing

resemblance with some of them in the absence of paraphyllia.

ACKNOWLEDGEMENTS

The author is greatly indebted to Dr. Ram Udar, Department of Botany, University of Lucknow, Lucknow, for his valuable suggestions and help in the identification of this species by facilitating the examination of Type/authentic specimens of the Indian representatives of the genus *Trichocolea*. Grateful thanks are also due to Dr. S. K. Jain, Director, Botanical Survey of India, for the facilities and to Dr. J. Joseph, Deputy Director, Botanical Survey of India, Eastern Circle, Shillong, for encouragement and the keen interest evinced by him throughout the progress of this study.

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