

long, pale greenish, 11.0-32.0 cm long. *Leaves* 2, linear-acuminate or narrowly linear-lanceolate, with 3 equally prominent nerves, 80.0-90.0 × 1.5-2.5 cm. Scapes enclosed by 2-3 sheaths at base, 1.45-1.75 m long. *Raceme* somewhat axillary 9-15-flowered, 10.0-17.0 cm long. Floral bracts solitary, oblanceolate, acute, half as long as the slender stalked ovary. *Flower* ca 2.2 cm vertically, 2.0-4.0 cm across, yellow or yellowish-green; pedicel ca 2.0 cm long, greenish; dorsal sepal oblanceolate, acute at apex, 9-nerved, greenish-yellow, 1.8-2.0 × 0.7-1.0 cm; lateral sepals subequal, ca 1.8 × 0.7 cm, greenish-yellow, inserted on the column, free from the sac of lip; petals broadly obovate, yellowish, 11-nerved, 1.2-1.7 × 0.8-1.0 cm; lip yellow, 10-11-nerved, saccate at base, 1.6-2.0 cm long; spur green at tip;

column ca 2.0 cm, yellowish; anther beaked; pollinia 2 ca 1 mm long, globose; *caudicle* cylindrical, ca 1 mm long, gland triangular.

Flowering: June-August.

Specimens examined: ASSAM: Kamrup, Manas Wild Life Sanctuary, 15 6-1974, Hajra 57799 (ASSAM). MEGHALAYA: Khasi Hills, (Herb. Sulp. Kurz)? June 1877. MANIPUR: Tummo Hill, 7-7-1890, Prazer 155. SIKKIM: Tropical Valleys, Aug. 1896, Pantling 457 (CAL).

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INDOTRISTICHA TIRUNELVELIANA SHARMA, KARTHIK. & SHETTY—A NEW SPECIES OF PODOSTEMACEAE FROM SOUTH INDIA

During the botanical exploration around Tirukkurungudi in Tirunelveli District, Tamil Nadu (formerly Madras), in November 1969, an interesting member of Podostemaceae, in vegetative condition was collected from the rapids. It could not be matched with any specimen of Podostemaceae represented in the Madras Herbarium, Coimbatore (MH). Later, in February, 1972 the spot was visited again and the plant was collected in flowering and fruiting condition. The water level in the rapids was low and the base of the plant was seen attached to the substratum by means of hapterae. The flower and fruit bearing portion of the plant is normally not submerged and comes much above water level,

bends slightly downward and curves up again.

In July 1972, the place was visited again to observe the early stages of growth and development of this taxon. The young seedlings were almost erect and protruding out of the water level. They were found to be attached to the rocks by means of long thread like hapterae (Pl. I, fig. 3). Many seedlings were having very short, just developing hapterae. The population of seedlings showed luxuriant growth and abundance wherever shade was available (Pl. I, fig. 1). The rocky areas exposed directly to the sun supported thin population (Pl. I, fig. 2).

Key to the species of *Indotristicha* (Wt.) van Royen

1. Rhizomes of definite length (ca 25 cm long), thick; leafy shoots crowded on the dorsal surface of the rhizomes; leaves ovate to ovate-lanceolate, in four vertical rows; perianth segments 3, free; stigmas fleshy, thick, papillöse *I. tirunelveliana* Sharma, Karthik. & Shetty
1. Rhizomes of indefinite length, thin; perianth 3-lobed to the middle; leafy shoots, leaves and stigmas not as above:
 2. Rhizomes filamentous; leaves narrowly linear, almost acicular, in many ranks; stigmas slender *I. ramosissima* (Wt.) van Royen
 2. Rhizomes flattened, thalloid; leaves triangular in 3 unequal ranks; stigmas flattened in a vertical plane with a deeply divided outer margin *I. malayana* Dransfield & Whitmore*

Indotristicha tirunelveliana Sharma, Karthik. et Shetty *sp. nov.*

Indotristicha malayana Dransfield & Whitmore affinis sed in rhizomibus differt quia non adpressa; folia ovata et ovato-lanceolata quattuor in seriebus; segmentes perianthes liberi, stigmae pulposae crassae et papillosae.

Herbae aquaticae. Rhizomata 5-25 cm longa, 3-7 mm diametro, sub-erecta, deorsum parce ramosa, longo haptero tantum basi affixa. Surculi foliosi 0.5-2.0 cm longi, simplices, numerosi, dense aggregati, superficiem supernum rhizomatum omnino obtegentes. Folia $\pm 1.5 \times 0.8$ mm, sessilia, simplicia, in quattuor seriebus verticalibus disposita, integra, ovato-lanceolata, apice sub-acuta, basi angustata, costa usque ad $3/4$ longitudinem laminae attingens. Surculi frondosi floriferi saepe infra ramosi; folia pauca linearia supera plus-minusve connata, vaginam infra formans, basimque pedicelli includens. Flores solitarii, terminales, regulares, bisexuales, hypogyni, monochlamydyi; pedicelli ± 2 mm longi, usque ad ± 1 cm in fructum crescentes, pallide rubri. Segmenta perianthii 3, persistentes, unumquodque $\pm 2.5 \times 1.5$ mm, pallide viridia, oblong-obovata, obtusa, concava. Stamina 3, segmentis perianthii alternantia; filamenta ± 1 mm longa, pallide rubra, gracilia; antherae $\pm 1.5 \times 1$ mm, cinerascens, ovato-oblongae, basi-fixae, introrsae; pollen sphaeroideum, diam. 17.25-24.51 μ , panporati, pori minus quam 12, ornamentatione

obscura (L.O.). Ovarium rubrum, sessile, ellipsoideum, laeve, 3-loculare, placentatione axiali, crassa; ovula plura; stigmata 3, periviridia, sessilia, brevia, carnosae, papillosae. Capsulae 2-3 mm longae, ellipsoideae, 9-costatae, in tres valvas dehiscentes. Semina $\pm 0.5 \times 0.2$ mm late ellipsoidea, laevia (t. 1, f. 1-17; t. 2, f. 1-3).

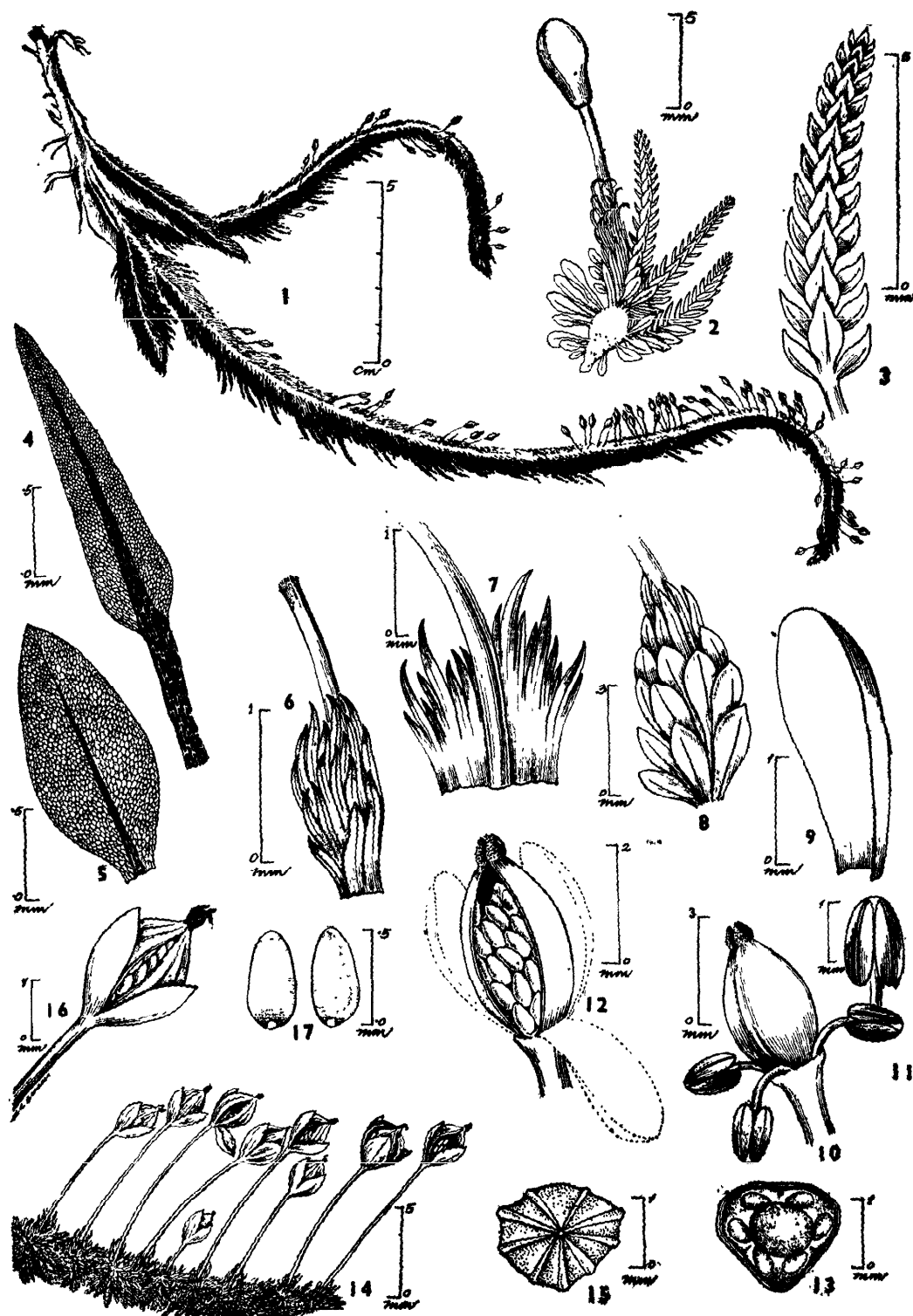
Typus (Karthikeyan 40159 A) et isotypi (Karthikeyan 40159 B-S) fuit lecti regione Thulukkanparai, Tirukkurungudi, ditione Tirunelveli, Tamil Nadu (olim Madras) India, alt. ca 850 m, die 17-2-1972; typus est positus in herbario Centro Nationali, Calcutta (CAL); isotypi vero in Madras Herbarium (MH), Botanical Survey of India, Coimbatore. Paratypi (B. D. Sharma 42112), eodem regione lecti die 30-9-1972 etiam sunt positi in MH.

Indotristicha tirunelveliana Sharma, Karthik. & Shetty *sp. nov.*

Allied to *Indotristicha malayana* Dransfield & Whitmore, but differs in the rhizomes being not flattened; leaves being ovate to ovate-lanceolate in four rows; perianth segments being free and the stigmas being fleshy, thick and papillose.

Aquatic herbs. Rhizomes 5-25 cm long, 3-7 mm in diameter, sub-erect, sparingly branched below, attached by long hapterae only at base. Leafy shoots 0.5-2.0 cm long, simple, numerous, densely crowded, completely covering the upper surface of the rhizomes. Leaves $\pm 1.5 \times 0.8$ mm, sessile, simple, arranged in four vertical rows, ovate

**I. malayana* has been so far reported from Malaya only. See *Blumea* 18: 153, 1970.



Indotristicha tirunelveliana Sharma, Karthik. & Shetty *sp. nov.*

Text figs. 1-17 : 1. Habit. 2. Flower-bearing leafy shoot. 3. Leafy shoot. 4. Linear leaf of the flower-bearing leafy shoot. 5. Leaf of the leafy shoot. 6. Sheath formed by linear leaves at the base of the pedicel. 7. Enlargement of the sheath. 8. Ordinary leaves below the sheath. 9. Enlargement of the perianth segment. 10. Enlargement of the ovary. 11. Stamen. 12. Ovary showing ovules. 13. Transverse section of the ovary. 14. Branch with flowers and capsules. 15. Capsule view from above showing ribs. 16. Dehiscent capsule. 17. Seeds.



Plate. I: *Indotristicha tirunelveliana* Sharma, Karthik. & Shetty *sp. nov.*
Figs. 1-3 : 1. Luxuriant populations under shade. 2. Thin populations on exposed rocks.
3. Plants with long haptae.

to ovate-lanceolate, entire, subacute at apex, narrowed at base, midrib reaching $3/4$ the length of lamina. *Flower-bearing leafy shoots* often branched below; the upper few linear leaves more or less connate below forming a sheath, enclosing the basal part of pedicel. *Flowers* solitary, terminal, regular, bisexual, hypogynous, monochlamydeous; pedicels ± 2 mm long, lengthening to ± 1 cm in fruit, pale red. *Perianth* segments 3, persistent, each $\pm 2.5 \times 1.5$ mm, pale green, oblong-obovate, obtuse, concave. *Stamens* 3, alternating with perianth segments; filaments ± 1 mm long, pale red, slender; anthers $\pm 1.5 \times 1$ mm, greenish, ovate-oblong, basifixed, introrse; pollen spheroidal, diameter $17.25-24.51 \mu$, panporate, pores less than 12, ornamentation obscure (L.O.). *Ovary* red, sessile, ellipsoid, smooth, 3-loculed; placentation axile, thick; ovules many; stigmas 3, deep red, sessile, short, fleshy, papillose. *Capsules* 2-3 mm long, ellipsoid, 9-ribbed, dehiscent into 3 valves. *Seeds* $\pm 0.5 \times 0.2$ mm, broadly ellipsoid in outline, smooth (Text, figs. 1-17; Plate I, figs. 1-3).

The holotype of this species (Karthikeyan 40159A) and isotypes (Karthikeyan 40159B-S) were collected from Thulukkanparai, Tirukkurungudi, Tirunelveli district, Tamil Nadu (formerly Madras) India at an altitude of about 850 m on 17-2-1972; the holotype is deposited in the Central National Herbarium, Calcutta (CAL) and the isotypes in Madras Herbarium, Botanical Survey of India,

Coimbatore (MH). The paratype (Sharma 42112) collected from the same locality on 30-9-1972 is also deposited in MH.

Dr. K. Subramanyam, Ex-Director, Botanical Survey of India, Calcutta who examined the materials of this species comments (personal communication): "the vegetative structure of the specimen is quite distinctive from that of the two described species of *Indotristicha* viz., *I. ramosissima* (Wt.) van Royen and the recently erected *I. malayana* Dransfield & Whitmore. I feel Karthikeyan 40159 comes close to *I. malayana*".

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NOTES ON THE DISTRIBUTION OF SOME FLOWERING PLANTS FROM AURANGABAD (MAHARASHTRA)

Aurangabad district forming a part of the vast Deccan plateau, has been poorly known botanically in the past. In spite of a few scattered publications on the plant distribution from the area (Bradely, 1884; Pringle,

1911; Sharfuddin Khan, 1953; Tilak, 1963), much remains to be done in this area. Recent investigations on the flora of the district have continued to yield a good number of plants not recorded by any of the above in-