

**FASCICLES
OF
FLORA OF INDIA**

FASCICLE 18

ROSACEAE : GENUS—PRUNUS

CHHABI GHORA AND G. PANIGRAHI

BOTANICAL SURVEY OF INDIA

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सत्यमेव जयते

BOTANICAL SURVEY OF INDIA

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ROSACEAE : GENUS—PRUNUS†

CHHABI GHORA* AND G. PANIGRAHI*

PRUNUS

L. Sp. Pl. 473. 1753 et Gen. Pl. ed. 5 : 213. 1754 ; Benth. & Hook. f. Gen. Pl. 1 : 609. 1865 ; Hook. f. Fl. Brit. Ind. 2 : 312. 1878 ; Focke in Engl. & Prantl, Nat. Pfl. 3(3) : 51. 1891 ; Hutchinson, Gen. Pl. 1 : 188. 1964 ; Kalkman in *Blumea* 13 : 2. 1965 ; Robertson in J. Arn. Arb. 55 : 654. 1974. *Amygdalus* L. Sp. Pl. : 472. 1753 & Gen. Pl. ed. 5 : 212. 1754. *Armeniaca* Scop. Meth. Pl. 1 : 15. 1754. *Laurocerasus* (Tourn.) Duhamel, Trait. Arb. & Arbust. 1 : 345. 1755 ("Lauro-cerasus"). *Cerasus* Mill. Gard. Dict. ed. 8 : 1768. *Padus* Mill. Gard. Dict. ed. 4 : 1754. *Persica* Mill. Gard. Dict. ed. 4 : 1754. *Pygeum* J. Gaertn. De Fruct. 1 : 218. 1788. *Prunophora* Neck. Elem. Bot. 2 : 71. 1790. *Amygdalophora* Neck. Elem. Bot. 2 : 70. 1790. *Cerasiphora* Neck. Elem. Bot. 2 : 71. 1790. *Ceraseidos* Sieb. & Zucc. Abh. Math.-Phys. Cl. Konigl. Bayer. Akad. Wiss. 3 : 743, t. 5. 1843. *Microcerasus* P. W. Webb et S. Berthelot, Hist. Nat. Iles Canaries 3 : 19. 1842. *Amygdalopsis* M. J. Roem. Fam. Nat. Syn. Monogr. 3 : 4. 1847.

Shrubs or trees, unarmed or spinescent. Leaves simple, alternate, entire or incised, usually glandular at base, on petiole, on margin or beneath the lamina. Stipules small or large, linear or dissected, margin glandular, caducous or persistent, free or intrapetiolarly connate. Inflorescences solitary, fascicled or racemes. Bracts small, usually caducous. Flowers bisexual. Hypanthia concave, tubular, campanulate or funnel-shaped. Perianth biseriate, 5-merous. Stamens 10-numerous, perigynous, filaments free. Pistil 1, style erect. Ovary superior, ovules 2. Fruits juicy drupes, globose to didymous, 1-seeded, endocarp woody.

Lectotype species : *Prunus domestica* L. [selected by N. L. Briton & A. Brown, An Illustrated Flora of North United States and Canada, New York (ed. 2) : 322. 1913].

Distrib. : Ca 430 species, mostly in the temperate AMERICA, EUROPE and ASIA ; a few species extend to the tropical AFRICA, AUSTRALIA and ASIA. In the strict sense *Prunus* L. includes only cherries, plums, peaches,

† Family Editor for Rosaceae : N. C. NAIR, Botanical Survey of India, Coimbatore.

* Botanical Survey of India, Howrah - 711 103.

spricots etc. all belonging to the subgenus *Prunophora* (Neck.) Focke and comprises only 36 species. *Prunus* L. comprising 34 species, 1 subspecies and 6 varieties in India occurs mainly in the western and the eastern Himalayan region. *Prunus* L. belongs to the family Rosaceae Juss., subfamily Amygdaloideae Torrey & Gray (1840) (as 'Suborder') (= *Prunoideae* Focke, 1888), but is included by some authors in the family Amygdalaceae D. Don (1825), ('-inae').

Chr. No.: $2n = 16, 32, 48, 170-180$ (Meurman, *J. Genetics* 21, 1929; Darlington & Wylie, *Chromosome Atlas of Flowering Plants*, ed. 2. 1955; Love & Love, *Opera Botanica*, 5. 1961).

Ecol.: In India *Prunus* L. mainly inhabits hilly and cold climate areas, but some species are naturalized and found throughout India, usually between 760-3,600 m.

Uses: Most of the species are economically important for their ornamental flowers, oils and fruits like peaches, almond, apricot, cherries, plums etc.

Prunus L. comprises five subgenera viz.,

1. *Prunus*. 2. *Amygdalus* (L.) Focke. 3. *Cerasus* (Mill.) Focke. 4. *Padus* (Mill.) Focke. 5. *Laurocerasus* (Duham.) Rehder.

1a. Inflorescences umbellate, fascicled or reduced to a solitary flower, rarely to very short few-flowered (less than 12) racemes. Petals showy, up to 20×15 mm. Drupes bony :

2a. Leaves usually linear-lanceolate. Drupes velutinous; stone or seed often furrowed and pitted or scrobiculate

...Subg. 2. *Amygdalus*

2b. Leaves usually ovate-lanceolate. Drupes glabrous; stone or seed smooth or rough (drupes rarely pubescent in sect.—*Armeniaca*) :

3a. Flowers from axillary buds or on growths of previous year; terminal bud absent. Hypanthia up to 8 mm long. Drupes sulcate; stones compressed, acuminate at both ends

...Subg. 1. *Prunus*

3b. Flowers on short lateral shoots; terminal bud present.

Hypanthia up to 13 mm long. Drupes smooth ; stone sub-
rotund or cordiform ...Subg. 3. **Cerasus**

1b. Inflorescences in elongated racemes (with more than 12 flowers).
Petals up to 4×2 mm. Drupes soft :

4a. Leaves mostly deciduous, domatia present. Racemes usually
leafy at base. Drupes globose or ovoid ...Subg. 4. **Padus**

4b. Leaves usually persistent, domatia absent. Racemes usually
leafless at base. Drupes ellipsoid, transversely ellipsoid or
bilobed ...Subg. 5. **Laurocerasus**

Subgenus 1. **Prunus**

Subg. *Prunophora* (Neck.) Focke in Engl. & Prantl. l. c. 52 ; Rehder,
Man. Cult. Pl. ed. 2 : 455, 1940.

The subgenus comprising two sections : Sect. 1. *Prunus* and Sect. 2.
Armeniaca (Scop.) Koch which are distinguished as follows :

1a. Flowers pedicelled, pedicels very slender. Ovaries and drupes glabrous,
waxy or bluish white ; stones often sculptured. Flowers appear with
leaves ...Sect. 1. **Prunus**

1b. Flowers sessile or subsessile. Ovaries and drupes velutinous ; stones
smooth or pitted. Flowers appear before the leaves
...Sect. 2. **Armeniaca**

Section 1. **Prunus**

36 species distributed in the North temperate regions of both the
hemispheres ; 4 species, 1 subspecies and an additional variety in India.

1a. Branches hairy, sometimes spiny. Leaf margin serrate. Petioles
eglandular. Drupes ellipsoid, ovoid or oblong :

2a. Bark gray. Leaf apex acute. Flowers usually 2 per peduncle,
greenish white. Pedicels 5-8 mm long. Drupes dark blue,
stones free from flesh ...3. **P. domestica**

2b. Bark orange-yellow to black. Leaf apex acuminate. Flowers
solitary, white. Pedicels 8-13 mm long. Drupes orange to red,
stones not free from flesh. ...2. **P. cerasifera**

1b. Branches glabrous, unarmed. Leaf margin dentate or glandular crenate. Petioles glandular. Drupes cordate-ovoid, grooved on one side :

3a. Leaves elliptic-obovate with abruptly short acuminate apex, glabrous beneath except the bearded axils of midrib. Petioles glabrous. Flowers in threes ...4. *P. salicina*

3b. Leaves elliptic-lanceolate or oblong with acuminate apex, midrib and veins white tomentose beneath. Petioles pilose. Flowers solitary ...1. *P. bokhariensis*

1. *Prunus bokhariensis* Royle ex C. K. Schneider, Repert. Spec. Nov. Regni Veget. 1 : 51. 1906 ; Hook. f. Fl. Brit. Ind. 2 : 315. 1878 ; Rehder, Man. ed. 2. 457. 1940 ; Kovalev, Fl. USSR 10 : 521. 1941 (Eng. ed. 339. 1971) ; Krishnamurthy (ed.), Wealth of India 8 : 269. 1969. *P. bokhariensis* Royle Illustr. Bot. Himal. 205. 1839, *nom nud.*

Alubukhara (Hind., Beng., Guj.).

Small trees ; branches brownish, glabrous. Leaves 5-8 × 2-3 cm, elliptic-lanceolate or oblong, base cuneate, apex acuminate, closely crenate-dentate, midrib and veins white tomentose beneath. Petioles 6-13 mm long, pilose. Flowers solitary, rarely in fascicle, 1.5 cm across. Hypanthia glabrous. Pedicels 10-13 mm long. Sepals oblong, margin entire, base pilose inside. Petals white, oblong. Stamens many (c. 40), in two rows. Style pilose at base. Ovary glabrous. Drupes 1.5 × 2 cm, ovoid. Stones smooth.

Type : Simla, Royle s. n. (? LIV).

Fls. & Frts. : Feb.-June.

Distrib. : INDIA : Kashmir and Himachal Pradesh.

Notes : Schneider (1906) attributes hybrid origin to *P. bokhariensis* Royle ex Schneid. from a cross between *P. domestica* L. and *P. insititia* L. and doubtfully believes it to have grown wild in Kashmir [cf. Rehder 1940, and Krishnamurthy (ed.) 1969]. Some North Indian forms of *P. bokhariensis* approach *P. cerasifera* Ehrh. in gross morphology and according to Schneider, after some generations, forms of *P. bokhariensis* may revert back to show some characters of one of its parents, *P. domestica* L. Kovalev (1941/71 : 389) and Rehder (1940), on the other hand,

consider that *P. bokhariensis* Schneid. may represent forms of the basic species, *P. salicina* Lindl. (1829).

2. *P. cerasifera* Ehrh. Beitr. Zur. Nat. 4 : 17. 1789; Hara in Hara et al. Enum. Fl. Nepal 2 : 141. 1979.

Shrubs or trees, 8 m high; branches slightly thorny, smooth, green, tomentose. Leaves 3-8 × 1.5-3.2 cm, elliptic or ovate-obovate, base cuneate, obtusely serrate midrib whitish-villous beneath. Petioles 10-12 mm long. Flowers solitary, white, 2.0-2.5 cm across. Hypanthia 6 mm long. Pedicels 10-15 mm long, glabrous. Sepals 1.5-4 mm. Petals 7-10 mm long. Stamens 22-25, filaments 6 mm long. Style 6 mm long. Drupes 1.5-2 × 2.5-3 cm, shiny ovoid, with a small point, edible.

- 1a. Bark brown. Leaves green, apex short acuminate. Drupes orange yellow to reddish bronze ...var. *cerasifera*
1b. Bark almost black. Leaves deep red, apex abruptly acuminate, ending in a small notch. Drupes deep red .var. *pissardii*

var. *cerasifera*; *Prunus domestica* L. var. *myrobalana* L. Sp. Pl. : 680. 1753. *P. communis* sensu Kanjilal & Das, Fl. Assam 2 : 183. 1938, p.p. quoad. *synon*, *non* Hudson 1778. *P. communis* Huds. subsp. *divaricata* sensu Brandis, For. Fl. 192. 1874, *non* *P. divaricata* Ledeb. (1824).

Cherry plum, 'Myrobalan' (Eng.).

Type locality: "Vaterland 1st Virginien" (Type not traced).

Fls. & Frts.: Mar.-Apr.

Chr. No.: 2n = 16 (diploid).

Distrib.: A native of WESTERN ASIA. Cultivated in India (Uttar Pradesh), in SOVIET UNION, SOUTH EUROPE (including UNITED KINGDOM) and NORTH AMERICA.

var. *pissardii* (Carr.) Bailey, Stand. Cycl. Hort. 3 : 2825. 1916; Kanjilal & Das, *op. cit.* : 183. *P. pissardii* E. A. Carriere, Revue Hort. 190-191, a plate, 1881.

Copper plum (Eng.).

Shrubs or trees, branches and bark blackish, young shoots red. Leaves 3-6 × 1.0-2.5 cm, deep red, ovate, base cuneate, apex abruptly tapering in a small notch, crenate-serrate. Flowers solitary, 1.5-1.8 cm across. Hypanthia 4 mm long. Pedicels 12-18 mm long, red, glabrous. Sepals 4 × 2 mm, red, ovate. Petals 9 × 7 mm, white, obovate. Stamens many; filaments 6 mm long, white or flesh-coloured; anther-lobes orange-coloured. Style 8 mm long. Drupes ovoid, red; pulp sweet, edible.

Type: Iran: Touris of Teheran, *Pissard* s. n. (cultivated in France at "Chatenayles—Sceaux, Mr. Paillet").

Fls.: Mar.

Distrib.: Native of IRAN. Cultivated in INDIA (Meghalaya, Assam, Uttar Pradesh); EUROPE (FRANCE) and NORTH AMERICA.

3. *P. domestica* L. Sp. Pl. 475. 1753.

Figs. 1-6

Trees 12 m high. Bark gray. Leaves 4.0-8.5 (-10) × 2-4 cm, ovate-lanceolate, base cuneate, apex acute, serrate, pubescent on veins beneath, midrib glabrous. Petioles 1.0-1.5 cm long. Flowers in pairs, 1.5-2 cm across. Hypanthia 3 mm long. Pedicels 5-8 (-20) mm long, sometimes appear in umbellate fascicles, slightly hairy or glabrous. Sepals 1-2 × 2.0-2.5 mm, pubescent inside. Petals 4-5 × 3-4 mm, greenish white. Stamens 22-25, filaments 5 mm long. Style 1 mm long. Drupes 1.0-1.5 × 1.5-2 cm, fleshy; stone smooth.

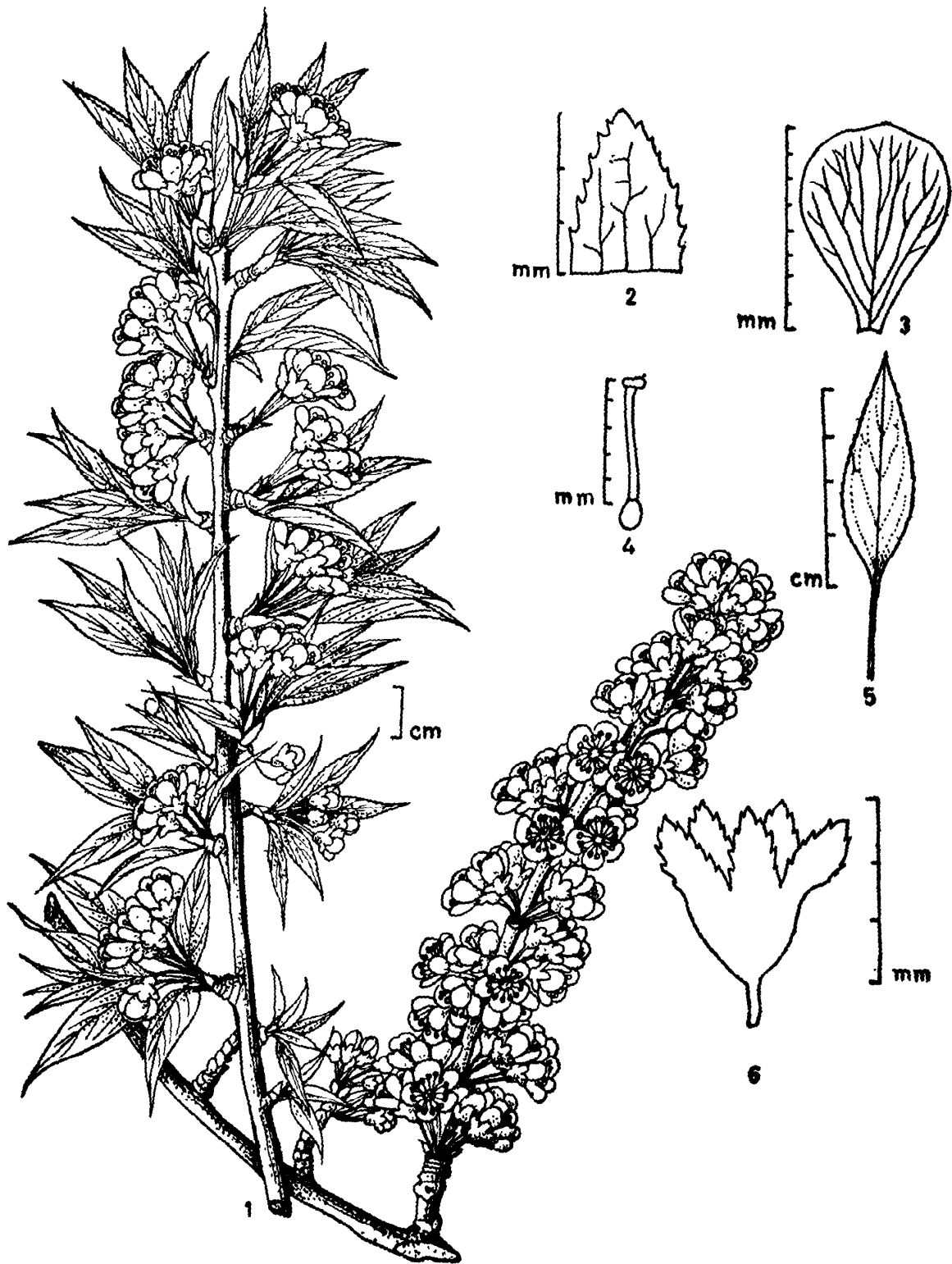
1a. Branches smooth, puberulous. Leaves pubescent beneath on lateral veins only, midrib glabrous. Drupes oblong, erect, sweet
...subsp. **domestica**

1b. Branches more or less thorny, villous. Leaves pilose beneath on veins and midrib. Drupes globose, nodding, sour
...subsp. **insititia**

subsp. **domestica**; *P. communis* Huds. Fl. Anglica, ed. 2, 1 : 212. 1778.
P. communis Huds. var. *domestica* (L.) Huds. l. c.; Hook. f. Fl. Brit. Ind. 2 : 315. 1878. *P. comunis* subsp. *domestica* (L.) Brandis, For. Fl. 192. 1874.

Plum, Prune, Kashmir plum, Gardalu (Eng.).

Type: "In Europaeustralioris .", *Hort Cliff*. 186, p. p. (BM).



Prunus domestica L.
 Figs. 1-6 : 1. Flowering branches. 2. Sepal. 3. Petal. 4. Carpel. 5. Leaf.
 6. Floral cup.

Fls. & Frts. : Feb.-July.

Chr. No. : $2n = 48$ (hexaploid).

Distrib. : Probably native of Caucasus and Trans-Caucasus region. In India as an escape from cultivation and found wild in Kashmir, Punjab, Uttar Pradesh, Meghalaya ; also in CHINA, SOVIET UNION, AFRICA, EUROPE, NORTH AMERICA.

Notes : It is a natural allopolyploid species ($2n = 48$) arising from the hybridization of *P. cerasifera* Ehrh. ($2n = 16$) with *P. spinosa* L. ($2n = 32$). The two species grow together in the Caucasus region and have interbred for thousands of years. Cultivated plums show great variety in their colour, shape, size and flavour—indeed the variety one would expect from the progeny of two such distinct parents. (Kovalev, Fl. USSR 10 : 384. 1941/1971 ; Nicolson *et al.*, The Oxford Book of Food Plants : 68. 1969/1975).

subsp. *insititia* (L.) C. K. Schneider, Ill. Handb. Laubholz. 1 : 630, 1906 ; Maheshwari, Fl. Delhi : 154. 1963 ; Singh et Jain in Bull. Bot. Surv. Ind. 17 : 138. 1975. *P. insititia* L. Cent. Pl. 1 : 12. 1755. *P. communis* Huds. var. *insititia* (L.) Huds. *op. cit.* : 212 ; Hook. f. Fl. Brit. Ind. 2 : 315. 1878 ; Duthie, Fl. Upp. Gang. Pl. 1 : 324. 1903 (Repr. ed. 299. 1960). *P. communis* Huds. subsp. *insititia* (L.) Brandis, *op. cit.* : 192 ; Deb in Bull. Bot. Surv. Ind. 3 : 259. 1961.

Bullace, Damson plum (Eng.) ; *Phalan* (Kash.).

Shrubs or trees, 6-8 m high ; branches more or less thorny, straight ; young branches and buds pubescent or villous. Leaves 2.0-7.5 × 1-3 cm, elliptic-ovate, base cuneate, apex acute, crenate-serrate, pilose beneath on veins and midrib. Petioles 7-15 mm long. Flowers in pairs, 1.2-1.4 cm across. Hypanthia 2 mm long. Pedicels 5-7 mm long. Sepals 1.5 × 2 mm. Petals white, 3-4 × 8-10 mm. Stamens 22-26 ; filaments 4 mm long. Style 8 mm long. Drupes 2.0-3.5 × 3-4 cm, yellow-red, globose.

Type : “In Anglia, Germania, Tyska Slan” s. n. (640/25—LINN ; microfiche-CAL!).

Fls. & Frts. : Apr.-Sept.

Chr. No. : $2n = 48$ (hexaploid).

Distrib. : Native of WESTERN ASIA and SOUTH-EASTERN EUROPE. It

grows wild in Northern Hemisphere including India (Kashmir, Punjab, Uttar Pradesh, Meghalaya and Manipur) sometimes cultivated.

Notes : Subsp. *insititia* is intermedia in character between *P. domestica* and *P. spinosa* and is thought to be reversion of *P. domestica* towards wild or semi-wild forms. Its fruits are round and blue-black and highly acidic.

4. *P. salicina* Lindl. in Trans. Hort. Soc. London 7 : 239. 1829. *P. triflora* Roxb. Fl. Ind. ed. 2, 2 : 501. 1832 (*Sphalm. trifolia*) ; Steud. Nom. ed. 2, 1, 404. 1841 ; Hook. f. Fl. Brit. Ind. 2 : 315. 1878. *Cerasus salicina* (Lindl.) G. Don in Loudon's Hortus Britannicus, ed. 2, 480, Cat. No. 28315. 1832.

Chinese plum, Japanese plum, willow-leaved cherry tree (Eng.) ; *Hongsum-li* (China) ; *Muneypore plum* (Manip.).

Shrubs or trees, 10 m high, branches unarmed. Leaves 4-7.5 × .05-3 cm, elliptic-obovate, base cuneate, apex abruptly acuminate, gland-serrate to crenulate, glabrous beneath except the bearded axil. Petioles 8-10 mm (2 cm) long with few glands. Flowers in clusters of 3, in fascicle of many groups on short shoot, 1.5-2 cm across. Hypanthia 6 mm long. Pedicels 10-15 mm long, glabrous. Sepals 2 × 1 mm, ovate. Petals 8-10 × 9-12 mm, round-obovate, stamens 30. Style 13 mm long. Drupes 5-7 cm across, yellow or dark purple; globose to cordate, with deep suture, pointed at apex.

Type : China, 1822, *Reeves* s. n. (cultivated in the garden of the Hort. Soc. London) (CGE ?).

Fls. : Feb. ; *Frts.* : Apr.-June.

Note : In some places the plant is confused as *alubukhara*.

Distrib. : Long times ago, the species was in cultivation in the Indian Botanic Garden as evidenced by the specimen "HBC" (CAL Acc. no. 143990). Cultivated in INDIA (Uttar Pradesh, Sikkim, West Bengal, Assam, Meghalaya, Manipur and Nilgiris at 1400-1800 m—Tamil Nadu). Native of SOUTH-EAST and NORTH CHINA and BURMA.

Section 2. *Armeniaca* (Scop.) Koch in Roehling Deutch. Flora, 3 : 410. 1831.

10 species, distributed in the temperate Asiatic countries; in India represented by 2 species.

- 1a. Leaves cordate to orbicular ovate, margin crenate-serrate, pubescent beneath at angles of veins. Pedicels 1-3 mm long. Drupes reddish orange to yellow, pubescent; pulp bitter, stone sweet

...5. *P. armeniaca*

- 1b. Leaves ovate, margin double-serrate, glabrous beneath. Pedicels 4-7 mm long. Drupes purple to violet black, velvety; pulp sour, stone bitter

...6. *P. dasycarpa*

5. *P. armeniaca* L. Sp. Pl. : 474. 1753; Roxb. Fl. Ind. 2 : 501. 1832; Brandis, For. Fl. 192. 1874; Hook. f. Fl. Brit. Ind. 2 : 313. 1878; Duthie, Fl. Upp. Gang. Pl. 1 : 324. 1903 (Repr. ed. : 298. 1960); Haines, Bot. Bih. Or. Pt. III. 336. 1922 (Repr. ed. 3, 2 : 351. 1961). Rehder, Man. ed. 2 : 462. 1940; Krishnamurthy (ed.), Wealth of India, 8 : 256. 1969; Singh & Kachroo, For. Fl. Srinagar : 133. 1976. Hara Enum. Fl. Pl. Nepal 2 : 141. 1979. *Armeniaca vulgaris* Lam. Encycl. Meth. 1 : 2. 1783; DC. Prodr. 2 : 532. 1825; Kostina, Fl. USSR 10 : 586. 1941, Plate 38, fig. 1 (Eng. ed. 436. 1971).

Apricot (Eng.); *Iser* (Kash.); *Jardalu* (Punj.); *Chulu* (N. W. Punj., Himal.).

Trees, 8 m high; bark reddish. Leaves 6.5-11 × 3.5-6 cm, cordate to orbicular ovate, base cordate or rounded, apex acuminate, crenate-serrate, pubescent beneath at angles of veins. Petioles 2-3.5 cm long, 2-3 glandular, sometimes on base of lamina. Flowers solitary, 2.5-3 cm across. Hypanthia 6-8 mm long, pubescent outside. Pedicels 1-3 mm long, pubescent. Sepals 3 × 4 mm, reddish. Petals 8-10 × 10-12 mm, orbicular, white. Stamens 27-32, filaments 8 mm long. Style 8 mm long. Drupes 2-2.5 × 3-4 cm, reddish orange-yellow, globose or amygdaloid, compressed laterally, pubescent; stone sweet.

Type: Locality unknown (640/12, LINN, microfiche CAL!).

Fls.: Mar.-May; *Frts.*: June.

Distrib.: Cultivated in INDIA (Punjab, Uttar Pradesh, Manipur; naturalized in Kashmir, Himachal Pradesh); cultivated in different parts of the world. The native home of wild apricot was WESTERN ASIA (TRANSCAUCASIA and ARMENIA—Rehder, 1940). According to Brandis (*l. c.*) it is found wild in the North West Himalaya. According to Kostina it is found wild only in WESTERN-TIENSIAN (USSR) and E. CHINA—two separate centres of origin.

6. *P. dasycarpa* Ehrh. Beitr. 5 : 90. 1790. Brandis, l. c. : 192. *Armeniaca dasycarpa* (Ehrh.) Pers. Syn. 1. 1807; DC. Prodr. 2 : 2. 1825. *P. armeniaca* var. *dasycarpa* (Ehrh.) Hook. f. Fl. Brit. Ind. 2 : 313. 1878.

Purple apricot (Eng.); *Chilu* (U.P.).

Trees, 6 m high, young shoots and buds glabrous, shoots olive red. Leaves 3-6 × 3-5 cm, ovate, sometimes orbicular ovate, base round, apex short acuminate, duplicate-serrate or sometimes irregularly crenate, glabrous beneath. Petioles 15-25 mm long, glandular. Flowers solitary, 2 cm across. Hypanthia 5-7 mm long. Pedicels 4-7 mm long, thinly pubescent. Sepals orbicular. Petals 7-9 × 8-10 mm, white or with pink shade. Stamens 28-30. Style 7 mm long. Drupes 3 cm across, subglobose, dark purple to violet-black, velvety; pulp juicy, sour; stone clinging with pitted surface.

Type locality: "Patria—Europe". (Type in MW,—see KOSTINA. Fl. USSR 10 : 444. 1941/71).

Fls.: Mar.-Apr.; *Frts.*: June-July.

Distrib.: Cultivated in INDIA [Kashmir, Himachal Pradesh, Uttar Pradesh. (?)]. Native of EUROPE or MANCHURIA or EAST ASIA.

Notes: The species is not found in the wild and is suspected to be of hybrid origin between *P. armeniaca* L. and *P. cerasifera* Ehrh., whereas Kostina, Fl. USSR 10 : 445. 1941/71 attributes its hybridity to *Prunus armeniaca* and *P. divaricata* Ledeb.

Subgenus 2. *Amygdalus* (L.) Focke in Engl. & Prantl, Nat. Pfl. 3(3) : 53. 1891; Robertson in J. Arn. Arb. 55 : 654. 1974. *Amygdalus* L. Sp. Pl. 1 : 472. 1753 et Gen. Pl. ed. 5 : 212. 1754.

The subgenus comprises 40 species distributed in the Medit. region to Central China; of these only 2 spp. occur in India.

- 1a. Leaves broadest below the middle, crenulate. Flowers 1-2, pedicels 3-5 mm long. Drupes velvety, obliquely ovoid, curved at one side, splits open into two; stone smooth, compressed; pulp dry, kernel edible ...7. *P. amygdalus*
- 1b. Leaves broadest above the middle, serrate-serrulate. Flowers solitary, pedicels 2-3 mm long. Drupes pubescent, elliptic to subglobose, fleshy, not splitting; stone sulcate, scrobiculate; pulp fleshy and edible, kernel non-edible ...8. *P. persica*

7. *P. amygdalus* Batsch, Beytr. Entw. Pragm. Gesch. Natur. Reiche, 1 : 30. 1801 ; Brandis, *l. c.* 190 ; Hook. f. Fl. Brit. Ind. 2 : 313. 1878 ; Haines, Bot. Bih. Or. Pt. III. 336. 1922 (Repr. ed. 3, 2 : 351. 1961) ; Rehder, Man. ed. 2 : 463. 1940. *Amygdalus communis* L. Sp. Pl. : 473. 1753 ; Roxb. Fl. Ind. 2 : 500. 1832, *non Prunus communis* Huds. 1778.

Sweet almond (Eng.) ; *Badam* (Beng.).

Trees, 8 m high. Leaves alternate or in clusters, 3.5-9(12) × 1-2 cm, linear lanceolate to lanceolate, broadest below the middle, base cuneate, apex acute, crenulate, glabrous, sometime with glandular margin. Petioles 0.5-2.4 mm long, 2 (-4) glandular. Flowers 1-2, 3-5 cm across. Hypanthia 4-6 mm long. Pedicels 3-5 mm long. Sepals 4-5 × 2-2.5 mm, ciliate at margin. Petals 1.8-2 × 1.2-1.5 cm, pink or white, notched at apex. Stamens numerous, filaments 8-10 mm long. Style 2.5 cm long, ovary tomentose. Drupes 2.5-3.2 × 2-2.5 cm, obliquely ovoid, apex elongated, velvety, juicy ; stone smooth, compressed.

Type : Mauritaniae ; Hort. Cliff. 186 (BM), Hort. Ups. 123 (UPS).

Fls. : Feb.-Apr. ; *Frts* : June-July.

Note : The species includes three cultivated varieties, var. *amygdalus* is the wild type.

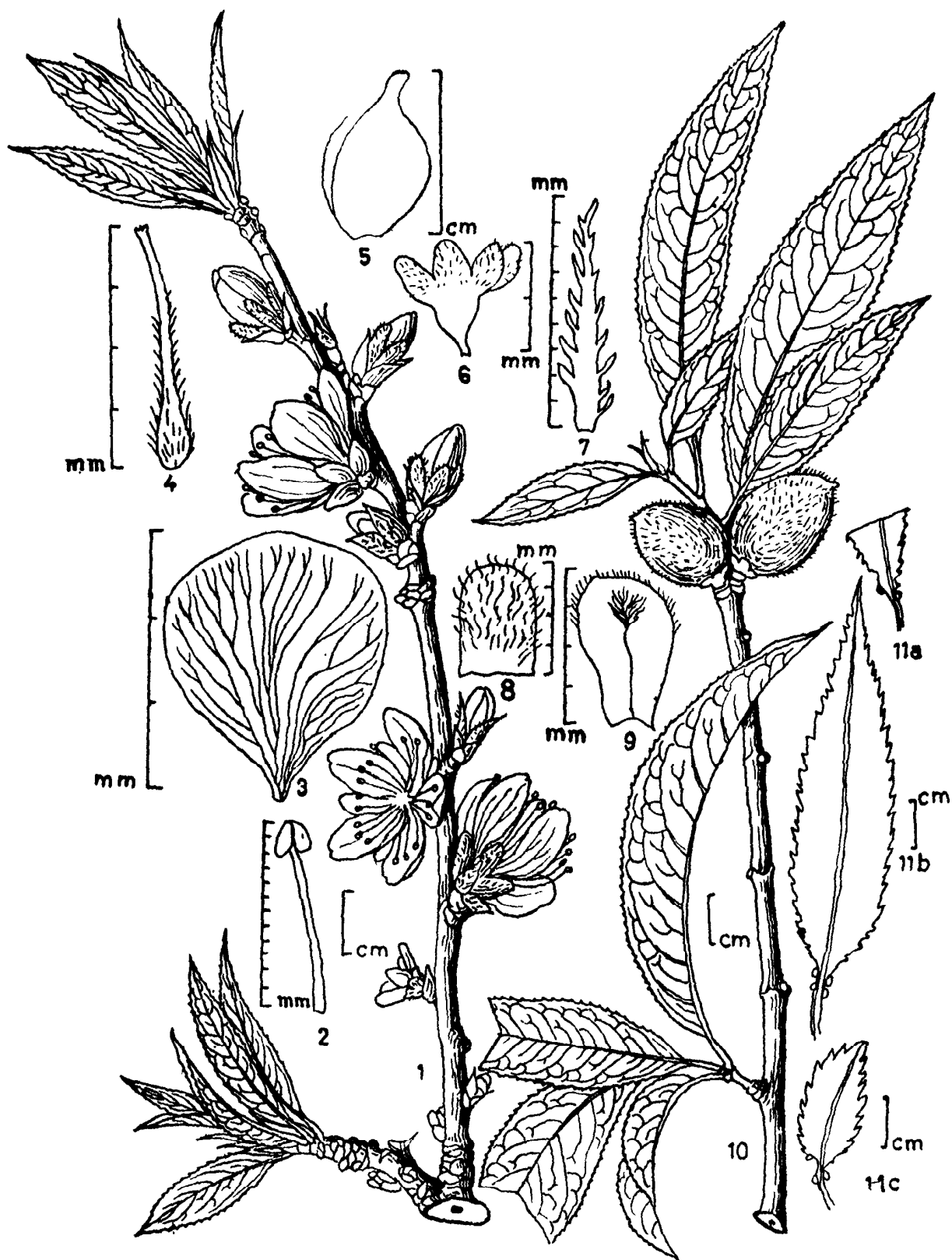
Distrib. : Cultivated in INDIA (Kashmir, Himachal Pradesh, Punjab, Uttar Pradesh, Maharashtra at 760-2400 m) ; wild in WEST ASIA and NORTH AFRICA (Rehder 1940). Probably originated in the near East like CHINA but now naturalized in many areas of WESTERN ASIA and SOUTH EUROPE (Nicholson in Oxford Food Pl. : 26. 1969).

8. *P. persica* (L.) Batsch. Beytr. Entw. Pragm. Gesch. Natur. Reiche, 1 : 30. 1801 ; Brandis *l. c.* 191 ; Hook. f. *l. c.* : 313 ; Duthie, Fl. Upp. Gang. Pl. 1 : 324. 1903 (Repr. ed. 298. 1960) ; Haines, Bot. Bih. Or. Pt. III. 336. 1922 (Rept. ed. 3, 2 : 351. 1961) ; Rehder, *l. c.* 463 ; Malla *et al.* Bull. Dept. Med. Pl. Nepal, No. 7, 79, 1976. *Amygdalus persica* L. Sp. Pl. : 472. 1753. *Persica vulgaris* Mill. Gard. Dict. ed. 8, *Persica* no. 1. 1768.

Figs. 1-11

Peach (Eng.) ; *Aru, Alu* (U.P., Kash.).

Shrubs or trees, 8 m high. Leaves 2.4-16×0.9-3 cm, lanceolate, broadest above the middle, base cuneate, apex acuminate, serrate-serrulate,



Prunus persica (L.) Batsch.

Figs. 1-11 : 1. Flowering branch. 2. Stamen. 3. Petal. 4. Carpel.
5. Fruit (stone). 6. Floral cup. 7. Stipule. 8. Sepal. 9. Bract.
10. Fruiting branch. 11a, b, c. Leaf showing different position of glands.

glandular at base. Petioles 1-2.5 mm long, 2-4 glandular. Flowers solitary, 0.9-2 cm across. Hypanthia 4-5 mm long, glabrous. Pedicels 2-3 mm long. Sepals 2-3 × 4-6 mm, villous outside. Petals 6-8 × 12-15 mm, obovate. Stamens 18-30, filaments 7-10 mm long. Style 10 mm long, hairy on lower half, ovary pubescent. Drupes 1-4.5 (-7) × 2-6 cm, with apical tip 2-4 mm long, elliptic, velutinous, pulp fleshy, edible.

Type: Locality unknown (639/1, LINN, microfiche CAL!).

Fls.: Jan.-Mar.; *Frts.*: June.

Distrib.: Cultivated in INDIA (Kashmir, Himachal Pradesh, Punjab, Uttar Pradesh, Meghalaya, Tripura, Tamil Nadu—Nilgiri). Wild or naturalised in North West Himalayan region (Brandis 1874). Originated in CHINA.

Notes: The form of *Prunus persica* L. cultivated and or naturalized in the temperate N. W. Himalayas and locally known as *Alu* has fruits much smaller than the desert Peach; it is broadest at the middle, pointed at both ends and is woolly greyish to green tomentose when young. The leaves are generally shorter in length, oblong to elliptic lanceolate, margin undulate to serrate, serratures ending in sharp pointed glandular teeth. The 'desert' Peach plants are cultivated in Shillong (Meghalaya) and Agartala (Tripura); their leaves are lanceolate with a gradually narrowed apex (2-4 cm long) and the margin crenate—without conspicuous glandular teeth.

Subgenus 3. *Cerasus* (Mill.) Focke in Engl. & Prantl, Nat. Pfl. 3(3) : 54. 1891.

The subgenus *Cerasus* comprises 12 species grouped into 4 sections viz. *Cerasus* (Mill.) Hook. f. (2 spp.), *Microcerasus* (Spach) Rehder (3 spp.), *Pseudocerasus* Koehne (6 spp. and 3 additional varieties) and *Mahaleb* Koehne (1 sp.).

1a. Buds 3 in each leaf-axil, pedicels short; hypanthia tubular
...Sect. 2. **Microcerasus**

1b. Buds solitary; pedicels long; hypanthia cylindric, campanulate or tubular:

2a. Sepals erect
...Sect. 3. **Pseudocerasus**

2b. Sepals reflexed:

3a. Leaves dentate ; flowers in sessile umbel, basal
bud scales persistent ...Sect. 1. **Cerasus**

3b. Leaves crenulate or serrulate ; flowers in stalked umbel or
in a few flowered raceme ; basal bud scales deciduous
...Sect. 4. **Mahaleb**

Section 1 : **Cerasus** (Mill.) Hook. f. in Benth. & Hook. Gen. Pl. 2 : 610.
1865.

1a. Leaves oblong to obovate, pubescent beneath mainly on veins and
midrib ; stipules linear with serrated margin ; hypanthia constricted
at the top ...9. **P. avium**

1b. Leaves elliptic to obovate, glabrous on both surfaces, stipules broad
oblong with dentate margin ; hypanthia not constricted at the top
...10. **P. cerasus**

9. **P. avium** (L.) L. Fl. Suec. ed. 2 : 165. 1755 ; Hook. f. Fl. Brit. Ind.
2 : 313. 1878. *P. cerasus* L. var. 1. *avium* L. Sp. Pl. : 474. 1753, *non*
Padus avium Mill. (1768).

Sweet cherry, Wild cherry, Mazzard, Gean (Eng.) ; *Krusbal* (Kumaon).

Trees, 5-24 (25) m high ; roots without sucker. Leaves alternate or
in clusters from short shoot, 6.5-10.5 × 3-4 cm, oblong to obovate, base
cuneate, apex abruptly acuminate, serrate, sometimes glandular, pubescent
beneath on veins and midrib. Petioles 0.5-2 (5) cm long, two-glandular.
Stipules 10 × 1.7 mm, serrate, glandular. Flowers fascicled, 15-20 mm
across. Pedicels 2.5-3.5 (6) cm long, slender, glabrous. Hypanthia 5 mm
long, constricted at top. Sepals 5 × 3 mm, carmine red, ovate, entire,
reflexed. Petals 1.2 × 7 mm, white, obovate, notched. Stamens 21, filaments
6-7 mm long. Style 7 mm long, curved. Drupes 2.5 cm across, globose,
smooth, purple-black, flesh soft, sweet.

Type : "In Europa borealiore" (640/22, LINN, microfiche CAL!).

Fls. : Apr.-May ; *Frts.* : June.

Distrib. : Cultivated in INDIA [Jammu & Kashmir, Himachal Pradesh,
Uttar Pradesh, Tamil Nadu, cf. Gamble, Fl. Madras, Part 3 : 446. 1919
(Repr. ed. 1 : 311. 1967)], sometimes naturalized ; TURKEY and EUROPE.

10. **P. cerasus** L. Sp. Pl. : 474. 1753 ; Hook. f. Fl. Brit. Ind. 2 : 313.
1878.

Sour cherry, Dwarf cherry, Red cherry (Eng.); *Olchi, Jera-sayna* (Punj.); *Kerasya* (Arab); *Aloo-baloo* (Paris).

Bushy shrubs, 1.5-5 (-10) m high with many suckers. Leaves 3-8 × 1.5-4.5 cm, elliptic-obovate, base acute, apex short acuminate, finely or often double glandular serrate, glabrous on both surfaces. Petioles 1-2 cm long, eglandular. Stipules 7 × 1.5 mm, oblong, serrate. Flowers in umbel of 2-5, 2-2.5 cm across. Pedicels 1-1.5 cm long. Hypanthia 5 mm long, not constricted at top, glabrous. Sepals 5 × 3 mm, oblong, glandular serrate. Petals 10-13 mm long, white, obovate. Stamens 32, filaments 6-10 mm long. Style 8-9 mm long, erect. Drupes 1.25-2.5 cm across, globose, depressed at apex, nearly black; stone smooth.

Type: "In Europe" (640/21, LINN, microfiche CAL!).

Fls: Apr.-May; *Frts.*: June.

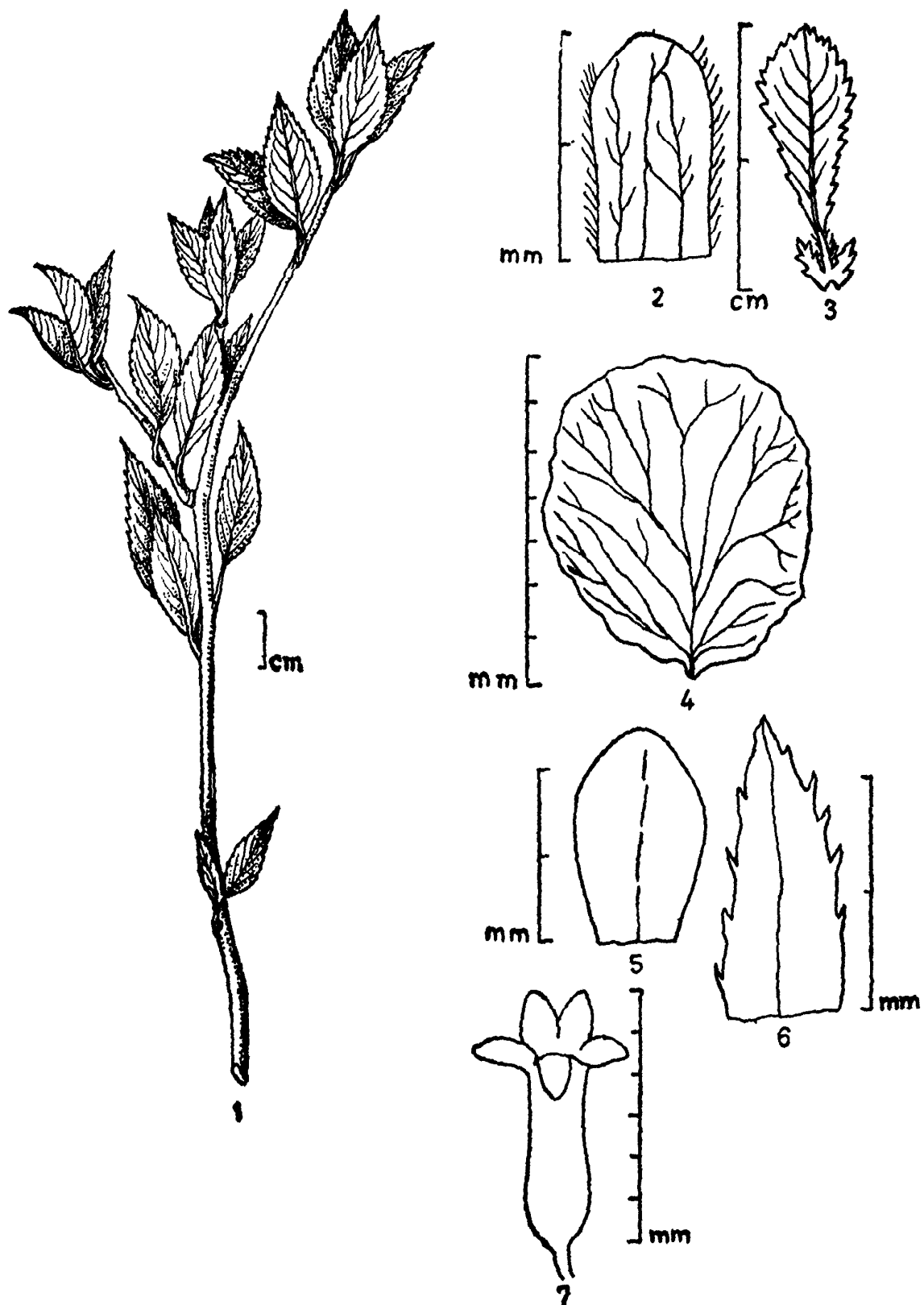
Distrib.: INDIA : Cultivated in Jammu & Kashmir and Uttar Pradesh. Native of WEST ASIA and SOUTH EAST EUROPE.

Notes: There is no reliable information on wild. *P. cerasus* L. The cultivated form is said to be a hybrid between *P. avium* L. and *P. frut.cosa* Pall. Morphological characters and geographical analysis tend to confirm this belief (Poyarkova 1941/71).

Section 2. *Microcerasus* (Spach.) Rehder, Man. ed. 2 : 466. 1940.

- 1a. Leaves usually glabrous on both surfaces. Hypanthia up to 8 mm long, glabrous outside ...11. *P. jacquemontii*
- 1b. Leaves tomentose or densely villous beneath or on both surfaces. Hypanthia up to 5 mm long, pubescent outside :
 - 2a. Leaves obovate to elliptic, abruptly acuminate, deep green and pubescent above, dull green and densely villous beneath; margin unequally serrate or dentate, ovary villous ...13. *P. tomentosa*
 - 2b. Leaves ovate to oblong, acute, brownish and glabrous above, white woolly tomentose beneath, margin crenate or serrate, ovary glabrous ...12. *P. prostrata*
11. *P. jacquemontii* Hook. f. Fl. Brit. Ind. 2 : 314. 1878. *Amygdalus humilis* Edgew. in Trans. Linn. Soc. 20 : 44. 1845, nom. illegit. non Bunge (1835).

Figs. 1-7



Prunus jacquemontii Hook. f.

Figs. 1-7 : 1. Habit of plant. 2. Sepal. 3. Leaf with stipule. 4. Petal.
5. Bract. 6. Stipule. 7. Floral cup.

Kursang (Bhutia).

Shurbs, branches lenticellate. Leaves usually on short shoots, 1.8-2.0 × 0.5-0.7 cm, elliptic to obovate, base cuneate, apex acute, sharply serrate, glabrous on both sides. Stipules 2.5 × 1 mm, serrate, red. Petioles 2-4 mm long, pubescent. Flowers solitary or two in axils of leaves of short shoot, 1 cm across. Pedicels 1-1.5 cm long. Hypanthia 5-6 mm long, glabrous, slightly hairy above the base inside. Sepals 1 × 1 mm, oblong, ciliate at margin. Petals 7 × 5 mm, obovate to oblong. Stamens 15 to many. Style villous at lower part. Drupes 10 × 15 mm, red, subglobose, fleshy, glabrous; stone 8-10 × 7-9 mm with radially divergent furrows.

Type: "Himalaya, ad-alt. ped. 9000. Malari in Garhwal Orientali Superiore, Edgeworth s. n." (Holotype K, Photo-CAL!).

Fls.: May; *Frts.*: June-Aug.

Distrib.: INDIA : Jammu & Kashmir, Panjab, Himachal Pradesh, Uttar Pradesh; BHUTAN, CHINA (TIBET), PAKISTAN, AFGHANISTAN, SOVIET UNION.

12. *P. prostrata* Labill. Ic. Pl. Syr. rar. decas. 4 : 15, t. 6. 1812; Brandis For. Fl. 193. 1874; Hook. f. Fl. Brit. Ind. 2 : 313. 1878.

Tara (Punj.); *Van-olach* (Kash.).

Spreading shrubs, up to 1.5 m high. Branches pubescent. Leaves 2-4.5 × 1.1-2 cm, ovate-oblong, base cuneate, apex acute to acuminate, crenate to serrate, reddish green and glabrous above, whitish woolly tomentose beneath. Stipules 4 × 2.5 mm, lanceolate, petioles 2-4 mm long, pubescent, eglandular. Flowers solitary, axillary, 1.5 cm across. Pedicels 1.5-2 mm long, pubescent. Hypanthia 4 mm long, cylindrical, villous. Sepals 1-1.5 × 0.8-1 mm, oblong, serrate, villous on both surfaces. Petals 4 × 3.5 mm, purple-red, obovate to round. Stamens 20-30, filaments 4-5 mm long. Style 6 mm long, hairy at base. Drupes 7-9 × 5-7 mm, ellipsoid, red when ripe with scanty pulp.

Type locality: "In monte Libano, and altitudinem perpendicularem 1000 orgyrum". (type not traced).

Fls.: April; *Frts.*: June-Aug.

Distrib.: INDIA : Jammu & Kashmir, Punjab, Himachal Pradesh, Uttar

Pradesh, Maharashtra ; AFGHANISTAN, IRAN, SOVIET UNION, EUROPE, TURKEY.

13. *P. tomentosa* Thunberg. Fl. Jap. 203. 1784; Hook. f. *op. cit.* : 314; Rehder, Man. ed. 2 : 466. 1940. *P. trichocarpa* Bunge in Mem. Sav. Etr. Petersb. 2 : 96. 1835.

Shrubs or small trees up to 3 m high with widely spreading branches, tomentose. Leaves 3-4 × 1.4-2.8 cm, obovate-elliptic, base cuneate, apex abruptly acuminate with sharp serration, unequally serrate, deep green, pubescent above, dull green, densely villous beneath. Stipules 4.5 × 2.5 mm, branched, glandular, villous. Petioles 2-4 mm long, woolly. Flowers axillary, 1-2, 12-15 mm across. Pedicels 2 mm long, villous. Hypanthia 5 mm long, pubescent outside. Sepals 3.0 × 1.5 mm, ovate, pubescent outside, glandular serrate. Petals 10 × 5 mm, obovate, white or slightly pinkish. Stamens numerous, filaments 5-7 mm long. Style 8 mm long, villous at lower part, ovary villous. Drupes 8-10 × 6-7 mm, ellipsoid, scarlet, edible.

Type: Thunberg microfiche no. 11828, UPSALA 1036, CAL!

Fls.: Apr.; *Frts.*: May.

Distrib.: INDIA (Jammu & Kashmir); NORTH and WEST CHINA, JAPAN (Rehder 1940).

Section 3. *Pseudocerasus* Koehne, Deutsch Dendrologie : 305. 1893.

- 1a. Young branches densely rufous-tomentose. Petioles eglandular. Hypanthia urceolate :

- 2a. Trees 2 m high. Leaves double-serrate, round at base. Flowers usually in twos. Pedicels up to 4 cm long

...16. *P. himalaica*

- 2b. Trees up to 7 m high. Leaves simple serrate, cuneate at base. Flowers fascicled, sometimes solitary. Pedicels up to 2 cm long

...18. *P. rufa*

- 1b. Young branches glabrous. Petioles 2-5 glandular. Hypanthia campanulate :

- 3a. Leaves green beneath; leaf serrations usually with glandular tips. Inflorescences umbellate. Drupes yellow or red ;

- 4a. Trees up to 13 m high. Leaves deciduous, serrate. Flowers up to 3.5 cm (-4 cm) across. Sepals erect. Stone strongly pitted ...15. *P. cerasoides*
- 4b. Trees up to 27 m high. Leaves persistent, treble serrate. Flowers up to 2.8 cm across. Sepals reflexed. Stone shallowly pitted ...14. *P. carmesina*
- 3b. Leaves glaucescent beneath; leaf setaceous serrate, sometimes ends in bristles. Inflorescences fasciculated raceme or corymbose raceme. Drupes black or red :
- 5a. Leaves double setaceous serrate, base cordate. Inflorescences corymbose racemes of 4-5 flowers, pubescent. Petals orbicular ...17. *P. pseudocerasus*
- 5b. Leaves serrate with bristle point, base round. Inflorescences fasciculated raceme of 2-4 flowers, glabrous. Petals obovate ...19. *P. serrulata*
14. *P. carmesina* Hara in Journ. Jap. Bot. 43(2) : 46. 1968; Nayar & Ramamurthy in Bull. Bot. Surv. Ind. 15 : 226. 1973. *P. cerasoides* var. *rubea* C. Ingram, Gard. Chron. Ser. 3, 122 : 162. 1947; Ohashi & Hara in Fl. E. Him. 125. 1966.

Carmine cherry (Eng.).

Trees up to 27 m high. Leaves 9-10.5 × 3-5 cm, oblong-ovate, base round, apex acuminate, margin double or treble serrate, slightly pubescent beneath on midrib and veins. Flowers 2-4 on short peduncled umbellate racemes. Flowers 2.8 cm across. Hypanthia 10 mm long, red. Pedicels 10-22 mm long. Sepals 4 × 2 mm, clasping. Petals 10 × 8 mm. Stamens many, filaments 8 mm long. Style 9 mm long. Drupes ovoid; stone furrowed, shallowly pitted.

Type: South Burma, Adung valley, 1830 m, March 21, 1931, *Kingdon Ward* 9314 (Holotype K, photo-CAL!).

Fls.: Mar.-Apr.

Distrib.: INDIA : Sikkim, Nagaland, Assam, Manipur, Uttar Pradesh; NEPAL, BHUTAN, WEST CHINA, NORTH BURMA.

15. *P. cerasoides* D. Don, Prodr. Fl. Nepal 239. (Oct.) 1825; Kanjilal & Das, Fl. Assam, 2 : 180, 1938, Hara in Enum. Fl. Pl. Nep. 2 : 141.

1979. *Cerasus puddum* Roxb. ex Ser. in DC. Prodr. 2 : 537 (Nov.)
 1825. Wall. Pl. As. Rar. 2 : 37, t. 143. 1831. *Prunus puddum*
 (Roxb. ex Ser.) Brandis, For. Fl. 194. 1874 and Indian Trees : 279.
 fig. 121. 1906 ; Hook. f. l. c. 314 ; Duthie, Fl. Upp. Gang. Pl. 1 : 324
 1903 (Repr. ed. 1 : 298. 1960), *non* Miquel 1865, *nec* Franchet
 1889, *nom. illeg.* *Cerasus phoshia* Buch.-Ham. ex D. Don ; Prodr. Fl.
 Nep. 239. 1825, *pro. syn.* Ser. in DC. Prodr. 2 : 535. 1825. *Maddenia*
pedicellata, Hook. f. Fl. Brif. Ind. 2 : 318. 1878 ; Hara in J. Jap.
 Bot. 51 : 9. 1976.

Trees 6-8 m. Bark smooth, peeling off in thin horizontal strips.
 Leaves 7.5-12 × 2.5-5 cm, elliptic or oblong-lanceolate, base round,
 apex acuminate, gland-serrate, glabrous on both surfaces. Stipules
 10 × 1 mm, branched. Petioles 12-15 mm long, 4-5 glandular. Flowers
 usually 2-3, sometimes 5 on slender pedicels (1.7 cm long) from a short
 peduncle (5 mm long) surrounded by 2-3 leafy bracts, 2.5 cm across.
 Hypanthia 8 mm long. Sepals 3 × 2 mm, entire. Petals 10 × 9 mm,
 obovate, pink. Stamens 25-28, filaments 8-10 mm long. Style 8 mm long.
 Drupes 4-5 × 5-10 mm, ovoid ; stone sculptured, pitted.

1a. Sepals green, acute, erect. Flowers 2.5 cm across

...var. **cerasoides**

1b. Sepals crimson, obtuse, clasping. Flowers 4 cm across

...var. **majestica**

var. **cerasoides**

Himalayan wild cherry (Eng.) ; *Payon, Pajja* (Punj.) ; *Padam* (U.P.) ;
Dieng-kodi-Tusao (Kh.).

Type : "Narainhetty Nepalensium, *Hamilton*" (Holotype BM ;
 Isotype CAL!).

Fls. : Oct.-Dec. ; *Frts.* : Mar.-May.

Distrib. : INDIA : Jammu & Kashmir, Himachal Pradesh, Uttar
 Pradesh, West Bengal, Sikkim, Mizoram, Tamil Nadu ; NEPAL, BHUTAN,
 WEST CHINA, NORTH BURMA, THAILAND.

var. **majestica** (Koehne) Ingram in Gardn. Chron. Ser. 3, 122 : 162.
 1947 ; Krishnamurthy, Wealth of India 8 : 264. 1969. *Prunus majestica*
 Koehne in Plantae Wilson : 252. 1912. *P. puddum* Franchet, Pl.
 Delavay. 197. 1889, *non* Brandis 1874.

Trees up to 10.5 m high. Leaves 5.5-10.5 × 2-3.5 cm, ovate-lanceolate, base round, apex short acuminate, double serrate, glandulate. Petioles 2-20 mm long, two glandular. Inflorescences umbellate. Peduncles 5-10 mm long. Flowers 1-3, 4 cm across. Hypanthia 9-10 mm long. Pedicels 10-20 mm long. Sepals 4 × 2 mm. Petals 5 × 10 mm, pink, ovate-rotundate. Stamens many, filaments 10-12 mm long. Style 10 mm long, glabrous. Drupes 12-15 × 8-12 mm, ellipsoid, pulp bitter; stone sculptured, pitted.

Type: China, Yunnan : Mengtyu, woods, 1500-1600 m. *A. Henry* 9411, 9411A, 11469; Chu-yan, *A. Henry* 9411B.

Fls.: Nov.; *Frts.*: Apr.

Distrib.: INDIA : Sikkim, Meghalaya, West Bengal; BHUTAN, CHINA.

16. *P. himalaica* Kitamura in Acta Phytotax. Geobot. 15 : 131. 1954; Hara in Enum. Fl. Pl. Nepal 2 : 142. 1979.

Jyoku shin (Nep.).

Trees up to 2 m high. Branches rufous-pubescent. Leaves 6-9 × 2.5-3 cm, oblong-lanceolate, base round, apex caudate-acuminate, double serrate, pubescent above, densely pubescent beneath on midrib and veins. Petioles 10 mm long, pubescent, eglandular. Flowers in twos. Peduncles 10 mm long, pubescent. Pedicels 4 cm long, pubescent. Hypanthia 10 mm long, glabrous. Sepals 4 × 2 mm, ovate. Petals pink. Stamens many. Style 10 mm long, glabrous.

Type: Nepal, Chum Gompa, 3900 m, 3 July, 1953, *S. Nakao* (Holotype KYO).

Fls.: July.

Distrib.: INDIA : Sikkim; NEPAL.

17. *P. pseudocerasus* Lindl. in Trans. Hort. Soc. 6 : 91. 1826; Brandis, For. Fl. 194. 1874, *non* Kom. (1904), *Cerasus pseudocerasus* (Lindl.) G. Don in Loudon, Hort. Brit. 200. 1830.

Chinese cherry (Eng.).

Trees, branches glabrous. Leaves 3.5-13.5 × 2.2-6 cm, broad ovate-obovate, base cordate, apex abruptly acuminate, double serrate, ending in

setae, glabrous on both surfaces. Petioles 15-25 mm long, two glands towards leaf base. Inflorescence a corymbose raceme of 2-6 flowers. Flowers 2-2.5 cm across; involucre caducous. Hypanthia campanulate. Sepals ovate. Petals white, suborbicular, lobed with an apical notch. Drupes reddish.

Type: China, 1819, *Samuel Brookes* s. n. (cultivated in Hort. Soc. Gard. London). (CGE).

Fls.: Apr.; *Frts.*: May.

Distrib.: Cultivated in INDIA : Sikkim, West Bengal; JAPAN.
Native of NORTH CHINA (Rehder, 1940).

18. **P. rufa** Steud. ex Hook. f. Fl. Brit. Ind. 2 : 314. 1878, *p. p.*; Hara, Enum. Fl. Pl. Nepal 2 : 142. 1979. *Cerasus rufa* Wall. Num. List no. 721. 1829, *nom. nud.* *Prunus rufa* Steud. Nom. B. ed. 2, 2 : 404. 1841 *nom. nud.*

Trees up to 7 m high. Young branches rufous, densely tomentose. Bark smooth, reddish, papery. Leaves 3.6-10 × 1-3.5 cm, oblong-obovate, base rotundate to obtuse, apex caudate-acuminate, glandular sharply serrate, pubescent on veins beneath. Petioles 7-10 mm long, pubescent, eglandular. Flowers solitary or four in fascicle, 12 mm across. Hypanthia 10 mm long, slightly puberulous, urceolate. Pedicels 1-2.3 cm long, pubescent. Sepals 4 × 2 mm, oblong, serrate. Petals 5 × 4 mm, ovate-elliptic, pink. Stamens many, filaments 5 mm long. Style 12 mm long, pubescent, ovary glabrous. Drupes 15 × 10, ellipsoid, fleshy, red, bitter to taste.

- 1a. Hypanthia and petals glabrous on both sides; leaves obovate
...var. **rufo**
- 1b. Hypanthia rufous-tomentose or villous. Petals appressed pubescent on back; leaves long lanceolate or oblong :
- 2a. Leaf teeth acute, eglandular. Pedicels and hypanthia villous; style glabrous
...var. **imanishii**
- 2b. Leaf teeth long, cuspidate at apex, distinctly gland-tipped. Pedicels and hypanthia rufous-tomentose; style hairy in lower half or at base
...var. **trichantha**

var. **rufo**

Lekh paiyun (Beng.).

Type: Nepal, Gossainthan, Aug. 1821, *Wallich* Num. List no. 721 (Lectotype K-WALL, microfiche CAL!; Isotype CAL!)

Fls.: May-July; **Frts.:** July-Sept.

Distrib.: INDIA : Sikkim, West Bengal (Darjeeling) ; NEPAL, BHUTAN (2700-3600 m), BURMA, CHINA (S. TIBET).

var. **imanishii** (Kitamura) Ghora & Panigrahi in Proc. 5th Ann. Conf. Orissa, Bot. Soc. 31. 1981. *P. imanishii* Kitamura in Acta Phytotax. Geobot. 15 : 131, f. 29. 1954 et Faun. & Fl. Nepal 1 : 155, f. 29. 1955.

Tuemo (Tib.).

Trees up to 6 m high. Branches glabrous. Leaves 5-6 × 1-2.8 cm, oblong-lanceolate, base obtuse, apex acuminate, serrulate, pubescent above, midrib and veins tomentose beneath, base 2-3 glandular. Petioles 8-10 mm long, eglandular. Flowers in twos. Hypanthia 10-12 mm long. Pedicels villous, urceolate, 10-20 mm long. Sepals 4 × 2 mm, lanceolate, entire, tomentose, erect. Petals 4 × 5 mm, obovate-round, hairy outside, yellow. Stamens many, filaments 8-9 mm long. Style 16 mm long, glabrous. Drupes 15 × 16 mm, glabrous.

Type: Nepal, Hangbu, 3300 m at the border of Abies Forest, May 30, 1953, *Nakao* s. n. (Holotype KYO).

Fls.: May-June; **Frts.:** July-Sept.

Distrib.: INDIA : Sikkim, West Bengal (Darjeeling) ; NEPAL, BHUTAN.

var. **trichantha** (Koehne) Hara in Journ. Jap. Bot. 37 : 99. 1962. Hara in Enum. Fl. Pl. Nepal 2 : 142. 1979, *p.p.* excl. syn. *P. trichantha* Koehne in Sarg. Pl. Wilson, 1 : 254, 1912. *P. rufa* Hook. f. Fl. Brit. Ind. 2 : 314. 1878. *p, p.*, excl. typo. includo *specim.* J. D. Hooker s. n. in part.

Trees 5-6 m high. Leaves 5-17 × 2-6 cm, elliptic-oblong lanceolate, base cuneate, apex caudate-acuminate, cuspidate serrate, distinctly gland tipped, minute pubescent above, densely villous on veins. Petioles 8-10 mm long. Inflorescences 1-3 flowered, tomentose. Peduncle 3-7 mm long, tipped, minute pubescent above, densely villous on veins. Petioles 1-2.3 cm long, pubescent. Sepals 5 × 3 mm, glandular, serrate, villous outside. Petals 5 × 4 mm, obovate, white to pink, appressed pubescent outside. Stamens many, filaments 8 mm long. Style 10 mm long, slightly pubescent in lower half. Drupes 10 × 7 mm.

Syntypes: Eastern Himalaya : Sikkim, Tongloo, 3000 m, May 29, 1862, *T. Anderson* 466 (K); Sikkim, temperate region, 3000-4000 m, *J. D. Hooker & T. Thomson* p. p. (K, CAL!); the Spec. at CAL is selected here as Lectotype.

Fls.: June; *Frts.*: Aug.-Dec.

Distrib.: INDIA : Sikkim; NEPAL, BHUTAN, CHINA (TIBET).

19. *P. serrulata* Lindl. in Trans. Hort. Soc. 7 : 238. 1830; Koehne, Deutsche Dendr. 18 : 166. 1909; Rehder, Man. ed. 2. 472. 1940; Krishnamurthy, Wealth of India 8 : 282. 1969, *non* Heer, *Cerasus serrulata* (Lindl.) G. Don in Loudon. Hort. Brit. 480. 1832. *Prunus puddum* Miq. in Ann. Mus. Lugd.-Bat. II. 90. 1865 (*p.p.*, *non* Wallich).

Trees up to 25 m high. Bark smooth, chestnut brown. Leaves 6-13 × 2-4.5 cm, base round, apex abruptly acuminate, margin cuspidate serrate, sometimes double serrate, glabrous, glaucescent beneath. Petioles 15-20 mm long, 2-3 glandular, glabrous. Inflorescences-racemes of 2-4 flowers. Flowers 3-3.5 cm across. Hypanthia 10 mm long, campanulate, glabrous. Pedicels 15-20 mm long. Sepals 5 × 3 mm, ovate, serrulate. Petals 12 × 6 mm, white. Stamens many, filaments 9 mm long. Style 10 mm long, glabrous. Drupes 10-12 × 7-9 mm, black.

Type: China, 1822, *Mr. Reeves* s. n. (cultivated in Gard. Hort. Soc. London) (CGE).

Fls.: May; *Frts.*: Mar.

Distrib.: INDIA : Sikkim and West Bengal, cultivated in Tamil Nadu; CHINA, JAPAN.

Section 4. *Mahaleb* Koehne, Deutsche Dendr. : 305. 1893.

20. *P. mahaleb* L. Sp. Pl. 1 : 474. 1753; Hook. f. l. c. 312. *Cerasus mahaleb* (L.) Mill. Gard. Dict. No. 4. 1754. *Padus mahaleb* (L.) Borkh. ex Roemer, Arch. Bot. 1, 2 : 38. 1797.

Mahaleb cherry (Eng.).

Shrubs, sometimes trees up to 10 m high. Branches brown-grey. Leaves 3-7 × 2-6.5 cm, orbicular-broadly ovate, base subcordate, apex short acuminate, fine dentate or crenate, midrib slightly pubescent beneath. Petioles 1-2 cm long, 2 glandular. Stipules deciduous. Inflorescences of

corymbose racemes, 3-6 cm long. Flowers 1.5 cm across. Hypanthia 7-8 mm long, campanulate, glabrous. Pedicels 6-15 mm long, glabrous. Sepals ovate, entire, shorter than calyx tube. Petals 5-8 mm long, broad obovate, white. Stamens 20-25, filaments 8 mm long. Ovary glabrous. Drupes 8-10 × 7-9 mm, ovoid, black, bitter; stone smooth, ovoid.

Type: "Helvetia" (640/11, LINN, microfiche CAL!).

Fls.: July-Aug.

Distrib.: INDIA : Cultivated in West Bengal, Maharashtra, probably occurs on the N. W. Frontier—Hook. f. *l. c.* 312. Wild in WESTERN ASIA—on the Caucasus and EUROPE (Brandis For. Fl. : 195. 1874).

Subgenus 4. *Padus* (Mill.) Focke in Engl. & Prantl, Nat. Pfl. 3(3) : 54. 1891; Koehne, Verh. Bot. ver. Prov. Brandenburg. 52 : 101-108. 1911; Robertson in J. Arn. Arb. 55 : 655. 1974.

The subgenus comprises 110 species of which only 5 species and 1 variety occur in India.

- 1a. Racemes usually solitary; leafy at base, leaf margin crenate-serrate, texture smooth. Hypanthia deciduous in fruit (except in *P. serotina*). Drupes 16 × 20 mm; stones usually black, firm :
 - 2a. Leaves oblong-obovate, simple serrate, pubescent beneath on veins and midrib; veins up to 16 pairs. Petioles 2-glandular
...22 *P. cornuta*
 - 2b. Leaves lanceolate to oblong lanceolate, closely serrate, glabrous beneath; veins up to 27 pairs. Petioles eglandular
...23. *P. nepaulensis*
 - 3a. Leaves up to 13 × 5 cm, leafy branches brown, glabrous, margin serrate, serratures with outcurved teeth, veins raised above. Petioles glabrous, black glandular. Inflorescences pubescent
21. *P. bracteopadus*
 - 3b. Leaves up to 9 × 3.5 cm, leafy branches reddish, pubescent, margin serrulate, serratures with incurved teeth, veins smooth. Petioles pubescent, dark red glandular. Inflorescences glabrous
...24. *P. serotina*
- 1b. Racemes two or more in clusters; rarely solitary; leafless at base, leaf margin serrate, sometimes undulated, texture rough. Hypanthia

persistent in fruits. Drupes up to 4×5 mm ; stones whitish, thin, brittle

...25. *P. venosa*

21. *P. bracteopadus* Koehne in Fedde's Repert. Spec. nov. 9 : 33. 1910/1911. *P. nepaulensis* sensu Hook. f. l. c. 316, p.p. non *P. nepaulensis* (Ser.) Steud. 1841.

Trees, branches glabrous, lenticellate. Leaves $5.5-13 \times 1.5-5$ cm, ovate-oblong, base cuneate, apex caudate, serrate, lowest teeth glandular, glabrous on both surfaces. Petioles 8-16 mm long, eglandular. Inflorescences racemose, 8-12 cm long, pubescent. Hypanthia 2-3 mm long, puberulous outside, pubescent inside. Pedicels 2-5 mm long, puberulous. Sepals 1×1 mm. Petals 5×3 mm, round, white. Stamens many, filaments 5 mm long. Style 4 mm long. Drupes $0.5-1.7 \times 1-1.4$ cm, woody.

Syntypes : "Himalaya : Khasia reg. temp. alt. 1219-1829 m, J. D. Hook. et T. T." (K ; photo—CAL !). "Assam, Jowai, 1524 m, 27 Oct. 1892 (*Sphalm.* 93), Dr. King's collector s. n." ; (Isotype CAL !). "Burma-superior, Kachin montes, Sadan, 1981 m, 1900, Shaik Mokim s. n." (K ; Isotypes CAL !).

Fls. : Sept.-Oct. ; Frts. : Feb.

Distrib. : INDIA : Uttar Pradesh, Sikkim, W. Bengal, Assam ; BURMA.

22. *P. cornuta* (Wall. ex Royle) Steudel, Nom. Bot. ed. 2, 2 : 403. 1841 ; Hara Enum. Fl. Pl. Nepal 2 : 141. 1979. *Cerasus cornuta* Wall. ex Royle, 111. Bot. Himal. t. 38, f. 2. 1834 & p. 207. 1835. *Prunus padus* sensu Brandis For. Fl. 194. 1874 ; Hook. f. l. c. 315, non L. 1753, nec sensu Rehder 1940. *P. padus* L. var. *cornuta* (Wall. ex Royle) Henry in Elwas. & Henry, Tree Great Brit. Ire. 6 : 1544. 1912. *Padus cornuta* (Wall. ex Royle) Carr. Rev. Hortic. 1869 : 275. f. 64. 1869 ; Browicz, Fl. Iran. no. 66 : 202. 1969.

Himalayan bird cherry (Eng.) ; Tsrain (Kash.) ; Zamber (Punj.) ; Jamana (Kumaon).

Trees up to 18 m high. Leaves $10-16 \times 3-5$ cm, oblong-obovate, base cordate, apex acuminate, serrate, pubescent in axils of midrib. Petioles 2-3 cm long, glabrous, 2-glandular. Raceme 10-18 cm long, rachis pubescent. Flowers 5-6 mm across. Hypanthia 3-4 mm long, glabrous. Pedicels 5-6 mm long. Sepals 2×1 mm. Petals 3×2 mm, round, white. Stamens numerous, filaments 1 mm long. Style 2 mm long. Drupes $7-8 \times 4-5$ mm, subglobose, glabrous, red ; stone thick.

1a. Leaves serrate-serrulate, pubescent beneath in axils of midrib only
...var. **cornuta**

1b. Leaves glandular-serrate, shiny yellowish villous beneath on midrib,
veins and veinlets only
...var. **villosa**

var. **cornuta**

Type: Nepal (Sirmore, 1821, G. Govan), Wallich 716 (K-WALL, microfiche CAL!).

Fls.: Apr.-July; *Frts.*: May-June.

Distrib.: INDIA : Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh, Punjab, Tamil Nadu, Sikkim, West Bengal, Assam; NEPAL, BHUTAN.

var. **villosa** Hara in Journ. Jap. Bot. 37(4) : 98. 1962. *Prunus cornuta* var. *cornuta* f. *villosa* (Hara) Hara in Fl. E. Him. 2 : 54. 1971 et Enum. Fl. Pl. Nep. 2 : 141. 1979.

Trees up to 6 m high. Leaves 13-15 × 5.2-6 cm, elliptic-obovate, base cuneate, apex acuminate, distantly gland-serrate, shiny yellowish villous beneath on midrib, veins and veinlets. Petioles 1.5-2 cm long, 2-glandular. Racemes 8-12 cm long, puberulous. Flowers 6-7 mm across. Hypanthia 4 mm long, puberulous. Pedicels 5-6 mm long, pubescent. Sepals 1.5 × 1 mm, serrulate, puberulous. Petals 2.5 × 1.5 mm. Stamens numerous, filaments 1 mm long. Style 1.5 mm long. Drupes 3-4 mm across (immature), oval.

Type: Eastern Himalaya : inter Phalut and Sandakphu, mountain Singalila, 3500 m, 6 June, 1960, Hara, Kitamura, Myoshi etc. 678 (Holotype TI).

Fls.: June; *Frts.*: Aug.-Nov.

Distrib.: INDIA : Jammu & Kashmir, Sikkim, West Bengal; BHUTAN, AFGHANISTAN, WEST CHINA.

23. **P. napaulensis** (Ser.) Steudel, Nom. Bot. ed. 2, 2 : 403. 1841 ('*nepaulensis*') *sensu* Hook. f. Fl. Brit. Ind. 2 : 316. 1878, p.p. ('*nepalensis*') Kanjilal & Das, Fl. Assam 2 : 178. 1938. *Cerasus napaulensis* Ser. in DC. Prodr. 2 : 540. 1825. *Cerasus glaucifolia* Wall. (Num. List no. 717, 1829) ex Smith in Rec. Bot. Surv. Ind. 4 : 363. 1913 *nom. illegit.* *Padus glaucifolia* Roem. Syn. Rosifl. 5, 88. 1847.

Saiong (Kh.) ; *Khasia cherry* (Eng.).

Trees up to 17 m high. Branches lenticellate, glabrous. Leaves 6.5-17 × 2-5.5 cm, narrow lanceolate-oblong, lanceolate, base round-cuneate, apex caudate, crenate to serrate, glabrous on both surfaces. Petioles 1-2 cm long, eglandular, pubescent. Racemes 6.5-17 cm long, rachis densely pubescent. Flowers 5-7 mm across. Hypanthia 4-5 mm long, villous outside. Pedicels 2-10 mm long, pubescent. Sepals 2 × 1 mm, pubescent outside. Petals 4 × 2 mm, white, pubescent outside. Stamens many, filaments 2 mm long. Style 4 mm long. Drupes 1.5 cm across, black, fleshy with apical tip, acidic, edible.

Type: In Nepal, *Wallich* s. n. (Holotype K-WALL, microfiche-CAL!).

Fls.: Apr.-Nov.; *Frts.* Mar.-May.

Distrib.: INDIA : Uttar Pradesh, Sikkim, Meghalaya, Manipur, West Bengal, Arunachal Pradesh; NEPAL, WEST CHINA, NORTH BURMA.

24. *P. serotina* Ehrh. Beitr. 3 : 20. 1788; Krishnamurthy, Wealth of India 8 : 282. 1969. *P. virginiana* L. Sp. Pl. 474. 1753. *p. p.* excl. typo (the choke cherry); *sensu* Komarov, Fl. USSR 10 : 576. 1941 (Eng. ed. 429. 1971), *p.p.* quoad syn. *P. serotina*, *Padus serotina* (Ehrh.) Borkh. in Roem. Arch. 1. 2 : 38. 1800.

Black cherry (Eng.).

Trees, 15 m high. Branches reddish brown. Leaves 4.5-9 (-15) × 2-3.5 cm, base cuneate, apex acuminate, serrulate with incurved, callus teeth, often villous beneath along midrib. Petioles 9-12 mm long, 1-2 dark-red glandular, pubescent. Racemes 12 cm long. Hypanthia 4 mm long. Flowers 5-8 mm across. Pedicels 3-5 mm long, glabrous. Sepals 2 × 1 mm, oblong-ovate. Petals 4 × 2 mm. Stamens many, filaments 2-3 mm long. Style 4 mm long. Drupes 8-10 mm across, black, pulp fleshy, bitter, edible.

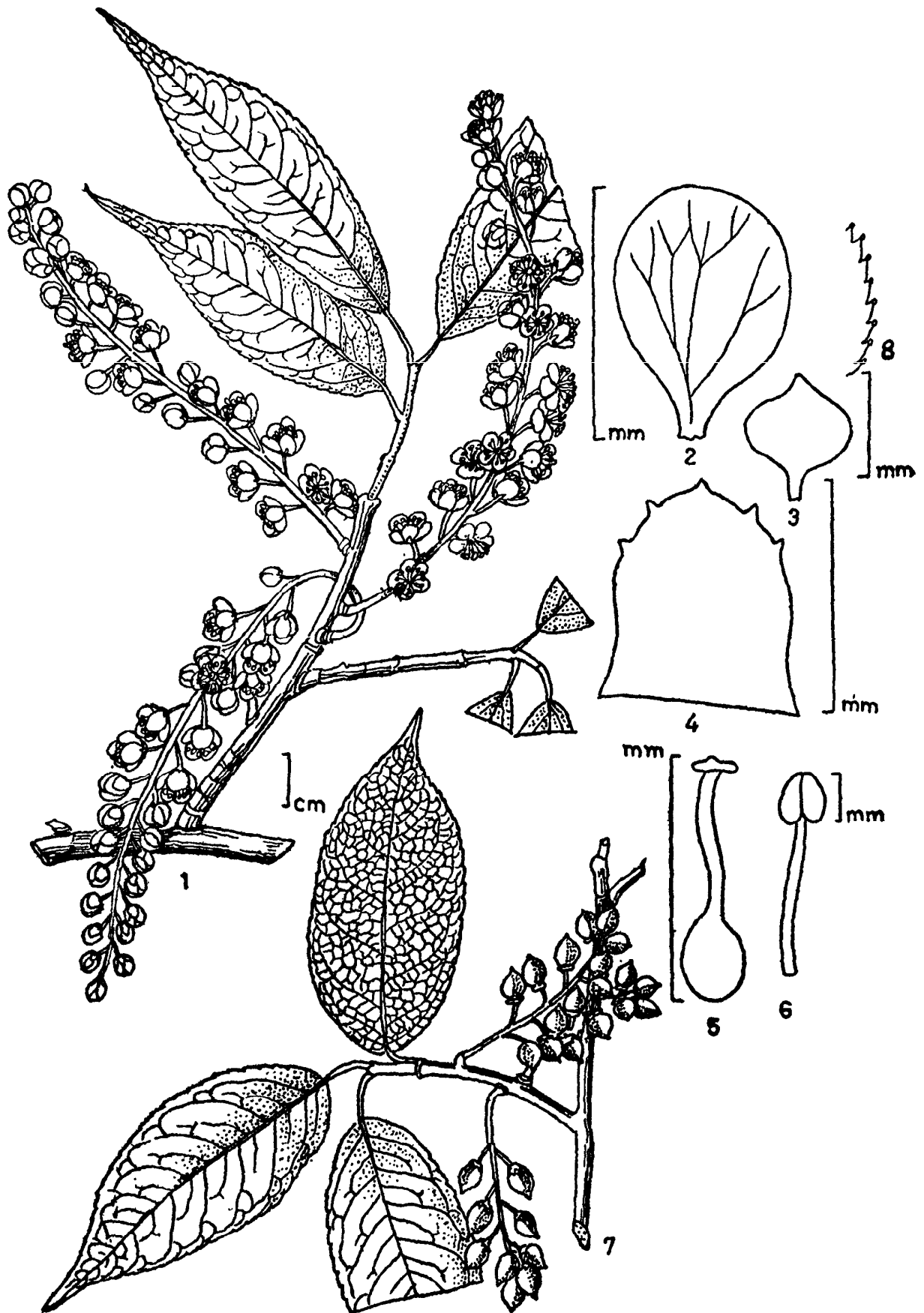
Type locality: "Ihr. Vaterland Ist Nordamarika" (Type not traced).

Fls.: Apr.-June; *Frts.*: Aug.-Sept.

Distrib.: INDIA : Uttar Pradesh—Dehradun (introduced). Native of NORTH AMERICA.

25. *P. venosa* Koehne in Sarg. Pl. Wilson. 1 : 60. 1911. Hara, Enum. Fl. Pl. Nep. 2 : 142. 1979. *P. undulata sensu* Hook. f. l. c. 316, *non* Hamilton ex D. Don, 1825.

Flgs. 1-8



Prunus venosa Koelne
 Figs. 1-8 : 1. Flowering branch. 2. Petal. 3. Fruit. 4. Sepal. 5. Carpel.
 6. Stamen. 7. Fruiting branch. 8. Leaf margin showing glands.

Aruwai (U. P.) ; *Dieng-tyrkhum* (Kh.).

Trees up to 13.5 m high. Leaves 6-15.5 × 1.8-4.5 cm, lanceolate to obovate, base cuneate or round, apex acuminate, margin crenate to serrate, glandular, often undulate, whitish green, membranous, veinlets prominent. Petioles 7-12 mm long, eglandular. Racemes 4-12.5 cm long, axillary, solitary or two. Flowers 6 mm across. Hypanthia 3 mm long, glabrous, persistent in fruit. Pedicels 2-3 mm long, pubescent. Sepals 2 × 1 mm, obtuse. Petals 3 × 2 mm, obovate. Stamens 10, filaments 2-3 mm long. Style 4 mm long, ovary hairy at base. Drupes 4 × 5 mm, globose.

Syntypes : China, Western Hupeh, 1500-1800 m, May 1907, *Fang Hsien* 177. North and South of Ichang, alt. 900-1500 m, 1907, *s. l.* 91. Woods, alt. 1200 m, Sept. 1907, *Chang-yang Hsien* 118.

Fls. : Apr.-May ; *Frts.* : June-Sept.

Distrib. : INDIA : Uttar Pradesh, Sikkim, Meghalaya ; NEPAL, BHUTAN, CENTRAL & WESTERN CHINA, S. TIBET.

Subgenus 5. **Laurocerasus** (Duh.) Rehder, *Man.* 478. 1927 and ed. 2 : 480. 1940. Kalkman in *Blumea* 13 : 25. 1965. *Laurocerasus* Duhamel, *Traite Arbres Arbust* 1 : 345, t. 133. 1755. ("Lauro-Cerasus"). Lectotype Sp. *Prunus laurocerasus* L.

The subgenus comprises three sections viz. sect. *Laurocerasus* (Duh.) Miq., sect. *Mesopygeum* (Koehne) Kalkman and an unnamed section restricted to North America (Kalkman, p. 7. 1965). In the world 75 species distributed in tropical and temperate Asia and America, 1-2 tropical Africa and Madagascar, 1 Canaries to Portugal, 1 South East Europe to Caucasus. 9 species occur in India.

1a. Leaf margin serrate, dentate or entire ; glands on lower surface of lamina, in margin or on petioles. Sepals, petals distinct, 5-merous, petals 2-8 times longer than sepals. Drupes ellipsoid, globose or ovoid
...Sect. 1. **Laurocerasus**

1b. Leaf margin entire ; glands on lower surface of lamina. Sepals, petals ± indistinguishable, 5-14 irregular segments in two whorls, petals 2 times longer than sepals. Drupes transversely ellipsoid or bilobed
...Sect. 2. **Mesopygeum**

Section 1. **Laurocerasus** (Duh.) Miq. *Fl. Ind. Bat.* 1, 1 : 366. 1855.

The section comprises 14 species, most of them are tropical but many are in temperate or subtropical regions. 7 species occur in India.

1a. Leaves entire, rarely dentate :

2a. Leaves dark-gland-dotted throughout the lower surface :

3a. Leaves entire. Racemes fascicled, axillary, rachis pubescent.
Drupes oblong, up to 20×13 mm .. 26. *P. javanica*

3b. Leaves entire in lower half, or dentate. Racemes corymbiform in axils of cataphylls or normal leaves, rachis glabrous.
Drupes globose, up to 10×8 mm ...29. *P. phoeosticta*

2b. Leaves not dark-gland-dotted throughout the lower surface :

4a. Leaf margin undulate, thin, oblong-lanceolate, apex acuminate. Rachis and pedicels pubescent. Ovary densely hairy.
Drupe-apex acute ...31. *P. undulata*

4b. Leaf margin entire up to lower half, serrate in the upper half, leathery, obovate, apex acute. Rachis and pedicels glabrous. Ovary glabrous. Drupe-apex acuminate
...28. *P. laurocerasus*

1b. Leaf margin serrate, crenate or dentate :

5a. Basal glands generally present on the petioles. Leaves spiny serrate or dentate. Petioles 1-2 cm long. Peduncles very short or 0 ...32. *P. zippeliana*

5b. Basal glands absent on the petioles. Leaves crenate-gland-serrate, or entire in basal part. Petioles 0.2-1 cm long. Peduncles 0.5-2 cm long :

6a. Leaf-margins crenate-gland serrate throughout. Drupes transversely (depressed) ellipsoid, $6-9 \times 7-10$ mm. Racemes up to 4.5 cm long. Petals elliptic ...30. *P. pygeoides*

6b. Leaf-margins entire at base, undulating with spiny teeth at upper half. Drupes ellipsoid or ovoid, $14-17 \times 17-25$ mm. Racemes up to 8 cm long. Petals orbicular
...27. *P. jenkinsii*

26. *P. javanica* (Teysm. & Binn.) Miq. Fl. Ind. Bat. 1(1) : 365 & 1085. 1855; Kalkman in Blumea 13(1) : 47, fig. 6 g, 1965. *Cerasus javanica* Teysm. & Binn. Nat. Tijds. Ned. Indie 2 : 309. 1851. *Prunus martabanica* Kurz, For. Fl. Brit. Burma 1 : 434. 1877; Hook. f. l. c., 316. *Laurocerasus martabanica* (Kurz.) Schneid. Ill. Handb. Laubholz. 1 : 648. 1906. *Laurocerasus javanica* (Teysm. & Binn.) Schneid. Ill. Handb. Laubholz. 1 : 647. 1906. *Prunus martabanica* var. *scortechinii* King, Journ. As. Soc. Beng. 66(2) : 285. 1897. *P. scortechinii* (King) Koehne, Bot. Jahrb. 52 : 298. 1915. *Cerasus* ? *martabanica* Wall. Num. List no. 4902. 1829, *nom. nud.*

Figs. 1-9

Red Peughan (Eng.).

Trees up to 35 m high. Branches lenticellate, bark chocolate brown. Leaves 8-17 × 3-6 cm, ovate-oblong, base acute, apex acuminate, entire, membranous, numerous black glandular beneath, glabrous. Petioles 5-15 mm long, 2 glandular. Racemes 3-7.5 cm long, rachis pubescent, solitary, axillary. Flowers 8 mm across. Hypanthia 2 mm long, pubescent. Pedicels 4-5 mm long, pubescent. Sepals 0.6-2.5 × 1.5-2 mm, pubescent outside. Petals 3-4 × 2-2.5 mm. Stamens 25-50, filaments up to 3 mm long. Style 5 mm long. Drupes 20 × 13 mm, ellipsoid-oblong, glabrous.

Type: Java, Buitenzorg. June, 1851, *Teysmann* s. n. (Holotype probably at BO; Isotype L).

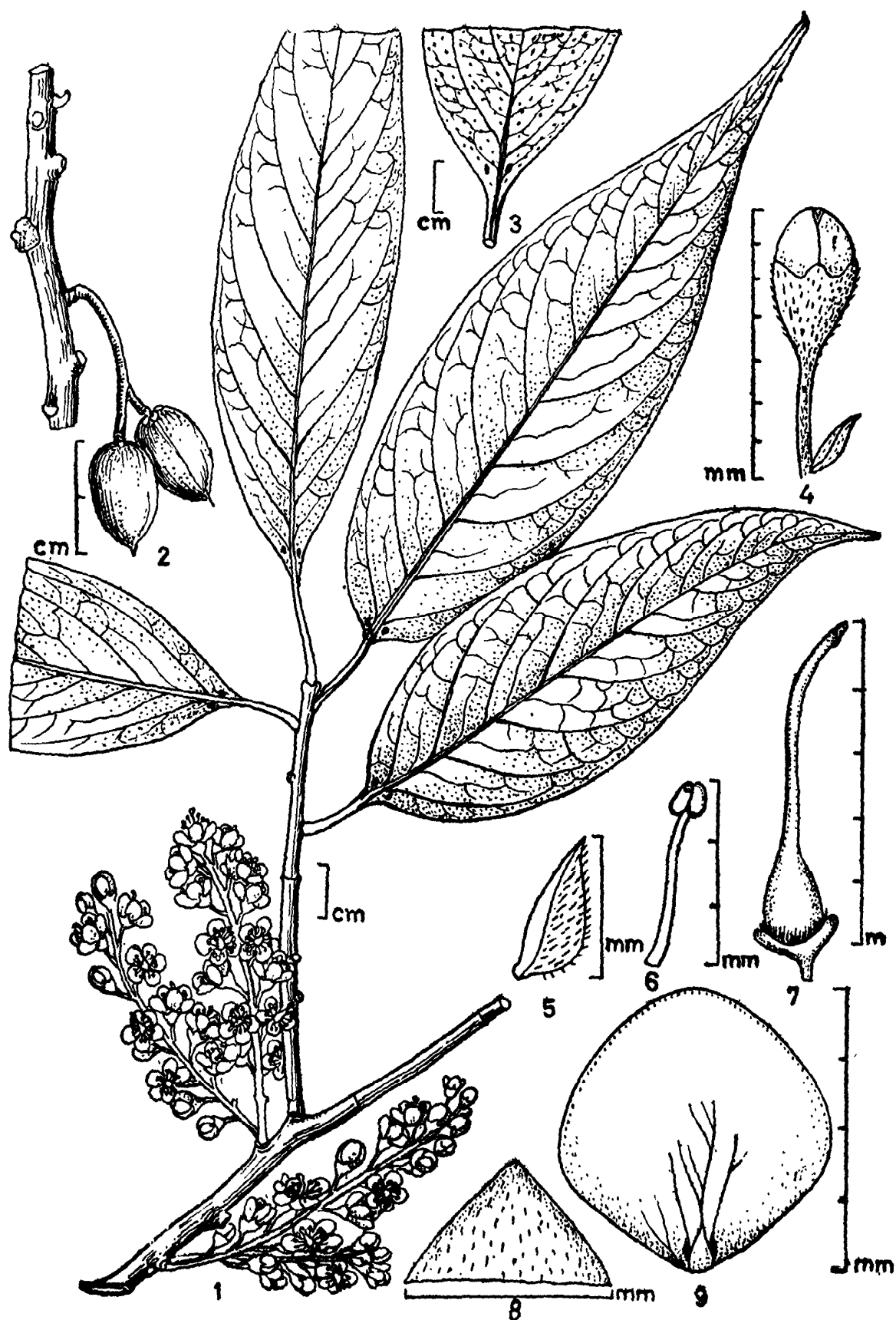
Fls.: Apr.-Oct.; *Frts.*: Aug.-Feb.

Distrib.: INDIA : South Andaman; BURMA, THAILAND, MALAYA, SUMATRA, JAVA, BALI, BORNEO and POLWAN, CELEBES, MOLUCCAS, NEW GUINEA.

27. *P. jenkinsii* Hook. f. et T. Thomson ex Hook. f. Fl. Brit. Ind. 2 : 317. 1878; Kanjilal & Das, Fl. Assam 2 : 181. 1938; Kalkman in Blumea 13(1) : 37. 1965.

Bon-thereju (Ass.).

Trees up to 9 m high. Branches glabrous, lenticellate. Leaves 9-16 × 3.8-5.5 cm, lanceolate-oblong, base acute, apex acuminate, entire at base, undulating with spiny teeth above, basal glands two. Petioles 5-10 mm long. Racemes 3.5-5.5 cm long, solitary, axillary, rachis pubescent. Flowers 7 mm across. Hypanthia 1-2 mm long, pubescent. Pedicels 2-3 mm long, pubescent. Sepals 1-1.5 × 0.7-1 mm, ciliate. Petals 2-2.6 × 1.8-3 mm. Stamens 25, filaments 3 mm long. Style 5 mm long. Drupes 2.5 × 1.7 cm, ellipsoid, glabrous, acid to taste.



Prunus javanica (Teysm. & Binn.) Miq.
 Figs. 1-9 : 1. Flowering branch. 2. Fruiting branch. 3. Leaf showing glands. 4. Flower bud. 5. Bract. 6. Stamen. 7. Carpel. 8. Sepal. 9. Petal.

Type : Assam, Griffith 2067 (Lectotype K, Isolectotype L. P.).

Fls. : Mar. ; *Frts.* : Apr.-July.

Distrib. : INDIA : Assam, Andhra Pradesh ; BANGALADESH, CHINA (YUNNAN), NORTH BURMA.

28. *P. laurocerasus* L. Sp. Pl. 1 : 474. 1753 (Lauro Cerasus) ; Kalkman in Blumea 13(1) : 36. 1965 ; Krishnamurthy, Wealth of India 8 : 273. 1969. *Padus laurocerasus* (L.) Mill., Gard. Dict. ed. 8, no. 4. 1768. *Cerasus laurocerasus* (L.) Lois., Nouv. Duh. Trait. Arb. ed. 5 : 6. 1812. *Laurocerasus officinalis* M. Roem. Syn. 3. Fam. Nat. 91. 1847 ; K. Browicz, Fl. Turkey, 4 : 8. 1972. *Prunus grandifolia* Salisb. Prodr. 356. 1796. *nom. superfl. illeg.*

Cherry laurel (Eng.).

Trees or shrubs up to 6 m high. Leaves 8.5-12.5 × 2.5-3.7 cm, oblong or obovate-oblong, base acute, apex acuminate, entire but serrate above the middle, glabrous, leathery, shiny above ; basal glands 2-4 near midrib. Petioles 5-10 mm long, glabrous. Racemes 3-6 cm long, axillary. Hypanthia 2-3.5 mm long, glabrous outside, slightly hairy inside. Pedicels 4-5 mm long, glabrous. Sepals 0.5-1 × 0.2-0.5 mm, glabrous outside, hairy inside. Petals 3-3.5 × 2-2.5 mm. Stamens 15-25, filaments up to 4 mm long. Style 5 mm long. Drupes 8-15 × 5.5-8 mm, conic ovoid, glabrous, dark brownish purple or black.

Lectotype : Sheet no. 640/9, (LINN ; microfiche CAL ! selected by Kalkman, 1965).

Fls. : Apr.-May ; *Frts.* : July-Aug.

Distrib. : Cultivated in INDIA : Meghalaya, W. Bengal, Tamil Nadu as an ornamental, wild in SOUTH-EAST EUROPE, SOUTH USSR, ASIA MINOR.

29. *P. phaeosticta* (Hance) Maxim, Bull. Ac. Imp. Sc. St. Petersb. 3, 29 : 110. 1883 ; Kalkman in Blumea 13(1) : 40. 1965. *Pygeum phaeostictum* Hance, J. Bot. 8 : 72. 1870. *P. punctata* Hook. f. Fl. Brit. Ind. 2 : 317. 1878. *p. p.* descr. *Laurocerasus phaeosticta* (Hance) Schneid. Ill. Handb. Laubholzk. 1 : 649, fig. 355. 1906.

Dieng-ning-iong (Kh.).

Shrubs or trees up to 12 m high. Buds protected by some perulae. Leaves 7.5-11 × 2.5-3.5 cm, oblong-obovate, base acute, apex acuminate

up to 12 mm, entire, glabrous, numerous minute black glands beneath. Petioles 5-7 mm long, glabrous. Racemes 4.5-7 cm long, solitary, axillary, glabrous. Flowers 5-7 mm across. Hypanthia 1.4-2.0 mm long. Pedicels 3-10 mm long, glabrous. Sepals $1-1.5 \times 0.5-0.7$ mm. Petals $2-3 \times 1-1.5$ mm. Stamens 30, filaments 3 mm long. Style 5 mm long. Ovary sometimes hairy at base. Drupes 10×8 mm, globose, black.

Type: "Hong Kong, verticem montium Pakwan, *Hance* 6015" (Lectotype K, selected by Kalkman *l. c.*; Isolectotype CAL, P).

Fls.: May; *Frts.*: Oct.

Distrib.: INDIA : Assam, Meghalaya, Manipur; BANGLADESH, CHINA, UPPER BURMA, NORTH THAILAND, NORTH VIETNAM.

30. *P. pygeoides* Koehne in Engl. Bot. Jahrb. 52 : 297. 1915; Kalkman in Blumea 13(1) : 31. 1965. *Pygeum andersonii* Hook. f. Fl. Brit. Ind. 2 : 320. 1878; Gamble, Fl. Madras, Part 3. 439. 1919 (Repr. ed. 1 : 316. 1957); Chatterjee in J. Ind. Bot. Soc. 27 : 9. 1948. *Prunus andersonii* (Hook. f.) Koehne in Engl. Bot. Jahrb. 51 : 220. 1913 non A. Gray 1868. *Pygeum lucidum* T. Anderson ex Prain, Bengal Pl. 1 : 464. 1903, (in *Clavis*) *nom. superfl. illegit.*, *P. lucidum* T. Anderson in J. Asiat. Soc. Beng. 32 : 203. 1863, *nom. nud.* Haines For. Fl. Chota Nagpur, 238. 1910. *P. mooneyi* Raizada in Ind. For. 68 : 421. 1942, Pl. 24 and *l. c.* 73 : 74. 1947.

Trees up to 6 m high. Branches glabrous. Leaves $8.5-9.5 \times 2.8-3$ cm, ovate-oblong, base acute, apex acute or acuminate, crenate-gland serrate, glabrous, 1-3 glands below lowest teeth. Petioles 7-10 mm long. Racemes 1.5-4.5 cm long, solitary. Flowers very dense, 4 mm across. Hypanthia 1.5 mm long. Pedicels 3-4 mm long. Sepals 1.5×1 mm, ciliate. Petals $1.5-2 \times 1-1.5$ mm, hairy. Stamens 15-26, filaments 2.5 mm long. Style 1.5 mm long. Drupes $6-9 \times 7-10$ mm, transversely ellipsoid, glabrous.

Type: Bihar, Summit of Parusnath, 1220 m. [15th Nov. 50] *T. Anderson* s. n. (Holotype K; Isotype CAL!, L, BM and DD).

Fls.: Nov.

Distrib.: INDIA : Madhya Pradesh, Bihar, Orissa and according to Gamble Andhra Pradesh; CHINA.

31. *P. undulata* Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 239. 1825; Hara, Enum. Fl. Pl. Nepal 2 : 142. 1979. Krishnamurthy, *op. cit.*

282. *Cerasus acuminata* Wall. [Num. List no. 719. 1829, *nom. nud.*] Pl. Asiat. Rar. 2 : 78, t. 181. 1831. *Prunus acuminata* (Wall.) D. Dietr. Syn. 3 : 42. 1842; Hook. f. l. c. 317; Osmaston, For. Fl. Kumaon, 203. 1927; Kanjilal & Das, Fl. Assam 2 : 181. 1938. *nomen illegit. non* Michx. 1803, *non* *Pygeum acuminatum* Colebr. 1818. *Prunus wallichii* Steudel, Nom. Bot. ed. 2, 2 : 404. 1841; Kalkman in Blumea 13 : 38. 1965; Krishnamurthy, *op. cit.* 282. *Cerasus capricida* [Wall. Num. List no. 718. 1829, *nom. nud.*] ex G. Don, Gen. Syst. 2 : 515. 1832, *nom. illegit.* *Prunus capricida* Brandis, For. Fl. : 195. 1874, *nom. illegit.*

Dien-Soh-iong-blei (Kh.); *Lali* (Nep.); *Lik-kung* (Lepcha); *Aria, Gadharu* (Garhwal).

Trees up to 12 m high. Leaves 11-15 × 3.5-5.7 cm, lanceolate-oblong, base caudate, apex acuminate, tip mucronate, entire, black glands parallel to midrib beneath, thin, papery. Petioles 8-10 mm long, glabrous. Racemes 4-9 cm long, solitary. Hypanthia 2 mm long, hairy inside, persistent in fruit. Pedicels 4-5 mm long, glabrous. Flowers 5-8 mm across, fragrant. Sepals 2-3 × 1-1.5 mm. Petals 2 mm × 1.3 mm, white. Stamens 15, filaments 3 mm long. Style 4 mm long. Ovary villous at base. Drupes 20 × 10 mm, ovoid, pointed at apex, glabrous, purplish-black.

Syntypes : "Hab. ad Narainhetty, Nepalensium, *Hamilton, Wallich*" s. n.

Fls. : Sept.-Nov. ; *Frts.* : Dec.-Mar.

Distrib : INDIA : Uttar Pradesh, Sikkim, Arunachal Pradesh, Nagaland, West Bengal, Assam, Meghalaya, Manipur ; NEPAL, BHUTAN, BANGLADESH, BURMA, NORTH THAILAND, LAOS, NORTH VIETNAM, SOUTH VIETNAM, SUMATRA, MALAY (PAHANG).

32. *P. zippelliana* Miq. Fl. Ind. Bat. 1 : 1, 367. 1855 ; Kalkman in Blumea 13(1) : 44. 1965 ; Krishnamurthy, Wealth of India 8 : 282. 1969.

Shrubs or trees, 20 m high. Leaves 8-18 × 3.5-8 cm, oblong-lanceolate, base acute-obtuse, apex acuminate, margin glandular, spiny-serrate, glabrous. Petioles 1-2 cm long, two glandular. Inflorescences racemose, solitary, rachis pubescent. Hypanthia 2 mm long, pubescent outside, hairy inside at base. Pedicels 2-4 mm long, pubescent. Sepals 0.6-1 × 0.5-1 mm, apex ciliate. Petals 2-3 × 2-2.5 mm, ciliate. Stamens 25, filaments 4 mm long. Style 4 mm long, ovary glabrous. Drupes 2 × 1 cm, ovoid, glabrous.

Type : Java (cultivated), Zippel s. n. (Holotype L Sheet no. 908 202-880).

Distrib. : INDIA : Cultivated in Assam, Nagaland, Manipur; CHINA, JAPAN, TAIWAN, NORTH VIETNAM, JAVA, UPPER BURMA, THAILAND (*Kalkman in litt.* 11 Jan. 1982).

Section 2. *Mesopygeum* (Koehne) Kalkman in *Blumea* 13(1) : 50. 1965, *Pygeum* Gaertn. Sect. *Mesopygeum* Koehne in *Bot. Jahrb.* 51 : 215. 1913.

Type : *Pygeum zeylanicum* Gaertn. = *Prunus ceylanica* (Wight) Miq.

- 1a. Racemes in bundles of 3-6. Basal glands of leaf 2, flat or distinctly hollowed. Ovary densely hairy, rarely glabrous; style long hairy. Drupes 6-15 × 5-10 mm ...33. *P. arborea* var. *montana*
- 1b. Racemes solitary. Basal glands of leaf 2(-4), flat, additional glands also present. Ovary with a ring of hairs or glabrous; style glabrous. Drupes 15-24 × 10-15 mm ...34. *P. ceylanica*
33. *P. arborea* (Bl.) Kalkman var. *montana* (Hook. f.) Kalkman in *Blumea* 13(1) : 99. fig. 33. 1965. *Pygeum montanum* Hook. f. *Fl. Brit. Ind.* 2 : 321. 1878; *P. capitellatum* Hook. f. *Fl. Brit. Ind.* 2 : 321. 1878; Koehne, *Bot. Jahrb.* 51 : 185. 1913. *P. ciliatum* Koehne, *Bot. Jahrb.* 51 : 184. 1913; Kanjilal & Das, *Fl. Assam* 2 : 187. 1938. *P. ocellatum* Koehne, *Bot. Jahrb.* 51 : 184. 1913.

Dieng-cha-lawan-synrang (Kh.).

Trees up to 12 m high. Leaves 12-17 × 4-7 cm, base caudate, apex acuminate, entire, pubescent beneath on midrib. Petioles 4-5 mm long, pubescent, two glandular. Racemes 3-7 cm long, 2-6 in clusters, densely pubescent. Flowers 5 mm across. Hypanthia 1.5-3.5 mm long, woolly outside, glabrous inside. Pedicels 0.4 mm long, woolly. Perianth segments 7-11, subequal woolly on both sides. Sepals and petals ± distinct. Sepals 0.5 × 1 mm. Petals 1 × 2 mm. Stamens many, filaments 1-2 mm long, Style 3 mm long, woolly, ovary woolly. Drupes 6-15 × 5-10 mm, bilobed, transversely ellipsoid.

Type : Eastern Himalaya, Sikkim, Griffith 2054 (Lectotype K, Photo—CAL! Isolectotype K, Photo—CAL!).

Fls. : July-Nov.; *Frts.* : Feb.-Mar.

Distrib. : INDIA : Sikkim, Nagaland, Meghalaya, Assam ; BANGLADESH, BHUTAN, SOUTH CHINA, BURMA, THAILAND, LAOS, CAMBODIA, NORTH & SOUTH VIETNAM.

34. *P. ceylanica* (Wight) Miq. Fl. Ind. Bat. 1, 1 : 365. 1855 ; Kalkman in Blumea 13(1) : 52. fig. 18. 1965 ; Krishnamurthy, Wealth of India 8 : 267. 1969. *P. zeylanicum* Gaertn., Fruct. 1 : 218, t. 46. 1788 ; Dalz. & Gibs., Bomb. Fl. 89. 1861 ; Hook. f. l. c. : 321. *Polydontia* (?) *ceylanica* Wight, Ill. Ind. Bot. 1 : 203. 1840 (*Polyodontia*). Hara, Enum. Fl. Pl. Nepal 2 : 142. 1979. *Pygeum acuminatum* Colebr. Trans. Linn. Soc. 12 : 306, t. 18. 1818 ; Hook. f. l. c. : 318 ; Gamble, Fl. Madras, Part 3. 439. 1919 (Repr. ed. 1 : 311, 1967) *non Prunus acuminata* Michx 1803, *non* (Wall.) D. Dietr. 1842. *P. gardneri* Hook. f. Fl. Brit. Ind. 2 : 321. 1878 ; Cooke, Fl. Pres. Bomb. 1 : 458. 1903 (Repr. ed. 2 : 488. 1967) ; Gamble, l. c. 439. 1919 (Repr. ed. 1 : 311. 1967). *P. glaberrimum* Hook. l. c. 2 : 319. 1878. *P. wightianum* Bl. ex C. Muell. in Walp. Ann. 4 : 642. 1857 ; Hook. f. l. c. 319 ; Cooke, l. c. 458. 1903 (Repr. ed. 2 : 487. 1967) ; Gamble, l. c. 438. 1919 (Repr. ed. 1 : 311. 1967). *P. sisparens* Gamble in Kew Bull. 238. 1918 & Fl. Madras, Part 3. 438. 1919 (Repr. ed. 1 : 311. 1967).

Galmorre (Beng.) ; *Gandhigach* (Ass.) ; *Hanam* (Naga.) ; *Ranphir* (Tippera) ; *Daaka* (Guj.) ; *Palankacchi* (Tam.) ; *Nai Kambagam* (Mal.).

Trees, 12-25 m high. Leaves 6-19.5 × 3-8.5 cm, base acute, apex acuminate, entire to dentate, glabrous. Petioles 1.5-2 cm long. Racemes, 3-8.5 cm long, solitary, axillary. Hypanthia 2 mm long, woolly outside, glabrous inside. Pedicels 2-3 mm long, pubescent. Perianth segments 9-10. Sepals 0.5 × 1 mm, unequal, woolly outside, glabrous inside. Petals 2 × 1 mm, woolly outside, glabrous inside. Stamens more than 20, filaments up to 5 mm long. Style 5 mm long, ovary hairy at base. Drupes 14-25 × 9-18 mm, didymous or bilobed, transversely ellipsoid.

Type : Ceylon, in forests 'above Numbady', Wight s. n. (? PDA). Wight 293(E) is probably an authentic specimen.

Fls. : May-Aug. ; *Frts.* : Oct.-Dec.

Distrib. : INDIA : Sikkim, Nagaland, Meghalaya, Assam, West Bengal, Bihar, Orissa, Uttar Pradesh, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, Andaman & Nicobar Islands ; NEPAL, SRI LANKA, BANGLADESH, BURMA, THAILAND, LAOS, SOUTH VIETNAM.

Notes: Kalkman (1965) was the first to point out that J. D. Hooker (1878), Trimen (1895) and Alston (1931) confused the identity and nomenclature of two Ceylonese species, when they referred the one with glabrous ovary and glabrous leaves to *Pygeum wightianum* Bl. ex G. Muell. (1857) and the other, with ovary and the undersurface of leaves hairy, to *P. zeylanicum* Gaertn. (1788). He critically examined the type specimen of *P. zeylanicum* Gaertn. in the Leiden herbarium (L), iconotype and the protologue and correctly maintained that :

1. *P. zeylanicum* Gaertn. must be applied to the one with glabrous fruits “which must have originated from glabrous ovaries” ;

2. *P. acuminatum* Colebr. (1818), non *Prunus acuminata* Michx (1803), *Polydонтia* (?) *ceylanica* Wight (1840) [= *Prunus ceylanica* (Wt.) Miq. 1855] and *Pygeum wightianum* Bl. ex C. Muell. (1857), are conspecific with *Pygeum zeylanicum* Gaertn. and that *P. wightianum* Bl. is a homotypic synonym of *Polydонтia ceylanica* Wight = *Prunus ceylanica* (Wt.) Miq. ;

3. Since *Polydонтia* (?) *ceylanica* Wight was not based on *Pygeum zeylanicum* Gaertn., the two are to be treated as taxonomically, not nomenclaturally conspecific ;

4. The second of the two Ceylonese species, viz. the one with ovary and the lower surface of leaves hairy, represents *Prunus walkeri* (Wight) Kalkman (1965).

Although the epithets *Zeylanicus*, *Ceylanicus* and *Taprobanicus* are valid geographic names for Ceylon and the original spelling must be retained-Art. 73.1 ‘ceylanica’ & ‘zeylanica’ when represent two different species in one genus, must be treated as orthographic variants as clearly stated in the examples under Art. 75.2. According to Art 64.2 orthographic variants when based on different types, are treated as homonyms. Therefore *Prunus zeylanicus* (Gaertn.) comb. nov. if proposed, would be a later homonym of *Prunus ceylanicus* (Wight) Miq. (1855). Hara (1979), however, maintains *Pygeum* Gaertn. as generically distinct from *Prunus* L. and enumerates *Pygeum zeylanicum* Gaertn. as occurring in Nepal.

Note : Please read the following at page 26 before 2a and 3a, respectively.

- A. Racemes up to 18 cm long or more. Hypanthia glabrous inside.
- B. Racemes up to 12 cm long. Hypanthia pubescent inside.

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