

Two new species of *Ixora* L. (Rubiaceae) from India

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Two new species of *Ixora* L. (Rubiaceae) from India

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RÉSUMÉ

HUSAIN, T. & S. R. PAUL (1986). Deux nouvelles espèces d'*Ixora* (Rubiaceae) en Inde. *Candollea* 41: 87-93. En anglais, résumé français.

Deux espèces nouvelles d'*Ixora* L. du sud de l'Inde sont décrites et illustrées. *Ixora beddomei* Husain & Paul du Kerala et *Ixora mercaraica* Husain & Paul de Karnataka. Leurs pollens ont été étudiés au microscope optique et au microscope électronique à balayage.

ABSTRACT

HUSAIN, T. & S. R. PAUL (1986). Two new species of *Ixora* L. (Rubiaceae) from India. *Candollea* 41: 87-93. In English, French abstract.

Two new species of *Ixora* L. from South India are described and illustrated. *Ixora beddomei* Husain & Paul from Kerala and *Ixora mercaraica* Husain & Paul from Karnataka. Pollen of both have been studied by SEM and LM.

Morphology

1. *Ixora beddomei* Husain & Paul, **sp. nov.** (Figs. 1, 2).

Typus: India: Kerala, Mally Dist., Wynaad, *Beddome 3909* (holo, BM; iso, K).

Proxime affinis *Ixora lawsoni* Gamble, sed manifeste differt foliis basi acutis, calycum tubis pubescentibus et corollae tubis 17-17.5 mm longis.

Habitus ignotus; rami juvenes glabri; stipula 10 mm longa, glabra, intus pilosa; cuspis 5 mm longa, glabra. Folia 13-20.5 × 4.2-7.1 cm, opposita, oblonga vel elliptica, apice mucronata vel acuminata, basi acuta, utrimque glabra, coriacea; reticulatim venosa, 12-14 nervi laterales costam conjuncti; petioli 4-8 mm longi, glabri. Inflorescentia terminalis, corymbosa, congesta, pedunculus 3 cm longus, pubescens; bracteae 4-7 mm longae, lineares, acutae pubescentes. Flores 4-meri, pedicellati vel sessiles, pedicellus 0.5-1 mm longus, pubescens, bracteola 4 mm longa, linearis, acuta, pubescens. Calycis tubus 1 mm longus, pubescens; lobus 4 mm longus, linearis, acutus, pubescens. Corollae tubus 17-17.5 mm longus, glaber; lobus 3.5 × 2 mm ovato-oblongus, acutus, glaber. Stamina 4, fauci inserta; filamenta 1 mm longa; anthera 3 mm longa, dorsifixata, stylus 19.5-20 mm longus, glaber; stigma 2 mm longum, 2-fidum. Fructus ignotus.

Habit unknown; young branches glabrous; stipule 10 mm long, glabrous, inner surface hairy; cusp 5 mm long, glabrous. Leaves 13-20.5 × 4.2-7.1 cm, opposite, oblong or elliptic, apex mucronata or acuminate, base acute, glabrous on both the surfaces, coriaceous; reticulately veined with 12-14 pairs of lateral anastomosing nerves joining the midrib; petiole 4-8 mm long, glabrous. Inflorescence terminal, corymbose, congested, peduncled; peduncle 3 cm long, pubescent; bracts 4-7 mm long, linear, acute, pubescent. Flowers 4-merous, pedicellate or sessile, pedicel 0.5-1 mm long, pubescent; bracteole 4 mm long, linear, acute, pubescent. Calyx tube 1 mm long, pubescent; lobe 4 mm long, linear, acute, pubescent. Corolla tube 17-17.5 mm long, glabrous; lobe 3.5 ×

2 mm, ovate-oblong, acute, glabrous. Stamens 4, attached to the throat; filament 1 mm long; anthers 3 mm long, dorsifixed; style 19.5-20 mm long, glabrous; stigma 2 mm long, 2-fid. Fruit unknown.

2. *Ixora mercaraica* Husain & Paul, sp. nov. (Figs. 1, 3).

Typus: India: Karnataka, Mercara, 1847, *Hohenacker 439a* (holo, BM; iso, K).

Proxime affinis *Ixora lawsoni* Gamble, sed distincte differt foliis pubescentibus, petiolis 2 mm longis, bracteolis 9 mm longis, caycum tubis pubescentibus, lobisque 6.5-8 mm longis, corollae tubis 13.5-17 mm longis.

Habitus ignotus; rami juvenes pubescentes; stipula 9 mm longa, omnino pubescens, intus pilosus; cuspis 5 mm longa, pubescens. Folia 9.9×4.4 cm, opposita, ovata, apice acuminata, basi rotundata, utrimque pubescentia, coriacea, subsessilia; reticulatim venosa, 13-14 nervi lateralis costam conjuncti; petioli 2 mm longi, pubescentes. Inflorescentia terminalis, corymbosa, congesta, pedunculi 8 cm longi, dense pilosi; bracteae 9-13 mm longae, pubescentes; bractea infima foliosa, cetera lineari-acuta. Flores 4-meri, trichotome dispositi, flos centralis sessilis, ebracteolatus, ceteri pedicellati, bracteolati; pedicellus 1.5-2 mm longus, pubescens, bracteola 9 mm longa, linearis, acutus, pubescens. Calycis tubus 1 mm longus, pubescens; lobus 6.5-8 mm longus, linearis, acutus, pubescens. Corollae tubus 13.5-17 mm longus, glaber; lobus 4×2 mm, ovato-oblongus, acutus, glaber. Stamina 4, fauci inserta; filamenta 1-1.1 mm longa, glabra; anthera 3.75 mm longa, dorsifixa; stylus 15-19.5 mm longus, glaber; stigma 2 mm longum, 2-fidum. Fructus ignotus.

Habit unknown; young branches pubescent; stipule 9 mm long, pubescent all over, inner surface hairy; cusp 5 mm long, pubescent. Leaves 9.9×4.4 cm, opposite, ovate, apex acuminate, base rounded, pubescent on both the surfaces, coriaceous, subsessile; reticulately veined with 13-14 pairs of lateral anastomosing nerves joining the midrib; petiole 2 mm long, pubescent. Inflorescence terminal, corymbose, congested, peduncled; peduncle 8 cm long, densely pubescent; bracts 9-13 mm long, pubescent, lower most bract leaf like, others linear acute. Flowers 4-merous, trichotomously arranged, central flower of the trichotome sessile and ebracteolate, others pedicellate and bracteolate, pedicel 1.5-2 mm long, pubescent; bracteole 9 mm long, linear, acute, pubescent. Calyx tube 1 mm long, pubescent; lobe 6.5-8 mm long, linear, acute, pubescent. Corolla tube 13.5-17 mm long, glabrous; lobe 4×2 mm, ovate-oblong, acute, glabrous. Stamens 4, attached to the throat; filaments 1-1.1 mm long, glabrous; anthers 3.75 mm long, dorsifixed; style 15-19.5 mm long, glabrous; stigma 2 mm long, 2-fid. Fruit unknown.

Affinities

The main features distinguishing *Ixora beddomei* Husain & Paul and *I. mercaraica* Husain & Paul from *I. lawsoni* Gamble to which they closely resemble (table 1).

Pollen morphology

For pollen morphological studies mature pollen of *I. beddomei* (*Beddome 3909*, BM) and *I. mercaraica* (*Hohenacker 439a*, BM) were collected from herbarium specimens. For LM studies, pollen grains were prepared by the acetolysis method (ERDTMAN, 1952). About 100 pollen were studied for quantitative parameters. For SEM studies, acetolysed pollen was washed with distilled water and transferred to absolute alcohol mounted on specimen stub, coated with gold in an Ion sputter coater and scanned and photographed under a JEOLJSM-35 C SEM unit at the NBRI, Lucknow.

Pollen grains of *I. beddomei* Husain & Paul and *I. mercaraica* Husain & Paul are 3-zonocolporate, radially symmetrical, isopolar, colpi extending nearly to the poles (Figs. 4 A, C).

Grains of *I. beddomei* are prolate, average length 21.7 μm (range 20 to 23 μm), average breadth 16 μm (range 13 to 19 μm). Colpi extending nearly to the poles (16 to 20 μm). Ora lolongate (5×2 μm). Sexine 1 μm , nexine 1 μm .

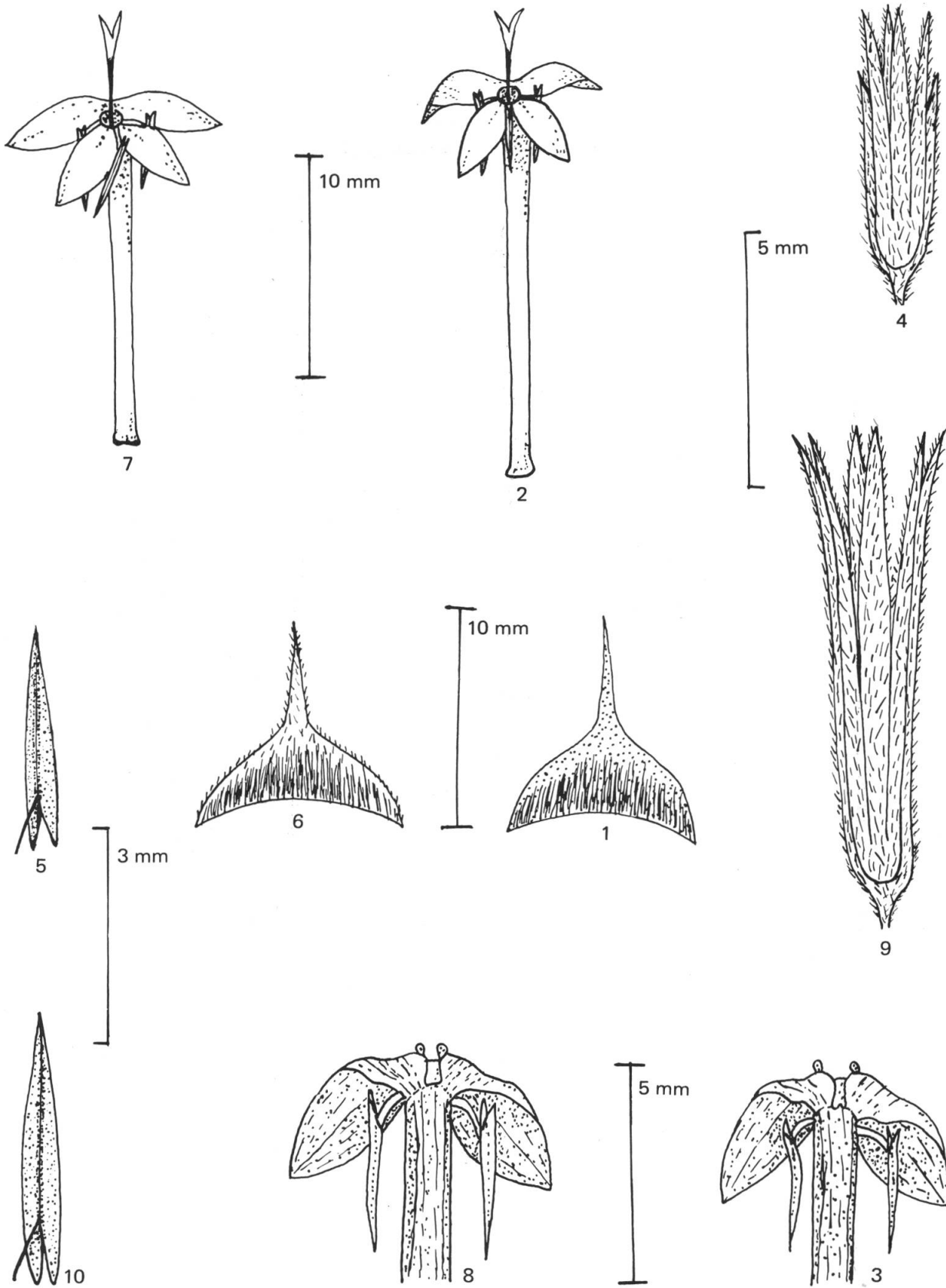


Fig. 1. — 1-5, *Ixora beddomei* Husain & Paul. 6-10, *Ixora mercaraica* Husain & Paul.

1, 6, inner surface of the stipule; 2, 7, flower with calyx removed; 3, 8, flower cut open; 4, 9, calyx with bracteole and pedicel; 5, 10, anther and filament (1-5 *Beddome 3909*, BM, 6-10 *Hohenacker 439a*, BM).

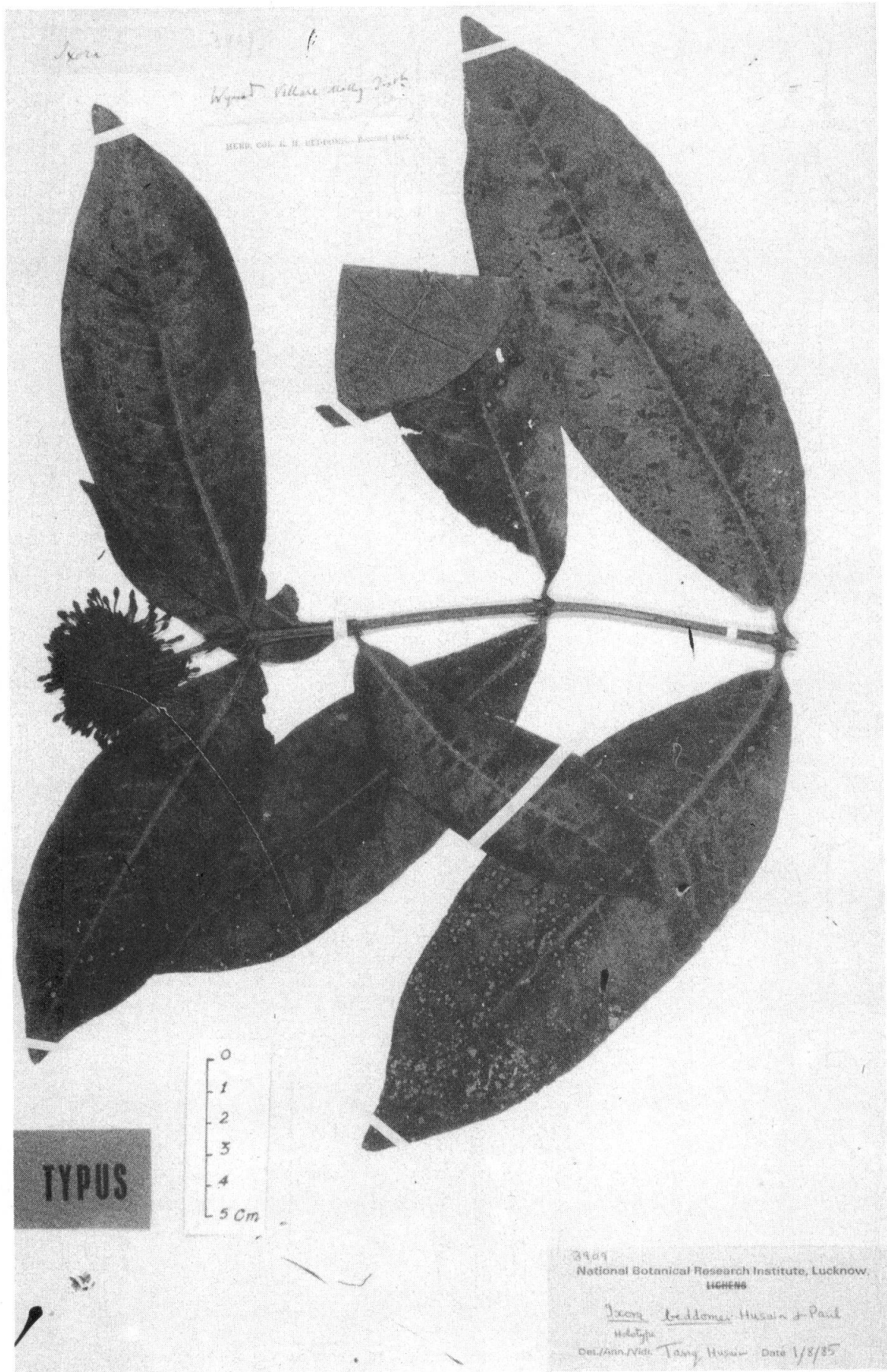


Fig. 2. — *Ixora beddomei* Husain & Paul, *Beddome 3909* (Holotypes: BM).

Characters	<i>Ixora beddomei</i>	<i>Ixora mercaraica</i>	<i>I. lawsoni</i>
1. Abaxial and adaxial leaf surface	glabrous	pubescent	glabrous
2. Leaf base	acute	rounded	rounded
3. Petiole length	4-8 mm long, glabrous	2 mm long, pubescent	5 mm long, glabrous
4. Number of lateral nerves	12-14	13-14	10-16
5. Bracteole	4 mm long	9 mm long	4-5 mm long
6. Calyx tube	pubescent	pubescent	glabrous
7. Calyx lobe	4 mm long	6.5-8 mm long	4 mm long
8. Corolla tube	17-17.5 mm long	13.5-17 mm long	8-13 mm long
9. Corolla lobe	3.5 mm long	4 mm long	4 mm long

Table 1. — Morphological characters of *Ixora beddomei*, *Ixora mercaraica* and *Ixora lawsoni*.

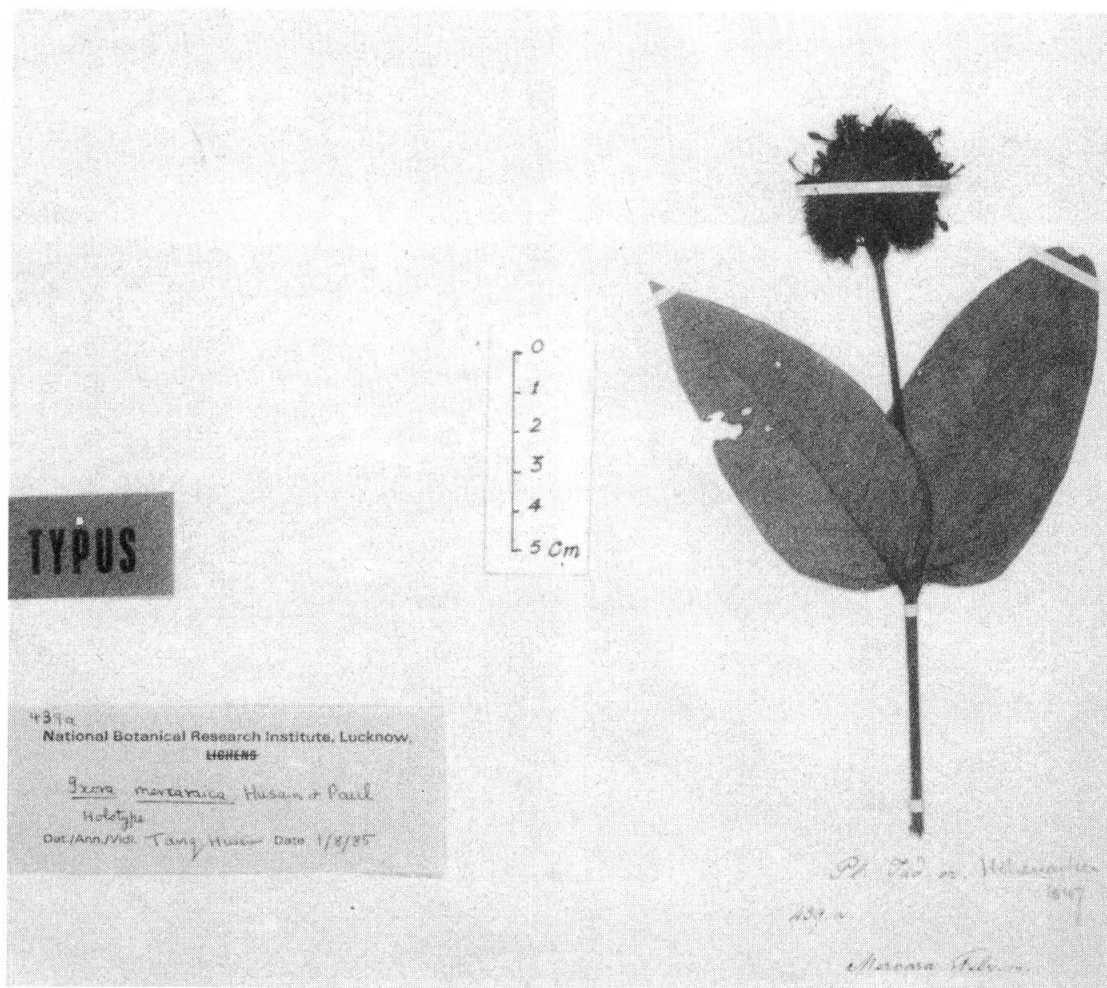


Fig. 3. — *Ixora mercaraica* Husain & Paul, Hohenacker 439a (Holotypes: BM).

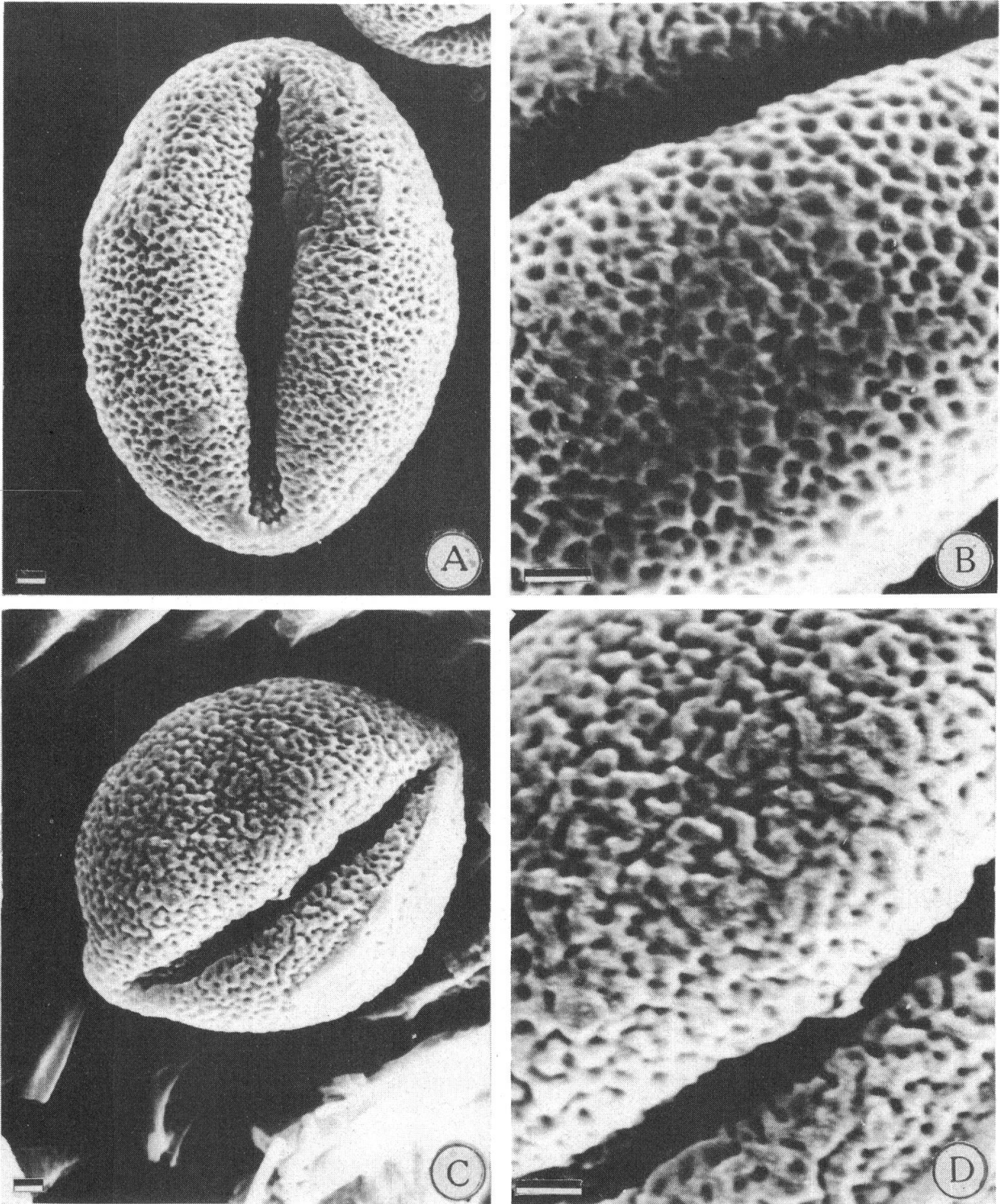


Fig. 4. — Scanning electron micrographs of the pollen grains.
A-B, *Ixora beddomei* Husain & Paul; C-D, *Ixora mercaraica* Husain & Paul (Bar = 1 µm).

Grains of *I. mercaraica* are subprolate, average length 20.4 μm (range 20 to 21 μm), average breadth 17.7 μm (range 17 to 19 μm). Colpi extending nearly to the poles (17 to 18 μm). Ora lologate (4-5 \times 1-2 μm). Sexine 1 μm , nexine 1 μm .

Ixora beddomei and *I. mercaraica* can be separated on the basis of the type of exine reticulations. Exine reticulations are uniform and round in *I. beddomei* (Fig. 4B). This seems to be a primitive character as compared to the reticulations in *I. mercaraica* (Fig. 4D) where two to three adjacent pores are joined together.

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