

POLEMONIACEAE (C. A. Backer, Heemstede)

Annual or perennial herbs or shrubs, sometimes climbing by means of foliar tendrils, rarely small trees. *Leaves* spirally arranged or opposite, exstipulate, sessile or petioled, entire or more or less deeply divided, or compound. *Flowers* axillary or terminal, solitary, geminate, corymbose or capitate, actinomorphic or slightly zygomorphic. Calyx 5-lobed or 5-partite, with or without transparent fields, persistent. Corolla gamophyllous, 5-lobed or 5-partite; lobes contorted in bud. Stamens 5, on the corolla-tube, inserted at equal or unequal height, alternating with the segments; filaments free from each other, included or exserted; anthers dorsifixed, 2-celled; cells opening longitudinally. Ovary superior, sessile on a disk, 3 (rarely 2)-celled; ovules in each cell 1-∞, inserted in the inner angle; style 1, filiform, 3 (rarely 2)-fid. *Fruit* a loculicidal or septifragal capsule, rarely indehiscent. Endosperm mostly copious; embryo straight or slightly curved.

Distr. N. America and the Andes, rare in the Old World, absent from Africa and Australia. Genera 12, represented by upwards of 250 species. In *Malaysia* one American genus is more or less naturalized; a few other species are cultivated in gardens.

Uses. The Indonesian species are exclusively of horticultural value.

KEY TO THE GENERA

1. Climbing. Leaves pinnate; rachis terminating in a branched tendril. Flowers solitary or pairwise in the leaf-axils, long-peduncled, rather large. Fruit septifragal. 1. *Cobaea*
1. Not climbing. Tendrils absent. Inflorescence several-flowered. Fruit loculicidal.
 2. Filaments inserted at very unequal height. Leaves entire 2. *Phlox*¹
 2. Filaments inserted at equal height 3. *Gilia*¹

1. COBAEA

CAV. Icon. 1 (1791) 11.

Climbing shrubs or herbs. *Leaves* spirally arranged, pinnate; rachis ending in a much branched tendril, branches of tendril terminated by a minute sharp claw. Leaflets opposite, herbaceous, usually in 3 pairs, lowest pair quite near the leaf-base. *Flowers* solitary or geminate, axillary or on top of short branch, long pedicelled, rather large. Calyx-tube sometimes well-developed, usually very short; segments valvate with recurved margins, either short and broad or long and narrow. Corolla campanulate, 5-lobed or 5-partite; segments short and broad or long and narrow. Stamens inserted at equal height above the base of corolla-tube; filaments filiform with a thickened hairy base, about as long as corolla or longer, sometimes much longer. Disk thick, 10-lobed. Ovary ovoid-oblong, glabrous; cells 2-∞-ovuled; style about as long as corolla or longer; style-arms linear. *Capsule* oblong, coriaceous or pergamaceous, septifragal, 3-valved; central column very thick. Seeds in each cell 1-∞, 2-seriate, peltately attached, large, much compressed, winged all round; testa becoming slimy when steeped in water; cotyledons large, fleshy.

Distr. Species 18, native of tropical America, a few introduced into other countries; one of these has become more or less naturalized in Java.

KEY TO THE SPECIES

1. Calyx-tube with 5 prominent flat folds; segments not or slightly longer than broad, rounded or retuse with an apical point and broadly reflexed, mutually appressed margins. Corolla-segments much shorter than the tube, broadly triangular, obtuse. Flowers patent or erecto-patent 1. *C. scandens*
1. Calyx-tube without prominent flat folds; segments much longer than broad, acute, with narrowly reflexed, mutually appressed margins. Corolla-segments much longer than the tube, narrowly linear, at the apex divided into 2 very short, narrow segments. Flowers pendulous. 2. *C. panamensis*

(1) The genera *Phlox* and *Gilia* are represented in *Malaysia* by cultivated ornamentals only; they are not further treated here.

1. *Cobaea scandens* CAV. Ic. 1 (1791) 11, t. 16-17; CURTIS, Bot. Mag. (1805) t. 851; POIR. Enc. Méth. Suppl. 2 (1811) 305; BTH. in DC. Prodr. 9 (1845) 322; Fl. des Serres 14 (1861) pl. 1467; BRAND, Pfl. R. 27 (1907) 24, f. 6; BACK. Ann. J.B.B. Suppl. 3 (1909) 399; KOORD. Exk. Fl. 3 (1912) 125; STANDLEY, Contr. U.S. Nat. Herb. 17 (1914) 458; WIGMAN, Teysm. 32 (1921) 50, photo; BRUGGEMAN, Ind. Tuinb. (1939) 155; BACK. Bekn. Fl. Jav. em. ed. 8 (1949) fam. 187, 2.—*Cobaea scandens* ANDR. Bot. Repos. 5 (1803) 342.—*Rosenbergia scandens* HOUSE, Muhlenbergia 4 (1908) 23.—Fig. 1.

Robust perennial climber, 3-8 (up to 20?) m high. Stem angular, glabrous. *Leaflets* in 3 or sometimes 2 pairs, glabrous, obtuse or acute, mucronate; lowest pair subsessile, not stipuliform, oblong-obovate from an obtuse, truncate or emarginate, subequal, often broadened base; higher ones distinctly stalked, ovate to oval or oblong from an obtuse, acute or contracted base, $3\frac{1}{2}$ -13 by $1\frac{1}{4}$ -6 cm; lateral nerves confluent into a thin intramarginal nerve; petiolules 1-2 cm. *Flowers* patent or erecto-patent. Peduncle robust, 8-30 cm long, near the base with 2 pinnate bracts. *Calyx* $3\frac{1}{2}$ cm long, cleft more than halfway down, widely gaping; tube 1- $1\frac{1}{2}$ cm long, very wide, with 5 strongly prominent flat folds; segments foliaceous, slightly or hardly longer than broad, broadly oval-ovate, rounded or retuse, with a short or longish point, green, pale-veined, glabrous without, very densely short-white-pubescent within. *Corolla* $4\frac{1}{2}$ -6 $\frac{1}{2}$ cm long, very wide, lobed much less than halfway down, at first pale green, usually turning darkviolet, rarely not changing its colour; tube slightly constricted above the broad campanulate base, above the constriction gradually widened, outside along the upper margin densely short-pubescent, otherwise glabrous, within with a broad densely villous ring at the insertion of the stamens, otherwise glabrous; segments broadly triangular, rounded or very obtuse. *Stamens* about as long as the corolla or slightly or distinctly longer, often upturned at the apex, filaments glabrous above the pubescent base; style glabrous; style-arms comparatively short, erect or erecto-patent. *Capsule* elliptic-oblong, 5-9 cm long. Seeds numerous, blackish brown, $\pm 1\frac{1}{2}$ cm long.

Distr. Native of Mexico, Central America and Brazil, in the mountainous districts of Java cultivated as an ornamental and locally met with as an escape from gardens, not truly naturalized, 1200-1800 m. Fl. Jan.-Dec., fr. July-Aug.

2. *Cobaea panamensis* STANDLEY, Contr. U.S. Nat. Herb. 17 (1914) 452.—*C. penduliflora* (non al.) BACKER, Bekn. Fl. Jav. em. ed. 8 (1949) fam. 187, 2.

Herbaceous, climbing, 2-4 m high. Stem very slender, angular, densely white-woolly about the nodes, otherwise glabrous or subglabrous, purplish green; leaf-rachis thin, 4-6 cm (disregarding the apical tendril), glabrous above the pubescent base.

Leaflets 3 pairs, subequal, narrowly oblong-oblan- ceolate from an obtuse, rounded or subtruncate base, very acute, thin, light green, obscurely and remotely ciliate, otherwise glabrous, 3-8 cm by $3\frac{1}{4}$ -2 $\frac{1}{2}$ cm; petiolules 4-8 mm. *Flowers* solitary, pendulous; peduncle thin, glabrous ebracteate, 6-

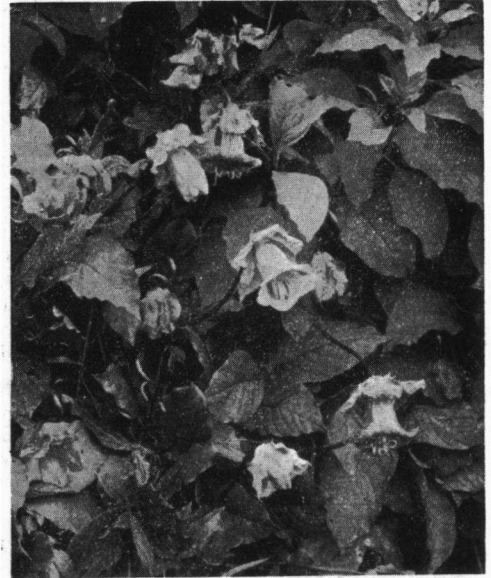


Fig. 1. *Cobaea scandens* CAV. as an escape near Tjibodas mountain garden, W. Java (JENSEN).

21 cm. *Calyx* green, glabrous, $2\frac{1}{2}$ - $3\frac{1}{2}$ cm long, almost cleft to the base; segments narrowly triangular, acute. *Corolla* (not seen in a living state) deep brownish purple; tube widely campanulate, $1\frac{3}{4}$ -2 cm long, glabrous outside; inside between the bases of the filaments with a very dense transverse ring of short hairs; segments separated by narrow sinuses, almost linear from a broadened base, very gradually tapering, very shortly bifid, ± 6 cm long, deep purple. Filaments very thin, purple, much exceeding the corolla, densely short-hairy at the base; anthers purple, ± 1 cm. Style slender, glabrous, 10-13 cm; stigmas thin, $\pm 3\frac{1}{4}$ cm; capsule oblong, acute, glabrous, pergamaceous, $\pm 3\frac{1}{2}$ cm by $\pm 1\frac{1}{4}$ cm. Seeds 12 or fewer, oval-oblong, broadly winged.

Distr. Native of Central America. A few specimens found naturalized in East Java (Tawang Rédjéni, S of Turen), in a jungle at 400 m alt. where it flowered and fruited freely (May 1927 by the late Dr O. POSTHUMUS); it may be expected to spread further. Other data not available.

Note. In contra-distinction to the description by STANDLEY (*l.c.*) I found the corolla glabrous outside, provided with a ring of hairs within.