

A conspectus of the genus *Ipomoea* (Convolvulaceae) in India

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Abstract: The family Convolvulaceae are one of the dominant families of flowering plants in India, and the genus *Ipomoea* L. is the largest and most diverse within it, both globally and in India. *Ipomoea* displays remarkable diversity in shape, size, and flower colour, making it a subject of interest for horticulturists, naturalists, and researchers worldwide. A comprehensive account of *Ipomoea* in India was prepared using data collected through extensive field surveys across diverse phytogeographical regions since June 2013. The present study documents 52 taxa (51 species and one infraspecific taxon) of *Ipomoea* in India. A key for the identification of species is provided. For each species, detailed morphological descriptions, illustrations and notes on habitat, distribution, diagnostic characters and present status are provided. The occurrence of *Ipomoea lacunosa* L. and *Ipomoea vagans* Baker in India is also discussed.

Keywords: Diversity, Morning glory, Tropical Asia, Moon flowers.

Introduction

The family Convolvulaceae are one of the dominant families of flowering plants with *Ipomoea* L. as a largest genus. It is a common and wide spread genus of pantropical origin and distributed in the tropical and sub-tropical regions of the world (POWO, 2026). Many *Ipomoea* species are ideal ornamental plants for tropical and subtropical regions due to their attractive shape and range of colours of flowers. In India, it is distributed in various climate zones and inhabited in different phytogeographical zones across the country. In India, it shows maximum diversity in Peninsular India including the Western Ghats, Eastern Ghats

and Central India. The genus has been attracted by many botanists, naturalists and horticulturists due to its ornamental value and great diversity in shape, size and colour of flowers (Kapoor & Sharga, 1993).

The history of the genus *Ipomoea* in India starts with '*Hortus Malabaricus*' a monumental work by Rheede (1692) which reported and illustrated 17 species of the genus currently placed under *Ipomoea* from Kerala state. After Rheede's work, Roxburgh (1814) made extensive collections in eastern India, particularly in Bengal, and recorded 14 species. Clarke (1883) later summarized the collections of several contemporary botanists, including Roxburgh (1824), Wallich (1830–1832), Wight (1834), Clarke (1883), Prain (1894, 1903), and others, and reported 57 species of *Ipomoea* belonging to six sections. However, several of these species were subsequently transferred to other genera, such as *Merremia* Dennst. ex Endl., *Operculina* Silva Manso, and *Argyreia* Lour. A classical floristic account covering major parts of Peninsular India was provided by Cooke (1908) and Gamble (1915), who described 30 and 28 species of *Ipomoea*, respectively. Following the landmark taxonomic treatments of Hooker (1883), Cooke (1908), and Gamble (1921), no comprehensive revisionary studies on the family Convolvulaceae were undertaken for several decades, except for a few notable contributions (Santapau & Patel, 1958, 1961, 1973; Johri, 1983; Biju, 1997). Subsequently, numerous new taxa, new distributional records, and new nomenclatural combinations have been reported from India (Mitra & Roy, 1975; Biju *et al.*,

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1998; Naik, 1998; Umamaheswari & Daniel, 1999; Biju, 2002; Chowdhery & Debta, 2009; Panda *et al.*, 2010; Shimpale *et al.*, 2012, 2014; Ariyan *et al.*, 2014; Swami & Raman, 2018; Kattee *et al.*, 2019; Naik *et al.*, 2019). In addition, members of the family have been treated in several important regional floras and floristic accounts, including those of Santapau (1947), Bhandari (1990), Matthew (1995), Saxena and Brahmam (1995), Mudgal *et al.* (1997), Naik (1998), and Almeida (2001).

In addition, the generic delimitation of the genus *Ipomoea* has been divisive. Hallier (1893) segregated the genus *Merremia* Dennst. ex Endl. from *Ipomoea* primarily on the basis of its smooth walled pollen grains. Subsequently, several species formerly placed in *Ipomoea* were transferred to *Merremia* and *Operculina* Silva Manso (Hallier, 1893).

After extensive field explorations, a critical review of the relevant literature, and examination of specimens housed in major herbaria in India and abroad, the present study recognizes 52 taxa of *Ipomoea* in India. This treatment provides an updated account of the genus, incorporating recent taxonomic changes, new records, and nomenclatural revisions.

Materials and Methods

Literature survey was carried out on Indian *Ipomoea* by consulting national, regional and local floras and pertinent literature (Dalzell, 1851; Clarke, 1883; Cooke, 1908; Talbot, 1909; Gamble, 1921; Shah, 1978; Austin, 1980; Matthew, 1995; Saxena & Brahaman, 1995; Biju, 1997; Mudgal *et al.*, 1997; Naik, 1998; Almeida, 2001). Also, open net sources like JSTOR Global Plants, GBIF, IPNI (continuously updated), POWO (2026, continuously updated), WFO (continuously updated), and the Biodiversity Heritage Library were utilized for the survey of species. In addition, consulted herbarium specimens housed in the

following herbaria BSI, BAMU, BLAT, CAL, CALI, DD, ERC, FRI, MH, SUK and referenced digital images from B, BM, G, E, K, P, L, M, LINN and SING (acronyms as per Thiers, 2024 updated continuously). Extensive botanical explorations were carried out in different phytogeographical regions of India, during explorations special emphasis was given to collecting specimens in their flowering and fruiting stages, which greatly facilitated accurate identification of the species. The collected specimens were identified using relevant taxonomic literature (Clarke, 1883; Cooke, 1908; Gamble, 1921; Shah, 1978; Matthew, 1995; Saxena & Brahaman, 1995; Biju, 1997; Mudgal *et al.*, 1997; Naik, 1998; Almeida, 2001). The identification of certain species was assisted by experts on the genus *Ipomoea* from various institutes in India and abroad. Herbarium specimens were prepared following Jain and Rao (1977). Author citations provided follows Brummitt and Powell (1992). All specimens are deposited in the herbarium of The New College, Kolhapur (NCK). For the latest nomenclature citations, the database of *Plant of the World Online* (<https://powo.science.kew.org>) was consulted. Conservation assessments for endemic species were prepared following the guidelines of the IUCN Red List Categories and Criteria (IUCN, 2024). Illustrations were prepared from fresh specimens and in a few cases, herbarium specimens were also used. Photo-plates were prepared with the help of Adobe Photoshop CC version 14.0. The actual collection sites of the species are shown on a map generated using QGIS (QGIS Development Team, 2023).

Taxonomic Treatment

Ipomoea* L., Sp. Pl. 1: 159. 1753, *nom. cons.* Type: *Ipomoea triloba* L., *type. cons.

Annual or perennial, herbaceous climbers or vines or shrubs or trees, mostly twinning, sometimes prostrate or floating. Leaves variable in shape and size, lobes entire, divided or rarely compound; petioles simple or with pseudostipules. Inflorescence axillary, 1-few or many flowered

cymose or paniculate clusters. Bracts various in shape. Sepals 5, ovate to lanceolate, linear to elliptic, apically acute to acuminate or obtuse, mostly equalling, glabrous or pubescent, sometimes enlarged in the fruit. Corolla regular, campanulate, funnel-shaped or tubular or salverform, mid-petaline bands well defined, white, purple, pink, red or yellow. Stamens mostly inserted, rarely exserted; anthers ovate, oblong or linear; filaments filiform or dilated at the base with staminal hairs at the base, mostly equal in length; pollen globular, spinulose, pantoporate. Gynoecium bicarpellary; ovary 2 or 4-celled, rarely 3-celled, 4-ovuled, rarely 6-ovuled; style filiform, inserted or exserted, mostly glabrous, rarely pubescent; stigma capitate, entire or 2–3 globular lobes. Fruits a capsule, globose to ovoid, mostly 4 or rarely 5 or 6-valved. Seeds glabrous or pubescent, white or brown or black.

Distribution: The genus is distributed almost throughout the World but dominated in the southern hemisphere.

General Morphology

Habit & Habitat: As the name *Ipomoea* is derived from the Greek words ipos and homoios, meaning “worm-like,” it alludes to the twining or creeping habit exhibited by many species of the genus. The common name “bindweed” similarly reflects its climbing and twining nature. Although climbers constitute the predominant growth form, the genus also includes creepers, twiners, lianas, and occasionally erect shrubs.

Most species of *Ipomoea* occur in open habitats with ample sunlight and adequate moisture. However, several species are adapted to specialized habitats. For example, *I. barlerioides* (Choisy) Benth. ex C.B. Clarke and *I. capitellata* Choisy are commonly found on rocky plateaus with shallow soil accumulations; *I. aquatica* Forssk. inhabits aquatic and riparian environments; *I. kotschyana* Hochst. ex Choisy is associated with sandy soils, particularly in the Kutch region of Gujarat; while *I. littoralis* Blume and *I. pes-caprae* (L.) R.Br. are

characteristic of coastal and seashore habitats. In contrast, *I. indica* (Burm.) Merr. is abundant in comparatively cool and moist regions, especially in hill stations. Although species of *Ipomoea* are distributed throughout India, the genus attains its greatest diversity and abundance in Peninsular India. Within this region, species richness is notably higher in the Western Ghats than in the Eastern Ghats, highlighting the significance of the Western Ghats as a major centre of diversity for the genus in the country.

Life span & root nature: A wide range of variation in life span is observed within *Ipomoea*. Some species are annual (seasonal), whereas others are perennial; however, all species are herbaceous in nature except *I. campanulata* L. and *I. staphylina* Roem. & Schult., which are woody climbers. Among the perennial species, *I. batatas* (L.) Lam., *I. cairica* (L.) Sweet, *I. clarkei* Hook.f., *I. mauritiana* Jacq., and *I. ochracea* (Lindl.) Sweet possess well-developed tuberous roots, whereas in *I. simoesiana* Shimpale et al., the tuberous roots are poorly developed. In these perennial species, the aerial parts die back after fruiting, and new shoots emerge during the following monsoon season from the underground tuberous roots. Some perennial species do not produce tuberous roots but persist through the formation of roots at the stem nodes. These include *I. aquatica* Forssk., *I. indica* (Burm.) Merr., *I. littoralis* Blume, *I. pes-caprae* (L.) R.Br., and, rarely, *I. triloba* L.

The life span of annual species is generally 6–8 months, beginning with sprouting during June and ending with fruiting by February. Most taxa flower between August and October. However, a few species, such as *I. campanulata*, *I. rubens* Choisy, *I. staphylina*, and *I. wightii* (Wall.) Choisy, exhibit late flowering, blooming from November to February and producing fruits from February to April. Some weedy species flower and fruit throughout the year.

Stem: The majority of the *Ipomoea* species possess weak, herbaceous stems, although a few species

develop woody stems. Stem morphology is highly variable, ranging from terete to angular and from glabrous to densely pubescent. In some species, the stems may be tuberculate, muricate, warty, or winged. Species such as *Ipomoea aculeata* (L.) Kuntze, *I. parasitica* (Kunth) G. Don, *I. muricata* (L.) Jacq., and occasionally *I. alba* L. exhibit muricate stems. *Ipomoea cairica* (L.) Sweet possess distinctly warty stems, while *I. salsettensis* Santapau & V. Patel typically exhibits warty stems but may rarely develop winged stems.

Leaves: The leaves of *Ipomoea* exhibit remarkable morphological diversity (Figs. 1 & 2). Leaf morphology ranges from sessile to long-petiolate, and from glabrous to densely pubescent. The leaf base may be cordate, rounded, reniform, or hastate. In several species, the leaves are simple and entire or possess shallow, abrupt 3–5 lobes, whereas others have distinctly divided leaves with 3–9 lobes. The leaf apex varies from obtuse to acuminate, and from emarginate to deeply bilobed. The leaves of *I. acanthocarpa* (Choisy) Hochst. ex Schweinf. & Asch. and *I. parasitica* (Kunth) G. Don are characterized by prominent purple veins on the adaxial surface, while those of *I. sagittifolia* Burm.f. often bear purple blotches. Bicoloured leaves occur in *I. aitonii* Lindl., whereas *I. wightii* (Wall.) Choisy possesses leaves that are conspicuously silvery beneath. Considerable intraspecific variation in leaf shape is observed in *I. eriocarpa* R.Br., *I. pes-tigridis* L., *I. sagittifolia*, *I. salsettensis* Santapau & V. Patel, and *I. triloba* L., making leaf morphology an important but sometimes variable taxonomic character within the genus.

Inflorescence: The inflorescence in *Ipomoea* is predominantly axillary and cymose, although several species exhibit considerable variation, ranging from uniparous cymes to condensed head- or capitulum-like structures (Fig. 3). The principal inflorescence types observed in the genus are as follows:

- **Head type:** In this type, the flowers are aggre-

gated at the apex of the peduncle, forming a head-like cluster usually subtended by conspicuous leafy bracts. In *I. capitellata* Choisy, *I. pes-tigridis* L., and *I. pileata* Roxb., the flowers are enclosed by boat-shaped involucre bracts, whereas in *I. indica* (Burm.) Merr. and *I. wightii* (Wall.) Choisy, the flowers are more loosely arranged in head-like clusters..

- **Uniparous cyme:** This type is rare in the genus; it is observed only in *I. alba* and *I. muricata*.
- **Combined type:** This type initially develops as a dichasial cyme but subsequently becomes monochasial or scorpioid through the continued growth of one branch. It is characteristic of *I. aitonii* Lindl., *I. hederifolia* L., and *I. quamoclit* L.
- **Umbellate cyme:** A condensed cymose inflorescence in which 5–9 flowers arise from the apex of a common peduncle, producing an umbel-like appearance. This type is found in *I. sagittifolia* Burm.f. and *I. salsettensis* Santapau & V. Patel.

Calyx: The calyx is polysepalous in all species, with quincuncial aestivation. Sepals are often persistent and may become slightly accrescent in fruit. They exhibit considerable variation in shape and surface characteristics, ranging from acute to obtuse at the apex, glabrous to densely hairy, smooth to tuberculate or ribbed, and from mucronulate to distinctly mucronate.

Corolla: The corolla shows marked diversity in form, varying from tubular and infundibuliform to hypocrateriform. It may be glabrous or pubescent externally and is characterized by distinct mid-petaline bands that impart a star-like appearance to the flower. These bands are usually glabrous, but in species such as *I. aitonii* Lindl., *I. biflora* R.Br., *I. eriocarpa* R.Br., *I. sindica* Staff., and *I. wightii* (Wall.) Choisy, they are pubescent. In general, pubescent species possess hairy mid-petaline bands, whereas glabrous species have glabrous bands. The bands vary in colour, being reddish in *I. salsettensis* Santapau & V. Patel, green

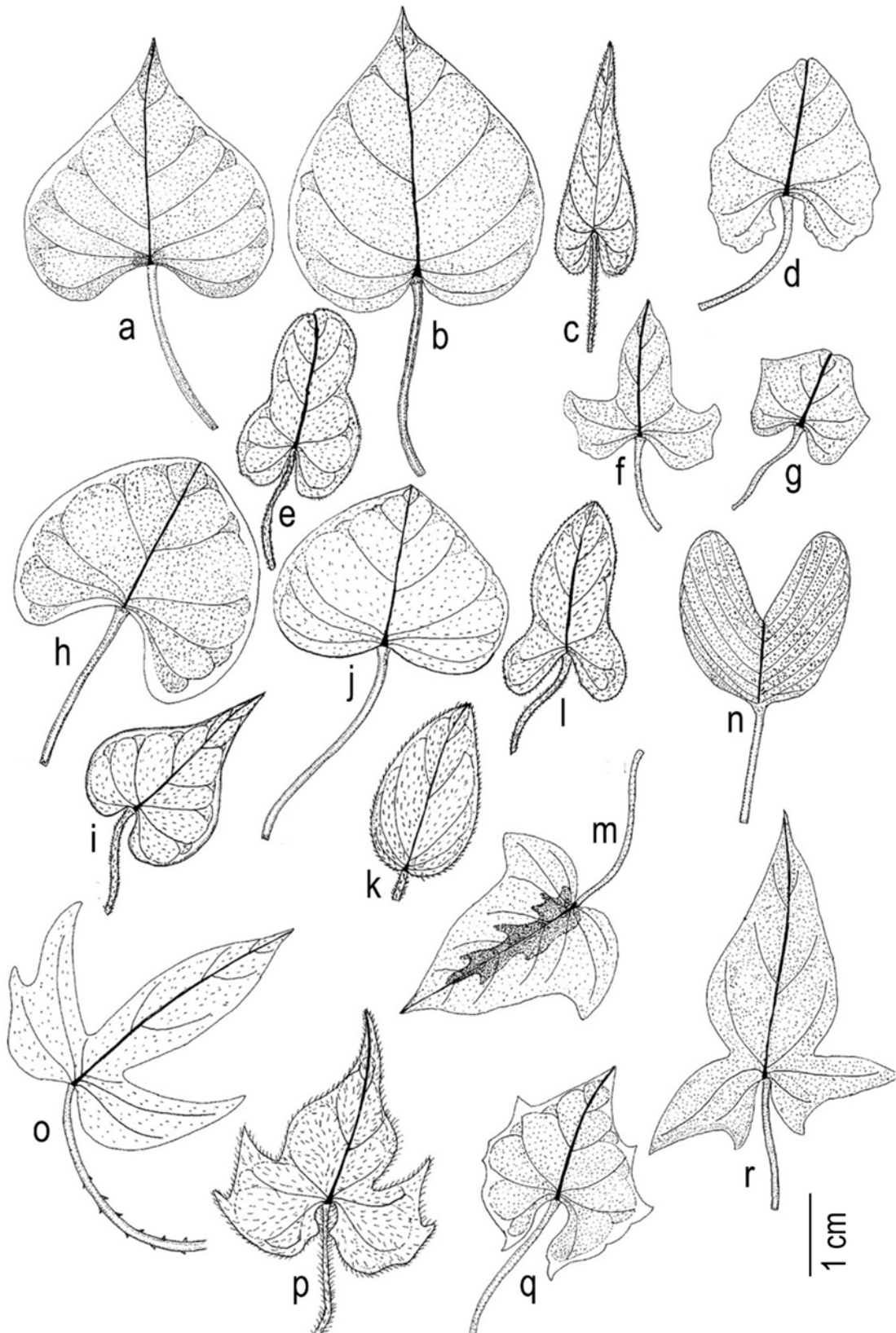


Fig. 1. Leaf variation in Indian species of *Ipomoea*: **a.** *I. acanthocarpa* (Choisy) Hochst. & Schweinf. & Asch.; **b.** *I. alba* L.; **c.** *I. eriocarpa* R. Br.; **d.** *I. rumicifolia* Choisy; **e.** *I. muelleri* Benth.; **f.** *I. triloba* L.; **g.** *I. littoralis* Blume; **h.** *I. asarifolia* (Desr.) Roem. & Schult.; **i.** *I. clarkei* Hook.f.; **j.** *I. batatas* (L.) Lamk.; **k.** *I. barlerioides* (Choisy) Benth. ex C.B. Clarke; **l.** *I. mombassana* Vatke; **m.** *I. sagittifolia* Burm.f.; **n.** *I. pes-caprae* (L.) R. Br.; **o.** *I. aculeata* Blume; **p.** *I. nil* (L.) Roth.; **q.** *I. hederifolia* L.; **r.** *I. salsettensis* Santapau & Patel (drawn by A.V. Kattee; Scale bar 1 cm).



Fig. 2. Leaf variation in Indian species of *Ipomoea*: **a & b.** *I. cairica* (L.) Sweet.; **c.** *I. kotschyana* Hochst. ex Choisy; **d.** *I. tenuipes* Verdc.; **e.** *I. quamoclit* L.; **f.** *I. horsfalliae* Hook.; **g.** *I. tuberculata* Ker-Gawl.; **h.** *I. capitellata* Choisy; **i.** *I. pes-tigridis* L.; **j.** *I. batatas* (L.) Lamk.; **k.** *I. mauritiana* Jacq. (drawn by A.V. Kattee; Scale bar 1 cm).



Fig. 3. Diversity in the types of inflorescences in Indian species of *Ipomoea*: **a.** *I. pes-tigridis* L.; **b.** *I. pileata* Roxb.; **c.** *I. wightii* (Wall.) Choisy; **d.** *I. hederifolia* L.; **e.** *I. sagittifolia* Burm.f.; **f.** *I. eriocarpa* R. Br.; **g.** *I. alba* L.; **h.** *I. capitellata* Choisy; **i.** *I. aitonii* Lindl.; **j.** *I. campanulata* L. (drawn by A.V. Kattee; Scale bar 1 cm).

in *I. aculeata* (L.) Kuntze, *I. alba* L., and *I. violacea* L., while the corolla itself is most commonly purple, blue, pink, or white, and only rarely yellow or red. All species possess chasmogamous flowers except *I. pes-tigridis* L., which produces both chasmogamous and cleistogamous flowers.

Androecium: The androecium consists of five epipetalous stamens inserted slightly above the base of the corolla tube. The filaments may be subequal or unequal in length and are either included, shortly exserted at the corolla mouth, or fully exserted. Filaments are characteristically hairy at the base, with glandular hairs that are usually white; however, the hairs are dark purple in *I. mombassana* Vatke and pink in *I. sagittifolia* Burm.f. Anthers are basifixed and dehisce longitudinally. Pollen grains are pantoporate and echinate, with spines that may be either blunt or pointed.

Gynoecium: The gynoecium is typically bicarpellary, although tricarpeal conditions occur rarely. In most species, the two carpels are separated by a septum, resulting in a tetralocular ovary with a single ovule in each locule and axile placentation. Species such as *I. kotschyana* Hochst. ex Choisy and *I. nil* (L.) Roth possess a trilocular ovary. The ovary is glabrous in most taxa, except *I. eriocarpa* and *I. triloba* L., where it is pubescent. The stigma is terminal, distinctly bilobed, papillate, and usually white; however, in *I. laxiflora* H.J. Chowdhery & Debta, it is entire or only weakly lobed.

Fruit: The fruit is a capsule. Species with a bicarpellary, tetralocular ovary generally produce capsules containing 2–4 seeds, whereas tricarpeal species bear capsules with 3–6 seeds. Capsules derived from bicarpellary ovaries dehisce into four valves, while those of tricarpeal ovaries split into six valves. A persistent stylar beak is often present, being especially prominent in *I. acanthocarpa* (Choisy) Hochst. ex Schweinf. & Asch., where it forms a conspicuous spine-like projection.

Seed: Seed set is generally abundant in most species; however, a few taxa, such as *I. horsfalliae* Hook., rarely produce viable seeds. Fruit set is also infrequent in *I. batatas* (L.) Lam., *I. cairica* (L.) Sweet, and *I. indica* (Burm.) Merr. Seeds vary considerably in indumentum, ranging from completely glabrous to sparsely pubescent or densely villous, and provide useful taxonomic characters for species identification.

Key to the species of *Ipomoea* in India

1. Corolla zygomorphic *I. lobata*
1. Corolla actinomorphic 2
2. Flowers in boat-shaped, cup-like inflorescences 3
2. Flowers not in boat-shaped inflorescences 5
3. Leaves entire; corolla tube linear at base *I. pileata*
3. Leaves lobed; corolla tube swollen at base 4
4. Bracts dimorphic; corolla ≤ 1.8 cm long *I. capitellata*
4. Bracts monomorphic; corolla ≥ 2.5 cm long *I. pes-tigridis*
5. Leaves pinnatisect 6
5. Leaves lobed, palmately divided or palmately partite leaves 7
6. Flowers pink; corolla tube ≤ 0.5 cm long *I. kotschyana*
6. Flowers scarlet; corolla tube ≥ 2 cm long *I. quamoclit*
7. Leaves palmately divided or palmatipartite 8
7. Leaves simple or lobed but not palmately divided or palmatipartite 12
8. Flowers yellow; leaves palmatipartite *I. tuberculata*
8. Flowers pink; leaves palmately divided 9
9. Petioles with leaf-like stipules 10
9. Petioles without leaf-like stipules 11

10. Peduncle 6–15 cm long; corolla 1.5–2 cm long *I. tenuipes*
10. Peduncle 2–4 cm long; corolla 3–5 cm long *I. cairica*
11. Roots tuberous; stamens included *I. mauritiana*
11. Roots fibrous; stamens exerted *I. horsfalliae*
12. Leaves silvery on abaxial side 13
12. Leaves not silvery on abaxial side 14
13. Corolla 1.5–2 cm long; seeds hairy, hairs c. 2 cm long *I. aitonii*
13. Corolla 3–5 cm long; seeds puberulent *I. wightii*
14. Outer 3 sepals winged or cordate at base 15
14. Outer sepals are not as above 16
15. Outer 3-sepals winged at base; corolla 4–6 cm long *I. mombassana*
15. Outer 3-sepals deeply cordate at base; corolla 1.5–2.5 cm long *I. biflora*
16. Leaves bilobed with pixilate venation *I. pes-caprae*
16. Leaves entire without pixilate venation 17
17. Seeds entirely glabrous 18
17. Seeds pubescent or hairy along margins 27
18. Corolla ≤ 1.5 cm long 19
18. Corolla ≥ 3 cm long 21
19. Capsules glabrous *I. laxiflora*
19. Capsules densely hairy 20
20. Stems pubescent; flowers sessile to sub-sessile; corolla tube upto 0.5 cm long *I. eriocarpa*
20. Stems glabrous; flowers pedicellate; corolla tube c. 1 cm long *I. triloba*
21. Corolla 10–12 cm wide; stamens slightly exerted *I. alba*
21. Corolla less than 5 cm wide; stamens included 22
22. Pedicels strongly swollen in fruits; sepals sharply mucronate at apex *I. muricata*
22. Pedicels not or slightly swollen in fruits; sepals not mucronate at apex 23
23. Plants not rooting at nodes; sepals pubescent 24
23. Plants rooting at nodes; sepals glabrous 25
24. Stems prickly muricate; leaves entire; sepals oblong *I. parasitica*
24. Stems smooth; leaves lobed; sepals linear acute to acuminate *I. indica*
25. Leaves reniform at base and emarginate at apex *I. asarifolia*
25. Leaves not as above 26
26. Roots tuberous; petiole 6–26 cm long; capsules pubescent *I. batatas*
26. Roots fibrous; petiole 2–5 cm long; capsules glabrous *I. littoralis*
27. Stem fistular 28
27. Stem not fistular 29
28. Plants erect or climbing; seeds with long hairs *I. carnea*
28. Plants creeping or twining; seeds pubescent *I. aquatica*
29. Plants small to medium sized tree ... *I. arborescens*
29. Plants herbaceous or woody climber 30
30. Capsule with c. 0.7 cm long persistent stylar beak *I. acanthocarpa*
30. Capsule not as above 31
31. Corolla tube ≥ 10 cm long 32
31. Corolla tube ≤ 7 cm long 34
32. Sepals obtuse at apex; mid-petaline bands pinkish *I. salsettensis*
32. Sepals acute at apex; mid-petaline bands white or green 33
33. Stems strongly muricate; leaves pubescent; seeds pubescent all over *I. aculeata*

33. Stems not muricate; leaves glabrous; seeds pubescent, long villous on margins *I. violacea*
34. Stamens exserted 35
34. Stamens included 36
35. Roots tuberous; stems cylindrical; flower solitary (rarely 2–3 flowered cyme) *I. purga*
35. Roots fibrous; stems angular; flowers 3–9 on scorpioid cyme *I. hederifolia*
36. Fruiting calyx distinctly longer than capsules ... 37
36. Fruiting calyx shorter or equalling the capsules 38
37. Leaves lobed; flowers bluish or whitish (not pink) capsule glabrous..... *I. nil*
37. Leaves entire; flowers pink; capsule pubescent..... *I. barlerioides*
38. Plants large, woody climbers 39
38. Plants small, herbaceous climbers 40
39. Corolla 2.5–3 cm long, 3–4 cm wide..... *I. staphylina*
39. Corolla 5–8 cm long, 10–12 cm wide.... *I. campanulata*
40. Leaf apex emarginate 41
40. Leaf apex acute to acuminate 43
41. Plants creeping; leaves fleshy; flowers axillary solitary *I. imperati*
41. Plants twinning or prostrate; leaves not fleshy; flowers on few flowered cymes..... 42
42. Plants twinning; corolla purple *I. muelleri*
42. Plants prostrate; corolla white *I. rumicifolia*
43. Flowers pure white 44
43. Flowers yellow or pink or purple..... 45
44. Flowers sessile; corolla ≥ 1 cm long.... *I. indica*
44. Flowers distinctly pedicellate; corolla ≤ 2 cm long *I. sagittifolia*
45. Flowers yellow 46
45. Flowers pink or purple 49
46. Roots tuberous; stems densely hirsute; seeds hirsute *I. simoesiana*
46. Roots fibrous; stems glabrous to puberulous; seeds glabrous or tomentellous 47
47. Corolla tube ≤ 1.5 cm long; 2–3 cm wide at mouth *I. obscura*
47. Corolla tube ≥ 2 cm long; corolla 5–6 cm wide at mouth 48
48. Plants with milky latex; stamens equalling the corolla tube; capsules globose *I. clarkei*
48. Plants without milky latex; stamens $\frac{1}{4}$ of corolla tube; capsules ovoid *I. ochracea*
49. Plants prostrate; flowers sessile to subsessile *I. fulvicaulis*
49. Plants twining; flowers distinctly pedicellate ... 50
50. Flowers in sub-umbellate cymes, 1–13-flowered; corolla tube c. 2 cm long *I. rubens*
50. Flowers in simple cymes, 1–3-flowered cyme; corolla tube 3–5 cm long *I. purpurea*
- Ipomoea acanthocarpa*** (Choisy) Hochst. ex Schweinf. & Asch., Beitr. Fl. Aethiop. 277. 1867. *Calonyction acanthocarpum* Choisy, Prodr. Syst. Natur. Reg. Veg. 9: 346. 1845. Type: SUDAN, Kotschy C.G.T. no. 269. (P [P00434126, digital image!]; iso K [K000097123, digital image!]). **Figs. 4, 12 & 23**
- Perennial milky climber, 5–10 m long. Stem twinning, angular, rooting at lower nodes, tuberculate, brownish when mature, axillary branches hairy at base. Leaves 5–10 $\times$ 6–12 cm, glabrous, entire, with milky sap, leaf base reniform, acuminate at apex, margin entire; veins distinct on both surfaces, purple on upper surface. Petiole 6–12 cm long, tubercled at base, glabrous. Inflorescence axillary, usually 1–5-flowered in short monochasial cymes; peduncle 2–5 cm long, swollen at tip, hairy at base. Flowers bracteate, pedicellate; pedicel 0.6–1 cm long, enlarged in fruit, slightly tubercled, glabrous; bracts small, caducous, c. 0.2 $\times$ 0.1 cm, with distinct veins, glabrous. Sepals 5, sub-equal, 0.6–1 $\times$ 0.4–0.8 cm,

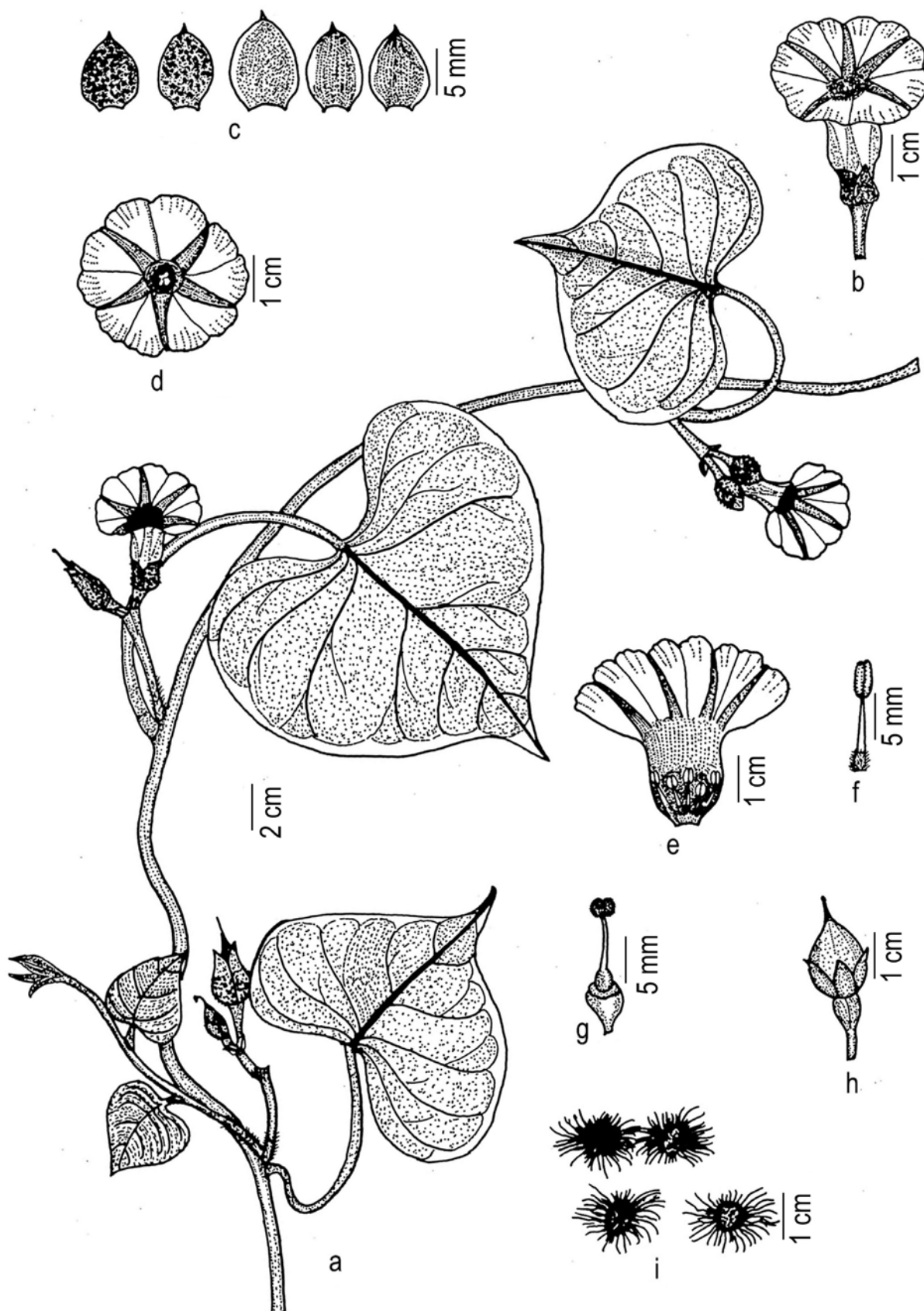


Fig. 4. *Ipomoea acanthocarpa* (Choisy) Hochst. & Schweinf. & Asch.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Corolla—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

faintly veined, outer two sepals verrucate, smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 2–3 cm long, funnel-shaped, erect; tube c. 1.5–2 cm long, dark purple inside; lobes 3–4 cm broad at mouth, apiculate, glabrous, mid-petaline bands pink-purple, shallowly apiculate. Stamens 5; filaments sub-equal, 0.5–0.8 cm long, attached at c. 2 mm above the tube, included, hairy at base. Ovary c. 0.3 × 0.1 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style c. 6 mm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsules 0.9–1 mm, sub-globose, ovoid, 4-valved, glabrous, brownish, mucronate with persistent styler beak; styler beak c. 0.7 cm long, with pointed apex; capsule dehisces from sidewalls into 4 halves. Seeds 4 per capsules, 1–1.5 × c. 0.5 cm, grey, hairy at margin.

Flowering & fruiting: Flowering from October to January and fruiting in March.

Habitat: Grows along roadsides in muddy soil. It is mostly associated with *I. triloba* L. and *I. muricata* Lam.

Distribution: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, South Africa, Surinam and Venezuela, India (Gujarat, Maharashtra).

Etymology: Specific epithet '*acanthocarpa*' derived from Greek words '*akanthos*' means thorn; '*karpos*' means fruit, refers to its spiny beaked capsule.

Specimen examined: INDIA, **Gujarat**, Valsad District, Makadban Village, 04.10.2017, A.V. Kattee AVK1402 (NCK).

Conservation status: The species is extremely rare and is currently known from only two populations. During the present study, approximately 60–70 individuals were recorded from the population in Gujarat, while only 10–15 individuals were observed in the Mumbai population, Maharashtra

Notes: The species can be readily distinguished by its reniform leaf base and ovoid, glabrous capsules bearing a persistent, spine-like styler beak.

Ipomoea aculeata Blume, Bijdr. Fl. Ned. Ind. 715. 1826; Ooststr., Blumea 3: 574. 1940. *Calonyction mollissimum* Zoll., Syst. Verz. Ind. Archip. 2: 128. 1854. *Type:* INDONESIA, *s.d.*, Blume 1234 (L [L0867389] digital image!).

Ipomoea aspera (Choisy) Vatke, Linnea 43: 508. 1882. *Syntype:* BANGLADESH, Sillet [Sylhet], *s.d.*, Wallich Cat. No. 1388 (G [G-DC-00135407] digital image!).

Ipomoea yomae Kurz., Forest Fl. Burma 2: 218. 1877. *Type:* BURMA, *s.d.*, Kurz *s.n.* (CAL [CAL0000018641] digital image!). **Figs. 5, 12 & 23**

Annual milky climber. Stem twinning, muricate. Leaves broad, ovate, 10–16 × 14–18 cm, cordate, trilobed, sometimes 3–5-lobed with large rounded lobes at base, entire at margins, acute at apex, minutely pubescent. Petiole 4–6 cm long, slightly muricate at base, glabrous. Inflorescence axillary, usually solitary, rarely cyme of 1–3 flowers; peduncle 1–2 cm long, thick, slightly enlarged in capsule, glabrous; bracts linear, 0.3–0.5 cm long, caducous, near the joint of pedicel with peduncle, glabrous; pedicel 2–2.5 cm long, stout, glabrous, slightly enlarged in fruits. Calyx subequal, oblong, ovate, acute at apex, 2–3.5 × 1.5–2.5 cm, papery at margins, distinctly veined, glabrous. Corolla infundibuliform, 15–20 × 10–12 cm at mouth, pure white; tube 10–11 cm long, slightly dilated at below mouth, glabrous. Stamens 5, unequal, shortly exserted; filaments 3–3.5 cm long, adnate to corolla at c. 0.8 cm above the base, hairy at base. Ovary ovoid, c. 0.3 × 0.2 cm, glabrous; style slender, 11–12 cm long, exserted; stigma 2-lobed. Capsule oblong, c. 2.5 × 2 cm, mucronate with persistent style, brown, glabrous, dehisces from sidewalls. Seeds triangular, flattened, c. 1 × 1.5 cm, brown, pubescent.

Flowering & Fruiting: Flowering from October to November and fruiting from December to January.

Habitat: Along roadsides, mostly running along stream sides.

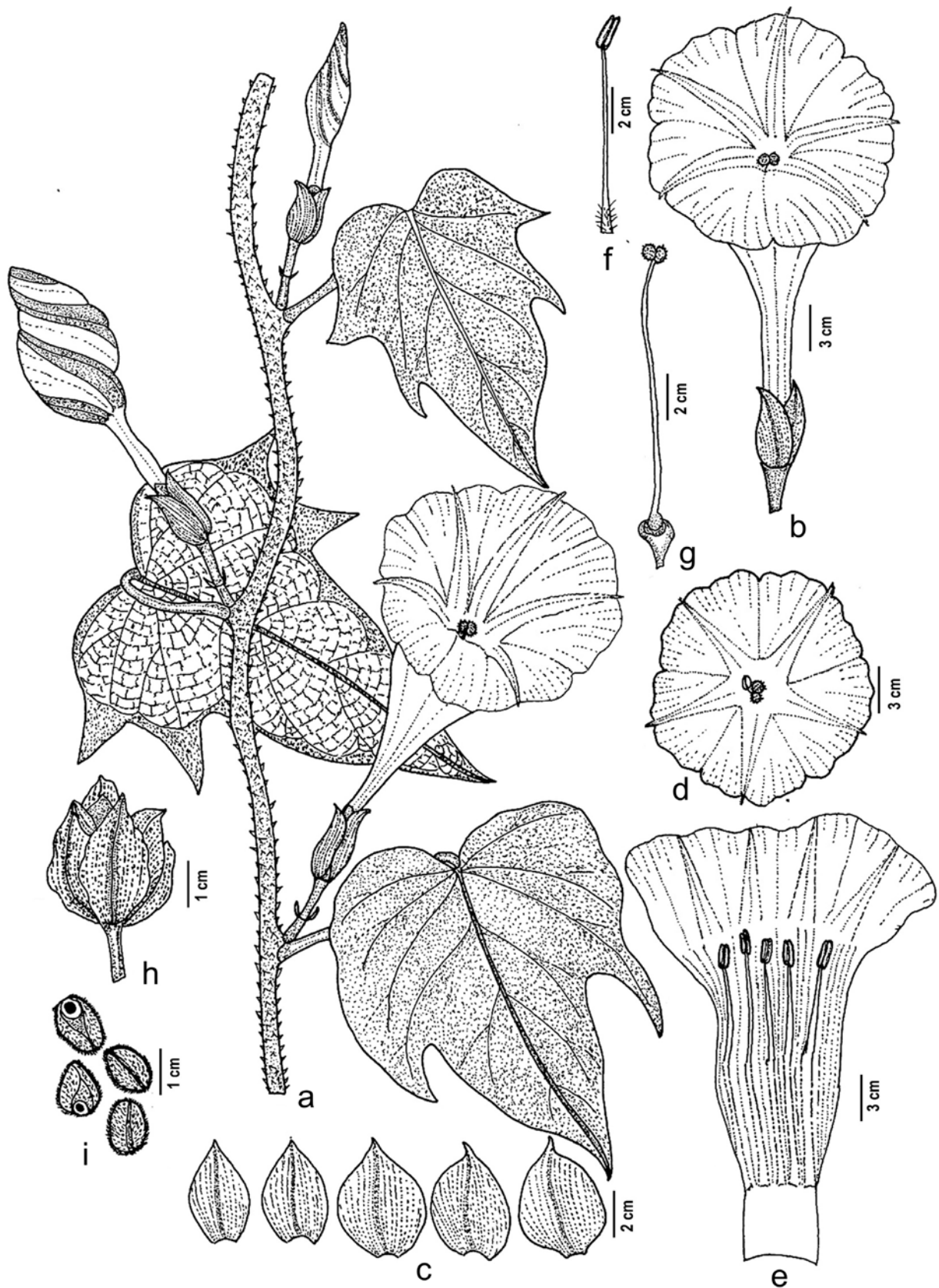


Fig. 5. *Ipomoea aculeata* Blume: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Corolla—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

Distribution: China, Indonesia, Myanmar, Philippines and Thailand, India (Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andaman Island, Mizoram and Assam). Rare.

Specimens examined: INDIA, **Andaman & Nicobar Islands**, S. Andaman, 31.10.1890, Dr. Kings Coll. 311222 (CAL). **Karnataka**, North Canara, W.A. Talbot 311214 (CAL); Udupi District, Udupi, 04.11.2017, A.V. Kattee 1401, 1407 (NCK). **Maharashtra**, Ratnagiri District, Rajapur, 26.01.2018, A.V. Kattee AVK 1408, 1409, 1410 (NCK). **Assam**, Zharia Forest, 17.12.1939, G.K. Deka 19307 (CAL). **Andaman**, Little Andaman, 01.01.1976, N. Bhargava 3260 (CAL). **Goa**, Costal Goa, 05.10.1964, R.S. Raghavan 49086 (BSI). **Kerala**, Malappuram Dist., Nilambur, Gudalur Road, 26.10.1982, Philip Matthew 33503 (CALI). Palakkad Dist., Mandampatty forest-Mukkali, 11.10.1979, N.C. Nair 64507 (CAL); West Neelikkal, 18.09.1982, Prasanna Kumar 10984 (CAL). **Mizoram**, Sairang District, 12.01.1963, D.B. Deb 42586 (ASSAM).

Notes: In most Indian herbaria, this species has been misidentified as either *Ipomoea alba* L. or *I. violacea* L. However, it can be readily distinguished from these taxa by its distinctly long infundibuliform corolla and brown pubescent seeds. The species exhibits considerable variation in leaf morphology, ranging from entire to trilobed or even five-lobed forms. Previous studies have indicated that *I. aculeata* forms a species complex with *I. aspera* (Choisy) Vatke and *I. yomae* Kurz. To resolve the taxonomic uncertainties within this complex, further investigations based on the critical examination of type and authentic specimens are warranted.

Kattee *et al.* (2017) first reported this species from the state of Goa, and more recently, Borude *et al.* (2025) documented its occurrence in Maharashtra. Examination of specimens housed in several Indian herbaria (ASSAM, PBL, GU, CALI, BRC, and MH) revealed that many collections of *I. aculeata* had been erroneously identified as *I. alba*,

I. grandiflora Lam., or *I. tuba* (Schltdl.) G. Don.

Ipomoea aitonii Lindl., Edwards's Bot. Reg. 21: t. 1794. 1835(1836). *Pharbitis aitonii* (Lindl.) Manitz, Feddes Repert. 94: 181. 1983. Type: Illustration in Edwards's Bot. Reg. 21: t. 1794. 1835.

Ipomoea dichroa Hochst. Ex Choisy in DC., Prodr. 9: 364. 1845, *nom. illeg.* Type: SENEGAL, *s.d.*, Geoffroy *s.n.* (P [LAM00357501] digital image!).

Convolvulus dichrous Roem. & Schult., Syst. Veg. 4: 263. 1819. *nom. illeg.*

Ipomoea pilosa (Roxb.) Sweet, Hort. Brit. 289. 1826; C.B. Clarke in Hook.f., Fl. Brit. India 4: 213. 1883; Gamble, Fl. Pres. Madras 2: 914. 1923. *Convolvulus pilosus* Roxb., Fl. Ind. 2: 55. 1824. *non* Rottler, 1803.

I. arachnosperma Welw., Apont. 588. 1859. Type: ANGOLA, **Loanda**, *s.d.*, Welwitsch 6243 (BM)

Figs. 6, 12 & 23

Annual, milky climber. Stem twining, pilose. Leaves broadly ovate, longer than broader, 4.5–10 × 4–12 cm, cordate with rounded lobes, undulate at margins, acute at apex, pubescent at upper surface and silvery on abaxial surface; petiole 2–11 cm long, hairy. Inflorescence axillary scorpioid cyme, 3–9 flowered; peduncles 1.2–6 cm long, hairy; bracts linear, lanceolate, c. 0.8 cm long, cordate at base, hairy, present at the base of joint of pedicel to peduncle; pedicel 0.3–0.6 cm long, hairy, elongated in fruits. Calyx sub-equal, linear, 0.7–1 × 0.2–0.4 cm, hairy outside, glabrous inside, white, faintly veined. Corolla infundibuliform, 1.5–2 cm long, pink with dark purple throat; tube 1.5–2 cm long, mid-petaline bands hairy at outside. Stamens 5, sub-equal, inserted, adnate to corolla at c. 0.1 cm above the base, hairy at the base; filaments 0.4–0.8 cm long. Ovary ovoid, c. 0.1 × 0.1 cm, glabrous; style slender, slightly exserted, 0.5–0.8 cm long, glabrous; stigma 2-lobed, pink. Capsule globose, 0.5–0.8 × 0.4–0.8 cm, pubescent, with persistent style, light brown, 4-valved, 2-celled. Seeds 0.2–0.5 × 0.3–0.4 cm, pubescent with long white hairs

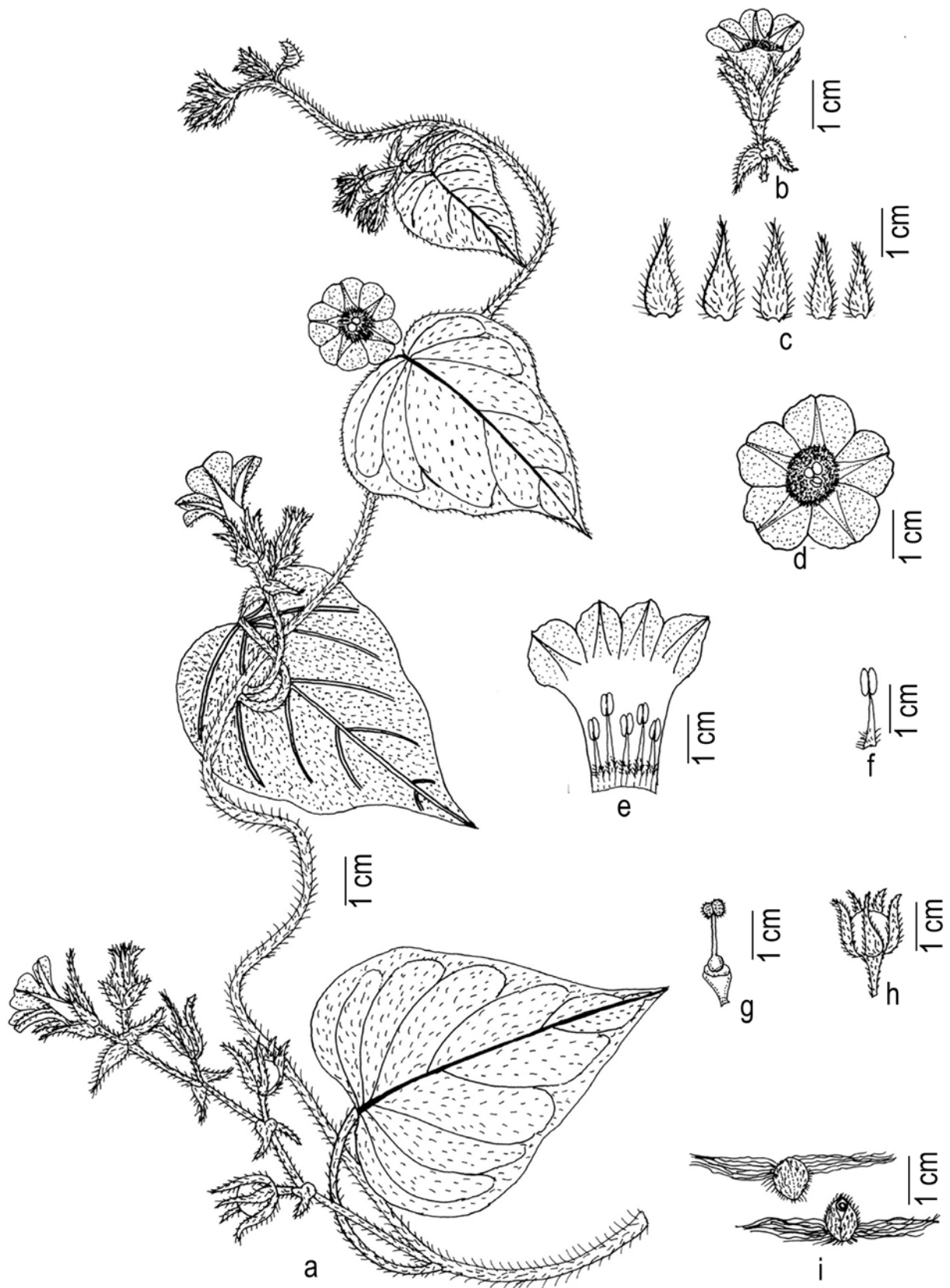


Fig. 6. *Ipomoea aitonii* Lindl.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Corolla—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

at margin; hairs up to 2 cm long.

Flowering & Fruiting: Flowering from August to September and fruiting from October to November.

Habitat: It grows in bushes near the semi evergreen forest at semi shady places.

Etymology: Specific epithet '*aitonii*' honours William Aiton (1731–1793), a renowned Scottish botanist and horticulturist who served as the director of the Royal Botanic Gardens, Kew.

Distribution: South Africa and India (Jammu and Kashmir, Haryana, Punjab, Rajasthan, Gujarat, Maharashtra, Kerala, Tamil Nadu, Bihar and Delhi).

Specimens examined: INDIA, **Bihar**, Borasambar, 01.11.1959, *G. Panigrahi* 20640 (CAL). **Delhi**, Delhi, 13.09.2017, *A.V. Kattee* AVK1417 (NCK). **Gujarat**, Nadiad District, Nadiad, 09.10.1958, *P.S. Toor* 46436 (BSI); Bhagwangraha, 22.11.1959 *B.M. Wadhawa* 29782 (BSI). **Maharashtra**, Dhule District, Lunja 23.10.1957, *P.S. Toor* 26543 (BSI); Nasik District, Kondaibari Ghats 18.10.1967, *R.D. Pataskar* 118645 (BSI); Aurangabad District, University campus, 01.10.1974, *V.N. Naik* 2404 (BAMU); Aurangabad, 26.09.1974, *V.N. Pardeshi* 1376 (BAMU); Konkan, 11.11.1979, *M.Y. Ansari* 124862 (BSI).

Notes: The plant resembles *I. triloba* L. and *I. laxiflora* H.J. Chowdhery & Debta in flower size and shape, but differs in having hairy mid-petaline bands and silvery-hairy, acute calyx lobes.

Ipomoea alba L., Sp. Pl. 161. 1753. *Lectotype* (designated by Turner, 2013): Illustration of *Munda-Valli*. Rheede, Hort. Malab. 11. t. 50. 1692.

Ipomoea bona-nox L., Sp. Pl. ed. 2: 229. 1762. *nom. illeg.*

Convolvulus bona-nox (L.) Spreng., Syst. Veg. 1: 600. 1825; C.B. Clarke in Hook f., Fl. Brit. Ind. 4: 197. 1883.

Figs. 7, 12 & 23

Annual or perennial milky climber. Stem

twining, often muricate or glabrous. Leaves broad, ovate, 10–14 × 14–16 cm, entire or lobed, cordate with large rounded lobes, entire along margins, acute at apex, glabrous; petiole 18–22 cm long, glabrous. Inflorescence uniparous cyme, 1–5-flowered; peduncle 10–15 cm long, glabrous; bracts linear, 5–7 mm long, caducous near the joint of pedicel with peduncle, glabrous; pedicel 1.5–2 cm long, stout, glabrous, enlarged in fruits. Calyx sub-equal, oblong, sharply mucronate, 1.2–2 × 0.5–1 cm, papery along margins, distinctly veined, glabrous. Corolla hypocrateriform, 15–17 cm long, pure white; tube 10–11 × 0.8–1 cm, 10–12 cm wide, glabrous. Stamens 5, sub-equal, shortly exserted; filaments 3–3.5 cm long, adnate to corolla at c. 8 mm above the base, hairy at base. Ovary ovoid, c. 3 × 2 mm, glabrous; style slender, 11–12 cm long, exserted; stigma 2-lobed. Capsule oblong, c. 2.5 × 2 cm, mucronate with persistent style, brown, glabrous, dehisces from side of wall into 4 parts. Seeds triangular, c. 1 × 1.3 cm, white, glabrous.

Flowering & fruiting: Flowering from August to September and fruiting from October to November.

Habitat: Common on hedges in shady places especially along water canals.

Distribution: Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, Guyana, Japan, Madagascar, Mexico, Myanmar, Nepal, Nicaragua, Panama, Paraguay, Peru, United states and Venezuela, India (Throughout India).

Specimens examined: INDIA, **Assam**, Khasi and Garo Hills, 04.12.1923, *Upendranath Kanjilal* 6308 (ASSAM); Barnihat, 22.01.1923 *Upendranath Kanjilal* 19857 (ASSAM); Nongpoh, 04.10.1935 *Shri Ram Sarana s.n.* (ASSAM). **Kerala**, Palakkad Dist, Silent Valley, *W. Nalikkal*, 18.08.1982, *Prasanna Kumar* 10984 (MH); Wayanad District, Lakkidi, 21.10.1985, *R.T. Balakrishnan* 41740 (CALI). **Maharashtra**, Nanded District, Kandhar, 07.01.1984, *Madhukar* 6399 (BAMU); Jalna

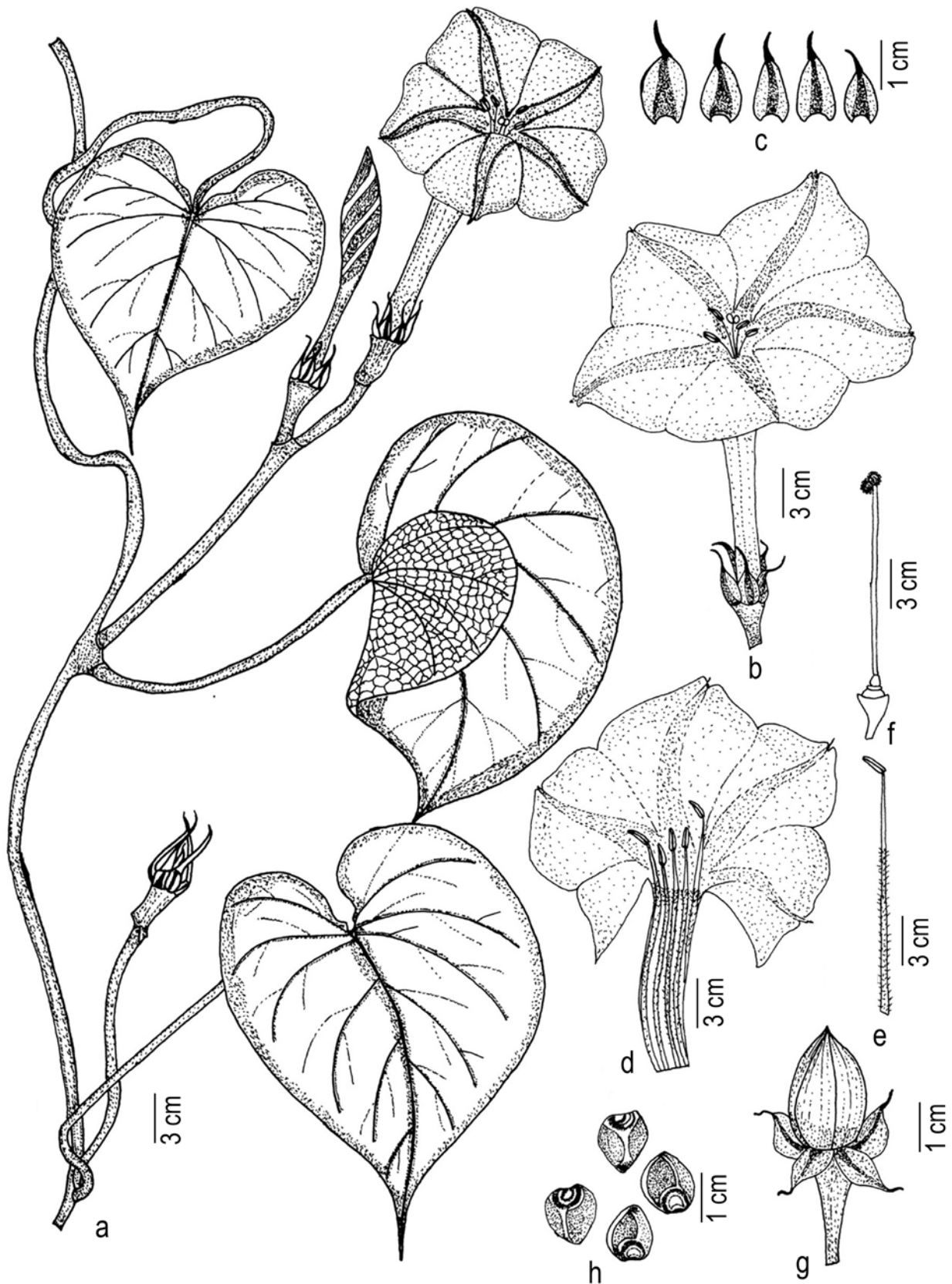


Fig. 7. *Ipomoea alba* L.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Corolla—split open; **e.** Single stamen; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

District, 06.12.1977, *V.N. Pardeshi* 2733 (BAMU); Aurangabad District, Aurangabad, 25.02.1978, *V.N. Pardeshi* 4201 (BAMU); Kolhapur District, Bhudargad, 25.12.2007, *Aitawade Makarand* 07 (SUK); Kalnakwadi, 17.10.2016, *Amrapali Kattee* AVK 1406; Malkapur, 09.11.2017, *Amrapali Kattee*, AVK 1411 (NCK). **Odisha**, Rajnagar District, Rajnagar, 18.02.1961, *G. Panighrahi* 23802 (CAL); Sundargrah District, Jamdihi, 09.10.1987, *A. Mukharjee & D. Namhata* MN2166 (CAL). **Rajasthan**, Madanpara, *B.M. Wadhwa* 7634 (CAL). **West Bengal**, Jalpaiguri District, Chapromori W.L.S., *J. Bhattacharya & Party* 33309 (CAL).

Notes: The species can be recognized by its sharply mucronate sepals and glabrous, pure white seeds. Considerable variation is observed in leaf morphology, ranging from entire to five-lobed, while the stem varies from smooth to slightly muricate. This species is widely cultivated and consumed as a vegetable in many parts of India. The tender leaves and fleshy calyces are commonly cooked or steamed and used in curries and soups. The seeds are also edible when young (Dagawal, 2015).

Ipomoea aquatica Forssk., Fl. Aegypt.-Arab. 44. 1775; C.B. Clarke in Hook. f., Fl. Brit. India 4: 210. 1883; Cooke, Fl. Pres. Bombay 2: 246. 1905. *Type:* YEMEN, Zebid, *s.d.*, *Forsskal s.n.* (C [C10002419] digital image!).

Figs. 8, 12 & 23

Annual milky creepers or twiners. Stem cylindrical, hollow, green or purple, often rooting at nodes, glabrous. Leaves oblong-ovate (rarely sagittate), 5–12 × 4–10 cm, cordate with large lobes at base, entire or undulate at margins, acute or sometimes emarginate at apex, glabrous; petiole 4–6 cm long, glabrous. Inflorescence often solitary or 2–3-flowered; peduncles 2–5 cm long, glabrous; bracts linear, 0.1–0.3 cm long, caducous, near the joint of pedicel with peduncle, glabrous; pedicels 1.5–3 cm long, glabrous. Calyx subequal, oblong ovate, 1.2–2 × 0.5–1 cm, papery at margins, faintly veined, glabrous. Corolla infundibuliform, 4–6 cm long, purple with dark purple throat or

pure white, also intermediate with dark centre and white lobes; tube 2–3 cm, c. 6 cm across at top, glabrous. Stamens 5, sub-equal, included, adnate to corolla at c. 0.3 cm above the base, hairy at the base; filaments 0.3–1 cm long. Ovary ovoid c. 0.2 × 0.2 cm, glabrous; style slender, 1–1.5 cm long, very shortly exerted; stigma 2-lobed. Capsules oblong 1–1.5 × 1–1.3 cm, ovoid, with persistent style, brown, glabrous, dehisces from top into four halves. Seeds globose, c. 0.5 × 0.5 mm, black, pubescent.

Flowering & Fruiting: Flowering from October to December and fruiting from January to February. However, under favourable conditions, the species may flower sporadically throughout the year.

Habitat: It prefers aquatic or marshy places.

Distribution: Bangladesh, Belize, Brazil, Cambodia, Caribbean, China, Egypt, Mexico, Myanmar, Nepal, Nicaragua, Pakistan, Panama, Peru, Philippines, South Africa, Sri Lanka, Thailand, United States and India (throughout India).

Specimens examined: INDIA, **Andhra Pradesh**, Medak District, Dosalagunda lake Nasarapur, 27.09.1958, *K.M. Sebastene* 6805 (CAL); Gopalpuram, Nellore, 24.09.1970, *T.A. Rao & A.R. K. Sastry* 7558 (CAL); Prakasam District Allur, 21.12.1984, *R.K. Mohan* 0685 (CAL). **Andaman & Nicobar**, Andaman, Port Blair, 17.01.1959, *K. Thoathatri* 9078 (CAL); Prothrapore, 31.10.1973, *N.P. Balkrishnan* 533 (CAL); Viper Island, 29.07.1978, *P. Basu* 6689 (CAL); Neli Island, 15.11.1978, *P. Basu* 7034 (CAL); Great Nicobar Island, 10.10.1980, *R.P. Dwivedi* 8038 (CAL). **Assam**, Dergaon IB, 19.10.1960, *G. Panighrahi* 25821 (ASSAM). **Bihar**, Champaran District, Udaipur, 07.04.1963, *K. Thoathatri* 9944 (CAL); Kotrala forest pond Valmiki Tiger Reserve, 12.01.2003, *Rajesh Singh* 34323 (CAL). **Chhattisgarh**, Bastar District, Kanker, 06.02.1961, *N.P. Balkrishnan* 11869 (BSI). **Kerala**, Kozhikode District, Calicut, 23.01.1901, *A. Usuf* 2323 (CALI); Puthiyara, 05.05.1921, *V.V. Sivarajan* 1124 (CALI);

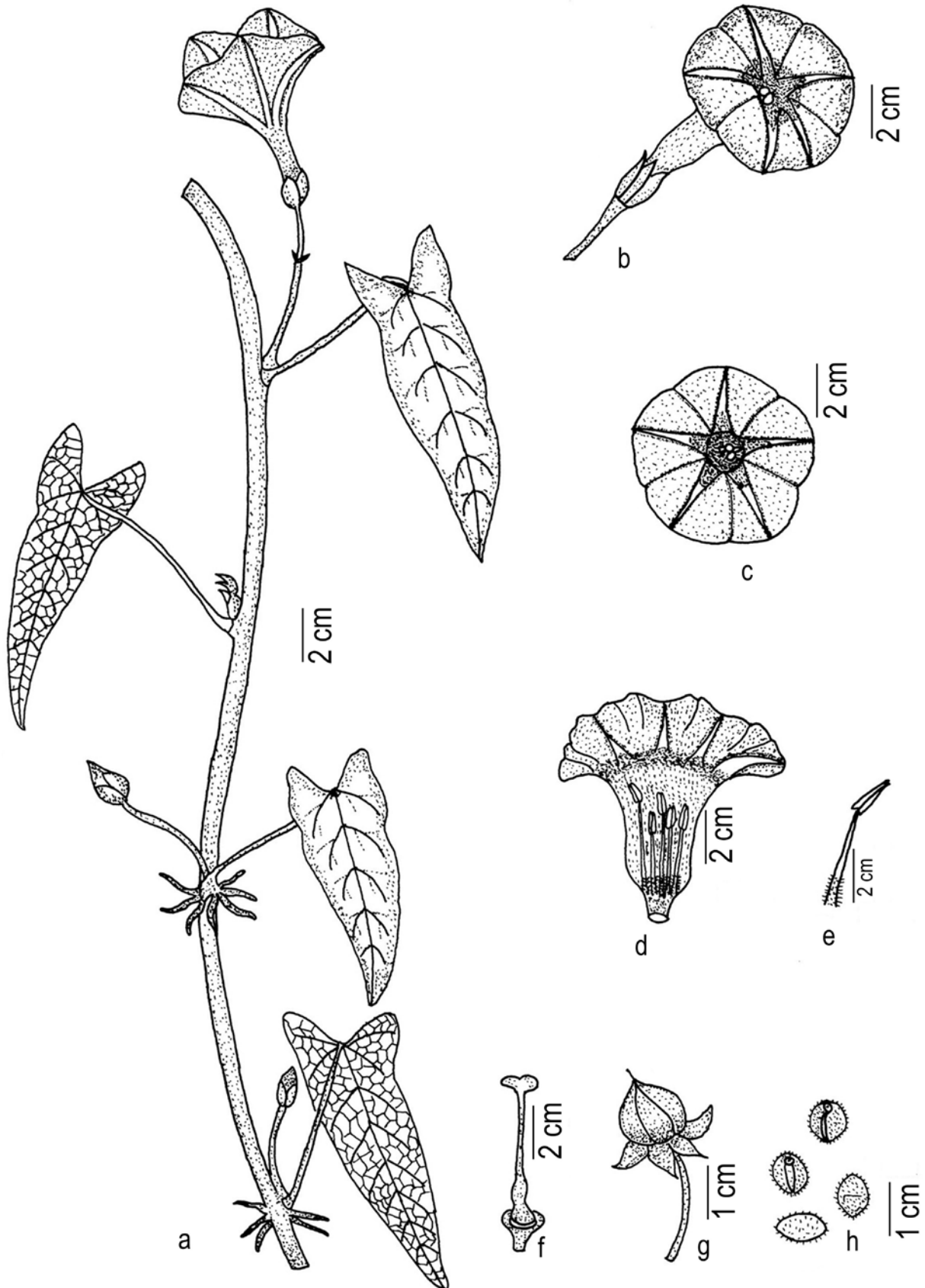


Fig. 8. *Ipomoea aquatica* Forssk.: **a**. Flowering twig; **b**. Single flower; **c**. Flower—top view; **d**. Corolla—split open; **e**. Single stamen; **f**. Gynoecium; **g**. Capsule; **h**. Seeds (drawn by A.V. Kattee).

20.01.1991, Arvind K. 1425 (CALI); Trichur District, Chalaredy to Kodungallur, 25.09.1982, K. Ramamurthy 47198 (CAL); Maneompa, 21.11.1993, K.C. Joseph 45806 (CAL). **Karnataka**, Chickmangalur District, Chikkingale Kadur, 10.03.1979, K.R. Keshavmurthy & B.R. Ramesh 6285 (CAL); Belugum, 22.03.2006, Nilesh Malpure NVM 2568. **Madhya Pradesh**, Saugor District, Hirapur tank, 03.03.1960, K. Subramaniam 10150 (CAL); Bailadela, 13.02.1963, G. Panigrahi 6893 (CAL); Bilaspur District, Ratnapur, 19.02.1972, G. Panigrahi 16761 (CAL). **Maharashtra**, Osmanabad town, 05.09.1965, V.N. Naik 1081 (BAMU); Nanded District, Police wadi tank, 08.01.1971, V. N. Naik 1105 (BAMU); Mirzapur, 25.11.1978; V.N. Pardeshi 6139 (BAMU); Beed District, Mukundraj, 22.11.1982, S.P. Rothe 5439 (BAMU); Bhokar town, 17.10.1979, Madhukar 202 (BAMU); Aurangabad, 18.11.1978; B.R. Zate 3988 (BAMU); Nanded District, Mahur 21.04.1990, B.R. Zate 628 (BAMU); Kolhapur, 14.10.2007, Makarand Aitawade 08 (SUK); Shirol, 23.10.1917, Amrapali Kattee AVK 1413 (NCK). **Rajasthan**, Chittorgarh District, Hindoli, 23.02.1963 D.M. Varma 1900 (BSI); Semwa forest, 12.12.1963, D.M. Varma 1625 (BSI); Banswara District, Lamaro talao, 14.10.1976, V. Singh 3631 (BSI); Ganganagar District, Ganganagar, 10.11.1976, G.P. Roy 3821 (CAL); Khanuwali, 05.10.1977, G.P. Roy 4897 (BSI); Tonk District, Suthra tank, Banata Village, 12.05.1977, R.P. Pandey 4720 (BSI); Bhilwara District, Gangapur, 24.09.1978, A.N. Singh 6544 (CAL). **Uttar Pradesh**, Mohitpur, 22.11.1964, G. Panigrahi 6545 (CAL); Pilbhal, 29.08.1972, C.L. Malhotra 50556 (CAL). **Odisha**, Bhatipathar, 03.11.1959, G. Panigrahi 15598 (CAL); Jagannath Sagar, 14.12.1962, G.V.S. Rao 35934 (CAL); Karmadhihi, 21.02.1988, A. Mukherjee & D. Namhata MN3098 (CAL). **West Bengal**, Paraganas District, Basirhat, 21.11.1962, A.K. Ghosh 831 (CAL); Kolkata District, Dhapa, 19.07.2006, D. Hazra & D. Das 23726 (CAL).

Notes: Very common. The species exhibits considerable variation in both leaf morphology

and flower colour. The leaf base ranges from cordate to hastate, while the flowers may be pink with a dark pink throat or entirely pure white. Notably, populations from South India show a higher frequency of individuals bearing pure white corollas. This species is widely cultivated and consumed as a leafy vegetable throughout Asia. The tender shoots and leaves are commonly eaten boiled, steamed, or incorporated into soups, stews, curries, and sambals. They may also be pickled for later use (Roxburgh, 1824; Burkill, 1966).

Ipomoea arborescens (Humb. & Bonpl. ex Willd.) G. Don, Gen. Hist. 4: 267. 1838. *Convolvulus arborescens* Humb. & Bonpl. ex Willd., Enum. Pl. 1: 204. 1809. *Type:* MEXICO, **Guerrero**, between Acaguisootla and Chilpancingo, Humboldt & Bonpland (holo B-W [B-W03707-01] digital image).

Fig. 12

Trees 5–15 m tall, trunks often 50–70 cm diam., with milky latex, bark pale grey or yellowish, stem tomentellous with matted hairs, especially when young, glabrescent. Leaves 5–27 × 3–10 cm, ovate or lanceolate, cordate, acuminate, adaxially green, abaxially grey-tomentose or glabrescent except on veins, glands present at base of midrib; petiole 1.3–9 cm, tomentellous when young. Inflorescence terminal and axillary cyme, composed 1–3-flowered raceme-like cymes borne on short branchlets; peduncle 1–5 mm; bracteoles 4–6 mm, ovate, caducous; pedicel 5–22 mm, widened upwards, tomentose. Sepals subequal, 6–14 × 7–8 mm, elliptic, rounded, sometimes mucronate, tomentellous, glabrescent. Corolla 4–6 cm long, sub-campanulate to funnel-shaped, white with greenish tube and red throat, tomentose, at least in bud. Capsule 1.8–2.3 × 1.2–1.4 cm, ovoid, glabrous, shortly rostrate; seeds 9–16 mm long, margins white-pilose with hairs *c.* 1.2 cm long.

Flowering & Fruiting: Flowering from November to January and fruiting from February to March.

Habitat: It is cultivated in the garden as an avenue tree.

Distribution: El Salvador, Guatemala, Mexico Central, Mexico Gulf, Mexico Northeast, Mexico Northwest, Mexico Southeast, Mexico Southwest and introduced in DR Congo, Guinea, Kenya, Senegal, Zimbabwe, India (Karnataka).

Status: Rare. It is an exotic species cultivated in the gardens.

Ipomoea asarifolia (Desr.) Roem. & Schult., Linn. Syst. Veg. 4: 251. 1819. *Convolvulus asarifolius* Desr., Lam., Encycl. 3: 562. 1789. *Type:* SENEGAL, s.d., Roussillon s.n. (holo P [LAM00357544] digital image!).

Ipomoea repens Lam., Tab. Enc. 1: 467. 1791, non Roth, 1821; Gamble, Fl. Pres. Madras 2: 916. 1923.

Ipomoea beladamboe Roem. & Schult., Linn. Syst. Veg. 4: 233. 1819; C.B. Clarke in Hook. f., Fl. Brit. India 4: 209. 1883. *Lectotype:* (designated by Wood et al., 2020): Icon of *Beladamboe* in Rheede, Hort. Malab. 11: t. 58. 1692.

Fig. 9

Perennial milky creeper, c. 5 m long. Stem cylindrical, rooting at nodes. Leaves 3–6 × 4–8 cm, glabrous, entire, with reniform leaf base, emarginate at apex, margin entire. Petiole 6–12 cm long, tubercled at base, glabrous. Inflorescence axillary cyme, usually 1–5-flowered; peduncle 2–6 cm long. Flowers bracteate, pedicellate; pedicel 1–3 cm long, enlarged in fruit, glabrous. Sepals 5, subequal, 0.8–2 × 1–1.5 cm, faintly veined, outer two sepals smaller, inner three sepals slightly larger than outer sepals, glabrous. Corolla 5-lobed, 4–7 cm long, funnel-shaped, erect; tube 2–3.5 cm long, pink purple inside. Stamens 5; filaments subequal, hairy at base. Ovary ovoid, c. 0.3 × 0.1 cm, light-green, glabrous, 4-locular, 1-ovule in each locule; style c. 3.2 cm long, glabrous; stigma c. 0.2 × 0.1 cm, capitate. Capsule 1–1.5 cm, globose, ovoid, 2-valved, glabrous, brownish. Seeds 4 per capsule, c. 0.6 × 0.5 cm, brown.

Flowering & fruiting: Flowering from September to December and fruiting from January to February.

Habitat: It grows in muddy places along the banks of ponds, pools of fresh water and seashores.

Distribution: Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Ecuador, Mexico, Nicaragua, Panama, Senegal, United States, Venezuela and India (Maharashtra, Karnataka, Kerala, Tamil Nadu and Odisha).

Etymology: Specific epithet '*asarifolia*' refers to bitter taste of leaves.

Specimens examined: INDIA, **Kerala**, Kozhikode District, Kadalundi, 08.02.1986, K.P. Karthiyani 2420 (CALI); Kadalundi, 06.12.1971, V.V. Sivarajan 1572 (CALI); Trichur District, Kodungalur 14.09.1976, K. Ramamurthy 48510 (CAL). **Tamil Nadu**, North Arcot District, Thirupttur, 09.09.1958, K. Subramanyam 6514 (CAL); Puttukkottai District, Kiranur, 21.09.1977, K. Ramamurthy 51343 (CAL).

Notes: Rare. It resembles *I. pes-caprae* in flower colour and shape, but can be differentiated by its reniform leaves and glabrous seeds.

Ipomoea barlerioides (Choisy) Benth. ex C.B. Clarke in Hook.f., Fl. Brit. Ind. 4: 201. 1883; Gamble, Fl. Pres. Madras 2: 915. 1923. *Aniseia barlerioides* Choisy, Convolv. Orient. 6: 484. 1834. *Lectotype* (designated by Shimpale et al., 2019): INDIA, **Uttar Pradesh**, 17.04.1814, Wall. Cat. No. 2256.1 (B [K001115497] digital image!)

Figs. 10, 12 & 23

Perennial milky creepers, c. 3 m long. Stem prostrate, hairy. Leaves 2–5 × 2.5–4.5 cm, hairy, entire, obtuse at apex, margins entire. Petiole 1–2.5 cm long, hairy. Inflorescence axillary, solitary; peduncle 2–5 cm long, slender, hairy. Flowers bracteate, pedicellate; pedicel 1–2.5 cm long, enlarged in fruit, hairy; bracts small, linear lanceolate, caducous, c. 0.4 × 0.1 cm, hairy. Sepals 5, subequal, 1.5–2.3 × 0.5–1.5 cm, faintly veined, hairy; outer two smaller, inner three sepals slightly larger than outer sepals, hairy, white

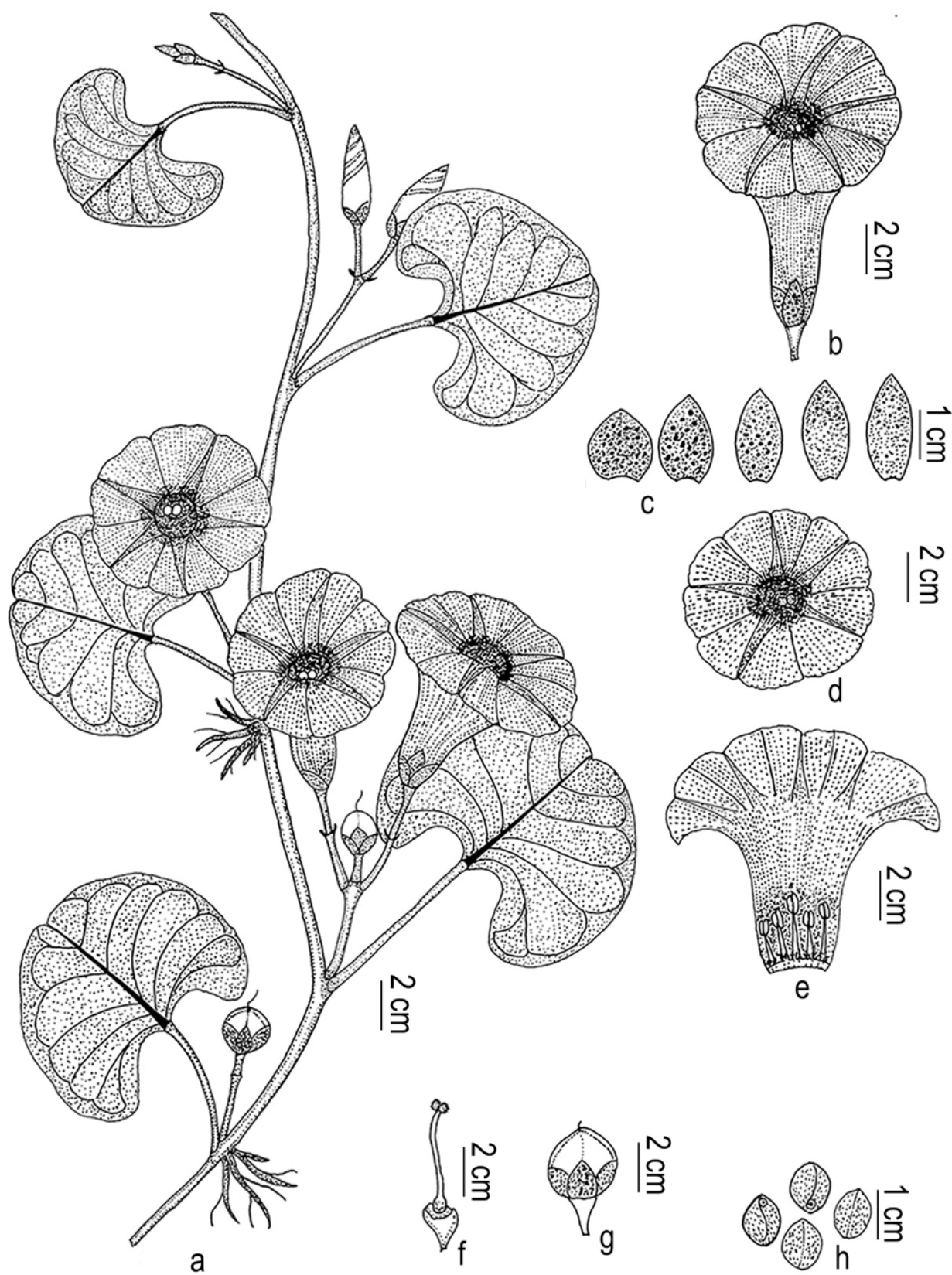


Fig. 9. *Ipomoea asarifolia* (Desr.) Roem. & Schult.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

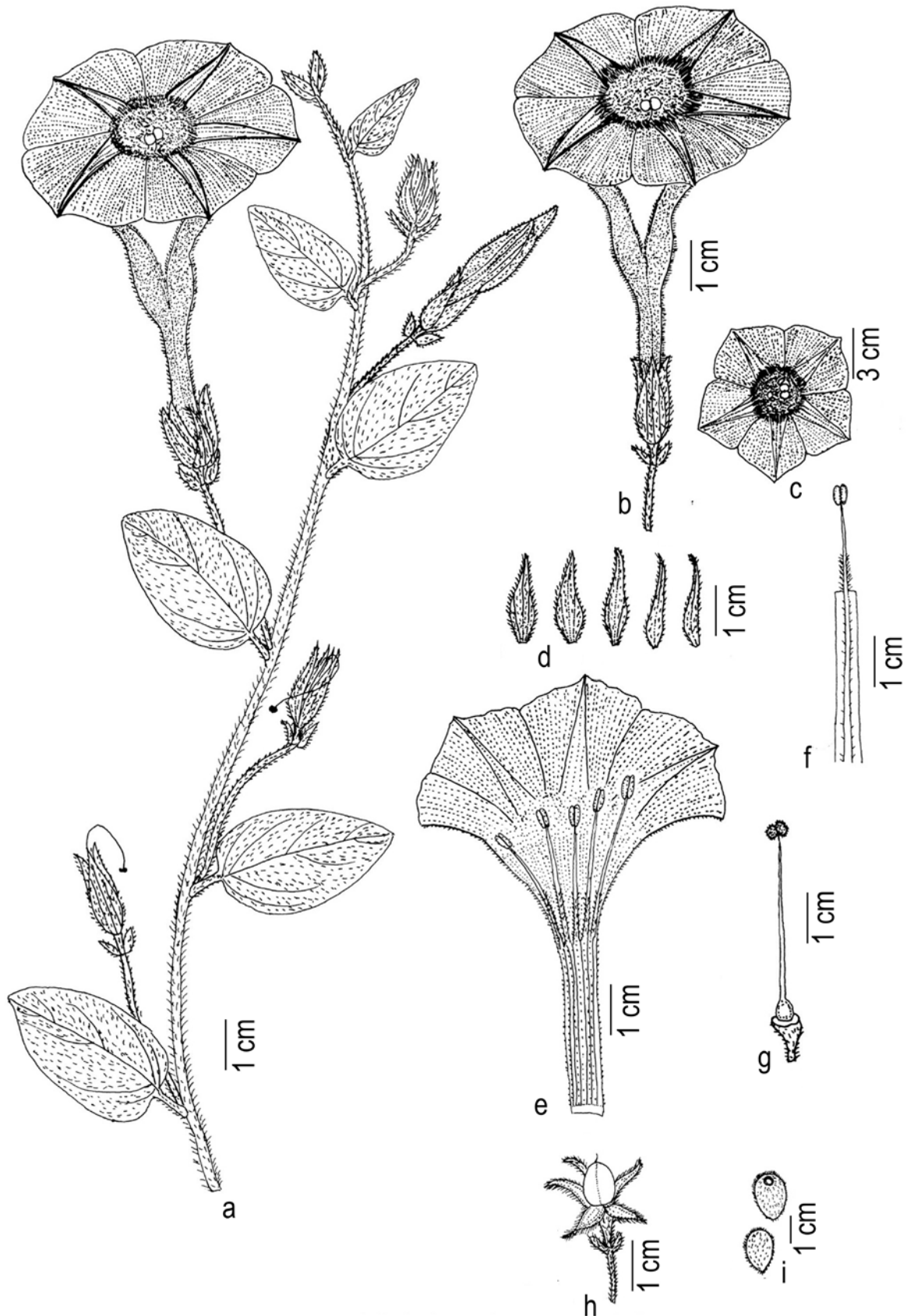


Fig. 10. *Ipomoea barlerioides* (Choisy) Benth. ex C.B. Clarke: **a.** Flowering twig; **b.** Single flower; **c.** Flower-top view; **d.** Sepals; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

ciliated at margin. Corolla 5-lobed, slightly dilated at base of mouth, 6–8 cm long, infundibuliform; tube 4–6.5 cm long, dark purple inside; lobes c. 4 cm long, 6–7 cm wide at mouth, apiculate, mid-petaline bands hairy outside, apiculate. Stamens 5; filaments unequal, 4.5–5 cm long; attached at c. 3 mm above the base of tube, attached to tube up to mouth of tube; shortly included, hairy at base. Ovary ovoid, c. 0.3×0.1 cm, light green, glabrous, 4 locular; ovule 1 in each locule; style c. 6 cm long, glabrous; stigma capitate. Capsule subglobose, ovoid, 1–1.3 cm long, 2-valved, ovoid, glabrous, brownish. Seeds 4 per capsules, triangular, c. 0.6×0.8 cm, black, pubescent, hairy at margin.

Flowering & Fruiting: Flowering from September to October and fruiting in November.

Habitat: It grows at high altitude in lateritic plateaus in amidst grasslands with rocky substratum.

Distribution: Bhutan, Myanmar, Nepal, India (Madhya Pradesh, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Odisha, West Bengal, Uttarakhand).

Etymology: Specific epithet '*barlerioides*' refers to leaf similarities with genus *Barleria* L. of the family Acanthaceae.

Specimens examined: INDIA, **Goa**, Surla, 27.09.1970, *N.P. Singh* 81352 (BSI). **Karnataka**, Belgaum District, Belgaum, October 1900, *W.A. Talbot* 311452 (CAL); Chitradurga District, Janakal, 01.11.1975, *N.P. Singh* 110350 (BSI Pune). **Kerala**, Kollam District, Pandyanpara Ariankavu, 02.12.1961, *K.N. Subramanian* 34572 (BSI); Idukki District, Mangala Devi, 10.06.1996, *Jomy Augustine* 16221 (CALI), **Maharashtra**, Amboli, 01.11.1974, *V.N. Naik* 2557 (BAMU); Amravati District, Salona, 18.08.1990, *V.N. Naik* 825 (BAMU); Choukul, October 1992, *B.G. Gavade* 109958 (BAMU); Satara District, on the way to Thoseghar, 09.09.2016, *Amrapali V. Kattee* AVK 1422, 1423 (NCK). **Odisha**, Ganjam District, Mahendragiri, April 1851, *Fischer & Gorge* 311447 (CAL). **Tamil Nadu**, Tinnevely District, Kalkad,

16.02.1913, *D. Hooper & M.S. Ramaswami* 311430 (CAL); Coimbatore District, on the way of Mangaladevi temple, *K. Viveknathan* 48640 (MH). **West Bengal**, Birbhum District, Bardayanath, 01.09.1969, *R.K. Basak* BASAK 1109 (CAL); Bankura District, Sonamukhi forest, 26.09.1965, *M.N. Sanyal* 3122 (CAL). **Uttarakhand**, Gaehwal District, Tihri, 04.06.1894, *J.F. Duthei* 311430 (CAL).

Ipomoea batatas (L.) Lam., Tabl. Encycl. 1, 2(2): 465. 1793; C.B. Clarke in Hook.f., Fl. Brit. Ind. 4: 202. 1883; Gamble, Fl. Pres. Madras 2: 919. 1923. *Convolvulus batatas* L., Sp. Pl. 176. Pl. 154. 1753. *Lectotype* (designated by Biju, 2003): INDIA, Herb. Linn. N. 77.5 (S [S09-35804] digital image! **Figs. 11, 12 & 23**

Perennial milky creeper, c. 6 m long. Roots tuberous, edible. Stem prostrate or creeping, rooting at node; nodes brownish, glabrous or hairy. Leaves 5–10 × 6–12 cm, glabrous or hairy, entire or lobed or distinctly 3–5-lobed, multilobed, palmately compound with cordate or ovate or hastate leaf base, acuminate, ovate, obtuse at apex, margin entire or undulate; veins purple on upper surface with milky sap. Petiole 6–12 cm long, tubercled at base, glabrous. Inflorescence axillary cyme, usually 1–5-flowered; peduncle 2–5 cm long, swollen. Flowers bracteate, pedicellate; pedicel 0.6–1 cm long, enlarged in fruit, glabrous; bracts small, leafy, caducous, c. 3×1 mm, with distinct vein, glabrous. Sepals 5, sub-equal, $0.6 - 1 \times 0.4 - 0.8$ cm faintly veined, outer two sepals verrucate, brownish green, smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 2–3 cm long, hypocrateriform, erect; tube 1.5–2 cm long, dark purple inside; lobes $1 - 1.5 \times 3 - 4$ cm at mouth, glabrous, mid-petaline bands bluish white, shallow apiculate. Stamens 5; filaments sub-equal, 0.7–1.5 cm long, attached at c. 3 mm above the base of tube, included, hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 2×1 mm, hairy, 4-locular; ovule 1 in each locule; style 1.8–2 cm long, glabrous; stigma c. 0.1×0.1 cm, bilobed,

capitate. Capsule sub-globose, ovoid, 0.9–1 cm, 4-valved, ovoid, pubescent, brownish. Seeds 4 per capsules, 4–5.5 × 3–4 mm, brown, glabrous.

Flowering & fruiting: Flowering from September to October and fruiting from November to December. Variation may occur in flowering under cultivation.

Habitat: Cultivated for its edible tubers.

Distribution: Cosmopolitan; in all states of India.

Etymology: Specific epithet 'batatas' is derived from Portuguese means tubers.

Specimens examined: INDIA, **Arunachal Pradesh**, Douliang to Jamliang, 23.11.1957, Rolla S. Rao 10773 (CAL); Lohit District, Iwam village, 22.12.1969, J. Joseph 48819 (ASSAM).

Gujarat, Adesar, 21.11.1976, G.P. Roy 4009 (CAL). **Kerala**, Malappuram District, Calicut University Campus, 10.06.1971, V.V. Sivarajan 1221 (CALI); Malappuram District, Nilambur, Vaniampuzha, 05.01.1983, Philip Matthew 33728 (CALI). **Lashkadweep Islands**, Agathi Island, 22.02.1959, K.S. Shrinivasan 311551 (CAL). **Madhya Pradesh**, Dharamjaigarh, 20.04.1965, G. Panigrahi 8757 (CAL); Bastar District, Elnar, 15.11.1984, G.P. Roy 35237 (CAL). **Maharashtra**, Mumbai District, St. Xavier's College, 14.12.1955, V.M. Patel 47252 (BLATT); Pune District, Pashan Lake, 05.02.1956, V.M. Patel 47284 (BLATT); Nagpur District, Kacchipura, 10.01.1960, M.V. Mirashi 47281 (BLATT); Near Naganath temple Osmanabad, 30.07.1962, V.N. Naik 181 (BAMU); Aurangabad District, Chikalhana, 18.11.1977,

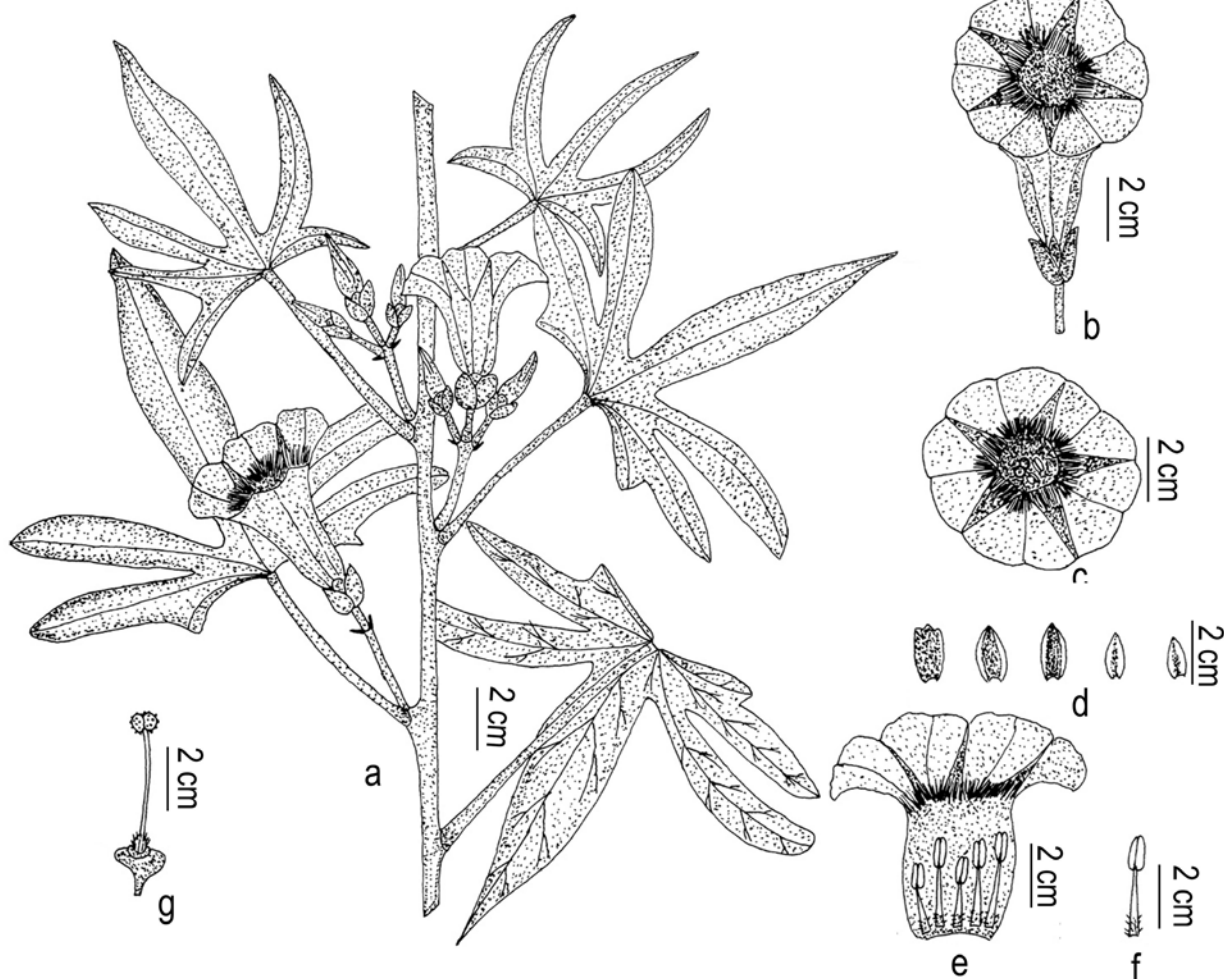


Fig. 11. *Ipomoea batatas* (L.) Lamk.: **a.** Flowering twig; **b.** Single flower; **c.** Flower-top view; **d.** Sepals; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium (drawn by A.V. Kattee).

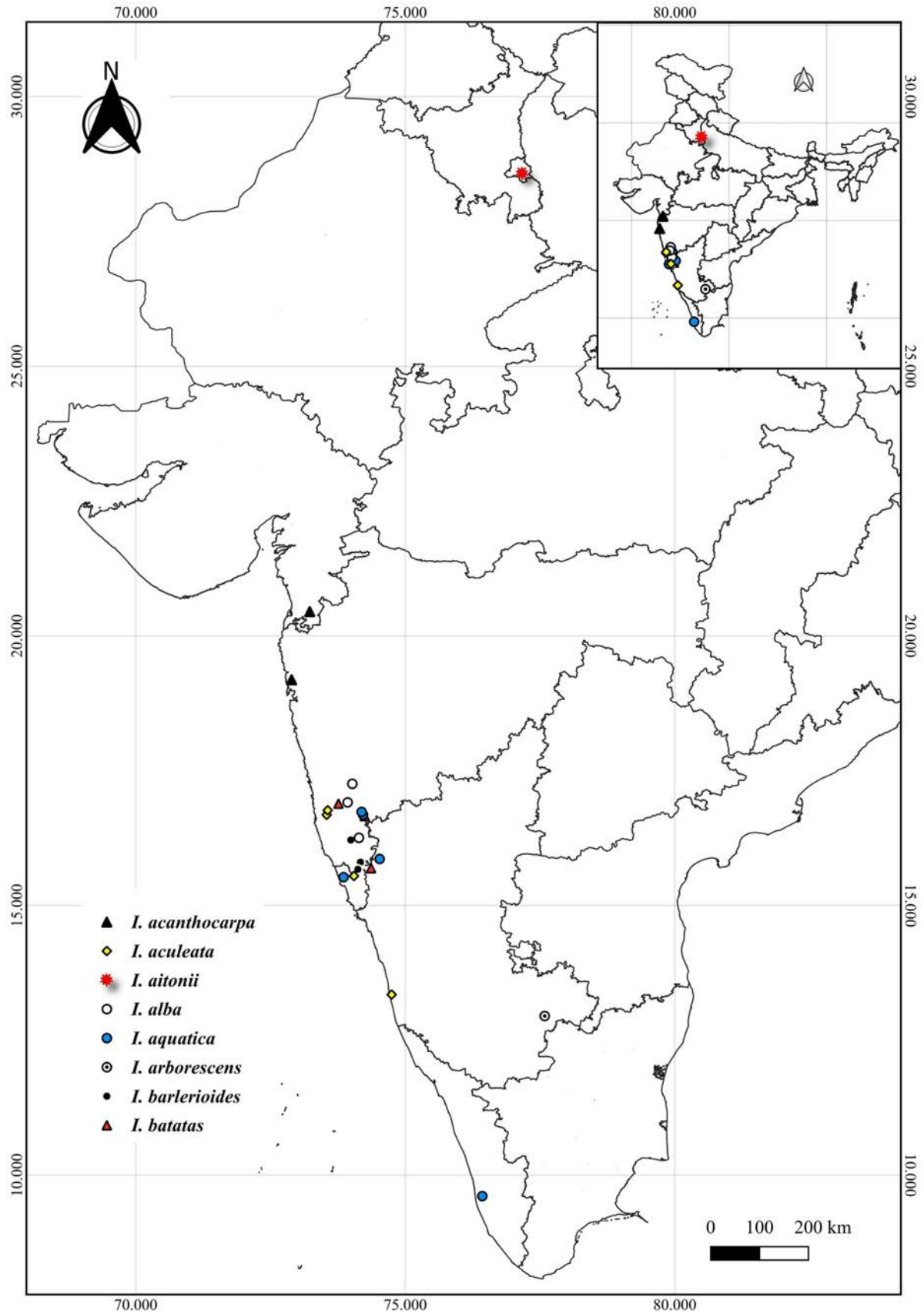


Fig. 12. Map showing collection sites of *Ipomoea acanthocarpa* (Choisy) Hochst. & Schweinf. & Asch., *I. aculeata* Blume, *I. aitonii* Lindl., *I. aquatica* Forssk., *I. alba* L., *I. arborescens* (Humb. & Bonpl. ex Willd.) G. Don, *I. barlerioides* (Choisy) Benth. ex C.B. Clarke & *I. batatas* (L.) Lamk. (prepared using QGIS).

V.N. Pardeshi 2664 (BAMU); Kolhapur District, Malakapur, 20.10.2017, *A.V. Kattee* AVK 1427 (NCK). **Odisha**, Sundargarh District, Karamadihi, 21.02.1988, *A. Mukherjee & D. Namhata* MN3092 (CAL). **West Bengal**, Chandra, 22.09.1975, *Dr. Sudarsan Maji* 1844 (CAL); Jalpaiguri District, Balapara, 06.12.1975, *J.K. Surindar* 4195 (CAL). **Tripura**, Agartala, 30.12.1914, *P.M. Debbarmesh* 31545 (CAL). **Tamil Nadu**, Madurai District, Karandamalai Natham 08.04.1984. 1729 (CAL).

Notes: Very common in cultivation. The species exhibits remarkable variation in leaf morphology, ranging from unlobed to deeply palmately lobed forms, and in foliage colour, from dark green to pink or purplish shades. It is one of the most widely cultivated food crops in tropical and subtropical regions. Consumption of its various plant parts has been reported to confer numerous health benefits, including antioxidant, cardioprotective, anti-inflammatory, anticancer, antidiabetic, antimicrobial, and anti-obesity effects, as well as a role in preventing vitamin A deficiency (Bovell-Benjamin, 2007; Mohammad, 2021).

Ipomoea biflora (L.) Pers., Syn. Pl. 1: 183. 1805. *Convolvulus biflorus* L., Sp. Pl. (ed. 2) 2: 1668. 1763. *Type:* HONGKONG, **Haies Des Cultures**, Jardin, a Kennedy town, *E.M. Bodinier* 386 (P [P00622221] digital image!).

Ipomoea calycina (Choisy) Benth. ex C.B. Clarke in Hook.f., Fl. Brit. Ind. 4: 201. 1883; Cooke, Fl. Pres. Bombay 2: 212. 1905 *nom. illeg.* *Aniseia calycina* (Roxb.) Choisy., Mém. Soc. Phys. Genève 6: 482. 1834. *Type:* CHINA, *s.d.*, **Yangnouw**, Moreau anon. s.n. (P [JU6773] digital image!). **Figs. 13, 19 & 23**

Annual milky climber, c. 3 m long. Stem slender, hairy. Leaves, 6–10 × 4.5–7 cm, ovate, cordate at base, with rounded leaf base, acuminate at apex, hairy, margin entire. Petioles 2.5–4 cm long, densely hairy. Inflorescence axillary, usually 1–2 flowered; peduncle 3–5 cm long, hairy. Flowers bracteate, pedicellate; pedicel 1.5–1.8 long, hairy; bracts leafy, caducous, c. 2 × 1 mm, densely hairy.

Sepals 5, sub-equal, 1–1.5 × 0.2–0.6 cm, faintly veined, outer two sepals cordate at base with 3–5 veins, one sepal with half cordate base, inner two sepals linear, hairy, white ciliated at margin. Corolla 5-lobed, infundibuliform, 1.5–2.5 cm long, tube 1–1.3 cm long, pure white, hairy; lobes c. 0.7 cm long, white, 1–1.5 cm wide at mouth, apiculate, mid-petaline bands white, hairy at outside. Stamens 5; filaments sub-equal, 0.4–0.8 mm long, attached at c. 2 mm above from base of tube, included, hairy at base. Ovary ovoid, c. 2 × 1 mm, light green, glabrous, 4-locular; ovule 1 in each locule; style c. 6 mm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Fruits globose, ovoid, 0.8–10 × 6–8 mm, 4-valved, glabrous, brown; capsule dehisces by 4 halves. Seeds 4 per capsules, c. 0.8 × 0.6 mm, grey, hairy at margin; marginal hairs up to 2 cm long, white.

Flowering & Fruiting: Flowering from August to September and fruiting from November to December.

Habitat: Grows on hedges, bushes, along roadside in deciduous forest, mostly at dry regions.

Distribution: China, Japan, Pakistan, Vietnam, Egypt, Ethiopia, Java, Kenya, Myanmar, Philippines, South Australia, Somalia, Thailand and India (Jammu & Kashmir, Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu, Orissa, West Bengal).

Specimens examined: INDIA, **Gujarat**, Baroda, 11.11.1955, *G.L. Shah* 47346 (BLATT); Dang District, Ukalabari, 26.11.1959, *B.M. Wadhawa* 29779 (BSI); Surat, *H. Santapau* 47354 (BLATT); Bilimora, Waghai, *V.M. Patel* 47355 (BLATT); Bharasar, 29.09.1964, *R.S. Rao* 95198 (BSI); Adesar, 12.09.1968, *R.S. Raghvan* 95196 (BSI); Nadiad, 09.10.1958, *P.S. Toor* 46437 (BSI). **Madhya Pradesh**, Budni forest Budani, 24.10.1959, *B.M. Wadhawa* 25131 (BSI). **Maharashtra**, Pune District, Nasarapur to Purandhar, 21.09.1902, *R.K. Bhide* 1033 (BSI); Khed, 17.09.1960, *K.P. Janardhanan* 57090 (BSI); Kadi river bank, Junnar,

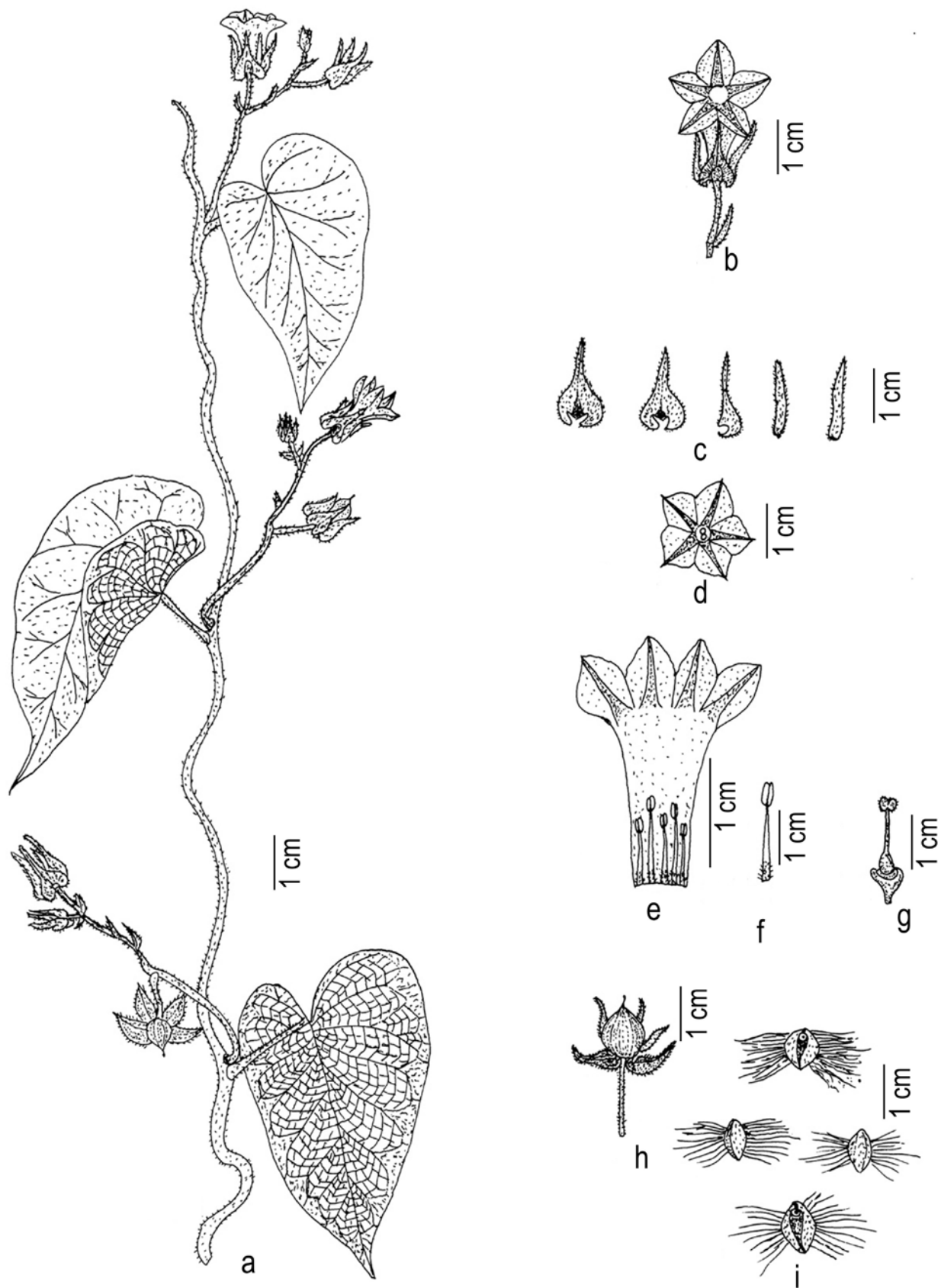


Fig. 13. *Ipomoea biflora* (L.) Pers.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

11.11.1964, *K. Hemadri* 64656 (BSI); Aurangabad District, Mhaismal, 21.09.1978, *D.S. Pokle* 3191 (BAMU); Chawka, 05.10.1979, *S.P. Rothe* 3703 (BAMU); Beed District, Ambejogai, 20.01.1984, *V.N. Naik* 6252 (BAMU); Nashik District, Mukteshwar, Prawara sangam, 03.11.1960, *Shesagiri Rao Rolla* 31178 (BSI); Akole, 25.12.2007, *Makarand Aitawade* 24 (SUK); Bhudargad, 28.09.2015, *Amrapali Kattee* AVK 1577 (NCK).

Ipomoea cairica (L.) Sweet., Hort. Brit. 287. 1827. *Convolvulus cairicus* L., Syst. ed. 10: 922. 1759. Type: Icon, t. 70, Vesling in De Plantis Aegypti, Alpino 1640.

Ipomoea palmata Forsk., Fl. Aegypt.-Arab. 43. 1775; C.B. Clarke in Hook. f., Fl. Brit. Ind. 4: 214. 1883; Cooke, Fl. Pres. Bombay. 2: 250. 1905. *Lectotype* (designated by Wood et al., 2020): EGYPT, Rosetta, s.d., *P. Forsskal* s.n. (C [C10002422]).

Ipomoea pulchella Roth, Nov. Pl. Sp. 115. 1821. *Lectotype* (designated by Wood et al., 2020): INDIA, Heyne in Wallich 1353B (K [W001112855] digital image!).

Ipomoea palmata Forssk. var. *semine-glabra* Blatter & Hallberg, J. Bombay Nat. Hist. Soc. 26: 546. 1919. Type: INDIA, Vinjorai, *E. Blatter* 6675 (holo BLATT). *Ipomoea cairica* (L.) Sweet var. *semine-glabra* (Blatt. & Hallb.) Bhandari, Fl. Indian Desert 253. 1978. *nom. inval.*

Ipomoea cairica (L.) Sweet var. *appendiculata* Anasuya, Shivam., Murali, Thriveni & Amruthesh, Pl. Sci. Today 12(3): 2. 2025. *syn. nov.* Type: INDIA, **Karnataka**, Raichur Distr, Sindhanur, Mannikeri Camp, 02.04.2025, *Anasuya* 1185 (holo UOM).

Figs. 14, 19 & 23

Perennial climber. Stem climbing, twinning, angular, slightly tubercled at maturity, with watery latex. Leaves 3–6 × 5–10 cm, glabrous, palmate, lobes 3–5, lower lobes sub-divided, middle lobe larger than other lobes, c. 5 × 3 cm, lateral lobes c. 3 × 2.5 cm, lower lobes c. 1.5 × 2 cm, often sub-divided; lobes obtuse at apex, margin entire. Petiole 6–8 cm long, tubercled at base, glabrous. Inflorescence

axillary cyme, usually 1–3 flowered; peduncle 2–4 cm long, glabrous. Flowers bracteate, pedicellate; pedicel 1.5–2.5 cm long, enlarged in fruit, slightly tubercled, glabrous; bracts small, caducous, c. 3 × 1 mm, linear, glabrous. Sepals 5, sub-equal, oblong ovate, 0.7–1 × 0.5–0.8 cm, outer two sepals verrucate, blackish green, smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 3–5 cm long, infundibuliform; tube 2–3 cm long, purple inside bluish outside; lobes 2.5 cm long, purple, sometimes pure white, 5–6 cm wide at mouth, glabrous, apiculate. Stamens 5; filaments unequal, 1–2 cm long, attached at c. 5 mm above the base of tube, included, hairy at base. Ovary c. 3 × 2 mm, ovoid, light green, glabrous, 2-locular; ovule 1 in each locule; style 1.5–2.2 cm long, glabrous; stigma c. 0.2 × 0.2 cm, bilobed, capitate. Capsule ovoid, 2.2–2 cm, 4-valved, glabrous, brown, dehisces from top into 4 halves. Seeds 2–4 per capsule, 0.5–0.8 × 0.4–0.6 cm, brownish, pubescent, hairy at margin; hairs 0.5–1 cm long, white.

Flowering & fruiting: Flowering and fruiting throughout the year.

Habitat: It is a large climber growing along compound walls, poles and trees. Mostly grows in moist and shady places.

Etymology: Specific epithet '*cairica*' is after the type locality, Cairo city of Egypt.

Distribution: China, Ceylon, Egypt, Indonesia, Israel, Japan, Kenya, Malaysia, Nepal, New Zealand, Pakistan, Philippines, Somalia, South Africa, Thailand, Zimbabwe and India (Throughout the country).

Specimens examined: INDIA, **Assam**, Guwahati District, Zoo cum Botanical Garden Guwahati, 19.06.1970, *H. Deka* 44602 (ASSAM). **Gujarat**, Waghai, 28.10.1954, *V.M. Patel* 47314 (BLATT). **Kerala**, Kozhikode District, Devagiri, 12.09.1966, *Madhavan M.* 126 (CALI); Quilon District, Courtallum, 27.02.1974, *Jose A.* (CALI); Kannur

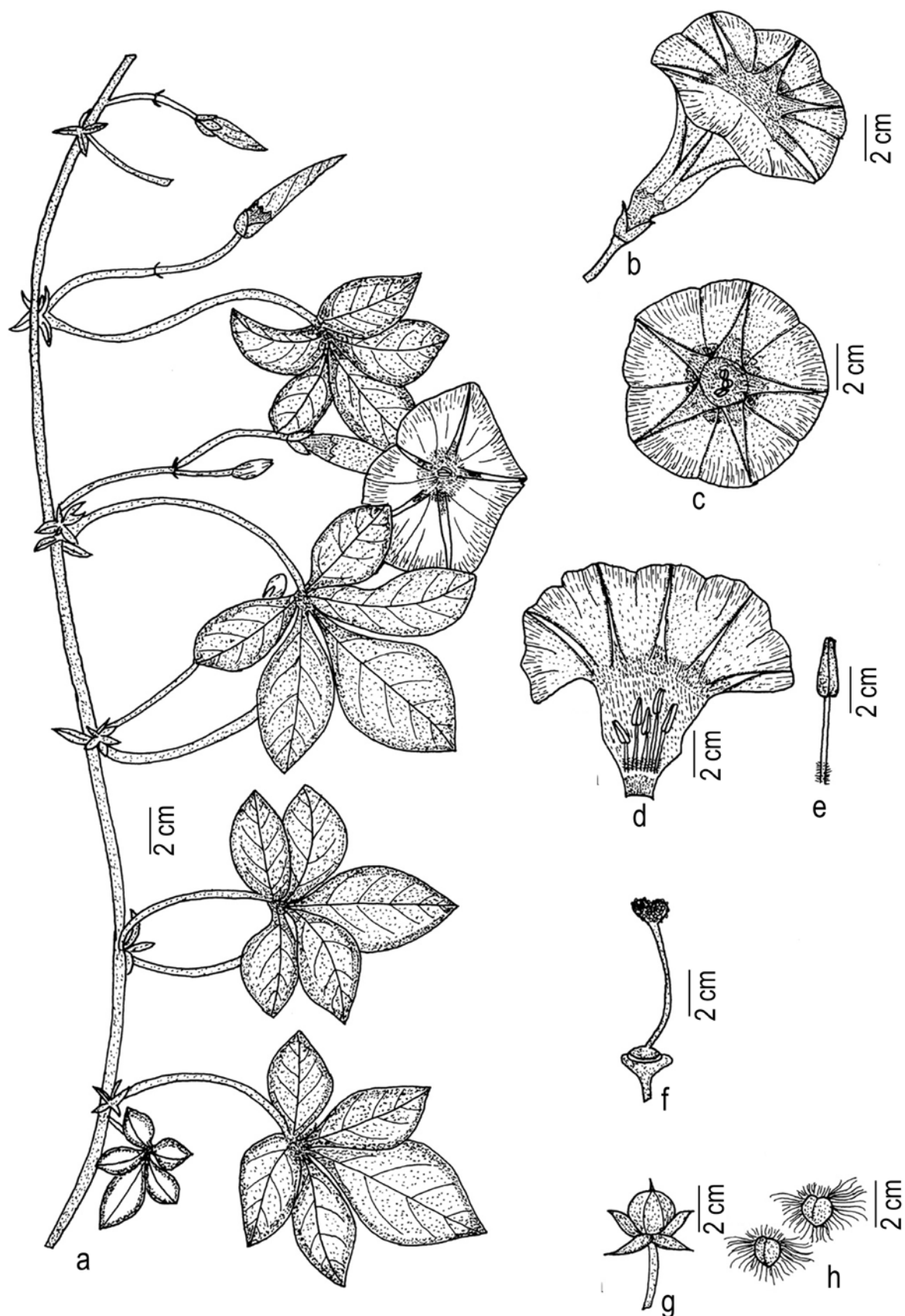


Fig. 14. *Ipomoea cairica* (L.) Sweet: **a.** Flowering twig; **b.** Single flower; **c.** Flower-top view; **d.** Corolla-split open; **e.** Single stamen; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

District, Tellicherry Thalassery, 04.05.1975, V.S. Ramachandran 62241 (CAL); Wyand District, Lakkidi, 20.03.1984, R.T. Balakrishnan 40069, Soojipara, 01.12.1997, Sindu K.C. 58905, *Ibid.*, 11.12.1998, Sinitha K. 59448 (CALI). **Madhya Pradesh**, Bilaspur District, Kotma, 24.02.1972, G. Panigrahi 16847 (CAL). **Lakshadweep Islands**, Agathi Island, 15.12.1966, B.M. Wadhawa 76505 (BSI). **Maharashtra**, Aurangabad District, Karmad, 16.02.1977, V.N. Pardeshi 3124 (BAMU); Osmanabad District, Osmanabad, 14.10.1966, V.N. Pardeshi 1317 (BAMU); Mumbai District, Mulund, 12.11.1984, B.D. Sharma 115578 (BSI); Pune District, Khandala, 17.03.1944, J. Pallinathan 47131 (BLATT); Poona, 02.09.1960 B.M. Wadhawa 65680 (BSI); Yerwada, 10.07.1968, B.M. Wadhawa 88761 (BSI); Ambavane, 23.12.1963, B. Venkata Reddi 93400 (BSI); Thane District, Mumbra, 47327, 25.03.1954, K.V. Shenoy KVS2383 (BLATT); Kolhapur District, Hatkanangale, 23.10.2016, Amrapali Kattee AVK1432 (NCK). **Manipur**, Imphal, 19.07.1981, D.B. Deka 325 (ASSAM). **Odisha**, Sundarhrah District, Rourkela, 13.02.1986, A. Mukherjee & D. Namhata MN48 (CAL). **Rajasthan**, Shivabari, 23.09.1975, G.P. Roy 2132 (CAL); Netewali, 12.10.1977, G.P. Roy 5024 (CAL). **Tamil Nadu**, Coimbatore District, Maruthmalai, 23.11.1956, K.M. Sebastine 1449 (CAL); South Arcot District, 23.03.1961, Gingee R.F. 12365 (CAL); Yercaud District, Salem, 11.05.1978, A. Mohan 15542 (CAL); Ramanthapuram District, Mandapam, 30.12.1987, V. Balsubramaniam 1469 (CAL). **Uttar Pradesh**, Bahraich, 20.02.1965, O.P. Misra 8037 (CAL); Raipur District, Gonda, 02.06.1986, K.K. Khanna & R. Sarna 37352 (CAL). **West Bengal**, Howrah District, Salap, 29.05.1963, S.S.R. Bennet 362 (CAL); Santiniketan Birbhum District, Gurupalli, 25.02.1986, M.C. Biswas 19480 (CAL).

Notes: The species exhibits considerable variation in corolla shape, size, and colour. The corolla is typically purple with a dark purple throat; however, individuals with a white corolla and purple centre, as well as entirely white corollas,

are also encountered. The population from Paithan, Chhatrapati Sambhajinagar District, is particularly distinctive in possessing a smaller corolla tube (1.5–2.0 cm long) and acuminate corolla lobes.

Recently, Anasuya et al. (2025) described a new variety, *Ipomoea cairica* (L.) Sweet var. *appendiculata* Anasuya, Shivam., Murali, Thriveni & Amruthesh, primarily distinguished by the presence of wing-like appendages on the corolla. However, such floral abnormalities may arise through spontaneous mutational events within populations and do not necessarily warrant formal taxonomic recognition. During the present study, several populations exhibiting similar floral modifications were also observed in Maharashtra. Therefore, we interpret this form as representing a mutational variant rather than a distinct taxonomic variety.

Ipomoea campanulata L., Sp. Pl. 160. 1753; C.B. Clarke in Hook.f., Fl. Brit. India 4: 211. 1883; Gamble, Fl. Pres. Madras 2: 913. 1923. *Convolvulus campanulatus* (L.) Spreng., Syst. Veg. 1: 608. 1824. Type: INDIA, "Adamboe" in Rheede, *Hortus Malabaricus* 11: 115, t. 56. 1692.

Ipomoea campanulata L. var. *illustris* C.B. Clarke in Hook.f., Fl. Brit. India 4: 211. 1883. *Ipomoea illustris* (C.B. Clarke) Prain, Beng. Pl. 2: 735. 1908. Type: Malay Peninsula, Moulmein, s.d., Parish s.n. (K [K000830812, digital image!]). **Figs. 15, 19 & 23**

Annual, milky, woody climber, several metres long. Stem twinning, glaucous at young, slightly tubercled when mature. Leaves 8–15 × 10–20 cm, glaucous, entire, with deeply cordate base, acuminate at apex, margin entire. Petiole 6–15 cm long, glaucous. Inflorescence axillary, many flowered in dichasial cymes; peduncle 8–18 cm long. Flowers bracteate, pedicellate; pedicel 2.5–3 cm long, enlarged in fruit, glaucous; bracts small, linear, caducous, c. 0.5 cm long, glaucous. Sepals 5, sub-equal, 1.2–1.6 × 0.8–1.5 cm, oblong, ovate, outer two sepals smaller, inner three sepals slightly

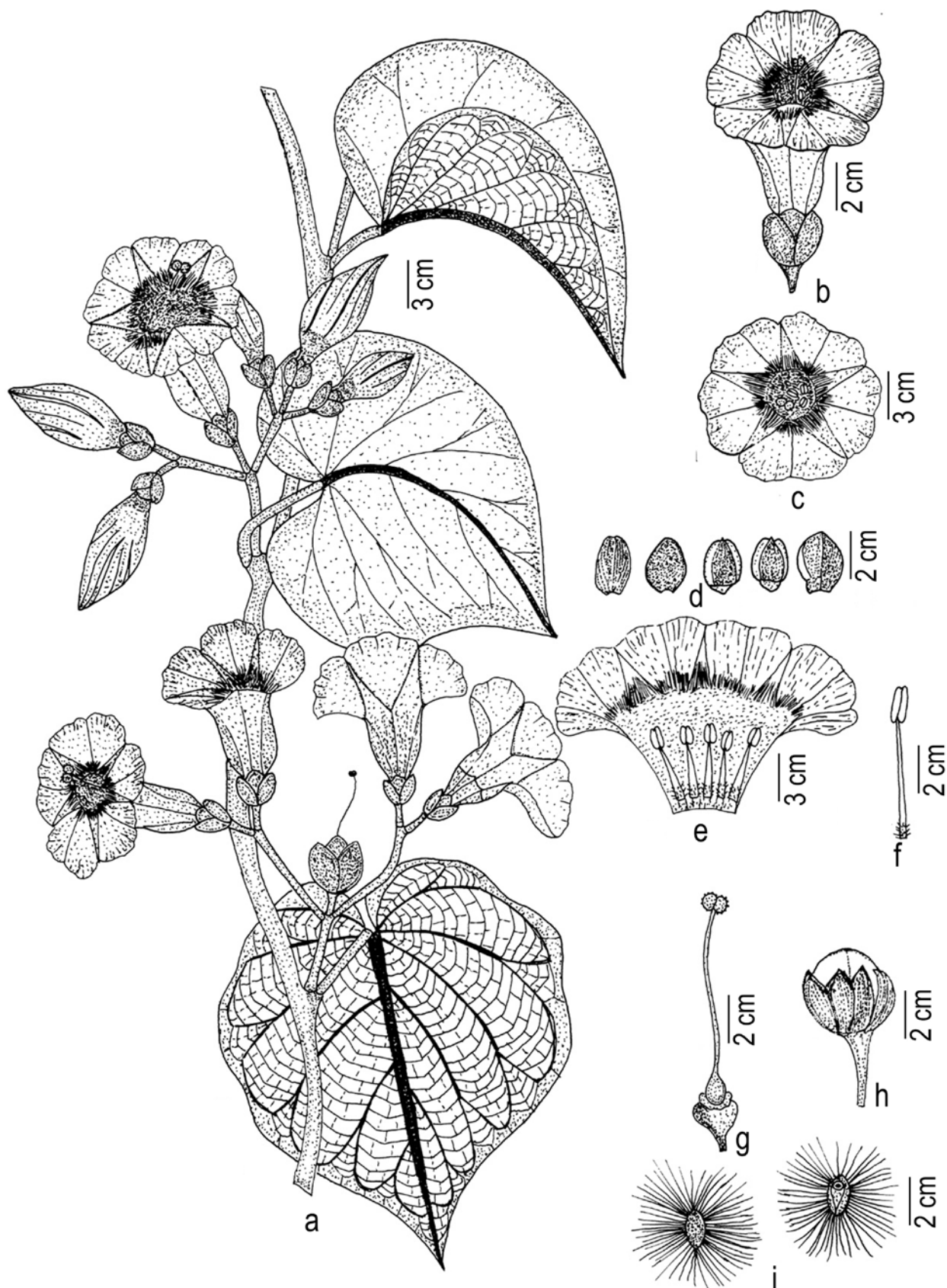


Fig. 15. *Ipomoea campanulata* L.: **a.** Flowering twig; **b.** Single flower; **c.** Flower-top view; **d.** Sepals; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

larger than outer sepals, smooth, white at margin. Corolla 5-lobed, 5–8 cm long, infundibuliform, tube 2.5–4 cm long, dark purple inside, white outside; lobes 4–5 cm long, white, 10–12 cm wide at mouth, apiculate, glabrous, mid-petaline bands white-purple. Stamens 5; filaments sub-equal, 2–2.8 cm long, attached at c. 6 mm above the tube, included, hairy at base; anthers c. 0.5 cm long. Ovary c. 0.3 × 0.3 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style 3.5–4 cm long, shortly exerted at mouth, glabrous; stigma c. 0.3 cm in breadth, bilobed, capitate. Capsule 2–2.5 cm, globose, 4-valved, ovoid, glabrous, brown. Seeds 4 per capsules, 0.5–0.8 × 0.5–0.6 cm, dark brown, hairy at margin; hairs brown, 1–2 cm long.

Flowering & fruiting: Flowering from November to January and fruiting from February to April.

Habitat: Mostly found growing along roadsides climbing on trees of the Western Ghats region (at 600 to 900 m altitudes) and often at seashore on bushes.

Distribution: Sri Lanka, Myanmar, China, Thailand, Laos, Malaysia, Philippines, New Guinea and India (Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Odisha, West Bengal, Andaman and Nicobar Islands).

Specimens examined: INDIA, **Andaman & Nicobar Islands**, South Andaman, 01.09.1894, *Dr. Kings Coll.* 312352 (CAL); South Andaman, 18.09.1991, *Dr. Prains Coll.* 312357 (CAL). **Karnataka**, Mysore District, Mysore, Feb. 1908, *A. Meebold* 312330 (CAL); Ketedevargudi, 21.04.1962, *R.V. Kammathy* 80142; Bangalore District, Ramanagar, 23.02.1978, *S.R. Ramesh KFP* 265 (CAL); Gadag, 05.12.1961, *K.P. Janarthanam* 57083 (BSI). **Kerala**, Thiruvananthapuram District, Pancumpurha, 21.10.1912, *M. Rama Rao* 312327 (CAL); Palghat District, Way to Kallamalai, 02.02.1980, *P. Bhargawan* 65779 (CAL); Idukki District, Anchuruli, 05.12.1994, *Jonny Augustine* 14292 (CALI); Malappuyram District, Nilambur,

Koomanpara, 23.03.1983, *Philip Matthew* 33783 (CALI); Pathanamthitta District, Changanaserry, Vazhappally, 02.02.1984, *V.J. Antony* 143024 (MH). **Lakshadweep Islands**, Kalpeni, *Seshagiri Rao Rolla* 92634 (BSI). **Maharashtra**, Igatpuri, 27.12.1958, *G.L. Shah* 47587 (BLATT); Neral, 02.12.1959, *A.N. Henry* 47590, (BLATT); Usgoan, 07.01.1961, *N.Y. Das* 47592 (BLATT); Pune District, Lonawala, 30.01.1964, *Dr. Venkata Reddi* 95788 (CAL); Ambavane, 27.03.1964, *B. Venkata Reddi* 66774 (BSI); Ratnagiri district, Ghotge, 28.04.1966, *B.G. Kulkarni* 98954 (BSI); Thane District, Tungar hills, Mandavi range, 23.08.1968, *K.V. Billore* 77154 (BSI); Beed District, Parlihat, 22.11.1982, *B.R. Zate* 5378 (BAMU); Nashik District, Jaider, Kalwan 28.10.1983, *P.L. Narsimhan* 107491 (BSI); Amba Ghat road, 22.01.2016, *Amrapali V. Kattee* AVK 1448 (NCK). **Tamil Nadu**, Nilgiri District, Coonnor, 09.01.1910, *C.E.C. Fischer* 312300 (CAL); Coimbatore District, Adivaram, 15.02.1957, *K. Subramanyam* 2323 (CAL); Madurai District, on the way to Pichalur, 18.02.1978, *M. Chandrabose* 98334 (MH).

Ipomoea capitellata Choisy, Mém. Soc. Phys. Genève 6: 457. 1834. *Type:* NEPAL, **Mungger**, 05.10.1811, *N. Wallich* Cat. 2250 (holo G-DC [G00135450, digital image!]).

Ipomoea bracteata Wight, Icon. Pl. Ind. Orient. 4(2): 14. t.1374, 1850, *nom. illeg., non* Cavanilles, 1799; *non* Graham, 1839; C.B. Clarke in Hook.f., Fl. Brit. India 4: 203. 1883; Gamble, Fl. Pres. Madras 2: 918. 1923. *Type:* INDIA, **Kerala**, Quilon, 1837, *R. Wight* 2383 (K [K001081749, digital image!]).

Ipomoea deccana D.F. Austin, Rev. Handb. Fl. Ceylon 1: 324.1980. *Lectotype* (designated by Staples et al., 2015): INDIA, **Kerala**, Quilon, 1837, *R. Wight* 2383 [K (K001081775)] digital image!).

Ipomoea bracteata Wight var. *lobata* C.B. Clarke in Hook.f., Fl. Brit. India 4: 204. 1883. *Lectotype* (designated by Raju, 2022): INDIA, *s.l., s.d.*, *R. Wight* 2383 (K [K001081749] digital image!). **Figs. 16, 19 & 23**

Annual, milky creeper, c. 3 m long. Stems prostrate,

sometime twinning, purple brown when mature, hairy. Leaves 5–8 × 4–10 cm, palmately lobed; lobes 3–5, hairy, obtuse at apex, margin entire. Petiole 3–6 cm long, hairy. Inflorescence axillary, usually 3–5 flowered in short condensed heads. Flowers bracteate, sessile; bracts dimorphic, outer two bracts large, leafy, greenish, persistent, acute at apex, forms an involucre cup like structure, inner bracts are small, linear, densely hairy, $c. 0.2 \times 0.1$ mm. Sepals 5, sub-equal, $0.8\text{--}1.3 \times 0.3\text{--}0.5$ cm, faintly veined, linear, lanceolate, green, white ciliated at margin, hairy. Corolla 5-lobed, 1–1.8 cm long, funnel-shaped; tube $0.5\text{--}0.8$ cm long, purple, dark purple inside; lobes $c. 0.5 \times 1.2$ cm

wide at mouth, glabrous, mid-petaline bands hairy at outside, shallow apiculate. Stamens 5; filaments sub-equal, $0.5\text{--}0.8$ cm long, attached at $c. 0.2$ cm above the base of tube, included, hairy at base; anthers $c. 0.3$ cm long. Ovary ovoid, $c. 0.3 \times 0.1$ cm, light green, glabrous, 4-locular; ovule 1 in each locule; style $0.1\text{--}0.12$ cm long, glabrous; stigma $c. 0.2 \times 0.1$ cm, bilobed, capitate. Capsule globose, ovoid, $0.4\text{--}0.5$ cm, sub-4-valved, glabrous, brownish. Seeds 4 per capsules, $c. 0.5 \times 0.5$ cm, grey, pubescent.

Flowering & fruiting: Flowering from September to October and fruiting in November.

Habitat: Grows in grassland of lateritic Plateaus

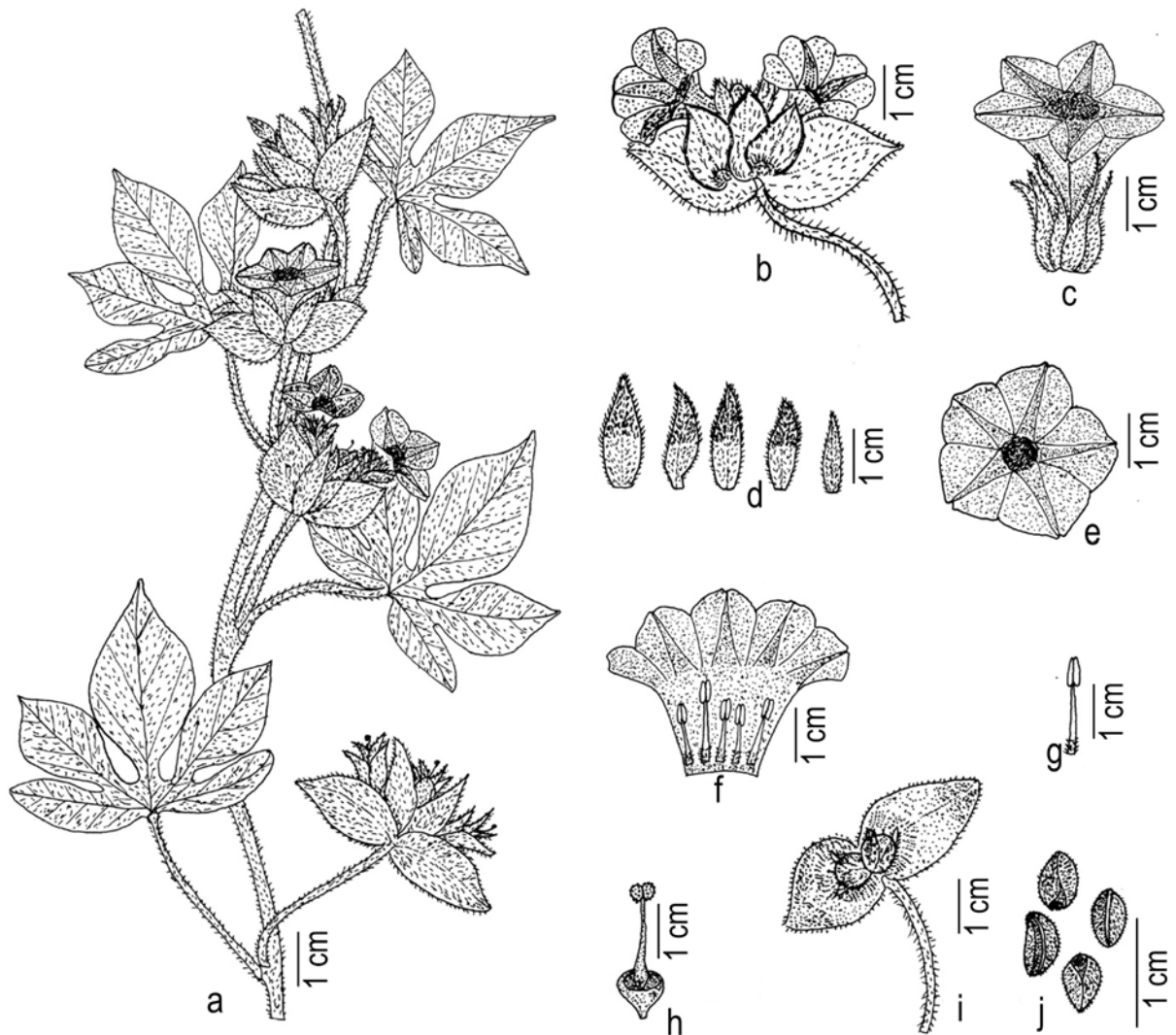


Fig. 16. *Ipomoea capitellata* Choisy: **a.** Flowering twig; **b.** Inflorescence; **c.** Single flower; **d.** Sepals; **e.** Flower-top view; **f.** Corolla-split open; **g.** Single stamen; **h.** Gynoecium; **i.** Capsule; **j.** Seeds (drawn by A.V. Kattee).

especially at lower altitudes.

Distribution: Endemic to India (Maharashtra, Goa, Karnataka and Kerala).

Specimens examined: INDIA, **Goa**, North Goa District, Honda village, 02.10.2016, *Amrapali Kattee* AVK1450 (NCK). **Kerala**, Kollam District, Karayaluthopi, Arvankavu, 03.12.1961, *K.M. Subramanyam* 54621 (CAL); Idukki District, Kozhikannam, 11.11.1975, *K. Viveknathan* 46632 (BSI), Near Kattapana, 10.11.1981, *B. Ramanujan* 72439 (CAL), Koruthode, 15.11.1997, *Jomy Augustine* 16914 (CALI). Malappuram District, Nilambur, Gudallur, 26.10.1982, *Philip Matthew* 33522 (CALI). Kollam District, Kumaramperur, 13.11.1976, *M. Chandrabose* 49006 (CAL); Kannur District, Begur, 23.11.1977, *V.S. Ramachandran* 52308 (CAL); Thiruvananthapuram District, Perunthenaruvi, 24.12.1978, *C.N. Mohan* 59656 (CAL); Palakkad District, Aruvanpara, 22.10.1982, *Prasanna Kumar* SV11011 (CALI); **Maharashtra**, Ratnagiri District, Pali, 14.11.2017, *Amrapali Kattee* AVK1451 (NCK). **Tamil Nadu**, Annamalai, 10.12.1910, *C.E.C. Fischer* 311590 (CAL).

Conservation status: The species is reported from five states and the area of occupancy (AOO) is estimated more than 2000 km² and Extent of occurrence (EOO) is more than 20,000 km² hence it is provisionally assessed here as Vulnerable [B2ac(iii)], in accordance with the IUCN categories and guidelines (IUCN, 2024).

Ipomoea carnea Jacq. subsp. ***carnea*** Jacq., Enum. Pl. Carib. 13, 1760; Cooke, Fl. Pres. Bombay 2: 321, 1905. *Type:* Icon, Jacquin, Stirp. Amer. Hort. Pl. t. 18. 1763.

Fig. 19.

Perennial milky climber, 3–5 m long. Stems climbing, fistular, glaucous. Leaves 11–15 × 6–10 cm, glaucous, entire, broader than longer, deeply cordate at base, acute at apex, margin entire. Petiole 6–12 cm long, tubercled at base, glabrous. Inflorescence axillary, many flowers in dichasial cymes; peduncle 4–10 cm long, swollen at tip, glaucous. Flowers, bracteate, pedicellate; pedicel

1–2 cm, enlarged in fruit, glaucous; bracts small, caducous, c. 2 × 1 mm long, linear glabrous. Sepals 5, sub equal, 0.6–1 × 0.4–0.8 cm, varicose, outer sepals smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 3–7 cm long, funnel-shaped; tube 2–4 cm long, dark pink inside; lobes 4 cm long, 5–8 cm wide at mouth, apiculate, glabrous, mid-petaline bands white. Stamens 5; filaments unequal, 0.8–2 cm long, attached at c. 4 mm above the tube, included, hairy at base. Ovary ovoid, c. 0.3 × 0.1 mm, light green, glabrous, 4-locular; ovule 1 in each locule; style 2.8–3 cm long, glabrous; stigma c. 0.3 × 0.2 cm, bilobed, capitate. Capsule sub-globose, ovoid, 1–2 cm, 4 valved, ovoid, glabrous, brownish, mucronate with persistent stylar tip. Seeds four per capsules, c. 0.7 × 1.2 cm, brown, densely hairy, hairs up to 1.5 cm long, brown.

Flowering & fruiting: Throughout the year.

Habitat: It grows mostly in aquatic places, also found at moist and shady places climbing on trees and shrubs.

Etymology: The name derived from Latin word ‘carnea’ means ‘flesh coloured’, which refers to its pale pink flowers.

Distribution: Throughout world, India (Throughout the country).

Specimen examined: INDIA, **Maharashtra**, Kolhapur District, Saikade, 24.06.2028, *A.V. Kattee* 20268 (NCK).

Ipomoea carnea Jacq. subsp. ***fistulosa*** (Mart. ex Choisy) D.F. Austin, Taxon 26: 237. 1977. *Ipomoea fistulosa* Mart. ex Choisy, DC. Prodr. 9:349. 1845. *Lectotype* (designated by Austin, 1977): BRAZIL, *s.l., s.d., C.F. Martius* 2398 (BM [BM000953169, digital image!]).

Figs. 17, 19 & 23

Perennial milky shrubs. Stems erect, fistular 3–5 m long; leaves elongated longer than broader, cordate at base, acuminate at apex, margin undulate.

Flowering & fruiting: Throughout the year.

Habitat: Common at waste places. Very common weed along roadside in ditches, pools, ponds, stagnant water.

Etymology: The epithet 'fistulosa' refers to its hollow pipe-like stems.

Specimens examined: INDIA, **Andhra Pradesh**, Visakhapatnam District, Araku Valley,

16.09.1961, *N.P. Balkrishnan* 626 (CAL), Ananthapur District, Reddipalli farm, 15.08.1981, *N. Yesoda* 127341 (MH), Warangal District, Pasra, 12.09.1996, *R.K. Premnath* 172226 (MH). **Bihar**, Goelkera west of F. R. H., 27.12.1960, *G.V. Subba Rao* 25007 (CAL), Rajgir District, Narsinghgarh, 13.02.2000, *Debabrata Das* 13706 (CAL); Rajgir 17.03.2005, *A.K. Ghosh* 37657 (CAL). **Dadra and Nagar Haveli**, Silvassa, 28.06.1964, *K.K. Athiya*

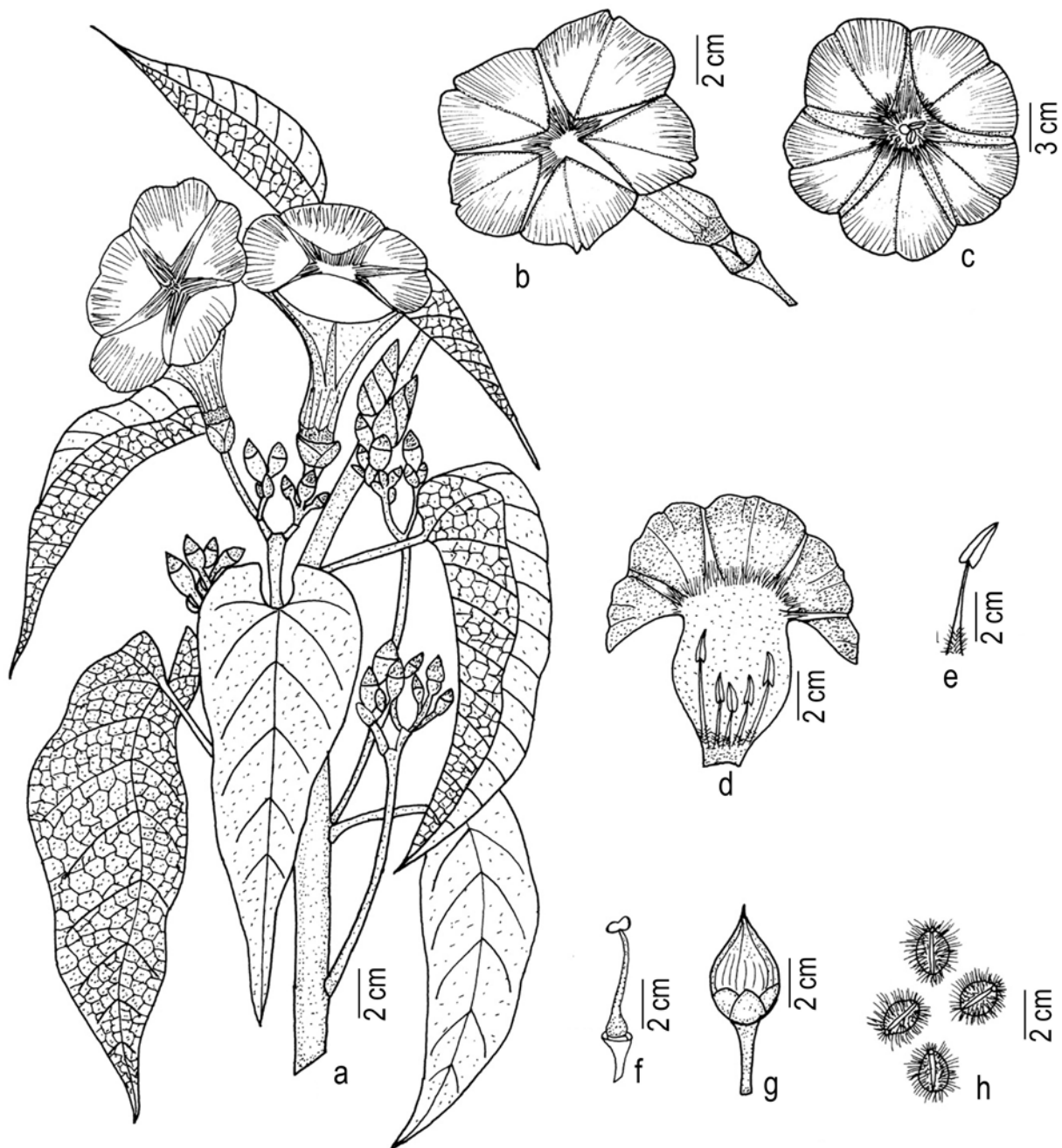


Fig. 17. *Ipomoea carnea* subsp. *carnea* (Mart. ex Choisy) D.F.Austin: **a.** Flowering twig; **b.** Single flower; **c.** Flower-top view; **d.** Corolla-split open; **e.** Single stamen; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

83169 (BSI). **Gujarat**, Waghai, 05.09.1954, *H. Santapau* S.J.47525 (BLATT), Nakhatrana, 16.09.1968, *R.S. Raghawan* 95177 (BSI), Mahesan District, Maliya, 31.12.1977, *V. Singh* 5584 (CAL). **Karnataka**, Tirthahalli, 14.04.1964, *R.S. Raghavan* 93346 (CAL), Chitradurga District, Jogimath, 23.02.1975, *N.P. Singh* 113804 (CAL). **Kerala**, Kozhikode District, Cheruvannoor, 06.01.1971, *V.V. Sivarajan* 857 (CALI), Thiruvananthapuram District, Veli, 04.08.1978, *M. Mohanan* 58543 (CAL); Muhamma Jetty, 26.09.1993, *C.N. Sunil* 1555 (CALI); Feroke, 13.01.1995, *K. Radhakrishnan* 19763 (TBGRI), Palghat District, Neelipara to Variampara, 1502.1979, *E. Vajravelu* 60462 (CAL), Pathanamthitta District, Kodumon, 10.11.1988, *Anil Kumar* 691001 (CAL). **Madhya Pradesh**, Rewa District, Near Rewa College Civil line, 14.02.1959, *K.M. Sebastine* 15222 (MH); Indore District, Ajnod, 20.02.1961, *G.S. Rao* 33935 (BSI), Satna District, Majhgaon, 22.02.1987, *R. Prasad* 38429 (CAL), Khargaon, 05.02.1987, *M. Prasad* 39320 (CAL), Baldeogarh, 18.04.1989, *B.K. Shukla* 44704 (CAL). **Maharashtra**, Mumbai District, Bombay, 23.10.1954, *V.M. Patel* 47523 (BLATT); Marve road Malad, 17.11.1956, *G.L. Shah* 7529 (BLATT); Kolhapur District, Phonda Radhanagari, 04.03.1970, *B.G. Kulkarni* 98983 (BSI); Hatkanangale, 25.10.2017, *A.V. Kattee* AVK 1438 (NCK); Aurangabad District, Paitan, 17.10.1977, *V.N. Pardeshi* 2359 (BAMU); Satara District, Koyana Dam, Koyananagar, 28.11.1978, *R.K. Kocchar* 98288 (BSI); Akola District, Partur, 23.02.1978, *S.Y. Kamble* 105460 (BSI); Jalgaon District, Nagoan, Parola range, 15.05.1982, *K.M. Rao* 119223; Gondia District, Navegaon National Park, 20.11.2002, *D.N. Patil* 129105 (BSI); Kolhapur, 15.10.2015, *Amrapali Kattee* AVK1460 (NCK). **Rajasthan**, Bikaner District, Chittorgarh, 19.09.1975, *G.P. Roy* 2115 (CAL); Churu District, Ayurveda Vishwabharati College, Sardarshahar, 23.03.1976, *G.P. Roy* 2620 (CAL); Banswara District, Saima Vashi, 21.08.1976, *V. Singh* 2955 (CAL); Pali District, Nimbaj, 17.12.1985, *R.P. Pandey* 10303 (CAL).

Odisha, Cuttack, 24.08.1963, *J.K. Maheswari* 348781 (CAL); Sundargarh District, Sundargarh, 20.02.1988, *A. Mukherjee & D. Namhata* MN3055 (CAL); Similipal District, Podadiha to Pogladiha, 02.03.2002, *B. Agrawal* 452 (CAL). **Uttar Pradesh**, Ballia, 14.12.1979, *R.C. Srivastava* 50152 (CAL). **Tamil Nadu**, Madras, Sept. 1932, *K. Narayana Iyer* 01481 (TBGRI); Coimbatore District, Asanampattu R. F., 22.11.1977, *E. Vajravelu* 52023 (CAL); Ramanathapuram District, Patrakudi, Karaikudi, 21.02.1977, *N.R. Nair* 53046 (CAL); Thanjavur District, Adirampattanam, 13.09.1977, *R. Ramamurthi* 51211 (CAL). **Tripura**, Agartala, 20.02.1956, *Dr. M. Deb* 148 (CAL). **West Bengal**, Midnapur District, Bamda, 21.02.1975, *J.K. Maheswari* 1058 (CAL); West Dinajpur, Balurghat, 07.04.1984, *R. Banarjee* 16207 (CAL); Kolkatta, 04.12.2007, *D. Hajra & D. Das* 23732 (CAL).

Note: Ipomoea carnea Jacq. subsp. *fistulosa* (Mart. ex Choisy) D.F. Austin is much more common and abundant than subsp. *carnea*. The flowers exhibit considerable colour variation, ranging from white with a pink throat to entirely white corollas. Both subspecies frequently occur in similar habitats and often grow in close proximity to one another.

It is one of the most promising shrubs with numerous therapeutic values. Singh *et al.* (2021) reported several medicinal properties of this species, including antimicrobial, antidiabetic, anti-inflammatory, antioxidant, antifungal, wound-healing, cardiovascular, glycosidase-inhibitory, anticancer, anxiolytic, mosquitocidal, immunomodulatory, and hepatoprotective actions.

Ipomoea clarkei Hook.f., Fl. Brit. Ind. 4: 734. 1885. *I. stocksii* C.B. Clarke in Hook.f., Fl. Brit. India 4: 207. 1883, *non* Clarke, 1883. *Lectotype* (designated by Shimpale *et al.*, 2018): INDIA, Malabar, Concan & c. s.d., *Stocks s.n.* (K [K000830816, digital image!]). **Figs. 18, 19 & 23**

Perennial, milky climber, 3–5 m long; roots tuberous. Stem twinning, hairy. Leaves 7.5–10 ×

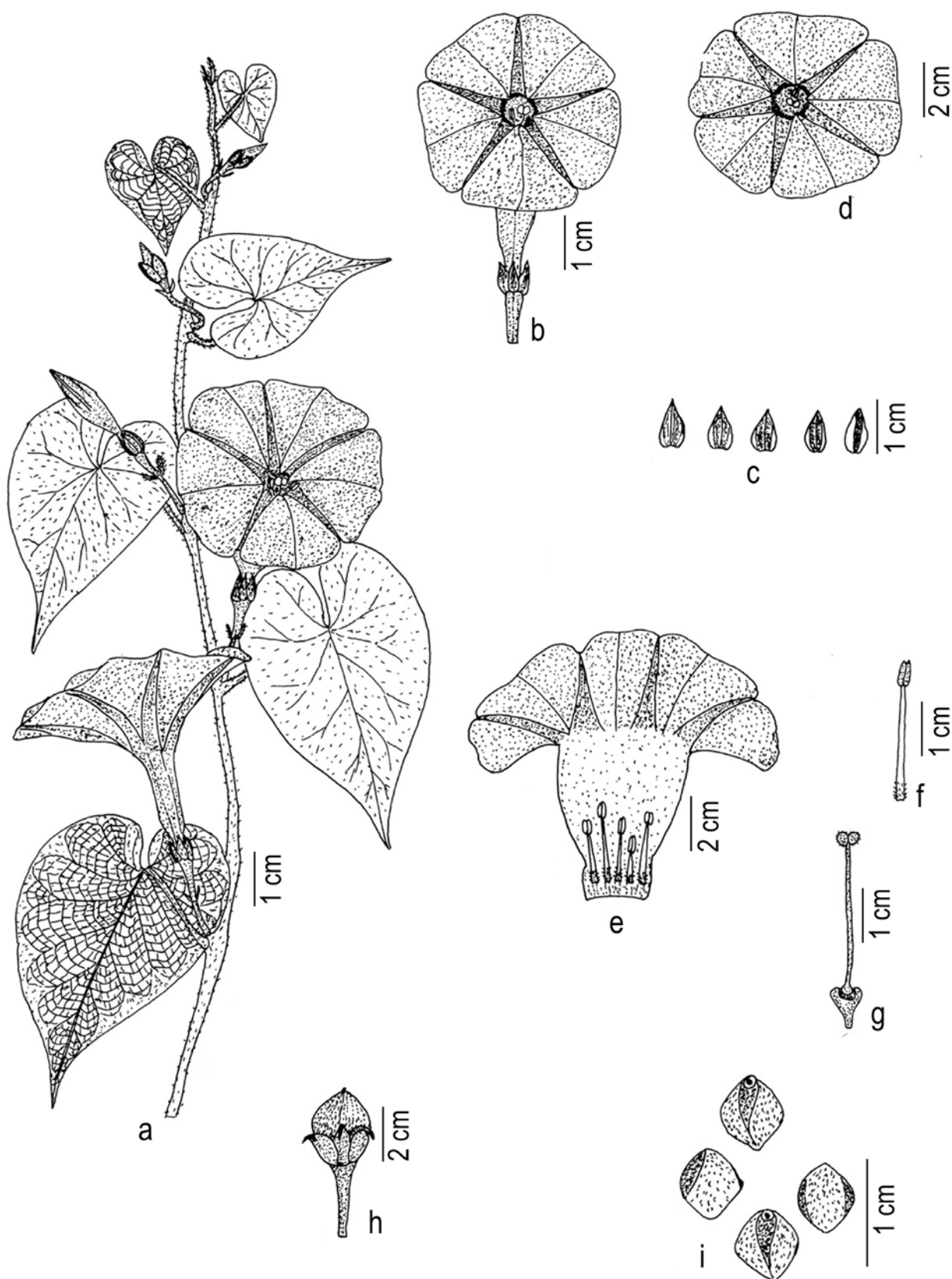


Fig. 18. *Ipomoea clarkei* Hook.f.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattée).

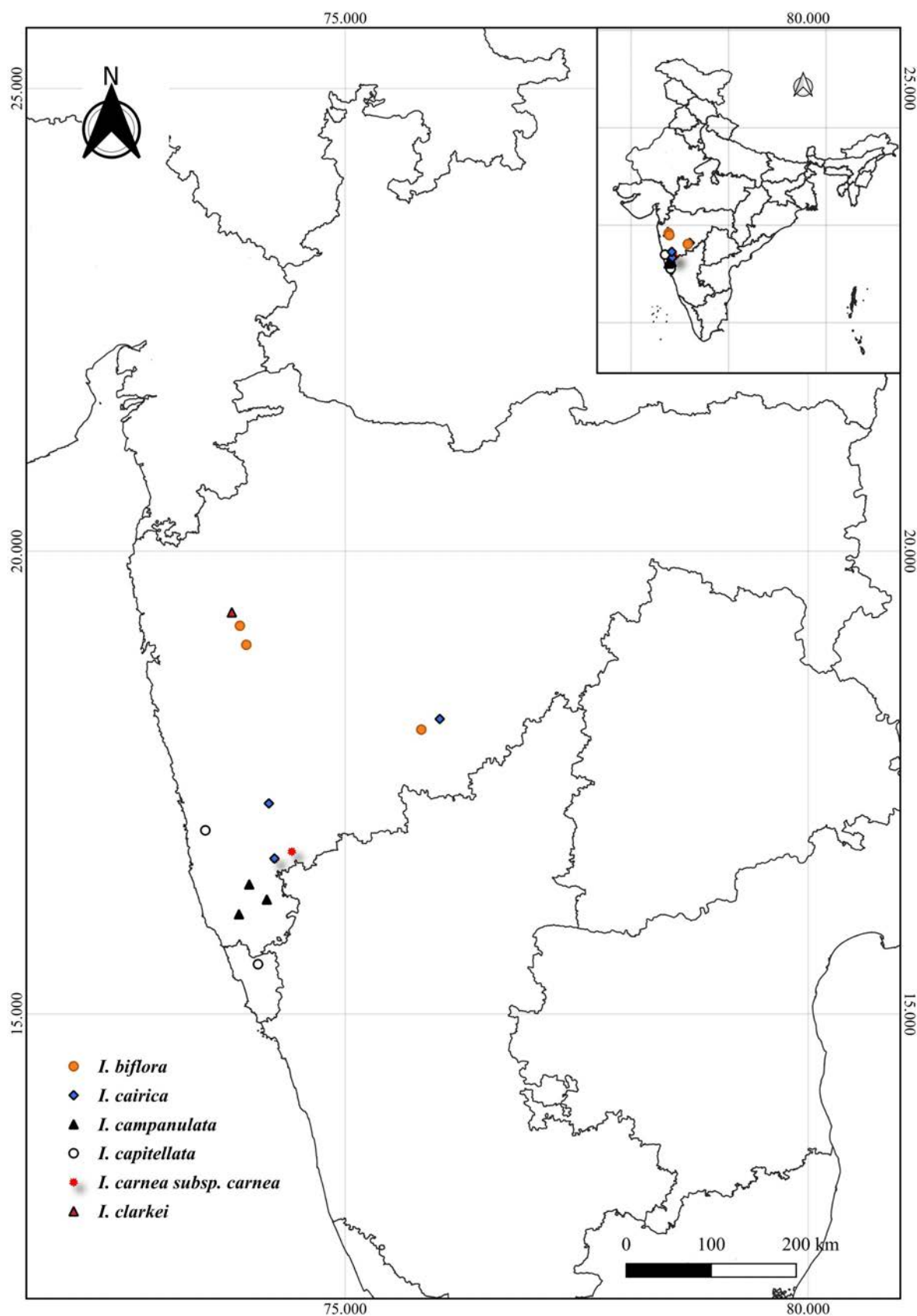


Fig. 19. Map showing collection sites of *Ipomoea biflora* (L.) Pers., *I. cairica* (L.) Sweet., *I. campanulata* L., *I. capitellata* Choisy, *I. carnea* Jacq. subsp. *carnea* Jacq. & *I. clarkei* Hook.f. (prepared using QGIS).

4–6 cm, entire, deeply cordate with rounded large lobes, acute at apex, margin entire, pubescent. Petiole 3–5 cm long, pubescent. Inflorescence axillary, usually 1–3 flowered cymes; peduncle 0.8–1.5 cm long, hairy. Flowers bracteate, pedicellate; pedicel 1.5–2 cm long, enlarged in fruit, hairy; bracts small, linear lanceolate, caducous, 0.3–0.4 × 0.1 cm, hairy. Sepals 5, sub-equal, oblong acute, 0.6–1 × 0.3–0.5 cm, faintly veined, smooth, white ciliated at margin, hairy. Corolla 5-lobed, 6 × 7.5 cm long, funnel-shaped; tube 2–3.5 cm long, bright yellow; lobes c. 2.5 cm, 5–6 cm wide at mouth, apiculate, mid-petaline bands light yellow, hairy outside. Stamens 5; filaments sub-equal, 1.8–2.5 cm long, attached at 5 mm above the base of tube, shortly exerted, hairy at base; anthers c. 0.3 cm long. Ovary c. 0.3 × 0.1 cm, ovoid, light green, glabrous, 4-locular; 1 ovule in each locule; style 2.8–3 cm long, glabrous; stigma bilobed, capitate. Capsule subglobose, ovoid, 1–1.3 × 0.8–1.1 cm, 2-valved, glabrous, brownish; mucronate with persistent stylar beak. Seeds 4 per capsules, 0.8–1 × 0.5–0.7 cm, greenish black, densely pubescent.

Flowering & fruiting: Flowering from September to November and fruiting from December to January.

Habitat: It grows along water channels in the forest region.

Distribution: It is endemic to India.

Etymology: The specific epithet '*clarkei*' honours to British Botanist C. B. Clarke, the collector of the species.

Specimens examined: INDIA, **Maharashtra**, Igatpuri, Tungar hills, 29.09.1941, *H. Santapau* 47368 (BLATT); Kasara road, *V. M. Patel* 47362 (BLATT); Raigad District, Bhutala, Takmak hill slopes, 16.09.1968, *K.V. Billore* 116718 (BSI); Pune District, Malshej Ghats, 23.09.2016, *Amrapali Kattee* AVK1421 (NCK).

Conservation status: This species is reported from three locations and the area of occupancy (AOO) is estimated more than 2000 km² and Extent of

occurrence (EOO) is more than 20,000 km² hence it is provisionally assessed here as Vulnerable [B2ac(iii)], in accordance with the IUCN categories and guidelines (IUCN, 2024).

Ipomoea eriocarpa R.Br., Prodr. 484. 1810. *Convolvulus eriocarpus* (R.Br.) Spreng., Syst. Veg. 1: 598. 1825. Type: AUSTRALIA, **New Holland**, *s.d.*, *Banks & Solander s.n.* (holo BM [BM001040629, digital image!]).

Ipomoea sessiliflora Roth., Nov. Pl. Sp. 116. 1821; Dalzell & Gibs, Bombay Fl. 166. 1861; Wight, Icon t. 169. 1839. Type: INDIA, *Heyne s.n. (n.v.)*.

Ipomoea hispida (Vahl.) Roem & Schult, Syst. 4: 238. 1819; Santapau, J. Bombay Nat. Hist. Soc. 47(2): 346. 1947, *non* Zuccagni, 1806. **Figs. 20, 23 & 28**

Annual, milky climber, c. 3 m long. Stem twinning, cylindrical, brownish, hairy. Leaves 6–8 × 4–5 cm, dimorphic, basal leaves ovate, cordate at base; upper leaves linear lanceolate, longer than broader, pubescent, entire, with rounded leaf base, acuminate to ovate at apex, margin entire. Petiole 3–4 cm long, hairy. Inflorescence axillary cyme, usually 1–5-flowered; peduncle 0.1–1.5 cm long, hairy. Flowers bracteate, sessile; bracts leafy, caducous, c. 0.2 × 0.1 cm, densely hairy. Sepals 5, sub-equal, outer sepals rhomboid, 0.7–1.2 × 0.2–0.6 cm, faintly veined, densely hairy at apex, white ciliated at margin, hairy. Corolla 5-lobed, infundibuliform, 0.8–1 cm long, tube 0.3–0.5 cm long, dark purple inside; lobes c. 0.5 cm long, milky white, 1–1.5 cm wide at mouth, with hairy white tuft at the base of corolla lobes, mid-petaline bands whitish, shallow apiculate, hairy at outside. Stamens 5; filaments subequal, 0.5–0.8 cm long, attached at c. 0.2 cm above the base of tube, included, hairy at base. Ovary c. 1 × 0.5 mm, ovoid, light green, hairy, 4 locular; ovule 1 in each locule, hairy; style c. 0.6 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule 0.5–0.8 cm, globose, ovoid, 4-valved, ovoid, hairy, pinkish brown, dehisces from top into four parts. Seeds 4 per capsules, c. 0.3 × 0.5 cm, grey, with reticulate

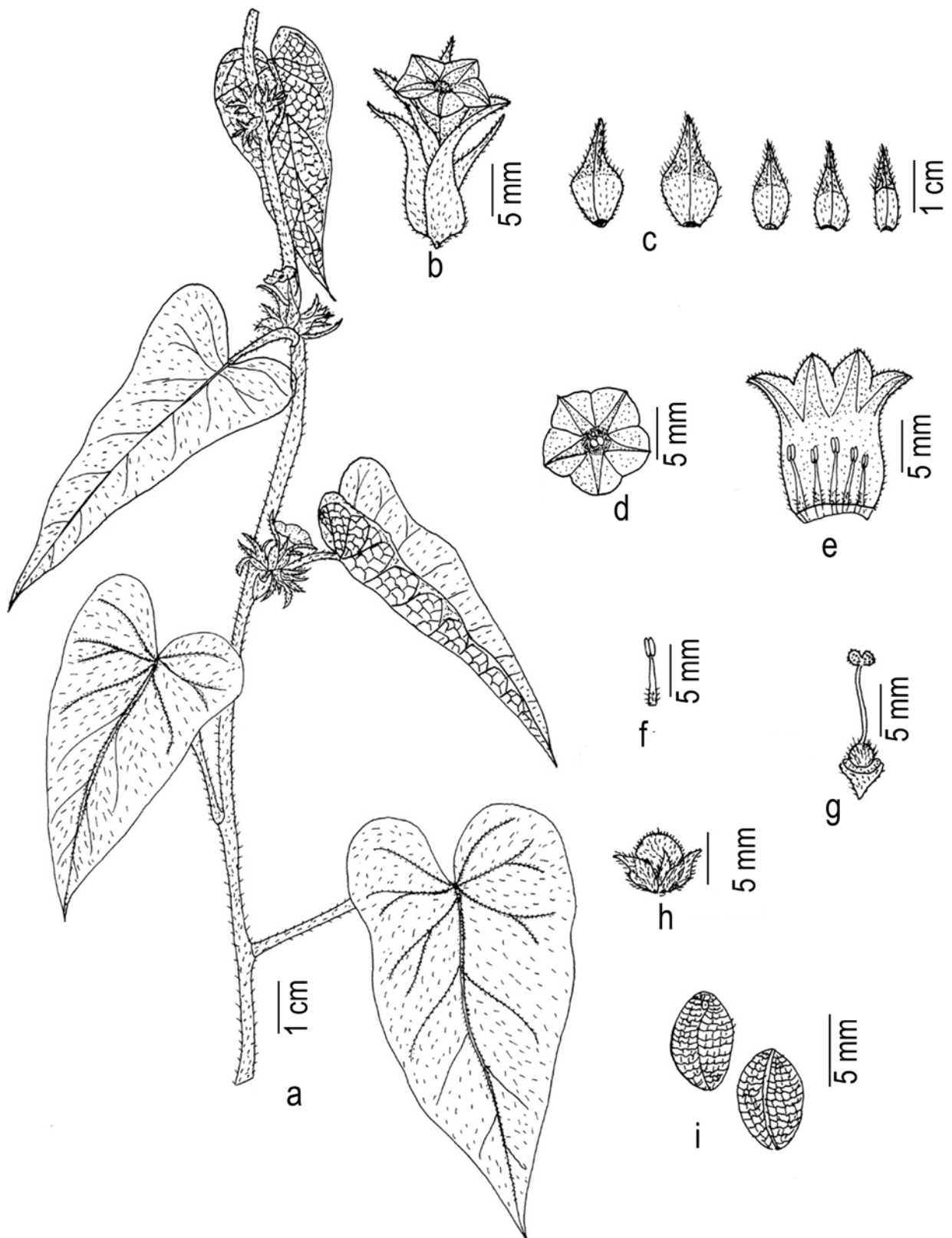


Fig. 20. *Ipomoea eriocarpa* R.Br.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

ornamentation.

Flowering & fruiting: Flowering from August to October and fruiting from September to January.

Habitat: It grows in semi shady places, climbing on bushes in waste places.

Distribution: Australia, Cambodia, China, Madagascar, Pakistan, Nepal, Africa, Egypt, Philippines, Sri Lanka, Thailand, Vietnam, India (Throughout India).

Etymology: Specific epithet '*eriocarpa*' derived from Greek word '*erios*' meaning the 'woolly' refers to hairy capsules.

Specimens examined: INDIA, **Andhra Pradesh**, Kurnool District, Velugode, 16.02.1957, S.K. Wagh 47465 (CAL). **Chhattisgarh**, Raipur, 23.11.1984, G.P. Roy & S. K. Dixit 42135 (CAL); Kalthgora, 15.12.1984, Arora 3977 (CAL). **Jharkhand**, Parasnath, W.L.S. Giridhin, 01.10.2004, Vinay Rajan & K.L. Maity 37170 (CAL). **Karnataka**, Gulbarga District, Yadgir, 17.11.1975, N.P. Singh 110360 (BSI); Kamalapur, 29.10.1979, S.R. Ramesh 10053 (CAL). **Kerala**, Palghat District, Aruvapara, 06.12.1980, N.C. Nair 69140 (CAL); Idukki District, Panamkutti, 19.12.1982, C.N. Mohanan 76200 (CAL); Pathanamthitta District, Paramala, 04.11.1989, Anil Kumar 2116 (CAL). **Madhya Pradesh**, Indore, 14.09.1986, K.K. Khanna & S. Saran, 38540 (CAL); Tikamgrah District, Orchha, 13.09.1989, G.P. Roy and K. Kishor 45015 (CAL); Bokaro, 09.1.1990, S. Chandan 1359 (CAL). **Maharashtra**, Pune District, Pimpri, 26.01.1955, V.M. Patel 47475 (BLATT), Mumbai District, Vihar lake, 15.11.1958, H. Santapau 47558 (BLATT); Bombay, 28.10.1962, G.L. Shah 47518 (BLATT), Aurangabad District, Wadi Fort, 18.09.1977, Pokle D.S. 3110 (BAMU), Nanded, 02.08.1981, B.R. Zate 1695 (BAMU); Osmanabad District, Waghdari, 03.02.1963, V.N. Naik 566 (BAMU); Aurangabad District, Golatgaon, 22.08.1977, V. N. Pardeshi 1856 (BAMU); Nanded town, 04.11.1982, Madhukar 5114 (BAMU); Beed District, Kapildhar, 21.09.1983, S.P. Rothe

5815 (BAMU); Nanded Kandhar, 20.10.1984, Madhukar 6084 (BAMU); Kolhapur, 18.09.2007, Aitawade Makarand M. 14 (SUK), 17.09.2016, Amrapali Kattee, AVK1467 (NCK). **Tamil Nadu**, Sriruvani, 28.12.1956, K. Subramanyam 1853 (CAL); Maruthmalai, 03.12.1956, K.M. Sebastine 1587 (CAL); Agasthymalai, 19.09.1958, M.A. Roa 6361 (CAL); Annamalai, 30.10.1961, J. Joseph 13409 (CAL). **Telangana**, Kuntala Forest 16.10.1874, C.B. Clarke 311689 (CAL). **Rajasthan**, Jaipur, 28.02.1965, B.M. Wadhawa 8400 (BSI). **Odisha**, Ganjam, February 1884, J.S. Gamble 13777 (CAL); Bhatipathar, 03.11.1959, G. Panigrahi 20798 (BSI). **Uttarakhand**, Dehradun, October 1905, A. Meebold 4034 (CAL). **Uttar Pradesh**, Daraganja, 18.10.1964, T. Rajagopal 6137 (CAL); Karta Liladhar sector, 05.10.1969, G. Panigrahi 72244 (CAL); Maylola, 13.09.1972, C. Malhotra 50983 (CAL).

Notes: The inflorescence is usually sessile, although a short peduncle (0.5–3 cm long) is occasionally observed in some populations. The species closely resembles *Ipomoea sindica* Staf., but can be readily distinguished by its bluish-purple corolla, rhomboid outer sepals, hairy capsules, and reticulately ornamented seeds.

Ipomoea fulvicaulis (Hochst. ex Choisy) Boiss. ex Hallier f., Bot. Jahrb. Syst. 18(1–2): 128. 1893; Kattee, Dalavi, Patil & Shimpale, Rheede 29(3): 227. 2019. *Aniseia fulvicaulis* Hochst. ex Choisy in DC, Prodr. 9: 431. 1845. *Type:* ETHIOPIA, **Abessinia**, 12.01.1893, W. Schimper 270 (GOET [GOET005696] digital image!). **Figs. 21, 23 & 28**

Perennial herbs with woody rootstock. Stem slender, spreading, much branched, up-to 1 m long, brownish pubescent. Leaves oblong to elliptic ovate, 2–3 × 1.5–2 cm, oblong to emarginate at apex, entire, cordate to truncate at base, densely pubescent on both surfaces, sparsely pubescent at maturity; petiole 1–2 cm long, densely pubescent. Inflorescences cymose; peduncle c. 0.8 cm long, hairy; bracts ovate, 0.5–0.6 × 0.4–0.5 cm, acuminate, hairy out, glabrous in, pink. Flowers

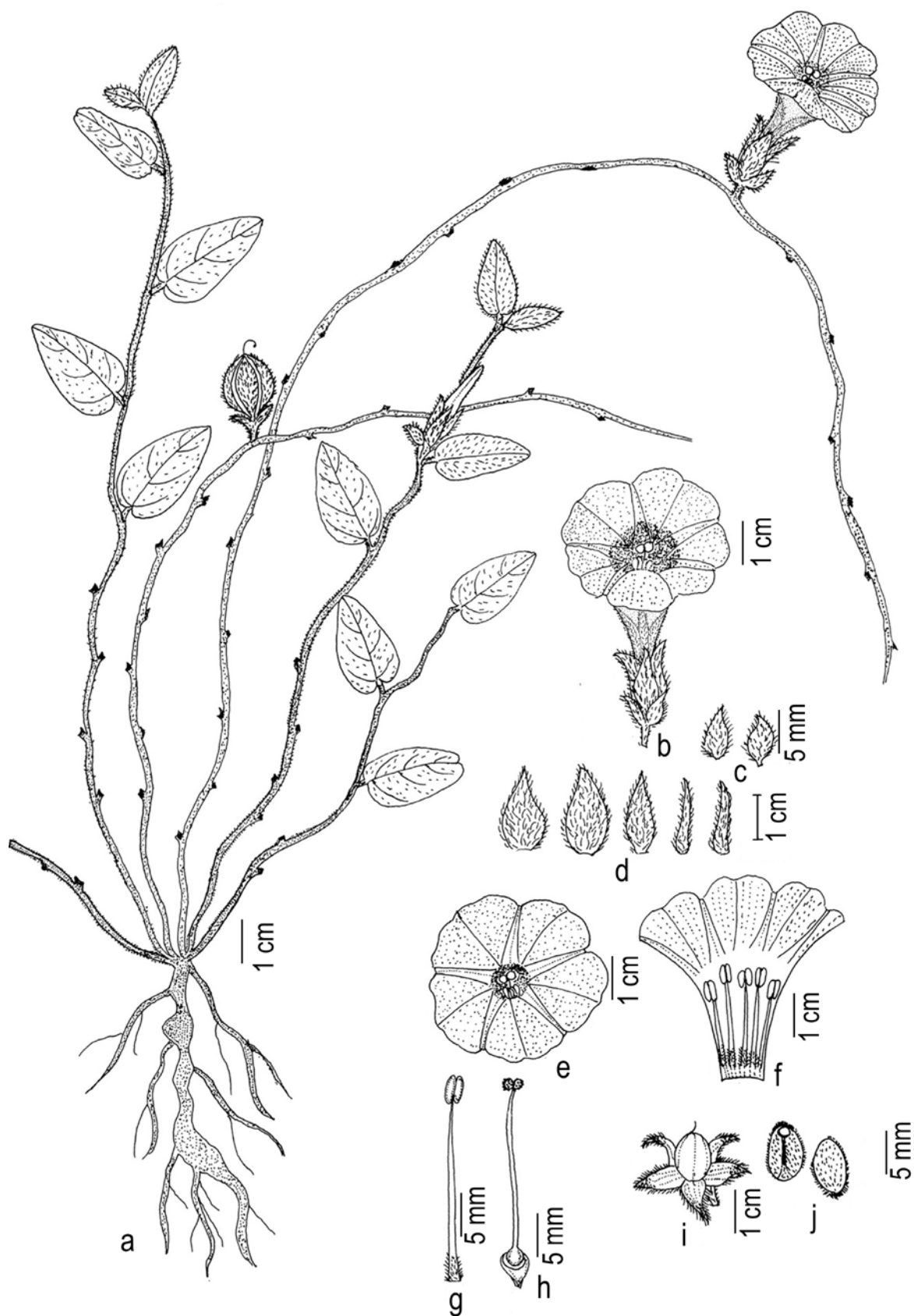


Fig. 21. *Ipomoea fulvicaulis* (Hochst. ex Choisy) Boiss. ex Hallier f.: **a.** Habit; **b.** Single flower; **c.** Bracts; **d.** Sepals; **e.** Flower-top view; **f.** Corolla-split open; **g.** Single stamen; **h.** Gynoecium; **i.** Capsule; **j.** Seeds (drawn by A.V. Kattee).

sessile or sub-sessile. Sepals 5, unequal, outer 2 ovate, 1.5–1.7 × 0.6–0.7 cm, middle one lanceolate, 1.5–1.6 × 0.5–0.6 cm, inner 2, linear, 1.5–1.6 × 0.2–0.4 cm, bristly hairy out, glabrous in. Corolla funnel-shaped, 3–3.5 cm long, pink; tube 2–2.5 cm long, pubescent out, glabrous in; lobes 1.2–1.5 cm long, pink. Stamens sub-equal; filaments included, 1.7–2 cm long, attached to the base of corolla tube, hairy at base; anthers 2-celled. Carpels 2, fused; ovary ovoid, glabrous, c. 0.2 × 0.1 cm; style 2.8–3 cm long; stigma bi-lobed, slightly exserted, pink. Capsule globose, 0.8–1.2 × 0.5–0.9 cm, glabrous, brown. Seeds ovoid, 0.5–0.7 × 0.4–0.5 cm, brown pubescent, hairy at margins.

Flowering & fruiting: Flowering from January to February and fruiting in March.

Habitat: In rocky crevices at elevation of 1380 to 1420 m, mostly associated with *Cymbopogon martini* (Roxb.) Watson, *Crotalaria albida* B.Heyne ex Roth var. *kangrensis* Ansari, *Shorea roxburghii* Don, *Indigofera mysorensis* Rottler ex DC and *Aristida setacea* Retz. (Kattee *et al.*, 2019).

Distribution: East Tropical Africa, Botswana, Ethiopia, Malawi, Mozambique, Zambia, Zimbabwe and India (Karnataka, Tamil Nadu).

Specimens examined: INDIA, **Karnataka**, Chikkaballapur distr., Nandi Hills, 03.03.2019, Kattee, Shimpale & Dalavi AVK14 (NCK). **Tamil Nadu**, Tirunelveli District, Kalkkad (Kalakkad), 16.02.1913, D. Hooper & M.S. Ramaswami 311430 (CAL!).

Notes: The species was recently added to the flora of India by Kattee *et al.* (2019). It appears to be very rare, with only about 50 individuals recorded from Nandi Hills in Karnataka. The Nandi Hills population is characterized by shorter peduncles, ovate bracts, and a tubular-funnelform corolla. These morphological differences are likely the result of habitat-induced phenotypic plasticity. Three varieties of *Ipomoea fulvicaulis* are currently recognized, and the Indian material is referable to

var. *fulvicaulis*.

Ipomoea hederifolia L., Syst. ed. 10. 925. 1759. *Lectotype* (designated by O'Donell, 1959): West Indies, an illustration of *Ipomoea foliis cordatis* Plumier, P1. Amer. t. 93.f. 2. 1755.

Ipomoea phoenicea Roxb., F1. Ind. 2: 92. 1824. *Quamoclit phoenicea* (Roxb.) Choisy, Mem. Soc. Phys. Geneve 6: 433. 1834; Gamble, F1. Pres. Madras 2: 919. 1923. *Lectotype* (designated by Wood *et al.*, 2020): INDIA, Plant cultivated at Calcutta, *Roxburgh* in Wall. Cat. 1372 (K [K-W001112944, digital image]). **Figs. 22, 23, & 28**

Annual climber, 5–10 m long. Stem twinning, angular, glabrous. Leaves 3–10 × 4–12 cm, glabrous, often shallow 5–7 lobed or distinctly trilobed or entire, acuminate at apex, margin entire. Petioles 4–10 cm long, glabrous. Inflorescence axillary, usually 3–9 flowered in first 3 flowers in cyme which later on converted into dichotomous scorpioid cymes; peduncle 2–5 cm long. Flowers bracteate, pedicellate; pedicel 1–2 cm long, enlarged in fruit, glabrous; bracts small, linear, caducous, c. 2 × 1 mm, glabrous. Sepals 5, sub-equal, 0.6–1 × 0.2–0.4 cm, faintly veined, mucronate, glabrous. Corolla 5-lobed, 3.5–4.5 cm long, hypocrateriform, erect; tube 2.5–3.5 cm long, dilated below the mouth, mostly scarlet red, rarely orange or yellow; lobes c. 1 cm long, 2–2.5 cm wide at mouth, glabrous, shallow apiculate. Stamens 5; filaments sub-equal, 4–5.5 cm long; attached at c. 2 mm above the base of tube, exserted, hairy at base; anthers c. 0.3 cm long. Ovary c. 0.3 × 0.1 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style c. 5.5 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule globose, 0.9–1.2 cm, 4-valved, glabrous, brownish, dehisces from base of capsule into four halves. Seeds 4 per capsules, c. 0.5 × 0.5 cm, brown, pubescent.

Flowering & fruiting: Flowering from July to September and fruiting from October to January.

Habitat: It is most common along roadside, growing vigorously on bushes, shrubs.

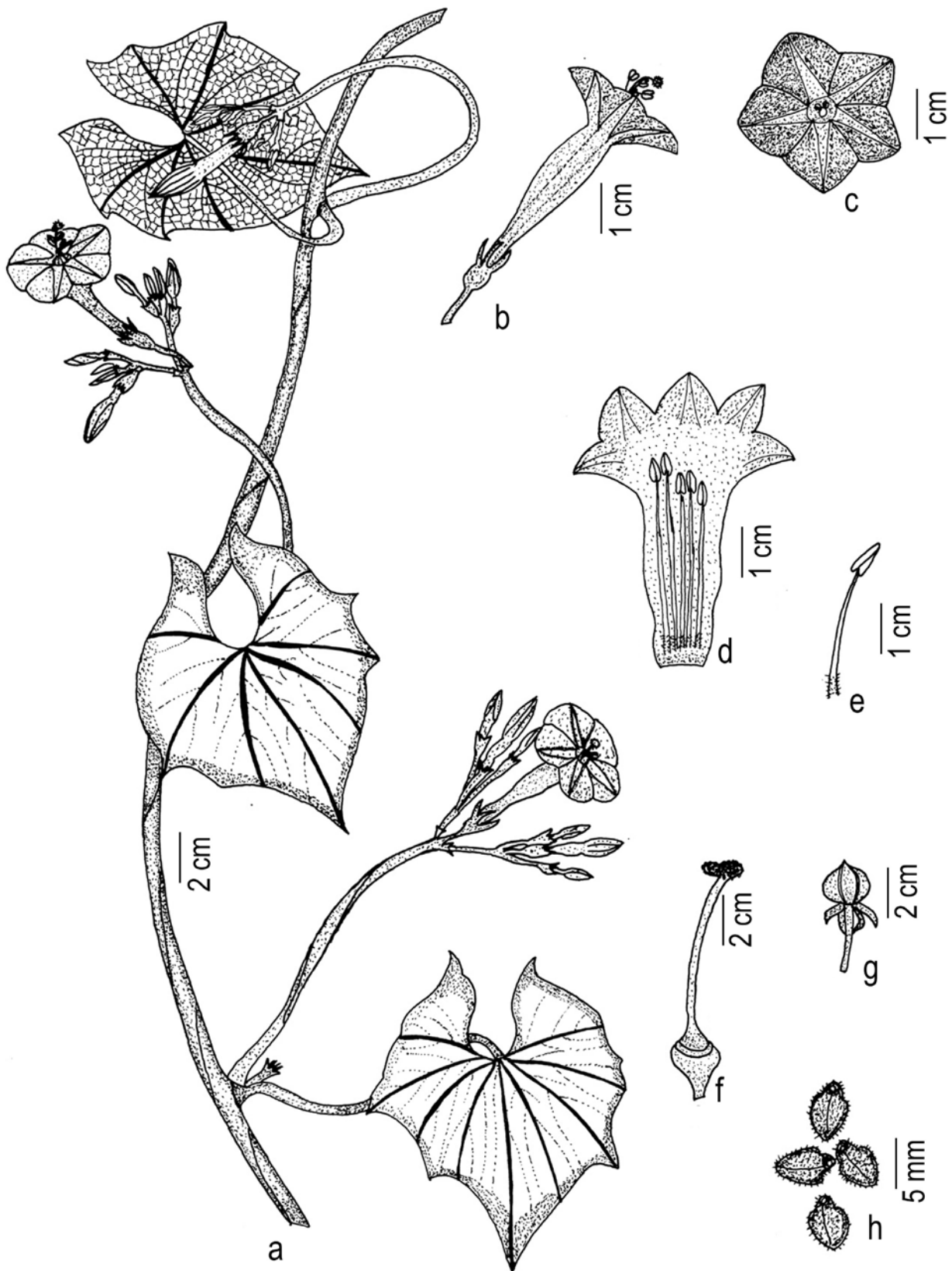


Fig. 22. *Ipomoea hederifolia* L.: **a.** Flowering twig; **b.** Single flower; **c.** Flower—top view; **d.** Corolla—split open; **e.** Single stamen; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).



Fig. 23. Flowering specimens of Indian *Ipomoea*: **a.** *I. acanthocarpa* (Choisy) Hochst. & Schweinf. & Asch.; **b.** *I. aculeata* Blume; **c.** *I. aitonii* Lindl.; **d.** *I. alba* L.; **e.** *I. aquatica* Forssk.; **f.** *I. barlerioides* (Choisy) Benth. ex C.B. Clarke; **g.** *I. batatas* (L.) Lamk.; **h.** *I. biflora* (L.) Pers.; **i.** *I. cairica* (L.) Sweet.; **j.** *I. campanulata* L.; **k.** *I. capitellata* Choisy; **l.** *I. carnea* subsp. *fistulosa* (Mart. ex Choisy) D.F.Austin; **m.** *I. clarkei* Hook.f.; **n.** *I. eriocarpa* R. Br.; **o.** *I. fulvicaulis* (Hochst. ex Choisy) Boiss. ex Hallier f.; **p.** *I. hederifolia* L. (Photographed by A.V. Kattee & V.B. Shimpale)

Distribution: Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Ecuador, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, Surinam, United States and Venezuela and in throughout India.

Etymology: The specific epithet *hederifolia* is derived from the Latin words *hedera* (ivy) and *folia* (leaves), referring to the resemblance of its leaves to those of ivy.

Specimens examined: INDIA, **Andaman & Nicobar Islands**, Way to mount Harriet, 16.01.1974, *N.C. Nair* 775 (CAL). **Arunachal Pradesh**, Putung hills, 30.12.1960, *G.V. Subba Rao* 24844 (ASSAM). **Goa**, 20.11.1962, *R. Seshagiri Rao* 84691 (BSI). **Karnataka**, Mysore District, Kottatuhalla, 21.04.1962, *A.S. Rao* 80187 (BSI), Shimoga District, Tirthahalli, 19.10.1964, *R.S. Raghavan* 97467 (BSI). **Kerala**, Vandalodu, 09.02.1961, *K.N. Subramanian* 70475 (BSI); Kannur District, Payyavur, 21.12.1980, *R. Ansari* 69935 (CAL); Palakkad District, Silent Valley border, 20.10.1982, *T. Sabu* (CALI); Wayanad District, Lakkidi, 23.03.1984, *R.T. Balkrishnan* 40015 (CAL), Wayanad, 21.09.1990, *A. Bindu* 2880 (CALI). Pathanamthitta District, Power house of Moozhiyar, 24.11.1988, *N. Anil Kumar* 1123 (CAL). **Maharashtra**, Khandala, 07.11.1943, *H. Santapau* 47177 (BLATT); Malad, 18.11.1954, *K.V. Shetty* 47208 (BLATT); Mumbai, 08.12.1954, *V.M. Patel* 47174 (BLATT); Aurangabad District, Govt. College, 02.11.1977, *V.N. Naik* (BAMU); Akola District, Akot, 26.02.1978, *S.Y. Kamble* 152900 (BSI); Nanded District, Ambadi, 07.11.1979, *B.R. Zate* 11087 (BAMU); Amravati District, Chikhaldara, 08.11.1979, *M.Y. Ansari* 124871 (BSI); Morgaon, 13.10.1982, *P. Diwakar* 47172 (BLATT); Satara District, Chaphal, 25.01.1984, *S.D. Deshpande* 166724 (BSI); Kolhapur, 14.12.2007, *Aitawade Makarand M.* 15 (SUK); Solapur District, Karmala, 15.12.2011, *J. Jayanthi & S.C. Yadav*, 199309 (BSI); Kolhapur District, Hatkanagale, 21.10.2016, *Amrapali Kattee* AVK1471 (SUK). **Madhya Pradesh**, Mandala District, Kamta,

09.03.1962, *J.K. Maheswari* 4698 (CAL); Indore District, Kasturbagramkrishikshetra, 28.01.1987, *K.K. Khanna & R. Saran* 38950 (CAL); Chitrakoot District, Hanumandhara, 16.02.1987 *P. Prasad* 31754 (CAL). **Mizoram**, Bharara, 15.12.1998, *A.K. Baisheya* 105699 (ASSAM). **Meghalaya**, Shillong, 08.06.1923, *Upendranath Kanjilal* 19880 (ASSAM); Cherrapunjee, May 1961, *H. Deka* 32991 (ASSAM); Mulky village, 19.11.1962, *S.K. Kar* 31620 (ASSAM). **Odisha**, Bhatipathar, 01.11.1959, *G. Panigrahi* 20721 (CAL); Hirakud, 08.11.1986, *Sauris Panda & A.P. Panda* 416 (CAL); Sundargarh District, Gopalpur, 24.12.1986, *A. Mukherjee & D. Namhata* MN701 (CAL). **Tamil Nadu**, Maruthmalai, 03.12.1956, *K.M. Sebastine* 1580 (CAL); Foot of Siruvani, 13.12.1956, *K. Subramaniam* 1254 (CAL); Yercaud, 19.09.1990, *L. Shilaja* 3638 (CALI).

Note: The species exhibits considerable variation in both leaf morphology and flower colour. Leaves range from simple and entire to distinctly trilobed, most commonly bearing 3–7 shallow lobes. The flowers are variable in colour, ranging from scarlet red and orange to yellow.

Ipomoea horsfalliae Hook., Bot. Mag. 61: 3315. 1834. *Lectotype* (designated by Wood & Scotland 2017b): Icon. Bot. Mag. 61: t. 3315. 1834. *Epitype* (designated by Wood & Scotland, 2017b): A cultivated plant from Hookers Herbarium, January 1858, *s.coll. s.n.* (K [K000612699, digital image!]). **Figs. 24, 28 & 39**

Perennial climber, 5–10 m long. Stem twinning, climbing, cylindrical, glabrous. Leaves 5–10 × 4–8 cm, glabrous, palmately lobed; lobes 5, 2.5–6 × 1.5–2.5 cm, linear-lanceolate, apex acuminate, margin undulate. Petiole 5–8 cm long, glabrous. Inflorescence axillary many flowered dichasial cymes; peduncle 8–11 cm long, glabrous. Flowers bracteate, pedicellate; pedicel 1.5–3 cm long, glabrous; bracts small, linear, caducous, c. 0.2 × 0.1 cm, glabrous. Sepals 5, sub-equal, 0.6–1 × 0.5–0.8 cm, outer two sepals smaller, inner three sepals slightly larger smooth, ovate, obtuse, white at margin, glabrous. Corolla 5-lobed, 3–5

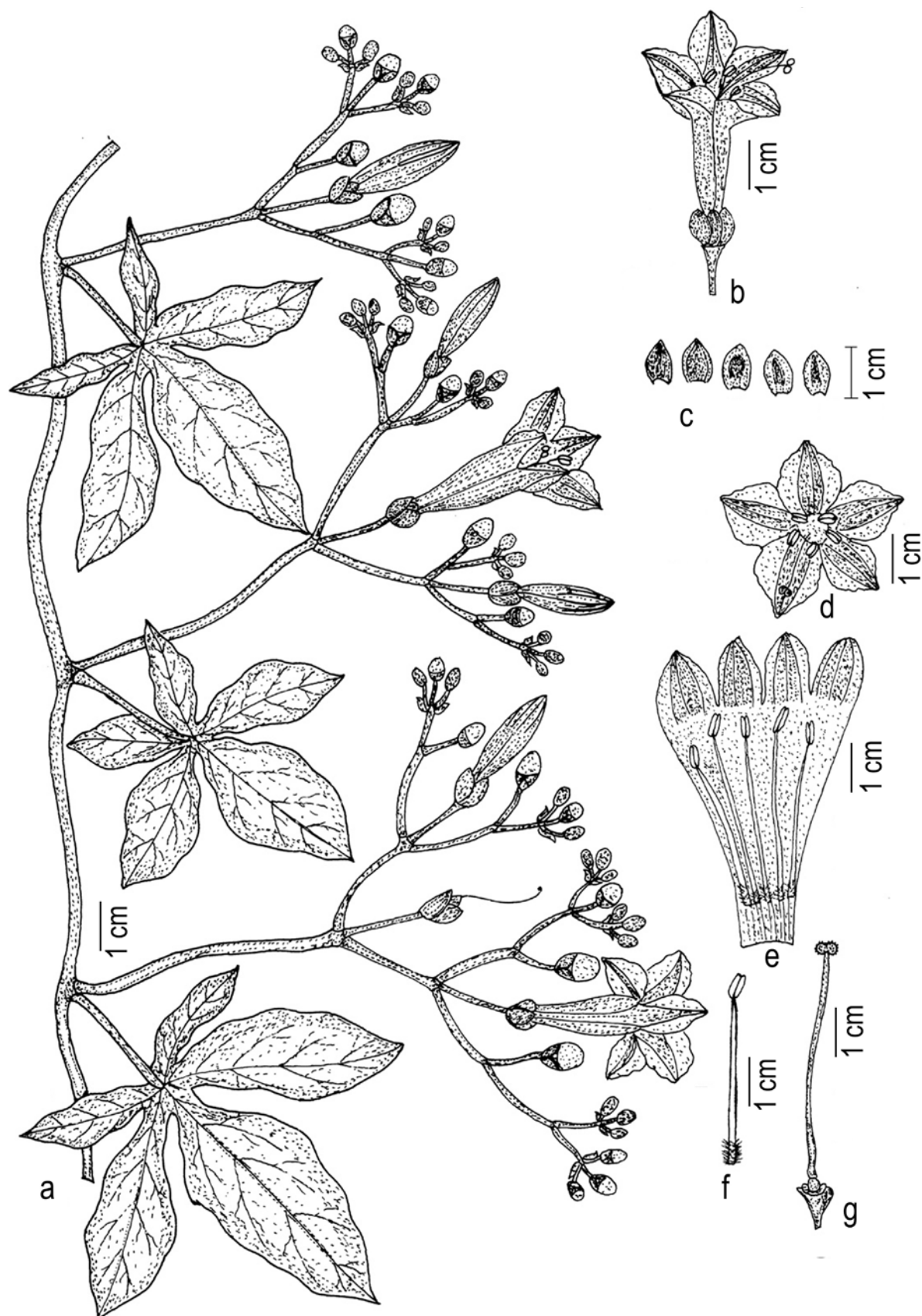


Fig. 24. *Ipomoea horsfalliae* L.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium (drawn by A.V. Kattée).

cm long, hypocrateriform; tube 2–3.5 cm long, shiny dark pink, dilated below the mouth; lobes 1.5 cm long, 2–3 cm wide at mouth, glabrous, shallow apiculate. Stamens 5; filaments subequal, 4.5–5 cm long; attached at c. 4 mm above the tube, exerted, densely hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 0.2 × 0.1 cm, light green, glabrous, 4-locular; ovule 1 in each locule; style 5–6 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate pink coloured. Fruits not seen.

Flowering: Profuse flowering was observed in August to November but in some gardens, it blooms throughout the year.

Habitat: It is grown as an ornamental plant for its showy flowers.

Distribution: Brazil, Caribbean, Honduras, Surinam, Sri Lanka Venezuela and India (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu). In India it is cultivated in the gardens for its attractive flowers.

Etymology: Specific epithet '*horsfalliae*' honours the English botanist, Charles Horsfall.

Specimens examined: INDIA, **Maharashtra**, Pune, 28.10.1954, V.M. Patel 47548 (BSI); Uran, 20.12.1965, P. Divakar 47537 (BSI); Kolhapur District, Kolhapur, 10.12.2015, Amrapali Kattee AVK1476; Ichalkaranji, 25.11.2017, Amrapali Kattee AVK1477 (NCK).

Ipomoea imperati (Vahl) Grisebach., Cat. Pl. Cub. 203. 1866; Naik, Singh & Ekka. J. Asia-Pacific Biodivers. 12(4): 713. 2019. *Convolvulus imperati* Vahl, Symb. Bot. 1: 17. 1790. *Lectotype* (designated by Valva & Sabato, 1983): ITALY, Italian sea beaches, Ill. Historia Naturale ed. 2: 671. 1672. **Fig. 39**

Perennial, creeping herbs, 60–120 cm long. Stem glabrous, rooting at nodes. Leaves oblong, lanceolate or ovate, 3–5 × 1.5–4 cm, fleshy, base shallowly cordate, margin entire or undulate, young leaves entire, developed with 3–5 lobes; lobes ovate to oblong, lateral lobes small, apex obtuse or emarginate. Inflorescence axillary,

solitary. Flowers pedunculate; peduncle 2–3 cm long; bracts lanceolate, c. 5 mm long, glabrous; pedicel 1–1.5 cm long. Sepals oblong, unequal, in whorls; outer 2 sepals 7–11 mm long; inner c. 1.5 cm long, leathery, apex obtuse to acute or mucronate, glabrous, pale green. Corolla white, with a pale-yellow tube with dark yellow centre, funnellform, 4–6 cm diam., glabrous. Stamens 5, unequally arranged; staminal tube base thick, villous, white; anthers oblong, pale yellow; filaments white glabrous. Ovary oblong, glabrous, pale green; stigma bilobed, minutely ridged, white; style bilobed, slightly rigid. Capsule enclosed with calyx, ellipsoid, glabrous; seeds c. 6 mm long, tomentose, margins with long simple hairs.

Flowering & fruiting: Flowering from March to April and fruiting from May to June.

Habitat: Grows along sea-shores in the Andaman Islands.

Distribution: Africa, Australia, Brazil, Caribbean, China, Europe, Indonesia, Japan, Malaysia, Pacific Islands, Philippines, Sri Lanka, Thailand, United States of America, Vietnam and India (Andaman and Nicobar Islands).

Etymology: The species epithet '*imperati*' commemorates Francesco Imperato, an Italian botanist.

Specimens examined: INDIA, **Andaman and Nicobar Islands**, Little Andaman Island, Hut Bay 23.03.2019, M. Chennakesavulu Naik & Gautam Anuj Yekka 33609 (PBL); Harbinder Bay 24.03.2019, M. Chennakesavulu Naik, Lal Ji Singh & Gautam Anuj Yekka 33619 (PBL).

Notes: The species is very rare, reported only from the Andaman and Nicobar Islands in India (Naik et al., 2019).

Ipomoea indica (Burm.) Merr., Interpret. Rumph. Herb. Amb. 445. 1917. *Convolvulus indicus* Burm., Ind. Univ. Herm. Amboin. 7: 6. 1755. *Lectotype* (designated by Fosberg, 1976): Icon. Besler, Hort. Eyst. Aest. Ord. 8: t.2. 1613. *Ipomoea*

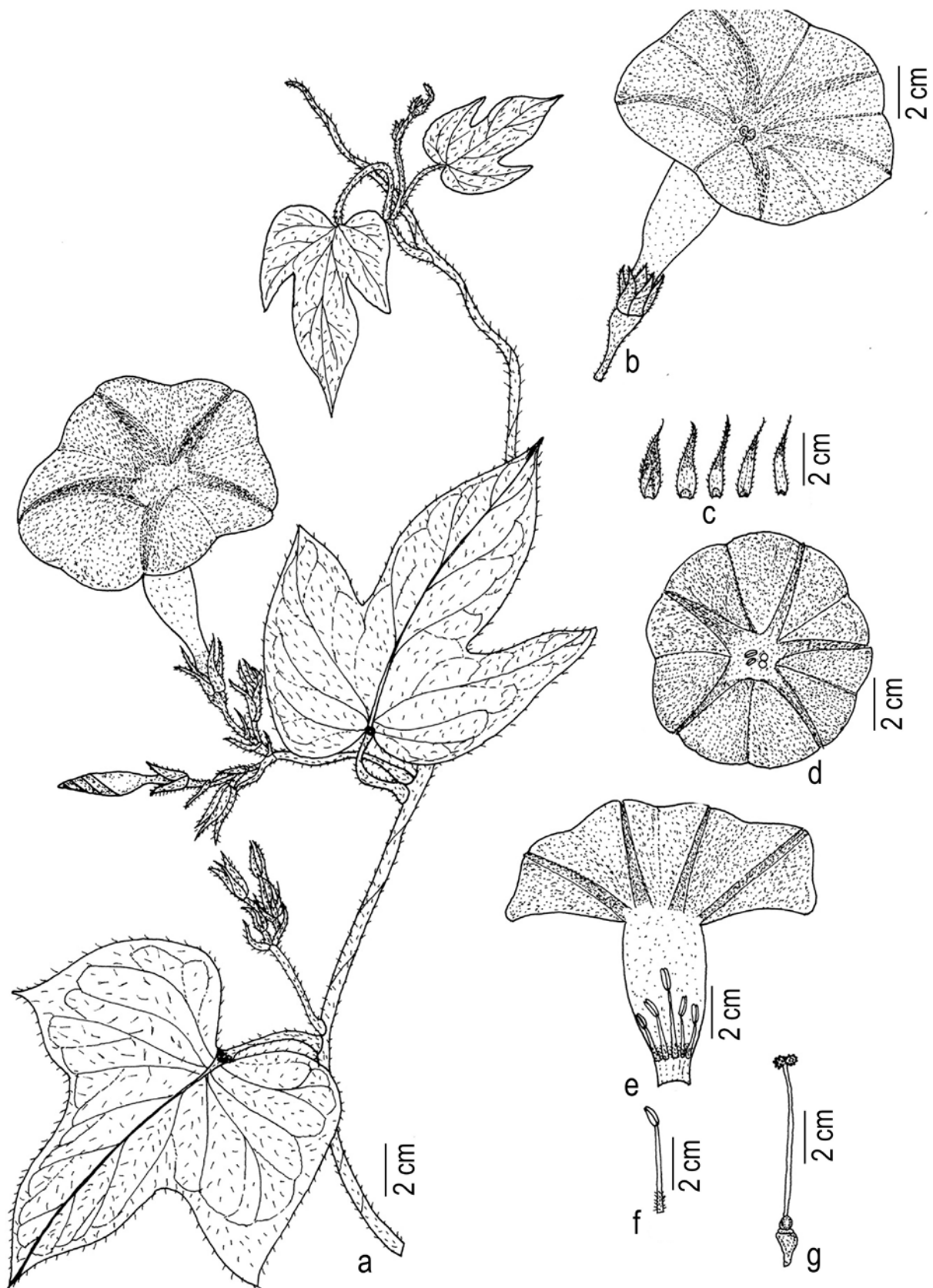


Fig. 25. *Ipomoea indica* (Burm.) Merr.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium (drawn by A.V. Kattée).

learii Knight ex Paxton., Mag. Bot. 6: t. 267. 1839; Cooke, Fl. Pres. Bombay 2: 251. 1905. *Type*: Paxton's Mag. Bot. 6: t. 267. 1839. **Figs. 25, 28 & 39**

Perennial climber, several meter long. Stem slender, twinning, rooting at lower nodes, hairy. Leaves often trilobed as well as entire, ovate, cordate at base, 14–18 × 12–16 cm, pubescent, acute at apex, margin entire. Petiole 3–6 cm long, hairy. Inflorescence axillary cyme, usually 3–9 flowered; peduncle 4–6 cm long, hairy. Flowers bracteate, pedicellate; pedicel 1–1.5 cm long, hairy; bracts small, linear, lanceolate, caducous, 0.7–1 × 0.2 cm, hairy. Sepals 5, sub-equal, linear, acute, 1–3 × 0.4–0.5 cm faintly veined, outer two sepals, smaller, inner three sepals slightly larger than outer sepals, white ciliated at margin, acute, sparsely hairy. Corolla 5-lobed, 5–7 cm long, infundibuliform, tube 2.5–4.5 cm long, pinkish red inside, slightly reddish at outside; lobes 2.5–3 cm long, dark purple to reddish purple, 6–8 cm wide at mouth, glabrous, mid-petaline bands pink-purple, apiculate. Stamens 5; filaments unequal, 1–2.5 cm long; attached at c. 5 mm above the base of tube, shortly exerted at mouth, hairy at base. Ovary c. 0.2 × 0.2 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style 3.5–3.8 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule not seen.

Flowering & fruiting: Throughout year, fruiting is very rare.

Habitat: It grows at moist and cool places. Mostly cultivated for its showy flowers and also occur in the wild; it is common along Ghats area.

Distribution: Argentina, Belize, Bhutan, Bolivia, Brazil, Caribbean, Chile, China, Colombia, Japan, Madagascar, Mexico, Myanmar, Nepal, Pakistan, Panama, Philippines, Sri Lanka, United States, Venezuela and India (Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, Jharkhand, West Bengal, Assam, Meghalaya, Mizoram).

Specimens examined: INDIA, **Karnataka**,

Bababhudangiri, 04.11.2017, *Amrapali Kattee* AVK 1481 (NCK). **Kerala**, Chengancherry District, Kurusumala, 12.09.1984, *V.J. Antony* 143347 (MH); Wayanad, 25.12.1985, *A.K. Pradeep* 5982 (CALI). **Maharashtra**, Mumbai, Victoria garden, 15.07.1954, *V.M. Patel* 47603 (BLATT); Pune District, Purandhar, 12.10.1954, *V.M. Patel* 47612 (BLATT); Nanded District, Rinwat, 14.11.1976, *B.R. Zate* 268 (BAMU); Aurangabad, 28.10.1983, *V.N. Pardeshi* 3256 (BAMU). **Meghalaya**, Shillong, 08.05.2017, *Amrapali Kattee* AVK1483 (NCK). **Tamil Nadu**, Nilgiri District, Kotagiri to Kottalettu, 07.10.1956, *K.M. Sebastine* 939 (CAL); Konavakarai, 07.01.1957, *K. Subramanyam* 1907 (CAL); Salem, 09.05.1978, *A. Mohan* 13415 (MH); Dharmapuri, 19.12.1978, *K.M. Matthew & N. Venugopal* 20495 (MH); Nilgiri, 24.11.2015, *Amrapali Kattee* AVK1482 (NCK).

Notes: This species is often misidentified as *Ipomoea purpurea* (L.) Roth because of its purple flowers. Morphologically, it closely resembles both *I. nil* (L.) Roth and *I. purpurea*, but can be readily distinguished by its linear to narrowly lanceolate, acute sepals that are sparsely hairy.

Ipomoea kotschyana Hochst. ex Choisy in DC., Prodr. Syst. Naturalis. Regni. Veg. 9: 354. 1845. *Type*: SUDAN, *s.d.*, *Schimper* 13 (K [K000097014, digital image!]). **Figs. 26, 28 & 39**

Annual, milky creeper, 50–150 cm long. Stem many, creeping, hairy. Leaves 2.5–5 × 2–4 cm, pubescent, pinnatipartite, margin entire. Petiole 1–2 cm long, pubescent. Inflorescence axillary, usually 1–3 flowered in condensed cymes; 0.3–0.5 cm long, hairy. Flowers bracteate, sessile; bracts small, linear, caducous, c. 2 × 1 mm, hairy. Sepals 5, sub-equal, 0.4–0.6 × 0.1–0.3 cm, outer two sepals smaller, inner three sepals slightly larger than outer sepals, linear, hairy. Corolla 5-lobed, 0.6–0.8 cm long, hypocrateriform; tube 0.4–0.5 cm long, dark pink inside; lobes c. 0.4 cm long, 0.8–1 cm wide at mouth, glabrous, mid-petaline bands pink, shallow apiculate. Stamens 5; filaments sub-equal, 0.3–0.5 cm long; attached at c. 1 mm above

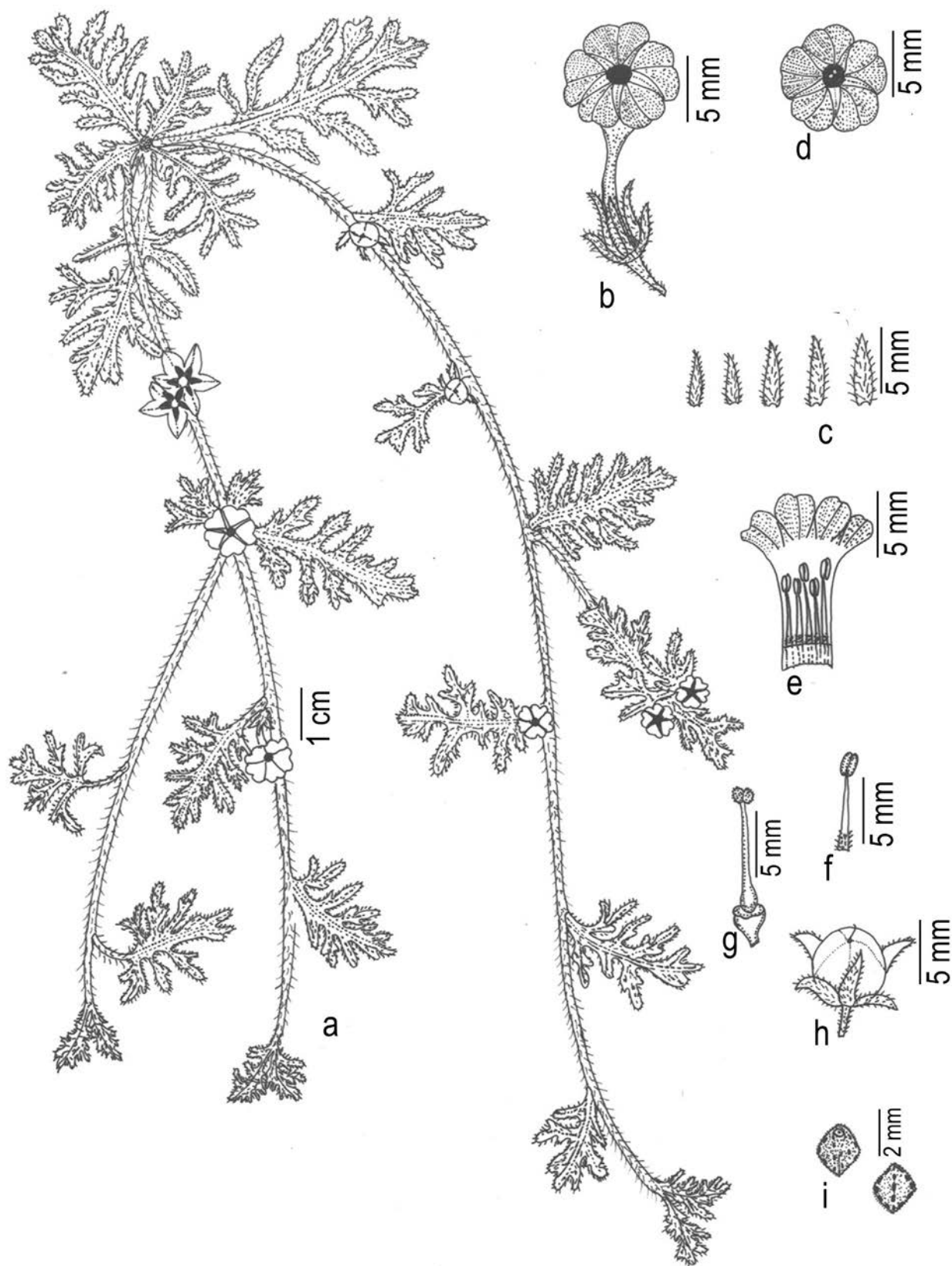


Fig. 26. *Ipomoea kotschyana* Hochst. ex Choisy: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoeceium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

the base of tube, included, hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 0.1 × 0.1 cm, light green, glabrous, 3 locular; ovule 2 in each locule; style c. 0.5 cm long, glabrous; stigma c. 0.1 × 0.1 cm, bilobed, capitate. Capsule sub-globose, ovoid, 0.3–0.5 cm, 6-valved, glabrous, straw coloured. Seeds 5–6 per capsules, c. 0.3 × 0.2 cm and light brown, ornamented with black dots, pubescent.

Flowering & fruiting: Flowering from October to November and fruiting from December to January.

Habitat: It grows in sandy soil.

Distribution: Mauritania, Mali, Ethiopia, Sudan and India (Gujarat, Kutch District); frequent in the Indian Desert but common in the African deserts.

Etymology: Specific epithet '*kotschyana*' honours Australian botanist, Theodor Kotschy, the collector of this taxon.

Specimen examined: INDIA, **Gujarat**, Bhuj, 27.09.1952, J.E. Dharma 311400 (CAL) [This is the only specimen housed at CAL, misidentified as *I. dissecta* (Jacq.) Pursh]; Kutch district, Kutch, 04.10.2017, Amrapali Kattee AVK1486 (NCK).

Ipomoea laxiflora H.J.Chowdhery & Debta, Indian J. Forest. 32(1): 120. 2009. *Type:* INDIA, **Uttarakhand**, Dehra Dun district, Kaulagarh Road, Botanical Survey of India Campus, 750 m, 28.09.2008. H.J. Chowdhery 108601 (*holo* BSD!; iso CAL [CAL0000018586!]). **Figs. 27, 28 & 39**

Annual climber, up to 5 m long. long; stem purplish green, quadrangular, sparsely hairy at nodes. Leaves variable, simple, entire, 5–12 × 5–10 cm, glabrous, distinctly trilobed; lobes shallow or sharp; petiole c. 12 cm long, glabrous. Inflorescence a lax cyme, 3–7-flowered; peduncle 6–8 cm long, slightly verrucose, swollen at apex; pedicel 2.5–3 mm long, quadrangular, glabrous, elongated in fruits. Bracts linear, caducous, 3–4 mm long. Calyx 5, subequal, 0.8–1 × 0.2–0.3 cm, faintly veined, purplish at apex, glabrous. Corolla

funnel-shaped, c. 1.5 × 1.2 cm; limb 5-lobed; lobes apiculate. Stamens 5; filaments unequal, included, 0.7–0.8 cm long, hairy at base. Ovary c. 1 × 1.5 mm, glabrous; style c. 1 cm long; stigma unlobed or 2-lobed. Capsules ovoid, c. 5 × 6 mm, 4-valved, with purple tinge when young, glabrous; seeds c. 4 × 4 mm, brownish-black, glabrous.

Flowering & fruiting: Flowering from August to October and fruiting from October to December.

Distribution: India (Uttarakhand, Maharashtra, Goa, Karnataka, Madhya Pradesh, Gujarat almost in every state).

Specimens examined: INDIA, **Maharashtra**, Kolhapur district, Ichalkaranji, 02.10.2016, Kattee & Shimpale 1541, 1542, 1543 (NCK); Gadchiroli district, Gadchiroli, 15.10.2016, Kattee & Shimpale 1544, 1545 (NCK).

Conservation status: The species is reported from more than six states of India and the area of occupancy (AOO) is estimated to be more than 2000 km² and Extent of occurrence (EOO) is more than 20,000 km² hence it is provisionally assessed here as Vulnerable [B2ac(iii)], in accordance with the IUCN categories and guidelines (IUCN, 2024).

Note: The species was first reported outside its type locality and from Maharashtra by Kattee et al. (2019). Although it was subsequently synonymized with *Ipomoea triloba* L. by Wood et al. (2020), field observations indicate that its populations are stable and widely distributed across India and Sri Lanka. Molecular studies are required to clarify its taxonomic status; however, based on its distinct morphological characters, it is treated here as a separate species.

Ipomoea littoralis Blume, Bijdr. Fl. Ned. Ind. 13: 713. 1825. *Type:* INDONESIA, Java, *s.d.*, Blume 1710 (L [L0004193 digital image!]).

Ipomoea denticulata (Lam.) Choisy, Mém. Soc. Phys. Genève 6: 467 [85]. 1834. *comb. illeg., non* Brown, 1810.

Ipomoea nicobarica Kurz, J. Asiat. Soc. Bengal, 2

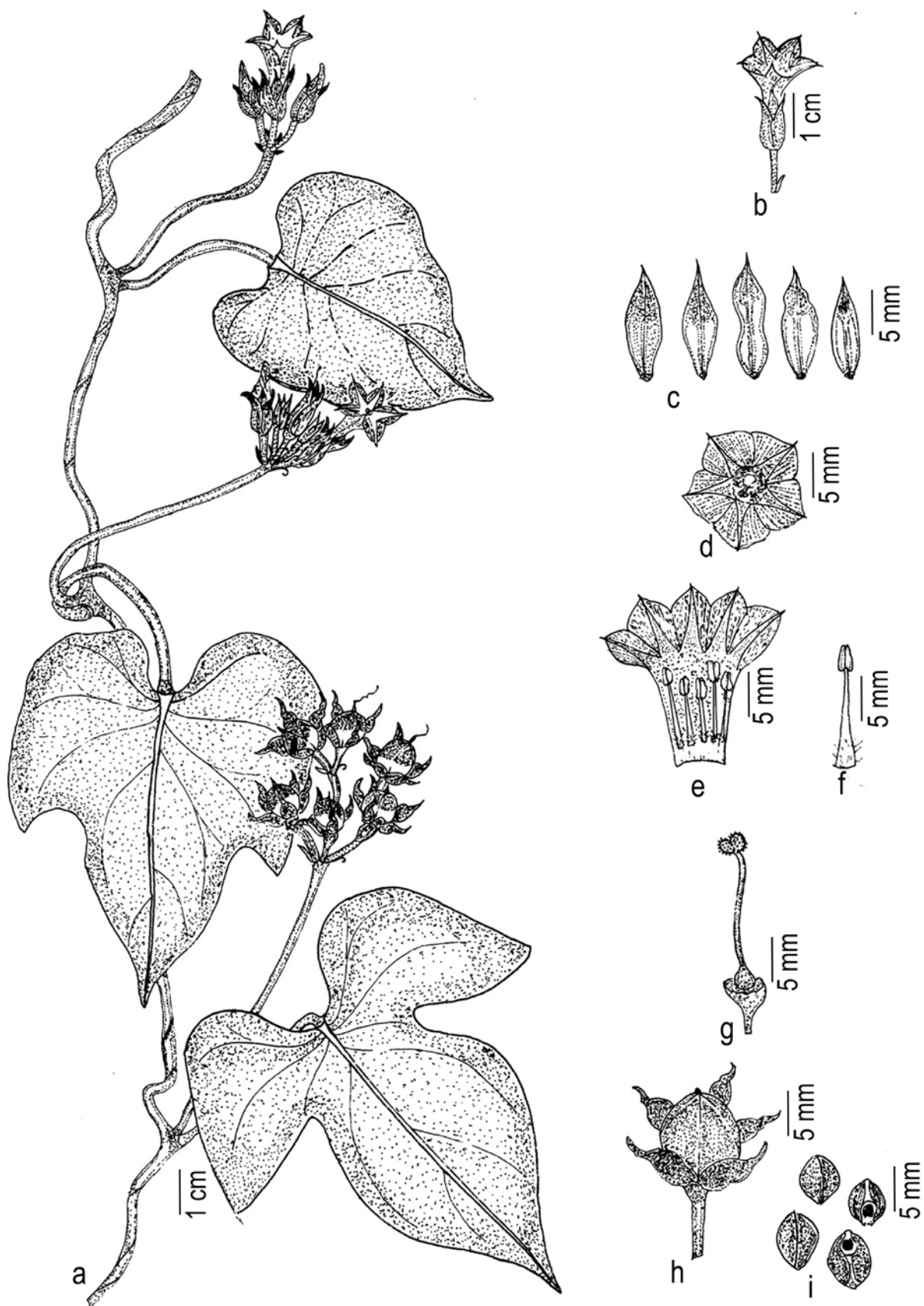


Fig. 27. *Ipomoea laxiflora* H.J. Chowdhery & Debta: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

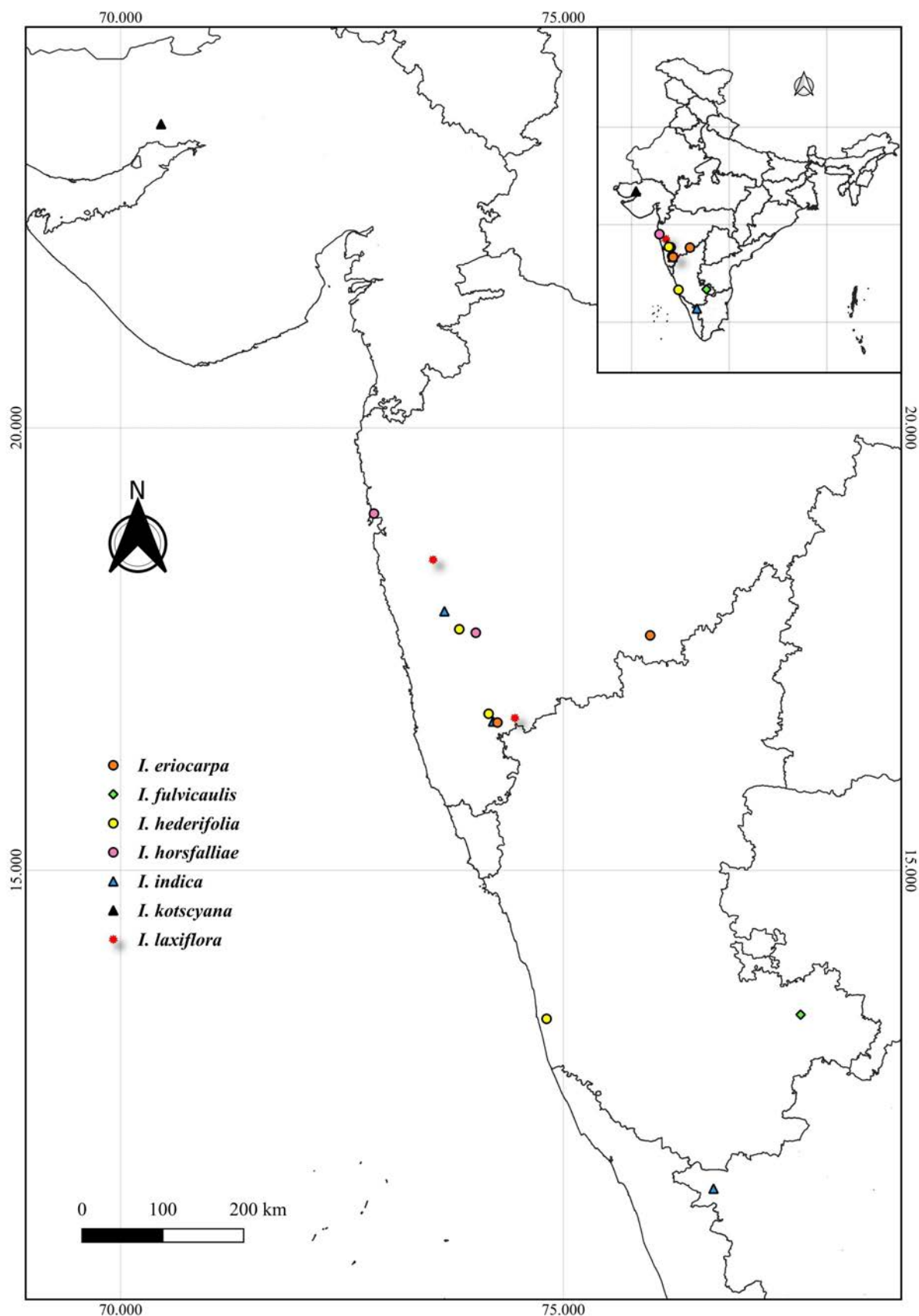


Fig. 28. Map showing collection sites of *Ipomoea eriocarpa* R. Br., *I. fulvicaulis* (Hochst. ex Choisy) Boiss. ex Hallier f., *I. hederifolia* L., *I. horsfalliae* Hook., *I. indica* (Brum.) Merr., *I. kotschyana* Hochst. ex Choisy & *I. laxiflora* H.J. Chowdhery & Debta (prepared using QGIS).

(Nat. Hist.) 45(3): 141. 1876. *Lectotype* (designated by Wood *et al.*, 2020): INDIA, Nicobar Islands, Kamorta, S. Kurz *s.n.* (K [K001081746, digital image!]).

Ipomoea gracilis sensu auct. mult., non Brown, 1810. *Convolvulus gracilis* (R.Br.) Spreng., Syst. Veg., ed. 16. 1: 604. 1824. **Figs. 29, 36 & 39**

Perennial milky climber, c. 5 m long. Stem twinning, angular, rooting at nodes, glabrous.

Leaves 3–6 × 2.5–5 cm, glabrous, entire as well as trilobed, cordate at base, often emarginate at apex, margin entire or undulate. Petiole 2–5 cm long, glabrous. Inflorescence axillary cyme, usually 1–2 flowered; peduncle 2–5 cm long, swollen at tip. Flowers bracteate, pedicellate; pedicel 1.5–2 cm long, glabrous; bracts small, linear, caducous, c. 0.2 × 0.1 cm long, glabrous. Sepals 5, subequal, 0.6–1.5 × 0.4–0.8 cm faintly veined, outer two sepals smaller, inner three sepals slightly larger than

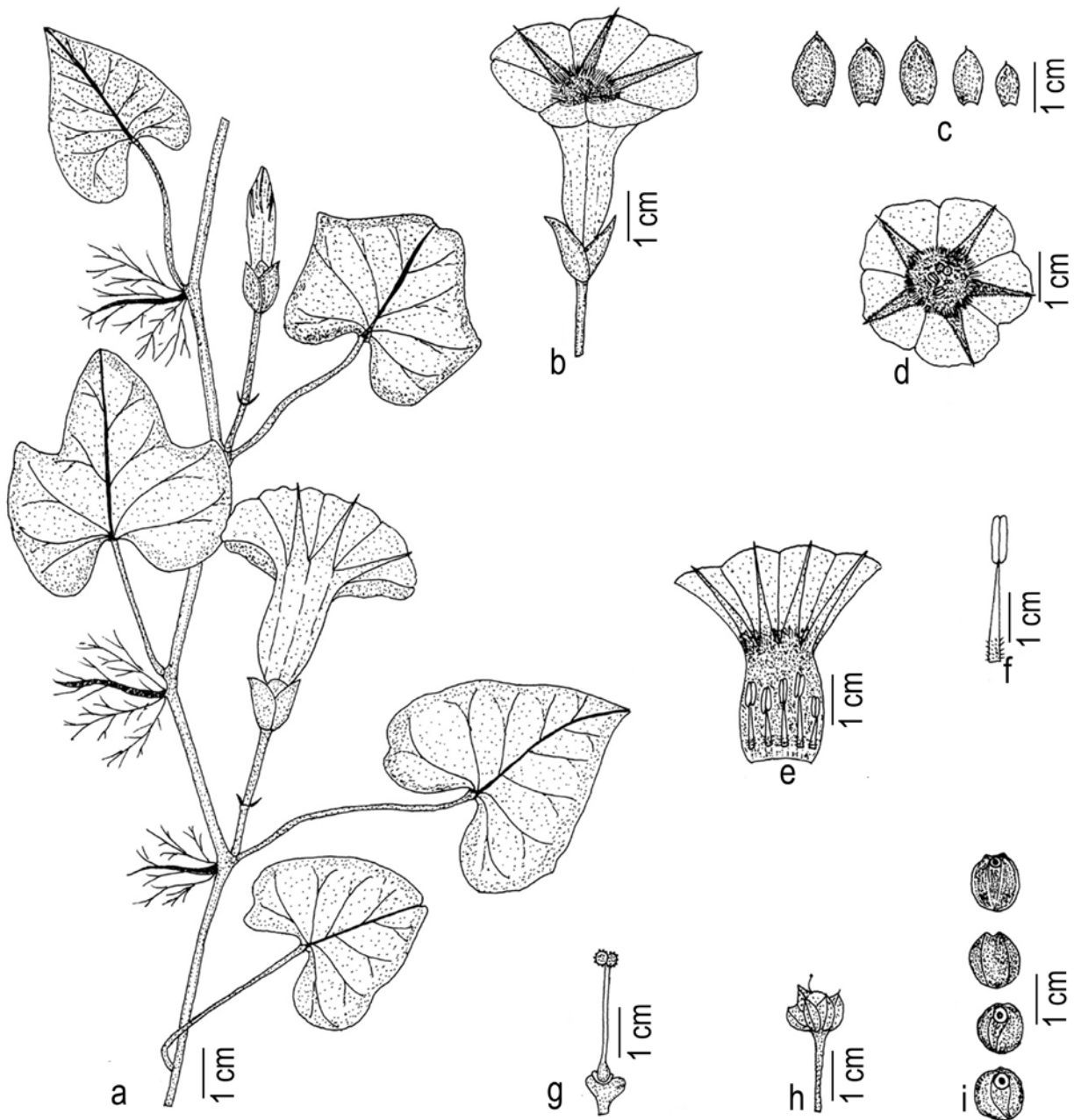


Fig. 29. *Ipomoea littoralis* Blume: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattée).

outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 2–3 cm long, hypocrateriform, tube 2–2.5 cm long, dark purple inside; lobes 2 cm long, 3–4 cm wide at mouth, glabrous, mid-petaline bands pink, shallow apiculate. Stamens 5; filaments subequal, 0.6–1.2 cm long; attached at c. 0.2 cm above the base of tube, included, hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 0.3 × 0.1 cm, light green, glabrous, 4-locular; ovule 1 in each locule; style 1.8–2 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule sub-globose, ovoid, 0.6–0.8 cm, often two or three lobed, glabrous, brownish, with pointed apex. Seeds 2–4 per capsules, 0.4–0.6 × 0.5–0.6 cm, rounded, brownish and glabrous.

Flowering & fruiting: Flowering from August to October and fruiting in November.

Habitat: Grows along seashores in the shade of costal trees.

Distribution: Australia, Cambodia, China, Fiji, Japan, Madagascar, Myanmar, Philippines, Sri Lanka, Thailand, United States, Vietnam and India (Karnataka, Lakshadweep and Andaman Nicobar Islands).

Specimens examined: INDIA, **Andaman and Nicobar Islands**, Nicobar, Kamorta, February 1875, *S. Karzan s.n.* (BSI); South Andaman, Great Coccus Island, 04.12.1898, *David Prain* 312102 (BSI); *Ibid.*, 12.11.1912, *Dr. Kings coll.* 312112 (BSI); Brookes, 07.11.1973, *N.P. Balkrishnan* 585 (CAL); South Nicobar, Galathea river mouth, 18.07.1976, *N.P. Balakrishnan* 3843 (CAL); Little Andaman, Hut Bay, 15.01.1977, *N. Bhargava* 5140 (CAL). **Goa**, Cavelossim seashore, 16.09.1965, *P.J. Cherian* 82538 (BSI). **Karantaka**, Uttar Kanada, Karwar beach, 15.07.1885, *W.A. Talbot* 6675 (BSI); Ankola, 27.08.1993, *J.C. Dharma* 208 (BSI); Udupi, Kaup beach, 03.10.2004, *K.G. Bhat* 126746 (BSI); Udupi, Kaup beach, 6.11.2017, *Amrapali Kattee* AVK1496 (NCK). **Lakshadweep Island**, Laccadive Island, 06.12.1891, *H.M.I.M.* 312119 (CAL); Kadmat Island, 26.02.1973, *B.M. Wadhawa*

78657 (BSI).

Notes: The species can be readily recognized in the field by its entire leaves, hypocrateriform flowers (smaller than those of *Ipomoea pes-caprae* (L.) R.Br.) and glabrous, rounded seeds. It exhibits remarkable variation in leaf morphology; even within a single plant, leaves may range from simple cordate forms to shallowly lobed ones, with the apex varying from acute to emarginate.

Ipomoea lobata (Cerv.) Thell., Viertel, Nat. Ges. Zurich 64: 775. 1919. *Mina lobata* Cerv., Nov. Veg. Descrip. 3. 1824. *Quamoclit mina* G.Don, Gen. Hist. 4: 259. 1838. *Type:* Cultivated plant from Mexico (holo G, *n.v.*).

Annual twining herb, stem usually glabrous. Leaves petiolate, 3–12 × 2.5–10, ovate or, more commonly 3-lobed to about half way, base cordate with round ed auricles, apex shortly acuminate, obtuse and mucronate, near glabrous but sometimes puberulent on the veins beneath, abaxially paler; petioles 2–5 cm. Inflorescence of long-pedunculate axillary cymes appearing to form an elongate bifurcate secund raceme; peduncles (5–)10–16(–30)cm; rhachis above branching point, (2–)8–12 cm; bracteoles 1–2 mm, linear-lanceolate, moderately persistent; pedicels slender, 2–6 mm, longer below; sepals dissimilar, glabrous or, occasionally, thinly pilose, outer oblong ovate, 2–3 × 1.5 mm with terminal awn 2–4 mm long, inner sepals with broader base, elliptic, 3–3.5 × 2 mm and awn 2–4 mm long; corolla tubular, curved, sub-urceolate, 1.8–2.5 cm long, yellow, red or orange, limb formed of 5 small tooth-like lobes; stamens strongly exserted; style exserted. Capsules subglobose, 7 mm diam., glabrous; seeds 4 mm long, pubescent with hairs in patches.

Flowering & fruiting: Flowering and fruiting throughout the year.

Habitat: Cultivated in the gardens as an ornamental.

Distribution: It is a native of Mexico Southwest but introduced into many countries like Argentina

Northwest, Bangladesh, Bolivia, Brazil North, Brazil South, Brazil Southeast, China Southeast, Colombia, DR Congo, Ethiopia, Guatemala, Honduras, India, Jawa, Kenya, Madagascar, Malaya, Mexico Central, Mexico Gulf, Mexico Northeast, Mexico Southeast, Myanmar, North Carolina, Tanzania, Venezuela and Zimbabwe.

Ipomoea mauritiana Jacq., Collect. 4: 216. 1791. *Type*: Icon, Jacquin's illustration, Pl. Hort. Schoenbr. t.200. 1797.

Ipomoea paniculata (L.) R.Br., Prodr. 486. 1810. *non* Burman, 1768; Gamble, Fl. Pres. Madras 2: 914. 1923.

Ipomoea digitata auct. *non* Linnaeus, 1759; C.B. Clarke in Hook.f., Fl. Brit. Ind. 4: 202. 1883; Cooke, Fl. Pres. Bombay 2: 249. 1905. **Figs. 30, 36 & 39**

Perennial climber of several metres long. Root tuberous. Stem twinning, smooth, glabrous. Leaves palmatipartite, 7–15 × 8–15 cm, 5–7 lobed; lobes 9–11 × 3–6 cm, linear, obtuse at apex, glabrous, margin undulate. Petiole 3–8 cm long, glabrous. Inflorescence axillary cyme, 3–12 flowered in long dichasial; peduncle 5–20 cm long, glabrous. Flowers bracteate, pedicellate; pedicel 1–2 cm long, enlarged in fruit, glabrous; bracts small, linear, caducous, c. 0.3 × 0.2 cm, glabrous. Sepals 5, sub-equal, 0.6–0.8 × 0.7–0.8 cm, outer two sepals thick, smaller, inner three sepals slightly larger than outer sepals, smooth, papery at margin, ovate, obtuse, glabrous. Corolla 5-lobed, 5–7 cm long, infundibuliform, tube 2–3.5 cm long, dark pink inside; lobes 2–3 cm long, 5–7 cm wide at mouth, glabrous, mid-petaline bands pink, shallow apiculate. Stamens 5; filaments sub-equal, 1–1.5 cm long, attached at c. 0.5 cm above base of tube, included, hairy at base, anthers c. 0.3 cm long. Ovary c. 0.3 × 0.2 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style c. 1.6 cm long, glabrous; stigma bilobed, capitate. Capsule c. 1.5 × 1.2 cm, sub-globose, ovoid, 4-valved, ovoid, glabrous, brownish. Seeds 0.2–0.4 × 0.5 cm, white or brown, hairy at margin;

hairs white, 0.6–1.5 cm long.

Flowering & fruiting: Flowering from August to September and fruiting from October to December.

Distribution: Belize, Bolivia, Brazil, Cambodia, Caribbean, China, Colombia, Japan, Madagascar, Mauritius, Myanmar, Nicaragua, Panama, Peru, Philippines, South Africa, Thailand, Vietnam and India (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Chhattisgarh, Odisha, West Bengal, Assam, Arunachal Pradesh).

Habitat: It climbs on shrubs of deciduous forest vegetation.

Etymology: Specific epithet '*mauritiana*' refers to the type locality, Mauritius.

Specimens examined: INDIA, **Andaman and Nicobar Islands**: Andaman, December 1900, Dr. Prain's collector 31497 (CAL); South Andaman, Ranghang, 09.11.1963, N.P. Balakrishnan 1362 (CAL). **Andhra Pradesh**, Kurnool District, Sunnipera, 21.10.1964, J.L. Ellis 42432 (MH) Chittoor District, on the way to Komatiwari, 28.12.1975, G.V. Subba Rao 46809 (ASSAM). **Arunachal Pradesh**, Lohit District, Iwam village, 22.12.1969, J. Joseph 55371 (ARUN). **Assam**, K.J. Hills 10.01.1916, Upendrananth Kanjilal 20036 (ASSAM); Meehangpani, s.d., D.B. Deb 30496 (ASSAM); Aka hills, 1934, N.L. Bor 37575 (ASSAM); K.J. Hills, 03.02.1941, G.K. Deka 20039 (ASSAM); Kaziranga Sanctuary, 16.06.1963, D.B. Deb 35000 (ASSAM); Kamrup District, Garlohang forest, 13.06.1964, A.S. Rao 36802 (CAL); Sonapur, 21.11.1969, N.P. Balakrishnan 46889 (CAL); Garo hills, Dudhnoi road 20.07.1976, M.K.V. Rao 64622 (CAL), Panitanki Umarangso, 06.01.2007, R.S. Bharuch 69165 (ASSAM). **Chhattisgarh**, Bastar District, Kutansar, 26.08.1959, K. Subramanyam 8643 (CAL). **Dadra & Nagar Haveli**, Dapada Chinchpada forest, 06.10.1963, M.Y. Ansari 94276 (CAL). **Karnataka**, Ankola to Belikeri, 30.07.1956, Z.J. Kapadia 47378 (BLATT); South

Kanara District, Sampaje, 22.07.1978, S.R. Ramesh 1907 (CAL). **Kerala**, Trivandrum District, Pulimath, 04.08.1978, M. Mohanan 58571 (MH); Kasargod District, Manjeshwar, 13.10.1979, R. Ansari 64884 (MH); Quilon District, Ranni R.F., 19.05.1980, C.N. Mohanan 65099 (CAL); Chengancherry District, Mothumorla, 03.09.1984, V.J. Antony 679 (CAL). **Maharashtra**, Borovali- Kanheri caves, 10.08.1954, V.M. Patel 47377 (BLATT); Uran-Mumbai, 05.09.1960, P. Diwakar 47668 (BLATT); Mokhada, 19.10.1967,

K.V. Billore 11198 (BLATT); Thane District, Mumbra hills, 09.09.1968, K.V. Billore 116610 (CAL); Ratnagiri District, Pali Village, 15.08.2015, Amrapali Kattee AVK 1511. **West Bengal**, Hoogly, Debnandpur, 28.11.1961, P. Hazra 221 (CAL); Howrah District, Panpur, 04.05.1964, S.S.R. Bennet 697 (CAL); Midnapur District, Patanda, 14.10.1975, S. Majhi 1947 (CAL); Dinapur District, Chapra, 26.08.1984, R.N. Banerjee 18714 (CAL).

Ipomoea mombassana Vatke, Linnaea 43: 515. 1882; Biju et al., J. Econ. Taxon. Bot. 22 (2): 417.

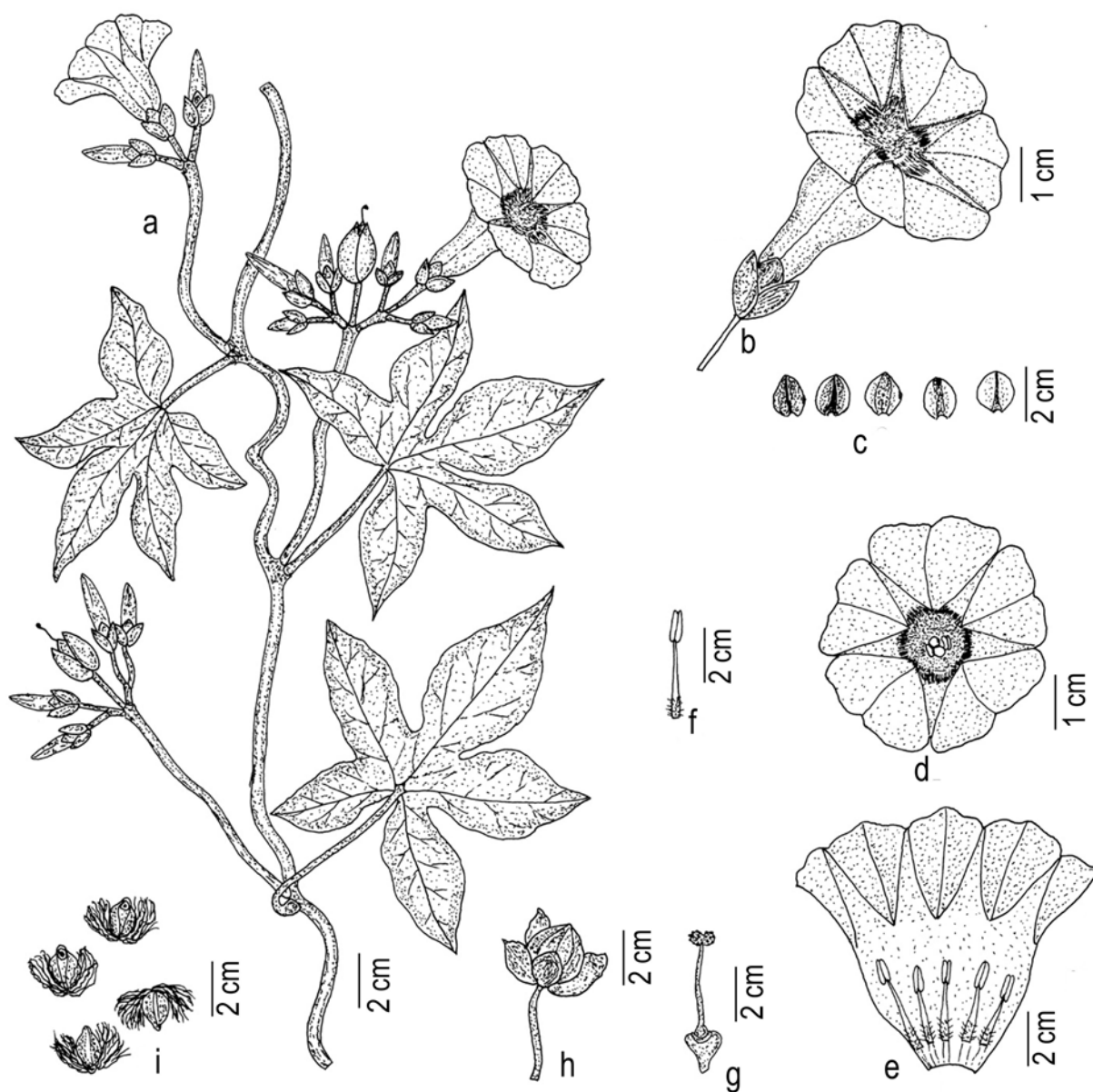


Fig. 30. *Ipomoea mauritiana* Jacq.: **a**. Flowering twig; **b**. Single flower; **c**. Sepals; **d**. Flower-top view; **e**. Corolla-split open; **f**. Single stamen; **g**. Gynoecium; **h**. Capsule; **i**. Seeds (drawn by A.V. Kattee).

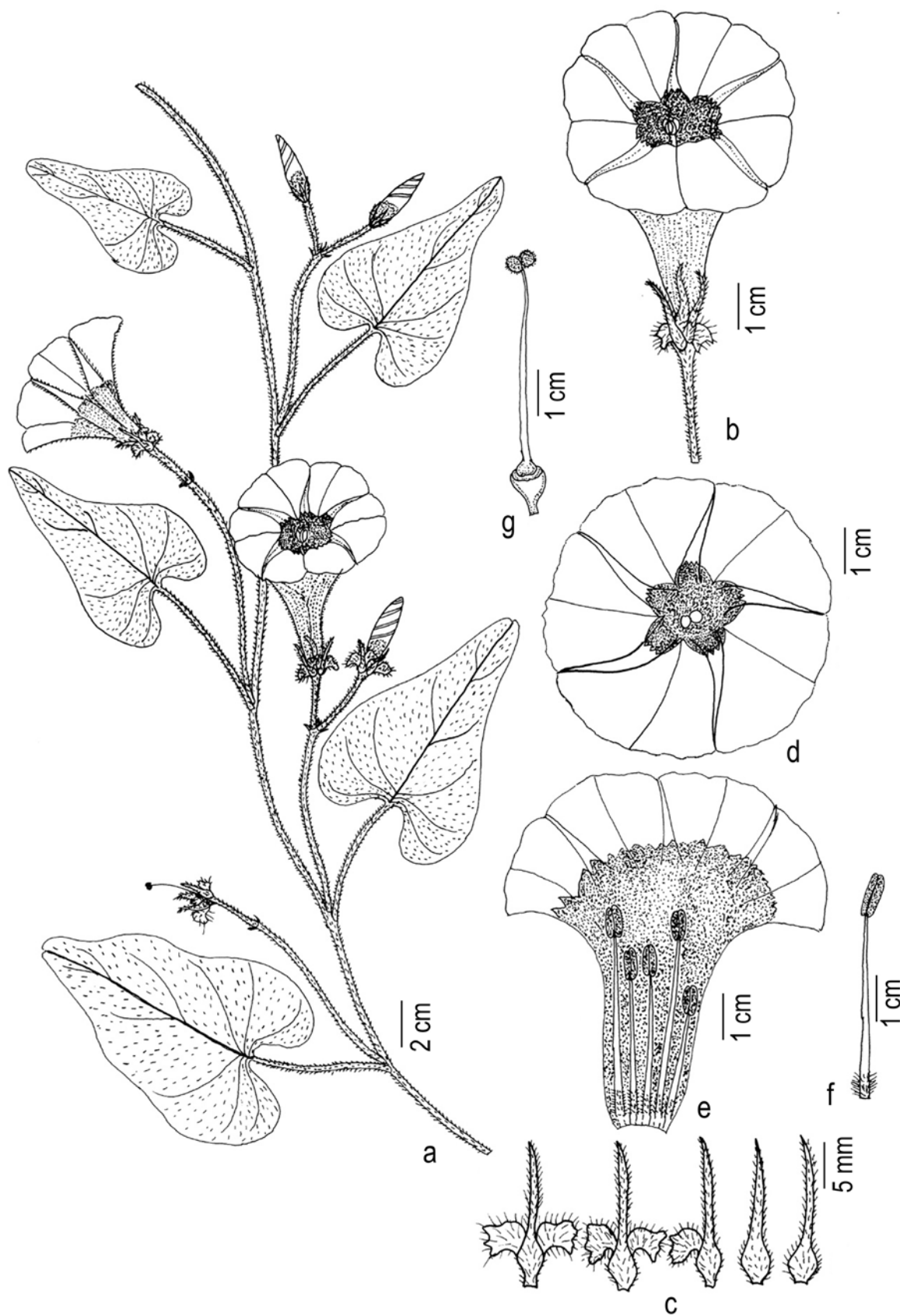


Fig. 31. *Ipomoea bombassana* Vatke: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium (drawn by A.V. Kattée).

1998; Nayar *et al.*, Fl. Pl. Kerala 196. 2006. *Type*: KENYA, **Mombassa**, *s.d.*, J.M. Hildebrandt 2840 (K [K000097101, digital image!]). **Figs. 31, 36 & 39**

Annual twiner, 1–2 m long. Stem slender, twinning, hairy. Leaves triangular ovate, cordate with elongated leaf base, 7–8 × 5–6 cm, pubescent, acute at apex, margin entire. Petiole 4–10 cm long, pubescent. Inflorescence axillary cyme, usually 1 to few flowered; peduncle 4–8 cm long, hairy. Flowers bracteate, pedicellate; pedicel 3–5 cm long, pubescent; bracts small, linear, lanceolate, caducous, 0.2–0.5 × 0.1–0.2 cm, hairy. Sepals 5, sub-equal, linear, acute, 0.6–1.2 × 0.4–0.5 cm, outer three sepals winged at base, inner two sepals with dilated base, hairy. Corolla 5-lobed, 4–6 cm long, hypocrateriform, tube 2–3 cm long, purple inside; lobes 1.5–3 cm long, white, 3–5 cm wide at mouth, hairy, mid-petaline bands shallow apiculate, hairy outside. Stamens 5; filaments unequal, 1–2.5 cm long; attached at c. 5 mm above the base of tube, included, hairy at base; anthers c. 0.3 cm long, dark purple. Ovary c. 0.2 × 0.2 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style 3.5–3.8 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Fruits not seen.

Flowering & fruiting: Flowering from August to September and fruiting from October to November.

Habitat: Grows along roadsides climbing on bushes.

Distribution: Kenya, Tanganyika, Zanzibar and India (Kerala, Tamil Nadu and Maharashtra).

Etymology: Specific epithet '*mombassana*' indicate its type locality Mombasa in Keniya.

Specimen examined: INDIA, **Maharashtra**, Sangli District, Jath, 14.10.2018, *Amrapali Kattee* AVK2112 (NCK).

Note: This is a very rare species that was first added to the Indian flora by Biju *et al.* (1998). Previously, it had been reported only from two localities in Kerala and Tamil Nadu, namely Chinnar Wildlife

Sanctuary and the Batlagundu Ghats, respectively. During the present study, a single individual was recorded from Jath, Sangli District, Maharashtra. However, the plant was observed only in the flowering stage, and no fruiting material could be collected, therefore, the present description is partly based on the account provided by Biju *et al.* (1998).

Ipomoea muelleri Benth., Fl. Austral. 4: 423. 1868; Ariyan *et al.*, J. Biol. Sci. 7(4): 299. 2014. *Type*: NORTH AUSTRALIA, Sturt's Creek, *s.d.*, *F. Mueller s.n.* (K [K000830784 digital image!]). **Figs. 32 & 39**

Annual creeper, 0.5–1 m long. Stem slender, twinning, hairy. Leaves ovate, cordate, with elongated leaf base, 2–6 × 3–5 cm, pubescent, constricted at middle, emarginate or obtuse at apex, margin entire. Petiole 3–5 cm long, pubescent. Inflorescence axillary cyme, usually 1-few flowered; peduncle 2–6 cm long, hairy. Flowers bracteate, pedicellate; pedicel 1–1.5 cm long, pubescent; bracts small, linear, lanceolate, caducous, c. 0.1 × 0.4 cm, hairy. Sepals 5, sub-equal, linear, acute, 0.6–0.8 × 0.2–0.4 cm, outer two sepals, rhomboid at base, inner three sepals linear, hairy. Corolla 5-lobed, 1.5–2 cm long, infundibuliform, tube 0.6–0.8 cm long, purple inside; lobes 0.5–0.7 cm long, white, 2.5–3.5 cm wide at mouth, mid-petaline bands shallow apiculate. Stamens 5; filaments unequal, 0.5–0.8 cm long; included, hairy at base. Ovary c. 0.1 × 0.1 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style 0.8–1 cm long, glabrous; stigma c. 0.1 × 0.1 cm, bilobed, capitate. Capsules 0.8–1.1 cm in diam., dehisces into four equal parts, glabrous. Seeds 4 in each capsule, c. 0.2 cm long, hairy.

Flowering & fruiting: Flowering from November to December and fruiting from January to February.

Habitat: Grows along roadside grasslands.

Distribution: Australia and India (Tamil Nadu).

Etymology: Specific epithet '*muelleri*' was in honour of the German physician Ferdinand von Mueller.

Specimen examined: INDIA, **Tamil Nadu**, Coimbatore District, Maruthmalai road, 12.02.2013, Sarvalingam and Sivalingam Rajendran 006165 (BU).

Note: The species is extremely rare and is known only from a single collection made at its type

locality. Despite repeated surveys and targeted field visits to the area, the species could not be relocated. It is possible that the population has been extirpated due to habitat degradation and destruction, highlighting the need for further surveys and conservation assessments.

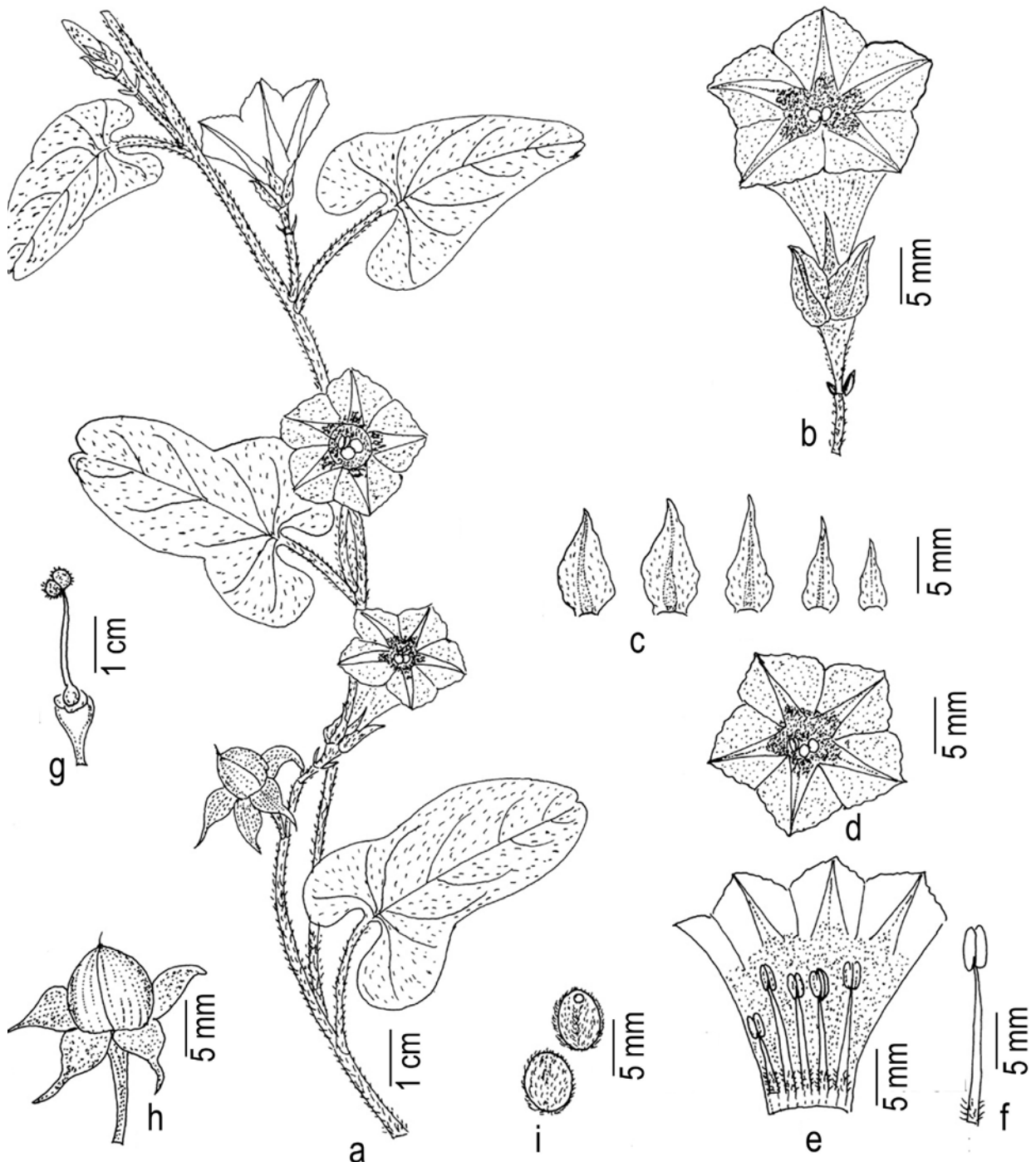


Fig. 32. *Ipomoea mulleri* Benth.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

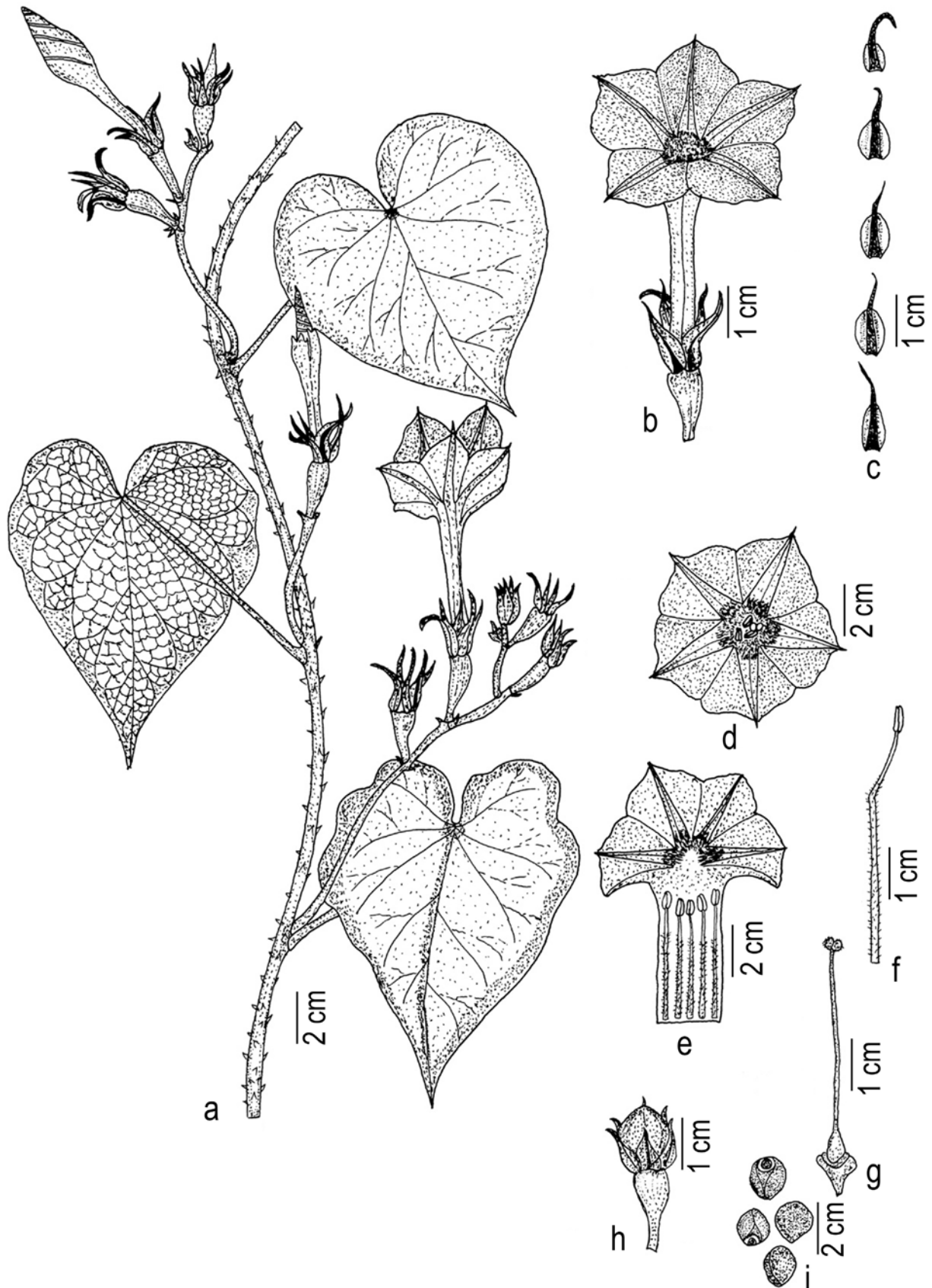


Fig. 33. *Ipomoea muricata* (L.) Jacq.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

Ipomoea muricata (L.) Jacq., Pl. Hort. Schoenbr. 3:40. 1798; C.B. Clarke in Hook. f., Fl. Brit. India 4: 197. 1883. *Convolvulus muricatus* L., Mant. Pl. 1: 44. 1767. *Calonyction muricatum* (L.) G. Don., Gen. Hist. 4: 264. 1838; Cooke, Fl. Pres. Bombay 2: 253. 1905; Gamble, Fl. Pres. Madras 2: 646. 1923. *Lectotype* (designated by Verdcourt, 1963): INDIA, **Surat**, Braad s.n. (LINN [LINN.218.18 digital image!]).

Ipomoea turbinata Lag., Gen. Sp. Pl. 10. 1816.

Figs. 33, 36 & 39

Annual, milky climber. Stem twinning, muricate. Leaves broad, ovate, 10–15 × 8–10 cm, cordate, with large rounded lobes at base, entire at margins, acute at apex, glabrous. Petiole 8–12 cm long, glabrous. Inflorescence axillary usually monochasial cyme of 1–5 flowers; peduncle 2.5–6 cm long, glabrous; flowers bracteate, pedicellate; bracts leafy, c. 0.7 × 0.3 cm, caducous near the joint of pedicel with peduncle, glabrous; pedicel 1.3–1.8 cm long, stout, thicker than peduncle, glabrous, enlarged and swollen in fruits. Calyx sub-equal, oblong, sharply mucronate at apex, 1.5–1.8 × 0.3–0.8 cm, glabrous. Corolla hypocrateriform, 5–7 cm long, purple dark purple at mouth; tube 4–5 cm, glabrous; lobes 2.5–3 cm long, pale purple, 5–7 cm wide at mouth, mid-petaline bands white purple, apiculate, glabrous. Stamens 5, unequal, 4.5–5 cm, shortly exserted at mouth, adnate to corolla at c. 4 mm above the base of tube, hairy at the base, anthers c. 0.3 cm long. Ovary ovoid c. 0.3 × 0.2 cm, glabrous; style slender, 4–4.2 cm long, shortly exserted at mouth; stigma 2-lobed. Capsule oblong c. 2.5 × 2 cm, mucronate with persistent style, brown, glabrous, dehisces into 4 equal parts from sidewalls. Seeds triangular, ovoid, c. 0.8 × 0.7 cm, dark grey to black, glabrous.

Flowering & fruiting: Flowering from September to October and fruiting from November to December.

Habitat: It grows along forest edges and along water canals in the forest regions.

Distribution: Argentina, Bolivia, Brazil, Ecuador, Mexico, Nicaragua, Panama, United States, Vietnam and India (Throughout).

Etymology: The specific epithet ‘*muricata*’ is derived from the Latin word ‘*muricatus*’ meaning rough with short hard points, referring to its stem.

Specimens examined: INDIA, **Dadra and Nagar Haveli**, Dalara forest, s.d., M.Y. Ansari 83726 (CAL). **Madhya Pradesh**, Saugor District, Hirapur tank, 03.10.1960, N.P. Balkrishnan 11401 (CAL); Mandala District, Khari R.F., 31.11.1961, N.P. Balkrishnan 6631 (CAL). **Maharashtra**, Pune District, Shivneri hills, 12.10.1962, M.Y. Ansari 83726 (BAMU); Osmanabad District, Osmanabad, 13.10.1964, V.N. Naik 861 (BAMU); Parbhani District, Hingoli, 02.10.1972, A.L. Vidya 363 (BAMU); Nanded District, Kandhar, 20.10.1983, Madhukar 6086 (BAMU); Pune District, Mulashi, 25.09.2018, Amrapali Kattee AVK1512 (NCK). **Manipur**, Imphal, November 1907, A. Meebold 6631 (CAL). **Rajasthan**, Banswara District, Bhapar, 24.09.1961, K.C. Kanodia 75205 (BSI); Dungarpur District, Manakapura, 25.09.1962, K.C. Kanodia 78045 (BSI). Bhilwara District, Badnor, 21.09.1978, A.N. Singh 6494 (CAL); Alwar District, Keraska, 25.10.1983, P.J. Parmar 9570 (CAL). **Sikkim**, Soodoong, 15.11.1901, Dr. Prain’s collector 311188 (CAL). **West Bengal**, Bankura Dam, 25.09.1965, M.N. Sanyal 3144 (CAL).

Notes: *Ipomoea muricata* resembles *I. parasitica* (Kunth.) G. Don but can be distinguished by its sharp mucronate calyx, hypocrateriform flowers, thickened fruiting pedicel and glabrous seeds.

Ipomoea nil (L.) Roth., Catal. Bot. 1: 36. 1797. *Convolvulus nil* L., Sp. Pl. ed. 2: 219. 1762. *Lectotype* (designated by Verdcourt, 1957): Icon in Dillenius, Hort. Eltham. 1: 96, t.80, f.91. 1732.

Ipomoea caerulea J. Koenig ex Roxb., Fl. Ind., ed. 2, 2: 91. 1824. *Lectotype* (designated by Wood et al., 2020): INDIA, s.d., Koenig s.n. (BM [BM001209637, digital image!]).

Ipomoea hederacea Jacq. var. *himalaica* C.B. Clarke

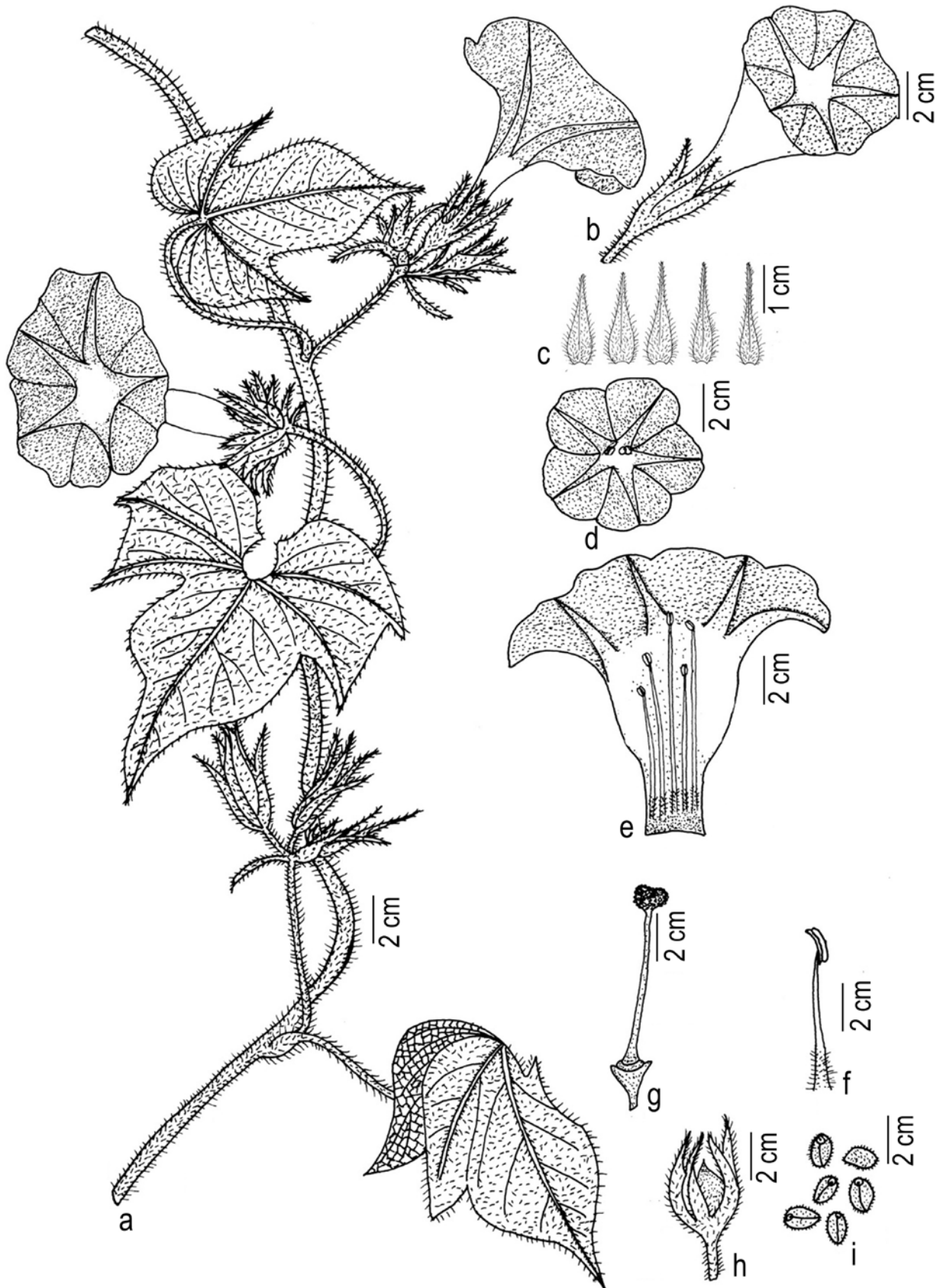


Fig. 34. *Ipomoea nil* (L.) Roth.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

in Hook.f., Fl. Brit. India 4: 200. 1883. *Type*: INDIA, **Sikkim**, Lingcham, C.B. Clarke 25486 (K [K001081728, digital image!]). **Figs. 34, 36 & 39**

Annual climber, 3–5 m long. Stem slender, twinning, bristly hairy. Leaves often trilobed as well as five lobed, cordate to hastate at base, 8–15 × 10–20 cm, pubescent, acute at apex, margin entire. Petiole 4–10 cm long, hairy. Inflorescence axillary cyme, usually 3–6-flowered in condensed cyme; peduncle 5–12 cm long, hairy. Flowers bracteate, pedicellate; pedicel 1–2.5 cm long, hairy; bracts linear, lanceolate, caducous, 0.7–1 × 0.2 cm, hairy. Sepals 5, sub-equal, linear, acute, 1.5–2.5 × 0.7–1 cm, faintly veined, outer two sepals, smaller, inner three sepals slightly larger than outer sepals, white ciliated at margin, hairy. Corolla 5-lobed, 5–7 cm long, infundibuliform; tube 3–4 cm long, dilated below mouth, white; lobes 2–3 cm long, blue, 4–5 cm wide at mouth, glabrous, mid-petaline bands bluish white, apiculate. Stamens 5; filaments unequal, 3–4 cm long; attached at c. 3 mm above the base of tube, shortly exerted at mouth, hairy at base; anthers c. 0.2 cm long. Ovary c. 0.2 × 0.2 cm, ovoid, light green, glabrous, 3-locular; ovule 2 in each locule; style c. 4 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed. Capsule globose, 1–1.2 × 1–1.5 cm, brown, glabrous. Seeds 0.5–0.8 × 0.4–0.6 cm, black, glabrous.

Flowering & fruiting: Flowering from August to October and fruiting from November to December.

Habitat: Common on hedges, roadside bushes at moist places.

Distribution: Argentina, Bolivia, Brazil, China, Colombia, Madagascar, Mexico, Nepal, Nicaragua, Pakistan, Paraguay, Peru, South Africa, Sri Lanka, Thailand, United States, Vietnam, Venezuela and throughout India.

Specimens examined: INDIA, **Bihar**, Rajgir, 09.10.2004, A.K. Ghosh 32015 (CAL). **Chhattishgarh**, Bastar District, Guru-Manjur, 16.11.1984, G.P. Roy 35200 (CAL). **Gujarat**,

Dang District, Hotgud forest towards Saputar, 22.10.1983, P.L. Narasimhan 107498 (BSI). **Jharkhand**, Dalma WLS, Singhbhum District, Tantipara, 20.09.2000, Bebabrata Das 29127 (CAL); Parasnath W.L.S. Giridhi, 20.09.2002, Vinay Rajan 31799 (CAL); Pinderabera, 30.09.2009, C.R. Magesh 43972 (CAL). **Karnataka**, Khanapur, 04.09.1963, M.Y. Ansari 101182 (BSI); Coorg District, Abby waterfall, 03.11.1970, B.C. Banerjee 11723 (CAL). **Kerala**, Thiruvananthapuram District, Boneccord, 22.03.1978, M. Mohanan 54750 (CAL); Munnar Island, 26.12.1978, C.N. Mohanan 59071 (CAL). **Madhya Pradesh**, Tikamgarh District, Jhakurpura, 14.09.1980, D.M. Varma 30722 (CAL); Indore District, Kasturbagram Krishikshetra, 14.09.1986, K.K. Khanna & Ram Saran (CAL). **Maharashtra**, Osmanabad District, Simphal, 24.01.1965, V.N. Naik 1022 (BAMU); Aurangabad District, Chauka, 27.10.1974, D.S. Pokle 626 (BAMU); Thane District, Badlapur, 24.08.1978, K.V. Billore 77147 (BSI); Jalna District, Jalna, 17.09.1978, V.N. Pardeshi 3707 (BAMU); Aurangabad District, Jafrabad, 25.09.1979, D.S. Pokle 3549 (BAMU); Nanded District, Mahur, 06.09.1979, B.R. Zate 839 (BAMU); Satara District, Yevteshwar, 18.09.1983, D.S. Deshpande 108678 (BSI); Beed District, Sautada, 19.10.1984, S.P. Rothe 6944 (BAMU); Kolhapur District, Hatkanangale, 28.09.2017, A.V. Kattee AVK1517 (NCK); Pune District, Mulashi, 27.09.2016, A.V. Kattee AVK1518 (NCK). **Rajasthan**, Mahakali kadongra Dungarpur, 23.09.1962, K.C. Kanodia 82056 (BSI). **Tamil Nadu**, Thekkumalai, 19.11.1956, K.M. Sebastine 1361 (CAL); Madurai District, Kumile, 20.10.1959, K. Subramanyam 9458 (CAL); Coimbatore District, Anamalis, 22.10.1961, J. Joseph 13072 (CAL); North Arcot District, Kewulur, 08.11.1985, M.B. Viswanathan 849 (CAL). **Uttar Pradesh**, Mirzapur District, Arhahura, 30.10.1964, G. Panigrahi 2256 (CAL). **Uttarakhand**, Barlowganj Mussoorie, 10.06.1967, P. Pradhan 179 (CAL). **Odisha**, Sundargrah District, Rourkela, 12.09.1988, A. Mukherjee & D. Namhata MN 3763 (CAL).

Sikkim, Rangpo, 05.11.1961, *G. Sen-Gupta* 269 (CAL). **West Bengal**, Bardhaman, December 1965, *R.N. Banerjee* 99 (CAL); Goswamipara, Bishnupur town, 18.11.1964, *K.M. Sanyal* 445 (CAL).

Notes: It is very similar to *Ipomoea indica* and *I. purpurea* but differs in having linear, gradually narrowing hairy sepals.

Ipomoea obscura (L.) Ker-Gawl. Bot. Reg. 3: t.239. 1817. *Convolvulus obscurus* L., Sp. Pl. 1: 220. 1762. *Lectotype* (designated by Meeuse, 1958): Icon in Dillenius, Hort. Eltham. 1: 99, t.83, f.95. 1732.

Ipomoea obscura (L.) Ker-Gawl. f. *concolor* Naik & Zate, Fl. Marathwada 1: 590. 1998. *Type*: INDIA, **Maharashtra**, Nanded, Mahur, Zate 4109 (BAMU). **Figs. 35, 36 & 39**

Perennial, foetid milky climber, 1–3 m long. Stem twinning, purple, glabrous. Leaves 3–5 × 3–6 cm, simple, entire, deeply cordate with rounded lobes at base, acuminate, mucronulate at apex, margin entire, pubescent. Petiole 2–3 cm long, pubescent. Inflorescence axillary cyme, usually solitary, rarely 3-flowered; peduncle 6–10 cm long, hairy. Flowers bracteate, pedicellate; pedicel 1.5–2 cm long, hairy; bracts small, linear, caducous, c. 0.2 × 0.1 cm long, pubescent. Sepals 5, sub-equal, oblong, 0.6–0.8 × 0.3–0.5 cm, faintly veined, smooth, white ciliated at margin, pubescent. Corolla 5 lobed, 1.5–3 cm long, funnel-shaped; tube 1–1.5 cm long, purple; lobes c. 1.5 cm long, yellow, 2–3 cm wide at mouth, apiculate, mid-petaline bands light yellow, glabrous. Stamens 5; filaments subequal, 0.5–1.3 cm long, attached at c. 0.2 cm above the base of tube, included, hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 0.2 × 0.1 cm, light green, glabrous, 4-locular; ovule 1 in each locule; style 1.5–1.8 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule sub-globose, ovoid, 1–1.5 × 0.8–1 cm, 2-valved, glabrous, brownish, and mucronate with persistent stylar beak. Seeds 4 per capsules, c. 0.4 × 0.5 cm, grey, pubescent.

Flowering & fruiting: Flowering and fruiting throughout the year.

Habitat: Grows along roadsides and as a weed of agricultural fields.

Distribution: Cambodia, China, Comoros, Ethiopia, Madagascar, Myanmar, Philippines, Sri Lanka, Thailand, United States, Vietnam and India (Throughout India).

Etymology: The specific epithet *obscura* is derived from the Latin word *obscurus*, meaning “dark” or “dusky,” and refers to the characteristic dark purple corolla tube of the flower.

Specimens examined: INDIA, **Dadra and Nagar Haveli**, Dadra, 26.06.1964, *K.K. Athiya* 83177 (BSI); Nagar Haveli, Dhapsa, *M.Y. Ansari* 87635 (BSI). **Diu and Daman**, Diu, Nagoa, 20.09.1984, *R.S. Rao* 82544 (BSI). **Gujarat**, Surat, 12.10.1957, *P.S. Toor* 26595 (BSI). **Karnataka**, Gulbarga, 24.03.1974, *N.P. Singh* 113814 (BSI); Kolar District, Kamsandra S.F., 25.10.1975, *N.P. Singh* 112689 (BSI). **Kerala**, Kannur, 10.08.1971, *V.V. Sivarajan* 1424 (CALI); Malappara, 06.10.1993, *Jony Augustine* 12571 (CALI). **Madhya Pradesh**, Bhopal Hills, 21.08.1958, *G.S. Puri* 11006 (BSI); Indore District, Simrol, 15.12.1961, *A.S. Rao* 33938 (BSI). **Maharashtra**, Osmanabad District, Papnas, 18.11.1962, *V.N. Naik* 459 (BAMU); Kolhapur District, Radhanagari, Phonda road, 03.10.1970, *B.G. Kulkarni* 98968 (BLATT); Chandrapur District, Tadoba, 14.10.1972, *B.M. Wadhawa* 90590 (BLAT); Aurangabad District, Gangapur, 10.10.1974, *V.N. Pardeshi s.n.* (BAMU); Nanded District, Mahur, 06.01.1982, *B.R. Zate* 4346 (BAMU); Jalgoan District, Unapdev Forest, 27.01.1983, *K.M. Roa* 119231 (BLATT); Kolhapur District, Hatkanangale, 19.10.2016, *Amrapali Kattee* AVK1426 (NCK). **Rajasthan**, Mount Abu, 11.11.1917, *S.K. Jain* 21741 (BSI); Banswara District, Lodhatalab, 08.08.1959, *K.C. Kanodia* 30541 (BSI). **Tamil Nadu**, Coimbatore District, Y.M.C.A. College Campus, 26.04.1964, *M. Chandrabose* 54524 (MH); Suakkamathur, 14.06.1968, *D.B. Deb* 57355 (MH); Coimbatore District, Maruthmalai foothills, 29.12.2017, *Amrapali Kattee* AVK1527 (NCK).

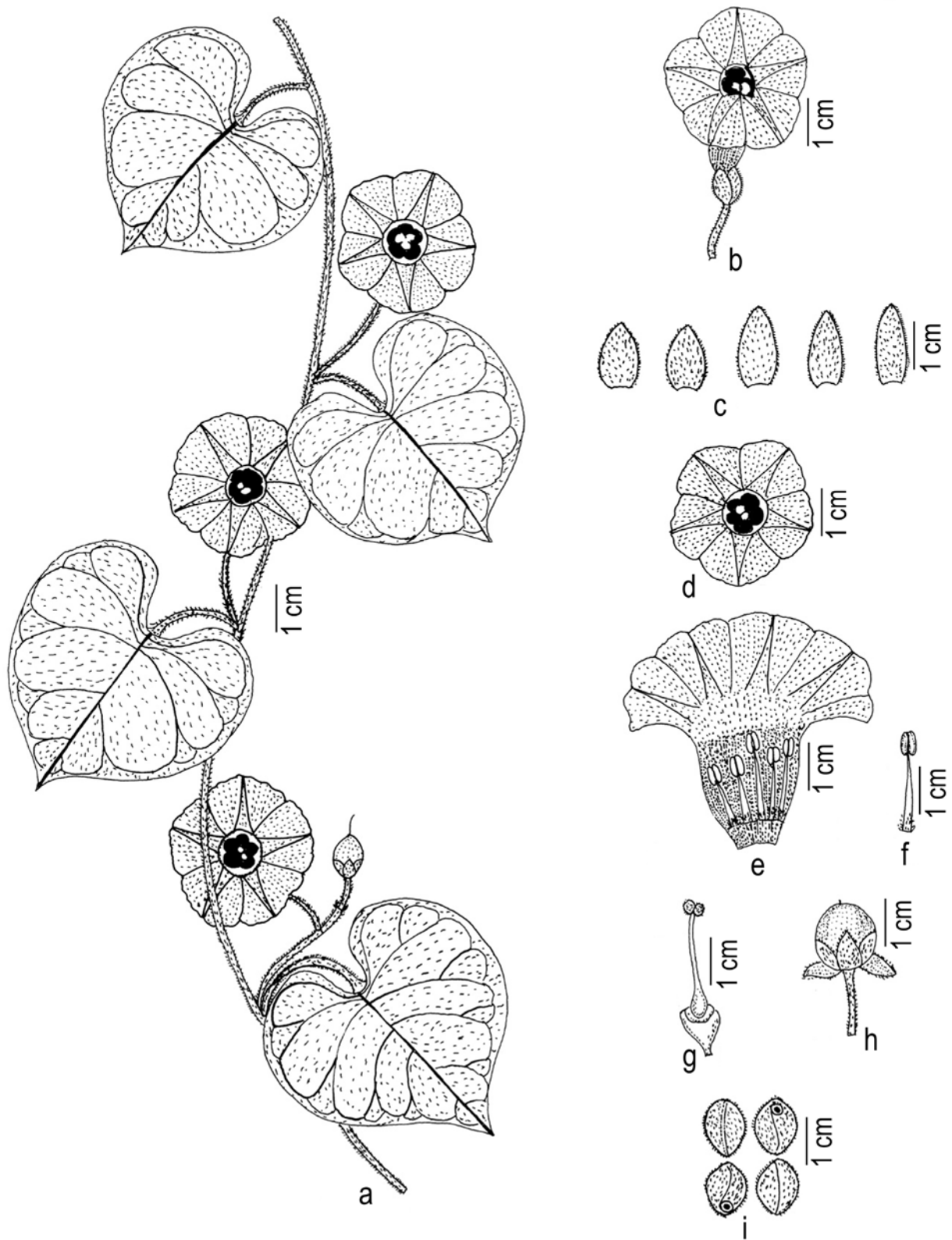


Fig. 35. *Ipomoea obscura* (L.) Ker Gawl.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

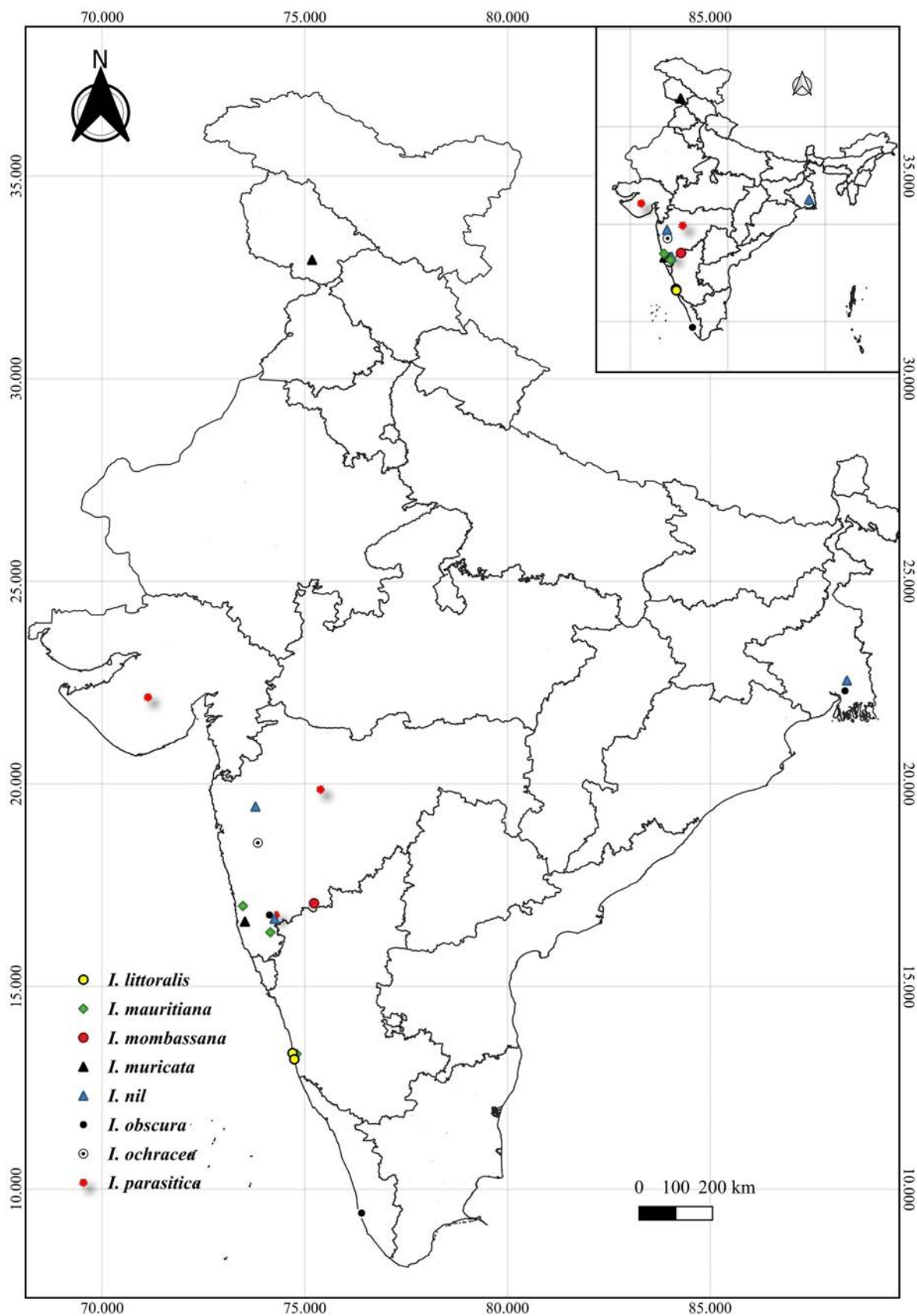


Fig. 36. Map showing collection sites of *Ipomoea littoralis* Blume, *I. mauritiana* Jacq., *I. bombassana* Vatke, *I. muricata* (L.) Jacq., *I. nil* (L.) Roth., *I. obscura* (L.) Ker-Gawl., *I. ochracea* (Lindl.) G. Don & *I. parasitica* (Kunth.) G. Don (prepared using QGIS).

Ipomoea ochracea (Lindl.) G. Don., Gen. Hist. 4: 270. 1837. *Convolvulus ochraceus* Lindl., Bot. Reg. 64: t.1060. 1826. *Type*: GHANA, A cultivated plant grown from seed collected by Murray in Ghana (holo CG [CGE00014 digital image!]). **Figs. 36 & 39**

Semi woody, twiner, grows up to 5 m long, with watery sap; stem cylindrical, densely covered with minute, whitish hairs. Leaves 3–10 × 2.5–7.5 cm, chartaceous, ovate, glabrous except for a few hairs along veins, acuminate at apex, usually mucronate, cordate at base, entire to sinuate at margins; petiole slender, pubescent, 2–6 cm long. Inflorescence 1–several flowered, lax; peduncle slender, up to 5.5 cm long; pedicel unequal, thickened above, 0.4–4 cm long. Calyx with 5 ovate, membranous, glabrous sepals, 3.5–3.7 × 5–7 mm. Corolla funnel-shaped, 2.7–4 cm long, bright yellow with a purple centre. Stamens 5, included; stigmas white, included. Capsule ovoid, thin-walled, straw-coloured, 1.3–1.6 cm long. Seeds black, dull, 4–5 mm long, glabrous.

Flowering & fruiting: Flowering from August to September, and fruiting from October to November.

Habitat: Cultivated in the Gardens.

Distribution: Caribbean, South Africa and Venezuela and India (Maharashtra).

Etymology: Specific epithet '*ochracea*' derived from the Latin word, 'Óchre-colour' that vary from yellow to deep orange or brown.

Notes: Morphologically, the species resembles *Ipomoea clarkei* Hook.f., but can be distinguished by its watery sap, corolla tube with a pink throat, and capsules bearing a distinctly apiculate apex.

Ipomoea parasitica (Kunth.) G. Don, Gen. Hist. 4: 275. 1838; Biju, Rheede 12(1): 77. 2003. *Convolvulus parasiticus* Kunth., Nov. Gen. Sp. 3(10): 163. 1818. *Type*: VENEZUELA, *s.l.*, *s.d.*, *Humboldt & Bonpland* 660 (P [P00670753 digital image!]).

Ipomoea perlonga B.L. Rob., Proc. Amer. Acad. Arts 29: 319. 1894. *Type*: MEXICO, **Jalisco**, Tequila,

s.d., C.G. Pringle 4519 (GH [GH00054527] digital image!; iso BKL, BM, K, P). **Figs. 36, 37 & 39**

Annual, milky climber of several metres long. Stem twinning, young stem purple, mature stem green, prickly muricate. Leaves 4–18 × 6–20 cm, entire, deeply cordate with rounded large lobes at base, acuminate at apex, margin entire or undulate, minutely pubescent, veins dark purple on upper side. Petiole 4–8 cm long, slightly tubercled at base. Inflorescence axillary cyme, 3–9- flowered dichasial cymes; peduncle 6–18 cm long, glabrous. Flowers bracteate, pedicellate; pedicel 1.5–2 cm long, glaucous; bracts small, linear, caducous, 0.5–0.7 cm long, glabrous. Sepals 5, sub-equal, oblong 0.6–0.8 × 0.3–0.5 cm, faintly veined, smooth, white ciliated at margin, pubescent. Corolla 5-lobed, 4–5 cm long, infundibuliform; tube 3.5–4 cm long, dilated at below the mouth, white at outside and light-yellow inside, slightly dilated; lobes 1.5–2 cm long, 3–4 cm wide at mouth, purple, apiculate, mid-petaline glabrous. Stamens 5; filaments subequal, 1–1.3 cm long, attached at c. 0.7 cm above the tube, included, hairy at base, anthers c. 0.3 cm long. Ovary ovoid, c. 2 × 1 mm, light green, glabrous, 4-locular; ovule 1 in each locule; style 1.5–1.8 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed. Capsule globose, ovoid, c. 1.5 × 1 cm, 2-valved, glabrous, brownish; mucronate with persistent stylar beak. Seeds 2–4 per capsule, c. 0.8 × 0.5 cm, black, minutely pubescent at hilum.

Flowering & fruiting: Flowering from August to November, and fruiting from November to January.

Habitat: It is weedy in nature, grows along roadside at moist places.

Distribution: Brazil, Colombia, Guatemala, Mexico, Nicaragua, Peru, Venezuela and India (Maharashtra, Goa, Karnataka, Kerala almost in every state of South India).

Specimens examined: INDIA, **Chhatisgarh**, Bastar District, Jagdalpur, 23.11.1958, *K. Subramanyam* 7269 (CAL). **Karnataka**, Hubali 08.11.1956,

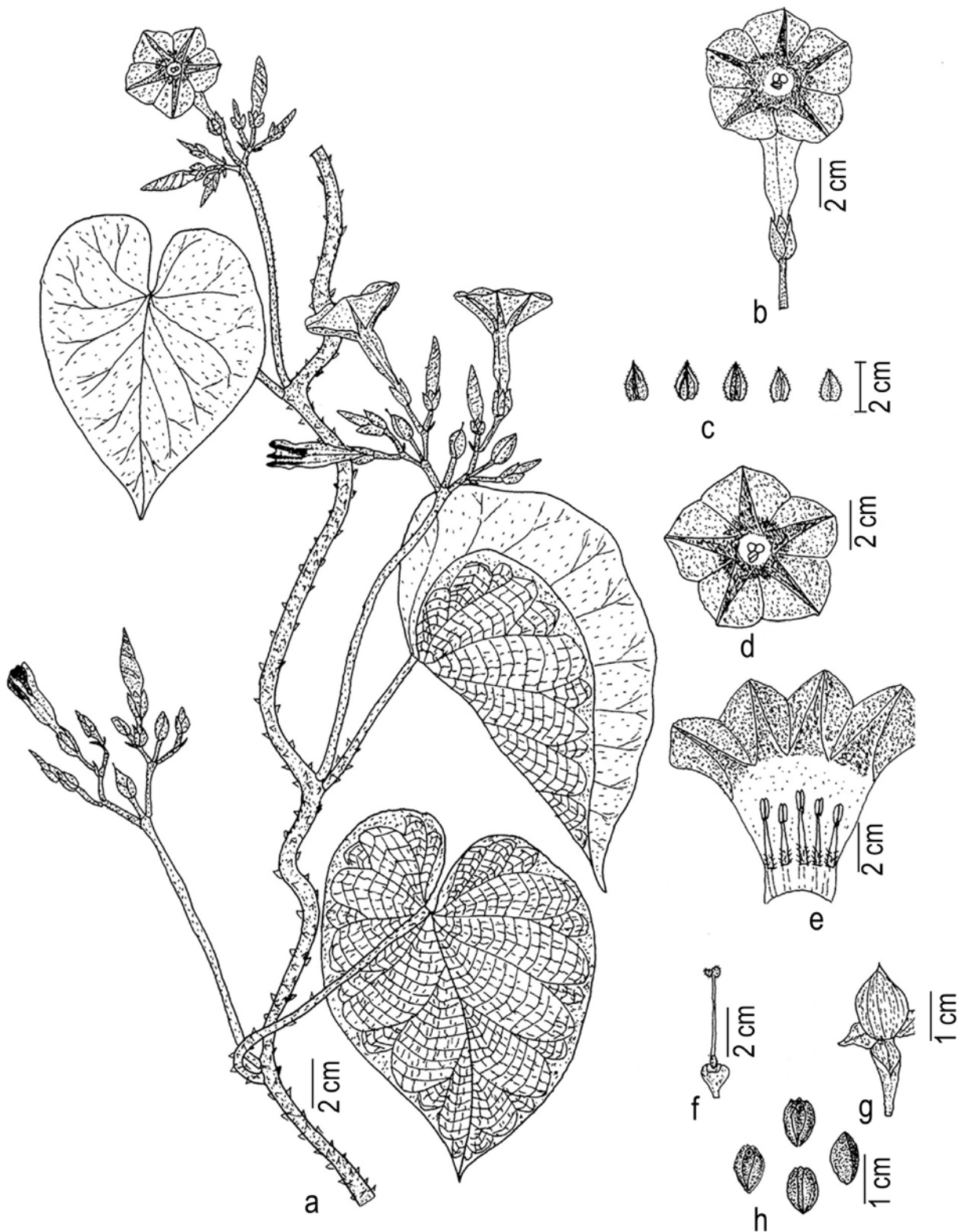


Fig. 37. *Ipomoea parasitica* (Kunth.) G. Don.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

V.M. Patel 47958 (BLATT). **Maharashtra**, Sindhudurg fort, 19.11.1960, A.N. Henry 47948 (BLATT); Kolhapur District, Hatkanagale, Amrapali Kattee AVK 1543 (NCK). **Tamil Nadu**, Nilgiris District, Mudumalai, 18.11.1958, K.M. Sebastine 7361 (CAL).

Notes: Morphologically, this species closely resembles *Ipomoea muricata* (L.) Jacq., but can be readily distinguished by its ovate, obtuse sepals, infundibuliform corolla with a yellow throat, and black pubescent seeds. Considerable variation is observed within the species, including populations with entirely green stems and pure white flowers. Several specimens deposited in CAL and BLAT have been misidentified either as *I. purpurea* (L.) Roth or as *Calonyction muricatum* G. Don.

Ipomoea pes-caprae (L.) R.Br., Turkey Narrat. Exped. Zaire 477. 1818; Gamble, F1. Pres. Madras 2: 917. 1923. *Convolvulus pes-caprae* L., Sp. Pl. 1: 159. 1753. *Lectotype* (designated by St. John, 1957): Habitat in India, *Pes caprae* 30 (LINN [LINN-HL218.59, digital image!]).

Ipomoea biloba Forssk., Fl. Agypt. Arab. 44. 1775; C.B. Clarke in Hook.f., Fl. Brit. Ind. 4: 212. 1883; Cooke, Fl. Pres. Bombay 2: 218. 1905. *Lectotype* (designated by Verdcourt, 1963): YEMEN, **Zabid**, s.d., Forsskal s.n. (BM [BM001014578, digital image!]).

Ipomoea pes-caprae (L.) R.Br. var. *perunkulamensis* P. Umam. & P. Daniel, J. Econ. Taxon. Bot. 23: 691. 1999. *Type*: INDIA, **Tamil Nadu**, Ramanathapuram Distr., Perunkulam, s.d., P. Daniel 101473 (holo CAL [CAL0000018605 digital image!]).

Figs. 38, 39 & 48

Perennial creeper. Stem cylindrical, purple, often rooting at node, glabrous. Leaves ovate, bilobed, 3–6 × 4–8 cm, with rounded base, entire at margins, obtuse at apex, glabrous, paxillate venation; petiole 3–6 cm long, glabrous. Inflorescence often solitary or 1–3-flowered cyme; peduncle 4–10 cm long, glabrous; bracts linear, 1–3 mm long, caduceous, near the joint of pedicel with peduncle, purple,

glabrous; pedicel 1.5–2 cm long, glabrous. Calyx subequal, oblong ovate, 1.2–2 × 0.5–1 cm, faintly veined, glabrous. Corolla infundibuliform, 6–8 cm long, pink with dark pink throat; tube 2–3 cm, 6–8 cm across at the mouth, glabrous. Stamens 5, subequal, included, adnate to corolla at c. 0.5 cm above the base of tube; filaments 1.3–2.5 cm long, hairy at the base. Ovary ovoid, c. 0.2 × 0.2 cm, glabrous; style slender, 1–1.5 cm long, very shortly exerted at mouth; stigma 2-lobed. Capsules oblong, 1–1.5 × 1–1.3 cm, ovoid with persistent style, pink, glabrous, dehisces from top into four halves. Seeds triangular, c. 0.8 × 0.6 cm, dark brown, pubescent.

Flowering & fruiting: Flowering from August to December and fruiting from January to March.

Habitat: It grows along seashores and moist places.

Distribution: Panama, Paraguay, Peru, Philippines, Sri Lanka, United States, Vietnam, Thailand, China, Japan, Mexico, Brazil, Pakistan, Burma, Colombia and India (Gujarat, Maharashtra, Goa, Kerala, Lakshadweep Islands, Tamil Nadu, Andhra Pradesh, Orissa, West Bengal, Andaman and Nicobar).

Etymology: The specific epithet *pes-caprae* is derived from the Latin words *pes* (foot) and *caprae* (goat), referring to the characteristic goat's-foot shape of its leaves.

Specimens examined: INDIA, **Andhra Pradesh**, Adiar beach, 04.03.1974, A.R.V. Sastry 7877 (CAL). **Andaman & Nicobar Islands**, South Andaman, Mount Harriet, 01.09.1894, Dr. King's Collector 6661 (BSI); South Andaman, Bamboo hut, 15.01.1959, K. Thoathathi 17821 (MH); South point, Port Blair, 23.01.1973, N.P. Balkrishnan 115135 (MH). **Diu & Daman**, Daman, 05.07.1957, S.K. Jain 11065 (BSI); 27.09.1963, M.Y. Ansari 83182 (BSI). **Gujarat**, Bet. Dwarka Okha, 23.09.1964, Seshagiri Rao Rolla 51898 (BSI); Mahesana District, Mahesana, 27.12.1986, V. Singh 5474 (CAL). **Goa**, Verem to Pernem paddy fields, 19.11.1963, Seshagiri Rao Rolla 41941 (BSI). **Karnataka**, Kumpta, 16.02.1962, R.S. Raghwan

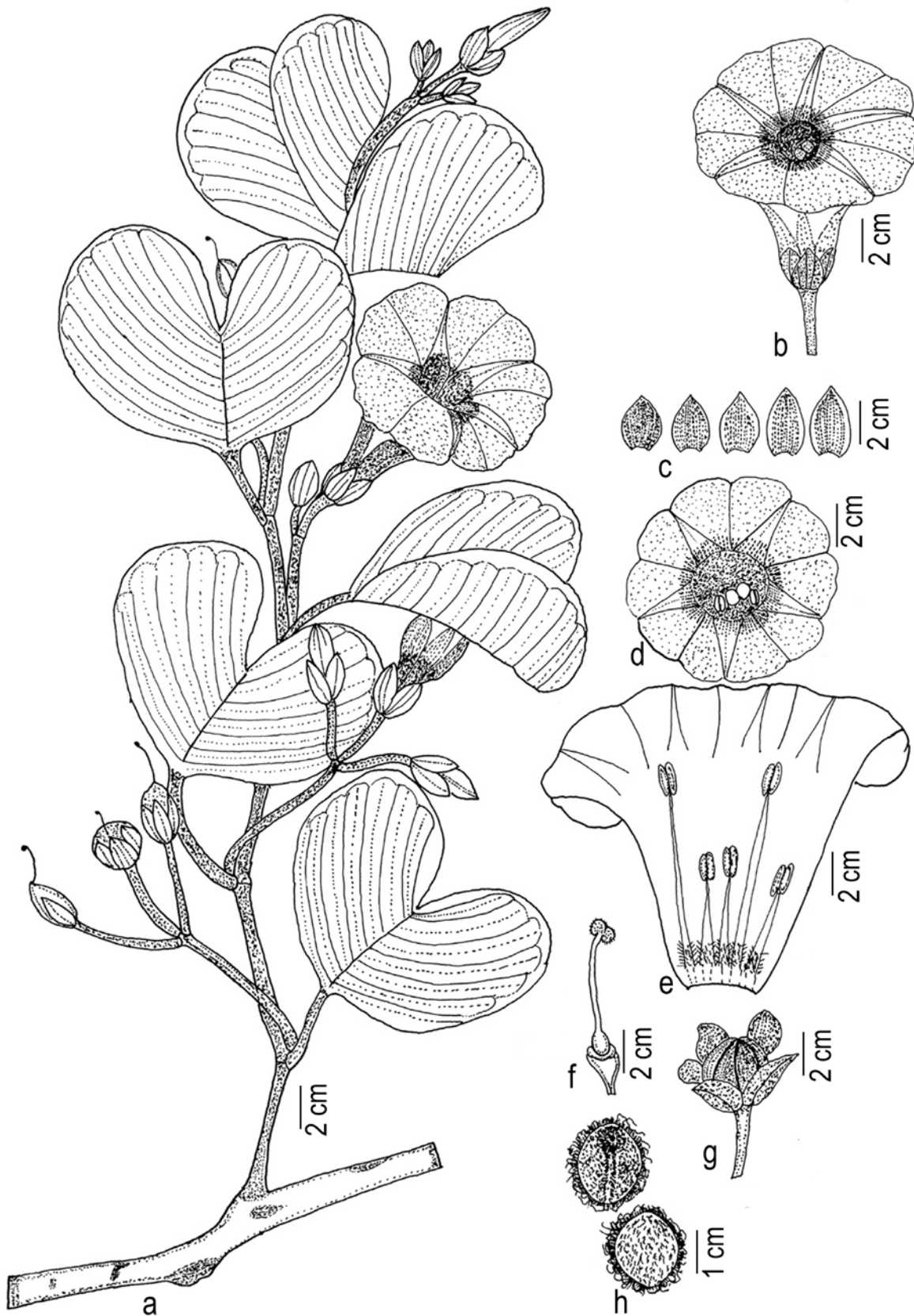


Fig. 38. *Ipomoea pes-caprae* (L.) R. Br.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

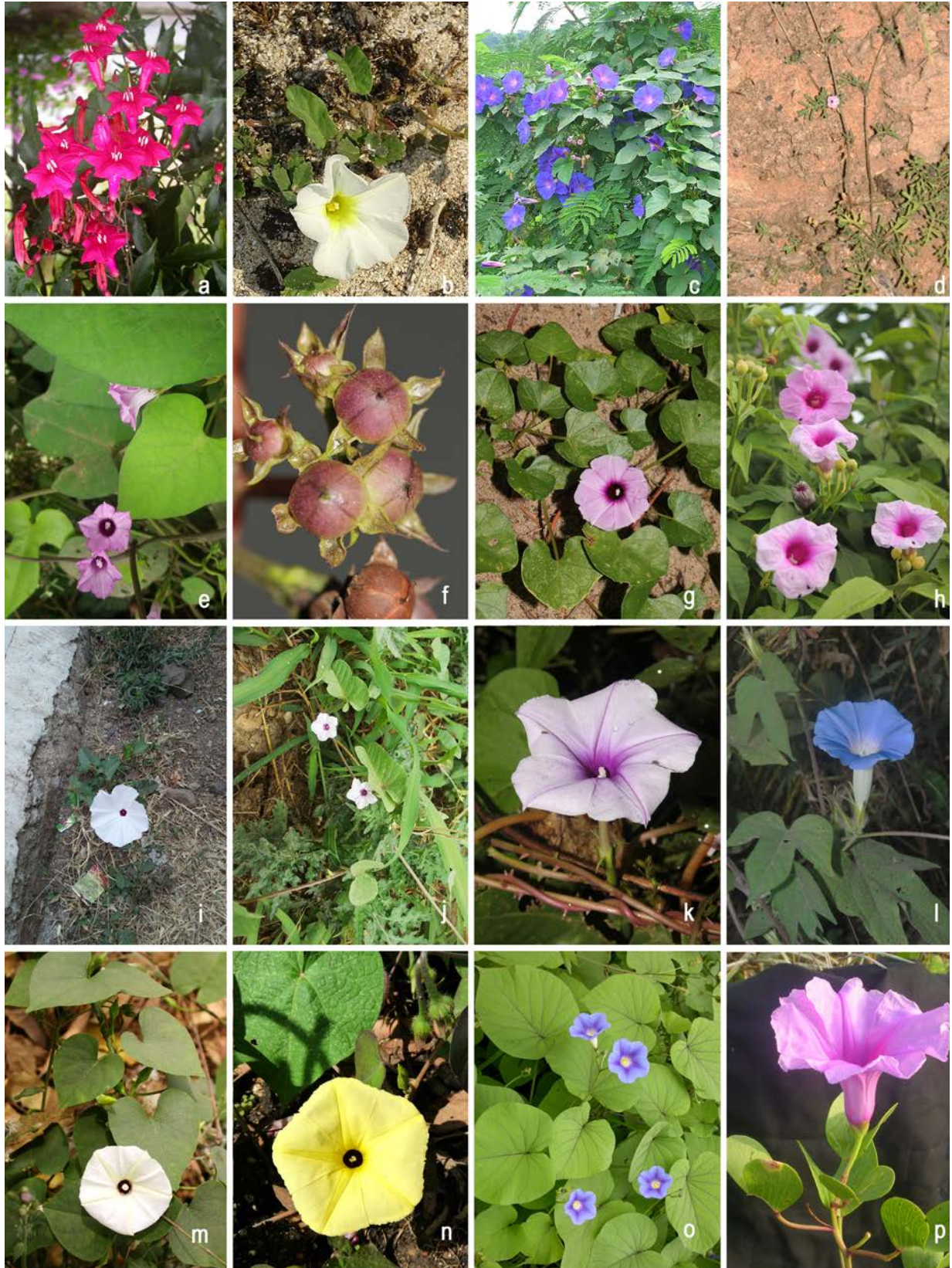


Fig. 39. Flowering specimens of Indian *Ipomoea*: **a.** *I. horsfalliae* Hook.; **b.** *I. imperatii* (Vahl) Griseb.; **c.** *I. indica* (Brum.) Merr.; **d.** *I. kotschyana* Hochst. ex Choisy; **e.** *I. laciniata* (Dalz.) C. B. Clarke; **f.** *I. laxiflora*—glabrous capsules; **g.** *I. littoralis* Blume; **h.** *I. mauritiana* Jacq.; **i.** *I. mombassana* Vatke; **j.** *I. muelleri* Benth.; **k.** *I. muricata* (L.) Jacq.; **l.** *I. nil* (L.) Roth.; **m.** *I. obscura* (L.) Ker Gawl.; **n.** *I. ochracea* (Lindl.) G. Don.; **o.** *I. parasitica* (Kunth.) G. Don.; **p.** *I. pes-caprae* (L.) R.Br. (photographed by A.V. Kattee & V.B. Shimpale)

49580 (BSI); Karwan, 23.09.1965 *John Cherion* 73508 (BSI); Raichur District, Kumankheda block, 09.11.1975, *N.P. Singh* 110392 (BSI); South Kanara, 19.04.1979, *Cecil J. Saldhana & P. Prakash* 7006 (CAL); Dentikottai District, Dharmapuri, 16.12.1978, *K.M. Matthew & N. Venugopal* 20262 (CAL). **Kerala**, Calicut District, Chalukudi, 20.02.1957, *G.S. Puri* 11070 (CAL); Kallai, 30.08.1970, *V.V. Sivarajan* 480 (CALI); Beypur, 02.10.1970, *A. Prabhakaran* 1433 (CALI), Feroke, 08.12.1978, *T. Ahamed Kutty* 26453 (CALI); Ramanattukara, 28.07.1978, *P. Abdul Majeed* 27070 (CALI); Kadalundi, 15.10.1985, *Jeeja Majeed* 8474 (CALI); Alanelur, 20.10.1985, *K.V. Asa* 1318 (CALI); Kadalundi, 07.08.1989, *Sally George* 8286 (CALI); Punchichery, 19.11.1990, *Shalima P.K.* 3291 (CALI); Cannanore District, Beekal, 29.01.1979, *V.J. Nair* 109793 (MH); Manjeswar, 30.10.1979, *R. Ansari* 64896 (MH); C.P.C.R.T. campus, Kasargod, 12.11.1981, *S.R. Srinivasan* 72345 (MH); Kadalundi, 08.10.1983, *T.P. Radhakrishnan* 041 (CALI); Kadalundi, 29.09.1983, *P.E. Rajsekharan* 1307 (CALI); Calicut University Campus, 04.11.1983, *Ratnakumari* 1259 (CALI). Quilon District, Ranni R.F., 06.04.1980, *C.N. Mohanan* 134896 (MH); Trichur District, Kovatti-Chalukudi road, 08.12.1984, *K. Ramamurthy* 80423 (CAL). Trivandrum District, Kovaram beach, 11.09.1977, *N.C. Nair* 11319 (MH); Veli, Trivandrum, 03.12.1977, *M. Mohanan* 111081 (MH). **Lakshadweep Islands**, Kiltan Island, 01.03.1959, *B.M. Wadhava* 56057 (BSI); Androkh Island, 30.11.1960, *B.M. Wadhava* 55335 (BSI); Kalpeni Island, 23.11.1960, *B.M. Wadhava* 7614 (BSI). **Maharashtra**, Alibag, 15.11.1957, *D.K. Kamal* 26609 (BSI); Ratnagiri District, Ratnagiri, 01.06.1958, *S.K. Jain* 26549 (BSI); Devbag, Malvan, 01.10.1970, *B.G. Kulkarni* 98966 (BSI); Ratnagiri, 29.10.2017, *A.V. Kattee* AVK1551, 1552 (NCK). **Tamil Nadu**, South Kauavu District, Bydnoor, 26.12.1938, *S.R. Raja* 84232 (MH); Dharmapuri District, Denkanikottai, 16.12.1978, *K.M. Matthew & N. Venugopal* 20282 (CAL); Ramanathapuram District, Velanthayavai, 21.12.1986, *V.*

Balsubramaia 1047 (CAL); Yercaud, 15.11.1990, *P.I. Nazamol* 947 (CALI); Rameshwaram, Pamban, 31.12.2018, *A.V. Kattee* AVK1548, 1549, 1550 (NCK). **West Bengal**, Digha District, Midnapur, 12.04.1964, *R.N. Kayal* 393499 (CAL); Sagar Island, 28.04.1967, *A.K. Mukharjee* 5901 (CAL).

***Ipomoea pes-tigridis* L.**, Sp. Pl. 1: 162. 1753; C.B. Clarke in Hook.f., Fl. Brit. India 4: 204. 1883; Cooke, Fl. Pres. Bombay 2: 250. 1905; Gamble, Fl. Pres. Madras 2: 914. 1923. Type: CEYLON, s.d., *Herrmann* 78 (BM [BM000628419, digital image!]).

Figs. 40, 41, 48 & 58

Annual, milky climber, 2–3 m long. Stem twinning, purple brown when mature, hairy. Leaves 3–5 × 4–6 cm, simple to multilobed, acute at apex, margin entire, pubescent. Petiole 2–5 cm long, hairy. Inflorescence axillary condensed head, usually 3–5-flowered, surrounded by large, ovate, involucre bract. Peduncle 5–10 cm long, hairy. Flowers dimorphic within single inflorescence, *Chasmogamous flowers*: bracteate, sessile; bracts form an involucre cup-like structure, 2–4 × 4–6 cm. Sepals 5, subequal, 0.5–0.8 × 0.2–0.4 cm, faintly veined, linear, white ciliated at margin, densely hairy. Corolla 5-lobed, 2.5–5 cm long, hypocrateriform; tube 2–3 cm long, pure white or light pink, pubescent; lobes 1.5–2 cm long, 3–4 cm wide at mouth, mid-petaline bands hairy at outside, shallow apiculate. Stamens 5; filaments subequal, 0.5–0.8 cm long; attached at c. 0.3 cm above the tube, included, hairy at base. Ovary c. 2 × 1 mm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style 1–1.2 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule 0.6–0.8 cm, subglobose, ovoid, 4-valved, glabrous and brownish. Seeds 4 per capsules, c. 0.3 × 0.4 cm, black, pubescent. *Cleistogamous flowers*: Single inflorescence contains 3–7 flowers out of which 2–4 flowers are cleistogamous. Cleistogamous flowers are c. 0.5 cm in length. Sepals similar to chasmogamous flowers 0.5–0.7 cm long, bristly hairy. Corolla white with hairy midpetaline bands which never open and

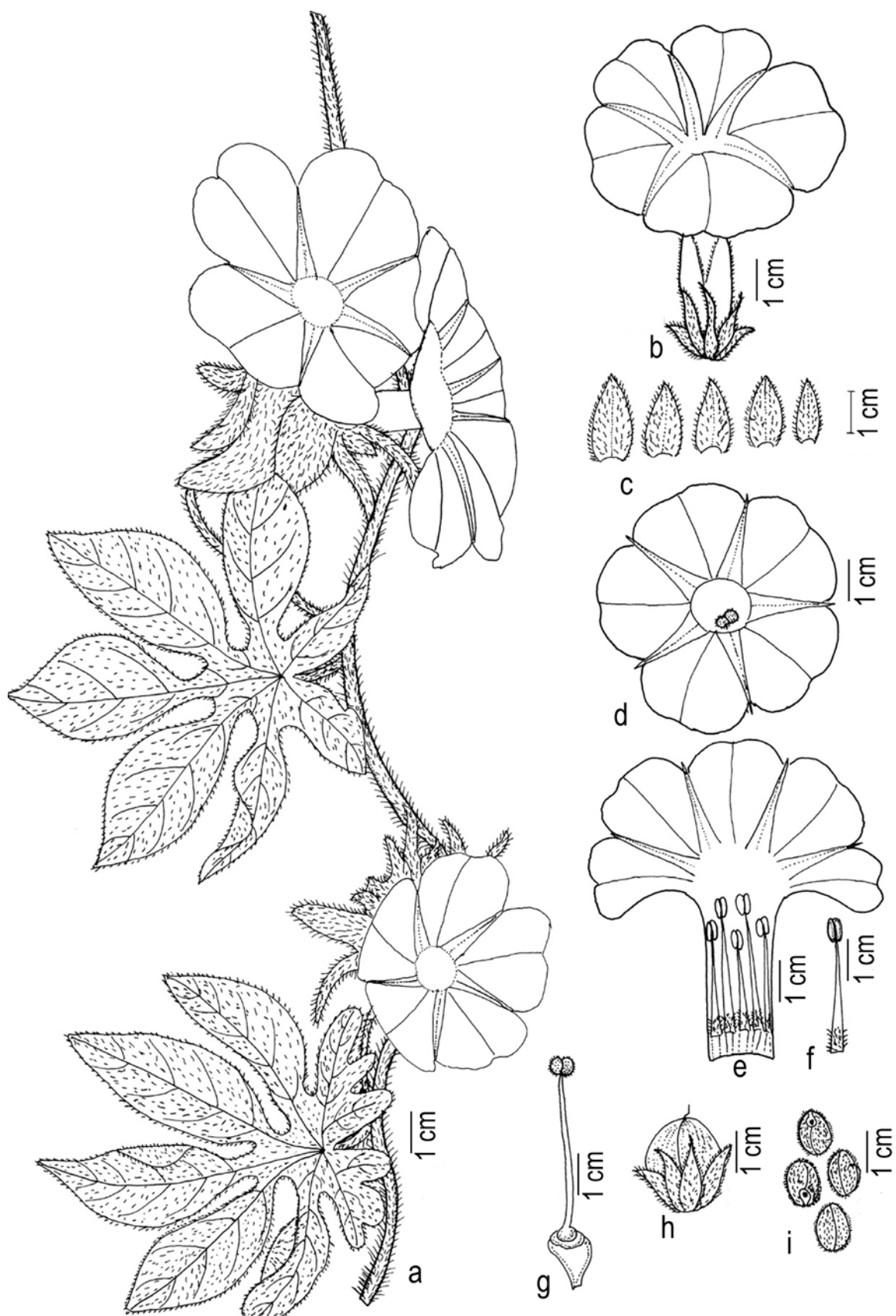


Fig. 40. *Ipomoea pes-tigridis* L.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

persistent. Stamens 5, filaments sub-equal 0.2–0.3 cm long, glabrous or with one or two hairs at base. Pollens globose, echinate, pantoporate. Ovary c. 0.1 cm long, glabrous; style short, 0.2–0.3 cm long; stigma slightly bilobed, curved. Fruits and seeds are similar to chasmogamous flowers.

Note: Cleistogamy in *I. pes-tigridis*, originally reported by Kunth and Paul (1909), is illustrated in detail in the present study.

Flowering & fruiting: Flowering from August to September and fruiting from October to November.

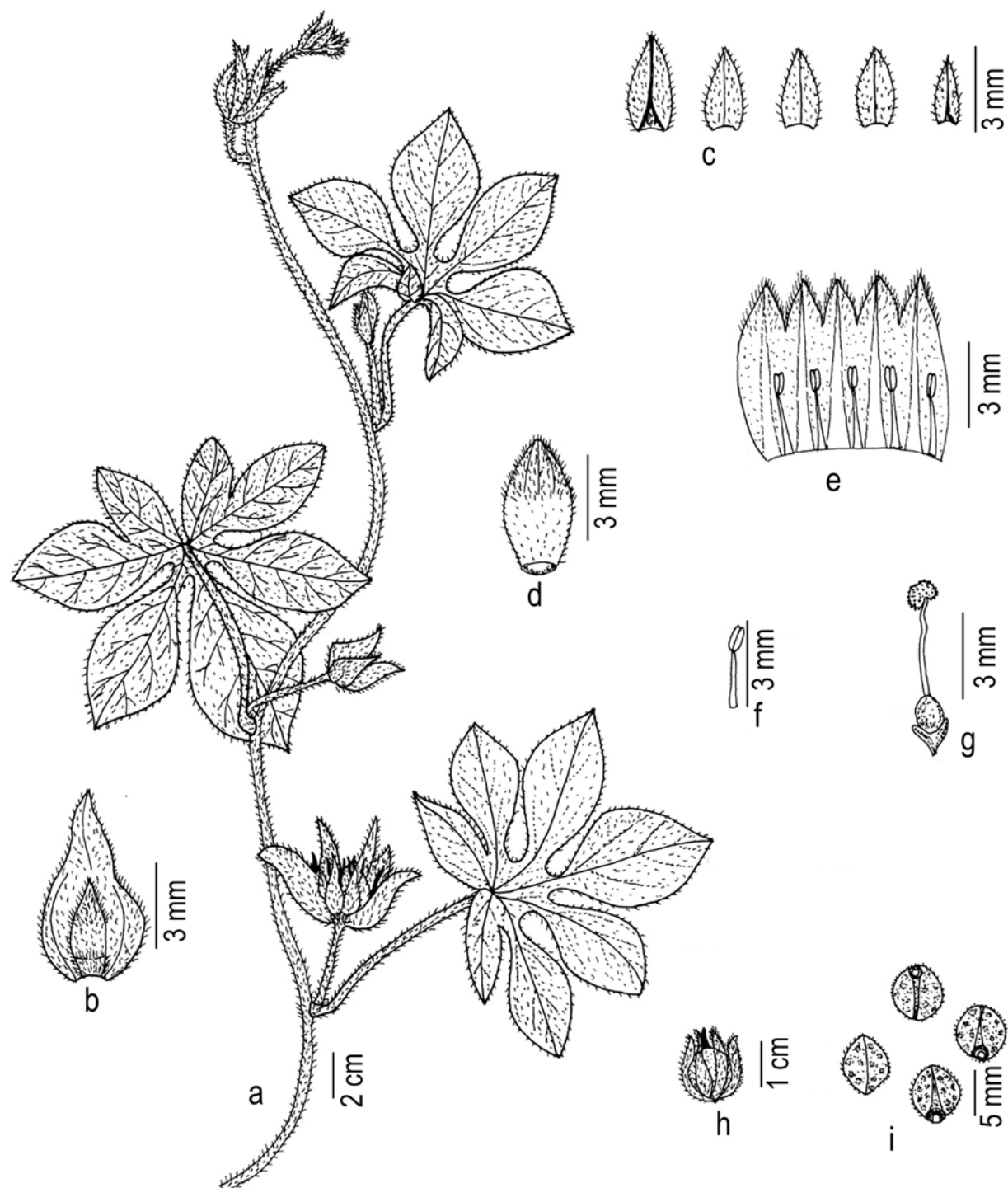


Fig. 41. Cleistogamous flowers of *Ipomoea pes-tigridis* L.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Corolla bud; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

Habitat: Often in grasslands, climbing on bushes of forest.

Distribution: Cambodia, China, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam and India (in all states).

Etymology: Specific epithet 'pes-tigridis' is derived from the Latin, referring to its tiger foot-shaped leaves.

Specimens examined: INDIA, **Assam**, Kokilamukh, 28.03.1959, S.N. Bora 31131 (ASSAM). **Gujarat**, Valsad District, Nana Pondha, 08.11.1970, M.Y. Ansari 87660 (BSI); Kutch, 05.10.2017, A.V. Kattee AVK 1555 (NCK). **Goa**, North Goa, Chimbhel reservoir, 09.11.1963, Seshagiri Rao Rolla 83183 (BSI). **Jharkhand**, Dalma District, Pindelabera, 30.09.2007, C.R. Magesh 43975 (CAL). **Karnataka**, Raichur District, Maliyabad, 27.09.1958, B.M. Wadhawa 10999 (BSI); Bellary District, Asigre, 03.11.1975, N.P. Singh 110394 (BSI). **Madhya Pradesh**, Hoshangabad District, Tawariverbank Bunglapur, 30.09.1960, J. Joseph 11141 (CAL). **Odisha**, Manbhang, 12.11.1959, G. Panighrahi 15587 (CAL).

Notes: The species exhibits considerable variation in leaf morphology, with leaves ranging from rarely entire to trilobed, and most commonly palmately 5–9-lobed.

Ipomoea pileata Roxb., Fl. Ind. 2: 94. 1824; C.B. Clarke in Hook.f., Fl. Brit. Ind. 4: 203. 1883. **Type:** Plant cultivated at Calcutta from Chinese seed, Wallich 1376 (P [P00625539 digital image!]).

Ipomoea involucrata P.Beauv., Fl. Oware, 52, t. 89. 1817; Cooke, Fl. Pres. Bombay, 2: 245. 1905; Gamble, Fl. Madras Pres. 2: 643. 1923. **Type:** NIGERIA, **Oware**, s.d., P. de. Beauvonis s.n. (G [G00023040, digital image!]). **Figs. 42, 48 & 58**

Annual milky climber, 2–3 m long. Stem twinning, purple brown when mature, hairy. Leaves 3–5 × 4–6 cm, simple, cordate, mucronulate at apex, margin entire, pubescent. Petiole 2–5 cm long, hairy. Inflorescence axillary, usually 3–5-flowered

in short condensed heads, surrounded by ovate, lanceolate, involuclral bract; peduncle 5–10 cm long, hairy. Flowers sessile, surrounded by involuclral cup-like structure, 2–4 × 4–6 cm. Sepals 5, subequal, 0.5–0.8 × 0.2–0.4 cm faintly veined, linear, obtuse at apex, hairy. Corolla 5-lobed, 2.5–4 cm long, hypocrateriform; tube 2–3 cm long, pink, pubescent; lobes 1.5–2 cm long, 3–4 cm wide at mouth, mid-petaline bands hairy at outside, shallow apiculate. Stamens 5; filaments sub-equal, c. 2 mm long; attached at c. 3 mm above the tube, included, hairy at base; anthers c. 0.2 cm long. Ovary c. 0.2 × 0.1 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style 2–2.5 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule 0.6–0.8 cm, globose, ovoid, 4-valved, glabrous, and brownish. Seeds 4 per capsules, c. 3 × 4 mm, black, glabrous.

Flowering & fruiting: Flowering from August to October and fruiting from November to December.

Habitat: It grows along roadsides and wastelands climbing on bushes.

Distribution: Cambodia, China, Comoros, Madagascar, Philippines, South Africa, Sri Lanka, Thailand, Vietnam and India (Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal, Assam).

Etymology: The specific epithet *pileata* is derived from the Latin word *pileus*, meaning “cap” or “hat,” and refers to the flowers being enclosed within conspicuous cup-shaped involuclral bracts.

Specimens examined: INDIA, **Arunachal Pradesh**, Lower Sulagiri, 06.10.1978, G.D. Pal 76078 (ARUN). **Karnataka**, Jalsur, 21.11.1900, C.A. Barber 34613 (MH). **Kerala**, Cohin, November 1910, A. Meebold 12355 (BSI); Devagiri, 15.01.1969, E.K. Jayalakshmi 165 (CALI); Calicut University campus, 05.11.1970, V.V. Sivarajan 780 (CALI); Feroke, 11.12.1971, P.V. Madhusoodanan 115 (CALI); Palghat District, Karapara estate boundary, 21.12.1980, P. Bhargavan 130072 (MH); Idukki district, Kanjir, 17.12.1982,

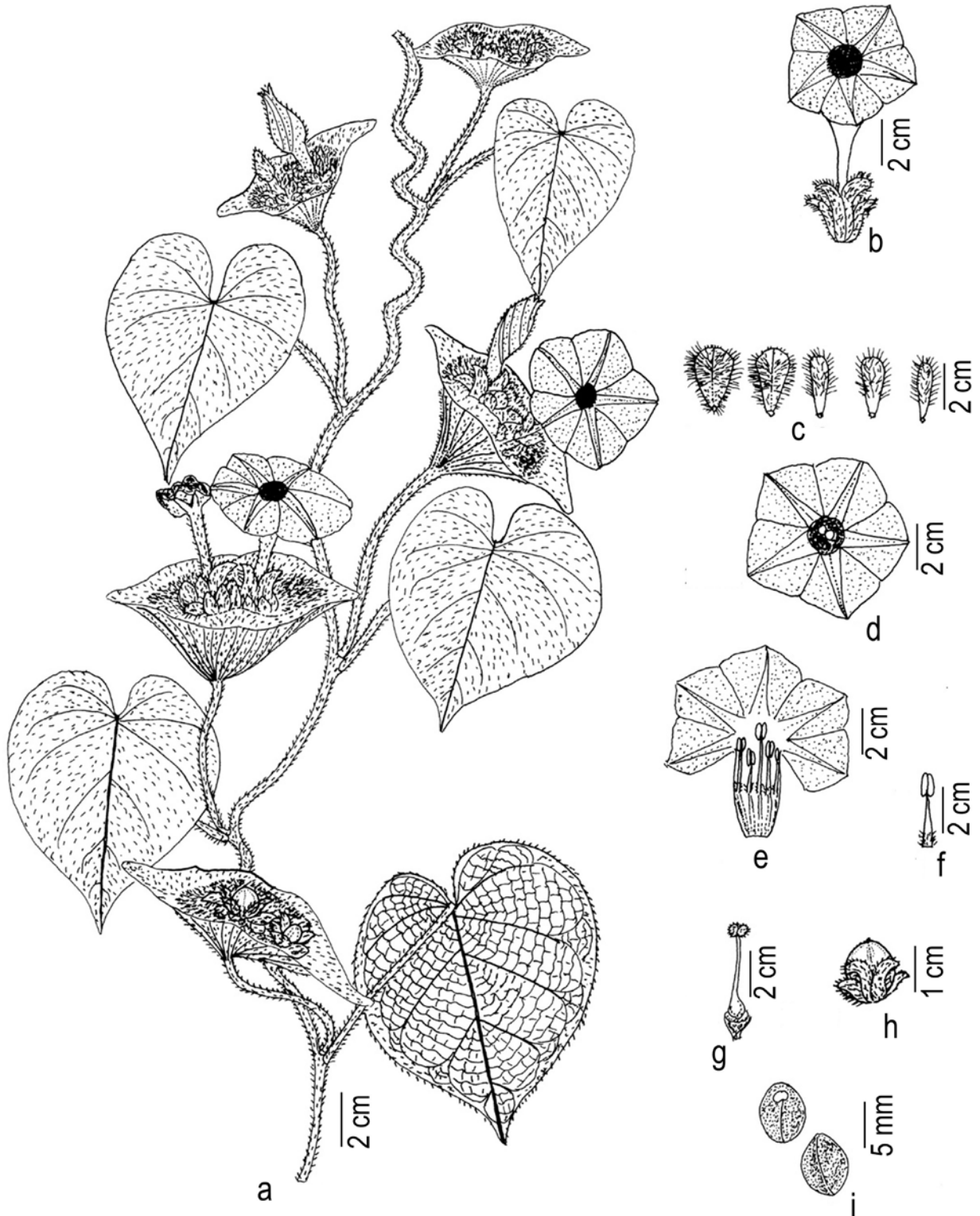


Fig. 42. *Ipomoea pileata* Roxb.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

C.N. Mohanan 151308 (MH); Calicut University campus, 08.09.1990, C.T. Indu 4142 (CALI); Palghat District, 03.11.1996, E. Vajravelu 48840 (CALI); Chowwa, 22.01.1999, A. Yusuf 2309 (CALI). **Maharashtra**, Ratnagiri District, Rajapur, 14.10.2016, Amrapali Kattee AVK1846 (NCK).

Ipomoea purga (Wender.) Hayne, Getreue Darstell. Gew. 12: 5. 1833; K.M.P.Kumar, Rheede, 34(5): 510. 2024. *Convolvulus purga* Wender., Pharm. Central-Blatt 1: 457. 1830. *Lectotype* (designated by McDonald, 1987): MEXICO, **Veracruz**, Chiconquiaco, *Schiede s.n.* (NY [NY00318915] digital image!).

Ipomoea jalapa Coxe, Journ. Am. Med. Sci. 5: 305. 1829[1830]. *nom. illeg. non* Pursh, 1813. *Lectotype* (designated by Wood *et al.*, 2020): Icon, plant from Xalapa [Veracruz], Journ. Am. Med. Sci. 5: 306A. t1. 1830.

Convolvulus officinalis G.Pelletan, J. Chim. Méd. 10: 6. 1834. *Type*: MEXICO, **Veracruz**, Orizaba, *Le Danois s.n.* (P [P00607314, digital image!]). **Fig. 58**

Perennial twining or trailing herb, 5–7 m long; roots tuberous, latex present. Stem glabrous, dark-red, glabrous. Leaves petiolate; petiole terete, 3.5–5.5 cm long, dark-red, glabrous; lamina ovate to broadly ovate, 3.8–8.5 × 3.6–5.8 cm, base cordate to sagittate with a narrow to wide sinus and rounded prominent auricles, margins entire, apex narrowly acuminate, glabrous on both surfaces; veins prominent on both surfaces. Inflorescence solitary to rarely paired (2–3) axillary flowers; peduncle 4–6.5 cm long, terete, glabrous; bracteoles ovate-lanceolate, 1.8–2 × 0.3 mm, acute to shortly acuminate at apex, persistent, glabrous; pedicel 1.2–1.6 cm long, thickened upwards, glabrous. Sepals ovate, sub-equal; inner sepals slightly larger, margins scarious, apex obtuse to rounded, glabrous; outer sepals 5.5–6 × 3–3.5 mm, inner sepals 7.5–8.5 × 3.5–4 mm. Corolla hypocrateriform, 6.2–7.4 cm long, widened from the cylindrical base at about half way, pink, glabrous; limb 4.5–5.2 cm diam., undulate, deep

pink, glabrous. Stamens 5, exserted up to 1.2 cm; filaments unequal, glabrous, three 2.6–3.2 cm long, two shorter, 1.5–1.8 cm. Ovary ovoid, glabrous; style exserted up to 1.2 cm, glabrous; stigma biglobose. Capsules conical, 7–8 mm long, glabrous. Seeds 4–5 × c. 4 mm, puberulent.

Flowering & fruiting: Flowering and fruiting from September to November.

Habitat: It is usually found only in the evergreen forest margins of Kotagiri area in the Nilgiri district of Tamil Nadu, a part of southern Western Ghats, India.

Distribution: North America (Mexico) and India (Tamil Nadu).

Specimen examined: INDIA, **Tamil Nadu**, Nilgiris Distr., Way to Kotagiri, K.M. Prabhukumar 357379 (LWG).

Note: The species is recently added to the Indian flora from Tamil Nadu by Prabhukumar (2024).

Ipomoea purpurea (L.) Roth., Bot. Abh. Beobacht. 27. 1787. *Convolvulus purpureus* L., Sp. Pl. 1: 154. 1753. *Type* (*Lectotype* designated by Verdcourt, 1957): Icon in Dillenius, Hort. Eltham. 1: 100, t.84, f.97. 1732. **Figs. 43, 48 & 58**

Annual milky climber of several metres long. Stem slender, twinning, hairy. Leaves often entire, sometimes trilobed, cordate at base, 6–15 × 8–18 cm, hairy, acute at apex, margin entire. Petiole 4–8 cm long, hairy. Inflorescence axillary, usually solitary or 3-flowered cymes; peduncle 5–10 cm long, hairy. Flowers bracteate, pedicellate; pedicel 1–2.5 cm long, hairy; bracts small, linear, lanceolate, caducous, 0.3–0.5 × 0.2 cm, hairy. Sepals 5, sub-equal, ligulate, acute, 1.5–3 × 0.5–0.8 cm, ribbed, bristly hairy at base, outer two sepals, smaller, inner three sepals slightly larger than outer sepals, white ciliated at margin, hairy. Corolla 5-lobed, 4–6 cm long, infundibuliform; tube 2.5–4.5 cm long, white; lobes 2.5–3 cm long, dark purple to reddish purple, 6–8 cm wide at mouth, glabrous, mid-petaline bands light pink, apiculate. Stamens

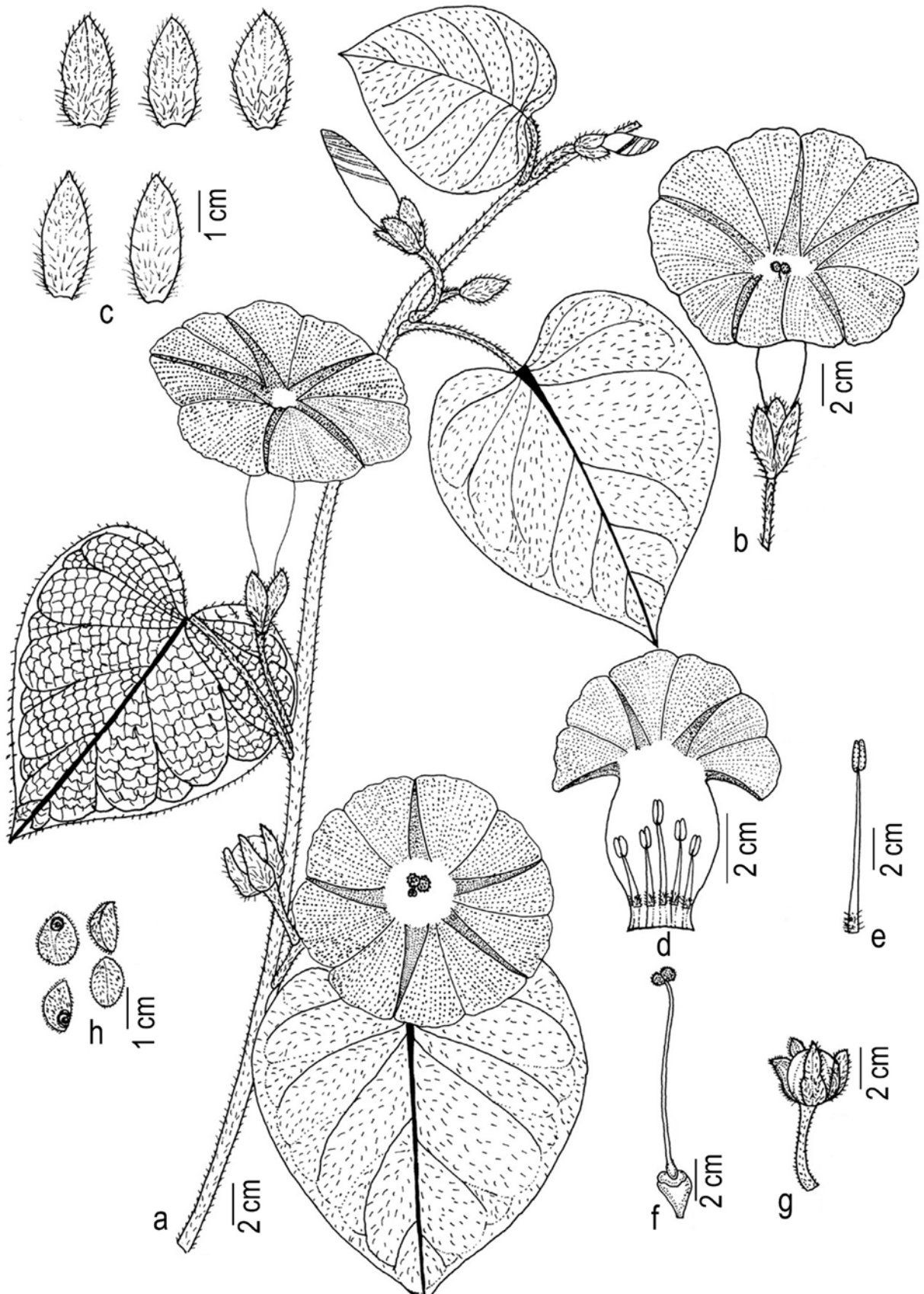


Fig. 43. *Ipomoea purpurea* (L.) Roth.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Corolla-split open; **e.** Single stamen; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

5; filaments unequal, 2.2–3 cm long, attached at c. 3 mm above the base of tube, included, hairy at base; anthers c. 0.3 cm long. Ovary c. 0.2 × 0.2 cm, ovoid, light green, glabrous, 4-locular; ovule 1 in each locule; style 3.5–3.8 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate; capsule sub-globose, light brown, glabrous, dehisces in four halves. Seeds 4 in each capsule, 0.5–0.8 × 0.4–0.6 cm, black, pubescent.

Flowering & fruiting: Flowering from August to November and fruiting from December to January.

Habitat: Mostly cultivated as an ornamental plant, the species is also occasionally encountered in the wild as a garden escape. It commonly grows in moist, shady habitats, climbing over hedges, fences, and bushes.

Distribution: Argentina, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador and Guatemala and India (Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Meghalaya, Assam, Manipur, Sikkim).

Specimens examined: INDIA, **Jammu & Kashmir**, Kishtwar, 02.09.1962, *B.M. Wadhawa & J.N. Vohra* 7925 (CAL). **Manipur**, Kohima, July 1886, *Dr. Prain's collector* 311353 (CAL); Ukharul 26.06.1948, *S.K. Mukherjee* 3126 (CAL). **Meghalaya**, Upper Shillong, 06.08.1938, *G.K. Deka* 19885 (ASSAM); Nirala Bunglow, 05.12.1956, *G. Panigrahi* (224802); Mulki Village, 19.11.1962, *S.K. Kar* 31621 (ASSAM); Dhankheti, Woodland hospital compound, 14.10.1965, *H. Deka* 77735 (ASSAM); Shillong, 04.10.2018, *Pramod Lawand* AVK1557 (NCK). **Uttarakhand**, Kumaun, Ranikhet, August 1885, *J.K. Duthei* 311368 (CAL). **Sikkim**, Kalimpong, 02.06.1959, *S.K. Mukherjee* 5091 (CAL).

Notes: Morphologically, *Ipomoea purpurea* (L.) Roth closely resembles *I. indica* (Burm.) Merr. and *I. nil* (L.) Roth, but can be readily distinguished from both species by its ligulate, acute, and hairy sepals. The flowers exhibit considerable colour variation,

ranging from purple and reddish-purple to pure white.

Ipomoea quamoclit L., Sp. Pl. 1: 159. 1753; C.B. Clarke in Hook.f., F1. Brit. India 4: 199. 1883. *Quamoclit vulgaris* Choisy, Mem. Soc. Phys. Geneve 6: 434. 1834; Cooke, Fl. Pres. Bombay, 2: 261. 1905. *Lectotype* (designated by Biju, 2003): INDIA, Herb. Clifford 66, *Ipomoea* 1 (BM [BM000558077, digital image!]).

Quamoclit pinnata Bojer, Hort. Maurit. 224. 1837; Gamble, F1. Pres. Madras 2: 919. 1923. *Lectotype* (designated by Wood *et al.*, 2003): Cultivated plant from East Indies (P [P00357495, digital image!]).

Figs. 44, 48 & 58

Annual twiner, 3–5 m long. Stem weak, twining, quadrangular, glabrous. Leaves 3–6 × 4–5 cm, pinnatisect, glabrous. Petiole 2.5–4 cm long, glabrous. Inflorescence axillary cyme, usually 3–9 flowered first dichasial then monochasial cyme; peduncle 5–10 cm long, glabrous. Flowers bracteate, pedicellate; pedicel 1.5–2 cm long, glabrous; bracts small, linear, caducous, c. 0.3 × 0.1 cm, glabrous. Sepals 5, sub-equal, 0.6–1.2 × 0.8–1 cm, outer two sepals smaller and thick, inner 3 sepals slightly larger than outer sepals, ovate, ribbed, glabrous. Corolla 5-lobed, 3–4 cm long, hypocrateriform; tube 3–3.5 cm long, dark red; lobes c. 1 cm long, 2–2.5 cm wide at mouth, glabrous, mid-petaline bands red, shallow apiculate. Stamens 5; filaments sub-equal, 4–4.5 cm long; attached at c. 0.2 cm above the tube, exserted, hairy at base. Ovary ovoid, c. 0.2 × 0.1 cm, light green, glabrous, 2-locular; ovule 1 in each locule; style c. 5 cm long, slender, exserted, gradually narrowed towards apex, glabrous; stigma c. 0.2 cm, bilobed, capitate. Capsule ovoid, 0.8–1.2 cm, 4-valved, ovoid, glabrous, brown. Seeds 4 per capsules, c. 0.6 × 0.4 cm, triangular, black, minutely pubescent.

Flowering & fruiting: Flowering from August to September and fruiting from October to December.

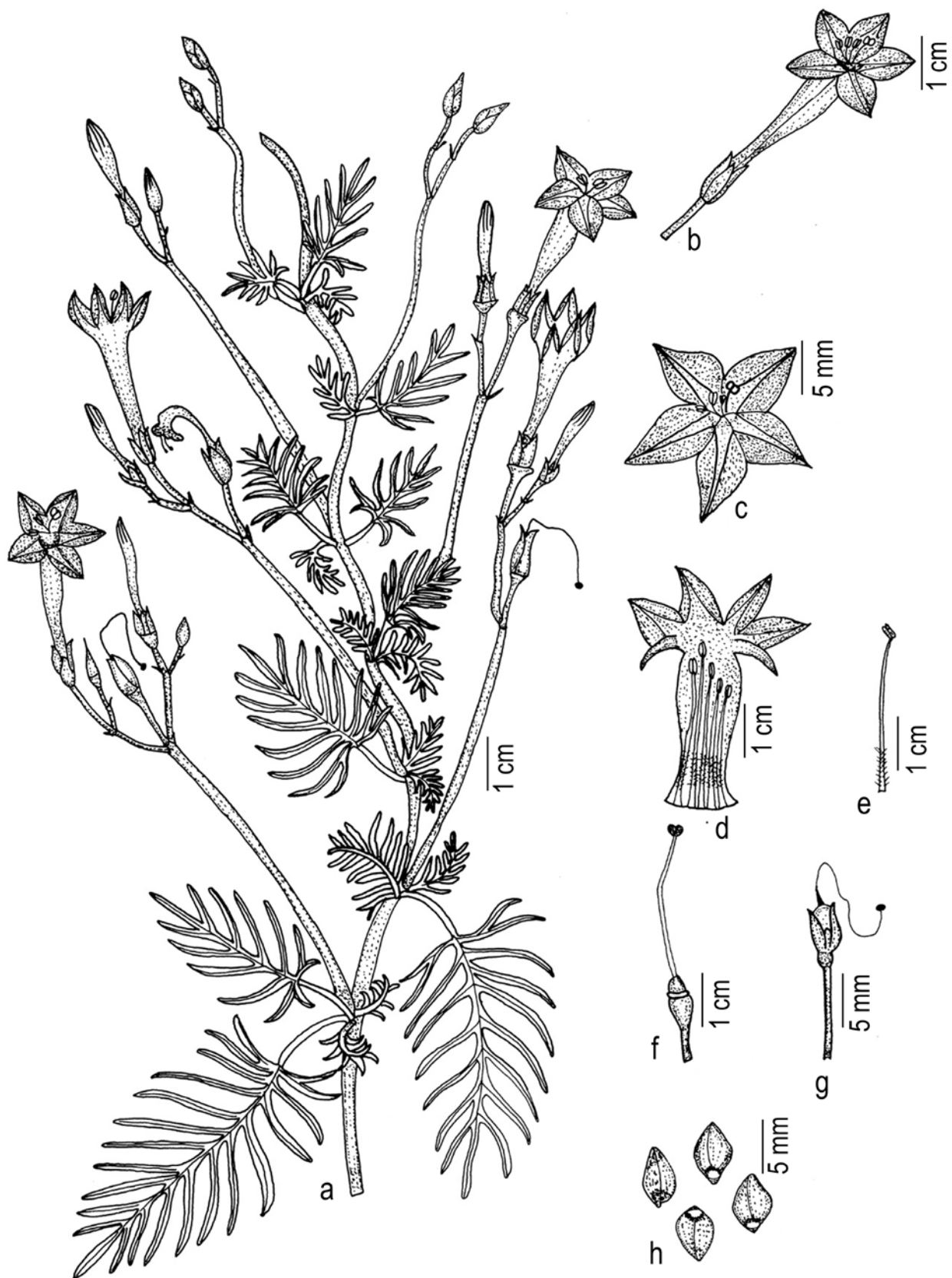


Fig. 44. *Ipomoea quamoclit* L.: **a.** Flowering twig; **b.** Single flower; **c.** Flower—top view; **d.** Corolla—split open; **e.** Single stamen; **f.** Gynoecium; **g.** Capsule; **h.** Seeds (drawn by A.V. Kattee).

Distribution: Usually cultivated. Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Ecuador, Guatemala, Madagascar, Mexico, Peru Surinam, United States, Uruguay, Venezuela and India (Throughout India).

Habitat: Mostly grown as ornamental, also occur along roadsides as an escape from gardens.

Specimens examined: INDIA, **Andaman & Nicobar Island**, South Andaman, S. Kurz 311225 (CAL). **Assam**, K. and J. Hills, 25.08.1956, G. Panigrahi 15573 (ASSAM); North Lakhimpur, 13.5.1966, D.M. Verma 43892 (ASSAM); Guwahati, 08.05.2017, Amrapali Kattee AVK 1563 (NCK). **Bihar**, Santhal Village, 17.12.1957, G. Panighrahi 15574 (ASSAM). **Goa**, Goa University campus, 28.08.1996, Vaishali Joshi & S. Rajkumar 98 (Goa University, Herbarium); University campus, 18.06.2014, Shivaprakash 22 (Goa University, Herbarium). **Kerala**, Kozhikode District, Feroke, 31.07.1971, V.V. Sivarajan 1372 (CALI); Cheruvannur, 20.05.1976, P.C. Syamala CU 18473 (CALI); Malappuram District, Calicut University Campus, 20.06.1979, Vineetha K. 31833 (CALI); *Ibid.*, 10.10.1983, Sheela Francis 1347 (CALI); Thrissur District, Kodungallur, 03.03.1989, Sreedevi N.B. 1042 (CALI); Cherunathani, 08.03.1992, Meera Nair 2055 (CALI). Kottayam District, Nalukochi, Chengancherry, 11.04.1984, V.J. Anthony 143125 (MH). **Maharashtra**, Aurangabad District, Jalna, 18.12.1971, V.N. Pardeshi 3051 (BAMU); Karmad forest nursery, 16.12.1977, V.N. Pardeshi 3136 (BAMU); Akola District, Palod, 04.09.1977, S.Y. Kamble 150362 (BSI); Nanded District, Kinwat, Sept. 1977, B.R. Zate 50 (BAMU); Kolhapur District, Kolhapur, 04.12.2007, M. Aitawade Makarand 23 (SUK); Ichalkaranji, 15.10.2016, Amrapali Kattee AVK1562 (NCK). **Madhya Pradesh**, Sagar District, Malthone R.F., 12.11.1960, N.P. Balakrishnan 22748 (MH). **Mehgalaya**, Umsaw, 19.08.1963, H. Deka 33872 (ASSAM); Darugiri Garo hills, 08.09.1962, D.B. Deb 30495 (ASSAM); Nongpoh Bazzar, 30.07.1964, J. Joseph 42965

(ASSAM); Darugiri, 20.09.1975, M.K.V. Rao 52413 (ASSAM). **Nagaland**, Kohima, 30.09.1977, C.L. Malhotra 64804 (ASSAM). **Tamil Nadu**, Kottayam District, Nalukochi, 11.04.1984, V.J. Antony 143125 (MH).

Ipomoea rubens Choisy, Mem. Soc. Phys. Geneve 6(2): 463. 1833; Swamy & Ramana, J. Threat. Taxa 10(7): 11992. 2018. *Lectotype* (designated by Wood *et al.*, 2015): INDIA, Wallich 1421 (G [G00227258 digital image!]; *islecto* K-W, G).

Perennial climber, upto 10 m long. Stem twining, hollow, hairy. Leaves broadly ovate, 5.5–14 × 4–11 cm, deeply cordate with rounded lobes at base, margin entire, acute, mucronulate at apex, pubescent at adaxial surface become glabrescent when mature; petiole 3–4 cm long hairy. Inflorescence axillary 1–13-flowered cyme; peduncle 2.5–13 cm long, hairy; pedicel 0.5–1.2 cm long, hairy. Calyx sub-equal, outer sepals elliptic-oblong, 0.7–0.9 × 0.3–0.4 cm, hairy outside and glabrous inside. Corolla infundibuliform, 3–5 cm long, pink with dark pink throat; tube 2–2.5 cm long, lobes 2–3 cm long, mid-petaline bands pink, shallow apiculate. Stamens 5, sub-equal; filaments 0.7–1.4 cm, included, hairy at the base. Ovary ovoid, c. 0.12 × 0.1 cm, glabrous; style slender, c. 1.5 cm long, included, glabrous; stigma 2-lobed, lobes unequal. Capsule globose, 1.5–1.8 cm in diam., with persistent style base, glabrous. Seeds 4; c. 0.6 × 4.5 cm, hairy.

Flowering & fruiting: Flowering from December to February and fruiting in March.

Distribution: Argentina, Bolivia, Botswana, Brazil, Ecuador, Colombia, Madagascar, Mexico, Namibia, Nicaragua, Paraguay, Philippines, Surinam, Venezuela and India (Andhra Pradesh).

Habitat: Moist places along seashores.

Etymology: The specific epithet *rubens* is derived from the Latin verb *rubeo*, meaning “to be red” or “to become red,” and refers to the characteristic red colour of the fruits at maturity.

Notes: Very rare. In India, the species is known only from a single locality and was not encountered during the present investigation despite extensive field surveys. Therefore, its treatment here is based on the published account of Swamy and Pragada (2018).

Ipomoea rumicifolia Choisy, Mem. Soc. Phys. Genève. 6: 447. 1833; C.B. Clarke in Hook. f., Fl. Brit. Ind. 4: 207. 1883; Woodrow, J. Bombay Nat. Hist. Soc. 12: 171. 1898; Cooke, Fl. Bombay 2: 244. 1905; Gamble, Fl. Pres. Madras 2: 643. 1923. *Type:* INDIA, *s.l., s.d., N. Wallich* 2254 (CAL [CAL0000071754!]). **Figs. 48 & 58**

Annual; stem herbaceous, erect when young, prostrate at maturity, 1–2 m long, hirsute throughout. Leaves 2–4 × 2–2.5 cm long, ovate-oblong, sub-reniform, apex obtuse or apiculate, sometimes emarginate, margin entire, mostly undulate, irregularly lobulate, surface glabrous above, hirsute below, hairs present only on veins, base cordate with a rounded lobe; petiole up to 5 cm long, sparsely hirsute. Inflorescence axillary, usually 1–2-flowered, sometimes 4–6 flowered. Flowers bracteate, pedicellate; pedicel short, 0.5–1 cm long, hairy, slightly thickened towards the apex in fruit, deflexed; bracts 3–4 mm long, linear, hairy. Calyx 5, ovate, 5–6 × 2–4 mm, subequal, acute to acuminate, compactly clothed with spreading hairs at the base, margin ciliate, green when young, light reddish at maturity. Corolla 5 lobed, tubular-campanulate, tube c. 0.5 cm long, pure white, 1–1.5 cm wide at the mouth, glabrous throughout or somewhat hairy on the outer side of each lobe, slightly apiculate. Stamens 5; filament 2–3 mm, subequal, included, glabrous at the base. Style 4–5 mm long; stigma bilobed, capitate. Capsule ovoid, 0.5–1 × 0.3–1.1 cm, apiculate, glabrous, slightly reddish at maturity, and light brown at the dispersal stage. Seeds usually 4, 5.5–6 mm long, velvety.

Flowering & Fruiting: Flowering from August to October and fruiting from November to December.

Habitat: It occurs in dried loamy soil of the annual canals.

Distribution: Ethiopia, Egypt, Yemen, Malaysia, Australia, Sudan and India (Rajasthan, Gujarat, Karnataka, Tamil Nadu, Andhra Pradesh).

Etymology: The specific epithet *rumicifolia* is derived from the genus name *Rumex* and the Latin *folia* (leaves), referring to the resemblance of its leaves to those of species of *Rumex*.

Specimens examined: INDIA, **Rajasthan**, Pali District, Guru Pratap Singka Guda, 01.09.1975, B.V. Shetty 1985 (CAL); Jodhpur District, Tolesar, 21.08.1977, A.N. Singh 4352 (CAL). **Karnataka**, Bellary, 17.11.1979, B.R. Ramesh 10500 (CAL). **Tamil Nadu**, Ramanathapuram District, Chithrangud, 11.11.1989, V. Balsubramaniam 2142 (CAL); Pullanthai, Sayalgudi, 25.12.1989, V. Balsubramaniam 2315 (CAL). **Gujarat**, Kachchh District, Nakhtrana, Dhinodhar, Jain 46905 (BSI); Adesar, 12.09.1968, R.S. Raghvan 95193 (BSI); Nakhtrana, Bhatt J.B. 811 (MSU); K.I. Prajapati KP 017; Zikdi-Habay Rakhal, 11.09.2021, K.I. Prajapati KP-018 (VVRL); Anjar Taluka, Chandrani, 19.8.2021, K.I. Prajapati KP-019 (VVRL); Sataper, 19.8.2021, K.I. Prajapati KP-020 (VVRL); Abdasa Taluka, Naliya, Dhufi Nani, 15.9.2021, K.I. Prajapati KP-021 (VVRL); Raper Taluka, Adesar, 25.11.2021, K.I. Prajapati KP-035 (VVRL).

Ipomoea sagittifolia Burm. f., Fl. Indica 50. t. 18, f. 2. 1768. *Quamoclit sagittifolia* (Burm. f.) Choisy in DC., Prodr. 9: 335. 1845. *Type:* JAVA, *s.d., Garcin s.n.* (G-Burman! mounted on same sheet with “*Convolvulus medium*” [= *Xenostegia tridentata* (L.) D. Austin & Staples]).

Ipomoea marginata (Desr.) Manitz in Feddes Repert. 85: 638. 1974; Verdc. Kew Bull. 42: 658. 1987. *Convolvulus marginatus* Desr. in Lam., Encycl. 3: 558. 1792. *Type:* Icon, *Tiru-tali*, Rheede, Hort. Malab. 11: 109. t. 53. 1692.

Ipomoea sepiaria Koen. ex Roxb., Hort. Bengal.: 14. 1814. *nom. illeg.*; C.B. Clarke, Hook. f., Fl. Brit. India 4: 209. 1883; Cooke, Fl. Pres. Bombay 2: 246, 1905;

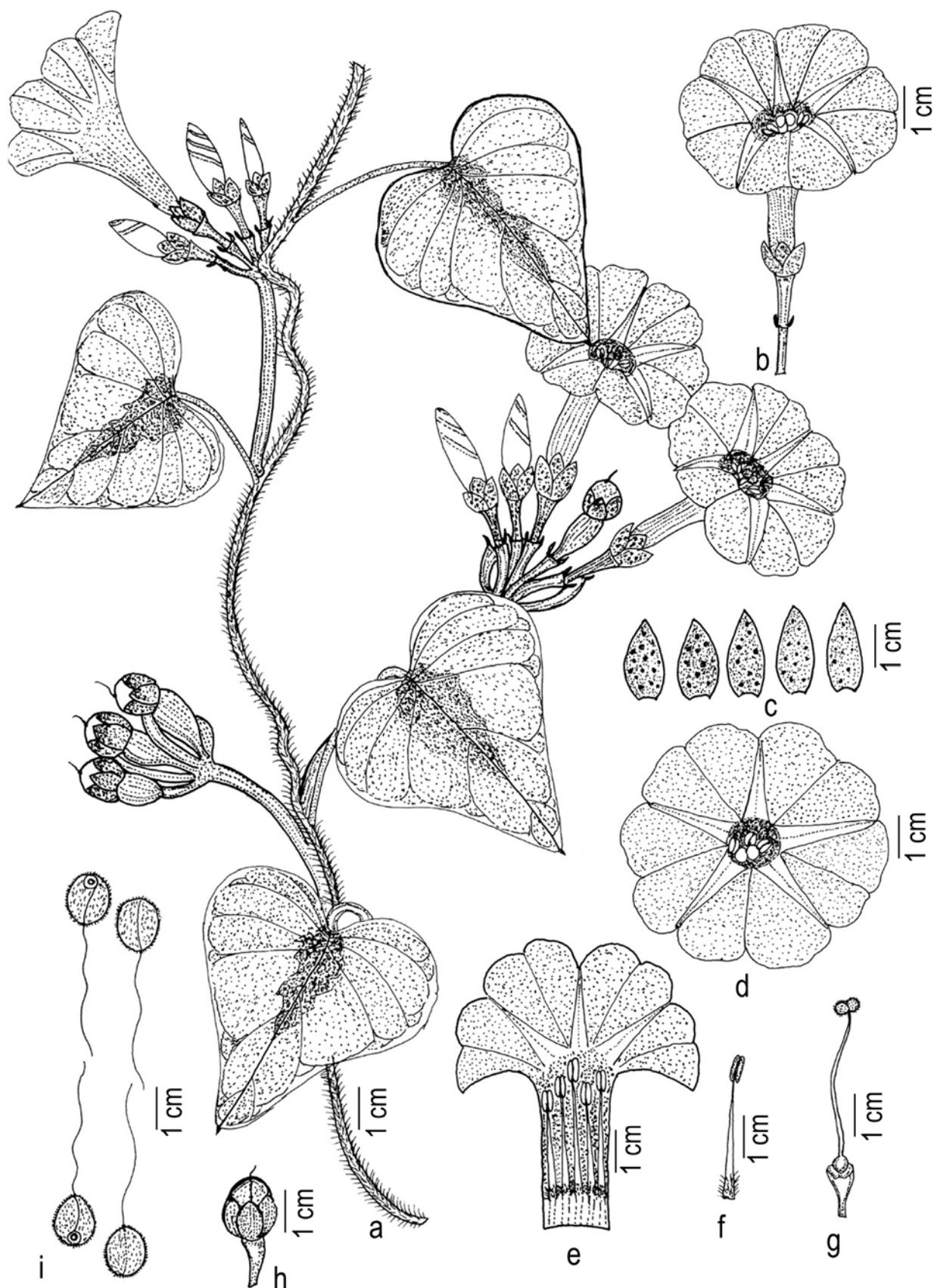


Fig. 45. *Ipomoea sagittifolia* Burm. f.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

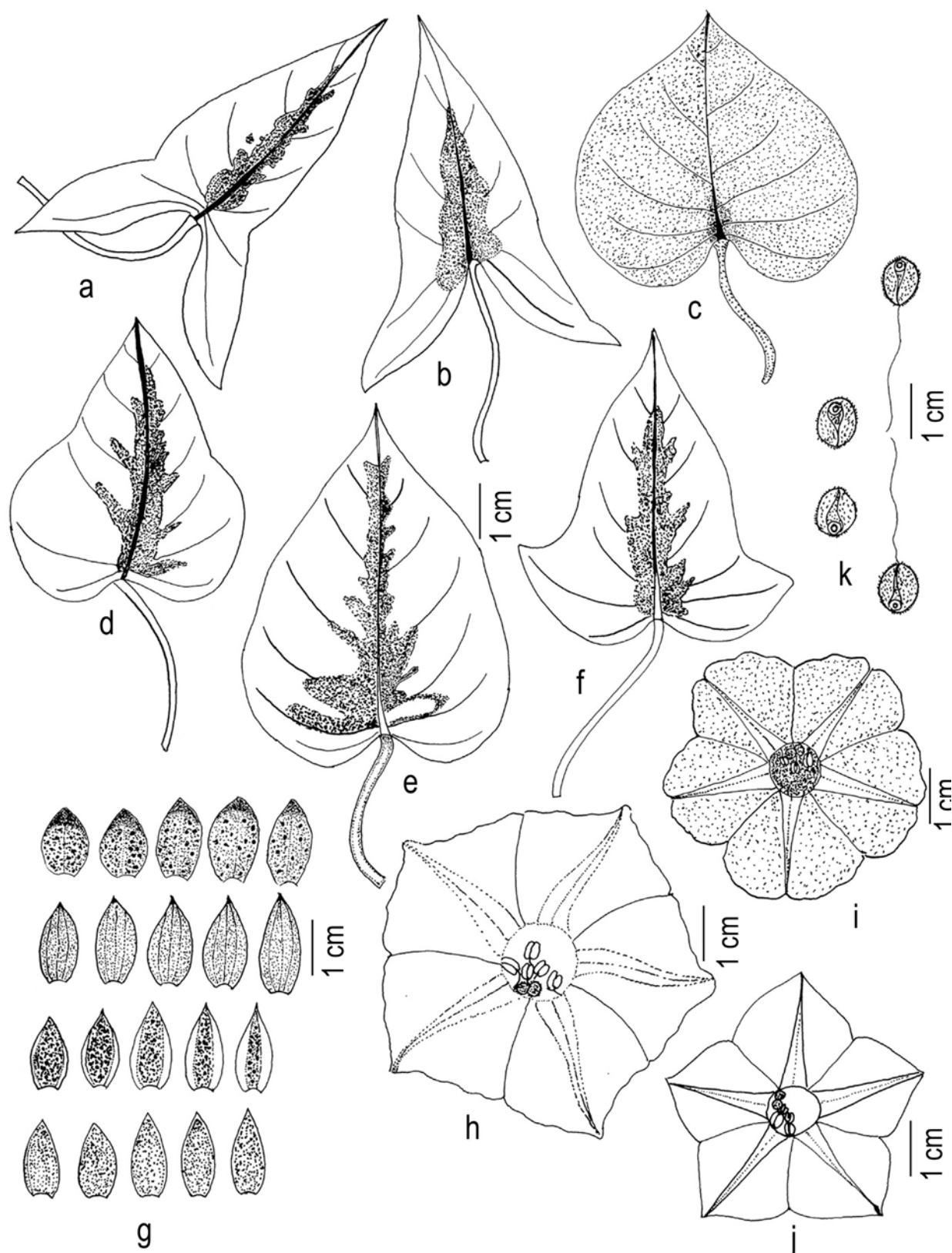


Fig. 46. *Ipomoea sagittifolia* Burm. f. (Variation in leaves, sepals, corolla and seeds): **a-f**. Variation in leaf shapes; **g**. Variation in sepals; **h-j**. Variation in corolla; **k**. Variation in seeds (drawn by A.V. Kattee).

Gamble, F1. Pres. Madras 2: 916. 1923. **Figs. 45, 48 & 58**

Perennial milky climber, 5–7 m long. Stem twinning, smooth, brown, glabrous as well as hairy. Leaves 3–8 × 5–10 cm, glabrous, entire, slightly to distinctly trilobed with cordate or hastate leaf base, acuminate, mucronulate at apex, often with purple blotch on upper surface, margin entire. Petioles 2.5–6 cm long, glabrous. Inflorescence axillary, usually 3–9-flowered in long umbellate cymes; peduncle thick than stem, 4–20 cm long, swollen at tip, glabrous. Flowers bracteate, pedicellate; pedicel 1–2.5 cm long, thicker than peduncle, enlarged in fruit, glabrous; bracts small, linear, caducous, c. 0.3 × 0.1 cm, glabrous. Sepals 5, subequal, oblong 1.6–1.8 × 0.3–0.8 cm, outer two sepals verrucate, smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 2–6 cm long, hypocrateriform; tube 1.5–3 cm long, dark pinkish purple inside; lobes c. 2.5 cm long, 4.5–5 cm wide at mouth, glabrous, mid-petaline bands whitish pink, shallow apiculate. Stamens 5; filaments subequal, 4.2–5 cm long, attached at c. 3 mm above the tube, shortly exerted at mouth, hairy at base; anthers c. 0.4 cm long, pink. Ovary ovoid, c. 0.3 × 0.1 cm, light green, glabrous, 4-locular; ovule 1 in each locule; style 4–4.5 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule oblong, 1–1.5 × 0.8–1.2 cm, 4-valved, glabrous, brownish, mucronate with persistent stylar beak. Seeds 4 per capsules, c. 0.7 × 0.8 cm, grey, pubescent with long one or two hairs at posterior end of seeds; hairs up to 2–3 cm long.

Flowering & fruiting: Flowering from September to October and fruiting from December to January.

Habitat: Common. Grows in deciduous forest.

Distribution: China, Myanmar, Sri Lanka, Thailand, Vietnam and throughout India.

Specimens examined: INDIA, **Andhra Pradesh**, Kurnool District, Nandyal, 27.02.1957, S.K. Wagh 47641 (BLATT). **Dadra and Nagar Haweli**, Silvassa, 30.09.1963, M.Y. Ansari 58486 (BSI). **Diu**

and Daman, Daman, 29.06.1964, M.Y. Ansari 96536 (CAL). **Karnataka**, North Kanara, October 1999, Hallberg & Mc Caw 47646 (BLATT); Bellary Road, 11.09.1974, N.P. Singh 113808 (BSI). **Kerala**, Palghat District, Walayar dam site, 11.07.1963, J. Joseph 33233 (MH); Thiruvananthapuram District, Kovalam, 16.11.1979, M. Mohanan 115981 (MH); Kannur District, Telicherry, 04.05.1979, V.S. Ramachadran 119901 (MH). **Lakshadweep Islands**, Androth Island, 30.11.1960, B.M. Wadhawa 76744 (BSI). **Madhya Pradesh**, Kamta, 09.03.1962, J.K. Maheswari 4741 (CAL). **Maharashtra**, Mumbra, 28.11.1953, Santapau 47642 (BLATT); Aurangabad District, Bidkin, 11.08.1977, Madhukar 1451 (BAMU); Golatgaon, 28.08.1977, V.N. Pardeshi 1876 (BAMU); Nagzari, 15.09.1977, B.R. Zate 493 (BAMU); Tipeswar, 25.09.1978, S. Karthikeyan 104651 (BAMU); Ratnagiri 29.10.2017, Amrapali Kattee AVK1501 (NCK). **Odisha**, Balaramgudi, 30.11.1965, W.A. Rao 5661 (CAL). **Uttar Pradesh**, Mirzapur, 22.10.1964, G. Panigrahi 2025 (CAL). **Tamil Nadu**, Coimbatore District, Maruthmalai foot hills, 29.12.2017, Amrapali Kattee AVK 1502 (NCK).

Notes: This is one of the most variable species in the genus (Fig. 46). The stem ranges from glabrous to densely hairy and varies in colour from green to deep purple. Leaf morphology is highly diverse, with leaves varying from simple and entire to abruptly trilobed or distinctly trilobed, sometimes bearing purple blotches on the lamina; the leaf base ranges from cordate to hastate. The calyx exhibits considerable variation, being smooth, faintly tuberculate, strongly tuberculate, or distinctly three-nerved and ribbed. Corolla colour is also variable, ranging from bluish-pink lobes with a purple throat to whitish lobes with a dark pink throat.

Ipomoea salsettensis Santapau & V. Patel, Trans. Bose Res. Inst. Calcutta 22: 34. t.2, 1958; Kattee *et al.*, Rheede 27(2): 106. 2017. *Type:* INDIA, **Maharashtra**, Bombay, 25.09.1955, Patel 1509

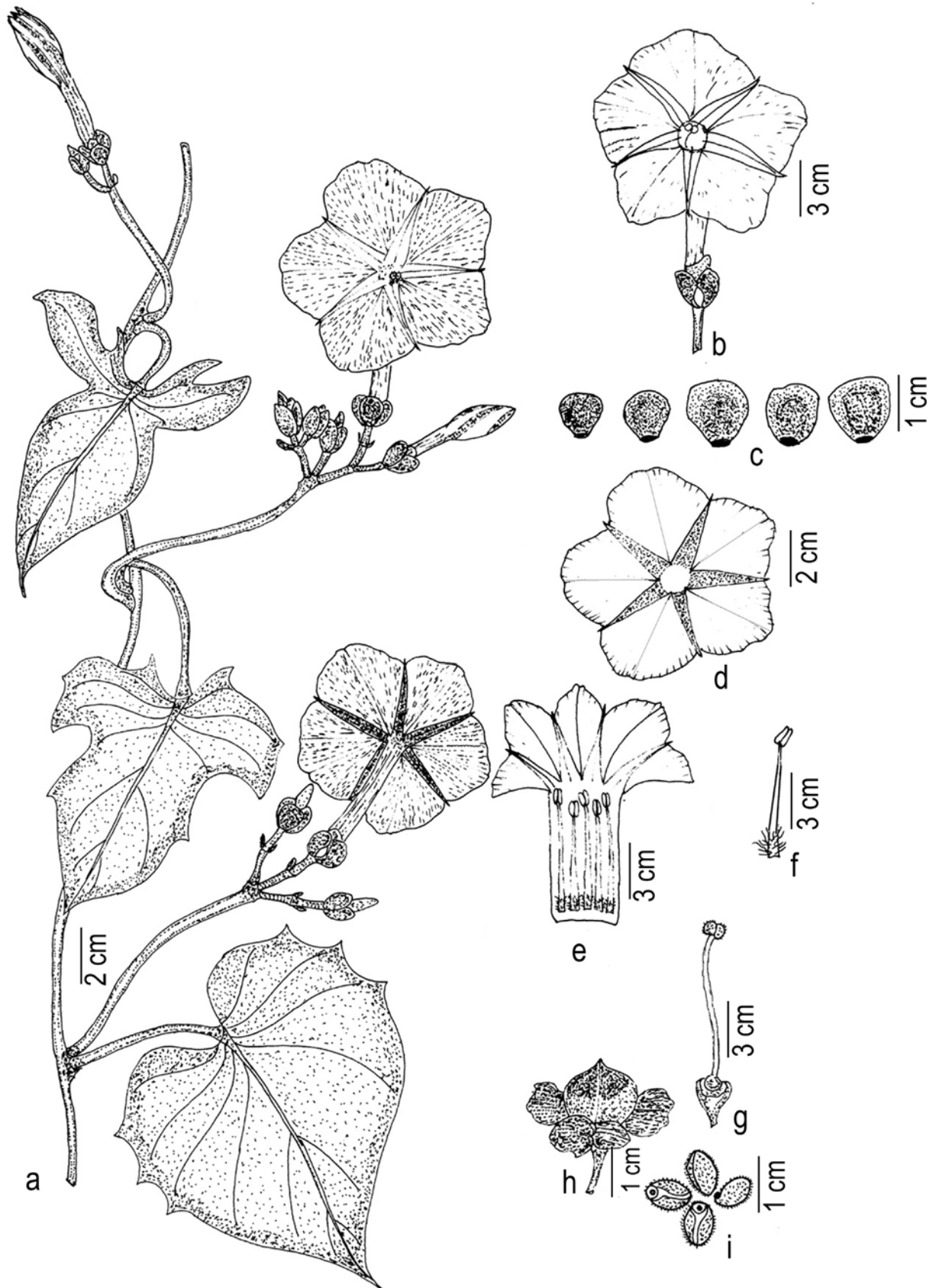


Fig. 47. *Ipomoea salsettensis* Santapau & Patel: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

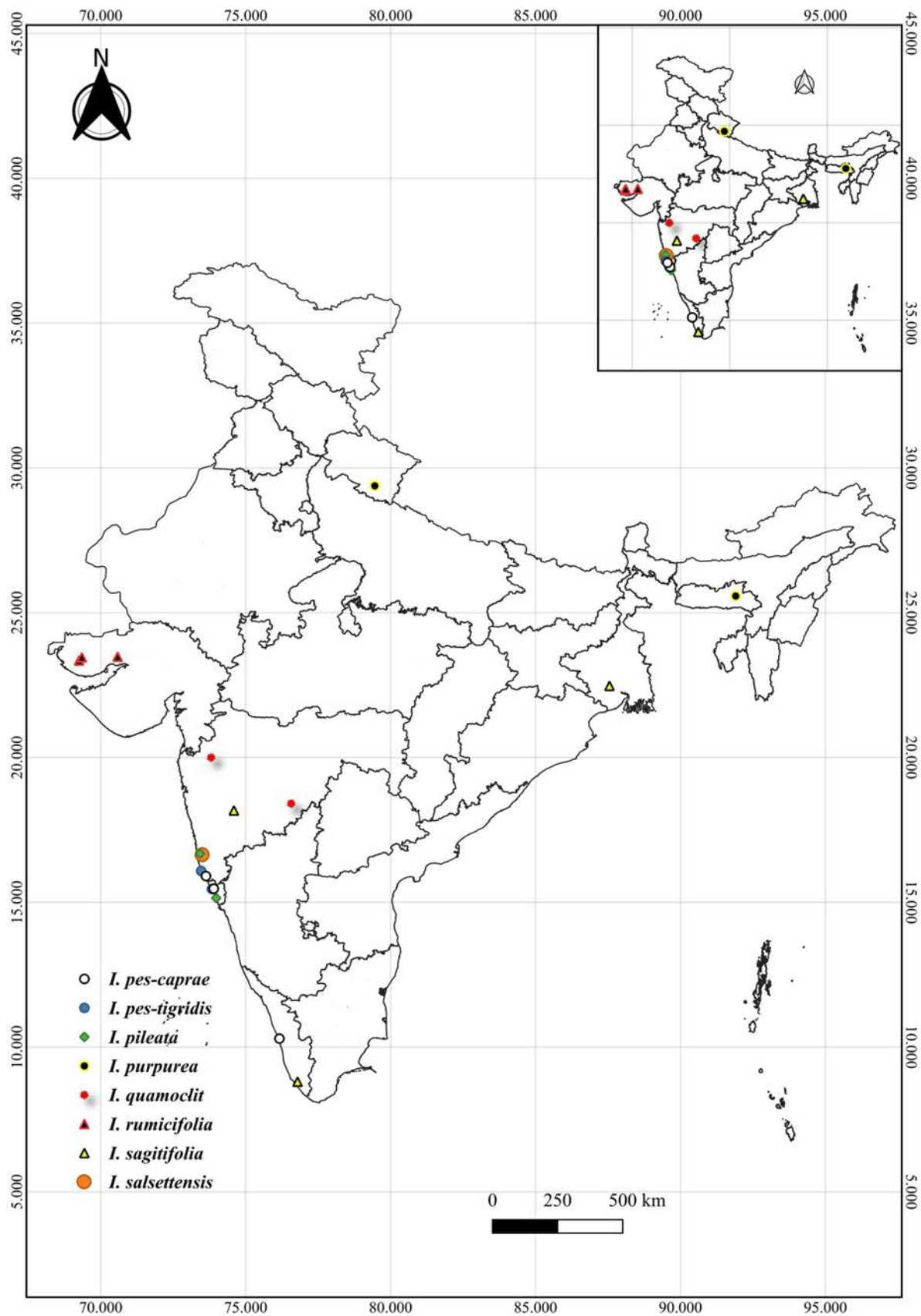


Fig. 48. Map showing collection sites of *Ipomoea pes-caprae* (L.) R. Br., *I. pes-tigridis* L., *I. pileata* Roxb., *I. purpurea* (L.) Roth, *I. quamoclit* L., *I. rumicifolia* Choisy, *I. sagittifolia* Burm.f. and *I. salsettensis* Santapau & Patel (prepared using QGIS).

(BLAT!).

Figs. 47, 48 & 58

Perennial, milky climber. Stem twinning, often winged, glabrous. Leaves broad, ovate, 3–15 × 5–14 cm, simple, as well as 3–5-lobed, cordate with large rounded lobes at base, entire at margins, acuminate at apex, glabrous; petiole 5–8 cm long, glabrous. Inflorescence 3–6 flowered, umbellate cyme; peduncle 6–15 cm long, glabrous; bracts linear, c. 0.5 cm long, near the joint of pedicel with peduncle, caduceus, glabrous; pedicel 1.5–2 cm long, stout, glabrous, enlarged in fruits. Calyx unequal, oblong, mucronulate, 1–1.2 × 0.6–1 cm, glabrous. Corolla hypocrateriform, 8–10 cm long, pure white; tube 5–7 × 1–1.2 cm, lobes 3–4 cm long, 8–10 cm wide at mouth, apiculate, glabrous, mid petaline bands white on upper side and reddish on lower side, glabrous. Stamens 5, subequal, included, adnate to corolla at c. 5 mm above the base up to 5–6 cm; hairy at the base, anthers c. 0.3 cm long, basifixed, dehiscent by longitudinal slit; filaments 3–3.5 cm long. Ovary ovoid, c. 0.3 × 0.2 cm, glabrous; style slender, 6–6.5 cm long, exserted; stigma 2-lobed. Capsule globose, c. 2.5 × 2 cm, brown, glabrous; dehisces from side of wall into 4 parts. Seeds 5–6 per capsule, 0.6–0.8 × 0.5–0.7 cm, grey, pubescent.

Flowering & fruiting: Flowering from September to October and fruiting from November to December.

Habitat: Grows in lateritic soil at low elevations.

Distribution: India; endemic to Maharashtra.

Etymology: The name 'salsettensis' derived from its type locality Salsette island of Mumbai.

Specimens examined: INDIA, **Maharashtra**, Mumbai District, Borivali, 08.11.1953, *P. S. Herbert* 48140 (BLATT); Bhandup, 08.10.1995, *V. M. Patel* 48137 (BLATT); Ratnagiri District, Rajapur, 14.10.2016, *Amapali Kattee* AVK1567, AVK1568 (NCK).

Conservation status: The species is currently known from only two populations. Its Extent of

Occurrence (EOO) is estimated to be less than 5,000 km², and its Area of Occupancy (AOO) is estimated to be less than 500 km². Based on these, the species is provisionally assessed here as Endangered [EN B1ab(ii)+B2ab(ii)] according to the IUCN criteria and guidelines (IUCN, 2024).

Notes: The species was recollected after 58 years from a locality other than its type locality (Kattee et al., 2017). Morphologically, it resembles other night-blooming species with white corollas, such as *Ipomoea aculeata* (L.) Kuntze, *I. alba* L., and *I. violacea* L., but can be readily distinguished by its mucronulate sepals, reddish lower portions of the mid-petaline bands on the corolla, and grey pubescent seeds. The species exhibits considerable variation in leaf morphology, with leaves ranging from simple and entire to shallowly 5–7-lobed or distinctly trilobed.

Ipomoea simoesiana Shimpale, A.V. Kattee & S.B. Patil, *Rheedea* 34(5): 477. 2024. *Type:* INDIA, **Maharashtra**, Satara district, Pateshwar hills, *Amrapali Kattee* AVK1538 (holo CAL!; iso BSI, SUK).

Figs. 49, 57 & 58

Perennial climber, c. 3 m long; roots tuberous, slender, c. 5 × 3 cm. Stem profusely branched, terete, densely hirsute, without milky latex; young branches hairy; hairs silvery. Leaves broadly ovate, 3–6.5 × 2.5–5 cm, base cordate, apex acute to acuminate, hispid on both surfaces; petiole 1–5 cm long, densely hispid; exstipulate. Inflorescence axillary cymes, 1–3-flowered, 0.7–1 cm long. Flower 3–3.6 × 3–3.2 cm; pedicel 0.7–1.2 cm long; bracts lanceolate, 0.3–0.5 × c. 0.1 cm, at joint of pedicel with peduncle, covered with silky hairs. Sepals 5, densely silvery-silky hairy on outside, glabrous inside, lobes subequal, 0.9–1.2 × 0.2–0.3 cm, oblong-acute. Corolla funnel-shaped, 3–3.6 cm long, sulphur yellow; tube c. 2 cm long, pubescent outside, glabrous inside; limb entire, 3–3.2 cm across. Stamens 5, sub-equal, included, adnate to corolla tube at c. 5 mm above base; filaments 0.8–0.9 cm long, glandular at base; anthers 0.2–0.3 cm long, basifixed. Ovary sessile,

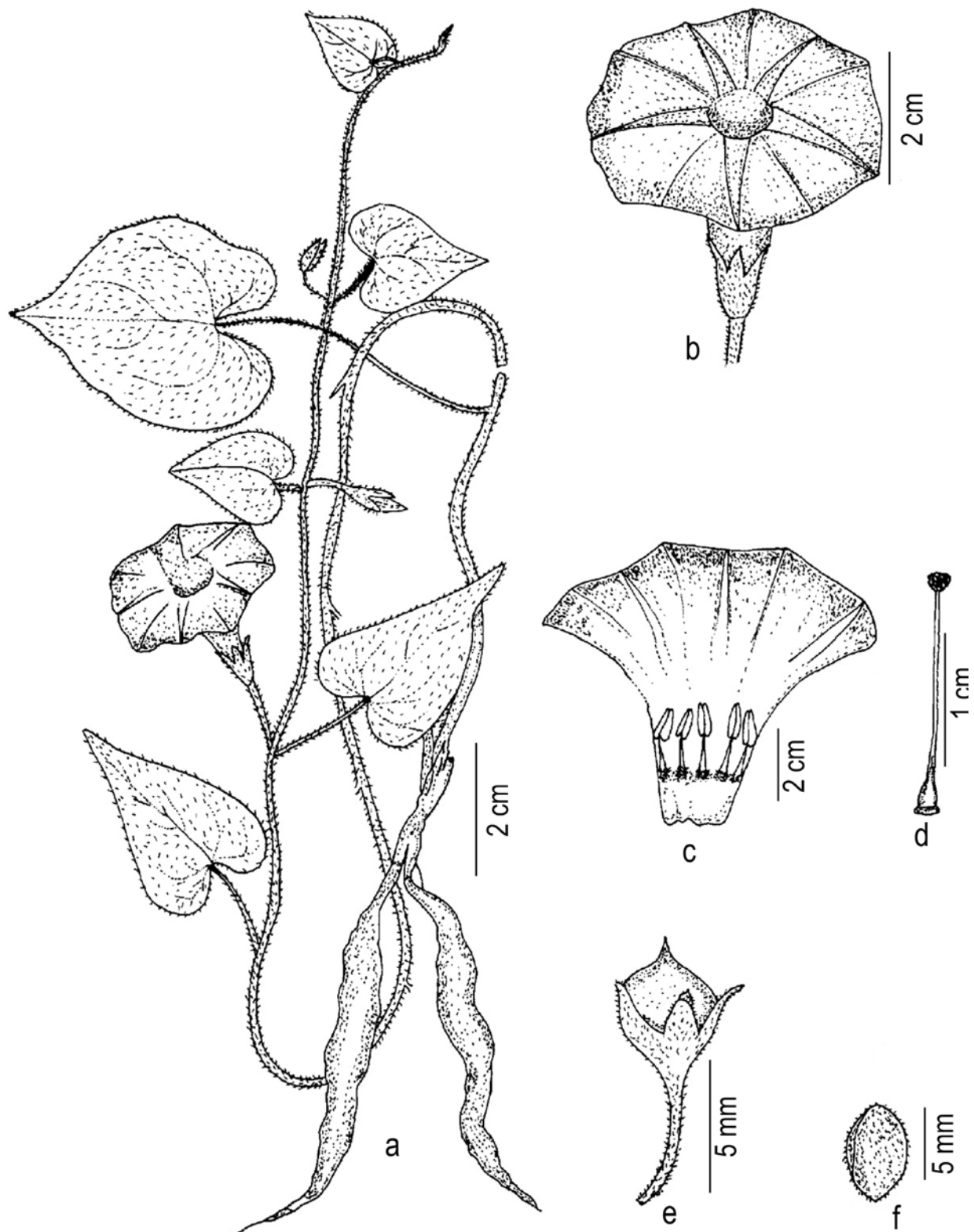


Fig. 49. *Ipomoea simoesiana* Shimpale, Patil & Kattae: **a.** Habit; **b.** Single flower; **c.** Corolla-split open; **d.** Single stamen; **e.** Capsule; **f.** Seeds (drawn by G.G. Potadar).

ovoid, 0.3–0.4 cm long, glabrous; style 1.3–1.5 cm long, glabrous, slender; stigma 2-lobed. Capsule ovoid, 0.8–1.2 × 0.7–0.9 cm, glabrous, 4-valved, 2-celled. Seeds 2–4, c. 0.5 × 0.4 cm, densely hirsute throughout, brown in colour.

Flowering & Fruiting: Flowering from August to September; fruiting from September to November.

Habitat: The species is primarily found in the semi deciduous forests of the Western Ghats, growing in the crevices of rock cliffs.

Distribution: Endemic to India (Andhra Pradesh, Maharashtra and Telangana).

Etymology: The species is named after Dr. Ana Rita G. Simoes, Scientist at Royal Botanic Gardens, Kew, UK in recognition of her contribution to the studies of the family Convolvulaceae, especially in tribe Merremieae.

Specimens examined: INDIA, **Maharashtra**, Satara District, Pateshwar hills, 18.08.2024, V.B. Shimpale 7698 (NCK); **Andhra Pradesh**, Neelganga, Srisailem, Nagarjunasagar Srisailem Tiger Reserve, 07.12.2012, L. Rasingam & M. Sankara Rao 10138 (BSID); **Telangana**, Saleswaram, Nagarjunasagar-Srisailem Tiger Reserve, 23.10.2016, L. Rasingam & J. Swamy 8005 (BSID).

Conservation status: The species is currently known from only three populations. Its Area of Occupancy (AOO) is estimated to be less than 500 km². Although the Extent of Occurrence (EOO) could not be calculated reliably due to the limited number of records, it is inferred to be less than 5,000 km². In view of its restricted distribution and the small number of known locations, the species is provisionally assessed here as Endangered [EN B1ab(iii)+B2ab(iii)] following the IUCN Red List Categories and Criteria (IUCN, 2024).

Notes: Previously, this species was erroneously identified as *Ipomoea ochracea* (Lindl.) G. Don (Shimpale et al., 2012).

Ipomoea sindica Stapf., Bull. Misc. Inform. Kew 93: 346. 1894; Cooke, Fl. Pres. Bombay 2:

252. 1905. *Lectotype* (designated by Wood et al., 2020): INDIA, **Sindh**, s.d., T. Thomson s.n. (K [K001081737, digital image!]). **Figs. 50, 57 & 58**

Annual, milky laticiferous climber, 3 m long. Stem slender, hairy. Leaves 6–8 × 4–5 cm, dimorphic, basal leaves ovate, cordate at base; upper leaves linear lanceolate, longer than broader, hairy, entire, with rounded leaf base, acuminate apex, margin entire. Petiole 2.5–4 cm long, densely hairy. Inflorescence axillary, usually 1–3 flowered cymes; peduncle 0.1–1.5 cm long, hairy. Flowers bracteate, sessile; pedicels absent; bracts leafy, caducous, 0.2 × 0.1 cm, densely hairy. Sepals 5, sub-equal, linear, 0.8–1.2 × 0.2–0.4 cm, faintly veined, densely hairy, white ciliated at margin, faintly veined, hairy. Corolla 5-lobed, infundibuliform, 0.8–1 cm long tube 0.3–0.5 cm long, pure white; lobes c. 0.5 cm long, white, 1–1.5 cm wide at mouth, apiculate, with hairy white tuft at the base of corolla lobes, mid-petaline bands white, shallow apiculate, hairy at outside. Stamens 5; filaments sub-equal, 0.5–0.8 cm long; attached at c. 0.2 cm above the tube, included, hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 1 × 0.5 cm, light green, hairy, 4-locular, ovule 1 in each locule, hairy; style c. 0.6 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsule globose, 0.5–0.8 cm, 4-valved, glabrous and brown, dehisces from top into 4 parts. Seeds 4 per capsules, c. 0.3 × 0.5 cm, black, pubescent.

Flowering & fruiting: Flowering from September to October and fruiting from November to December.

Habitat: It grows in shady places in rock crevices. Mostly found at dry areas of the country.

Distribution: Pakistan and India (Jammu and Kashmir, Panjab, Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Chhattisgarh).

Etymology: Specific epithet ‘sindica’ derived from ‘Sindh area’ of North West India (Now Pakistan), which is the type locality.

Specimens examined: INDIA, **Gujarat**, Kutch, Dhinodhar, 20.10.1958, S.K. Jain 31190 (BSI);

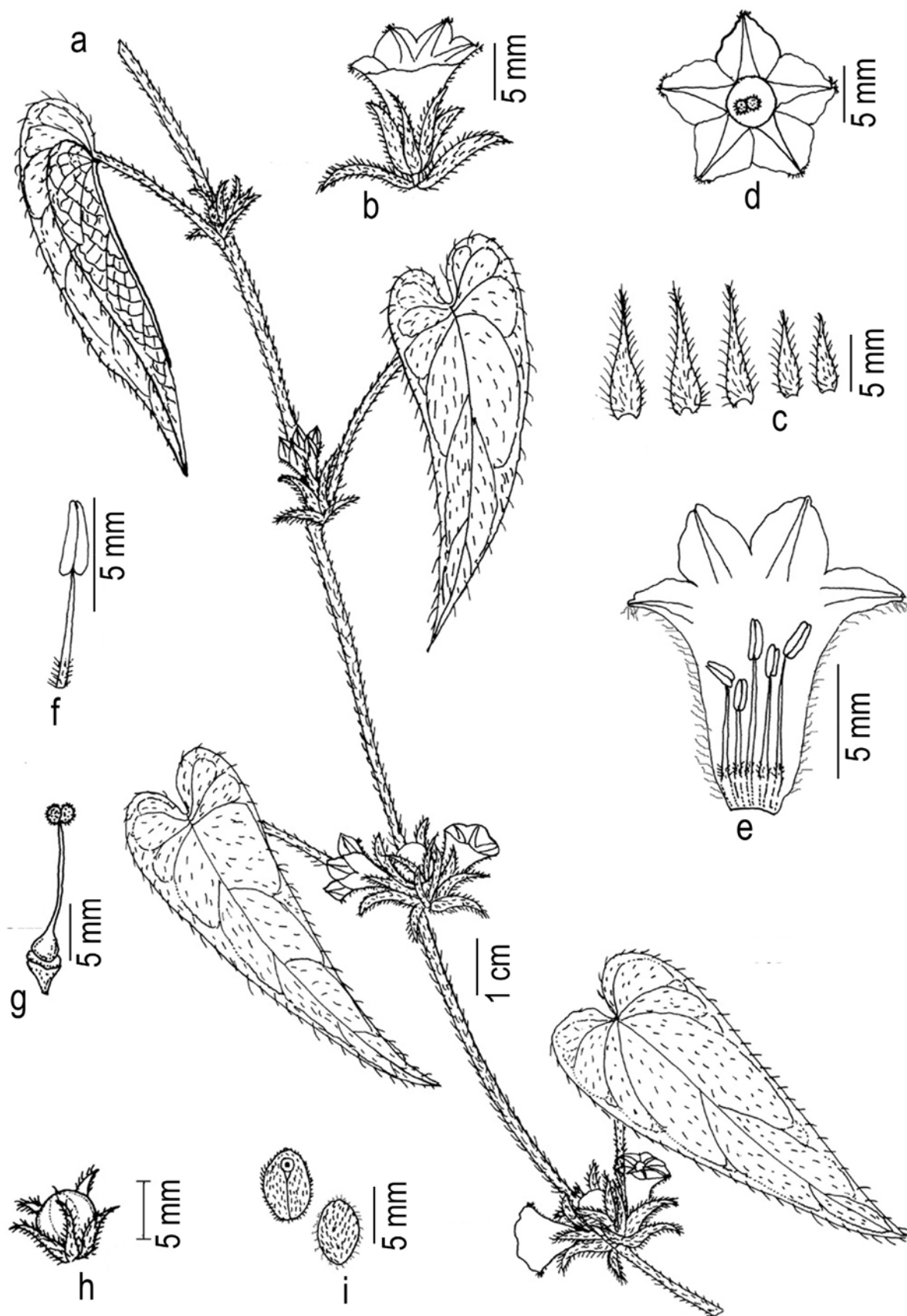


Fig. 50. *Ipomoea indica* Staf.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

Kutch 04.10.2017, Amrapali Kattee AVK1572 (NCK). **Maharashtra**, Aurangabad 13.10.1964, V.N. Pardeshi 1414 (BAMU); Rudreshwar, 18.09.1977, D.S. Pokle 1417 (BAMU); Soygaon 11.09.1979, D.S. Pokle 3080 (BAMU); Gadchiroli District, Chandagad hills, 17.10.2016, Amrapali Kattee AVK1573 (NCK). **Rajasthan**, Banswara

District, Molki Dongri, 30.09.1961, K.C. Kanodia 5445 (BSI); Jaisalmer District, Devikot, 10.09.1964, B.M. Wadhawa 556172 (CAL); Pali District, Near Jowai Dam, 29.08.1975, B.V. Shetty 1936 (CAL); Banswara District, Kotharia fort block, 21.10.1976, V. N. Singh 3756 (CAL); Jalor District, Jogani, 12.10.1977, B.L. Vyas 4515 (CAL);

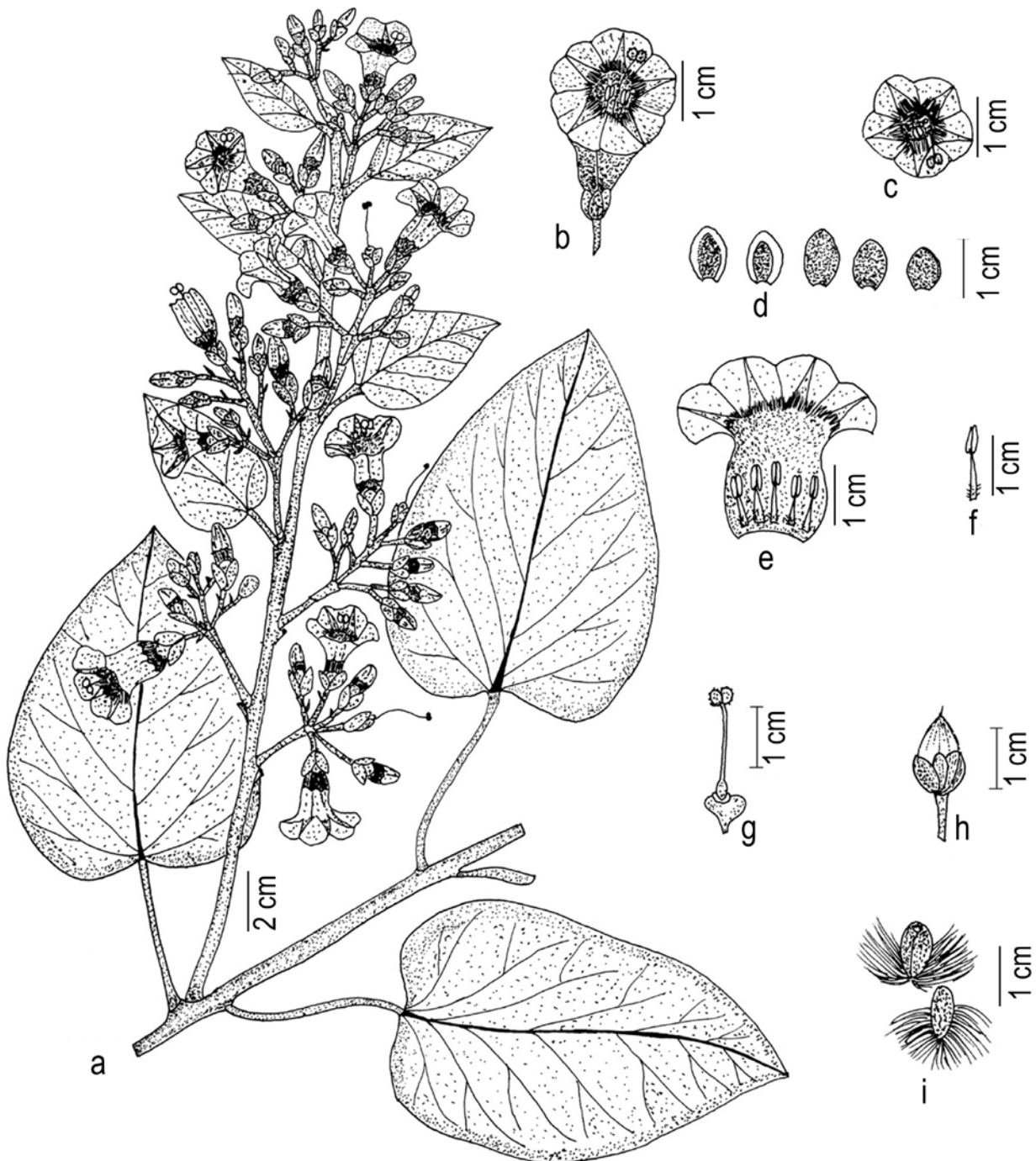


Fig. 51. *Ipomoea staphyllina* Roem. & Schult. **a.** Flowering twig; **b.** Single flower; **c.** Flower—top view; **d.** Sepals; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoeceium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

Suratgarh road, 14.10.1977, *G.P. Roy* 5054 (CAL); Phalsund, 22.08.1977, *B.M. Wadhawa* 4776 (CAL); Jodhpur District, Osian, 22.08.1977, *A.N. Singh* 4417 (CAL); Ganganagar District, Bhaduwalla, 08.10.1977, *G.P. Roy* 4949 (CAL).

Notes: Morphologically it is similar to *I. eriocarpa* but differs in having linear sepals, white corolla, glabrous fruits and black pubescent seeds. Wood *et al.* (2020) treated it as conspecific to *I. eriocarpa* but it is a distinct species with pure white corolla, glabrous capsules and long hairy stems.

Ipomoea staphylina Roem. & Schult., Syst. Veg. 4: 249. 1819; C.B. Clarke in Hook.f., Fl. Brit. India 4: 210. 1883; Cooke, Fl. Pres. Bombay 2: 247. 1905; Gamble, Fl. Pres. Madras 2: 913. 1923. *Neotype* (designated by Staples, 1996): INDIA, Orientale, *s.d.*, *B. Heyne s.n.* (K [K000830815, digital image]). **Figs. 51, 57 & 58**

Perennial, milky, woody climber, more than 7 m long. Stem twinning, woody, slightly tubercled when mature, glabrous. Leaves 4–10 × 4–8 cm, entire, cordate at base with elongate lobes, obtuse at apex, margin entire. Petiole 3–5 cm long, glabrous. Inflorescence axillary, many-flowered panicle of cymes; peduncle 3–10 cm long. Flowers bracteate, pedicellate; pedicel 1.5–1.8 cm long, enlarged in fruit, glabrous; bracts small, linear, caducous, 0.5–0.8 cm long, glaucous. Sepals 5, sub-equal, 1–1.5 × 0.3–0.6 cm, oblong, ovate, outer two sepals smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 2.5–3 cm long, infundibuliform; tube 1.5–2 cm long, dark pink inside, white outside; lobes 1–1.5 cm long, white, 3–4 cm wide at mouth, apiculate, glabrous, mid-petaline bands white-pink. Stamens 5; filaments sub-equal, 0.8–1.5 cm long, attached at c. 0.3 cm above the tube, included, hairy at base; anthers c. 0.5 cm long. Ovary ovoid, c. 0.2 × 0.2 cm, light green, glabrous, 4-locular, ovule 1 in each locule; style 2.5–2.7 cm long, shortly exserted, glabrous; stigma bilobed, capitate. Capsule ovoid, 0.8–1 cm, mucronate with persistent styler base, 4-valved

brown. Seeds 4 per capsules, 0.4–0.6 × 0.3–0.4 cm long, brown, villous at margin; hairs, 0.5–1 cm long.

Flowering & fruiting: Flowering and fruiting from December to March.

Habitat: It grows in the semi-deciduous or deciduous forests, along roadsides of Ghat area and also along the railway tracks.

Distribution: China, Sri Lanka, Thailand and India (Madhya Pradesh, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Odisha, West Bengal).

Specimens examined: INDIA, **Andhra Pradesh**, Cuddhapah District, Balapalle, 23.02.1963, *J.L. Ellis* 15771 (CAL); Chittoor, 06.11.1976, *G.V. Subba Rao* 4698 (CAL); Prakasam District, Krishanshettypalli, 26.01.1985, *R.K. Mohanan* 0707 (CAL). **Karnataka**, Dharwad, 28.02.1888, *W.A. Talbot* 1744 (CAL); Mysore District, February 1908, *A. Meebold* 312272 (CAL); Mysore Tirthahalli, 14.03.1964, *R.S. Raghavan* 96849 (CAL); Bangalore District, Kanankpura sangam road, 28.01.1978, *Cecil J. Saldanha* 42 (CAL). **Kerala**, Malappuram District, University Campus, 18.12.1970, *V.V. Sivarajan* 875 (CALI); Feroke, 06.10.1971, *V.V. Sivarajan* 1565 (CALI); Palghat District, Kottathora, 13.10.1979, *E. Vajravelu* 59132 (CAL). **Maharashtra**, Pune District, Pangare, Jan. 1995, *M.P. Bachulkar* 5927 (SUK); Kolhapur District, Alas, 10.02.2008, *Aitawade Makarand* M25 (SUK); Herale, 02.01.2017, *Amrapali Kattee* AVK1582 (NCK). **Tamil Nadu**, Tirunelveli District, Thirukkurungudi, 11.02.1913, *D. Hooper & M.S. Ramaswami* 39314 (CAL); Mundhanthurai, 23.02.1960, *K.M. Sebastine* 9918 (CAL); Coimbatore 13.02.1963, *K.M. Sebastine* 15635 (CAL); Dharmapuri District, Denkonikotta, 17.12.1978, *K.M. Matthew & N. Venugopal* 2331 (CAL); Tiruchi, 10.02.1978, *K.M. Matthew* 11759 (CAL); Salem District, Tiruchengode, 09.12.1978, *K.M. Matthew* 19860 (CAL); South Arcot District, Pakumalai R. F. Gingee, 22.01.1978, *K. Ramamurthy* 53520 (CAL); Kallakurichi, 15.01.1979, *N. Venugopal*

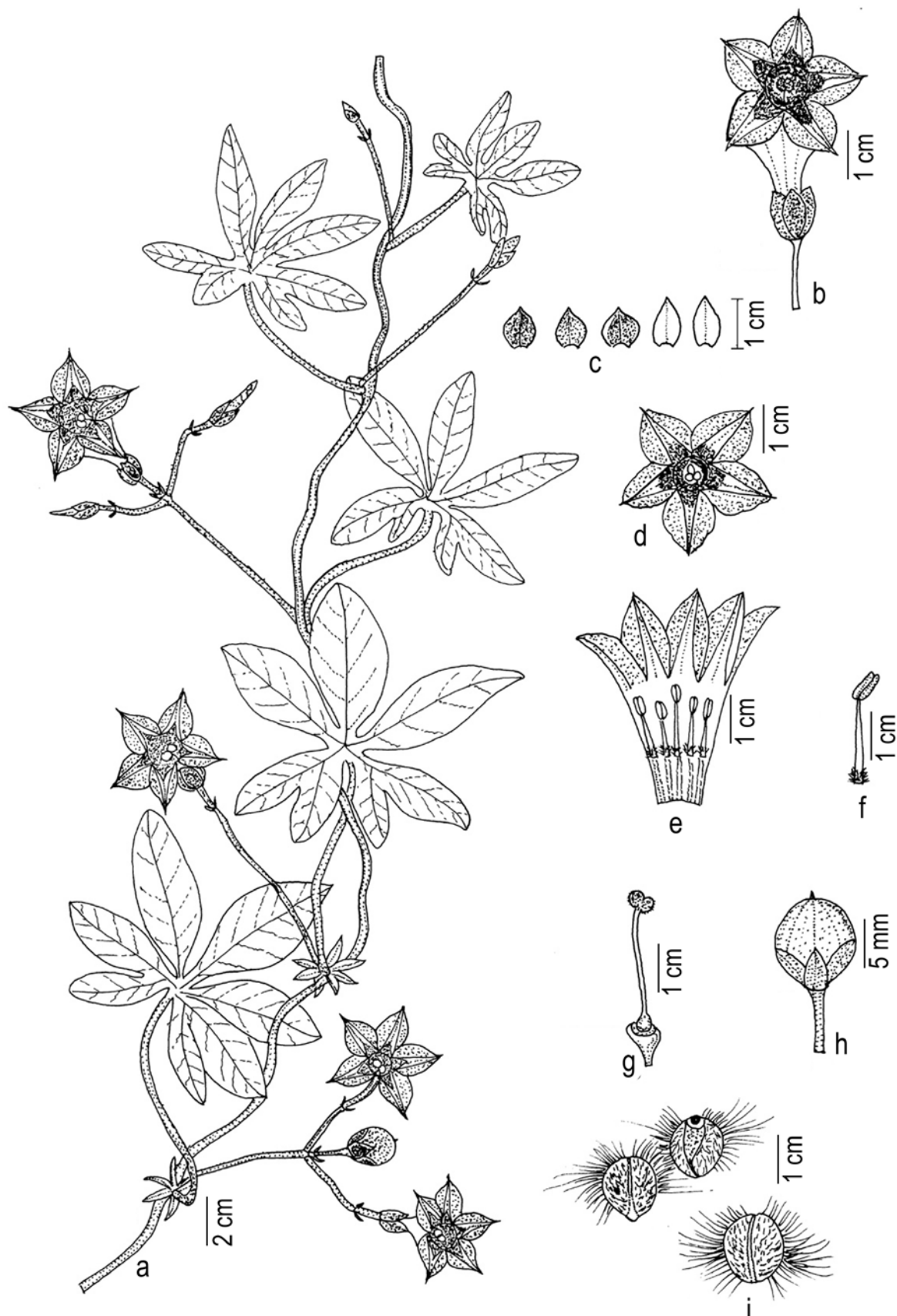


Fig. 52. *Ipomoea tenuipes* Verdc.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

21026 (CAL); Vellampadugai to Karappur, 13.02.1979, K. Ramamurthy 60161 (CAL); Noerh Arcot District, Nilavur Mangalam R.F. Yelagiri hills, 11.12.1984 M.B. Viswanathan 634 (CAL); Anna District, Palani, 20.08.1987, C. Sudershan 415 (CAL); Coimbatore District, Maruthmalai foot hills, 28.12.2017, Amrapali Kattee AVK1583 (NCK).

Notes: It is often confused with *I. campanulata* due to its many flowered inflorescence, but can be distinguished by its elliptic cordate leaves and smaller flowers.

Ipomoea tenuipes Verdc., Kew Bull. 15: 12. 1961; Shimpale *et al.*, Rheede 24(2): 117. 2014. *Type:* TANZANIA, **Tanganyika**, Masai District, near Kwa Kuchinja, Milne-Redhead & Taylor 11194 (K [K000097171, digital image!]). **Figs. 52, 57 & 58**

Annual climber with twinning stems, c. 3 m long. Leaves palmate, 4–6 × 5–6 cm, glabrous, lobes 3–5; lower lobes sub-divided; middle lobe 4–5 × 1.5–2.5 cm; lateral lobes 2.5–3 × 2–2.5 cm; lower lobes 1.5 × 1–1.3 cm, often sub-divided; lobes linear, lanceolate, obtuse at apex, margin entire. Petiole 3–4 cm long, glabrous. Inflorescence axillary cymes, usually 1–3- flowered; peduncle 6–15 cm long, glabrous. Flowers bracteate, pedicellate; pedicel 1.5–2.5 cm long, enlarged in fruit, slightly tubercled, glabrous; bracts small, caducous, c. 0.2 × 0.1 cm long, linear, glabrous. Sepals 5, subequal, oblong-ovate, 0.5–0.8 × 0.3–0.6 cm; outer two sepals smaller; inner three slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5 lobed, 1.5–2 cm long, infundibuliform; tube 0.8–1 cm long, purple with dark purple centre; lobes c. 1 cm long, purple, c. 2 cm wide at mouth, glabrous, sharp apiculate. Stamens 5; filaments unequal, 0.5–0.8 cm long, attached at c. 2 mm above the base of tube, included, hairy at base; anthers 0.3 cm long. Ovary ovoid, c. 0.2 × 0.1 cm, light green, glabrous, 2-locular; ovule 1 in each locule; style 1.5 cm long, glabrous; stigma c. 0.2 × 0.2 cm, bilobed, capitate. Capsule ovoid, 0.8–1.2 cm long, 4-valved, glabrous, brownish, dehisces from top into 4 halves. Seeds 2–4 per capsules, 0.5–0.6 ×

0.3–0.5 cm, grey, pubescent, hairy at margin; hairs 0.5–1 cm long, white.

Flowering & fruiting: Flowering from September to November and fruiting in December.

Habitat: Grows along roadsides, usually in black cotton or loamy soil. Rare.

Distribution: South Africa, Eritrea, Myanmar and India (Maharashtra).

Specimen examined: INDIA, **Maharashtra**, Aurangabad District, Paithan, 15.10.2012, M.A. Kare 1035 (Paithan College, Paithan); Paithan, 25.11.2016, Amrapali Kattee AVK 1587 (NCK).

Notes: The species was first added to the flora of India by Shimpale *et al.* (2014). Subsequently, it was reported from additional localities in Maharashtra by Chaudhary and Khan (2020). In the vegetative stage, it closely resembles *Ipomoea cairica* (L.) Sweet; however, it can be distinguished by its longer peduncles, smaller corollas, and densely hairy seeds.

Ipomoea triloba L., Sp. Pl. 1: 161. 1753. *Lectotype* (designated by Austin, 1978): Icon in Sloane, Voy. Jamaica 1: t. 97, f. 1. 1707.

Ipomoea triloba L. var. *deccanensis* D.K.Londhe & A.S.Bhukatar, Bangladesh J. Plant Taxon. 30(1): 32. 2023 [as *deccansis*]. *Type:* INDIA, **Maharashtra**, Nasik, Dindori, November 2019, D.K. Londhe 3297 (holo CAL; iso BSI). **Figs. 53, 57 & 58**

Annual climber, c. 5 m long. Stem twinning, angular, glabrous sometimes hairy at nodes. Leaves 5–10 × 6–12 cm, glabrous, entire to distinctly trilobed, cordate at base, acuminate, mucronulate at apex, margin entire. Petiole 5–10 cm long, glabrous. Inflorescence axillary cyme, usually 1–7- flowered in short lax as well as condensed axillary cymes; peduncle 2–8 cm long, slightly swollen at tip. Flowers bracteate, pedicellate; pedicel 0.6–1.3 cm long, glabrous; bracts small, leafy, caducous, c. 0.2 × 0.1 cm, glabrous. Sepals 5, subequal, 0.5–1 × 0.3–0.5 cm, faintly veined, pinkish at apex, outer two sepals

smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, hairy. Corolla 5-lobed, 1–1.5 cm long, infundibuliform, tube c. 1 cm long, dark purple inside; lobes 0.5–0.7 cm long, c. 1.5 cm wide at mouth, glabrous, mid-petaline bands pinkish- white, shallow

apiculate. Stamens 5; filaments sub-equal, 0.5–0.8 cm long, attached at c. 0.2 cm above the base of tube, included, hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 0.2 × 0.1 cm, light green, glabrous, 4-locular; ovule 1 in each locule; style c. 0.8 cm long, glabrous; stigma c. 0.2 × 0.1 cm,

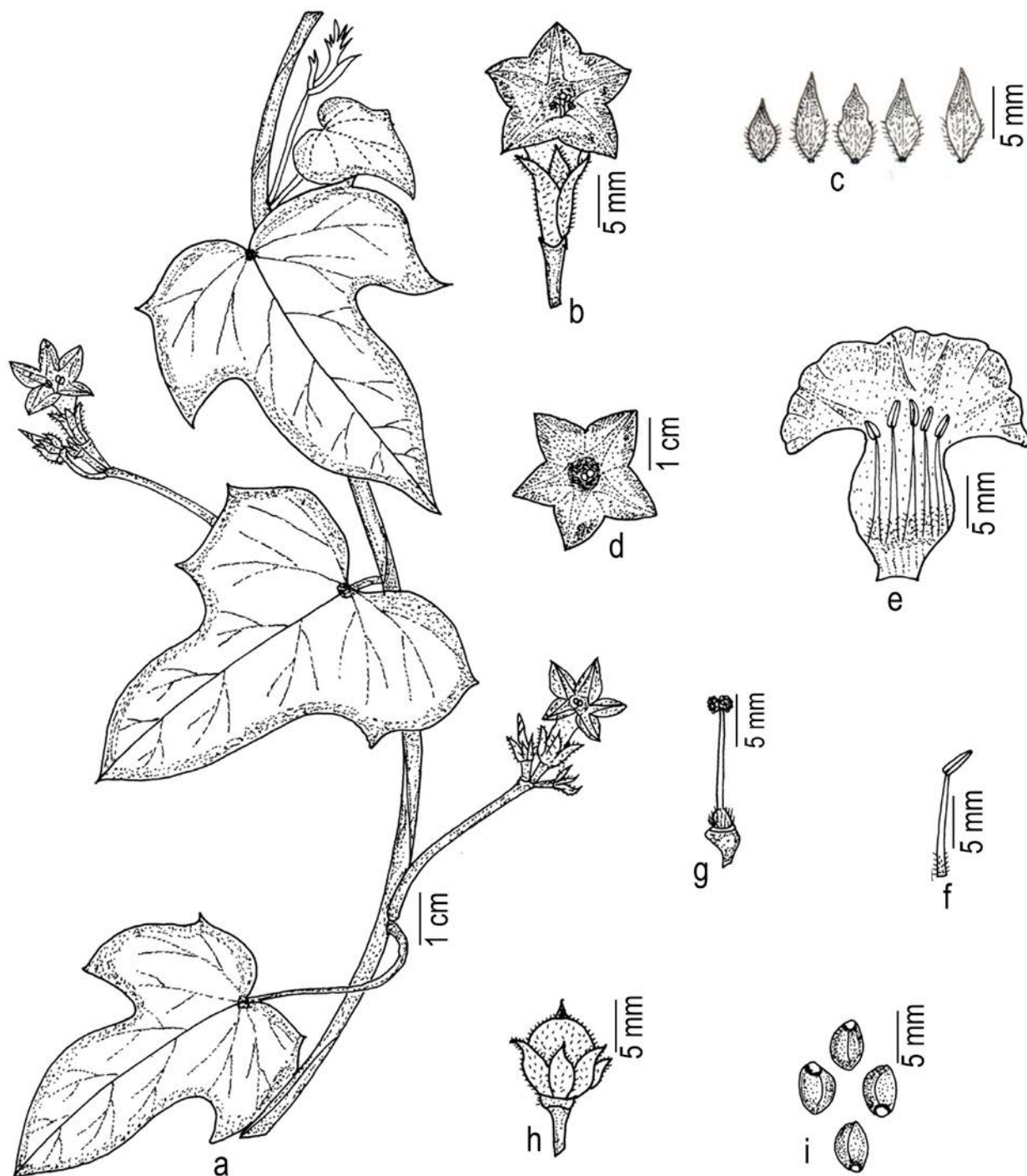


Fig. 53. *Ipomoea triloba* L.: **a**. Flowering twig; **b**. Single flower; **c**. Sepals; **d**. Flower-top view; **e**. Corolla-split open; **f**. Single stamen; **g**. Gynoecium; **h**. Capsule; **i**. Seeds (drawn by A.V. Kattee).

bilobed, capitate. Capsule ovoid, 0.8–1 cm, subglobose, 4-valved, ovoid, hairy, greenish with pinkish ting at apex when young and brown at mature, hairy, dehisces in four halves. Seeds c. 0.4 × 0.4 cm long, yellowish with brown patches.

Flowering & fruiting: Flowering from September to December and fruiting from January to April.

Habitat: Common at moist places along roadsides.

Distribution: Cambodia, China, Indonesia, Java, Iran Israel, Myanmar, Philippines, Nepal, Sri Lanka, Thailand, Senegal, South Africa, Mexico, USA, Bahamas, Belize, Cuba, Panama, Jamaica, Nicaragua, Argentina, Bolivia, Colombia, Ecuador, Venezuela, Australia, New Guinea and India.

Specimens examined: INDIA, **Goa**, Goa University Campus, 08.06.2014, *Shivaprakash S.P.* 15 (Goa University). **Kerala**, Quilon District, Peapalli to Chalakyam road, 27.11.1976, *M. Chandrabose* 146781 (MH); Pathanamthitta District, Neelimala top, Shabarimala, 12.10.1998, *N. Amalkumar* 105798 (MH); Alapuzha District, Kuamarapuram, s.d., *C.N. Sunil* 1766 (CALI); Malappuram District, Calicut University Campus, 02.02.2003, *K.V. Radhika* 88519 (CALI); Kozhikode District, Calicut, 21.09.2015, *A.V. Kattee* AVK1422, AVK1423 (NCK). **Maharashtra**, Western Ghats, Talegoan tank, 22.11.1975, *V.N. Naik* 2828 (BAMU); Aurangabad, 19.03.1978, *V.N. Pardeshi* 3550 (BAMU); Great Indian Bustard Sanctuary, Mardi, 20.09.2010, *J. Jayanthi* 132086 (BSI); Ujani Wetland, Saha, 08.10.2001, *S.K. Das Das* 130492 (BSI); Shendre, Kolhapur, December 1994, *M.P. Bachulkar* 20304 (SUK); Kolhapur, 01.08.2007, *M.M. Aitawade* 27 (SUK); Kolhapur, 05.10.2017, *Amrapali Kattee* AVK1424, AVK1425 (NCK). **Gujarat**, Ahmedabad, 04.10.2017, *Amrapali Kattee* AVK1420 (NCK). **Meghalaya**, Phulduryseil, Shillong, 30.01.2009, *B.K. Sinha* 71337 (ASSAM).

Note: Recently, Londhe and Bhuktar (2023) described a new variety, *Ipomoea triloba* var. *deccansis* D.K.Londhe & A.S.Bhuktar, based on a

combination of characters including a taproot with adventitious roots, a completely white corolla, white stamens, green sepals, green stem, petiole and pedicel, persistent bracts, a capitate stigma, a sparsely hairy style with a glabrous ovary, greenish glabrous capsules, and seeds bearing marginal brown hairs. However, most of these characters appear to be variable and environmentally influenced, and do not provide stable taxonomic distinctions at the varietal level. Consequently, the taxon is treated here as conspecific with *I. triloba* L. Furthermore, the varietal epithet *deccansis* is orthographically incorrect under classical Latin formation, as it is derived from the geographical name “Deccan.” The appropriate Latinized epithet would be *deccanensis*.

Ipomoea tuberculata Ker-Gawl., Syst. Veg., ed. 15 bis. 4: 208. 1819. *Type:* Icon in Bot. Reg. 1: t. 86. 1815.

Ipomoea dasysperma Jacq., Ecolg. 1: 132. t. 89. 1816; C.B.Clarke in Hook.f., Fl. Brit. India 4: 215. 1883; Cooke, Fl. Pres. Bombay 2: 321. 1905; Gamble Fl. Pres. Madras Pres. 2: 645. 1923. *Type:* A plant cultivated at Vienna (W). **Figs. 54, 57 & 58**

Annual milky climber, 3–5 m long. Stem twinning, smooth, glabrous, tubercled when mature. Leaves palmatipartite, 6–10 × 8–12 cm, 7–9-lobed; lobes linear lanceolate, obtuse at apex, glabrous, margin entire. Petiole 3–6 cm long, glabrous. Inflorescence axillary, 1–3-flowered cymes; peduncle 5–10 cm long, glabrous. Flowers bracteate, pedicellate; pedicel 1.5–2 cm long, enlarged in fruit, glabrous; bracts small, linear, caducous, c. 0.3 × 0.2 cm long, glabrous. Sepals 5, subequal, 6–1 × 0.5–0.8 cm, thick, protuberant at centre, outer two sepals smaller, inner three sepals slightly larger than outer sepals, smooth, white at margin, glabrous. Corolla 5-lobed, 3–5 cm long, hypocrateriform, yellow with purple throat, tube 2.5–3.5 cm long, dark purple inside; lobes 2–3 cm long, 5–7 cm wide at mouth, glabrous, mid-petaline bands yellow, apiculate. Stamens 5; filaments unequal, 0.6–1.2 cm long; attached at c. 4 mm above the tube, included,

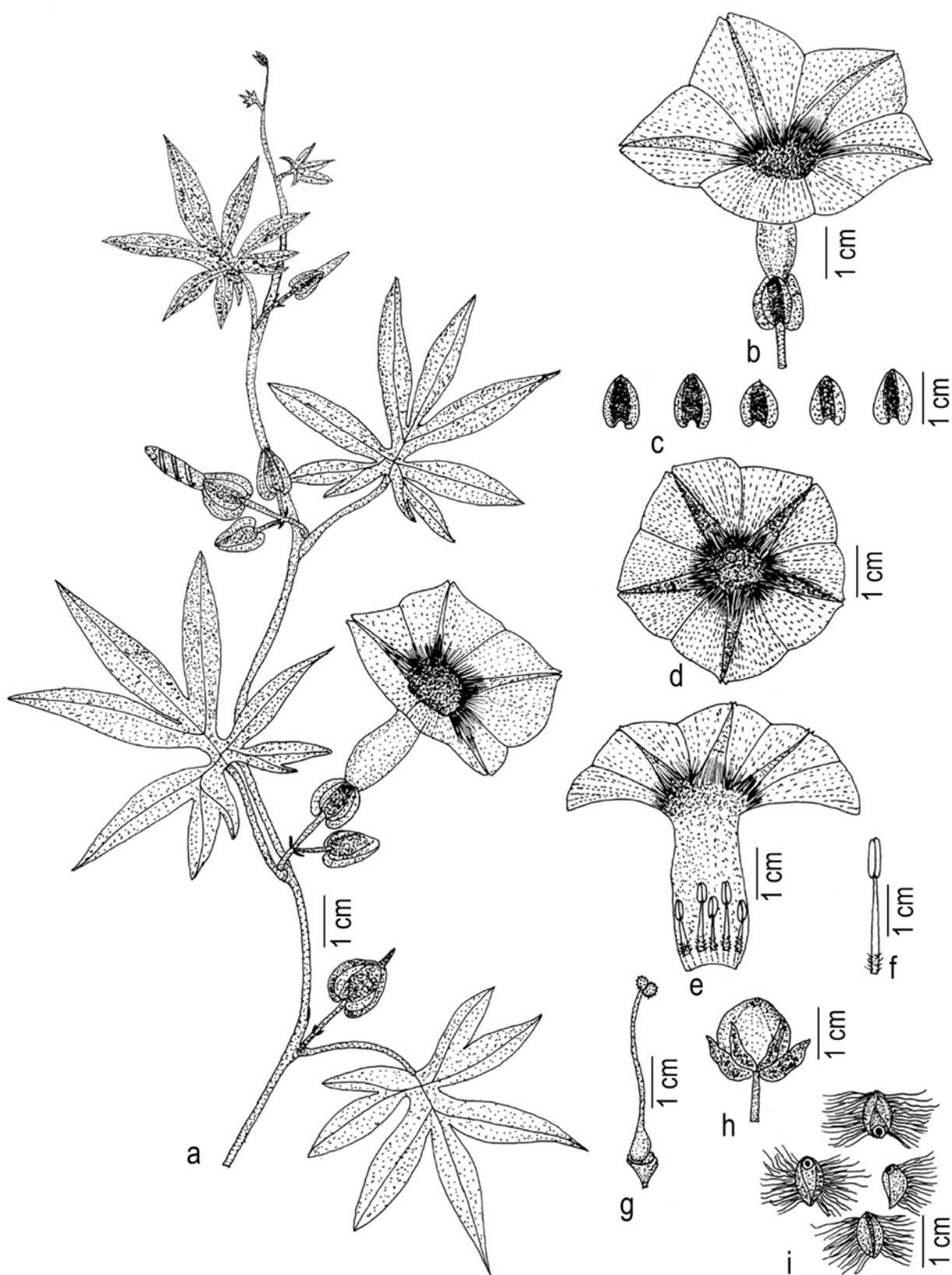


Fig. 54. *Ipomoea tuberculata* Ker-Gawl.: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower-top view; **e.** Corolla-split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

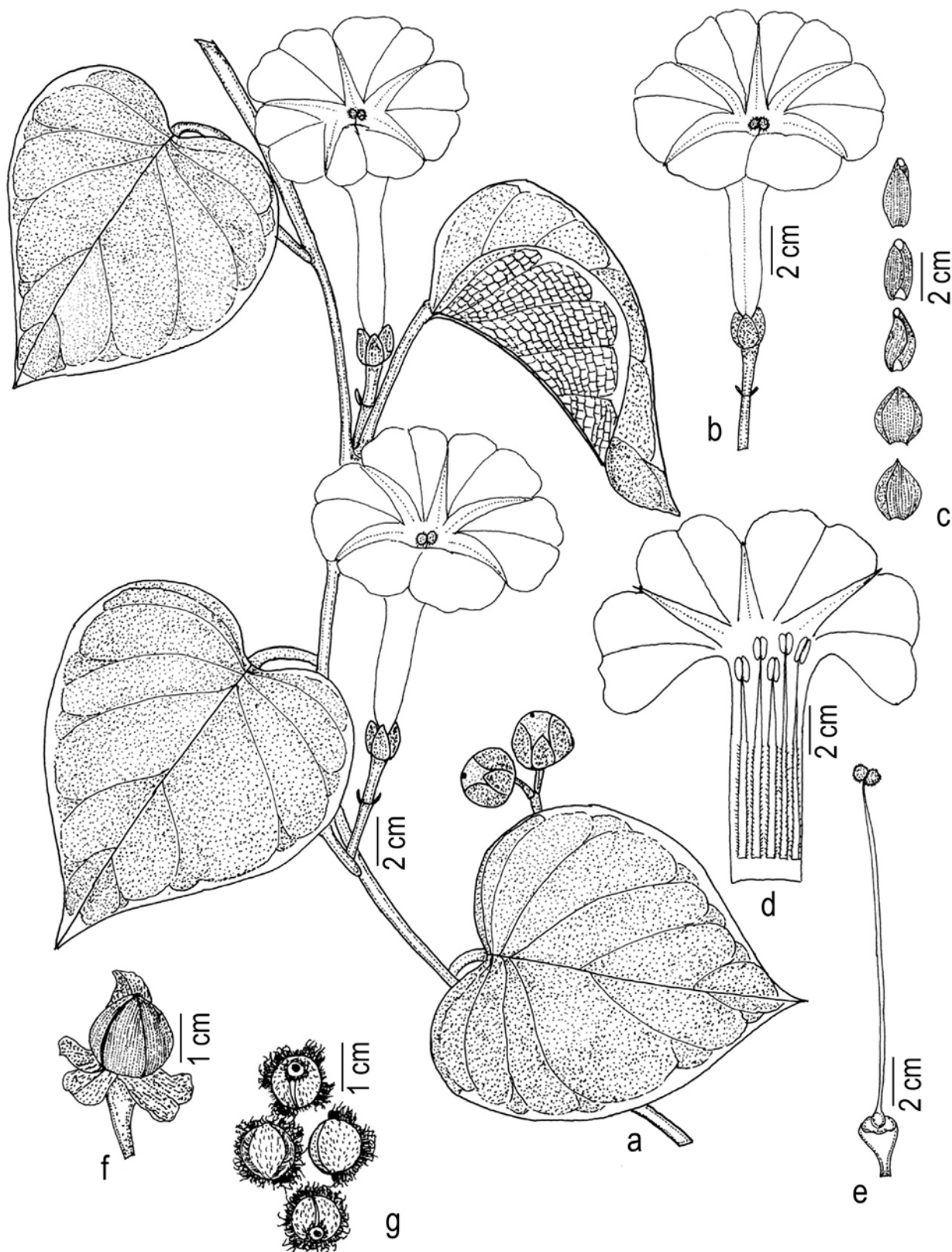


Fig. 55. *Ipomoea violacea* L.: a. Flowering twig; b. Single flower; c. Sepals; d. Corolla-split open; e. Gynoecium; f. Capsule; g. Seeds (drawn by A.V. Kattee).

hairy at base; anthers c. 0.3 cm long. Ovary ovoid, c. 0.2 × 0.3 cm, glabrous, 4-locular; ovule 1 in each locule; style c. 1.5 cm long, glabrous; stigma c. 0.2 × 0.1 cm, bilobed, capitate. Capsules sub-globose, c. 1.3 × 1.2 cm, 4-valved, glabrous, brownish. Seeds 0.6–0.1 × 0.6–0.8 mm, black, pubescent, hairy at margin, hairs 0.5–1 cm long.

Flowering & fruiting: Flowering from September to October and fruiting from November to December.

Habitat: It occurs in dry regions, usually climbing on roadside bushes.

Distribution: Mexico, South Africa and India (Gujarat and Maharashtra).

Specimens examined: INDIA, **Gujarat**, Ahmedabad, 25.10.2016, Amrapali Kattee AVK 1597 (NCK); Kutch, 05.10.2017, Amrapali Kattee AVK1598 (NCK). **Maharashtra**, Aurangabad District, Puranwadi, 20.10.1974, D.S. Pokle 161 (BAMU).

Ipomoea violacea L., Sp. Pl. 1: 161. 1753. *Lectotype* (designated by Manitz, 1977): Icon in Plumier, Codex Boerhaavianus, t. sub n. 851. 1733.

Ipomoea longiflora R.Br., Prodr. 484. 1810; *nom. illeg., non* Willdenow, 1809. *Type:* AUSTRALIA, **Queensland**, Sweer's Island, Gulf of Carpentaria, R. Brown 2741 (holo BM [BM000630203, digital image]).

Calonyction grandiflorus Choisy, Convolv. Orient, 60. 1833; Choisy in DC., Prodr. 9: 349. 1845. **Figs. 55, 57 & 58**

Annual, milky, climber. Stem woody, twinning, glabrous. Leaves broad, ovate, 10–15 × 11–5 cm, simple, cordate with large rounded lobes at base, entire at margins, acute at apex, glabrous; petiole 9–12 cm long, glabrous. Inflorescence 1–5-flowered, uniparous cyme; peduncle 5–8 cm long, glabrous; bracts linear, c. 0.3 cm long, caduceus, near the joint of pedicel with peduncle, glabrous; pedicels 1.5–2 cm long, stout, glabrous, enlarged in fruits. Sepals unequal, oblong, ovate, 2.1–2.3 × 1.9–2.1 cm, white at margin, glabrous. Corolla hypocrateriform, 10–12 cm long, pure

white; tube 7–9 × 1–1.2 cm, lobes 3–4 cm long, 8–10 cm wide at mouth, apiculate, glabrous, mid-petaline bands white on upper side and lower on lower side, glabrous. Stamens 5, sub-equal, included, adnate to corolla at 0.8 cm above the base up to 8–10 cm, hairy at the base; anthers c. 0.3 cm long. Ovary ovoid c. 0.3 × 0.2 cm, glabrous; style slender, 10–12 cm long, exserted; stigma 2-lobed. Capsule globose, c. 2 × 2.5 cm, brown, glabrous; capsule dehisces from side of wall into 4 parts. Seeds 2–4 per capsules, 0.8–1 × 0.7–1 cm, dark brown to black, pubescent, villous at margin, hairs brown.

Flowering & fruiting: Flowering from November to December and fruiting from December to March.

Habitat: It grows along coastal regions.

Distribution: Australia, Belize, Caribbean, China, Colombia, Japan, Madagascar, Mexico, Panama, Philippines, Sri Lanka, Surinam, Thailand, United States, Venezuela and India (Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Andaman & Nicobar Islands, Odisha and West Bengal).

Specimens examined: INDIA, **Andaman and Nicobar Islands**, Little Andaman, January 1903, Dr. Parai's collector, no date (CAL); Little Andaman, Sea level, 18.04.1964, J.L. Ellis & K. Ramamurthy 18883 (MH); Rutland Island Barakhari, 23.10.1982, M.K. Vasudeva Rao 8683 (CAL); South Nicobar, Cambell Bay, 30.04.1981, D.K. More 7284 (CAL). **Andhra Pradesh**, Godavari District, Coringa canal tank, 06.10.1980, G.V. Subba Rao 68687 (MH). **Goa**, 25.07.2016, Amrapali Kattee AVK1605 (NCK). **Maharashtra**, Bombay city, 08.08.1955, V.M. Patel 47617 (BLATT). **Karnataka**, North Kanara, Belikeri, 30.07.1956, Z.J. Kapadia 47616 (BALTT). **Tamil Nadu**, Rameswaram Island, 19.05.1962, V.A. Rao 1421 (CAL); Ramanathapuram District, Krusadi grassland, 30.12.1987, V. Balsubramaniam 1036 (CAL); Yercaud, 17.11.1990, L. Sailaja 3781 (CALI).

Notes: *Ipomoea violacea* is morphologically similar to *I. alba* and *I. salsettensis* but can be recognized by its ovate obtuse sepals and brown hairy seeds.

Ipomoea wightii (Wall.) Choisy., Mem. Soc. Phys. Geneve VI: 470. 1833; C.B. Clarke in Hook. f, F1. Brit. India 4: 203. 1883; Gamble, F1. Pres. Madras 2: 914. 1923. *Convolvulus wightii* Wall., Pl. Asiat. Rar. 2: 55, t. 171. 1831. *Lectotype:* (designated by Lawand *et al.*,

2020): INDIA, Nilghery, 1827, R. Wight 1406.1 (K [K001113042 digital image!]).

Figs. 56, 57 & 58

Annual, milky laticiferous climber. Stem twining, pilose. Leaves broadly ovate, longer than broader, 5–10 × 6–12 cm, cordate with rounded lobes at base, undulate at margins, acute at apex, pubescent at upper surface and silvery beneath; petiole 2–11 cm long, hairy. Inflorescence axillary head,

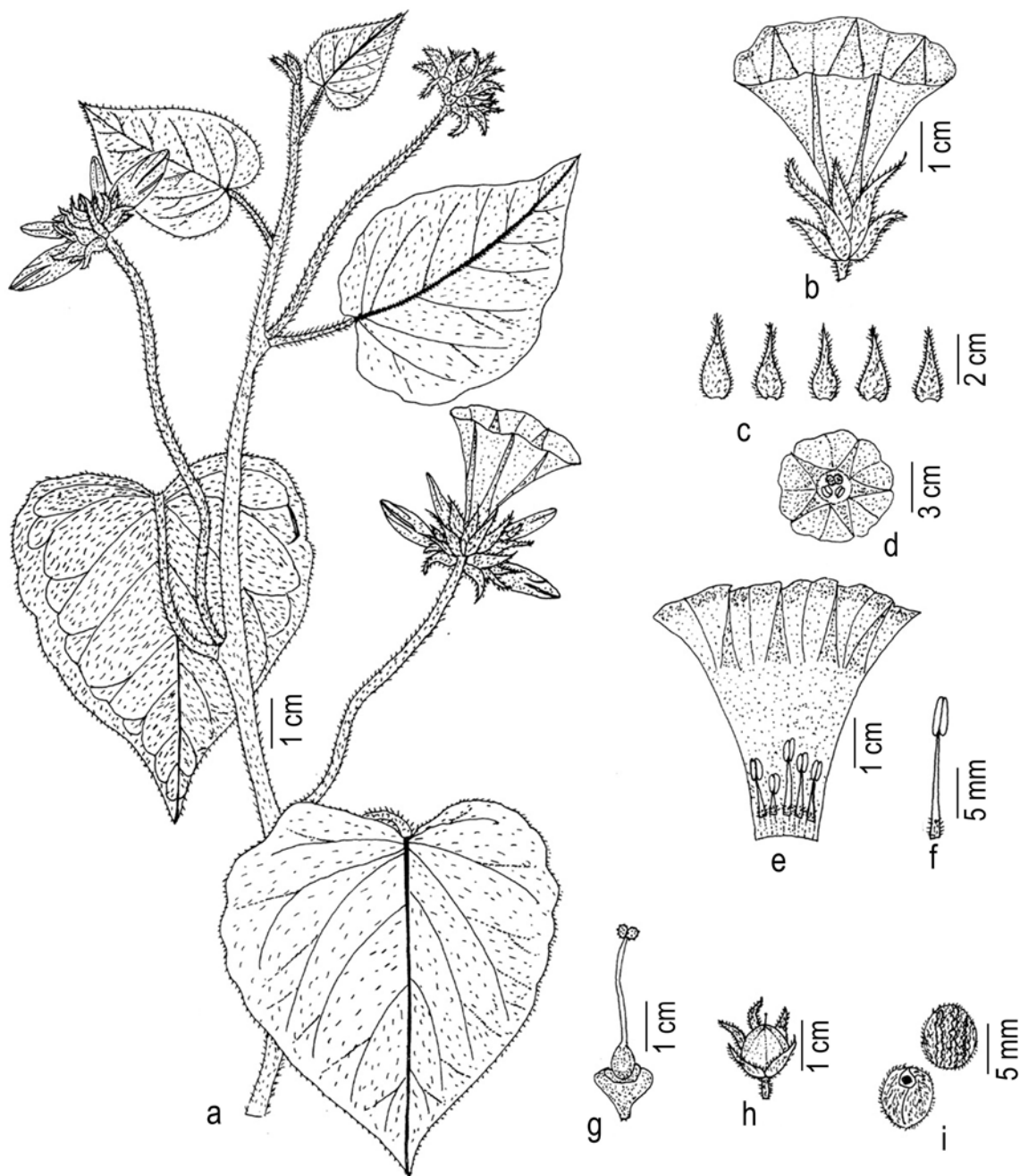


Fig. 56. *Ipomoea wightii* (Wall.) Choisy: **a.** Flowering twig; **b.** Single flower; **c.** Sepals; **d.** Flower—top view; **e.** Corolla—split open; **f.** Single stamen; **g.** Gynoecium; **h.** Capsule; **i.** Seeds (drawn by A.V. Kattee).

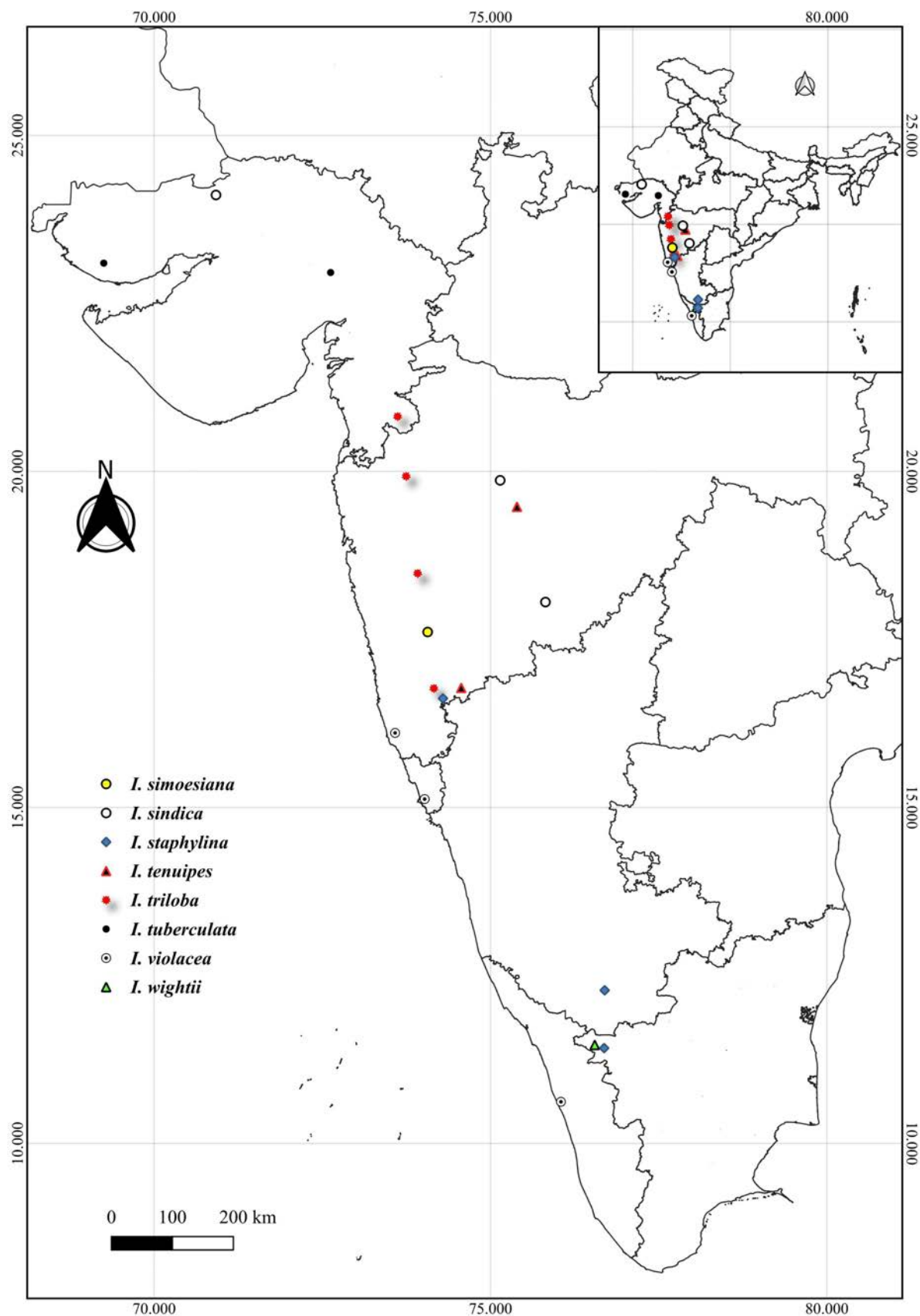


Fig. 57. Map showing collection sites of *Ipomoea simoesiana* Shimpale, A.V. Kattee & S.B. Patil, *I. sindica* Staf., *I. staphylina* Roem. & Schult., *I. tenuipes* Verdc., *I. triloba* L., *I. tuberculata* Ker-Gawl., *I. violacea* L. & *I. wightii* (Wall.) Choisy (prepared using QGIS).

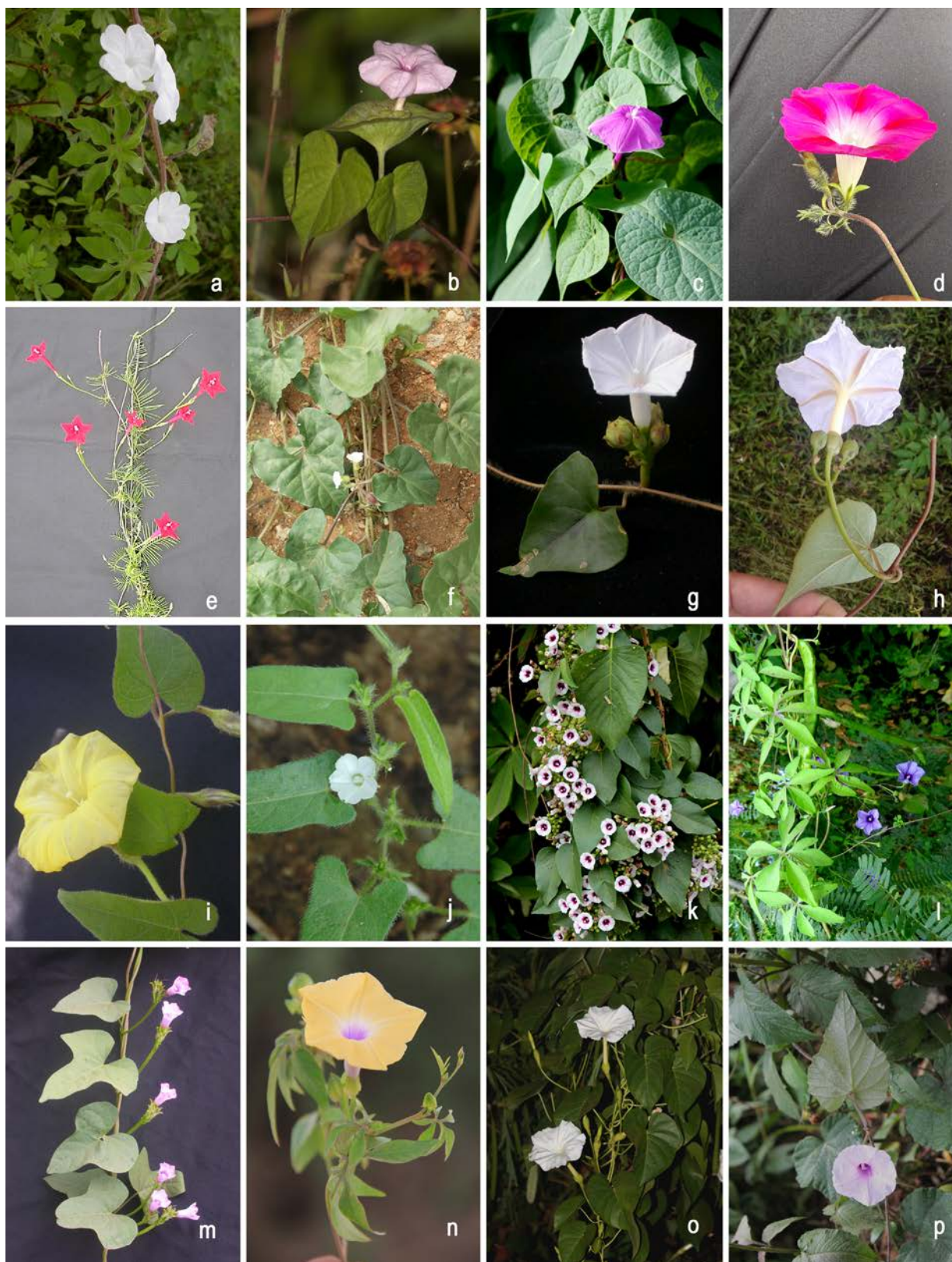


Fig. 58. Flowering specimens of Indian *Ipomoea*: **a.** *I. pes-tigridis* L.; **b.** *I. pileata* Roxb.; **c.** *I. purga* (Wender.) Hayne; **d.** *I. purpurea* (L.) Roth.; **e.** *I. quamoclit* L.; **f.** *I. rumicifolia* Choisy; **g.** *I. sagittifolia* Burm.f.; **h.** *I. salsettensis* Santapau & Patel; **i.** *I. simoesiana* Shimpale, A.V. Kattee & S.B. Patil; **j.** *I. sindica* Staf.; **k.** *I. staphyllina* Roem. & Schult.; **l.** *I. tenuipes* Verdc.; **m.** *I. triloba* L.; **n.** *I. tuberculata* Ker-Gawl.; **o.** *I. violacea* L.; **p.** *I. wightii* (Wall.) Choisy (Photographed by A.V. Kattee & V.B. Shimpale)..

3–9-flowered; peduncle 3–6 cm long, hairy; bracts linear lanceolate, c. 0.2 cm long, cordate at base, hairy, present at base of joint of pedicel to peduncle; pedicel 0.3–0.5 cm long, hairy, elongated in fruits. Sepals subequal, linear, 1.3–1.5 × 0.4–0.5 cm, hairy outside, glabrous inside, white, faintly veined. Corolla infundibuliform, 3–5 cm long, pink with dark pink throat; tube 2–2.5 cm long, hairy, mid-petaline bands hairy outside. Stamens 5, sub-equal; filaments 0.4–1 cm, included, adnate to corolla at c. 0.2 cm above the base of tube, hairy at the base. Ovary ovoid, c. 0.3 × 0.2 cm, glabrous; style slender, slightly exerted at corolla mouth, 1.1–1.3 cm long, glabrous; stigma 2-lobed. Capsule globose, 0.5–0.8 × 0.4–0.6 cm, with persistent style base, brown, 4-valved, 2-celled, minutely pubescent. Seeds 4, c. 0.5 × 0.4 cm, black, puberulent.

Flowering & fruiting: Flowering from November to February and fruiting in March.

Habitat: Moist places of Ghat regions.

Distribution: South Africa, Kenya, India (Karnataka, Kerala, Odisha, Tamil Nadu, West Bengal).

Etymology: The specific epithet ‘*wightii*’ is in the honour of Robert Wight, the collector of the species.

Specimens examined: INDIA, **Karnataka**, Bababhudangiri hills, 02.07.1894, W.A. Talbot 6732 (CAL). **Kerala**, Palakkad District, Panthenthode, 21.01.1980, P. Bhargwan 65655 (CAL); Idukki District, Kulanavu, 15.12.1982, C.N. Mohanan 76068 (CAL); Kannur District, Begur R. F. 08.03.1989, V.S. Ramachandran 62207 (CAL); Idukki District, Peermade, December 1910, A. Meebold 311577 (CAL); Munnar Ghats, 27.12.2017, Amrapali Kattee AVK1612 (NCK). **Odisha**, Ghatkuda forest, 08.12.1962, G.V.S. Rao 35922 (CAL). **Tamil Nadu**, Salem District, Salem, 20.03.1979, N. Venugopal 22423 (CAL); Coimbatore District, Kurudimalai, 04.12.1956, K. Subramanyam 1602; Nilgiris District, Kotagiri Aravenu, 22.10.1956, K. Subramanyam 1045 (CAL); Nilgiri, 22.01.1957, K.M. Sebastine 2174 (CAL); Coonoor Ghat, 08.01.1910, C.E.C. Fischer

1540 (CAL); Gudallore Ghat, 24.11.2015, Amrapali Kattee AVK1611 (NCK).

Excluded Species

Ipomoea vagans Baker, Bull. Misc. Inform. Kew 1894(86): 70. 1894; Santapau & Janardhanam, 1967; Bole & Pathak, Fl. Saurashtra 2: 116. 1988. *Lectotype* (designated by Verdcourt, 1957): ANGOLA, s.d., Welwitsch 6153 (K).

Notes: Although *Ipomoea vagans* has been reported from India by several authors, including Santapau and Janardhanam (1967) from Saurashtra, Gujarat, and Bole and Pathak (1988) from Jamnagar, Gujarat, its occurrence in the country remains unsubstantiated. Recently, Kale and Shinde (2023) critically re-evaluated these records and concluded that *I. vagans* does not occur in India and should be excluded from the Indian flora. During the present study, no authentic herbarium specimens of this species could be traced in any of the major Indian herbaria examined. Therefore, the species is excluded from the present treatment pending confirmation through authenticated specimens.

Ipomoea lacunosa L., Sp. Pl. 1: 161. 1753; Panda et al. J. Econ. Tax. Bot. 34(2): 401. 2010. *Lectotype* (designated by Staples, 2006): Icon in Dillenius, Hort. Eltham., t.87, f.103[102]. 1732.

Notes: Panda et al. (2010) reported *Ipomoea lacunosa* L. from Odisha; however, despite an extensive survey of major Indian herbaria, we were unable to locate any authenticated specimens supporting its occurrence in India. In the absence of verifiable voucher material, the record remains doubtful. Additional field collections and critical taxonomic studies are required to confirm the presence of this species in the Indian flora.

Discussion

The tribe Ipomoeae, one of the largest within the family, comprises approximately 815 species distributed across nine genera. This tribe is predominantly tropical and subtropical in distribution. The genus *Ipomoea* represents the

most speciose lineage within Ipomoeae and the entire family, encompassing a wide range of ecological adaptations and life forms.

Austin (1980) was the first to propose an infrageneric classification for the American species of *Ipomoea*. For the Indian species, an infrageneric classification was later proposed by Biju (1997). The large and taxonomically complex genus *Ipomoea* is subdivided into three subgenera, namely *Ipomoea*, *Quamoclit* and *Eriospermum*. Biju (1997) further divided these subgenera into nine sections based on phenetic characters such as the type of inflorescence, structure of the gynoecium, and time of anthesis.

A total of 52 taxa of the genus *Ipomoea* have been recorded from India, comprising 51 species and one subspecies. Among these, only four species are endemic to the country, namely *I. clarkei* Hook. f., *I. laxiflora* H. J. Chowdhery & M. R. Debta, *I. salsettensis* Santapau & Patel, and *I. simoesiana* Shimpale *et al.* The present investigation reveals that the majority of *Ipomoea* species exhibit a wide distribution across peninsular India.

Wood *et al.* (2022) recommended that future research on Indian Convolvulaceae should be combined with modern molecular systematics. Recently, Ngima *et al.* (2025) proposed a new genus, *Muigia* Ngima, Kathambi & A.R. Simões, segregated from *Ipomoea* on the basis of comprehensive morphological, molecular phylogenetic and palynological analyses. Three species previously reported from India, namely *I. coptica* L., *I. diversifolia* R. Br. and *I. palmatisecta* Bojer ex Choisy have been transferred to the newly established genus. Consequently, these three species are excluded from the present study.

After a thorough consultation of all recognized herbaria in India, no herbarium specimens of *Ipomoea lacunosa* L. and *I. vagans* Baker could be traced. Consequently, the occurrence of these two species in India remains doubtful. The fresh collections can confirm its occurrence in India.

In the present study, *Ipomoea aspera* (Choisy) Vatke has not been included. Although Barbhuiya *et al.* (2019) reported this taxon from India, their record did not involve consultation of specimens from any recognized Indian herbaria, which raises uncertainty regarding its occurrence. Furthermore, the only diagnostic feature cited in the protologue is the presence of unequal sepals; however, no additional morphological details were provided, and this feature could not be confirmed from the available photographic evidence. Notably, the character of outer sepals being longer than the inner sepals is a well-established diagnostic trait of *I. aculeata* var. *molissima* (described from China). Literature indicated that *I. aculeata* forms a complex with *I. aspera* (Choisy) Vatke and *I. yomae* Kurz. All these three species have same distribution range hence to resolve this taxonomic uncertainty, further investigations based on critical examination of actual specimens and molecular studies is warranted. During the present studies three endemic species viz., *I. clarkei*, *I. laxiflora* and *I. indica* are reinstated as they showed stable morphological characters.

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