

# Revision of the genus *Argyreia* (Convolvulaceae) from India

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**Abstract:** The genus *Argyreia* Lour. (Convolvulaceae) in India is revised, wherein thirty-five species are recognized. This revision provides detailed description, photographs, distribution and taxonomic notes. *Argyreia lawii* C.B. Clarke and *A. srinivasanii* Subba Rao & Kumari are rediscovered; *A. argentea* (Roxb.) Sweet, *A. barbigera* Choisy, *A. daltonii* C.B. Clarke and *A. leschenaultii* Thwaites are lectotypified. The names *A. hirsutissima* (C.B. Clarke) Thoth., *A. thomsonii* (C.B. Clarke) Babu, *A. leschenaultii* Thwaites, *A. involucrata* C.B. Clarke var. *inequalis* C.B. Clarke, *A. setosa* Arn. ex Choisy var. *minor* (C.B. Clarke) Staples & Traiperm and *A. wallichii* Choisy var. *coriacea* C.B. Clarke are recognized as new synonyms. An IUCN threat assessment for endemic species are also provided for further conservation strategies.

**Keywords:** IUCN, nomenclature, taxonomy, morning glory, South Asia, tropical climber

## Introduction

Convolvulaceae comprises more than 1840 species belongs to 57 genera (POWO, 2024), are worldwide distributed, but chiefly occurs in the tropics with many endemics. In India, the family are represented by c. 20 genera and 180 species (Santapau and Henry, 1973). One of the tribes, Argyreieae was established to include paleotropical species with indehiscent fruits i.e. *Argyreia* Lour., *Rivea* Choisy, *Stictocardia* Hallier f. and *Turbina* Raf. (Hallier, 1893). *Argyreia*, with 143 taxa, is the largest genus, followed by *Stictocardia* with 10 species. *Rivea*, with 4 species, is often considered a mistakenly expanded genus, while *Turbina* comprises 15 species (Staples & Traiperm, 2017;

Mabberly, 2018). The taxonomic placement of the tribe *Argyreieae* has undergone significant changes over time. Hallier (1893) suggested that *Argyreieae* may have been derived from *Ipomoeae*. Stefanovic *et al.* (1999) resolved two distinct clades, *Argyreieae* and *Ipomoeae*, supporting the traditional classification. A cladistic analysis by Wilkin (1999) included *Argyreia* within *Ipomoeae*, along with *Rivea* and *Stictocardia*, which were part of the core *Argyreieae*. Later, Manos *et al.* (2001) expanded the concept of *Ipomoeae*, merging the paleotropical genera of the tribe *Argyreieae*. These findings were consistent with the earlier studies of Wilkin (1999).

Stefanovic *et al.* (2003) recognized two major clades within the family, Convolvuloideae and Dicranostyloideae, encompassing 12 tribes: *Ipomoeae*, *Merremieae*, *Convolvuleae*, *Aniseieae*, *Cuscutaeae*, *Jacquemontieae*, *Maripeae*, *Cresseeae*, *Dichondreae*, *Erycibaeae*, *Cardiochlamyaeae*, and *Humbertieae*. The tribe *Argyreieae* was merged in to the monophyletic tribe *Ipomoeae* by Stefanovic *et al.* (2002, 2003). As a result, *Argyreia* is now included within the tribe *Ipomoeae* alongside the highly diverse genus *Ipomoea*.

The genus *Argyreia* was first described by Loureiro in the *Flora Cochinchinensis* (1790), with *A. obtusifolia* Lour. designated as the type species. The name *Argyreia* has its roots in a Greek word 'Argyros' (Latinized form *Argyrus*), meaning silvery—a reference to the characteristic silvery lower surface of the leaves, a notable feature of the genus. *Argyreia* is endemic to continental Asia,

with all species distributed across Southeast Asia, the Indian Subcontinent and China. Its occurrence in Australia is attributed to escape, or introduction rather than natural distribution.

Roxburgh (1814) proposed the genus *Lettsomia* Roxb., separating it from *Argyreia* based on the number of locules in the ovary. However, this feature was found to be inconsistent, and the separation was later deemed invalid. Choisy (1833, 1845) subsequently merged *Lettsomia* within *Argyreia*. He also established the genus *Moorcroftia*, named after Col. Moorcroft, which was later synonymized with *Argyreia* by Van Oostroom (1943). Despite this, Roxburgh's concept of *Lettsomia* was followed by several subsequent authors, including Bentham & Hooker (1876), Clarke (1883), Peter (1891), Prain (1894), and Ridley (1923).

The number of species within *Argyreia* was historically estimated at 90 (Santapau & Henry, 1973) but has now increased to 143 taxa, according to recent studies (Staples & Traiperm, 2017; Traiperm *et al.*, 2017; Mabberly, 2018; POWO, 2024). Thailand is considered the center of species richness for the genus.

The genus is characterized by its leaf indumentum, inflorescence architecture, flower size, bracts, sepals, and berry color. The identification in the genus is highly relied on flowering specimens. Without flowers, species recognition is often limited to groups with similar vegetative morphology, which can lead to misidentifications.

The last comprehensive taxonomic revision *Argyreia* for India appeared in *Flora of British India* (Clarke, 1883), listing 35 species including 22 under *Argyreia* and 13 under *Lettsomia*. According to a recent nomenclatural review by Staples and Traiperm (2017) and Lawand (2019), India now comprises 40 taxa includes, 37 species and 3 varieties.

In India, *Argyreia* exhibits three major zones of distribution: peninsular, central, and northeastern

regions. The northeastern region shares species with Southeast Asia and China, such as *A. splendens* (Hornem.) Sweet, *A. capitiformis* (Poir.) Ooststr., *A. sikkimensis* (C.B. Clarke) Ooststr. The peninsular and central regions share some taxa with Sri Lanka, including *A. elliptica* (Roth ex Roem. & Schult.) Choisy, *A. hirsuta* Wight & Arn., *A. zeylanica* (Gaertn.) Voigt, *A. splendens* (Hornem.) Sweet and *A. osyrensis* (Roth ex Roem. & Schult.) Choisy. Several species of *Argyreia* described in the *Flora of British India* with brief descriptions require further elaboration. The morphological variations and ambiguous terminology in historical accounts have resulted in misidentifications in floras and herbarium specimens. Additionally, some recently added species may be conspecific with previously described taxa. This taxonomic flux inspired the authors to undertake a revision of Indian *Argyreia*, which is presented here.

## Material and Methods

As a part of a revision of the family Convolvulaceae of India, authors have carried out field studies during 2013 to 2020. Surveys were conducted throughout country in order to collect and consult *Argyreia* specimens. The photographs of specimens were taken in the field and in the laboratory using DSLR camera (Nikon D5100). The herbarium specimens housed at AHMA, ASSAM, B, BAMU, BLAT, BM, BSA, BSD, BSHC, BSI, CAL, CALI, DD, DRC, G, GDC, MH, K, P, PBL, SUK and TBGT (Thiers, 2024) were examined in person and virtually. Terminologies for describing species follows Simpson (2019). All the species are illustrated, and notes on its distribution in India and conservation assessment are prepared according to the IUCN Red List Categories and Criterion (IUCN, 2024). The herbarium specimens are deposited in the herbarium of The New College, Kolhapur (NCK).

## Taxonomic Treatment

**Argyreia** Lour., F1. Cochin. 134. 1790. *Type: Argyreia obtusifolia* Lour.

*Lettsomia* Roxb. in Carey & Wall., F1. Ind., 2: 75. 1824. Type: *Lettsomia cuneata* (Willd.) Ker Gawl.

*Moorcroftia* Choisy, Mem. Soc. Phys. Geneve 6: 431. 1833. Type: *Moorcroftia penangiana* Choisy = *Samudra* Raf., Fl. Tellur. 4: 72. 1838. *nom. illeg.* "Argyreon" St.-Lag., Ann. Soc. Bot. Lyon 7: 120. 1880, *orth. var.*

Perennial woody climbers or twiners or prostrate semiwoody shrubs, plant parts exude milky latex. Stem herbaceous towards tip, hairy, terete, green or purple, woody or semiwoody towards base; older stem warty, terete or sometimes irregularly lobed. Leaves simple, alternate, petiolate, margins entire; leaf lamina elliptic, lanceolate, ovate, orbicular or cordate, hairy or glabrous adaxially, on abaxial surface usually white, brown or silvery shiny hairy or glabrous, secondary veins prominently raised abaxially. Inflorescence an axillary simple cyme, or capitate or lax paniculate, few to many flowered; peduncle 0–20 cm long, terete, hairy. Bracts 2–3; outer bract leafy; floral bracts herbaceous or coriaceous, persistent in flower or early caducous, usually hairy without, glabrous within, reticulately veined. Sepals 5, free, subequal or unequal, sometimes outer two or three large, hairy without, glabrous within, persistent and enlarged in fruit. Corolla actinomorphic; petals 5, gamopetalous, with corolla tube and limb, pink, purple or carmine red, infundibuliform or sometimes hypocrateriform, hairy without on midpetaline bands or rarely glabrous, 2–6 cm long. Stamens 5, attached to the base of corolla tube, included in or exerted out of corolla tube, equal or two long and 3 short; filaments pink or white, dilated and glandular hairy at the base; anthers two celled, basifixed, 3–4 mm long; pollens echinate, pantoporate, globular. Ovary 1–4 celled, glabrous, encircled by an annular disc; style filiform, included or exerted; stigma biglobose, papillate, white or pink, equalling or shorter than the length of stamens. Berries, globular, 7–15 mm across, red, yellow or brown, fleshy, mealy or dry. Seeds trigonal in shape, black or white, with conspicuous hilum.

*Chromosome number:*  $x = 14, 15$  (Sampathkumar & Ayyangar, 1981).

*Distribution:* The genus is endemic to continental Asia, with almost all species distributed in Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka (Indian Subcontinent); China; Indonesia, Malaysia, Myanmar, Thailand, Vietnam (Southeast Asia).

### General Morphology

*Habit & stem:* *Argyreia* Lour. primarily consists of perennial climber or vine with a few notable exceptions. *Argyreia pilosa* Wight & Arn. and *A. sharadchandrajii* Lawand & Shimpale are prostrate and herbaceous, while *Argyreia cuneata* (Willd.) Ker-Gawl. is a perennial shrub. These plants typically develop a woody stem that emerges from a rootstock, which spirals around a solid support in a clockwise direction. The woody rootstock and stem enable the plants to climb higher and provide resilience during adverse environmental conditions. The young stems are herbaceous, terete (cylindrical), and covered with hairs. As they mature, the stems become hard, transitioning to a semi-woody or fully woody state, losing their hairs and developing lenticels. Older stems are generally terete, although triangular or "Y"-shaped stems have been observed in certain species, such as *A. nervosa*.

*Indumentum:* Indumentum serves as a useful characteristic for species delimitation within the genus. Several species can be distinguished based on leaf indumentum. For example, species such as *A. sericea* Dalzell, *A. wallichii* Choisy, *A. splendens* (Hornem.) Sweet, *A. hirsuta* Wight & Arn., *A. capitiformis* (Poir.) Ooststr., *A. setosa* (Roxb.) Sweet typically have hairy leaves. However, in some cases, the leaves may be glabrous. Several publications have erred in using the terminology to describe indumentum. The texture, density and type of hairs vary significantly among species. Additionally, the genus possesses a distinctive glandular trichomes at the base of stamens, though no morphological variation in these trichomes are reported within genus.

**Leaf:** The leaves of *Argyreia* are simple, alternate, and exstipulate. Leaf characteristics hold significant taxonomic value in forming. While the shape of leaves varies across the genus, it usually remains constant within a species. Two primary leaf shapes are observed within the genus: broadly ovate to ovate with a cordate leaf base, and elliptic with a rounded to cuneate leaf base.

**Petiole:** All species of *Argyreia* are petiolate, with petiole length varying across the genus. Petiole length is often usually compared to the peduncle length and serves as an important characteristic for species delimitation. The petioles are either dorsally grooved dorsally or terete, and their indumentum typically matches that of the stem.

**Inflorescence:** A cymose inflorescence is the basic type in *Argyreia*, and it is typically pedunculate. The number of flowers and the architecture of the inflorescence are taxonomically significant. The flowers are either loosely arranged in a dichasial cyme or compressed to form a head-like or capitate structure.

**Bracts:** Each flower has two to three bracts, and their morphology varies within the genus, making this trait useful for identification. Bracts can be either persistent or caducous after anthesis. The indumentum of the bracts typically resembles that of the leaves.

**Flower:** *Argyreia* has a gamopetalous, infundibuliform to campanulate corolla with hairy midpetaline bands, except in a few species. The flower colour is constant in Indian species, typically ranging from pink to purple, while white flowers are reported in Southeast Asian species. The sepals of *Argyreia* are free, variable or subequal in length, persistent and elongate in fruit. In some cases, the inner surface of the sepals undergoes a colour change. The shape and length of the sepals are decisive characters to distinguish some species of *Argyreia*. The flowers have five stamens, usually of unequal length, which may be included within or exerted from the corolla tube. The filament base is dilated and bears glandular

trichomes that are adnate to the corolla. The anthers are basifixed and dehisce longitudinally. The ovary is superior, syncarpous, two to four-celled, and surrounded by an annular disc.

**Fruit:** *Argyreia* produces glabrous berries containing one to four seedst. The colour of the pericarp varies within the genus and can be red, yellow or brown.

### Key to the species of *Argyreia* in India

1. Leaves broadly ovate, base deeply cordate ..... 2
  1. Leaves ovate, elliptic, oblong, base cuneate, rounded, truncate or shallowly cordate..... 21
  2. Leaves silvery shiny or white tomentose abaxially ..... 3
    2. Leaves hirsute, strigose or sparsely hairy abaxially ..... 13
    3. Stamens exerted ..... 4
    3. Stamens included ..... 5
    4. Bracts persistent, ovate-orbicular; sepals unequal, outer two obovate, inner 3 oblong, rounded at apex ..... *A. osyrensis*
    4. Bracts caducous; sepals equal, ovate, obtuse at apex ..... *A. bella*
    5. Inflorescence a capitate cyme ..... 6
    5. Inflorescence a lax cyme..... 8
    6. Leaves ash-white abaxially; corolla 3–4 cm long; berries red ..... *A. wallichii*
    6. Leaves silvery shiny or white hairy abaxially; corolla 4–6 cm long; berries yellow ..... 7
    7. Climbers; petiole shorter than peduncle ... *A. sericea*
    7. Prostrate or trailing shrubs; petiole longer than peduncle..... *A. sharadchandrajii*
    8. Leaves glabrous adaxially ..... 9
    8. Leaves strigose adaxially ..... 10
    9. Bracts variously twisted, white; berries brown, dry ..... *A. nervosa*
    9. Bracts not twisted, green; berries yellow,

- fleshy ..... *A. bracteata* purple ..... *A. mastersii*
10. Leaves and sepals silvery shiny abaxially; inflorescence 3–7-flowered cymes .... *A. argentea* 19. Inflorescence 11–15-flowered; bracts oblong; sepals apex acuminate ..... *A. boseana*
10. Leaves and sepals white tomentose abaxially; inflorescence 10–16-flowered cymes..... 11 19. Inflorescence 5–10-flowered; bracts lance-ovate; sepals apex acute ..... 20
11. Bracts lance-ovate; sepals ovate, apex obtuse or rounded ..... *A. nellygherya* 20. Bracts 1–1.5 cm long, caducous; outer two sepals recurved at apex ..... *A. roxburghii*
11. Bracts spatulate, wider at middle; sepals not ovate, apex narrowly acute or acuminate ..... 12 20. Bracts 2–2.5 cm long, persistent; outer sepal not recurved at apex ..... *A. kleiniana*
12. Sepals lanceolate, 2–2.3 cm long; leaf apex acute, base round or shallowly cordate ..... *A. arakuensis* 21. Leaves silvery shiny or white tomentose abaxially ..... 22
12. Sepals ovate, *c.* 1 cm long; leaf apex acuminate, base deeply cordate ..... *A. hookeri* 21. Leaves hirsute, strigose or sparsely hairy abaxially ..... 27
13. Leaves hirsute, strigose abaxially ..... 14 22. Leaves silvery shiny abaxially; berries brown or red ..... 23
13. Leaves sparsely hairy or hairy on veins abaxially ..... 19 22. Leaves white tomentose abaxially; berries yellow..... 25
14. Plants densely hispid; inflorescence capitate cymes ..... *A. capitiformis* 23. Secondary veins of young leaves purple, 18–22 pairs; berries dry, brown ..... *A. fulgens*
14. Plants hirsute or strigose; inflorescence lax cymes ..... 15 23. Secondary veins green, 12–15 pairs; berries fleshy, red ..... 24
15. Sepals and bracts variously twisted; corolla tube *c.* 5–7 mm wide ..... *A. cymosa* 24. Bracts subulate, 3–5 mm, early caducous ..... *A. splendens*
15. Sepals and bracts not as above; corolla tube *c.* 10 mm wide or more ..... 16 24. Bracts ovate, obtuse, *c.* 1 cm, persistent in flowering ..... *A. mollis*
16. Plants hirsute; corolla 5–6 cm long, throat purple; berries yellow ..... 17 25. Inflorescence 6–9-flowered; bracts spatulate; leaf apex acuminate ..... *A. srinivasanii*
16. Plants strigose; corolla 3–5 cm long, throat white; berries red or purple ..... 18 25. Inflorescence 1–3 flowered; bracts oblong or linear; leaf apex acute, round or emarginate ... 26
17. Bracts lanceolate, 1–1.5 cm long, hirsute without; leaf apex acuminate, secondary veins 9–11 pairs, indumentum short ..... *A. hirsuta* 26. Peduncles longer than petiole; bracts linear ... ..... *A. kondaparthiensis*
17. Bracts linear, 2–2.5 cm long, hairy at base; leaf apex acute, secondary veins 13–14 pairs, indumentum long and dense ..... *A. coonoorensis* 26. Peduncles shorter than petiole; bracts oblong ..... *A. zeylanica*
18. Bracts orbicular; sepals orbicular; corolla limb pale pink ..... *A. setosa* 27. Inflorescence capitate cymes; peduncles 1–5 cm long ..... 28
18. Bracts linear; sepals lance-ovate; corolla limb 27. Inflorescence lax cymes; peduncles longer than 6 cm ..... 29

28. Bracts spatulate, oblong; sepals ovate, densely brown hirsute ..... *A. thomsonii*
28. Bracts lance-ovate; sepals oblong, lanceolate, sparsely hairy ..... *A. atropurpurea*
29. Bracts 1–3 mm long, very early caducous .. 30
29. Bracts more than 1 cm long, persistent in flowering ..... 31
30. Plant a shrub; berries dry, brown ... *A. cuneata*
30. Plant a climber; berries fleshy, orange or yellow ..... *A. elliptica*
31. Peduncles shorter than the petiole or equaling; bracts oblong or linear ..... 32
31. Peduncles longer than the petiole; bracts lance-ovate or spatulate ..... 33
32. Plants spreading or trailing; leaves strigose abaxially; bracts linear ..... *A. pilosa*
32. Plants twiners; leaves sparsely hairy abaxially; bracts oblong ..... *A. involucrata*
33. Bracts spatulate, wider at middle; sepals lanceolate ..... *A. daltonii*
33. Bracts lance-ovate; sepals ovate ..... 34
34. Leaf sparsely hairy abaxially, base cuneate; peduncles 10–20 cm long ..... *A. sikkimensis*
34. Leaf strigose abaxially, base cordate; peduncles 6–12 cm long ..... *A. lawii*

**1. *Argyreia arakuensis*** N.P.Balacr., Bull. Bot. Surv. India 3: 163. 1962. *Type*: INDIA, **Andhra Pradesh**, Araku valley, 14.09.1961, *N.P. Balakrishnan* 540A (holo CAL [CAL0000018491!]; iso K [K001081758 digital image!]). **Fig. 1a–d**

A climber, up to 6–7 ft. height; stems purplish green, white sericeous, older glabrous, semiwoody. Leaf petiole white sericeous, 8–17 cm long, shallowly grooved above, terete; leaf lamina widely ovate, 14–18 × 12–15 cm, base cordate, shallowly cordate or sometimes rounded, apex acute or mucronate, white hairy above, densely white tomentose on lower surface, tomentum not shiny, secondary veins 8–9 pairs, raised on lower surface.

Inflorescence an axillary 10–15-flowered compact cyme; peduncle 8–12 cm long, usually equaling or shorter than the petiole, white tomentose. Bracts 1–3, outer bracts 3–4 cm long, leafy, petiolate, hairy like leaf, flower bracts linear lanceolate, 2–3 cm long, white strigose outer, strigulose inside, broad at apex, apex acute. Flowers pedicellate; pedicel c. 5 mm long. Sepals 5, subequal, 2–2.3 cm long, lance-ovate, apex acuminate, hairy outer except on overlapped hyaline margins, sepals enlarge in fruit. Corolla 6–7 cm long, up to 6 cm across, pink-purple, throat dark purple, corolla hairy outer on midpetaline bands. Stamens 5, 3 short- 1–1.2 cm long, 2 long- 2–2.2 cm long; anthers 4 mm long, white; filament dilated and glandular hairy at base. Ovary pale white; style white; stigma biglobose, white. Berries yellow, fleshy, 1 cm across.

*Flowering & fruiting*: Flowering from August to October and fruiting from November to January.

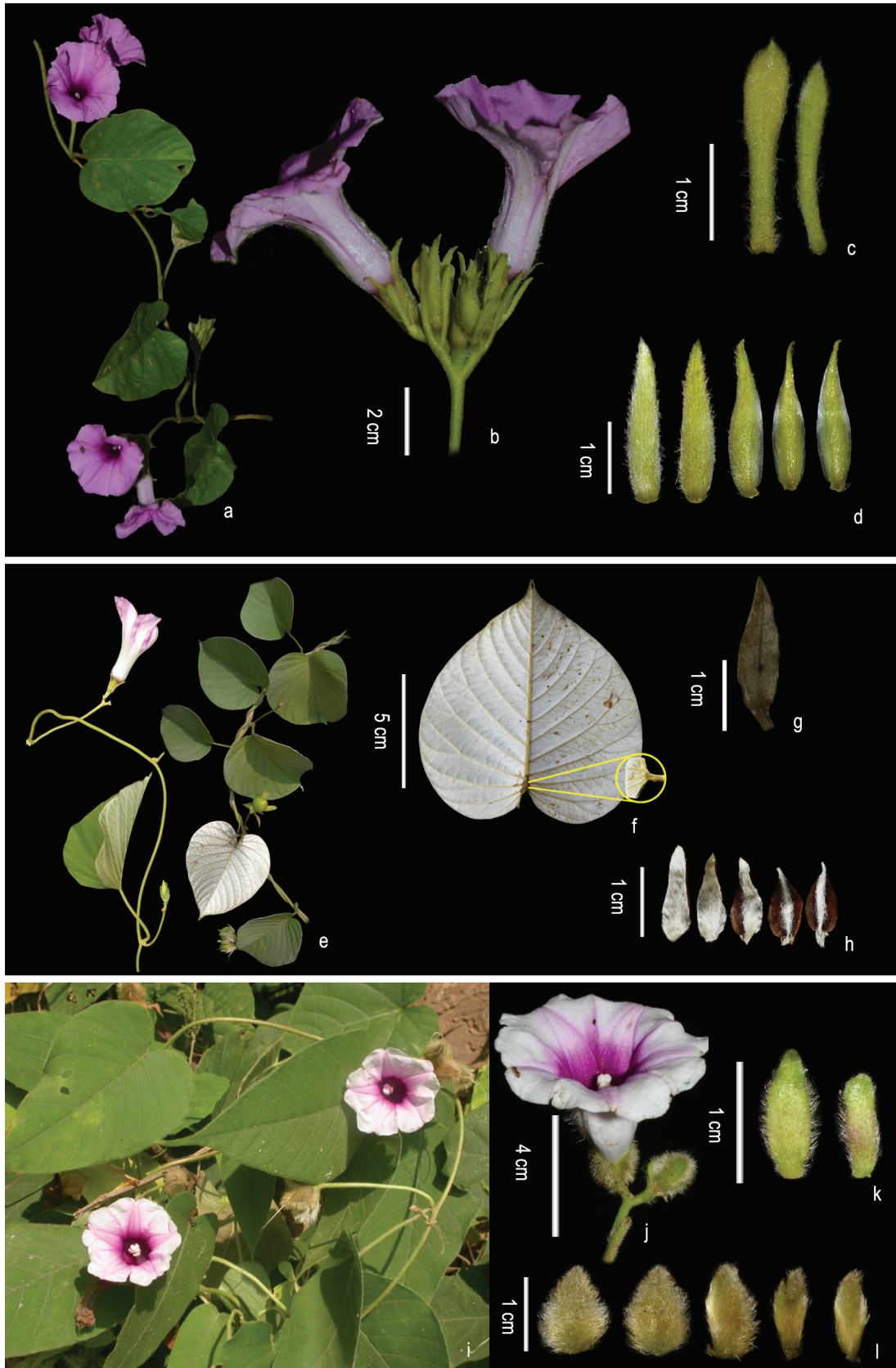
*Habitat*: It thrives at altitudes of 800 meters and above, flourishing in cold climates, and is commonly found along hilly roadsides.

*Distribution*: India (Andhra Pradesh); endemic.

*Etymology*: The specific epithet is derived from Araku region, a type locality of the species.

*Specimens examined*: INDIA, **Andhra Pradesh**, Visakhapatnam District, Araku Valley, 800 m, 14.09.1961, *N.P. Balakrishnan* 540, 540A (CAL [CAL0000018481!]); Visakhapatnam District, Araku Valley, 20.09.2018, *P.R. Lawand* 001 (NCK); Visakhapatnam District, Paderu, 21.09.2018, *P.R. Lawand* 030 (NCK).

*Conservation Status*: The species is known from less than 10 locations from the Araku valley tehsil and its area of occupancy (AOO) may not exceed 500 Km<sup>2</sup>. So, the species meets the criterion 'B' of the IUCN. The species occurs along roadsides or along forest borders, hence the threats posed by developmental strategies can't be overlooked. It is observed that the number of mature individuals in subpopulations will not exceed 500 individuals. The species qualifies the IUCN (2024) criteria



**Fig. 1.** *Argyreia arakuensis* N.P. Balakr. (a-d): **a.** Flowering twig; **b.** Inflorescence; **c.** Bracts; **d.** Sepals. *Argyreia argentea* (Roxb.) Sweet (e-h): **e.** Flowering & fruiting twig; **f.** Leaf abaxial surface; **g.** Bract; **h.** Sepals. *Argyreia barbiger* Choisy (i-l): **i.** Flowering twig; **j.** Flower; **k.** Bracts; **l.** Sepals.

B2a and C2ai, hence we propose the conservation status of Vulnerable (VU).

*Notes:* Staples and Traiper (2017) doubted the status of the species, however, characters like white tomentum on abaxial leaf, long peduncululate compact cyme, linear bracts distinguish the species from its congeners.

**2. *Argyreia argentea* (Roxb.) Sweet, Hort. Brit. (ed.) 2: 373. 1830. *Lettsomia argentea* Roxb., Fl. Ind. 2: 79. 1824. *nom. nud.* *Argyreia argentea* (Roxb.) Choisy, Convolv. Orient. 418: 1834. *nom. superfl.* *Lectotype* (designated here): INDIA, **West Bengal**, Calcutta, Roxburgh sub., *s.d.*, *Wallich Cat.* 1364.2 (G-DC [G00134648!]; Isolecto G-DC [G00134902!, G00134647!, G00134649 digital images!], K [K000830589 digital image!]).**

**Fig. 1e-h**

A climber 6–7 ft high, sometimes trails in grasslands; stem green, terete, white shiny appressed hairy, older stem not silky hairy, semiwoody. Leaf lamina widely ovate, 8–16 × 7–14 cm, apex acute, base cordate, lobes round, secondary veins 10–13 pairs raised prominently below, upper surface strigulose, lower surface silvery hairy; petiole 8–14 cm long, green, terete, silvery tomentose, shallowly grooved. Inflorescence axillary, 3–7-flowered cyme; peduncle 7–16 cm long, green, terete, hairy like stem. Bracts 2, lanceolate, 1.5–2.5 cm long, persistent, green, hairy like leaf, silvery shiny hairy outer. Sepals 5, sub-equal, outer two narrower, longer while inner three broad and short, outer two 1.5–1.7 cm long, inner three 1–1.2 cm long, lance-ovate in shape, apex shortly acuminate elongates in fruiting, silvery tomentose outer except on overlapped areas, apex acute. Corolla infundibuliform, 5–6 cm long, same across, pink-purple in color, throat c. 1 cm wide, dark purple, hairy on midpetaline bands. Stamens 5, unequal, 3 short, 2 long, longer 2–2.5 cm long while shorter 1–1.5 cm long; filaments white, glandular hairy, dilated at base; anthers c. 4 mm long. Ovary conical; style 2.5–3 mm long; stigma biglobose, white. Berries yellow, fleshy, 1–1.5 cm across.

*Flowering & fruiting:* Flowering from August to October and fruiting from November to January.

*Habitat:* It climbs on trees along stream and spreads in grasslands. It is one of the early flowering species from North East India.

*Distribution & ecology:* India (Arunachal Pradesh, Assam, Meghalaya, Mizoram, Nagaland and Tripura), Bangladesh, Thailand and Myanmar.

*Etymology:* It refers to silvery hairs on the plant body.

*Specimens examined:* INDIA, **Arunachal Pradesh**, Namdapha, Deuan Forest area, 3006 ft. 18.12.1993, A.S. Chouhan 99403, 58730 (ASSAM). **Assam**, Barnadi WLS, Bagawati, 190 m, 20.09.2010, S.R. Talukdar 119080, 85378 (ASSAM); Barnadi WLS, Ralkhara, 137–139 m, 8.09.2011, S.R. Talukdar 122955, 85378 (ASSAM); Khasi and Jaintia Hills, Mawrynkneng, 21.01.1957, G. Panigrahi 5235, 15552 (ASSAM); Sibsagar, Assam trunk road, 145–146 ft., 29.08.1938, G.K. Deka 18032, 19942 (ASSAM). **Meghalaya**, Khasi and Jaintia hills, 27.08.1935, Sri Sarma 19930 (ASSAM); Cherrapunjee, Near Mawsmi Caves, 06.10.2018, P.R. Lawand 003 (SUK). **Nagaland**, Naga Hills, June 1985, N.L. Bor 21165, 19935 (ASSAM). **Tripura**, Agartala, 30.10.1914, P.M. Debbarman 103 (CAL).

*Notes:* The species was originally described as *Lettsomia argentea* by Roxburgh (1824). Later, it was transferred to *Argyreia* by Sweet (1830) and subsequently by Choisy (1833). Most Indian floras attribute the combination '*Argyreia argentea*' to Choisy. However, Sweet's combination predates that of Choisy, so the correct authority for the name should be *A. argentea* (Roxb.) Sweet. The combination proposed by Choisy (1834) is therefore an isonym.

**3. *Argyreia atropurpurea* (Wall.) Raizada, Indian Forester 93: 754. 1967. *Convolvulus atropurpureus* Wall. in Roxb., Fl. Ind. 2: 54. 1824. *Ipomoea atropurpurea* (Wall.) Sweet, Hort. Brit. ed. 2: 371. 1830. *Lettsomia atropurpurea* (Wall.) C.B. Clarke in Hook.f. Fl. Brit. Ind. 4: 194. 1883. *Lectotype* (designated by Shalini,**



Lakshminarasimhan & Arisdason, 2017:172): NEPAL, near Gosain-Than, November 1819, Wallich 1345 (K [K0001112812 digital image!; *isolecto* K [K000830704, K000857271, K001112812, K001112813, K001112814 digital images!], G [G00227149 digital image], G-DC [G00135366 digital image]).

Fig. 2

A climber; young stem slender brown hirsute, hairs silky. Leaves petiolate; petiole 2–4 cm long, terete, hairy like stem; leaf lamina lance-ovate to ovate, 8–15 × 3–6 cm, basally cordate, lobes rounded, apex narrowly acute to acuminate, hairy on both the surfaces, more densely on abaxial surface, secondary veins 6–7 pairs, raised beneath. Inflorescence axillary capitate cyme, 8–12-flowered; peduncle 0.5–1.5 cm long, shorter than the petiole. Bracts 2, lance-ovate, 2–4 cm long, apically acuminate, silky hairy like leaf, all bracts together form a head like inflorescence. Calyx persistent in fruiting, c. 1.5 cm; sepals 5, oblong, lanceolate, sub-equal, herbaceous, green, silky hairy outer, glabrous inner. Corolla

campanulate to infundibuliform, 4–4.5 cm long, dark purple, corolla lobes twisted in bud, hairy on midpetaline bands. Stamens 5, included within corolla tube, un-equal, 2 long, 3 short; filaments dilated at base, glandular hairy; anthers pale white in colour. Ovary four celled; style filiform c. 2 cm long; stigma biglobose, papillate. Berries globose, c. 1 cm in diam., 2–4 seeded.

*Flowering & Fruiting:* October to February.

*Habitat:* Climbers of evergreen forests.

*Distribution:* India (Sikkim), and Nepal.

*Etymology:* The specific epithet '*atropurpurea*' has its roots in Latin word '*ater*' meaning black and '*purpurea*' meaning purple; named because of dark purple flowers of the species.

*Notes:* The species is closely allied to *Argyreia barbiger* Choisy in terms of its leaf shape and leaf tomentum. It is also related to *Argyreia wallichii* Choisy by its capitate inflorescence.

The species was originally described as *Convolvulus atropurpureus* Wall. in 1832 from Nepal, with the type locality being Gosainthan near Kathmandu. Subsequently, the taxon was transferred to *Ipomoea* and then to *Lettsomia*. Raizada legitimately transferred this species to *Argyreia* in 1967. Staples and Traiperm (2017) listed its occurrence in India, specifically in Sikkim and West Bengal. Das and Ghosh (2004) considered this species as missing, listing it under the title 'Plants Missing from Darjeeling Hills.' Hence, the recent collections provide important evidence confirming its occurrence in India.

**4. *Argyreia barbiger*** Choisy, Mem. Soc. Phys. Geneve 6: 424. 1834. *Lettsomia barbiger* (Choisy) C.B. Clarke in Hook.f. Fl. Brit. Ind. 4: 193. 1883.

*Lettsomia strigosa* Roxb., Fl. Ind. 2: 80. 1824. *nom. superfl.*

*Lettsomia confusa* var. *brevipes* Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 63: 96. 1894. *Lettsomia hirsutissima* C.B. Clarke, Hook.f. Fl. Brit. Ind. 4: 193. 1883. *Argyreia hirsutissima* (C.B. Clarke)



Fig. 2. Type of *Argyreia atropurpurea* (Wall.) Raizada. [© The Board of Trustees of the Royal Botanic Gardens, Kew. Reproduced with the consent of the Royal Botanic Gardens, Kew.]

Raizada, Indian For. 93: 754. 1967. **syn. nov.**

*Argyrea capitata* Arn. ex Choisy var. *conferta* Choisy, Mem. Soc. Phys. Geneve 6: 424. 1834.

*Lettsomia thomsonii* C.B. Clarke, Hook.f. Fl. Brit. Ind. 4: 193. 1883. *Argyrea thomsonii* (C.B. Clarke) Craib ex C.R. Babu, Herb. Fl. Dehra Dun 320: 661.1977. **syn. nov.**

*Argyrea nasirii* D.F. Austin, Nasir & Ali, Fl. W. Pakistan 126: 4. 1979 *nom. superfl. Lectotype* (designated here): MYANMAR. Birmanie, Estuaire du Irawaddi, Prome, 1826, Wallich cat. 1404 (G-DC [G00134955!]; Isolecto G-DC [G00017107!, G00134944!, G00134812!; K-W [K000830703!]).

Fig. 1i-l

A scandent shrub. Stem semiwoody at base, herbaceous towards apex, hairy, terete, green. Leaf petiole 4–6 cm long, terete, brown hirsute; leaf lamina ovate, lanceolate, 6–12 × 3–5 cm, apex acuminate, base cordate, strigose adaxially, densely hirsute abaxially, secondary veins 9–11 pairs, raised prominently abaxially. Inflorescence axillary sub-capitate cyme, 5–8-flowered; peduncle 5–10 cm long, usually longer than the petiole, hairy. Bracts 2, spatulate-oblong, 1–1.5 cm long, villous hirsute outer, glabrous inner. Sepals 5, ovate, 1–1.5 cm long, softly hirsute outer, glabrous inner, persistent, enlarges in fruit. Corolla campanulate type with wider mouth, 4–5 cm long, rose purple colored, dark in throat, hairy on midpetaline bands. Stamens 5, included in the corolla tube, equal, 2.5–3 cm long; filaments dilated and glandular hairy at base, purple at base; anthers 1–2 mm. Ovary glabrous, 2–4-celled; stigma biglobose, papillate; style filiform, c. 3 cm long. Berries c. 8–10 mm in diam., globular, 2–4-seeded.

*Flowering & Fruiting*: Flowering from September to November and fruiting from November to February.

*Habitat*: Prefers evergreen forests.

*Distribution*: India (Himachal Pradesh, Jammu & Kashmir, Punjab, Uttarakhand, Uttar Pradesh,

West Bengal); Nepal and Pakistan.

*Etymology*: The specific epithet 'barbigera' [barba: beard, gera: carry or bear] is cause of excessive hairiness of plant parts.

*Specimens examined*: INDIA, **Himachal Pradesh**, Harilalgarh, 04.10.1977, *Pritam Lal* 63119 (BSD [77145]). **Jammu & Kashmir**, Udhampur, 16.10.1986, *Ajai Swami* 613 (BSD [85634]). **Punjab**, Dholbah, Hoshiarpur, 22.10.1970, *O.P. Mishra* 39842 (BSD [46651]); Gundaspan, Dhar, 600 m, 30.08.1969, *U.C. Bhattacharya* 39423 (BSD [44729]). **Uttarakhand**, Dehradun District, Sahastradhara, 09.10.1963, *S.K. Malhotra* 30739 (BSD [32785]); Dehradun, Rispana, 13.09.1964, *C.R. Babu* 34717 (BSD [40947]); Dehradun, on the way to Chheskhot, September 1993, *Bipin Balob & Megh Singh* 67091 (BSD [94252]); Dehradun District, Rajaji National Park, 18.10.1970, *J.V.S. Rao* 40115 (BSD [49368]); Dehradun District, Rajaji National Park, 18.10.1970, *J.V.S. Rao* 40116 (BSD [49367]); Dehradun District, Rajaji National Park, Mohand Range, 22.09.1969; *J.V.S. Rao* 39842 (BSD [49239]); Dehradun, Mothranwala, 700 m, 12.09.1958, *K.M.M. Dakshini* 6213 (BSD [62331]); Dehradun, Kandoli village, 22.09.1961, *S.K. Malhotra* 17388 (BSD [25117]); Dehradun, on the way to Bhanियawala, 24.10.2019, *P.R. Lawand* 059 (NCK); Dehradun, on the way to Bhanियawala, 24.10.2019, *P.R. Lawand* 060 (NCK). **Uttar Pradesh**, Pilibhit District, Garha, 30.05.1898, *Inayat* 22310 (DD); Haldwani, Modinagar, 31.12.1987, *U. Singh* 388 (BSD [93336]); Meerut, Siwalik forests, Sept. 1984, *T.S. Murthy & A.K. Goel* 1194 (BSD [81850]).

*Notes*: *Argyrea barbigera* and *A. capitiformis* shares similarities like hirsute cordate leaves, ovate hirsute sepals, and sub-capitate inflorescences. However, the latter can be differentiated by its spatulate, densely hirsute bracts and purple-colored flowers.

**5. *Argyrea bella*** (C.B. Clarke) Raizada, Proc. Natl. Inst. Sci. India, B 24: 200. 1958. *Lettsomia bella* C.B. Clarke, Hook.f., Fl. Brit. India 4:192. 1883. *Lectotype* [designated by Shalini *et al.*, 2015:392]:

INDIA, [**Jharkhand**] Bundgao in Singhbhoom, Chhota Nagpore, 2000 ft, 28.10.1873, *C.B. Clarke* 20452A (K [K000830701 digital image!]); isolecto *C.B. Clarke* 20452E (CAL0000018485!). **Fig. 3a-d**

A white tomentose climber. Stem, older, semiwoody, glabrous, while the younger stem white tomentose, terete. Leaf lamina 12–14 × 6–8 cm, ovate to widely ovate, base cordate, apex acute, secondary veins 8–10 pairs raised beneath, white sericeous–tomentose below, glabrous above; petiole tomentose like stem, 6–9 cm long, usually longer than the peduncle. Inflorescence axillary 5–10 flowered compact cyme; peduncle white tomentose 4–6 cm long. Flowers shortly bracteate, pedicellate; pedicel *c.* 5–7 mm long; bracts 2, 3–5 mm long, ovate, early caducous, green, white tomentose. Calyx polysepalous; sepals 5, sericeous–tomentose outer, glabrous inside, sub-equal in length, 0.9–1.2 cm long, ovate, apex obtuse, sepals in fruiting turn red inside. Corolla campanulate, 2–2.5 × 2 cm, pink to pale purple, hairy on midpetaline bands. Stamens 5, exerted, subequal 2.5–3 cm long; filaments white; anthers pale pink, *c.* 4 mm long. Ovary glabrous; style single; stigma biglobose, papillate, white. Berries 0.8–1 cm across, scarlet red papery epicarp, enclosed with persistent calyx, 2–4-seeded. Seeds *c.* 5 mm long, black with visible hilum.

**Flowering & Fruiting:** Flowering from August to October and fruiting from October to January.

**Habitat:** It frequently occurs at open places in a forest.

**Distribution:** Endemic to India: Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, and Odisha.

**Etymology:** The specific epithet “*bella*” in diminutive of the word *Isabella* meaning a beautiful. The specific epithet formed cause of beautiful flowers and fruits of the plant.

**Specimens examined:** INDIA. **Andhra Pradesh**, Chittoor District, Horsley Hills, 17.07.1957, *S.K. Wagh* 46305 (BLAT). **Bihar**, Diriburu District,

Fatuha R.F., 05.03.1961, *G.V. Subba Rao* 44920 (ASSAM); Diriburu District, Fatuha R.F., 05.03.1961, *G.V. Subba Rao* 25005 (ASSAM); Champaran District, way to someshwar to Gobarghana, 16.11.1963, *B.R. Shetty* 523 (CAL); Diriburu Dist, Fatuha R.F., 31.12.1960, *G.V. Subba Rao* 22984 (CAL). **Chhattisgarh**, Raigarh District, on the way to Pandrapat, 23.11.1971, *G. Sengupta* 24727 (BSA); Bilaspur District, Jashpur Nagar, 26.12.1964, *G. Panigrahi & C.M. Arora* 17800 (BSA); Jashpur District, Near Luikona, 03.06.2017, Baikaatha 100321 (BSA); Jashpur District, Jashpur Nagar, 14.10.2017, *P.R. Lawand* 004 (NCK). **Jharkhand**, Singhbhum District, Chaibasa, Latna Forest, March 1967, *N.C. Mujawar* 89 (CAL); Chota Nagpore, Sundargarh, September 1896, *D. Prain* 310785 (CAL); Chota Nagpore, Jashpore, Surgaon, 2500 m, 06.11.1883, *C.B. Clarke* 34301A (CAL); Chota Nagpore, Jashpore, Surgaon, 2500 m, 06.11.1883, *C.B. Clarke* 34301B (CAL); Chota Nagpore, Ranchi, 1500 m, 22.10.1873, *C.B. Clarke* 21340 (CAL); Chota Nagpore, Singhbhoom, Bundgao, 2000 m, 28.10.1873, *C.B. Clarke* 20452 (CAL). **Madhya Pradesh**, Bilaspur District, Jashpurnagar, 26.12.1964, *C.M. Arora* 1737 (CAL). **Odisha**, Balasore District, Bhanjabasan, 13.02.1958, *G. Panigrahi* 15559 (ASSAM); Sundargarh District, Kalta, Maghasini, 25.11.1987, *A. Mukherjee & D. Namnata* 2824 (CAL).

**Conservation status:** The taxon is endemic to India and known from approximately 5 states in eastern India. Hence, the taxon has a larger extent of occurrence (EOO) and area of occupancy (AOO). Therefore, the IUCN category (2024), Least Concern (LC) can be assigned to the species.

**Note:** The species was originally published as *Lettsomia bella* by C.B. Clarke in the *Flora of the British India*. Later, Raizada transferred the name to *Argyreia*, creating the new combination *A. bella* (C.B. Clarke) Raizada. The species was earlier published as *Lettsomia bella* by C.B. Clarke in the *Flora of the British India*. Later, Raizada transferred the name to the *Argyreia* making



**Fig. 3.** *Argyreia bella* (C.B. Clarke) Raizada (a-d): **a.** Habit; **b.** A flower with exserted stamens and gynoecium; **c.** Sepals; **d.** Fruits. *Argyreia boseana* Santapau & V. Patel (e-h): **e.** Habit; **f.** Flower side view; **g.** Bracts; **h.** Sepals. *Argyreia bracteata* Choisy (i-l): **i.** Flowering twig; **j.** Leaf abaxial surface; **k.** Bracts; **l.** Sepals.

new combination *A. bella* (C.B. Clarke) Raizada. However, as the publication appeared twice, the earlier one, in accordance with the rule of priority, is considered the correct combination.

The species shows affinities with *A. osyrensis* (Roth ex Roem. & Schult.) Choisy in terms of leaf shape, flower size, and plant body tomentum. It differs, however, in several characters, including the architecture of the inflorescence, bract shape and size, and sepal shape.

**6. *Argyreia boseana*** Santapau & Patel, Trans. Bose Res. Inst. Calcutta 22: 35. 1958. *Type*: INDIA, **Bombay state** [Maharashtra], near Mahabaleshwar, Fitzgerald Ghat [Ambenali Ghat], 15.07.1956, *Z. Kapadia* 2083 (holo BLAT!) **Fig. 3e-h**

A perennial climber, rarely prostrate. Stems semiwoody, warty, terete, herbaceous towards apex, younger stem hairy, green sometimes purplish. Leaf petiole 10–15 cm long, shorter than the peduncle, adaxially shallowly grooved, green to pale purple, hairy; leaf lamina widely ovate, 15–22 × 10–15 cm, apex acute to narrowly acute, base cordate, secondary veins 10–12 pairs, conspicuously raised beneath, sparsely hairy to nearly glabrous above, sparsely hairy below, hairs density more on veins. Inflorescence an axillary compact dichotomously branched cyme, 10–15 flowered; peduncle hairy like petiole, green, terete, 15–25 cm long, usually longer than the petiole. Flower sub-sessile, bracteate; bracts 2, 1–2 cm, narrowly oblong, apex acute, sparsely hairy outside, glabrous inner. Sepals 5, persistent in fruiting, unequal, outer three narrower and longer than inner two, lanceolate, outer three 1.5–2.0 cm while, inner two 1.0–1.5 cm long, apex acuminate, glabrous inner, sparsely hairy outer. Corolla infundibuliform, pink, 5–6 cm long and 5–6 cm across; corolla tube 2.5–3 cm long, dark purple inside, hairy on midpetaline bands, corolla lobes shortly apiculate, twisted in bud. Stamens 5, included in the corolla tube, 3–4 cm long; filaments white, dilated and glandular hairy at base; anthers 4–5 mm long. Ovary pale green in color, encircled with annular disc; style 1, white 2.5–3 cm long;

stigma biglobose, white. Berries yellow, c. 1 cm in diam.

*Flowering & Fruiting*: flowering from late July to October and fruiting from November to January.

*Vernacular names*: *Gaveli*, *Sonarini* (Marathi).

*Habitat*: Species grows along the forest edges.

*Distribution*: Endemic to peninsular India: Goa, Karnataka and Maharashtra.

*Etymology*: The species is named after Sir Jagadish Chandra Bose, on the occasion of his birth centenary.

*Specimens examined*: INDIA. **Karnataka**, Uttar Kannada District, Yellapur, Telligeri, 13.03.1957, *S.K. Jain* 16505 (BSI); Uttar Kannada District, Balehalli, 30.10.1980, *R. Raghavan* 67943 (BLAT); Uttar Kannada District, Yellapur, 11.03.1957, *S.K. Jain* 16272, *ibid* 16505 (BLAT); Shimoga District, Agumbe, 18.05.1960, *R.S. Raghavan* 62637 (BLAT); Belgaum District, Yedur, 27.08.1963, *R.S. Raghavan* 90270 (BSI). **Maharashtra**, Satara District, Mahabaleshwar, Oct. 1924, *R.D. Acland* 759 (BLAT); Satara District, Fitzgerald Ghat, Mahabaleshwar, 06.09.1954, *U.M. Patel* 767 (BLAT); Satara District, Mahabaleshwar, Lingmala Falls, 21.12.1954, *U.M. Patel* 1129 (BLAT); Satara District, Wada, Kas, 02.12.1983, *S.D. Deshpande* 166571 (BSI); Sindhudurg District, Phonda Ghat, 18.08.1965, *B.G. Kulkarni* 105572 (BSI); Satara District, Mahabaleshwar, 30.01.1956, *V.D. Vartak* 3021 & 2107 (AHMA); Satara District, Mahabaleshwar, 03.10.1955, *V.D. Vartak* 1186 (AHMA); Satara District, Valmiki plateau, 09.09.2016, *P.R. Lawand & V.B. Shimpale* 005 (NCK); Satara District, Mahabaleshwar, Ambenali Ghat, 16.09.2018, *P.R. Lawand* 031 (NCK). (Often most of the specimens except the collections by present authors have labelled as *A. hookeri*, now corrected to *A. boseana*).

*Conservation status*: The taxon is endemic to peninsular India and is found abundantly throughout the northern Western Ghats. The EOO of the species is more than 54,000 km<sup>2</sup>, and its AOO is greater than 2,000 km<sup>2</sup>. Populations

of the species occur at many locations, so it does not meet the criteria for Vulnerable or Near Threatened. Therefore, it should be placed in the Least Concern (LC) category of the IUCN (2024).

*Notes:* *Argyreia boseana* is similar to *A. involuocrata*, but the former is a climber with orbicular cordate leaves, dichotomously branched cyme, oblong bracts and acuminate sepals. *A. boseana* also shares similarities with *A. hookeri* C.B. Clarke in having orbicular cordate shaped leaves, loosely arranged cyme, size of flower and yellow colored berries. However, it differs in having glabrous leaves, larger and oblong bracts, and sepals with unequal, acuminate apices. Moreover, *A. hookeri* is restricted to the northeastern region (Lawand & Shimpale, 2020), where as *A. boseana* is endemic to peninsular India. The former is often erroneously recorded from peninsular India (Cooke, 1908).

**7. *Argyreia bracteata*** Choisy, Mem. Soc. Phys. Geneve 6: 412. 1834. *Lettsomia bracteata* (Choisy) Roberty, Candollea 14: 43. 1952. *Type:* INDIA, Indian Orientalem. Hort. Calcutta Cultam? Wallich Cat. 1419A (holo G-DC [G00134769 digital image!]).

**Fig. 3i–l**

A large twining shrub. Stem semiwoody towards base, young stem herbaceous, green, densely appressed brown strigose hairy, exudes milky latex. Leaf petiole 2–4 cm long, terete, densely brown strigose like stem, terete, green; leaf lamina widely ovate to orbicular, 4–7 × 3.5–6.5 cm, apex obtuse, base shallowly cordate, glabrous above or sparsely hairy on veins, dense brown shiny strigose abaxially, secondary veins 6–7 pairs, raised on the lower leaf surface. Inflorescence an axillary subcapitate cyme, 4–7-flowered, inflorescence shortly branches and terminated in to 1 or 2 flowers; peduncle 1.5–4.5 cm long, equaling the petiole, green, brown strigose, terete. Bracts 2–3, lanceovate, 1.5–2.5 × 0.5–0.9 cm, midvein prominent, densely shiny strigose abaxially, strigose adaxially also. Sepals 5, oblong ovate, 1 cm long, 1–3 mm wide, sub-equal, hairy outside, glabrous inside, inner sepal margins hyaline, enlarges in fruiting,

persistent. Corolla infundibuliform, 4–4.5 cm long, same across, hairy outer on midpetaline bands, rose pink, throat purple, limb shallowly lobed or undulate. Stamens 5, unequal, 2 long, 3 short, included in corolla tube; filaments enlarged at base, enlarged portion glandular hairy; anthers 3–4 mm long, arrow headed. Ovary glabrous, 2–4 celled; stigma biglobose, papillate, pink. Berries 8–10 mm across, yellow when ripen, 2–4 seeded. Seeds trigonal, with visible hilum, black.

*Flowering & Fruiting:* Flowering from August to mid October and fruiting from October to January.

*Habitat:* It grows in open scrub forests and in deciduous forests, and prefers sandy soil and climbs over medium sized trees and shrubs.

*Distribution:* The species is endemic to peninsular India: Andhra Pradesh, Karnataka, Kerala and Tamil Nadu.

*Etymology:* The specific epithet 'bracteata' is cause of the lanceolate bracts of the flower. A species possesses sub-capitate inflorescence so with all the bracts gathered together, inflorescence produce quick look of too much bracts.

*Specimens examined:* INDIA. **Andhra Pradesh**, Kurnool District, Gundla Bramheswaram WLS, 20.07.1963, 930 m, *J.L. Ellis* 16917 (MH00139721); Kurnool District, Rolla Penta, 14.08.1972, 600 m, *J.L. Ellis* 42260 (MH00139720); Kadapa District, Cuddapah, July 1884, *J.S. Gamble* 15767 (MH00139716). **Karnataka**, Kolar District, Kolar, hills behind Anthargange temple, 03.11.2019, *P.R. Lawand* 061 (NCK); Kolar District, Kolar, hills behind Anthargange temple, 03.11.2019, *P.R. Lawand* 062 (NCK). **Kerala**, Kozhikode District, Pavagada, Kerala border, 15.08.1964, *J.L. Ellis* 20413 (MH [MH00139712]); Palghat District, way to Sholayur, 19.04.1978, *N.C. Nair* 56896 (MH00139708). **Tamil Nadu**, Dharampuri District, Urigam Forest, 24.07.1978, *E. Vajravelu* 57941 (MH [MH00139740]); Madurai District, Unnathiparai, 17.10.1959, *K. Subramanyam* 9414 (MH [MH00139739]).

*Notes:* Choisy (1834) received collections of Wallich labelled as '1419'. Of these, three specimens (1419 B/C/D) were described as *Argyreia pomacea* Sweet, and one specimen (1419A) was described as *Argyreia bracteata* Choisy. The species is very closely allied to *Argyreia zeylanica* (Gaertn.) Voigt in leaf, bract, sepal morphology, but it differs by having shiny brown tomentum on the underside of the leaf, a compact inflorescence, and a greater number of flowers per inflorescence.

**8. *Argyreia capitiformis*** (Poir.) Ooststr., Fl. Males. 6: 941. 1972. *Convolvulus capitiformis* Poir., J.B.A.M. de Lamarck, Encycl., Suppl. 3: 469. 1814. *Lettsomia capitiformis* (Poir.) Kerr, W.G. Craib, Fl. Siam. 3(2): 30. 1954. *Type:* INDIA, "Indies Orientale", without locality, Koenig *s.n.* (holo C [C10009593 digital image!]).

*Convolvulus capitatus* Vahl, Symb. Bot. 3: 28. 1794. *nom. illeg.* *Ipomoea capitata* Roem. & Schult., Syst. Veg., ed. 15 [bis]. 4: 238. 1819. *nom. superfl.* *Argyreia capitata* Arn. ex Choisy, Mem. Soc. Phys. Geneve 6: 423. 1834. *nom. illeg.* *Rivea capitata* Hallier f., Meded. Rijks-Herb. 1: 26. 1911. *nom. superfl.*

*Lettsomia strigosa* Roxb., Fl. Ind. 2: 80. 1824. *Ipomoea strigosa* Roth, J.J. Roemer & J.A. Schultes, Syst. Veg., ed. 15[bis]. 4: 242. 1819. *Argyreia strigosa* (Roth) Roberty, Candollea 14: 44. 1952. *Argyreia strigosa* (Roth) Santapau & Patel, Trans. Bose Res. Inst. 22:41. 1958. *nom. illeg.* **Fig. 4a-e**

A perennial 5–10 ft. tall climber, laticiferous- all plant parts exude white milky latex; stem green when young covered densely brown hispid, older stem woody, glabrous, terete. Leaf lamina widely ovate, 14–17 × 6–13 cm, base shallowly cordate, apex shortly acuminate, secondary veins 15–17 pairs raised beneath, patently brown hispid on both the surfaces; petiole hispid as stem, green purplish, 6–12 cm long, longer or usually shorter than the peduncle. Inflorescence axillary 7–11-flowered capitate cyme; peduncle brown hispid, 6–13 cm long, usually longer than the petiole. Flowers sessile, bracteate; bracts–2, outer

large, green, long brown hispid outer, glabrous inner, 2.5–3 cm, widely oblong, apex acute, inner 1.8–0.5 cm narrowly oblong, apex acute. Sepals 5, lanceolate, hairy outside, glabrous inside, hairs bulbous based; outer two large, 1.2–1.5 cm long, inner three small, 0.8–1 cm long, glabrous to hyaline on overlapped parts. Corolla campanulate to infundibuliform, pale pink, throat purple, hairy on midpetalline bands, glabrous on enclosed parts by sepals, base of corolla tube hairy inside, lobes twisted in bud while shallowly lobed in open flower. Stamens 5, inserted, sub-equal 1.8–2 cm long; filaments white, dilated and glandular hairy at base; anthers 4 mm long, pale pink. Ovary glabrous; style single; stigma biglobose, papillate. Berries globose, 0.7–1 cm across, orange red, 2–4-seeded.

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

*Habitat:* This species grows in the evergreen forests and along forest roadsides in northeast India.

*Distribution:* India (Assam, Meghalaya, Mizoram, Manipur, Sikkim, Tripura, Uttarakhand, West Bengal), Bhutan, Bangladesh, Myanmar, China, Thailand, Cambodia, Laos, Vietnam, Malaysia, Singapore, Indonesia.

*Etymology:* The specific epithet '*capitiformis*' is because of capitate architecture of inflorescence.

*Specimens examined:* INDIA, **Assam**, Khasi and Jaintia Hills, Sonapur on the bank of Lubha river, 20.11.1969, *N.P. Balakrishnan* 46881 (ASSAM); Lakhimpur District, Sadiya, 23.11.1911, *Burkill* 310885 (CAL); Tinsukia District, Tengapani, Oct. 1898, *Dr. Prain's collector* 310875 (CAL); Kamrup District, Guwahati, 500 m, 18.02.1885, *C.B. Clarke* 310882 (CAL); Karbi Anglong District, Nambor Forest, Feb. 1906, *A. Meebold* 5161 (CAL); Lakhimpur District, Kamranga Bond, November 1890, *Dr. King's Collector* 310878 (CAL); Tirap District, Jairampur, 11.10.1959, *Rolla Sheshagiri Rao* 19978 (CAL); Guwahati, Umtyrnga, 09.11.2017,

*P.R. Lawand* 032 (NCK). **Manipur**, Naga Hills, Lamburi, December 1907, *A. Meebold* 6753 (CAL); Barak, 3000 m, 29.11.1885, *C.B. Clarke* 310883. **Meghalaya**, West Garo Hills District, Nokrek Biosphere Reserve, 16.10.2007, *V.K. Singh & Bikram Singh* 76120 (ASSAM); Khasi Hills, On the way to Shillong, 4.11.2017, *P.R. Lawand* 033 (NCK). **Mizoram**, Aizawl, Dampa Tiger Reserve, 10.12.2006, *N. Odyuo* 72969 (ASSAM); Aizawl, Dampa Tiger Reserve, 10.12.2006, *N. Odyuo* 72970 (ASSAM); Aizawl, Dampa Tiger Reserve, 10.12.2006, *N. Odyuo* 72971 (ASSAM); Aizawl, Pualreng WLS, 5.12.2010, *S.K. Singh* 84407 (ASSAM); Aizawl, Damparengpui, near Dampa Tiger Reserve, 6.11.2017, *P.R. Lawand* 006 (NCK). **Sikkim**, East Sikkim District, Rungpo, 2300 m, 21.11.1908, *W.G. Craib* 354 (CAL). **Uttarakhand**, Deharadun District, Flora of North Western Himalaya, Aug. 1895, *P.W. Mackinnon* 310953 (CAL). **West Bengal**, Jalpaiguri, Chapramari WLS, 19.07.2002, *Dr. J. Bhattacharya* 33323 (CAL); Cooch Behar, Nagrarhat, 6.11.1958, *Dr. S.K. Mukherjee* 825 (CAL).

*Vernacular name:* Anuwey-khujeya (Bangali).

*Uses:* The yellow orange-colored fruits are eaten by birds.

*Notes:* The species shares some features common with *Argyreia setosa*, however it is very unique and readily recognizable by shaggy hispid hairy parts, capitate inflorescence, hispid, lanceolate bracts and sepals.

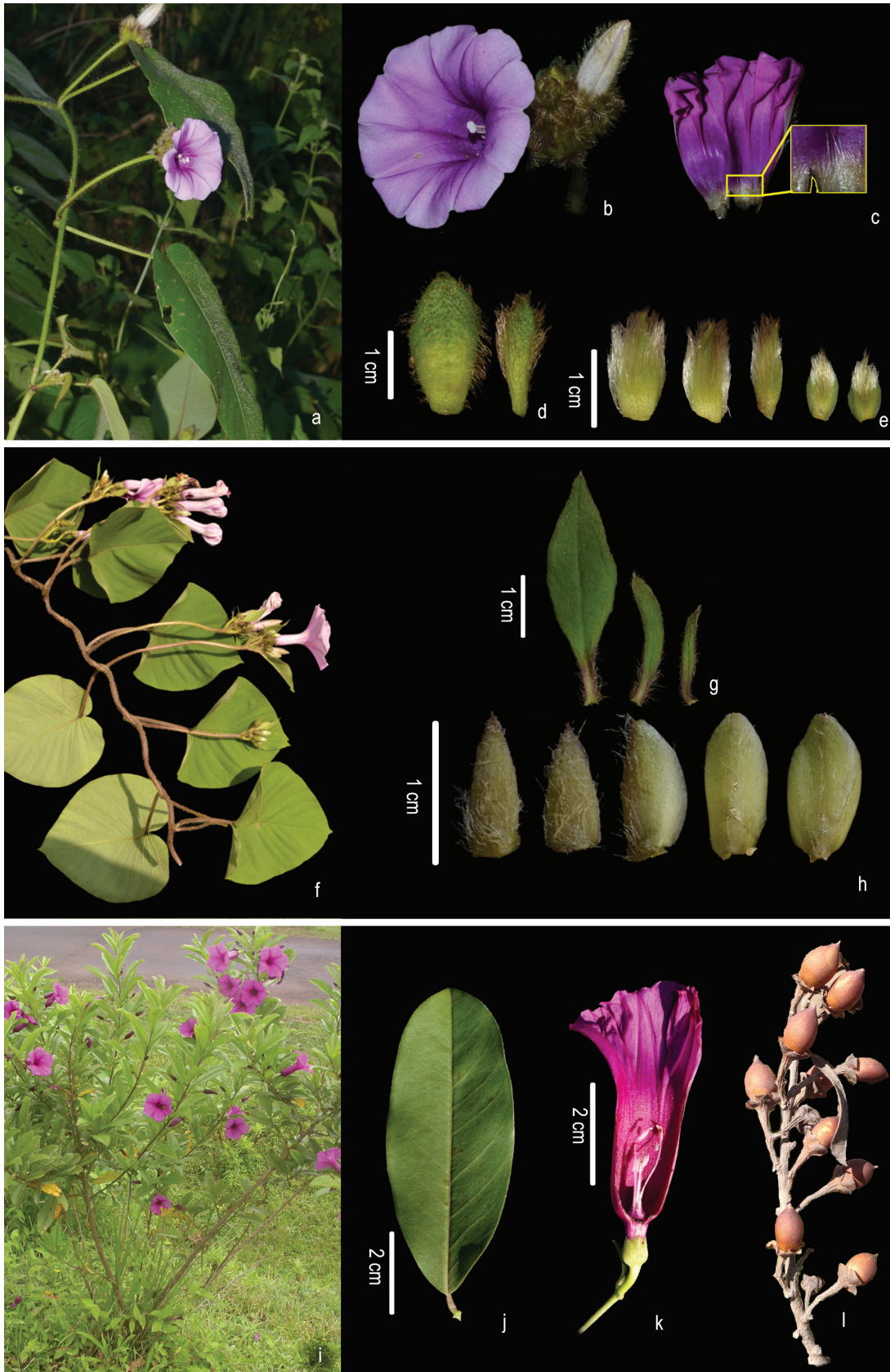
In India, the name *Argyreia capitata* has been erroneously used in regional floras and some published literature for this taxon. However, *Argyreia capitata* is based on *Convolvulus capitatus* Vahl, an illegitimate name. Consequently, the name *A. capitata*, as later assigned by Choisy (1834), is also rendered illegitimate. When Vahl (op. cit.) described *C. capitatus*, two prior instances of the name *C. capitatus* were already in use within the genus *Convolvulus*. This created a later homonym, which is subject to rejection under the rules of nomenclature.

**9. *Argyreia coonoorensis*** W.W.Sm. & Ramaswami, Rec. Bot. Surv. India 6: 30. 1914. *Type:* INDIA, **Tamil Nadu**, Coonoor, Nilgiris, 6000 ft., November–December 1910, *Meebold* 12397 (holo K [K000830696 digital image!]). **Fig. 4f-h**

A profuse climber or occasional prostrate shrub, almost all plant parts exude milky latex if cut. Stem older terete, glabrous, semiwoody, young purple, brown densely hispid, terete. Leaves petiolate; petiole 5–10 cm long, petiole of young leaves longer than peduncle, while that of mature leaves equaling or shorter than peduncle, brown hispid, very shallowly grooved adaxially; leaf lamina 17–22 × 15–20 cm, widely ovate, base cordate, lobes rounded, apex acute, densely hairy on both the surfaces, brown hispid and pale green beneath, densely strigose adaxially, secondary veins 13–14 pairs, raised to lower surface. Inflorescence axillary cyme, dichotomously branched, 5–10 flowered; peduncle 10–22 cm long, densely brown tomentose. Bracts outer, leafy, petiolate, 3–3.5 × c. 1 cm, lance-ovate, reticulately veined, hairy like leaf, inner bracts 2, unequal, 2–2.5 cm long, narrowly oblong, densely brown hispid outer, strigose inner, single veined, prominent on outer side. Sepals 5, equal, c. 1 cm long, ovate, apex acute or shortly apiculate, outer two narrow than inner, strigose outer, except on overlapped portions, glabrous inner, enlarges in fruit, persistent. Corolla infundibuliform, rose pink, throat dark purple, 5–6 cm long and 4–6 cm across, hairy on midpetaline bands, corolla limb shallowly lobed. Stamen 5, included in corolla tube, unequal 2 long, c. 3 cm, 3 short- 2.5–3 cm long; anther pink, 4–5 mm long; filaments dilated and glandular hairy at base. Ovary pale green, glabrous; style 1, c. 1 cm long, filiform; stigma biglobose, papillate, pink. Berries globose, 1–1.5 cm diameter, yellow. Seeds 2–4 per fruit, trigonal in shape, with visible hilum, white in color.

*Flowering & Fruiting:* Flowering from October to December and fruiting from late December to February.





**Fig. 4.** *Argyreia capitiformis* (Poir.) Ooststr. (a-e): **a.** Flowering twig; **b.** Flower front view; **c.** Split open corolla hairy inside (in inset); **d.** Bracts, **e.** Sepals. *Argyreia connoorensis* W.W. Sm. & Ramaswami (f-h): **f.** Flowering twig; **g.** Bracts; **h.** Sepals. *Argyreia cuneata* Ker-Gawl. (i-l): **i.** Habit; **j.** Leaf; **k.** Open flower showing stamens; **l.** Fruiting twig.

*Habitat:* The species is locally abundant in Coonoor, Nilgiris, flourishes vigorously in cool climate, at the altitude 2100–2300 m.

*Distribution:* The species is endemic to India: Tamil Nadu.

*Etymology:* The specific epithet 'coonoorensis' designates to its type locality, Coonoor (Tamil Nadu).

*Specimens examined:* INDIA, **Tamil Nadu**, Nilgiris District, Coonoor, 1793 m, *s.d.*, *R. Sasi* 8232 (Bharathiar University Herbarium); Nilgiris District, Coonoor, Lovedale point, 25.11.2017, *P.R. Lawand* 007 (NCK); Nilgiris District, Kil Kotagiri, 25.11.2017, *P.R. Lawand* 034 (NCK); Nilgiris District, Ooty, way to Kodanadu view point, 25.11.2017, *P.R. Lawand* 035 (NCK).

*Conservation status:* The species is only known from Nilgiri district of Tamil Nadu. Being endemic to this region, the species is under significant threat due to habitat destruction caused by land conversion for tea cultivation. Its populations are fragmented, with each observed population comprising fewer than 1,000 mature, reproducing individuals. Based on the IUCN (2024) guidelines, the species qualifies for Vulnerable (VU) status under criteria B1 and B2.

*Notes:* In the protologue, the species is noted to resemble *Argyreia hirsuta* Wight & Arn. and *Argyreia pilosa* Wight & Arn. However, morphologically, *Argyreia coonoorensis* closely resembles *A. hirsuta* in several traits, including leaf shape, the relative lengths of the petiole and peduncle, inflorescence architecture, bract shape, sepal shape, and fruit size and color. The primary distinguishing features of *A. coonoorensis* are its dense, long indumentum covering the entire plant and the presence of milky latex. Given these similarities, we hypothesize that *A. coonoorensis* could be a high-altitude variant of *A. hirsuta*. However, further studies, particularly molecular analyses, are necessary to resolve its taxonomic status conclusively.

**10. *Argyreia cuneata*** (Willd.) Ker Gawl., Bot. Reg. 8. t. 661. 1822. *Convolvulus cuneatus* Willd., Sp. Pl., ed. 4. 1: 873. 1798. *Lettsomia cuneata* (Willd.) Roxb., Fl. Ind. 2: 81. 1824. *Rivea cuneata* (Willd.) Wight, Icon. Pl. Ind. Orient. 3: 8, t. 890. 1845. *Type:* INDIA. *s.loc.*, anno, 1796, *Klein s.n.* (B [holo B-W 03676-010 digital image!].) **Fig. 4i-l**

An erect shrub, grows up to height of 3–7 ft. Stem older–semi-woody, glabrous; Young stem glabrous. Leaf lamina 4.5–9 × 1.5–2.5 cm in length, oblong–obovate, base cuneate, apex rounded rarely emarginate or apiculate, silky strigose below, glabrous above, secondary veins 7–9 pairs, not too much raised beneath; petiole 5–9 mm long. Inflorescence 3–5 flowered cyme; peduncle hairy 2–5 cm long. Bracts 1–2, 5–7 mm long, linear, early caducous, green, hairy. Sepals 5, subequal, 1.0–1.5 cm long, lance–ovate to ovate, apex acute, hairy outer, inner two hairy outer except on overlapped portions, glabrous inside. Corolla tubular–infundibuliform, bright purple colored, 4–6 cm long, 2–2.5 cm across, glabrous outer or very sparsely hairy. Stamens 5, inserted, subequal 2–2.5 cm long; filaments 1.5–2.0 cm long, dilated, glandular hairy at base; anthers white, 4–5 mm long, basifixed. Ovary glabrous, 4–celled; style single, white in color; stigma biglobose, pink. Fruit a dry brown colored berry, 0.8–1 cm across, 2–4 seeded. Seeds 5–8 mm long, brown–black.

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

*Habitat:* It is common in the dry deciduous forests, along the Ghats slopes.

*Etymology:* The specific epithet 'cuneata' is derived from cuneate leaf base.

*Distribution:* The species is endemic to peninsular India: Andhra Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu and Telangana.

*Specimens examined:* INDIA, **Andhra Pradesh**, Chittoor District, Madanikonda, 15.07.1957, *S.K. Wagh* 46327 (BLAT). **Karnataka**, Dharwad District, Hubli, Sept. 1931, *R.D. Acland* 46317

(BLAT); Bangalore Rural District, Kalkere, 05.02.1980, S.K. Wagh 122107 (BSI); Hassan District, Hirakalgudda–Arsikere, 23.11.1958, B.M. Wadhawa 26519 (BSI); Hassan District, Hirakalgudda–Arsikere, 23.11.1958, B.M. Wadhawa 53407 (BSI); Mysore District, Sandal Reserve, 26.04.1959, G.S. Puri 10954 (BSI); Belgaum District, Khanapur, 4.09.1963, M.Y. Ansari 101196 (BSI); Chitradurga District, Hosadurga, 21.04.1979, B.R. Ramesh & K.P. Sreenath 7235 (CAL); Shimoga District, Mysore, October 1908, A. Meebold 10100 (CAL); Bandipur, 24.08.1964, B.D. Naithani 21117 (MH [MH00139582]); Mysore, October 1955, C.E. Brown 97098 (MH [MH00139572]); Chikkaballapur District, Nandi Hills, 1470 m, 30.03.2019, P.R. Lawand 037 (NCK). **Kerala**, Palghat District, Anakatti, 22.09.1977, R. Ansari 51451 (CAL); Calicut, Pavagada, 15.08.1984, J.L. Ellis 20414 (MH [MH00139569]); Palghat District, Anakatti, 22.09.1977, R. Ansari 51451 (MH [MH00139567]). **Maharashtra**, Pune District, Katraj Ghat, 8.09.1954, U.M. Patel 46329 (BLAT); Pune District, Purandhar, January 1918, E. Blatter 46324 (BLAT); Pune District, Bhimashankar, 18.09.1955, U.M. Patel 46323 (BLAT); Pune District, Pashan Lake, 11.08.1955, U.M. Patel 46322 (BLAT); Pune District, Katraj Ghat, 2.10.1959, Y.M. Marchant 46321 (BLAT); Pune District, Katraj Ghat, 18.10.1958, S.C. Tavakari 46320 (BLAT); Pune, Sinhadgad Fort, 19.09.1950, H. Santapau 46319 (BLAT); Pune, Aug. 1920, R.D. Acland 46318 (BLAT); Pune District, Poona Garden, July, E. Blatter 46316 (BLAT); Pune District, Dive Ghat, Dec. 1912, E. Blatter 46315 (BLAT); Kolhapur District, Rukadi, Sept. 1920, R.D. Acland 46312 (BLAT); Pune District, Khed, 8.08.1961, K.P. Janardhanan 57052 (BSI); Satara District, Dhawadi, 21.09.1983, S.D. Deshpande 108658 (BSI); Pune District, Junnar, 27.10.1910, Hemadri K. 64631 (BSI); Pune District, Khadakwasla, 15.09.1960, R.S. Raghawan 88744 (BSI); Pune District, Katraj Ghat, 25.03.1956, V.D. Vartak 10936 (BSI); Mumbai, Gawrah khind Garden, 17.08.1910, H.P. Paranjapye s.n. (BSI);

Pune District, Law College Hill, 20.08.1988, V.N. Joshi 0019452 (AHMA); Pune District, Law College Hill, 20.08.1988, V.N. Joshi 0019451 (AHMA); Thane District, Umbraj, Pimpalgaon, 12.09.2002, S.B. Nagarkar 23056 (AHMA); Thane District, Umbraj, Pimpalgaon, 12.09.2002, S.B. Nagarkar 23055 (AHMA); Thane District, Umbraj, Pimpalgaon, 12.09.2002, S.B. Nagarkar 0021408 (AHMA); Satara District, Jadhavwadi, 29.08.2002, P.P. Sharma 22029 (AHMA); Pune District, Velhe, Sakhar, 02.11.1954, V.D. Vartak 5120 (AHMA); Pune District, Pachgaon–Parwati, 23.09.1981, D.K. Kulkarni 16414 (AHMA); Pune District, Sinhadgad Fort, Atkarwadi, November 1956, V.D. Vartak 5124 (AHMA); Pune District, Sinhadgad Fort, Atkarwadi, 07.08.1955, V.D. Vartak 5121 (AHMA); Satara District, Pateshwar, 15.09.2016, P.R. Lawand & V.B. Shimpale 008 (NCK); Satara District, Karad, Shangaon Ghat, 13.09.2018, P.R. Lawand 035 (NCK); Pune District, Mulashi ghat, Aug. 2016, P.R. Lawand 036 (NCK). **Tamil Nadu**, Dharampuri District, Sekkapatii, Sittheri Hills, 25.03.1979, K.M. Matthew & G. Paramiswami 24333 (CAL). **Telangana**, Mehabubnagar District, Mannanur Core Zone, 30.07.1987, V.B. Hosagonzar 86613 (DRC).

*Conservation status:* The species has large Extent of Occurrence, Area of Occupancy, more mature and reproducing individuals at each population, therefore assessed here as Least Concern (LC) (IUCN 2024). Ghat road widenings is major threat to the species.

*Vernacular Names:* Mahalungi (Marathi); Kallanegida (Kannada).

*Notes:* This is the only species in the genus with shrubby habit. The fruits are indehiscent but unlike other species the berries are dry rather than pulpy. The carmine red-colored flowers are beautiful and it lacks hairs on midpetaline bands, it can be a good hedge plant.

**11. *Argyrea cymosa* (Roxb.) Sweet, Hort. Brit. 289. 1826. *Lettsomia cymosa* Roxb., Fl. Ind. 2: 82. 1824. Type: INDIA, West Bengal, Cultivated in**

the Royal Botanic Garden Calcutta, Roxburgh *s.n.* (holo K [K000857260 digital image!]). **Fig. 5a-d**

A shrubby climber. Stems hairy appressed strigose when young, semi-woody when old, glabrous, warty, slightly swollen at nodes. Leaf lamina orbicular to widely ovate, 6–9 × 6–9 cm, base cordate, lobes round, apex acute, secondary veins 6–7 pairs conspicuously raised beneath, strigose below, strigulose above; petiole green, hairy, terete, 4–6 cm long, shorter than the peduncle. Inflorescence axillary umbellate cyme, 9–15 flowered; peduncle hairy like petiole 5–8 cm long. Flowers shortly pedicellate; pedicel 1–3 mm long. Bracts 2–3, strigose outer, glabrous inside, green, twisted irregularly; outer large, widely elliptic, 1.5–2.7 × 1–2.0 cm, apex acute, inner two bracts small 1–1.5 × 0.4–0.7 cm. Sepals unequal, persistent in fruit; outer 3 large, orbicular, 1.3–1.5 × 0.5–0.9 cm, variously twisted, strigose on both sides; inner two smaller, oblong, 1.0–1.3 × 0.3–0.4 cm, hairy on non-overlapped parts, glabrous inside. Corolla infundibuliform; tube narrow, pale pink, 5.5–6 cm long, 4–4.5 cm across, petals twisted in bud, hairy on midpetaline bands. Stamens 5, slightly exserted or up to mouth of corolla tube, unequal 3.7–4.2 cm long; filaments white, glandular hairy at base; anthers 1–3 mm long, pale pink. Ovary glabrous; style single; stigma biglobose, pink. Berries globose, yellow, 1–1.5 cm across, 2–4-seeded. Seeds c. 1 cm long, white.

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

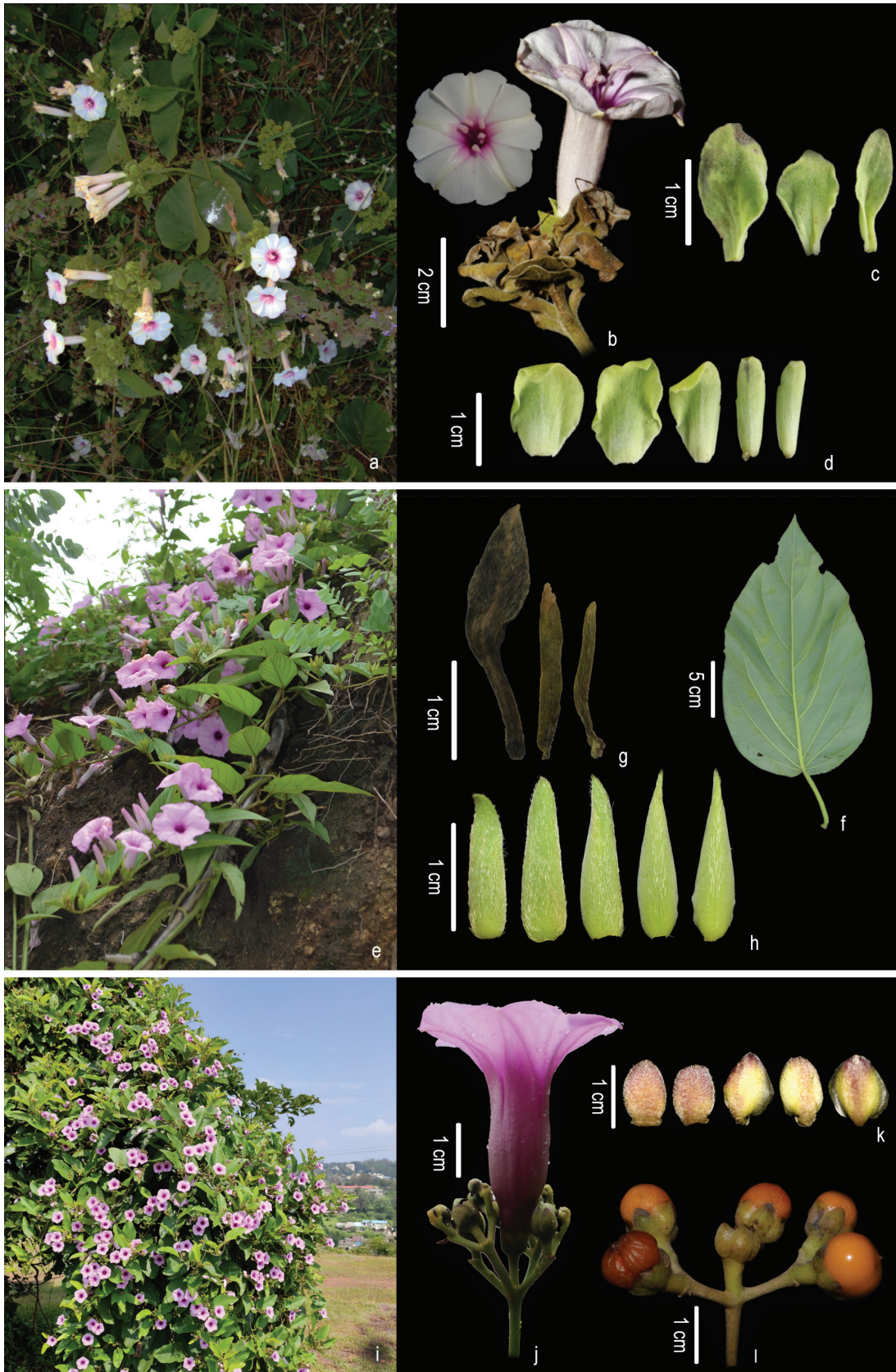
*Habitat:* The species grows in dry deciduous forests in, open places with plenty of light.

*Distribution:* India: Andhra Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu, Telangana and West Bengal. Myanmar and Nepal.

*Etymology:* The specific epithet '*cymosa*' is cause of cymose inflorescence of the plant.

*Specimens examined:* INDIA, **Andhra Pradesh**, Nellore District, Kallurpad, 18.12.1917, *C.E.C. Fischer* 310645 (CAL); East Godavari District,

Polavaram, Godavari river, 25.11.1902, *C.A. Barber* 4775 (MH [MH00139420]); Nallamalai, way to upper Ahobilam, 22.11.1969, *J.L. Ellis* 32573 (MH [MH139419]); Visakhapatnam District, Kishnadevipeta, 6.03.1915, *s. collector* 11695 (MH [MH00139418]); Visakhapatnam District, Anakapalli, 26.01.1916, *S. coll.* 12521 (MH [MH00139416]); Godavari District, Godavari river, February 1885, *J.S. Gamble* 16089 (MH00139413); Kadiri Kalasa Mudram R.F., 19.11.1981, *N. Yesoda* 645 (MH00139411); Kurnool, way to upper Ahobilam, 22.11.1969, *J.L. Ellis* 32573 (MH); Chingleput District, Bunds of Vedanthangal, 25.01.1976, *A.N. Henry* 47021 (MH). **Madhya Pradesh**, Chanda Dil, 23.01.1890, *J.F. Duthie* 310650 (CAL). **Maharashtra**, Ahmednagar District, Ahmednagar, *s.d.*, *R.D. Acland* 46330 (BLAT); Aurangabad District, Khuladabad, Guest House to Maismall hills, 04.11.1961, *Rolla S. Rao* 36658 (BSI); Akola District, Manarulpur, on way to wanoja, 30.11.1979, *S.Y. Kamble* 105448 (BSI); Solapur District, Karmala, Korti, 17.12.2011, *J. Jayanthi & S.C. Yadav* 132405 (BSI); Sangli District, On the way to Jat, October 2017, *P.R. Lawand* 009 (NCK). **Tamil Nadu**, Madras, Vaudolous Hills, 10.01.1958, *Santapau H.S.J.* 46334 (BLAT); Madras, Vaudolous Hills, 10.01.1958, *Santapau H.S.J.* 46332 (BLAT); Kistua District, Kenlarid, February 1890, *J.S. Gamble* 6625 (BSI); Kancheepuram District, Vedanthangal WLS, 25.01.1976, *A.N. Henry* 47021 (CAL); Kancheepuram District, Vedanthangal WLS, 25.01.1976, *A.N. Henry* 47021 (MH [MH00139430]); Chennai District, Vandalur, Chingleput, 1915, *S.coll.* 11560 (MH00139423). **Telangana**, Khammam District, Khammam to Dhanaiyaigudem, 03.01.1997, *R. Rajan* 108514 (DRC); Medak District, Pillutla R.F., 27.01.1998, *R. Gopalan* 106785 (DRC); Varangal District, Kanapur, 24.11.1960, *K.M. Sebastine* 11576 (MH [MH00139404]); Vikarabad District, Ananthagiri Hills forest, 700 m, August 2017, *P.R. Lawand* 038 (NCK). **West Bengal**, Purba Medinipur District, Digha, Midwapur Coast, 26.02.1965, *T.A. Rao*



**Fig. 5.** *Argyreia cymosa* (Roxb.) Sweet (a-d): **a.** Habit; **b.** An inflorescence; **c.** Bracts; **d.** Sepals. *Argyreia daltonii* C.B. Clarke (e-h): **e.** Habit; **f.** Leaf abaxial surface; **g.** Bracts; **h.** Sepals. *Argyreia elliptica* (Roth ex Roem. & Schult.) Choisy (i-l): **i.** Habit; **j.** Inflorescence; **k.** Sepals; **l.** Infructescence.

2304 (CAL); Purba Medinipur District, Digha, Midwapur Coast, 26.02.1965, T.A. Rao 2305 (CAL); Hooghly District, Goghat, 23.11.1961, P.K. Hajra 827 (CAL).

*Vernacular names:* *Nagar Mhaisvel* (Marathi).

*Notes:* The species is characterized by peculiarly twisted bracts and sepals, resembling the bracts of *Argyreia nervosa* (Burm.f.) Bojer. It also possesses a narrower corolla tube diameter compared to other Indian species of *Argyreia*.

The name was initially published by Roxburgh (1824) as *Lettsomia cymosa*, which was later transferred to *Argyreia* by Sweet (1826). Although some publications erroneously attribute the name *Argyreia cymosa* to Choisy, it was Sweet who validly made the transfer earlier, in 1826.

**12. *Argyreia daltonii*** C.B. Clarke in Hook.f. Fl. Brit. India. 4:190. 1883. *Lectotype* (designated here): INDIA, **Jharkhand**, Chhota Nagpore, Bundgao in Singhboom, 2000 feet, 28.10.1873, C.B. Clarke 20503D (K [K000830715 digital image!]; isolecto BM [BM000035627 digital image!]; CAL [CAL0000018517!]; K [K000830716, K000830717, K001081782, K001081781 digital images!]).

**Fig. 5e-h**

A huge semiwoody climber. Stems herbaceous towards apex, strigose, semi-woody at older parts. Leaf lamina ovate, 15–25 × 8–13 cm, base shallowly cordate to round, apex acute, secondary veins 6–7 pairs raised beneath, strigose below, sparsely strigose above; petiole green, strigose, terete, 3–5 cm long. Inflorescence axillary 6–9-flowered cyme; peduncle strigose, 6–9 cm long. Flowers pedicellate, bracteate; pedicels very short, 3–4 mm. Bracts 2–3, linear–lanceolate to spatulate, 1.5–2.5 cm long, acute apex strigose on both the surfaces but sparsely on adaxial side. Sepals persistent even after fruit falls off, subequal; outer 3 large, ovate, 1.0–1.2 cm long, narrowly acute to acuminate apex, strigose hairy on outer side, glabrous inside, outer two sparsely hairy inside on upper half. Corolla infundibuliform, 5–7 cm long,

5–6.5 cm across, pink–purple, petals twisted in bud; tube strigose on mid-petaline bands. Stamens 5, included in the corolla tube, unequal, 3 long 3–3.5 cm long, 2 short 2–2.5 cm long; filaments pink, glandular hairy and dilated at base; anthers 4–5 mm long. Ovary pale green, glabrous, style single; stigma biglobose, white. Berries yellow, fleshy, 1–1.5 cm in diam., 2–4 seeded. Seeds c. 1 cm long.

*Flowering & Fruiting:* Flowering from August to October and fruiting from October to January.

*Habitat:* The individuals of the species climb on the tall trees like *Shorea robusta* along roads in the jungle.

*Etymology:* The species is named after General Dalton who was the commissioner of the Chhota Nagpore.

*Distribution:* India (Andhra Pradesh, Jharkhand, Odisha, Tamil Nadu); endemic.

*Specimens examined:* INDIA, **Andhra Pradesh**, Chittoor District, Towards Akasganga, 30.12.1975, G.V. Subba Rao 46875 (CAL); Srikakulam District, Salur, Jaypore Roadside, 10.09.1978, N.P. Balkrishnan 1078 (CAL); East Godavari District, Vettukurn, Maredumilli, 19.12.1993, M. Mohanan 100783 (DRC); East Godavari District, Maredumilli, 17.12.1993, M. Mohanan 100750 (DRC); East Godavari District, Tadepalli, 12.10.1986, N. Rama Rao & D. Narsimhan 84329 (DRC); Maredumilli, Valamum, 18.10.1994, M. Mohanan 102038 (MH [MH00139459]); Chittoor District, Near Japali, 30.09.1974, G.V. Subba Rao 45896 (MH [MH00139463]); Visakhapatnam District, Anantagiri, 17.10.1964, G.V. Subba Rao 21709 (MH [MH00139449]); East Godavari District, Maredumilli to Kakur, 21.09.1980, G.V. Subba Rao & G.R. Kumari 67581 (MH [MH00139448]); Visakhapatnam District, Limmaguda Hills, 4.01.1970, G.V. Subba Rao 31164 (MH [MH00139445]); Visakhapatnam District, Venkachita, 21.12.1967, G.V. Subba Rao 29586 (MH [MH00139441]); Chittoor

District, towards Akasganga, 30.12.1975, G.V. Subba Rao 46875 (MH); Visakhapatnam District, Near Borra caves, 20.09.2018, P.R. Lawand 039 (NCK). **Chhattisgarh**, Raipur District, Madan Dongri, Taurenga, 09.10.1976, D.M. Verma 25152 (BSA); Raipur District, Singpur Range, 17.01.1976, D.M. Verma 23734 (BSA); Bastar District, Kanta Dubhatota, 25.12.1971, C.R. Das 17329 (BSA); Bastar District, 100<sup>th</sup> mile Raipur to Jagdalpur road, 24.09.1962, S.K. Jain 5115 (BSA). **Jharkhand**, East Singhbhum District, Dalma Pahar WLS, 12.09.2007, C.R. Magesh 13842; Ranchi, Singhbhum Forest, Pareya, 15.10.2017, P.R. Lawand 010 (NCK). **Karnataka**: South Kanara District, Hosagadi, Jan. 1939, S.R. Raju 6343 (MH [MH00139440]); Udupi District, Kervashe, Someshwar, 16.02.1940, S.R. Raju 586 (MH [MH00139439]). **Tamil Nadu**, Dharmapuri District, Harur, Chitteri Hills, *s.d.*, K.M. Matthew & G. Paramasivan 24308 (CAL).

*Conservation status*: As its Extent of Occurrence is restricted to East Indian States and Eastern Ghats of India and taxon is likely to qualify criteria B1 and C2a(i) for Vulnerable category. But it will not qualify the all the criteria for vulnerable category in such cases as per IUCN guideline Near Threatened (NT, IUCN 2024) category can be assigned to this taxon.

*Vernacular name*: Karu onamkodi (Tamil).

*Uses*: A wiry stems of the plant are utilized by local inhabitants for tying the bamboo bundles and as ropes in hut construction.

*Notes*: The species shares similarities with *Argyreia involucreta* in leaf shape, flower size and fruit morphology but differs in several characters including habit, bract and sepal morphology and inflorescence architecture.

C.B. Clarke's original collections of *A. daltonii* from Singhbhum, Chhota Nagpore are housed at K (K000830715, K000830716, K000830717, K001081782, K001081781), one at BM (BM000035627) and one at CAL

(CAL0000018517), with all being syntypes. Among these, the specimen C.B. Clarke 20503D K (K000830715) is selected here as the lectotype.

**13. *Argyreia elliptica*** (Roth ex Roem. & Schult.) Choisy, Mem. Soc. Phys. Geneve 6: 417. 1834. *Ipomoea elliptica* Roth ex Roem. & Schult., Syst. Veg. ed. 15 [ibs]. 4: 248. 1819. *Lettsomia elliptica* Wight, Icon. Pl. Ind. Orient. 4(2): 12. 1848. *Type*: "India Orientale", May 1800, B. Heyne *s.n.* (K [K000857268 digital image!]). **Fig. 5i-l**

Perennial climbing shrubs; older stems woody, with lenticels, terete, glabrous while the younger stem brown appressed strigose, terete. Leaf lamina lance ovate to elliptic, 9–12.5 × 4.5–7.5 cm, apex narrowly acute, base obtuse to rounded, secondary veins 8–10 pairs raised conspicuously beneath, sparsely strigose on both the surfaces, hair density more on veins, the leaves of younger branches upwardly directed appears as gathered at apex; petiole dorsally shallowly grooved, green, appressed strigose, 2–4.5 cm long, shorter than the peduncle. Inflorescence many flowered axillary cyme to an aggregate corymb; peduncle appressed strigose, 7.5–12 cm long, longer than the petiole. Flower subsessile, bracteate. Bracts 1–2 mm long, very early caducous. Sepals 5, subequal, widely elliptic to orbicular, 0.5–0.6 × 0.4–0.6 cm, apex round to obtuse, appressed strigose outer, glabrous inner, margins of inner sepals are hyaline, parallel veined, pale green color with purple-black tinge at base. Corolla Infundibuliform, purple–rose pink, 3.5–4.5 cm long and 3.5–3.8 cm across, throat c. 1 cm in diam.; lobes twisted in bud; tube very sparsely hairy on midpetaline bands. Stamens 5, inserted, unequal, 2 long, 3 short, 1.3–1.8 cm long; filaments white, 1–1.4 cm long, dilated and glandular hairy at base; anthers arrow headed, 1–3 mm long, purple to pink, basifixed. Ovary glabrous, off white in color, bilocular with one ovule in each locule; style single; stigma biglobose, pink, papillate. Berries c. 1 cm across, brown, epicarp thick, leathery; seeds dark brown to black, with visible hilum.

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

**Habitat:** It is common along the moist semi-evergreen forest outskirts and along the roads.

**Distribution:** India (Maharashtra, Karnataka, Kerala and Tamil Nadu) and Sri Lanka.

**Etymology:** The specific epithet '*elliptica*' referred to its elliptic leaves.

**Specimens examined:** INDIA, **Karnataka**, Uttar Kannada District, Castle Rock, *s.d.*, G.A. Gammie 15754 (BSI); Mysore District, Hunsur, 21.08.1978, S.R. Ramesh 2247 (CAL); Chikkamagaluru District, Sankaveri, Baba budhan, October 1908, A. Meebold 8558 (CAL); Belgaum District, on the way to Goa, 12.08.2016, P.R. Lawand and V.B. Shimpale 011 (NCK). **Kerala**, Idukki District, Vandanmedu, 24.11.1961, K.N. Subramanian 77083 (BSI); Kottayam, Changanacherry, Melukavu, 11.12.1985, Fr. Kadavil 1321 (CAL); Wayanad District, Bramhagiri, 15.11.1978, V.S. Ramachandran 58759 (CAL); Idukki District, Valara, 16.09.1993, E.S. Santhoshkumar 14465 (TBGT); Idukki District, Munnar, *s.d.*, Usha & Deepthi 86458 (TBGT); Wayanad District, Way to Pakshipathalam, 06.10.2010, Geetha Kumary & A.G. Pandurangan 69654 (TBGT); Kottayam, Pulliparai to Peruvantham, 22.01.1965, K. Vivekanathan 22938 (MH). **Maharashtra**, Satara District, Mahabaleshwar, Fitzgerald Ghat, 22.12.1954, U.M. Patel 1167 (BLAT); Satara District, Khandala, March 1917, E. Blatter 22307 (BLAT); Satara District, Lonavala, 31.07.1954, U.M. Patel 732 (BLAT); Satara District, Khandala, 27.09.1954, U.M. Patel 805 (BLAT); Satara District, Lonavala on Tungarli Hills, 01.08.1954, U.M. Patel 734 (BLAT); Satara District, Khandala, 15.09.1959, B. Balamani 451 (BLAT); Satara District, Mahabaleshwar, Fitzgerald Ghat, 22.12.1954, U.M. Patel 1166 (BLAT); Satara District, Khandala-Forbay Tank, 26.09.1954, U.M. Patel 801 (BLAT); Satara District, Mahabaleshwar, 15.10.1905, W.A. Talbot 4501 (BSI); Pune District, Bhushi Dam, 21.08.1964, P. Venkata Reddi 98701 (BSI);

Satara District, Koyna-Karanjwade, 27.12.1972, R.K. Kocchar 158033 (BSI); Satara District, Khandala- Foot of Bhima hills, 23.12.1962, R.S. Rao 83422 (BSI); Ratnagiri District, Amboli, 07.11.1965, B.G. Kulkarni 106389 (BSI); Satara District, Yavateshwar, 18.09.1983, S.D. Deshpande 165881 (BSI); Satara District, Mahabaleshwar, *s.d.*, T. Cooke *s.n.* (BSI); Satara District, Khandala, 30.12.1902, R.K. Bhide 851 (BSI); Sindhudurg District, Amboli Ghat, 03.12.1983, V.D. Vartak 593 (AHMA); Sindhudurg District, Amboli Ghat, 27.11.1983, V.D. Vartak 0020557 (AHMA); Ratnagiri District, Kumbharli Ghat, 06.10.2009, V.S. Ghate 0024959/0024960/0024958 (AHMA); Satara District, Yavateshwar, August 2016, P.R. Lawand & V.B. Shimpale 012 (NCK); Kolhapur District, Panhala, 18.09.2016, P.R. Lawand 040 (NCK); Pune District, Mulshi, 13.10.2016, P.R. Lawand 042 (NCK). **Tamil Nadu**, Tiruchirapalli District, Tiruchi, 23.11.1978, K.M. Matthew & C. Manoharan 19462 (CAL); Coimbatore, Thekkumalai, 25.09.1956, K.M. Sebastine 843 (CAL); Nilgiri District, Sirur, 13.11.1970, G.V. Subba Rao 37210 (MH); Coimbatore District, on the way to Ooty, November 2017 P.R. Lawand 041 (NCK).

**Vernacular Names:** *Duvel*, *Duyal* (Marathi); *Unnayangodi*, *Thaalvendaankodi* (Tamil); *Ugani ham bu*, *Kongepataballi* (Kannada).

**Uses:** The wiry and flexible stems are used by local people to tie up the fardel (*pers. obs.*).

**Notes:** The species is closely related to *A. lawii* C.B. Clarke in terms of leaf shape, flower size and flower shape. However, it differs in having 1–2 mm long and very early caducous bracts as opposed to .5–2.5 cm, lanceolate and persistent in *A. lawii*. The plants also differ in the hairiness of the plant body.

This species exhibits variations in flower numbers per inflorescence, as well as the lengths of the peduncle and pedicel. Among the specimens collected from Mulashi (Pune), approximately 30 individuals had one to a few flowers per inflorescence. The peduncle length in these



Mulashi specimens measured 1.3–2.5 cm, which is shorter than in typical populations. Similarly, the pedicel length measured 1.2–2 cm, which is an infrequent trait for this species. Additionally, the sepals in this species are glabrous, a rare characteristic. Despite these differences, we conclude that these represent intraspecific variations rather than distinct species-level differences. Dassanayake and Fosberg (1980) reported the presence of secondary veins in the leaves of *Argyreia elliptica*. However, this feature is absent in Indian populations of the species.

**14. *Argyreia fulgens*** Choisy, Mem. Soc. Phys. Geneve 6: 415. 1834. *Type*: INDIA. *s. loc.*, Wallich Cat. 1394/1 [K000830711 digital image!]. **Fig. 6a–d**

A huge climbing shrub; older stems semi-woody, glabrous, rough, young stem purple or green, terete, appressed strigose, wiry, herbaceous toward apex. Leaf lamina elliptic, 10–14 × 3–7 cm, basally rounded, apically caudate-acuminate, margins entire, undulate in mature leaves, glabrous above, densely silvery strigose beneath; secondary veins 18–22 pairs, veins purple colored in young leaves; petiole 3–7 cm long, terete, appressed strigulose, dorsally grooved, with two protuberances like glands at point of attachment with lamina. Inflorescence axillary dichotomously branched cyme, 5–7-flowered; peduncles 2–2.5 cm long, shorter than the pedicels. Flowers pedicellate, bracteate; pedicel up to 1 cm long, shiny strigose like petiole, slightly elongates in fruiting. Bracts 2, linear oblong, *c.* 10 × 1–2 mm, caducous, hairy like leaf. Sepals equal, widely ovate, *c.* 0.5–0.7 × 1 cm; outer two narrow than inner three, hairy except overlapped areas; inner three sepals with hyaline margins. Corolla funneliform, dark purple, 2.5–3.5 cm long, 2–2.5 cm across, sparsely hairy on midpetaline bands. Stamens 5, unequal, 2 long 1.3–1.5 cm long while 3 short 0.9–1.2 cm long; filaments dilated at base, glandular hairy; anthers basifixed, 3–4 mm long, white in color. Ovary pale green; stigma biglobose, papillate. Berries brown, dry, 0.5–0.7 cm across, 2–4-seeded.

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

*Habitat*: It grows along roads or as an element of secondary forests at an altitude 800–1000 m.

*Distribution*: India (Kerala and TamilNadu); endemic.

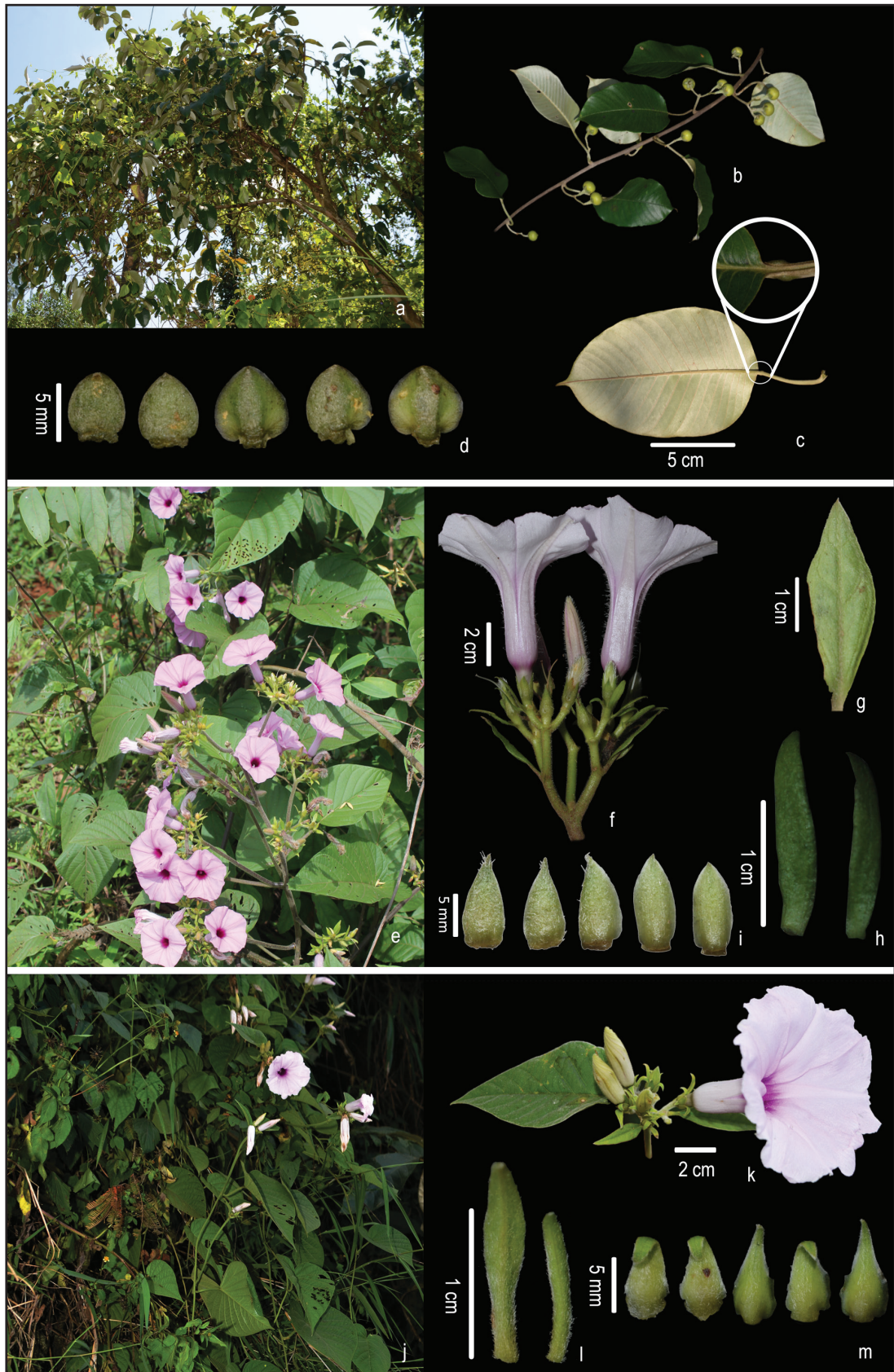
*Etymology*: The specific epithet '*fulgens*' is genitive form of '*fulgentis*' meaning shining or glittering. Named because of its silvery shiny ventral surface of leaves.

*Specimens examined*: INDIA, **Kerala**, Idukki District, Kumily trau, Dec. 1910, *A. Meebold* 760, 310681 (CAL); Trivandrum District, Bonaccord, 27.07.1994, *T. Shaju* 02099, 9369 (TBGT); Agasthyamala, Bonaccord, 19.05.1991, *T. Mohanan* 10827, 9367 (TBGT); Agasthyamala, Bonaccord, 19.05.1991, *T. Mohanan* 11747, 9368 (TBGT); Idukki District, Cheruthany, 19.02.1983, *C.N. Mohanan* 76251 (MH [MH00139557]); Idukki District, Cheruthany, 19.02.1983, *C.N. Mohanan* 76251 (MH [MH00139556]); Ponmudi, 16.08.1980, *M. Mohanan* 69255 (MH [MH00139555]); Trivandrum District, on the way to Ponmudi, 28.10.2018, *P.R. Lawand* 012 (NCK). **Tamil Nadu**, Coimbatore, Cheruthana, 19.02.1983, *C.N. Mohanan* 76251 (CAL); Madura, Cumbum R.F., 28.09.1925, *K.C. Joseph* 17749 (MH [MH00139582]).

*Conservation status*: The taxon has very restricted extent of occurrence (EOO) as it is known from few localities from Kerala. Its area of occupancy (AOO) does not exceed 500 km<sup>2</sup> and known from three localities from Kerala and one from Tamil Nadu. The number of mature individuals in each population is less than 250. Here we propose that Endangered as a conservation status (EN, B1, B2a and C2ai) (IUCN, 2024).

*Uses*: The leaves of the species possess aphrodisiac properties.

*Notes*: The species can be easily identified by its silvery, shiny lower leaf surface, purple secondary



**Fig. 6.** *Argyreia fulgens* Choisy (a-d): a. Habit; b. Fruiting twig; c. Leaf showing gland in enlarge view; d. Sepals. *Argyreia hirsuta* Wight & Arn. (e-i): e. Habit; f. Inflorescence; g & h. Bracts; i. Sepals. *Argyreia hookeri* C.B. Clarke (j-m): j. Habit; k. Inflorescence; l. Bracts; m. Sepals.

veins in young leaves, and dry, brown-colored berries. *Argyreia fulgens* shares morphological similarities with *Argyreia mollis* (Burm.f.) Choisy, as both species possess elliptic leaves with silvery, shiny lower surfaces and flowers of similar size and shape. However, *A. fulgens* can be distinguished by the presence of a gland at the base of the petiole, a higher number of secondary veins, caducous bracts, and its characteristic dry, brown berries. Additionally, *A. fulgens* produces dry, brown berries similar to those of *A. cuneata* and *A. nervosa*.

**15. *Argyreia hirsuta*** Wight & Arn., Madras J. Lit. Sci. 5: 18. 1837. *Rivea hirsuta* (Wight & Arn.) Wight, Icon. Pl. Ind. Orient. 3(2): 8, t. 891. 1844. *Rivea zeylanica* Thwaites var. *hirsuta* (Wight & Arn.) Thwaites, Enum. Pl. Zeyl. 209. 1860.

*Argyreia hirsuta* Wight & Arn. var. *coacta* C.B. Clarke, Hook.f. Fl. Brit. India 4: 189. 1883. *Argyreia populifolia* Choisy var. *coacta* (C.B. Clarke) Trimen, Handb. Fl. Ceylon 3: 208. 1895. *Argyreia coacta* (C.B. Clarke) Alston, Ann. Roy. Bot. Gard. 11: 209. 1929. *Lectotype* (designated by Krishnaraj, Joseph & Ramalingam, 2018:389): INDIA. “in montibus Peninsulae australioribus”, Wight Cat. 2254 (E [E00174874 digital image!]; Isolecto E [E00174875, E00174876 digital images!]; G [G00017109 digital image!], K [K000830726 digital image!].

Fig. 6e–i

A twiner on moderate sized evergreen elements; older stems woody, glabrous and terete, c.1.5 cm in diameter, young stems twining, terete, violet to green in color, densely appressed strigose. Leaf lamina ovate to widely ovate, 8–12 × 6–9 cm, base cordate, lobes rounded, apex acute to acuminate; secondary veins 9–11 pairs, raised beneath, strigose-hirsute below, strigulose above; petioles 7–14 cm long, shorter than the peduncle, violet in color, hirsute-strigose, terete, dorsally shallowly grooved. Inflorescence axillary compound dichasial cyme, 15–25-flowered; peduncles 13–20 cm long, terete, violet, densely hirsute, longer than the petiole. Bracts 2–3, lanceolate, two long and other small, longer 2–4 × 3–3.5 cm, smaller

1.2–1.5 cm long, hirsute on both sides, pinnately veined, persistent, bract of the flower between fork later enlarges become foliaceous. Flower sub-sessile, pedicel 1–3 mm, shortly enlarges in fruit. Sepals 5, sub-equal, lance-ovate to ovate, 0.7–0.9 cm, apex acute, hairy outer, glabrous inside. Corolla infundibuliform, 4.5–6 cm long and 4.5–5.5 cm across, rose pink in color, hairy on midpetaline bands; corolla lobes obtuse. Stamens 5, unequal, 2 long, 3 short; filaments 0.7–1.3 cm long, white, base dilated, glandular hairy; anthers 4–5 mm, basifixed, pink. Ovary 1–1.2 mm in diam.; style equaling the height of stamens; stigma biglobose, pink. Berries globose, yellow, 1–1.3 cm across. Seeds 2–4, trigonal, brown or white, trigonal, with clearly visible hilum.

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

*Habitat:* It grows in moist evergreen forest borders.

*Distribution:* India (Karnataka, Kerala, Tamil Nadu) and Sri Lanka.

*Etymology:* The specific epithet ‘*hirsuta*’ is cause of massive hirsuteness of plant.

*Specimens examined:* INDIA, **Karnataka**, Belgaum District, Chorla ghat, 19.11.2016, *P.R. Lawand & V.B. Shimpale* 013 (NCK). **Kerala**, Palghat District, Kumattanthodeslopes, 07.10.1979, *N.C. Nair* 64394 (CAL); Quilon District, Near Ranni, 30.08.1977, *N.C. Nair* 50710 (CAL); Quilon District, Pamba to Anathode, 30.09.1976, *K. Vivekanathan* 48357 (CAL); Calicut District, Chedaleth, 18.08.1964, *J.L. Ellis* 20406 (MH [MH00139509]); Kannur District, Cannanore, Manantoddy, 7.08.1979, *V.S. Ramachandran* 62754 (MH [MH00139507]); Quilon, Pamba to Anathode, 30.09.1976, *K. Vivekanathan* 48357 (MH). **Tamil Nadu**, Madurai District, High Wavy mountains, May 1917, *E Blatter* 22333 (BLAT); Coimbatore, Ooty, Lovedale, April 1920, *C. McCann* 50271 (BLAT); Andiparai, Solai, 23.10.1961, *J. Joseph* 13214 (CAL); Chennai, Perumal, 9.08.1913, *Rev. Aug. Sauliers* 988 (CAL); Nilgiri District, Pykara Falls, August

1884, *J.S. Gamble* 15297 (CAL); Nilgiris District, Nilgiris Hills, August 1878, *G. King s.n.* (CAL).

*Vernacular names:* *Sonarin* (Marathi).

*Notes:* This species is similar to *Argyreia coonoorensis* W.W. Sm. & Ramaswami in their leaf shape, the relative length of the petiole and peduncle, flower size, fruit color and size. However, *A. coonoorensis* differs in its indumentum, longer bracts and smaller sepals. Traiperm and Staples (2017) noted that Wight and Arnott first published the name in the *Madras Journal of Literature and Science*. It was subsequently republished in *Pugillus Plantarum* in April 1837 and later that same year in *Nova Acta Physico-Medica....* As per nomenclatural rules, the later-published names are considered isonyms.

**16. *Argyreia hookeri*** C.B. Clarke in Hook.f., Fl. Brit. India 4: 185. 1883. *Rivea hookeri* (C.B. Clarke) Hallier f., Bull. Herb. Boissier 7: 60. 1899. *Argyreia populifolia sensu* Choisy, A.P. de Candolle, Prodr. 9: 329. 1845. *Lectotype:* (designated by Shalini, Lakshminarasimhan & Arisdason, 2017: 174): INDIA. Sikkim Himalaya, alt. 1–4000 ft, s.d., J.D. Hooker s.n. (K0001801783, image!). **Sikkim**, Sikkim Himalaya, 4000 m, s.d., J.D. Hooker (K [K000830585 digital image!]; Isolecto K ([K000830586, K000830588, K001081783, K001081784 digital images!]), P (P00584821, P00584822 digital images!)). **Fig. 6j–m**

A woody climber; older stems woody, glabrous or remotely hairy, younger stems white hairy, green, terete. Leaf lamina widely ovate to orbicular, 10–18 × 8–14 cm, apex abruptly acuminate, base deeply cordate, lobes rounded; secondary veins 9–11 pairs, depressed above, conspicuously raised beneath, sparsely hairy adaxially, densely white sericeous hairy adaxially, hair density more on veins, juvenile folded leaves possess shiny silky hairs; petiole 8–12 cm long, shorter than the peduncle, terete, not grooved, green, white hairy. Inflorescence axillary cyme, dichotomously branched, loosely arranged 6–15 flowered, peduncle white hairy, green, terete, 12–22 cm long, usually longer than the petiole. Flower pedicellate,

bracteate; inflorescence bract (outer bract) leafy, petioled, 3–3.5 cm long, reticulately veined, hairy like leaf, flower bracts 2, 1–1.5 cm, caducous, lance-ovate, oblong-linear, apex acute, white tomentose outer, strigulose inner. Sepals 5, green, subequal, c. 1 cm long, outer two have reclined upper half, apex narrowly acute, glabrous inner, white strigulose outer. Corolla infundibuliform, rose pink colored, 5–6 cm long and same across; tube c. 1 cm wide, dark purple inside, hairy on midpetaline bands; corolla lobes twisted in bud. Stamens 5, inserted to 0.5 cm above the tube, included, raised up to half of corolla tube; filaments white, dilated and glandular hairy at base; anthers 4–5 mm long. Ovary pale green; style white, 2.5–3.5 cm long; stigma biglobose, white. Berries fleshy, yellow.

*Flowering & Fruiting:* Flowering from late August to October and fruiting from November to January.

*Habitat:* This species is found at 3000 to 6000 ft. altitude; plants climbs up to a height of 5 to 7 ft. along the forest roads.

*Distribution:* India (Meghalaya, Mizoram, Sikkim, West Bengal), Nepal, Indonesia, Myanmar and Thailand.

*Etymology:* This species is named after the eminent botanist Sir Joseph Dalton Hooker.

*Specimens examined:* INDIA, **Meghalaya**, Khasi and Jaintia Hills, Mytang Valley, 20.01.1916, *Upendranath Kanjilal* 6567 (ASSAM). **Mizoram**, Dampa Tiger Reserve, Lallen, 12.12.2006, *N. Odyuo* 113629 (ASSAM); Nokrek Biosphere Reserve, Near Sisubibra village, 16.10.2007, *V.K. Singh & Bikram Singh* 116739 (ASSAM); Aizawl, West Phaileng, 8.10. 2018, *P.R. Lawand* 014 (NCK); Aizawl, Aizawl City, 08.10.2018, *P.R. Lawand* 043 (NCK). **Sikkim**, 1895, *G.M. Gammie s.n.* (BSI); East Sikkim, Baghey Khola, 13.11.1998, *S.S. Dash* 20928 (BSHC); South District, Ratey Pani, 11.09.1981, *B. Krishna* 1771 (BSHC); North Sikkim, Right Flank, Dikchu, 13.12.1997, *B.K. Shukla* 20315 (BSHC); West Sikkim, Tashiding, 11.12.1994, *G.P. Sinha &*

*S. Pradhan* 15279 (BSHC); East Sikkim, Saramsa, 23.08.1980, *P.K. Hajra* 593 (BSHC); East Sikkim, Reshi Khola, 10.12.1980, *P. Chakraborty* 1099 (BSHC). **West Bengal**, Kalimpong, 08.08.1997, *P. Sinha & S.S. Dash* 17282 (BSHC); Jalpaiguri District, Poro Buxa Division, 22.11.1975, *J.K. Sikdar* 838 (CAL); Darjeeling, on the way to Bagrakote, 13.10.2018, *P.R. Lawand* 044 (NCK).

*Vernacular names:* *Hooker's Morning Glory* (English), *Suntiki* (Darjeeling), *Tille-kumau-bleng* (Meghalaya).

*Notes:* The species is similar to *Argyreia boseana* Santapau & Patel in having approximately similar climbing height, widely ovate-orbicular cordate leaves, and flower size and shape. However, *A. hookeri* is distinct in having white indumentum all over, lance-ovate, oblong, caducous bracts, apically acute and reclined sepals, and smaller sized berries.

*Clarke* (1883) described *Argyreia hookeri* as distinct from *A. populifolia* sensu Choisy, noting clear differences such as whitish, hairy leaves, a different number of secondary veins, lance-ovate, oblong, caducous bracts, and white, strigose sepals. Although *A. hookeri* has been reported in regional and state floras from Maharashtra and Karnataka, these reports are erroneous. The species is actually restricted to the high-altitude regions of North-East India (Lawand & Shimpale, 2020).

**17. *Argyreia involucrata*** C.B. Clarke in Hook.f., Fl. Brit. India 4(10): 187. 1883. *Lectotype* [designated by Lawand & Shimpale, 2017]: Maharashtra, Bombay, *s.d.*, *N.A. Dalzell* 23 (K [K001081780 digital image!]). **Fig. 7a-d**

A shrubby twiner, grows up to height of 10–20 ft.; older stems semi-woody, terete, younger stems herbaceous, green–purplish tinged, appressed white strigose, twines around a solid support. Leaf lamina ovate to lance-ovate, 10–15 × 4–8 cm in length, base rounded or sometimes cordate, lobes rounded, apex acute, secondary veins 6–8 pairs, bifurcating towards apex, purple in color,

raised beneath, nearly glabrous or very sparsely hairy below; petioles 3–7 cm long, white hairy; Inflorescence a few flowered axillary cymes; peduncles 2–6 cm long, usually equal to or longer than petiole, terete, hairy like stem. Flower sessile, bracteate. Bracts 2, narrowly oblong or lance-ovate, 1–3 cm long, parallel nerved, apex acute, white hairy outer, glabrous inner. Sepals unequal, outer two long 1–1.5 cm long, inner three short 0.7–1 cm long, white hairy outer except on overlapped part, apex acute to narrowly acute. Corolla infundibuliform, 4–6 cm long and 4–6 cm across, pilose on midpetaline band; corolla lobes apiculate; tube dark purple in color. Stamens 5, unequal in length; filaments white 3–3.5 cm long, dilated and glandular hairy at base; anthers pale pink. Ovary off white; stigma biglobose, white. Berries 1–1.5 cm across, yellow.

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

*Habitat:* Found in the semi-evergreen to evergreen forests.

*Distribution:* India (Karnataka, Maharashtra and Tamil Nadu); endemic to peninsular India. As observed during herbarium consultation of present work, the occurrence of species from Andhra Pradesh, Bihar and Chhattisgarh is uncertain, as it is often confused with *Argyreia daltonii* C.B. Clarke.

*Etymology:* The specific epithet '*involucrata*' refers to the involucre inflorescence.

*Specimens examined:* INDIA, **Andhra Pradesh**, Srikakulam District, Palkonda Hills, *s.d.*, *V. Narayanswami* 163 (CAL). **Bihar**, Champaran District, Bhainsalaton, 18.09.1965, *S.P. Banerjee* 632 (CAL); Champaran District, Govardha Forest, 14.11.1963, *Br. Shetty* 278 (CAL). **Chhattisgarh**, Bastar District, Jagdalpur, Kurandi, October 2007, *A.N. Singh* 72435 (BSA). **Goa**, South Goa, Marmagao, October 1892, *F. Santapau* 22738 (BLAT); Mollem National Park, Molem-Surla

Road, 07.02.2002, *Mandar Datar* 186216 (BSI); Choramdeu, 26.09.1970, *N.P. Singh* 186216 (BSI); South Goa District, Butpal, 10.10.1964, *R.S. Raghavan* 103475 (BSI); North Goa District, Betim Hills, 11.11.1963, *S.R. Rolla* 92960 (BSI); South Goa District, Marmagao, *s.d.*, *T. Cooke s.n.* (BSI). **Karnataka**, North Kannada, Karwar, October 1999, *Hallberg & McCann* 34818 (BLAT); North Kannada, Karwar, 29.07.1956, *Z.J. Kapadia* 2151 (BLAT); Bagalkot District, Yadahalli, 04.09.1978, *R.K. Kochhar* 152579 (BSI); Mookambika WLS, Mavinkatte Forest, 14.10.2008, *P. Diwakar & R.K. Singh* 129297 (BSI); Shimoga District, Hulical Ghat, 16.10.1964, *R.S. Raghavan* 90462 (BSI); North Kannada District, Castle Rock, 29.10.1902, *G.A. Gammie* 15773 (BSI); Shimoga District, near Tirthahalli, 26.10.2018, *P.R. Lawand* 046 (NCK). **Maharashtra**, Pune District, Near Wad, October 1891, *T. Cooke s.n.* (BSI); Sindhudurg District, Kudal, 20.11.1965, *B.G. Kulkarni* 107646 (BSI); Raigad District, Raigad Fort, 19.02.1955, *V.D. Vartak* 463 (AHMA); Kolhapur District, Ajara, Pargad, 31.12.2017, *P.R. Lawand* 015 (NCK), Kolhapur District, on the way to Patgaon, September 2016, *P.R. Lawand* 045 (NCK). **Tamil Nadu**, Madras, Travancore, September 1884, *J.S. Gamble* 14800 (CAL).

*Conservation status:* The populations are fragmented and area of occupancy (AOO) is less than 2000 km<sup>2</sup>. The number of mature individuals within localities are fluctuating and are observed less than 250. Hence the IUCN category Vulnerable (VU, B2c and C2ai) can be assigned to the taxon (IUCN, 2024).

*Notes:* The species is closely similar to *Argyreia boseana* Santapau & Patel in its bract and flower shape. However, it differs from the former in its growing habit (a moderate height twiner), narrow ovate leaves, white indumentum on the leaves, shorter peduncle relative to petiole and fewer flowers in the inflorescence.

**18. *Argyreia kleiniana*** (Roem. & Schult.) Raizada, *Indian Forester* 92: 302. 1966. *Ipomoea*

*kleiniana* Roem. & Schult., *Syst. Veg.* ed. 15 [bis]. 4: 789. 1819. *Ttype*: "India orientali", anno 1802, *Klein* 561 (B-W [B-W 03757010 digital image!]).

*Argyreia populifolia* Choisy, *Mem. Soc. Phys. Geneve* 6: 414. 1834. *nom. illeg.*

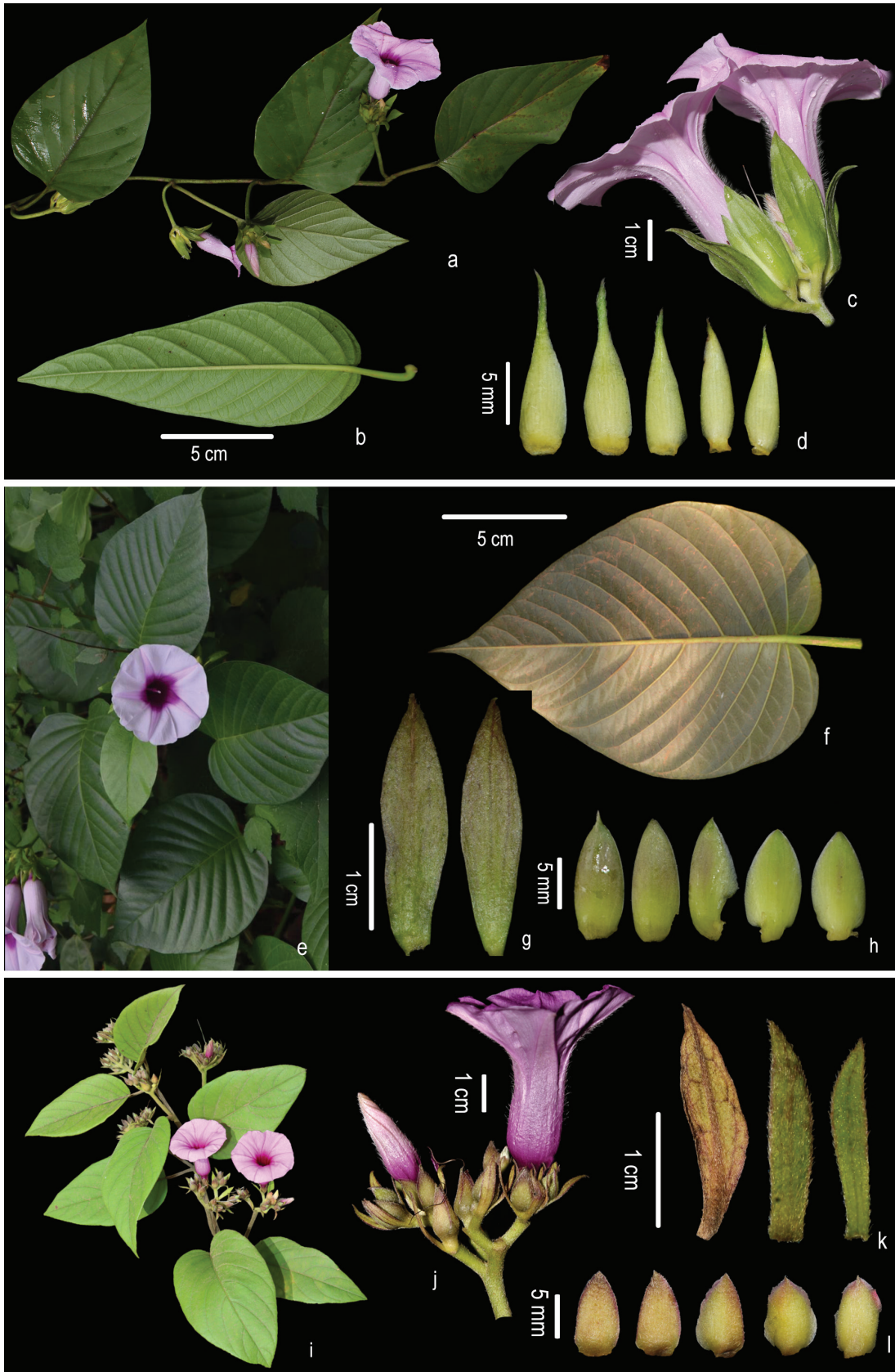
*Argyreia populifolia* Choisy var. *fastigata* C.B. Clarke in *Hook.f., Fl. Brit. India* 4: 187. 1883. **Fig. 7e-h**

A moderate height climber; older stems semiwoody, terete, younger stem glabrous, shiny, dark green. Leaf lamina ovate, 12–17 × 6–10 cm, apex cuspidate or acuminate, base shallowly cordate sometimes rounded, secondary veins 11–13 pairs, conspicuously raised beneath, glabrous above, sparsely hairy below, hairs density more on veins of juvenile leaves; petiole 8–14 cm long, usually longer than the peduncle, adaxially grooved, green, sparsely strigose. Inflorescence axillary cyme, 5–7-flowered; peduncles terete, 5–15 cm long, usually shorter than the petiole, green. Flowers sub-sessile, bracteate; bracts 2, lance-ovate, 2.5–3 cm long, apex acute, sparsely hairy outer, glabrous inner, single veined. Sepals 5, sub-equal, persistent, green, 1.5–2.0 × 1.0–1.3 cm long, apex cuspidate or acute, glabrous inner, sparsely hairy outer. Corolla infundibuliform, pink colored, 5–7 cm long, 5–7 cm across, corolla throat purple inside, *c.* 1 cm wide, sparsely hairy on midpetaline bands; lobes twisted in bud. Stamens 5, included in the corolla tube, unequal, 3 short, *c.* 3 cm long, 2 long *c.* 3.5–4 cm long; filaments white, dilated and glandular hairy at base; anthers 4–5 mm long. Ovary pale green in color, encircled with an annular disc; style 1, white; stigma biglobose, white. Berries yellow, fleshy, 2–4 seeded, *c.* 1 cm in diam.

*Flowering & Fruiting:* Flowering from July to September and fruiting from October to December.

*Distribution:* India (Karnataka, Kerala, Tamil Nadu) and Sri Lanka.

*Etymology:* The species is named after its collector Jacob Klein, one of the first missionaries came



**Fig. 7.** *Argyreia involuclarata* C.B. Clarke (a-d): **a.** Flowering twig; **b.** Leaf abaxial surface; **c.** Inflorescence; **d.** Sepals. *Argyreia kleiniana* (Roem. & Schult.) Raizada (e-h): **e.** Flowering twig; **f.** Leaf abaxial surface; **g.** Bracts; **h.** Sepals. *Argyreia lawii* C.B. Clarke (i-l): **i.** Flowering twig; **j.** Inflorescence; **k.** Bracts; **l.** Sepals.

to India.

*Habitat:* It's a climber in secondary forests, and or along the ghat roads.

*Specimens examined:* INDIA. **Karnataka,** Kolar, Kendatti hills, 10.07.1979, P. Prakash 8255 (CAL); Shimoga District, Agumbe, 24.10.2018, P.R. Lawand 016 (NCK). **Kerala,** Cannanore District, Kannothe R.F., 11.12.1979, V.S. Ramachandran 64098 (CAL); Idukki District, Kattapanna, Kalamavu, 11.11.1981, B. Ramanujan 72443 (CAL); Idukki District, Valara Waterfalls, Sholaiyar, 24.09.1981, B. Ramanujan 71945 (CAL); Trivandrum District, Karamanayar, 28.08.1990, N. Mohanan 1003 (CALI); Wynad District, Tirunelly temple surroundings, 24.07.1984, R.T. Balakrishnan 40309 (CALI); Trivandrum District, Amburi, 20.08.1997, N. Mohanan 11582, 9373 (TBGT); Trivandrum District, Anadu, 04.04.2007, V.S. Usha 50429, 28255 (TBGT); Trivandrum District, TBGRI garden site, 29.09.1984, N. Mohanan 1180, 01928 (TBGT); Idukki District, Moorikandan Chal, 17.12.1988, P. Bhargavan 89973 (MH [MH00139643]); Idukki District, Kulamavu, 24.09.1981, B. Ramanujan 71945 (MH [MH00139699]); Idukki District, Valara water falls, 24.09.1982, R. Rajan 74789 (MH [MH00139698]); Palghat District, Attapadi Forest, 19.07.1969, E. Vajravelu 32189 (MH [MH00139477]); Idukki District, Valara Waterfalls, 24.09.1982, K. Ramamoorthy 74789 (MH); Thanjavur, Thiruvavur Road, 17.09.1977, R. Ramamoorthy 51302 (MH). **Tamil Nadu:** Thiruvarur District, Thiruvarur road, 17.09.1977, K. Ramamurthy 21302 (CAL); Tirunelveli District, Kannikatti, 06.08.1989, N. Mohanan 7644, 15428 (TBGT).

*Notes:* The species shares affinities with *A. boseana* in its cordate leaf shape, shape of bracts and size, shape of flower. However, it differs in having more numbers of secondary veins, sub-equal apiculate or acute apex sepals and lance-ovate bracts. The species is similar to *A. involucrata*

in terms of its bracts shape but differs in its climbing habit, a higher number of flowers per inflorescence, and widely ovate cordate leaves.

Choisy (1834) published a name *Argyreia populifolia*, treating the older name *Ipomoea kleiniana* Rome. & Schult. as a synonym. Therefore, Choisy's name becomes illegitimate. Raizada (1966) transferred *I. kleiniana* to *Argyreia*, making a valid combination.

**19. *Argyreia kondaparthiensis*** P.Daniel & Vajr., J. Econ. Taxon. Bot. 3: 675. 1982. *Batatas choisyana* Wight, Icon. Pl. Ind. Orient. 2: t. 491. 1841. *Argyreia choisyana* (Wight) Wight ex C.B. Clarke, Hook. f., Fl. Brit. India 4: 190. 1883, *nom. illeg. Type:* INDIA, [Andhra Pradesh]. "Balaghaut Hills near Madras", Herb. R. Wight s.n. (holo K [K000830718 digital image!]).

*Argyreia choisyana* Wight var. *wightii* C.B. Clarke in Hook. f., Fl. Brit. India 4: 190. 1883. *Argyreia kondaparthiensis* P.Daniel & Vajr., var. *wightii* (C.B. Clarke) Parmar in J. Econ. Taxon. Bot. 18: 251. 1994. *Type:* INDIA, Andhra Pradesh, At the foot hills of Conda Party [Kondaparthi], s.d., R. Wight s.n. (K [K000830720 digital image!]). **Fig. 8.**

A moderate height twiner or a prostrate shrub; older stems semiwoody, 0.7–1 cm in diam., herbaceous towards the tip, white appressed strigose, green, terete. Leaf lamina, lanceolate or lance-ovate, 5–8 × 1.5–3.5 cm, apex round or acute, base rounded or obtuse, densely white strigose abaxially, sparsely strigose adaxially, secondary veins 6–7 pairs, conspicuous abaxially; petiole 1–2 cm long, dorsally grooved, shorter than the peduncle, white appressed strigose. Inflorescence axillary 1–3-flowered cyme; peduncles 3–5 cm long, usually longer than the petiole. Flower bracteate, pedicellate; pedicels 3–4 mm long, hairy like stem. Bracts–2, narrowly oblong, lanceolate, 1–2 × 0.2–0.4 cm, apex acute, white strigose outer, sparsely strigose inner. Sepals 5, free, linear, sub equal, 1–1.5 cm long, apex acute, persistent, white appressed strigose except on overlapped portions, glabrous inner. Corolla infundibuliform, 5–5.5



cm long, 4.5–5.5 cm across, rose colored with purple throat, throat c. 1 cm wide, hairy outer on midpetaline bands, narrowed corolla tube base enveloped by calyx. Stamens 5, inserted c. 1 cm above on corolla tube, unequal, 3 short, 2 long; anthers 3–4 mm long, basifixed, arrow headed; filaments base dilated, glandular hairy. Ovary pale green, 4 celled; style c. 3 cm long, white; stigma biglobose, papillose. Berries with style base remnant, 2–4-seeded; seeds dull black, 7–9 mm, trigonal with visible hilum.

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

**Habit:** The plants found rooted under shrubs and trees, with branches extending outward to access light for flowering. They are primarily twiners, though they occasionally grow prostrate.



**Fig. 8.** Type of *Argyreia kondaparthensis* P. Daniel & Vajr. [© The Board of Trustees of the Royal Botanic Gardens, Kew. Reproduced with the consent of the Royal Botanic Gardens, Kew].

**Distribution:** India (Andhra Pradesh, Kerala, Tamil Nadu); Endemic to peninsular India.

**Etymology:** The specific epithet '*kondaparthiensis*' of this replacement name, is named after its type collection locality, Kondaparthi Hills, Andhra Pradesh.

**Conservation Status:** Data Deficient (DD). No collection is available except type material.

**Notes:** *Batatas choisyana* (1841) of Wight was transferred to *Argyreia*, creating the combination *Argyreia choisyana* Wight ex C.B. Clarke (Fl. Brit. India 4: 190, 1883). However, this resulted in a later homonym of *Argyreia choisyana* Regel & Körn. (Index Seminum [St. Petersburg (Petropolitanus)] 40, 1858). A replacement name, *Argyreia kondaparthiensis*, was proposed by Daniel and Vajravelu (1982) as the valid name for this taxon.

*Argyreia kondaparthiensis* is closely allied to *A. pilosa*, sharing similarities in its prostrate or twining habit, ovate leaf shape, and yellow-colored berries. However, *A. kondaparthiensis* differs by possessing white indumentum on the abaxial leaf surface, 1–3 flowers per inflorescence, a shorter inflorescence, and lanceolate bracts.

**20. *Argyreia lawii*** C.B. Clarke in Hook.f., Fl. Brit. India 4: 190. 1883. *Lectotype* (designated by Lawand & Shimpale, 2017): INDIA, **Karnataka**, Bababoodan Hills, *s.d.*, J. Law 28 (K [K000830722 digital image!]); Isolecto K [K000830721 digital image!], GH [GH00135003 digital image!], P [P00584825 digital image!].

**Fig. 7i–l**

A semi-woody moderate height climber or sometimes prostrate shrub; older stems semi-woody, young purple, strigose-villous, hairy, terete. Leaf lamina 7–11 × 3–6 cm, base cordate, apex acute, strigose on both the surfaces, secondary veins 6–7 pairs, conspicuous below; petiole 2–4 cm long, dorsally grooved, purple in color, strigose-villous. Inflorescence a compact 4–9-flowered cyme; peduncle 6–12 cm long, longer than the petiole, purple colored, terete, strigose-villous. Flowers sub sessile, bracteate. Bracts 2, linear-

lanceolate, 1–2 cm long, apex acute, bract of flower in fork larger, lance-ovate, prominent midvein, persistent, green, purple at margin, white hairy on both the sides. Sepals ovate, subequal, 0.7–1.0 cm long, apex acute, inner three wider than the outer two, strigose outer, glabrous inside, outer sepal purple margined, inner hyaline on margins. Corolla funnel form, 4–5 cm long, 4–5 cm wide, pink-purple, throat purple c. 1 cm wide, hairy outer on midpetaline bands, corolla lobes twisted in bud and shortly apiculate in flower. Stamens 5, inserted in corolla tube, unequal in length, 2.5–3.5 cm long; filaments pink, dilated and glandular hairy at base; anthers pale pink. Ovary few 1–2 mm in diam.; style 1; stigma biglobose, pink. Berries c. 1 cm across, yellow.

**Flowering & Fruiting:** Flowering from late July to September and fruiting from October to December.

**Habitat:** The populations of the species are frequent along the roads at altitude of 700–800 m. If no support to twin it grows prostrate and if gets support plants climbs up to height of 20 ft.

**Distribution:** India (Karnataka and Maharashtra); Endemic to peninsular India.

**Etymology:** The species is named after the collector J.S. Law.

**Specimens examined:** INDIA, **Karnataka**, Chickmagalur District, Bababoodhan Hills, base of the hills, 19.01.2018, *P.R. Lawand* 50 (NCK). **Maharashtra**, Kolhapur District, Bhudargad, 700 m, 11.09.2017, *P.R. Lawand & Shimpale* 11 (NCK); Kolhapur District, on the way to Patgaon, October 2017, *P.R. Lawand* 051 (NCK).

**Conservation status:** The species has been collected from two locations, one in Karnataka and another in Maharashtra. At the latter location, specifically at Bhudargad Fort and Patgaon in Kolhapur district, we observed 4–6 mature individuals, with very low fruit setting in the species. The plant is relatively frequent at Bababudhan Hills, Karnataka, but the total area of occurrence is unlikely to

exceed 10 km<sup>2</sup>. Road clearing, widening, and land conversion for coffee plantations are potential threats contributing to habitat destruction and posing risks to the species' survival. Based on IUCN Red List criteria (IUCN, 2024), we propose the conservation status of Endangered (EN B1ab and C2a(i)) for this taxon.

**Notes:** The species is similar to *Argyreia elliptica* in leaf shape, indumentum, and flower shape but is clearly distinct in its habit, bract size and shape, and inflorescence architecture. Both *A. elliptica* and *A. lawii* were found growing sympatrically but occupy distinct ecological niches.

**21. *Argyreia mastersii*** (Prain) Raizada, Indian Forester 93: 754. 1967. *Lettsomia mastersii* Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 63: 98. 1894. *Lectotype* (designated by Shalini *et al.*, 2017: 173): INDIA, **Assam**, Naga Hills, *s.d.*, *Masters* 255 (CAL [CAL0000018546!]; Isolecto CAL [CAL0000018544!, CAL0000018541!, CAL0000018542!, CAL0000018543!, CAL0000025898!, CAL0000025899!]; K [K000197305 digital image!], P [P00584827 digital image!]; K [K000197304 digital image!]),

**Fig. 9a–e**

Semi-woody perennial climber; older stems woody, glabrous while the younger stem brown rusty hirsute, terete. Leaf lamina ovate to widely ovate, 9–19 × 8–15 cm, base truncate to shallowly cordate, apex acute, secondary veins 8–10 pairs raised beneath, hirsute above, brown sericeous below; petiole hirsute as stem, 7–12 cm long, longer than the peduncle. Inflorescence axillary, dichotomous cyme, 9–15-flowered; peduncle brown rusty hirsute, 1.5–3 cm long, shorter than the petiole. Flowers subsessile; pedicel c. 5 mm long, bracteate; bracts 2, unequal, persistent, one large, 2.5–3.0 cm, second c. 2.5 cm, green, hirsute outer, glabrous inner, linear. Sepals 5, unequal, hairy outer, glabrous inside, outer two large, 1.0–1.3 cm long, ovate, apex acuminate, inner three small, 0.6–1 cm long, ovate, apex acute, hairy except on overlapped parts. Corolla campanulate, 3–4.5 cm long, c. 3 cm across, throat c. 1.5 cm wide, white inside and outer, limbs purple, hairy on midpetaline bands. Stamens

5, up to middle of corolla throat, equal 1.2–1.4 cm long; filaments white, dilated and glandular hairy at base; anthers 4–5 mm long, off white. Ovary glabrous, white in color; style single, equalling stamen height; stigma biglobose, white, papillate. Berries globose, 0.7–1 cm across, dark red–purple enclosed with persistent calyx, 2–4-seeded; seeds trigonous, brown in color.

*Flowering & Fruiting:* Flowering from September to October and fruiting from late October to December.

*Habitat:* Grows on trees along evergreen forest outskirts.

*Etymology:* The species is named after its field collector Mr. Masters.

*Distribution:* India (Mizoram), China, Myanmar and Thailand.

*Specimens examined:* INDIA, **Mizoram**, Mamit District, West Phaileng, Dampa Tiger Reserve, 30.10.2007, *B.K. Sinha* 117224 (ASSAM) [filed as *Argyreia roxburghii*]; Mamit District, Teirei, 09.10.2018, *P.R. Lawand* 017 (NCK); Aizawl, West Phaileng, Damparengpui, November 2017, *P.R. Lawand* 052 (NCK).

*Notes:* The species shares morphological similarities with the Thai species, *Argyreia ionantha* (Kerr) Khunwasi & Traiperm in leaf size, shape and general bract shape. However, it significantly differs in having linear bracts, acuminate subequal sepals, campanulate purple-white corolla, and stamens of equal length.

**22. *Argyreia mollis*** (Burm.f.) Choisy, Mem. Soc. Phys. Geneve 6: 421. 1834. *Convolvulus mollis* Burm.f., Fl. Indica t. 17. 44. 1768. *Lectotype* (designated by Staples & Jacquemoud, 2005): (INDONESIA, Java, anno 1760, *Kleinhof* [Kleinhoff] s.n. (G-PREL; possible isolecto C [C10009595 digital image!]).

*Convolvulus sericeus* L., Mant. Pl. 1: 43. 1767. *Ipomoea sericea* (L.) Blume, Bijdr. Fl. Ned. Ind. 720: 1826. *Lectotype:* “India”, [illustration] “CONVOLVULUS

*mollis*” in Burman, Fl. Indica: t. 17. 1768.

*Rivea obtecta* Choisy, Mem. Soc. Phys. Geneve 6: 410. 1834. *Argyreia obtecta* (Choisy) C.B. Clarke, Hook.f. Fl. Brit. India 4: 186. 1883. *Type:* Myanmar. Tavoy, Wallich Cat. 1416/2 (G-DC [G00134864 digital image!]).

*Argyreia championii* Benth., Fl. Hongk. 236. 1861. *Lettsomia championii* (Benth.) Benth. & Hook.f ex B.D. Jacks, Index Kew 1: 183. 1893. *Type:* CHINA, Hong Kong, “Little Hong Kong”, Wilford 202 (K [K000830594, K000830595 digital images!]); ravines of Mt. Victoria, *Champion* 145 (K [K000830597 digital image!]); Hong Kong, October 1853, *Hance* 265 (BM [BM000847725 digital image!]).

*Argyreia obtecta* C.B. Clarke var. *obtusifolia* C.B. Clarke in Hook.f., Brit. India 4: 186. 1883. *Argyreia championii* Benth. var. *obtusifolia* (C.B. Clarke) Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 63: 90. 1894. *Type:* MYANMAR, Tavoy, s.d., Griffith s.n. (holo K [K000857259 digital image!]).

*Argyreia obtecta* C.B. Clarke var. *acutifolia* Gagnep. in Lecomte, FL. Indo-Chine 4: 276. 1915. *Syntypes:* LAOS, Bassac, s.d., *Thorel* 2376 (P [P03560852 digital image!]; iso E [E00616984 image!], SING [SING0127711!]). Vietnam, Cochinchine, Pierre s.n. (P); Thailand. Chiang Mai, Kerr s.n. (P). **Fig. 9f-i**

A woody climber grows up to height of 20–25 ft height; stems woody towards the base, herbaceous towards apex, white appressed shiny tomentose. Leaf lamina narrowly elliptic, 6–12 × 1.5–4, base cuneate, apex acute to narrowly acute, secondary veins 10–12 pairs, raised prominently abaxially, white shiny sericeous beneath, strigose adaxially; petiole 2–6 cm long, white sericeous, dorsally grooved. Inflorescence axillary 2–5-flowered cymes; peduncle 1–5 cm long, white sericeous, usually shorter than the petiole, flower bracteate, pedicellate; pedicels 5–8 mm, white sericeous like stem; bracts lance-ovate, 2, 8–10 × 4–5 mm, white shiny tomentose outer, glabrous inner. Sepals 5, ovate, 7–10 mm long, outer two wider than inner

three, apex obtuse, enlarges in fruiting, turns red inside in fruiting, densely brown hispid hairy outer, glabrous inner. Corolla infundibuliform, 5–6 cm long, 3–4 cm across, base narrow, pink colored, throat purple, densely brown hairy on midpetaline bands, corolla limb undulate. Stamens 5, included within corolla tube; unequal; filaments glandular hairy at base. Ovary glabrous, 2–4 celled; style filiform; stigma biglobose, white, papillose. Berries red, 7–8 mm across, 2–4-seeded; seeds black.

*Flowering & Fruiting:* Flowering from July to September and fruiting from October to December.

*Habitat:* Occurs in the evergreen forests of Andaman Islands.

*Distribution:* India (Andaman Islands), China, Indonesia, Laos, Malaysia, Myanmar and Thailand.

*Etymology:* The specific epithet '*mollis*' means 'soft' in latin, refers to soft silvery tomentum.

*Specimens examined:* INDIA, **Andaman & Nicobar Islands**, North Andaman, Saddle Peak, 1.12.1976, N.P. Balakrishnan & N.G. Nair 4751 (PBL); South Andaman, Guptapara tidal forests, 20.11.1973, N.P. Balakrishnan 607 (PBL).

*Notes:* *Argyreia mollis* is closely allied to *A. osyrensis* (Roth. ex Roem. & Schult.) Choisy in having white tomentose lower surface of leaves, ovate sepals which turns red inside in fruiting and red colored berries. However, it differs in having narrowly elliptic leaves, included stamens and pistil.

**23. *Argyreia nellygherya*** Choisy, Mem. Soc. Phys. Geneve 6: 414. 1834. *Type:* INDIA, Karnataka, "ad montes Nellygerry" [Nilgiri hills] Leschenault 164 (holo P [P00584828 image!]).

*Argyreia leschenaultii* Choisy, Mem. Soc. Phys. Geneve 6: 413. 1834. **syn. nov.** *Lectotype* (designated here): INDIA, Karnataka, Mysore, "au bas de Mts. d'Nellygerry" [Nilgiri hills], 1823, Leschenault 136 (G-DC [G00134795 digital

image!]); Isolecto G-DC [G00134878, G00134795, G00134878 digital images!]; P [P00584826 digital image!]).

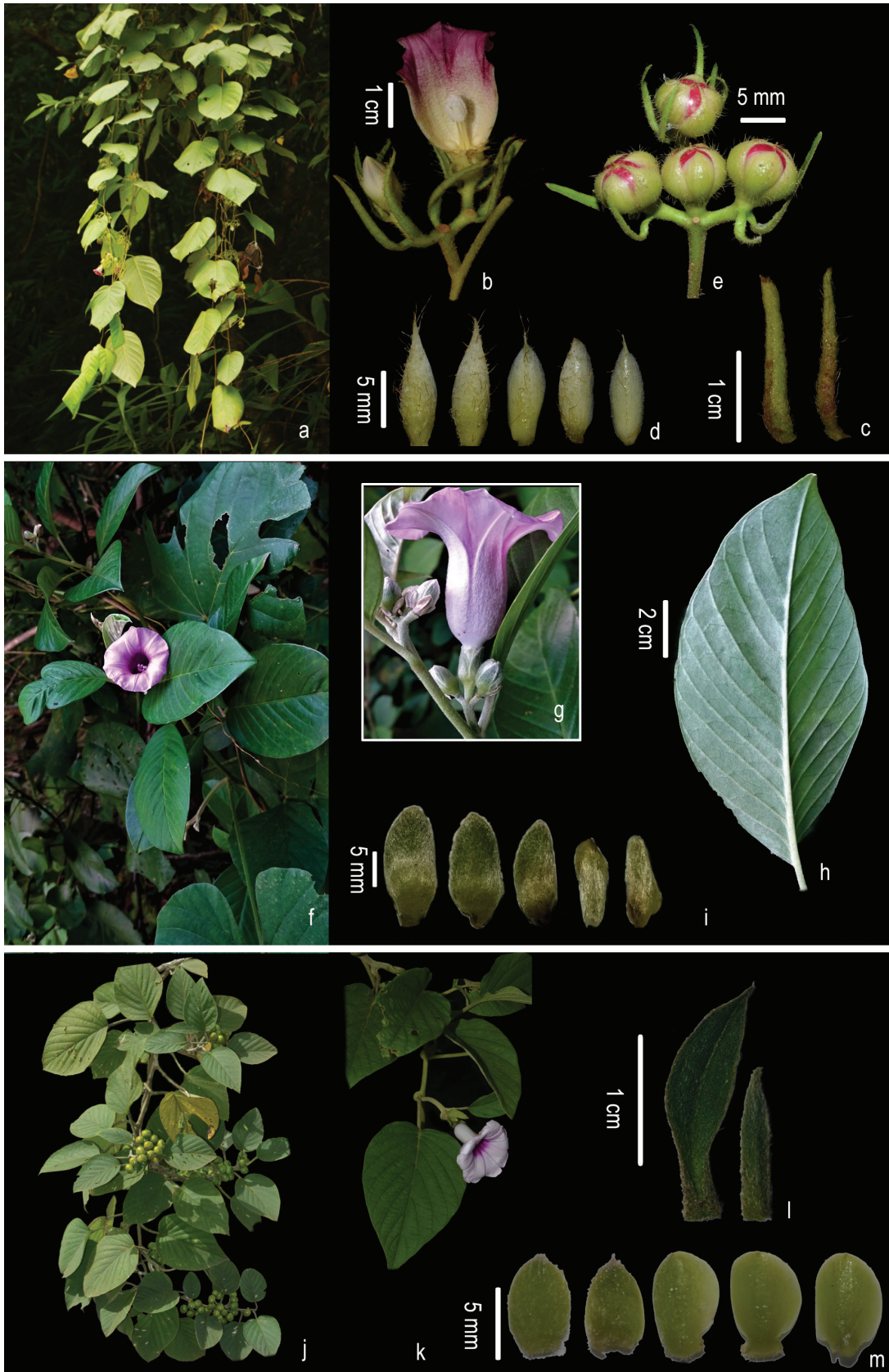
*Argyreia courtallensis* Wight ex Choisy in DC., Prodr. 9: 329. 1845. *invalid, pro syn.* **Fig. 9j–m**

A climber; older stem semi-woody, c. 1 cm in girth, young stem white or brown tomentose, green, terete. Leaf lamina ovate–widely ovate, 10–17 × 8–12 cm, basally shallowly cordate, apex acute or shortly acuminate, strigose above, white appressed tomentose below, secondary veins 7–9 pairs, raised prominently below; petiole 5–10 cm long, terete. Inflorescence a dichotomously branched axillary cyme, 12–16-flowered, flowers loosely arranged; peduncle shorter than the petiole 4–8 cm long, white tomentose, terete. Bracts 2–3, inflorescence bracts leafy, 3–5 cm long, petiolate, floral bracts 2, outer c. 2 cm long, lance-ovate, hairy like leaf, single veined, inner bract 1–1.5 cm long, oblong, white tomentose outside, strigose inside, persistent. Sepals 5, sub equal, c. 1 cm long, outer two narrow than inner, inner orbicular, white strigose outer, glabrous inner, persistent, enlarges in fruit. Corolla infundibuliform, rose colored outer, purple inner, hairy on midpetaline bands, corolla limb shallowly lobed. Stamens 5, unequal, 2 long c. 2.5 cm long, 3 short, 1.5–2.0 cm long; filaments white, base purple, dilated and glandular hairy at base; anther, pale pink, 4–5 mm. Ovary pale green, conical; style 1, white, c. 3 cm long; stigma biglobose, white. Young berries green, topped by remnant of style base, ripen yellow, fleshy, 1–1.5 cm across; seeds 2–4, trigonal, 5–7 mm long, white.

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

*Habitat:* Populations of this species are found in cool climate in evergreen or in shola forest at an altitude of 1000–1400 m.

*Etymology:* The species is named after type locality, Nilgiris in the southern Western Ghats.



**Fig. 9.** *Argyreia mastersii* (Prain) Raizada (a-e): **a.** Habit; **b.** A cut flower with stamens and stigma; **c.** Bracts; **d.** Sepals; **e.** Infructescence. *Argyreia mollis* (Burm.f.) Choisy (f-i): **f.** Habit; **g.** Inflorescence; **h.** Leaf abaxial surface; **i.** Sepals. *Argyreia nellygherya* Choisy (j-m): **j.** Fruiting twig; **k.** Flowering twig; **l.** Bracts; **m.** Sepals.

*Distribution:* India (Kerala and Tamil Nadu); Endemic to Peninsular India.

*Specimens examined:* INDIA, **Kerala**, Thiruvananthapuram District, Bonaccord, December 2016, *P.R. Lawand* 018 (NCK); Thiruvananthapuram District, Ponmudi, 21.11.2017, *P.R. Lawand* 053 (NCK); Thiruvananthapuram District, Palode, Madathara, November 2017, *P.R. Lawand* 054 (NCK). **Tamil Nadu**, Nilgiri District, Carrington to Kinnakorai, 16.06.1970, *B.V. Shetty* 34265 (MH); Nilgiris District, On the way to Ebanad, 25.07.1972, *G.V. Subbarao* 41523 (MH); Nilgiris District, On the way to Aravancadu, 29.07.1957, *K.M. Sebastine* 4085 (MH); Nilgiris District, Devarshola, On the way to Naduvattam, 22.07.1960, *K. Subramanyam* 10533 (MH); Nilgiris District, Coonoor, 25.02.1893, *J.S. Gamble s.n.* (MH [MH00139549]); Nilgiris District, Gudalur Ghat, *s.d.*, *G. Bidie* 1873 (MH [MH [MH00139545]]); Nilgiris District, Kateri-Kundah Road, 1.08.1972, 1450 m, *E. Vajravelu* 41894 (MH [MH00139648]); Nilgiris District, Kengarai R.F., 16.11.1970, 1825 m, *E. Vajravelu* 36969 (MH [MH00139646]).

*Conservation status:* The species is known from several localities from Kerala and Tamil Nadu. The total subpopulations observed are five and mature individuals at each population were less than 1000 and fluctuating. Further, Area of occupancy (AOO) of this species will not exceed 2000 km<sup>2</sup>. The IUCN Red List category, Vulnerable (VU, B2b and C2ai) can be assigned to the species (IUCN, 2024).

*Notes:* The species is closely related to *Argyreia zeylanica* (Gaertn.) Voigt. in having white tomentose lower surface of leaves, shape of inner bracts, sepals shape, fruit color but differs in possessing cordate leaves, higher number of flowers in inflorescence and large fruits.

In addition to *A. nellygherya*, Choisy (1845) described one more species, *A. leschenaultii* Choisy from the Nilgiris, based on collections *Leschenault*. Choisy treated two collections as two

separate species viz. *Argyreia nellygherya* and *A. leschenaultii*. On careful scrutiny of type specimens, it is revealed that two species are nothing but same. Hence, *A. leschenaultii* is treated here as a taxonomic synonym.

**24. *Argyreia nervosa*** (Burm.f.) Bojer, Hortus Maurit. 224. 1837. *Convolvulus nervosus* Burm.f., Fl. Indica t. 20. 48. 1768. *Lettsomia nervosa* (Burm.f.) Roxb., Fl. Ind. 2: 78. 1824. *Rivea nervosa* (Burm.f.) Hallier f., Bull. Herb. Boissier 5: 381. 1897. *Lectotype* (designated by Staples & Jacquemoud, 2005): INDIA, Coromandel, *Outgaerden [Van Outgaerden] s.n.* (G-PREL G00816025 digital image!).

*Convolvulus speciosus* L.f., Suppl. Pl.: 137. 1782. *Ipomoea speciosa* (L.f.) Pers., Syn. Pl. 1: 183. 1805. *Argyreia speciosa* (L.f.) Sweet, Hort. Brit. 289: 1826. *Samudra speciosa* (L.f.) Raf., Fl. Tellur. 4: 72. 1838. *Type:* [cultivated] "Hort. Ups. e sem. Brasilienss" anno 1778, *Convolvulus* 218.23 (LINN). **Fig. 10a-e**

Perennial, laticiferous, semi-woody climber; stems twining, old stems warty, 1–1.5 cm in diam., exudes milky latex, whitish tomentose, young stem herbaceous towards apex. Leaf lamina ovate to widely ovate, 15–25 × 15–20 cm, base cordate, apex acute, upper surface glabrous, lower surface shining white tomentose, secondary veins 20–22 pairs, prominently raised beneath; petiole 10–15 cm long, terete, white tomentose as stem. Inflorescence sub-capitate cymes, 6–9-flowered; peduncle white tomentose, 20–25 cm long, terete, longer than the petiole. Flower bracteate, subsessile. Bract 3, variously twisted, 2–3 cm long, white in color, caducous, reticulately veined. Sepals 5, 1–1.5 cm; outer two widely ovate; inner three ovate, white tomentose outside, glabrous inside, inner sepals glabrous on overlapped area, sepals enlarge and become leathery in fruiting. Corolla campanulate, whitish hairy outer, pink inside; throat purple, 4–5 cm long, 4–5 cm as wide, throat 1–1.2 cm wide. Stamens 5, unequal, 2–2.5 cm long; filaments white, base spreading, glandular hairy; anthers 3–4 mm long, white.

Ovary glabrous 2–4 locular; stigma biglobose white; style–1, white. Berries brown, dry, 1–2 cm diam.

*Flowering & Fruiting*: Flowering from July to December and fruiting from October to March.

*Habitat*: This species grows naturally and also cultivated in gardens throughout India.

*Distribution*: India, Sri Lanka, Australia, Thailand, Myanmar and cultivated throughout Asian countries.

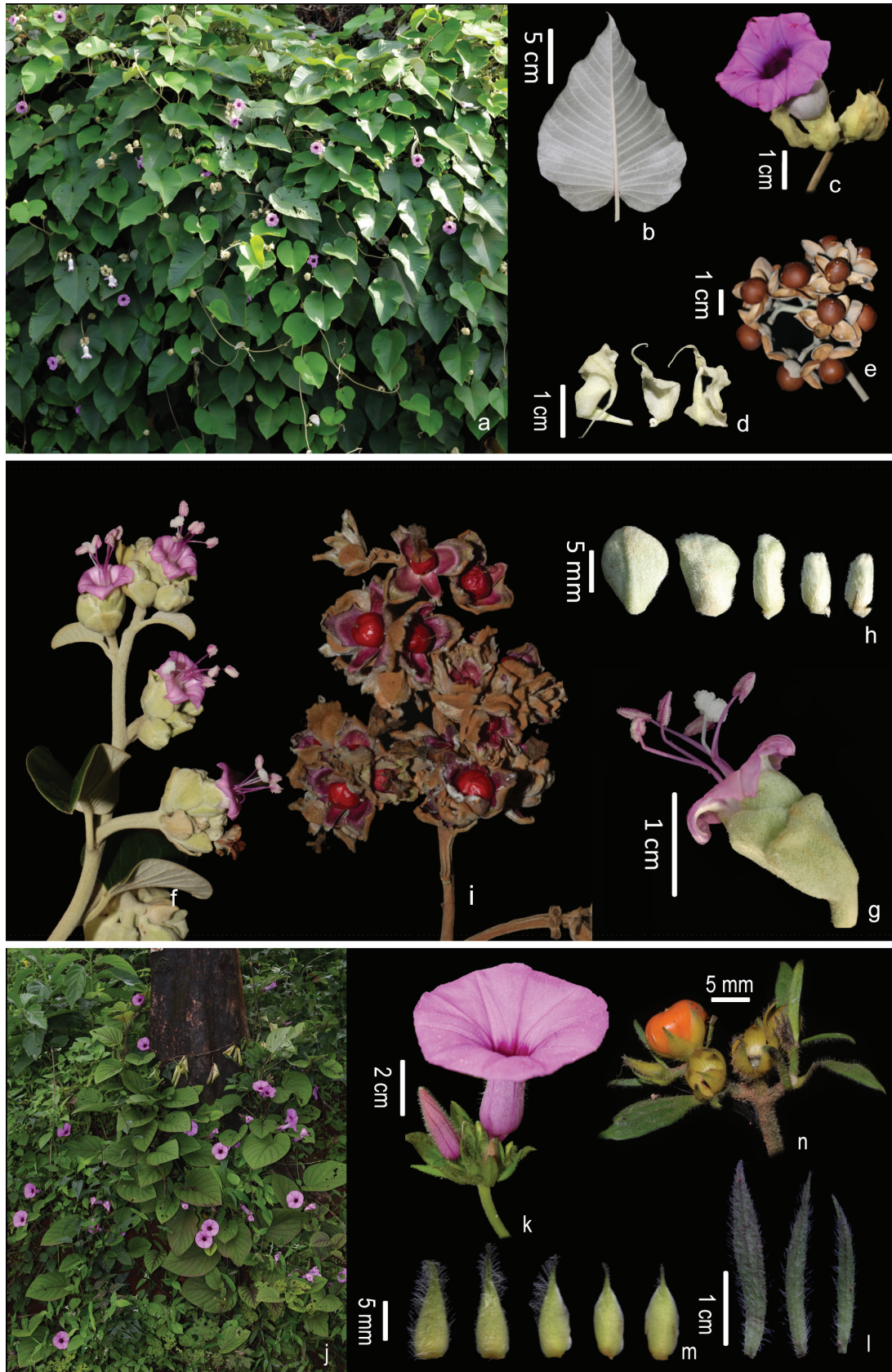
*Etymology*: The specific epithet '*nervosa*' attribute to hallucinogenic properties induced by its seeds. This property is cause of accumulation of ergoline alkaloids particularly Lysergic acid amides in seeds (Schiff, 2006).

*Specimens examined*: INDIA, **Andaman Islands**, South Andaman, Minnie Bay, 11.11.1893, *s.coll.* 310377 (CAL). **Andhra Pradesh**, Srikakulam District, Salur Forest, *s.d.*, *N.P. Balakrishnan* 1053 (CAL); Talbada Gedda, 17.04.1976, *G.V. Subba Rao* 47379 (CAL); Nellore District, Durgam, Udaygiri, 28.08.1917, *C.E.C. Fischer* 4148 (CAL); Nellore District, Udayagiri, 31.07.1914, *M.S. Ramaswami* 1424 (CAL); East Godavari District, Maredumilli, Near Tiger Camp, 18.02.1994, *M. Mohanan* 101284 (DRC); Koornool District, Pacheruvu, 28.09.1986, *V.B. Hosagoudar* 83950 (DRC); Anantpur District, Penukonda Hills, 27.10.2006, *D. Alimaualali* 451 (DRC); Chittoor District, Tirumalai, 18.10.1969, *G.V. Subba Rao* 13941 (MH); Maredumilli, Chinthiru, 16.10.1994, *M. Mohanan* 102509 (MH); Kurnool District, Srisailam, 15.07.1963, *J.L. Ellis* 16878 (MH); Anantapur, Penukonda Hills, July 1884, *J.S. Gamble* 15238 (MH); Visakhapatnam District, near Borra caves, 20.09.2018, *P.R. Lawand* 055 (NCK). **Assam**, Kamal ganj, Sylhet, *s.d.*, *s. coll.* 16585 (ASSAM). **Goa**, North Goa, Usgaon, 08.10.1964, *R.S. Raghavan* 103427 (BSI). **Gujarat**, Junagadh District, Junagadh, 21.07.1957, *G.S. Puri* 22173 (BSI). **Jharkhand**, Godda District, Korandi River valley, East of Dodhari, 09.12.1962, *V.S. Rao* 30142 (ASSAM). **Maharashtra**, Raigad

District, Uran, 05.09.1960, *P. Divakar* 1368 (BLAT); Mumbai District, Borivali, on the road to Kanheri caves, 10.08.1954, *U.M. Patel* 738 (BLAT); Mumbai District, Mahakali Caves, 20.11.1954, *U.M. Patel* 966 (BLAT); Pune District, Mutha River Side, 09.04.1955, *V.D. Vartak* 654 (BSI); Kolhapur District, on the way to Hatkanangale, July 2016, *P.R. Lawand* 019 (NCK). **Manipur**, Imphal, Chingmeirong, *s.d.*, *D.B. Deb* 109 (CAL). **Meghalaya**, East Khasi Hills District, Khasi Hills, Nongkhlaw, 24.08.1976, *G.H. Bhandari* 60409 (ASSAM). **Odisha**, Hergaon, 8.11.1959, *G. Panigrahi* 20857 (ASSAM); Ganjam District, Ganjam, Bhallary forest, 18.07.1996, *J.K. Das & Party* 22755 (CAL); Ganjam District, Ganjam, Arka, December 1883, *J.S. Gamble* 13640 (CAL); Ganjam District, Askar, December 1883, *J.S. Gamble* 13640 (MH). **Karnataka**, North Kanara District, Carwar, September 1892, *W.A. Talbot* 9122 (BSI); Hassan District, Hassan, 25.11.1958, *B.M. Wadhava* (44678 (BSI); Gulbarga District, Kamalapur, September 1910, *A. Meebold* 13905 (CAL). **Kerala**, Kollam District, Arian Kavuu, 09.05.1961, *K.N. Subramanian* 71527 (BSI); Thiruvananthapuram District, Kallar, 28.07.1971, *V.V. Sivarajan* 1342 (CALI). **Rajasthan**, Bhilwara District, Mandal, 07.10.1978, *A.N. Singh* 5764 (CAL). **Tamil Nadu**, Mysore, Ramanahalli, 08.06.1957, *G.S. Puri* 10865 (BSI); Tirunelveli District, Shencottai, 21.03.1915, *C.C. Calder* 1336 (CAL). **Uttar Pradesh**, Allahabad District, Allahabad, 17.08.1964, *H.S. Pandey* 11474 (DRC).

*Vernacular names*: *Samudrashok* (Marathi); *Murva* (Kerala); *Elephant Creeper*, *Silver Morning Glory*, *Hawaiian Baby Woodrose*, *Wooly Morning Glory* (English).

*Notes*: *Argyreia nervosa* shares morphological similarities with *A. cymosa* due to variously twisted bracts but that of *A. nervosa* are longer and larger in size. The fruits *A. nervosa*, *A. cuneata* and *A. fulgens* are brown, dry berry. Regarding to its leaf morphology it can be said allied to *A. wallichii* var. *coriacea* C.B. Clarke. The species stands apart from



**Fig. 10.** *Argyreia nervosa* (Burm.f.) Bojer (a-e): a. Habit; b. Leaf abaxial surface; c. Flower with bracts; d. Bracts; e. Inflorescence. *Argyreia osyrensis* (Roth ex Roem. & Schult.) Choisy (f-i): f. Flowering twig; g. A flower; h. Sepals; i. Inflorescence. *Argyreia pilosa* Wight & Arn. (j-n): j. Habit; k. Inflorescence; l. Bracts; m. Sepals; n. Inflorescence.



other related species through its white colored variously twisted bracts, wider corolla tube, corolla white in color outside and brown colored dry berries.

**25. *Argyreia osyrensis*** (Roth ex Roem. & Schult.) Choisy in DC., Prodr. 9: 334. 1845. *Ipomoea osyrensis* Roth ex Roem. & Schult., Syst. Veg., ed. 15 [bis] 4: 239. 1819. *Lettsomia aggregata* Roxb. var. *osyrensis* (Roth ex Roem. & Schult.) C.B. Clarke in Hook.f., Fl. Brit. India 4: 192. 1883. *nom. illeg.* *Argyreia aggregata* Roxb. var. *osyrensis* (Roth ex Roem. & Schult.) Gagnep. & Courchet, Fl. Gen. Indo-Chine 4: 280. 1915. *nom. superfl.* *Argyreia imbricata* (Roth) Santapau & V. Patel var. *osyrensis* (Roth ex Roem. & Schult.) Santapau & Patel, Trans. Bose. Res. Inst. Calcutta 22: 40. 1958. *Lectotype* (designated by Staples & Traiperm, 2017): INDIA, "in Osyre, India orientalis", *B. Heyne s.n.* Wallich Cat. 1362.2 (K-W digital image!).

*Ipomoea imbricata* Roth ex Roem. & Schult., Syst. Veg. 4: 249. 1819; "*Ipomoea imbricata*" Roth, Nov. Pl. Sp.: 112. 1821. *Convolvulus imbricatus* (Roth ex Roem. & Schult.) Spreng., Syst. Veg. 1: 613. 1824. *Argyreia imbricata* (Roth ex Roem. & Schult.) Santapau & V. Patel, Trans. Bose Res. Inst. 22: 40. 1958. *Type*: INDIA, "India orientali", *B. Heyne s.n.* (K).

*Lettsomia aggregata* Roxb., Fl. Ind. 2: 76. 1824. *Argyreia aggregata* (Roxb.) Choisy, Mém. Soc. Phys. Genève 6: 427. 1834, *nom. illeg.* *Argyreia osyrensis* (Roth) Choisy var. *aggregata* (Roxb.) K.K.N. Nair in K.K.N. Nair & M.P. Nayar, Fl. Courtallum 2: 241. 1987. *Lectotype* (designated by Staples & Traiperm, 2017: 462): INDIA, Cultivated in Calcutta Botanical Garden, "*Lettsomia aggregata* Roxb.", Roxburgh Icones 1792.

*Lettsomia mysorensis* C.B. Clarke in Hook.f., Fl. Brit. India 4: 192. 1883. *Syntype*: INDIA. Karnataka, Mysore, *s.d.* "Argyreia n.29", *G. Thomson s.n.* (K000830691 digital image!).

*Argyreia aggregata* (Roxb.) Choisy var. *canescens* Wight & Arn., Wight's Cat. (4) p. 133, 1837. *Syntypes*: INDIA, **Tamil Nadu**, Nagapattinam

District [Negapatam] Wight 2260 (E [E00179001, E00179003, E00174999 digital images!]) Fig. 10f-i

A climber; stem semi-woody, twisted around the support, white tomentose. Leaf lamina widely elliptic to orbicular, 9.5–15 × 9–15 cm, exudes milky latex if cut, apex emarginate, base cordate, glabrous above, white tomentose beneath, secondary veins 8–9 pairs, raised conspicuously beneath; petiole white tomentose, 5–16.5 cm, terete, not grooved dorsally. Inflorescence axillary, sub-capitate cyme, 12–15-flowered, inflorescence gathered at apical branches in raceme fashion; peduncles 6–2 cm long, longer than the petiole, white tomentose. Bract 1, orbicular, 0.9–1.0 × 0.9–1.1 cm, white tomentose above, glabrous inside, leaves scar when fall. Flower bracteate, pedicellate; pedicels 0.5–0.7 cm long. Sepals 5, enclosing almost entire corolla tube, unequal outer two larger, 1.0–1.3 × 0.5–0.7 cm, obovate, apex round, inner three smaller, 0.8–1.0 × 0.2–0.3 cm, oblong, apex round, white cottony tomentose outside, glabrous inside. Corolla campanulate, 1.2–1.7 cm long and *c.* 1 cm across, corolla lobes deflexed, hairy on midpetaline bands. Stamens 5, exerted from the corolla mouth, equal, *c.* 1.5 cm long; filaments pink; anthers 2–4 mm, pink. Ovary 3–4 mm tall; style 1, *c.* 1.5 cm long, white; stigma biglobose, white, papillate. Berries red, *c.* 1 cm across.

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

*Habitat*: Grows in open forests.

*Etymology*: The species is named after the type locality, 'Osyre (currently Odisha or Orissa) in India.

*Distribution*: India (Andaman & Nicobar Islands, Karnataka, Kerala, Orissa and Tamil Nadu), Bangladesh, China, Myanmar, Sri Lanka and Thailand.

*Specimens examined*: INDIA, **Andaman & Nicobar Islands**, Andaman, *s.d.*, *s. coll.* 5851

(CAL). **Karnataka**, Uttar Kannada District, North Kanara, Feb. 1886, W.A. Talbot 1560 (BSI); Belgaum District, Vantamuri-Pachchhapur road, 15.10.2011, *Mandar Datar* 25374 (AHMA); Uttar Kannada District, Dharwad, 20.03.1956, Z.F. Kapadia 1779 (BLAT); Uttar Kannada District, Dharwad, 01.04.1956, N.A. Irani 1826 (BLAT); Shimoga District, Shimoga, October 1908, A. Meebold 10101 (CAL); North Canara District, North Canara, February 1886, W.A. Talbot 1560 (CAL); Belgaum District, Muchundi village, 14.01.2017, P.R. Lawand 020 (NCK). **Kerala**, Tirunelveli District, Reserve Forest to old Courtallum, 01.03.1976, K.K.N. Nair 5218 (CALI); Kozhikode District, Calicut University Campus, 06.10.1974, V.V. Sivarajan 1528 (CALI); Tirunelveli District, Courtallum, Vayuthamalai, 04.12.1974, K.V. Sankaran 5529 (CALI); Quilon District, Kottavasal, 27.07.1994, A. Nazarudeen 21785 (TBGT). **Tamil Nadu**, Madurai District, Sirumalai, 15.09.1957, s. coll. 2848 (BSI); South Arkot District, Vajnikughi, 22.10.1983, K. Ramamurthy 79651 (CAL); Madurai District, Karandamalai, 29.10.1977, M. Chandrabose 51719 (CAL); Kanyakumari, Kalasekaran, 20.07.2012, T. Shaju 74013 (TBGT); Madurai, Karandamalai, 29.10.1977, M. Chandrabose 57719 (MH).

*Notes:* The species is closely related to *A. bella* but differs by orbicular leaf shape and smaller leaves, ovate-obovate bracts and obovate outer, oblong inner sepals.

**26. *Argyreia pilosa*** Wight & Arn., Madras J. Lit. Sci. 5: 18. 1837. *Argyreia pilosa* Wight & Arn., Madras J. Lit. Sci. 5: 38. 1837. *Lectotype* (designated by Krishnaraj, Joseph & Ramalingam, 2018: 392): INDIA, **Tamil Nadu**, Kolli Hills (Colemala), s.d. R. Wight s.n. 2255 (E [E00174872 digital image!]). **Fig. 10j-n**

A prostrate herb; stems terete, herbaceous when young, semi-woody when old, white hirsute, 3–5 mm in diam. Leaf lamina ovate, 11–16 × 7–12 cm, apex acute, base cordate (rounded in young leaves), strigose below, strigulose above, secondary veins 7–8 pairs, raised beneath; petioles green, hirsute,

7–12 cm, longer than the peduncle. Inflorescence 4–8-flowered axillary cymes with one flower in the fork; peduncle 4–7 cm, shorter than the petiole, white hirsute, hairs bulbous based; bracts 2–3, lanceolate, subequal, 2.5–3.0 cm, apex acute to acuminate, hirsute on both surfaces, hairs bulbous based, bract of the flower in the fork leaf like, foliose, 3.0–3.2 × 0.9–1.0 cm. Flower subsessile; pedicels 1–2 mm. Sepals 5, lanceolate, subequal, 1.0–1.3 cm, apex acuminate, hirsute outside, glabrous inside, inner sepals only non-overlapped portion hairy, hairs bulbous based; corolla infundibuliform, 5–5.5 × 6–6.2 cm, purple, corolla lobes twisted in bud. Stamens 5, unequal, 3 short, 2 long; filaments 1–1.5 cm, pale pink, dilated at base, glandular hairy; anthers pink, oblong, 4 mm. Ovary conical, pale green; stigma biglobose, pale pink; style white, 2.5–2.7 cm. Berries yellow, fleshy, 0.7–1 cm across; seeds 6–7 mm long, white, hilum prominent.

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

*Habitat:* The species is more frequent at shady places underneath the forest and in grasslands at 700 m altitude.

*Distribution:* India (Goa, Karnataka, Kerala, Tamil Nadu and Maharashtra); endemic.

*Etymology:* The specific epithet '*pilosa*' refers to the pilose nature of the plants.

*Specimens examined:* INDIA, **Karnataka**, Shimoga District, Jog Falls, 06.11.1956, U.M. Patel 1909 (BLAT); Uttar Kannada District, Siddhapur, 05.11.1956, U.M. Patel 1856 (BLAT); Uttar Kannada District, Dandeli, 26.12.1955, U.M. Patel 1669 (BLAT); Shimoga District, Tirthanahalli, 19.12.1964, R.S. Raghavan 97471 (BSI); Mysore District, Tenginhyle, 21.12.1964, R.S. Raghavan 103758 (BSI); Kodagu District, 23.07.1978, S.R. Ramesh 1938 (CAL); Uttar Kannada District, Yellapur, 29.09.1884, W.A. Talbot 1029 (CAL); Shimoga District, near Thirthahalli, October 2018, P.R. Lawand 058 (NCK). **Kerala**, Travancore

Division, Ariculari, 07.09.1913, *M. Rama Rao* 1613 (CAL). **Maharashtra**, Kolhapur District, near Pushpanagar, Bhudargad, September 2016, *P.R. Lawand* 021 (NCK); Kolhapur District, Ajara, Velvatti, August 2018, *P.R. Lawand* 056 (NCK); Kolhapur District, Ajara, Chaloba, August 2018, *P.R. Lawand* 057 (NCK).

*Conservation status:* The Extent of Occurrence (EOO) of species is more than 20,000 km<sup>2</sup> and Area of Occupancy (AOO) of species is less than 2000 km<sup>2</sup>. Number of mature individuals in EOO are greater than 10,000. According to IUCN guidelines for such a taxon the category Near Threatened (NT) can be allotted (IUCN, 2024).

*Vernacular names:* *Pasari sonarin* (Marathi); *Kugnatha Val* (Kannada); *Koppakkizhangu*, *Paei Unnankizhangu* (Tamil).

*Notes:* *Argyria pilosa* is morphologically similar to *A. hirsuta*, with both species occurring sympatrically. However, they can be distinguished by differences in habit, peduncle length, number of flowers, and fruit color.

Traiperm and Staples (2017) reported the occurrence of this species in Jammu and Kashmir; however, this report is erroneous, as no herbarium specimens were found during consultations, nor has the species been documented in any floras or collections.

**27. *Argyria roxburghii*** (Sweet) Choisy, Mem. Soc. Phys. Geneve 6: 419. 1834. *Ipomoea roxburghii* Sweet, Hort. Brit. 289: 1826. *Lectotype* (designated by Staples & Traiperm, 2017): [illustration] "*Ipomoea multiflora* Roxb.", Roxburgh *Icone* 572 in Kew.

*Ipomoea multiflora* Roxb., Fl. Ind. 2: 89. 1824, *nom. illeg.*

*Convolvulus roxburghii* Wall., Numer. List Wallich 38: 1828, *nom. illeg.*

*Argyria multiflora* Voigt, Hort. Subrub. Calcutt. 352: 1845, *nom. illeg.*

*Argyria ampla* Choisy, Mem. Soc. Phys. Geneve 6: 420.1834.

*Argyria roxburghii* (Sweet) Choisy var. *ampla* (Choisy) C.B. Clarke in Hook.f., Fl. Brit India 4: 185. 1883. **Fig. 11a-d**

A twinning or climbing shrub; older stems semi-woody, possess warty lenticels, pale to brown in color, glabrous, young stem herbaceous towards apex, green, hairy, terete. Leaf lamina widely ovate to orbicular, 10–20 × 7–17 cm, apex acute to narrowly acuminate, base cordate, lobes round, overlapping, secondary veins 8–9 on each half on the leaf, upper surface glabrous, lower surface pale green, white strigose; petiole 4–10 cm long, green, terete, white tomentose like stem. Inflorescence axillary lax cymes, 6–7-flowered; peduncles usually longer than the petiole, 7–15 cm long, green, terete, hairy. Flowers bracteate, subsessile. Bracts 2, lanceolate, 1–1.5 cm long, deciduous, green, hairy abaxially, glabrous adaxially. Sepals 5, unequal, outer three long, enclosing flower bud, 1–1.5 cm long, inner two 1–1.2 cm long, tomentose outside, glabrous and concave inside, apex acute or sometimes narrowly acuminate. Corolla infundibuliform, 4.5–6 cm long, 4–5 cm wide, pale pink outer, dark pink inner purple, throat dark purple, c. 1 cm in diam., corolla lobes rounded, hairy on midpetaline bands. Stamens 5, unequal, 3 short, 2 long, longer 2–2.5 cm long while shorter 1.5–1.8 cm long; filaments white, glandular hairy and dilated at base; anthers c. 4 mm long, white. Ovary pale green, 5 mm in diam.; style single, c. 2.5 cm long; stigma biglobose, white. Berries 0.8–1.0 cm, yellow, fleshy.

*Flowering & Fruiting:* Flowering from September to November and Fruiting from late November to January.

*Habitat:* The species found growing on disturbed forest lands, along the forest borders.

*Etymology:* The species is named after William Roxburgh.

*Distribution:* India (Assam, Arunachal Pradesh, Meghalaya, Mizoram and West Bengal), Nepal, Myanmar, Thailand and Singapore.

*Specimens examined:* INDIA, **Assam**, Khasi and Jaintia Hills, Umrangso Dam, 23.02.2007, R.S. Barnah 114006 (ASSAM); Khasi and Jaintia Hills, Garampani to Raliang, 27.08.1968, N.P. Balakrishnan 46940/47087/39507 (ASSAM); Kokrajhar District, Chakrasila WLS, 26.07.2006, Ranjit Daimary 111659 (ASSAM); Darrang District, Aka Hills, Dhansiri & Dikrai Rivers, 1934, N.L. Bor 15252 (ASSAM); Kamrup District, Loharghat to Rajapara, 21.10.1965, A.S. Rao 42427 (ASSAM); Guwahati, near Basistha temple, 9.11.2017, P.R. Lawand 059 (NCK). **Arunachal Pradesh**, Tirap District, Kheti to Thinchha, 22.08.1958, G. Panigrahi 14609 (ASSAM). **Meghalaya**, Khasi and Jaintia Hills, Bishop Falls, 30.08.1931, S.K. Sharma 9320 (ASSAM); West Garo Hills District, Tura, 29.08.1962, D.B. Deb 28825 (ASSAM); Khasi and Jaintia Hills, Barapani Forest, 26.11.1930, P.C. Kanjilal 8744 (ASSAM); West Garo Hills, Nokrek Biosphere Reserve, Near Oragitok, 23.06.2007, V.K. Singh & Bikram Singh 115751 (ASSAM); West Jaintia Hills District, Jowai, August 1892, Dr. King's collector s.n. (CAL); Shillong, near Barapani, 30.10.2017, P.R. Lawand 022 (NCK). **Mizoram**, Aizawl, Lushai Hills, 24.09.1953, B. Godfrey 553 (CAL). **West Bengal**, Jalpaiguri District, Phulbari, 04.09.1975, M.K.V. Rao 61501 (ASSAM); Mahananda WLS, Sevoke (North range), 22.10.2007, T.K. Paul & Anant Kumar 42464 (CAL); West Dinajpur District, Chopra, 25.08.1984, R.N. Banerjee 186674 (CAL); Jalpaiguri District, Chapramari WLS, s.d., J. Bhattacharya s.n. (CAL).

*Vernacular Names:* Roxburgh's morning glory (English).

*Notes:* The leaves of this species resemble those of *A. hookeri*, but the latter has sericeous-tomentose leaves, whereas *A. roxburghii* has glabrous or nearly glabrous leaves. *A. roxburghii* is further distinguished by its large oblong-lanceolate bracts, larger outer bracts, and larger fruit size. The name *Ipomoea multiflora* was first published by Roxburgh (1824). However, it became a later homonym of *I. multiflora* Roemer & Schultes (*Syst. Veg.*,

ed. 15 bis 4: 234. 1819). As later homonyms are illegitimate and subject to rejection, Sweet (1826) provided a replacement name, *Ipomoea roxburghii*. Subsequently, Choisy (1834) transferred this name to the genus *Argyreia*, renaming it *Argyreia roxburghii* (Sweet) Choisy.

**28. *Argyreia sericea*** Dalzell in Dalzell & Gibson, Bombay F1. 169. 1861; C.B. Clarke in Hook.f., F1. Brit. India 4: 188. 1883. *Lectotype* (designated by Lawand & Shimpale, 2017: 336): INDIA, Maharashtra, (Bombay) s.d., N.A. Dalzell s.n. (K [K000830639 image!]).

*Argyreion sericeum* St.-Lag. (Saint-Lager 1880: 120). *nom. illeg.* *A. sericea*, orthographic variant

*Argyreia involucrata* C.B. Clarke var. *inaequalis* C.B. Clarke in Hook.f., Fl. Brit. India 4: 187. 1883 **syn. nov.** *Lectotype* (designated here): INDIA, **Kerala**, Malabar, Concan, s.d. "*Argyreia* n. 23", *Stocks* s.n. (K [K000830648]; Isolecto K [K000830648], G [G00017112! & G00017113 digital image!], GH [GH00135004 digital image!], M [M-0184923], P [P00584824 digital images!]).

**Fig. 11e-g**

A perennial twinning herb; stems densely appressed strigose, hairs white. Leaf lamina widely ovate, 11.5–17 × 11–17 cm, apex acuminate, base cordate, lobes rounded, margins entire filiferous, leaves silvery strigose abaxially, low hair density and bulbous based hairs at adaxial surface, secondary veins 9–11 pairs, more prominent beneath, bifurcating at apex; petiole 5–10 cm long, green densely appressed strigose. Inflorescence axillary capitate cyme, 4–5-flowered; peduncle 6–12 cm, longer than the petiole, appressed silvery strigose. Flowers almost sessile, bracteate. Bracts 2–3, lance-ovate, outer larger than inner ones, foliaceous, 3.5–4 × 1.5–1.8 cm, apex acuminate, base truncate, with 4–5 parallel veins, veins raised beneath, silvery silky abaxially, sparsely strigose adaxially, inner bracts 1.5–2.5 × 0.5–0.8 cm, lanceolate. Sepals–5, unequal, outer two larger 1.2–1.8 cm long, upper half narrowly oblong, lower half lance-ovate, inner three sepals 1.0–1.1 cm long, lance-ovate, apex acute

to acuminate, margins hyaline; corolla 4.5–6 cm long, 5–6 cm across, tubular–infundibuliform, inner throat 1–1.1 cm wide, dark purple, corolla hairy on midpetaline bands. Stamens 5, included in throat, unequal in length; filaments white, base purple with glandular hairs; anthers pink to violet, bilocular, arrow headed, base sagittate. Ovary conical, covered with annular disc, stigma included in throat, biglobular, pink; ovary conical. Berries globose, yellow; seeds 2–4, white, trigonal, with conspicuous hilum, glabrous.

*Flowering & Fruiting:* Flowering from August to early October and fruiting November to January.

*Habitat:* Growing on moderate sized trees, shrubs in ghats.

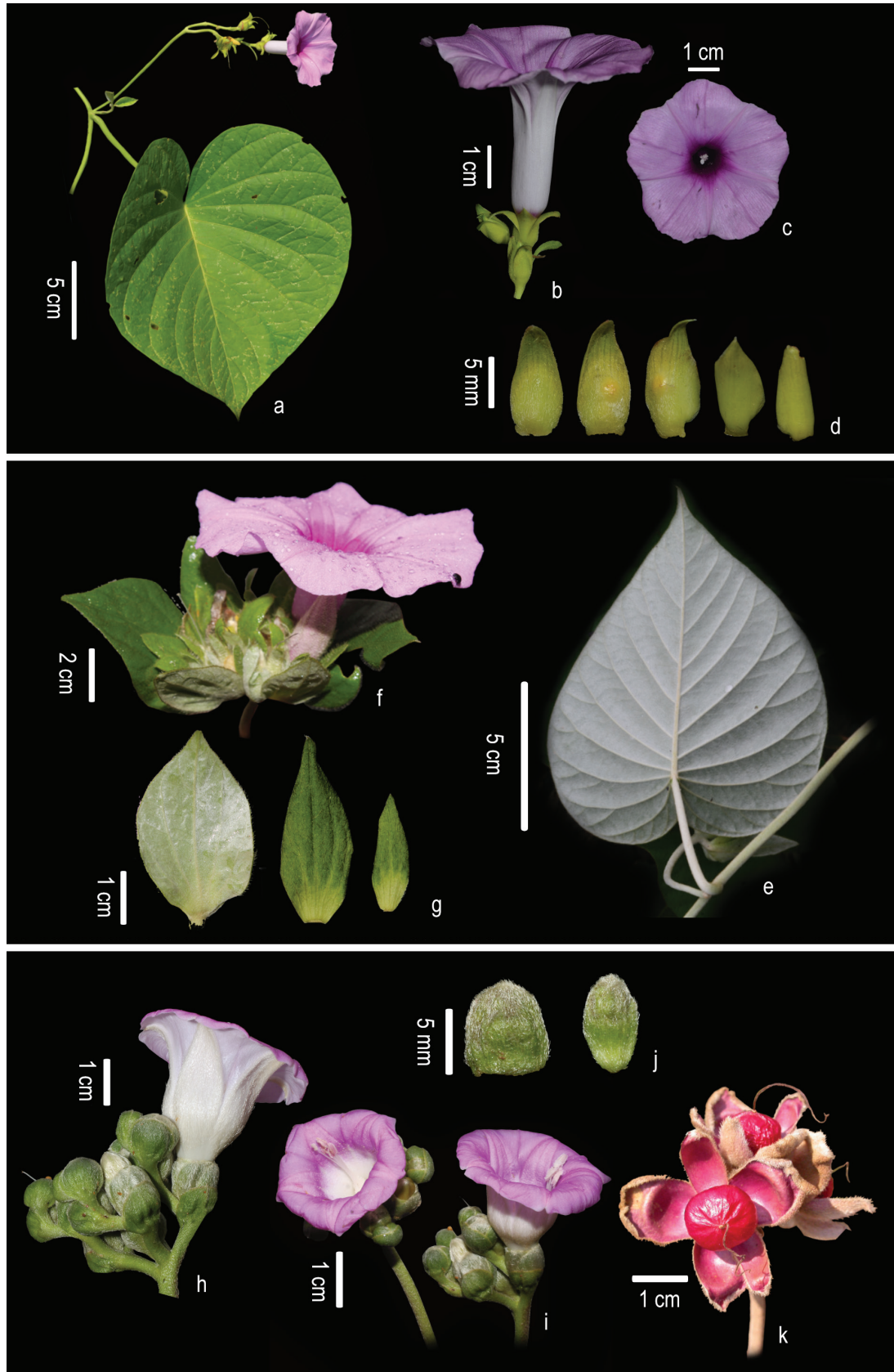
*Distribution:* India (Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Telangana); endemic to India.

*Etymology:* The specific epithet 'sericea' refers to silvery abaxial surface of leaves.

*Specimens examined:* INDIA, **Andhra Pradesh**, East Godavari, Peddakanda Hills, September 1920, *V. Narayanswami* 163 (CAL); Visakhapatnam District, Suttiguda-Lakshampuram, 22.10.1986, *N. Rama Rao & D. Narsimhan* 84389 (DRC); Tummalapalli District, Batrapalli, 25.07.2016, *K. Ral* 39643 (DRC); Adilabad, Ontimamidi, 18.09.1955, *T. Ravishankar* 83111 (MH00139475).

**Chhattisgarh**, Rajnandgaon District, Chilpi, 06.09.1976, *P.C. Pant* 20475 (BSA). **Karnataka**, Uttara Kannada District, Yellapur, 15.10.1883, *W.A. Talbot* 706 (BSI); Hassan District, Arkalgud-Arsikere, *s.d.*, *K.N. Subramanyam* 32978 (BSI); Uttara Kannada, Yellagiri, 27.10.1883, *W.A. Talbot* 310591 (CAL). **Madhya Pradesh**, Kasturbagram Krishi Kendra, Amrit Bagh, 11.07.1986, *K.K. Khanna & R. Saran* 37586 (CAL); Betul District, Baretha Ghat, 04.09.1998, *Anand Kumar* 50827 (BSA); Seoni District, Dhutera, 24.12.1975, *L.K. Banerjee* 23128 (BSA); Hoshangabad District, Towa River Bank-Bunglapur, 01.10.1960, *J. Joseph* 11157 (BSA); Indore, Kasturbagram

Krishi Kendra, Amrit Bagh, 11.09.1986, *K.K. Khanna & R. Saran* 37586 (BSA); Damoh District, Singrampur, 10.09.1979, *B.K. Shukla* 29964 (BSA); Hoshangabad, Towa river bank, 01.10.1960, *J. Joseph* 11157 (MH00139479); Khandwa District, Pamakhedi Jungles, 09.10.2017, *P.R. Lawand* 062 (NCK). **Maharashtra**, Satara District, Khandala, Top of Echo point, 14.09.1942, *H. Santapau* 943 (BLAT); Satara District, Khandala, Forbay Tank, 26.09.1954, *V.M. Patel* 802 (BLAT); Satara District, Lonavala, 08.08.1983, *D.K. Patel* 46535 (BLAT); Thane District, Mumbra, September 1957, *Y.A. Merchant* 230 (BLAT); Pune District, Waghai-Pimpri Road, *H. Santapau* 19219 (BLAT); Pune District, Purandhar, January 1918, *E. Blatter* 22336 (BLAT); Pune District, Bhimashankar, 18.09.1955, *U.M. Patel* 1484 (BLAT); Kolhapur District, Ramling, Alate, Sept. *R.D. Acland* 765 (BLAT); Nashik District, Igatpuri, October 1917, *E. Blatter* 22326 (BLAT); Raigad District, Matheran, Panorama Point, 03.10.1960, *N.A. Irani* 5496 (BLAT); Nashik District, Lima Hill, September 1917, *E. Blatter* 22300 (BLAT); Satara District, Khandala, 27.09.1954, *U.M. Patel* 807 (BLAT); North Mumbai, Malad, 17.09.1954, *G.L. Shah* 644 (BLAT); Pune District, Purandhar Fort, *H. Santapau* 22068 (BLAT); Mumbai, Borivali National Park, 14.09.1952, *G.F. Randeria* 389 (BLAT); Palghar District, Usgaon, Tungareshwar WLS, 17.09.1961, *N.Y. Das* 3883 (BLAT); Yavatmal District, Panchanai-Rajur, 30.09.1970, *B.M. Wadhava* 127901 (BSI); Mumbai, Borivali National Park, 12.11.1984, *B.D. Sharma* 167764 (BSI); Raigad District, Matheran, Louisa Point, 29.01.1957, *G.S. Puri* 9860 (BSI); Ahmadnagar District, Ratangadh, 05.10.1970, *B.M. Wadhava* 128165 (BSI); Pune District, Sinhagad Hills, 19.09.1964, *M.Y. Ansari* 101579 (BSI); Raigad District, Matheran, 02.09.1890, *P.S. Kanetkar s.n.* (BSI); Pune District, Junnar-Dhak Fort, 01.05.1967, *Hemadri K.* 107466 (BSI); Raigad District, Dasgaon, December 1890, *G.M. Woodrow s.n.* (BSI); Beed District, Pokhari Ghat, 09.09.1956, *G.S. Puri* 7367 (BSI); Pune District, Mulshi, 20.11.1956, *S.K. Jain*



**Fig. 11.** *Argyreia roxburghii* (Sweet) Choisy (a-d): **a.** Flowering twig; **b.** A flower; **c.** Corolla front view; **d.** Sepals. *Argyreia sericea* Dalzell (e-g): **e.** Leaf abaxial surface; **f.** Inflorescence; **g.** Bracts. *Argyreia setosa* (Roxb.) Sweet (h-k): **h.** Inflorescence; **i.** Corolla top & side view; **j.** Bracts; **k.** Infructescence.

9424 (BSI); Satara District, Lonavala, 12.11.1904, G.A. Garade s.n. (BSI); Nashik District, Saputara, 10.08.1983, P. Lakshaminarsimhan 165234 (BSI); Nashik District, Bramhagiri, Trimbak, 10.08.1983, P. Lakshaminarsimhan 166859 (BSI); Amravati District, Tarubande, 27.08.1976, M.Y. Ansari 144085 (BSI); Amravati District, Ghatang, Sembadon Ghat, 27.08.1976, M.Y. Ansari 144016 (BSI); Pune District, Harishchandragad, 04.11.2001, S.B. Nagarkar 18762 (AHMA); Pune District, Junnar, Dhak, 23.09.2001, S.B. Nagarkar 18761 (AHMA); Pune District, Kudap, 23.12.2003, D.K. Kulkarni 22296 (AHMA); Sindhudurg District, Kunakeshwar, 27.12.1976, H.D. Sane 429 (AHMA); Dadra and Nagar Haveli, Dolara Forest, 04.10.1963, M.Y. Ansari 14165 (CAL); Bhandara District, Navegaon WLS, 25.09.2018, P.R. Lawand 060 (NCK); Kolhapur District, Panhala, way to Masai plateau, September 2016, P.R. Lawand 023 (NCK); Pune District, Mulshi, 18.09.2016, P.R. Lawand 024 (NCK); Kolhapur District, Hatkanangale, Atigre, Ramling Dongar, October 2016, P.R. Lawand 061 (NCK). **Rajasthan**, Banswara District, Bagayeha Forest Block, 22.10.1976, V. Singh 3778 (CAL). **Telangana**, Mehaboobnagar District, Borapuram, 04.11.2008, B. Sadasivaiah & Khabar Basha 32357 (DRC). **Uttar Pradesh**, Chauda District, Chichipalli-Chauda Road, 07.09.1963, S. R. Rolla 91277/91155 (BSI).

*Conservation status:* The taxon is known from Andhra Pradesh, Chhattisgarh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Telangana hence has larger Extent of Occurrence (EOO) and also Area of Occupancy hence such a widely distributed taxon must be assigned a category of Least Concern (LC, IUCN 2024).

*Vernacular names:* Dhukka Mal, Tharapa (Telugu), Maheshvel, Gavli Vel (Marathi).

*Notes:* The species shows variation in the nature of the silvery silkiness. The plants from the western Maharashtra possess shining sericeous tomentum on lower leaf surface, whereas Bhandara (Vidharbha) and Khandwa (Madhya Pradesh)

plants with silvery hairy. The species is very close to *A. argentea* in its silvery hairy leaves, corolla size, yellow berries but differs in its capitate inflorescence, foliaceous outer bract, oblong to lance-ovate sepals.

**29. *Argyreia setosa* (Roxb.) Sweet, Hort. Brit., ed. 2: 373. 1830. *Lettsomia setosa* Roxb., Hort. Bengal. 13. 1814; Fl. Ind. [ed. Carey & Wall.] 2: 80. 1824; C.B. Clarke in Hook.f., Fl. Brit. India 4: 193. 1883. *Argyreia setosa* (Roxb.) Choisy, Mém. Soc. Phys. Genève 6: 425. 1834, *nom. superfl.* *Lectotype* (designated here): INDIA, Native of the northern Circars *Wallich* Cat. no. #1412.6 (G-DC [G00134942 digital image!]; Isolecto K-W, G-DC [G00134979, G00134928, G00134942, G00134908 digital images!]).**

*Argyreia setosa* (Roxb.) Sweet var. *minor* (C.B. Clarke) Staples & Traiperm, 466. 2017. **syn. nov.** *Lettsomia setosa* (Roxb.) Sweet var. *minor* C.B. Clarke in Hook.f., Fl. Brit. India 4: 194. 1883. *Syntypes*: INDIA, Deccan Peninsula, *Wight s.n.*; South Concan, *Argyreia n. 21, J. Law s.n.* (K [K000830679 digital image!], P [P00584831 digital image!]); Karnataka, Bababoodan Hills, *Argyreia n. 21, J. Law s.n.* (K [K000830680 digital image!]). **Fig. 11h-k**

A perennial semiwoody climbing shrub, all terrestrial plant parts exude milky latex; stem twines around solid support, inflorescence and young stem climbs, older stem semiwoody, 1–2 cm in diam., young stem green, appressed strigose, exudes sticky concentrated milky latex. Leaf lamina widely ovate, 13–18 × 12–14 cm, apex acute, base cordate, sparsely strigose above, densely strigose below, hair density more on veins, secondary veins 10–15 pairs, basal 2–3 oblique, secondary veins raised conspicuously beneath, primary vein has two glands (depressed points) at origin; petiole green, 3–9 cm, shorter than the peduncle appressed strigose, terete to grooved minutely at the point of attachment; Inflorescence axillary cymes, 15–30-flowered; peduncle 9–19 cm, longer than the petiole, appressed strigose. Bracts 2, orbicular or elliptic, one large 0.7–0.8 ×

0.7–0.8 cm, other small, strigose outer, glabrous inside, bracts caducous in fruit. Sepals 5, orbicular, sub equal, 1–1.3 × 1–1.2 cm, glabrous inside, densely strigose outer which offer them a golden shining appearance. Corolla campanulate, 4.5–5 cm long with broader throat 1.5–1.7 cm in diam., lobes short, twisted in bud, light pink and tube off white, strigose on midpetaline bands but not from the base, 1/3 corolla is strigose, portion enveloped by calyx is glabrous. Stamens 5, subequal, deflexed to the one side; filaments white 1–1.4 cm, white, dilated at base, glandular at base; anthers 5 mm, light pink in color. Ovary globose, bilocular, single ovule in each locule; stigma biglobose. Berries red, c. 1 cm across; seeds 5–7 mm long, white.

*Flowering & Fruiting:* Flowering from September to November and fruiting from late November to February.

*Habitat:* It grows in open dry deciduous forests.

*Distribution:* India (Andhra Pradesh, Bihar, Goa, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu and Rajasthan), Myanmar, Nepal and Pakistan.

*Etymology:* The specific epithet '*setosa*' refers to setose hairy plants.

*Specimens examined:* INDIA, **Andhra Pradesh**, Chitoor District, Tirumala, 29.01.1987, *D. Ranga Charyulu* 1142 (CAL); Visakhapatnam District, Tulabada, 17.04.1976, *G.V. Subba Rao* 47377 (CAL); Abidabad District, On the way to Vasthapur from Rasiputla, 04.02.1987, *T. Ravishankar* 85160 (CALI); Kurnool District, Gundla Bramheswaram, 30.11.1969, *J.L. Ellis* 32680 (MH). **Bihar**, Darbhanga District, Darbhanga, 19.11.1907, *I.H. Burkill* 29313 (CAL). **Goa**, South Goa, Balli, near railway track, October 2017, *P.R. Lawand* 063 (NCK). **Jharkhand**, East Singhbhum District, Dalma WLS, 12.02.2001, *P. Chakraborty* 28843 (CAL). **Karnataka**, Shivamogga District, Jog Falls, 07.05.1956, *G.S. Puri* 10902 (BSI); Gulbarga District, Antawarum, Chincholi Forest, 20.10.1976, *N.P. Singh* 142682

(BSI); Uttara Kannada, Kalkeri, 15.02.1962, *R.S. Raghavan* 79430 (BSI). **Madhya Pradsh**, Ujjain District, Berchha Forest, 14.02.1987, *M. Prasad* 39508 (CAL). **Maharashtra**, Thane District, ShivanSai, Tungar, 12.11.1961, *N.Y. Das* 4835 (BLAT); Nashik District, Igatpuri-Kasara Road, 04.09.1955, *U.M. Patel* 1469 (BLAT); Pune District, Purandhar, 03.10.1950, *H. Santapau* 11414 (BLAT); Pune District, Sinhagad Fort, November 1950, 12031 (BLAT); Thane District, Mumbra, 26.08.1954, *K.V. Shonorg* 4122 (BLAT); Pune District, Bawadhan, 29.11.1904, *L.D. Garade s.n.* (BSI); Pune District, Bhimashankar, December 1906, *W.A. Talbot* 5001 (BSI); Pune District, Bhimashankar, 15.05.1907, *W.A. Talbot* 4978 (BSI); Pune District, Khed, 04.12.1961, *K.P. Janardhanan* 76208 (BSI); Nashik District, Sakdya-Surgana, 23.10.1983, *P. Lakshaminarsimhan* 166150 (BSI); Pune District, Sinhagad, Atkarwadi, 06.05.1964, *M.Y. Ansari* 88095 (BSI); Pune District, Junnar, Urtad-Kaldare, 30.10.1964, *Hemadri K.* 104274 (BSI); Dhule District, Seetakhai Valley, 09.05.1964, *S. Rao Rolla* 97734 (BSI); Beed District, Pokhari Ghat, 20.10.1956, *J.A. Vasavada* 8565 (BSI); Pune District, Near Gunjavane, 10.02.1954, *V.D. Vartak* 2774 (AHMA); Pune District, Base of Sinhagad, 12.02.1956, *V.D. Vartak* 3137 (AHMA); Pune District, Harishchandragad, 07.10.2001, *Nagarkar S.B.* 18767 (AHMA); Nashik District, Kasara Ghat, 22.01.2001, *A.S. Upadhye* 16 (AHMA); Pune District, Ambavade, 04.11.1955, *V.D. Vartak* 1900 (AHMA); Pune District, Sinhagad, Atkarwadi, 06.11.1956, *V.D. Vartak* 6959 (AHMA); Satara District, Pusegaon, Visapur, Ram Dongar, October 2017, *P.R. Lawand* 025 (NCK); Ratnagiri District, Rajapur, Devache Gothane, 14.10.2016, *P.R. Lawand* 023 (NCK). **Rajasthan**, Chittorgarh District, Baansi, 15.12.1963, *D.M. Varma* 1737 (CAL). **Tamil Nadu**, Nilgiri District, Tippacori, November 1886, *J.S. Gamble* 18466 (CAL).

*Vernacular names:* *Dudhavel*, *Sambar vel* (Marathi).

*Uses:* In some parts of Maharashtra state young leaves are used as vegetable.



*Notes:* *Argyreia setosa* shares similarities with *Argyreia capitiformis* in leaf shape and having subequal stamens deflexed to one side of the corolla. However, *A. setosa* differs by its strigose hairy plants, loosely arranged flowers, ovate bracts and sepals, and red berries.

Floras of Karnataka, Madhya Pradesh and Maharashtra reported the occurrence of *Argyreia strigosa* (Roth) Roberty, which is the synonym of *A. capitiformis*; Santapau and Patel (1958) erred in citing its occurrence in Maharashtra. However, *Argyreia setosa* occurs in central and peninsular India, which is distinct from *Argyreia capitiformis*.

Clarke (1883) recognized a variety named var. *minor* C.B. Clarke under *Lettsomia setosa* which was transferred to *Argyreia* by Staples and Traiperm (2017) as *Argyreia setosa* (Roxb.) Sweet var. *minor* (C.B. Clarke) Staples & Traiperm. However, after studying the range of variation within *A. setosa*, it is clear that var. *minor* falls within the circumscription of the species, hence synonymised here. The same has been noted by Santapau and Patel (1958) rather they maintained its varietal status.

**30. *Argyreia sharadchandrajii*** Lawand & Shimpale, Rheedea 31(1): 19. 2021. *Type:* INDIA, Maharashtra, Kolhapur District, Alate, Alamprabhu Sacred grove, 788 m, 17.09.2016 P.R.

*Lawand 077* (holo CAL!; iso SUK!, BSI!). **Fig. 12a-c** Prostrate shrubs; stems trailing along ground, white to brown hispid, older semi-woody, c. 1 cm in diameter, grooved, herbaceous towards apex, green, terete. Lamina widely ovate to orbicular, 15–24 × 12–25 cm, apex acute, base cordate, lobes rounded, leaf indumentum hirsute on adaxial surface, densely white sericeous on abaxial surface, secondary veins 8–9 pairs, conspicuous on abaxial surface; petiole 1.1–2.5 cm long, terete, densely white hirsute, longer than the peduncle. Inflorescence axillary sub-capitate cyme, 3–12 flowered; peduncle 2–5 cm long, white hirsute, shorter than the petiole. Flowers sub-sessile, bracteate. Bracts 2–3, one large foliaceous, ovate, c. 3 × 1 cm, small bracts lance-ovate, 1–2.5 × 0.3–0.6 cm, 3 nerved, hirsute on both surfaces, more densely on abaxial surface. Sepals 5, unequal, outer 3 longer, 1.2–1.3 cm long, inner two c. 1 cm long, acute at apex, lance-ovate, hairy outer, glabrous inside, persistent, enlarges in fruiting. Corolla infundibuliform, rose pink coloured, 5–7 cm long, 5–6 cm across, throat c. 1 cm wide, purple, hairy on mid-petaline bands, corolla lobes twisted in bud, lobes shallowly emarginate. Stamens 5, epipetalous, attached at base of corolla tube, included within corolla tube, unequal, 2 long- 2–3 cm long, 3 short, 1.5–2 cm long, anthers pink, 0.3–0.4 cm, sagittate, filaments dilated and



**Fig. 12.** *Argyreia sharadchandrajii* Lawand & Shimpale (a-c): **a.** Habit; **b.** Inflorescence; **c.** Fruits.

glandular hairy at base. Ovary 4-celled, glabrous; style single, 1.5–2 cm long; stigma biglobular, papillate, white. Berries yellow, 2–2.5 mm across, 1–4-seeded, glabrous; seeds trigonal, white, with visible hilum.

*Flowering & Fruiting*: Flowering from July to early September and Fruiting from September to October.

*Habitat*: This species grows in open sunlight and trails amidst grassland while rooted among the shrubs.

*Distribution*: India (Maharashtra, Kolhapur); Endemic to peninsular India.

*Etymology*: The species is named after Shri. Sharadchandra Pawar, former Minister of Agriculture, Government of India, New Delhi for his valuable contribution for Indian agriculture.

*Specimens examined*: INDIA, **Maharashtra**, Kolhapur District, Hatkanangale, Ramling hills, 13.08.2017, *P.R. Lawand* 078 (NCK!); Kolhapur District, Hatkanangale, Ramling hills, 850 m, 28.09.2018, *P.R. Lawand* 079 (NCK!); Kolhapur District, Hatkanangale, Ramling, 03.10.2019, *P.R. Lawand* 089 (NCK!).

*Conservation status*: Known from a single locality in the subranges of the Western Ghats. At the type locality we could locate *c.* 100 mature individuals of species occupying an area of 1.25 km<sup>2</sup>. In the presence of little data on distribution range an IUCN category Data Deficient can be assigned to a taxon (IUCN, 2024).

*Notes*: *Argyreia sharadchandrajii* is similar to *A. pilosa* but can be distinguished by its prostrate habit, widely ovate to orbicular leaves with white sericeous indumentum on lower, sub-capitate inflorescence, lance-ovate bracts, unequal sepals, larger berries (20–25 mm across).

**31. *Argyreia sikkimensis*** (C.B. Clarke) Ooststr., *Blumea* 7: 178. 1952. *Lettsomia sikkimensis* C.B. Clarke in Hook.f., *Fl. Brit. India* 4: 194. 1883. *Leototype* (designated by Mill, 1999): INDIA, **West**

**Bengal**, Darjeeling, Pomong, 3000 ft., 23.08.1869, C.B. Clarke 8808 (K [K000830672 digital image!]; Isolecto K [K000830674, K000830677, K000830673, K000830675, K000830676 & K000830678 digital images!], C [C10009596 digital image!], M [M-0184922 digital image!], P [P00584832, P00584833 & P00584834 digital images!]).

*Argyreia venusta* Choisy, *Mém. Soc. Phys. Genève* 6: 419. 1834. *Argyreia argentea* (Roxb.) Sweet var. *venusta* (Choisy) C.B. Clarke in Hook.f., *Fl. Brit. India* 4: 185. 1883. *Type*: INDIA, **Assam**, Goalpara, 06.08.1808, *Wallich Cat. 1414/2 s.n.* (G-DC [G00134958 digital image!]). **Fig. 13**

A climber; stem woody towards the base, younger stem herbaceous towards the apex, appressed strigose. Leaf lamina elliptic, 8–14 × 3–6 cm, apex acute or narrowly acute, base cuneate to obtuse or round, sparsely strigose below, nearly glabrous above, secondary veins 6–8 pairs, raised prominently below; petiole 3–7 cm long, appressed strigose like stem, terete, green. Inflorescence axillary lax cyme, 4–6-flowered; peduncles 7–16 cm long, longer than the petiole, strigose, green, terete. Bracts 2–3, oblong to linear, 1–2 cm long, caducous, strigose outer. Sepals 5, elliptic to widely elliptic, persistent and elongate in fruits, 5–8 mm long, subequal, apex obtuse to round, strigose outer, glabrous inside. Corolla infundibuliform, 5–6 cm long; corolla tube 3–3.5 cm long, rose pink in colour, throat dark purple, sparsely hairy on midpetaline bands. Stamens 5, included within corolla tube, unequal, 2 long, *c.* 3 cm long, 3 short- 2–2.5 cm long; filaments white, dilated and glandular hairy at base; anthers pink 3–4 mm long. Ovary glabrous, 2-celled; style filiform, white; stigma biglobose, papillate, purple in color. Berries *c.* 8 mm across, 2–4-seeded.

*Flowering & Fruiting*: August to February.

*Habitat*: Grows in evergreen forests at higher altitudes.

*Distribution*: India (Assam, Meghalaya, Sikkim and West Bengal), Bangladesh, and Nepal.

**Etymology:** The specific epithet 'sikkimensis' refers to Sikkim.

**Note:** The species is closely allied to *Argyria elliptica* in its elliptic leaves, small, caducous bracts, few flowered inflorescences with longer peduncle, sepal shape and fruit size.

**32. *Argyria splendens*** (Hornem.) Sweet, Hort. Brit.: 289. 1826; C.B. Clarke in Hook.f., Fl. Brit. India 4:186. 1883. *Convolvulus splendens* Hornem., Hort. Bot. Hafn., Suppl.: 123. 1819. **Neotype** (designated by Staples & Traiperm, 2008): INDIA, [West Bengal], cultivated in Hort. Bot. Calcutta, 03.12.1814, Wallich Cat. 1361.B (K-W [K000197075 image!]).

*Lettsomia splendens* Roxb., Fl. Ind. 2: 75. 1824. *Ipomoea splendens* (Roxb.) Sims, Bot. Mag. 53: t.



**Fig. 13.** Type of *Argyria sikkimensis* (C.B. Clarke) Ooststr. [© The Board of Trustees of the Royal Botanic Gardens, Kew. Reproduced with the consent of the Royal Botanic Gardens, Kew].

2628. 1826. **Lectotype** (designated by Staples & Traiperm, 2008): INDIA, [West Bengal] Calcutta, cultivated in Hort. Bot. Calcutta, [Roxburgh sub], Wallich Cat. 1361.1 (K-W [K000197074 image!], isolecto G [G000171145 image!]). **Fig. 14a-d**

A perennial climbing shrub of 15–25 ft. tall; stems terete, woody c. 1–1.5 cm in diam., with lenticels, glabrous while the younger stem white strigose, terete. Leaf lamina elliptic to narrowly elliptic, 11.5–20 × 5–10 cm, apex acute, base rounded, obtuse or shallowly cordate, glabrous above, white silvery tomentose beneath, secondary veins 12–15 pairs raised conspicuously beneath; petiole 4–10 cm long, terete, green, white tomentulose. Inflorescence terminal 5–10 flowered cyme, peduncle hairy like petiole, 5–12 cm long, elongates in fruiting, usually longer than the petiole. Flower pedicillate, bracteate; pedicel 7–9 mm long. Bracts very early caducous, only few mms in length. Sepals 5, subequal, widely elliptic to orbicular, 0.5–0.6 × 0.5–0.6 cm, apex rounded, white tomentulose outer except overlapped portions, glabrous inner, green, turns red inside after fruiting. Corolla infundibuliform, limbs pale pink, corolla tube white, 5.5–6.5 cm long, 4–5 cm across, throat c. 1 cm in diam., lobes twisted in bud, sparsely white hairy on midpetaline bands. Stamens 5, inserted, subequal, 2.5–2.8 cm long; filaments white, glandular hairy at base; anthers 3–4 mm, white. Ovary glabrous, off white in color; style c. 3.5 cm; stigma biglobose. Berries covered by persistent sepals, 1–1.5 cm across.

**Flowering & Fruiting:** Flowering from September to November and fruiting from late November to January.

**Habitat:** Frequently grows along the margins of evergreen forests.

**Distribution:** India (Assam, Meghalaya, Mizoram, Nagaland and Tripura), Bangladesh, China, and Thailand.

**Etymology:** The specific epithet 'splendens' has its roots in a Latin word 'splendeō' meaning shining,



**Fig. 14.** *Argyreia splendens* (Hornem.) Sweet (a-d): **a.** Flowering twig; **b.** Corolla side & front view; **c.** Sepals; **d.** Fruit. *Argyreia srinivasanii* Subba Rao & Kumari (e-i): **e.** Flowering twig; **f.** Leaf abaxial surface; **g.** Inflorescence; **h.** Bracts; **i.** Sepals. *Argyreia wallichii* Choisy (j-m): **j.** Habit-flowering; **k.** Inflorescence; **l.** Sepals; **m.** Infructescence.

glittering, referred here to shining ventral surface of leaves.

*Specimens examined:* INDIA, **Assam**, Khasi and Jaintia Hills, Rytiang 24.08.1968, *N.P. Balakrishnan* 47050 (ASSAM); Nagaon District, Nagaon, 24.12.1950, *G.K. Deka* 23041 (ASSAM); Naga Hills District, Naga Hills, May 1936, *N.L. Bor* 20775 (ASSAM); Guwahati, Sivasagar, 12.12.1913, *U. Kanjilal* 4273 (ASSAM); Golaghat District, Dhansiri, 19.04.1914, *Upendranath Kanjilal* 3839 (ASSAM); Dima Hasao District, North Cachar Hills, 28.08.1908, *William Craib* 339 (ASSAM). **Meghalaya**, Ri-Bhoi District, Nongpoh, Umling, 16.03.1966, *J. Joseph* 45156 (ASSAM); Umrangso Dam Area, Survey of Kapil catchment area, 23.02.2007, *R.S. Barnah* 114006 (ASSAM). **Mizoram**, Dampa Tiger Reserve, Damparengpui, 27.10.2007, *B.K. Sinha* 116989 (ASSAM); West Phaileng, Teirei, 01.12.2012, *N. Odyuo* 113525 (ASSAM); Aizawl, Mizoram University Campus, November 2017, *P.R. Lawand* 026 (NCK); Aizawl, West Phaileng, Damparengpui, 09.10.2018, *P.R. Lawand* 063 (NCK). **Nagaland**, Phek District, Meluri, 25.10.1973, *Chandra Bahadur* 55629 (ASSAM); Chittagong Hill Tracts, Naga Hills, September 1886, *Dr. King's collector* 155 (ASSAM). **Tripura**, Sikhau Sarmon, 04.02.1962, *D.B. Deb* 27461 (ASSAM).

*Vernacular names:* *Phla-Vaja*, *Phla-Naga* (Nagaland).

*Notes:* The species can be readily recognized by its elliptic, shining adaxial leaves, white corolla tube, pale pink corolla limb and red fleshy berries. It is closely related to *A. elliptica* in its elliptic leaves, widely elliptic to orbicular sepals, but can be differentiated by its silvery shiny leaves and red berries.

**33. *Argyreia srinivasanii*** Subba Rao & Kumari, Fl. Visakhapatnam Distr. Andhra Pradesh 1: 556. 2003. *Type:* INDIA, **Andhra Pradesh**, Sileru to Donkarayi road, near Busi-konda, *Subba Rao* 42707 (MH).

**Fig. 14e-i**

A climber grows up to 5–15 ft tall; stems semi-woody towards base, glabrous, young, purple, white

sericeous, terete. Leaf lamina ovate–broadly ovate, 15–25 × 9–12 cm, base cordate, leaf lobes rounded, apex shortly acuminate, adaxially strigulose, brown hirsute abaxially, not shining, secondary veins 6–7 pairs. Inflorescence axillary cymes, 5–7-flowered; peduncle 3–6 cm long, white tomentose; petiole 7–10 cm long, longer than peduncle. Bracts 2, outer leafy 2–2.5 × 0.5 cm lance-ovate, single prominently veined, inner bract 1–1.5 × 0.2–0.3 cm, linear-lanceolate. Flower pedicellate; pedicels c. 0.5 cm, tomentose. Sepals-5, subequal, outer three c. 1.5 cm, ovate apically reflexed, inner two, 1–1.2 cm, shortly acuminate, hirsute without except on overlapped parts, glabrous within, lance-ovate, enlarges in fruiting. Corolla infundibuliform, 4–6 × 5–6 cm, rose pink, throat dark purple, c. 1 cm wide, hirsute on midpetaline bands. Stamens 5, unequal, 2 long 2.5–3 cm long, 3 short 1.5–2 cm; filaments dilated and glandular hairy at base; anthers 4–5 mm long, sigittate, pink. Ovary pale green; style 1, white; stigma biglobose, pale pink. Berries yellow, 1–1.5 cm across, 2–4 seeded.

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

*Habitat:* The species is frequent along the semi-evergreen forests of the Eastern Ghats.

*Distribution:* India (Andhra Pradesh); endemic.

*Specimens examined:* INDIA, **Andhra Pradesh**, Visakhapatnam District, Sileru, near water fall, 22.09.2018, *P.R. Lawand* 027 (NCK); Visakhapatnam District, Sileru, Busikonda road, 22.09.2018, *P.R. Lawand* 064 (NCK). **Chhattisgarh**, Kanger Ghati National Park, on the way to Tirathgadh waterfall, 27.09.2018, *P.R. Lawand* 066 (NCK). **Odisha**, Malkangiri District, Chitrakonda, forests near Chitrakonda, 22.09.2018, *P.R. Lawand* 065 (NCK).

*Conservation status:* *Argyreia srinivasanii* was initially known only from its type locality, Sileru in Andhra Pradesh. However, recent collections by the authors from Chhattisgarh (on the way to Tirathgadh Waterfall) suggest that the species'

distribution may extend to Odisha. Information on potential threats to this taxon remains unavailable. Therefore, it is appropriate to assign the category of Data Deficient (DD) to this species, as per IUCN (2024).

*Note:* In the protologue, Subba Rao & Kumari (2003) noted its similarity to *Argyreia pilosa*. However, apart from the presence of yellow berries and general flower morphology, the species is entirely distinct from *A. pilosa*. Instead, it is more closely allied to *Argyreia arakuensis* and may represent a geographic variant of it. *Argyreia arakuensis* and *A. srinivasanii* share several common traits, including a densely white-tomentose lower leaf surface, compactly arranged inflorescences, similar flower shape and size, comparable sepals, and yellow-colored fruit. However, *A. srinivasanii* is distinguished by its ovate leaves (longer than broad), the presence of 6–7 secondary veins, shorter peduncle length, and lanceolate-spathulate bracts that are narrower compared to those of *A. arakuensis*.

**34. *Argyreia wallichii*** Choisy, Mém. Soc. Phys. Genève 6: 421 1834; C.B. Clarke in Hook.f., Fl. Brit. India 4: 187. 1883. *Syntype* (possible holotype): MYANMAR, Toang Dong, 19.11.1826, *N. Wallich* Cat. 1413/1 [field ticket 780] (G-DC [G00134962 digital image!]).

*Argyreia wallichii* Choisy var. *coriacea* C.B. Clarke in Hook.f., Fl. Brit. India 4: 187. 1883 **syn. nov.** *Lectotype* (designated here): INDIA, Assam, Upper Assam, Jenkins, *s.d.*, *s. coll. s.n.* (K [K000857258 digital image!]; Isolecto K [K000830656, K00830657 digital images!]; G [GH00054263 digital image!]).

*Convolvulus erythrocarpus* Wall. Cat. 1413. *nom. nud.*

Fig. 14j–m

A moderate height perennial climber, laticiferous; stems green, white sericeous, terete. Leaf lamina widely ovate, 16–22 × 14–16 cm, base cordate (round in young leaves), apex acute, secondary veins 12–13 pairs raised beneath, white tomentose

beneath; petiole white tomentose, 12–17.5 cm long, longer than the peduncle. Inflorescence axillary, capitata cyme, 5–8-flowered; peduncle tomentose as stem 1–2 cm long, shorter than the petiole. Flowers sessile, bracteate; bracts 2–3, one larger 2.5–3 × 2.5 cm, ovate, foliaceous, concave, enclosing the bud, inner 1.5–1.7 × 0.8–1.0 cm, lance-ovate, white tomentose outer, glabrous inner. Sepals 5, outer two large, 2–2.5 cm, ovate, inner three small, 1–1.8 cm long, narrowly oblong, apex acute, strigose outer, glabrous inside, turn red inside in fruit. Corolla campanulate, white-pale pink, 4–5 cm long, hairy on midpetaline bands. Stamens 5, raised up to corolla mouth, sub-equal 1.8–2 cm long; filaments white, dilated and glandular hairy at base; anthers 4 mm long, white. Ovary glabrous, off white; style single; stigma biglobose, white. Berries globose, 0.8–1 cm across, scarlet red, 2–4-seeded.

*Flowering & Fruiting:* Flowering from late September to October and fruiting from November to January.

*Habitat:* Plants twines on the bamboos in the evergreen forests.

*Distribution:* India (Assam, Manipur, Meghalaya, Mizoram), Myanmar and Thailand.

*Etymology:* This species is named in honor of eminent botanist Nathaniel Wallich (1786–1854), whose most of the material were received by Choisy.

*Specimens examined:* INDIA, Assam, Guwahati, Garbhanga Forest, Umlathu, 15.11.2017, *P.R. Lawand* 028 (NCK); Guwahati, Garbhanga forest, 15.11.2017, *P.R. Lawand* 067 (NCK). Manipur, Imphal, Sepramaina, 20.09.1953, *S.C. Sinha* 1143 (CAL); Irony, Bishnupur, November 1907, *A. Meebold* 5998 (CAL); Irony, Bishnupur, February 1906, *A. Meebold* 5159 (CAL); Naga Hills, July 1886, *D. Prain* 310539 (CAL). Meghalaya, Ri Bhoi District, Khasi and Jaintia Hills, Bayrnihat, 20.10.1915, *U. Kanjilal* 6072 (ASSAM); Khasi and Jaintia Hills, Nongpoah, Umsaw, 14.08.1952, *G.K. Deka* 63826 (ASSAM); Ri Bhoi District,

Nongpoah, 20.09.1970, P.K. Hajra 34251 (ASSAM); Ri Bhoi District, Umling, on the way to Lailad, November 2017, P.R. Lawand 068 (NCK); Nongpoah, 07.10.1908, W.W. Smith 246 (CAL). **Mizoram**, Champhai District, Vaphai-Farkawn, 13.10.2018, P.R. Lawand 069 (NCK).

*Vernacular names:* Jatap Masi (Khasi).

*Notes:* The variety *Argyreia wallichii* var. *coriacea* was established by C.B. Clarke (1883) based on the presence of leathery leaves and sepals, a concept later adopted in the *Flora of Mizoram*. During our observations of several populations of *A. wallichii* in northeastern India, we noted that the young leaves of *A. wallichii* appear leathery but become thin and papery upon maturity, with the hairs on the lower leaf surface turning ashy white. Additionally, *A. wallichii* var. *wallichii* also exhibits leathery sepals. Based on studies of type specimens and field observations, we are confident that the supposed varieties within the species represent morphological or developmental variations. Therefore, we treat *A. wallichii* var. *coriacea* as a synonym of *A. wallichii*.

*Argyreia wallichii* closely resembles *A. pierreana* Bois, as both share similar characteristics, including a white-tomentose abaxial leaf surface,

ovate to orbicular bracts, pale pink flowers, and red-colored fruits.

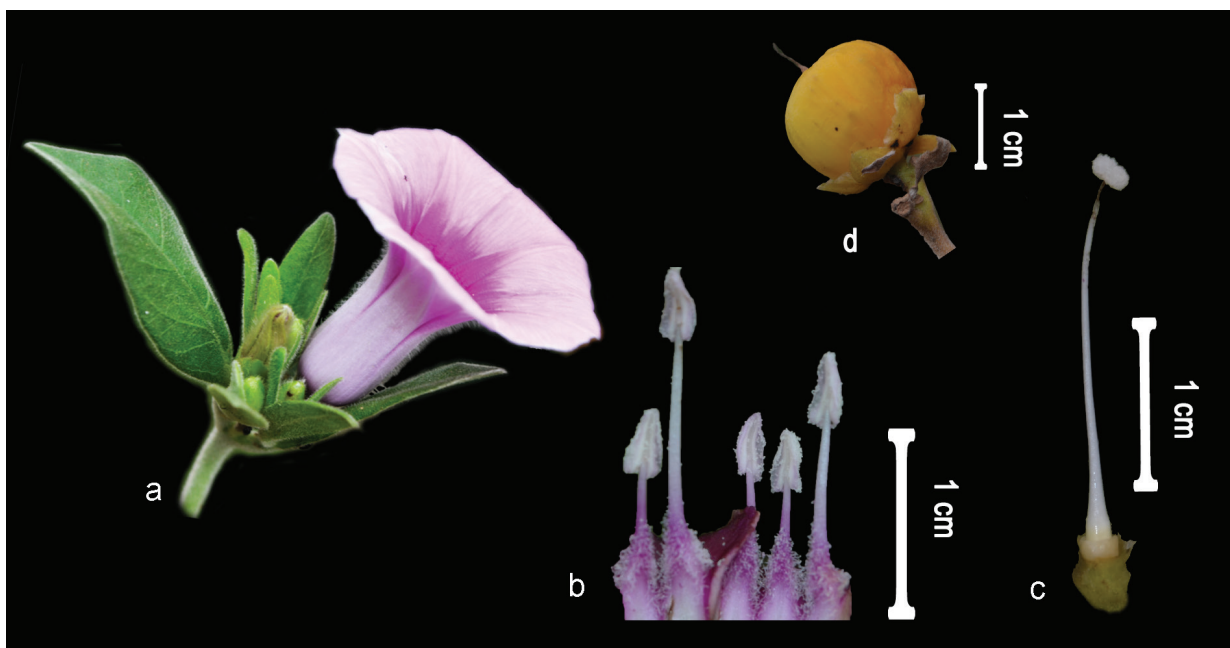
**35. *Argyreia zeylanica*** (Gaertn.) Voigt, Hort. Suburb. Calcutt.: 351. 1845. *Ipomoea zeylanica* Gaertn., Fruct. Sem. Pl. 2: 482, t. 178, fig. 1. 1791. *Lectotype* (Staples & Traiperm, 2017): [illustration] "*Ipomoea zeylanica*" in Gaertner, Fruct. Sem. Pl. 2: t. 178, [fig. 1]. 1791.

*Lettsomia pomacea* Roxb., Fl. Ind. 2: 83. 1824, *nom. illeg.* *Argyreia pomacea* Sweet, Hort. Brit., ed. 2: 373. 1830. *Argyreia pomacea* Choisy Mém. Soc. Phys. Genève 6: 413 [Convolv. Orient.: 31]. 1834. *nom. superfl.* *Rivea pomacea* Wight, Icon. Pl. Ind. Orient. 3(2): 8, t. 888. 1844–45 *nom. illeg.* *Type:* INDIA, [West Bengal] Calcutta Bot. Gard. (cult.), W. Roxburgh s.n. under *Wallich Cat.* 1419. Suppl. [K-W, G-DC [G00134882 digital image!].

*Argyreia pomacea* Choisy var. *triflora* C.B. Clarke in Hook f., Fl. Brit. India 4: 188. 1883. *Type:* SRI LANKA, Without locality, *Thwaites* C.P.1932 (holo K [K000830642 digital image!]; iso P [P00584830 digital image!].

**Fig. 15a–d**

A woody lianal older stems without hairs, woody, 2–2.5 cm in diam., younger stems green, herbaceous,



**Fig. 15.** *Argyreia zeylanica* (Gaertn.) Voigt (a–d): **a.** Inflorescence; **b.** Stamens; **c.** Gynoecium; **d.** Fruit.

appressed white strigose, terete. Leaf lamina ovate or elliptic, 5–9 × 3–5 cm, base shallowly cordate in mature leaves or rounded, obtuse, apex acute or sometimes emarginate, upper surface strigose, lower surface densely white tomentose, secondary veins 7–8 pairs, raised beneath; petiole 2–5 cm long, adaxially grooved, white appressed strigose, terete. Inflorescence axillary cyme, 2–5-flowered; peduncle shorter than the pedicel, 2–4 cm long, hairy like stem. Flower pedicellate, bracteate. Bracts 2; outer larger *c.* 3 × 0.5 cm, elliptic; inner bract 1–1.5 × 0.4–0.5 cm, lance-ovate, tomentose on both sides, persistent. Sepals 5, subequal, lanceolate, 0.8–0.9 cm long, inner three wider, apex obtuse, sparsely hairy outer, glabrous inner, enlarges in fruit. Corolla infundibuliform, rose pink colored, 4–5 cm long, same across, throat dark purple, 1 cm wide, hairy on midpetaline bands. Stamens 5, unequal 2 long 1–1.5 cm long, 3 short 0.8–1 cm long; filaments dilated and glandular hairy at base, pink colored; anthers 4–5 mm long, pink. Ovary conical, pale white; style 1, *c.* 1 cm long, white; stigma biglobose, white, papillate. Berries fleshy, yellow, 1–1.2 cm across, 2–4 seeded.

*Flowering & Fruiting:* Flowering from early September to November and fruiting from November to January.

*Habitat:* The plants are found frequent in the disturbed open areas, climbing on the shrubs in abandoned fields and along roadsides.

*Distribution:* India (Kerala and Tamil Nadu) and Sri Lanka.

*Etymology:* The specific epithet '*zeylanica*' is named after the type locality Ceylon (Sri Lanka).

*Specimens examined:* INDIA, **Kerala**, Palghat District, Attapadi block, 27.08.1966, *E. Vajravelu* 27846 (CAL); Kasargod District, Periya reserve forest, 08.08.1984, *R.T. Balakrishnan* 40359 (CALI); Kottayam, Mariyur-Dearkolam, 18.06.1963, *M. Chandrabose* 30563 (MH00139621); Kottayam, Chinnar to Mariyar, 19.04.1964, *K.M. Sebastine* 18310 (MH). **Tamil Nadu**, Coimbatore, Anaikatti

forest, 28.05.1994, *S.K. Mondal* 7116 (CAL); Coimbatore, Mettupalayam, 28.09.1962, *C.P. Sreemadhavan* 15406, 318288 (CAL); Coimbatore, Thenisipillam Hills, 10.05.1970, *C.E.C. Fischer* 1894, 310581 (CAL); Coimbatore, Muruthamalai, 20.07.1956, *K.M. Sebastine* 338 (CAL); Coimbatore, Foot of Konamalai, 570 m, 18.09.1963, *C.P. Sreemadhavam* 811 (MH); Coimbatore, Anakkatti, 850 m, 23.06.1970, *M.V. Viswanathan* 669, (MH [MH00139609]); Coimbatore, Noyil River side, 466 m, 1.07.1968, *M. Chandrabose* 30271, (MH [MH00139603]); Coimbatore, Slope of Kuridimalai, 10.07.1956, *K. Subramanyam* 236 (MH [MH00139472]); Coimbatore, Noyil River Side, 01.08.1968, *M. Chandrabose* 30563 (MH [MH00139621]); Coimbatore, Palamalai, 5.09.1969, *M.V. Viswanathan* 119 (MH [MH00139620]); Coimbatore, foot of Konamalai, 18.09.1963, 570 m, *C.P. Sreemadhavan* 811 (MH [MH00139617]); Coimbatore, Anaikatti, 23.06.1970, 850 m, *M.V. Viswanathan* 669 (MH [MH00139606]); Coimbatore, Anaikatti to Sholayur Road, Forest near Anaikatti, 26.11.2017, *P.R. Lawand* 028 (NCK); Coimbatore, Mettupalayam, on the way to Ooty, 30.10.2018, *P.R. Lawand* 070 (NCK).

*Vernacular names:* *Unam kodhy* (Tamil).

*Notes:* The species is morphologically similar to *Argyreia bracteata*, sharing characteristics such as leaf shape and overall hairiness. However, it is distinct due to its lance-ovate bracts, longer peduncles, and few-flowered inflorescence. The species is popularly referred to as *A. pomacea* among Indian taxonomists. However, Staples and Traiperm (2017) have synonymized this name under *A. zeylanica*.

*Argyreia lakshminarasimhanii* S. Shalini, Sujana, Arisdason & D. Maity, a recently described species from the southern Western Ghats of India (Shalini et al., 2020), closely resembles *A. zeylanica* in several aspects. Both species share ovate, white-sericeous abaxial leaves, lance-ovate to lanceolate bracts, and compact inflorescences.

Notably, *A. lakshminarasimhanii* was described



based on the adnation (attachment) of stamens at the base of the corolla tube—a feature considered unique and absent in other Indian *Argyreia* species. However, our observations reveal that this character is also present in *A. elliptica*, *A. kondaparthensis*, *A. mastersii*, *A. mollis*, *A. sikkimensis*, and even in *A. zeylanica*.

## Discussion

The Convolvulaceae is one of the dominant families of flowering plants in India, with the genus *Argyreia* being the second largest within the Indian Convolvulaceae. Over the years, the circumscription of *Argyreia* has been widely discussed alongside *Ipomoea* (Clarke, 1883; Cooke, 1908; Van Ooststroom & Hoogland, 1953). Based on molecular evidence, Muñoz-Rodríguez *et al.* (2019) suggested merging *Argyreia* with *Ipomoea*. However, the authors of this study maintain that both genera possess stable taxonomic characters that warrant their separation. *Argyreia* is characterized by a woody habit, well-developed bracts, hairy mid-petaline bands on the corolla, and dry to fleshy indehiscent berries, whereas *Ipomoea* typically exhibits a herbaceous habit, ebracteate flowers, and dehiscent capsules. Additionally, chromosomal differences support the separation, with *Argyreia* having longer chromosomes (5–8.5  $\mu\text{m}$ ) compared to *Ipomoea* (2–4  $\mu\text{m}$ ) (Sampathkumar & Ayyangar, 1981; Lawand *et al.*, 2018).

The diversity of *Argyreia* in India is primarily concentrated in the Western Ghats, Northeast, Central, and Eastern Ghats (Include figure 16). Of the 35 species recorded, 16 (45%) are endemic to India, including: *A. arakuensis*, *A. bella*, *A. boseana*, *A. bracteata*, *A. coonoorensis*, *A. daltonii*, *A. fulgens*, *A. involucrata*, *A. kondaparthensis*, *A. lawii*, *A. nellygherya*, *A. pilosa*, *A. sericea*, *A. sharadchandrajii*, *A. sikkimensis*, and *A. srinivasanii*. Some endemic species, such as *A. bella*, *A. boseana*, *A. daltonii*, and *A. sericea*, are locally abundant or widely distributed across their range.

The Western Ghats harbor 19 species of *Argyreia*, 10 of which are endemic. Among them, *Argyreia*

*sikkimensis* is endemic to Sikkim and West Bengal but is known only from its type locality, with no subsequent collections. *Argyreia atropurpurea* has been reported in India but lacks recent collections; its occurrence in India requires verification as it is otherwise known from Nepal and Thailand. Repeated efforts to locate *A. kondaparthensis* in Telangana, Andhra Pradesh, and Maharashtra were unsuccessful. The species is recognized here as doubtfully distinct from *A. zeylanica*.

*Argyreia lakshminarasimhanii* S. Shalini, Sujana, Arisdason & D. Maity recently described from the Western Ghats of India, was based on a single specimen without population studies. Its diagnostic feature—stamens attached at the base of the corolla tube—is not exclusive, as this character is common across many *Argyreia* species. Thus, the species' distinctiveness is questionable.

During the revision, *A. lawii* C.B. Clarke and *A. srinivasanii* Subba Rao & Kumari are rediscovered.

Lectotypes were selected for *Argyreia argentea* (Roxb.) Sweet, *A. barbiger* Choisy, *A. daltonii* C.B. Clarke and *A. leschenaultii* Thwaites. The names *Argyreia hirsutissima* (C.B. Clarke) Thoth., *A. thomsonii* (C.B. Clarke) Babu, *A. leschenaultii* Thwaites, *A. involucrata* var. *inequalis* C.B. Clarke, *A. setosa* var. *minor* (C.B. Clarke) Staples & Traiperm and *A. wallichii* var. *coriacea* C.B. Clarke are recognized as new synonyms.

The endemic species of *Argyreia* were assessed for IUCN Red List categories, considering their abundance, distribution, and population sizes. *Argyreia fulgens* and *A. lawii* were assessed as Endangered (EN). Four species—*A. arakuensis*, *A. coonoorensis*, *A. involucrata*, and *A. nellygherya*—were categorized as Vulnerable (VU). *A. daltonii*, *A. hirsuta*, and *A. pilosa* were placed in the Near Threatened (NT) category. Three species were recorded as Data Deficient (DD) due to the scarcity of herbarium specimens, collection data, and literature. The remaining species of *Argyreia* were assigned to the Least Concern (LC) category because of their wide distribution range and other criteria.

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