

NOTES ON MALESIAN FABACEAE  
(LEGUMINOSAE–PAPILIONOIDEAE)

1. The genus *Erythrina* L.

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SUMMARY

*Erythrina* L. is reviewed for the Flora Malesiana region. Six species are recognised. *Erythrina merrilliana* is reduced to *E. insularis* and *E. microcarpa* Koord. & Valeton to *E. stricta*. A key to the species is presented.

INTRODUCTION

*Erythrina* L. is a genus of c. 110 species distributed throughout the tropics and subtropics. Most species are found in Central and South America; six to eight species are considered to occur in the Flora Malesiana region. Lackey (1981) places the genus in the tribe *Phaseoleae*, subtribe *Erythrininae*.

The following sections contain remarks on the genus, and on the species *E. euodiphylla* Hassk., *E. merrilliana* Krukoff, and *E. microcarpa* Koord. & Valeton. In the last section a key to the species in the Flora Malesiana region is presented.

**ERYTHRINA L.**

This genus of trees and shrubs is easily recognisable in the field by the often thorny stems, the stipellae, which are gland-like, and the large, red or orange flowers, which appear after the leaves have fallen.

Another striking feature is found in the shape of the flower buds, the way they open, and the resulting calyces.

The buds are more or less spindle-shaped, either short and broad or long and slender, firmly closed and constricted at the apex. As soon as the corolla begins to expand a tear appears on the vexillary side of the bud just above the constriction. This opening enlarges into a single slit on the vexillary side or two slits situated more laterally. In the first case the resulting calyx is spathaceous (Fig. 1a, b), while in the second the calyx becomes campanulate and bilabiate (Fig. 1c, d).

The flowers, arranged in crowded, terminal or subterminal inflorescences, are usually bird-pollinated (Docters van Leeuwen, 1932; Reynvaan & Docters van Leeuwen, 1932).

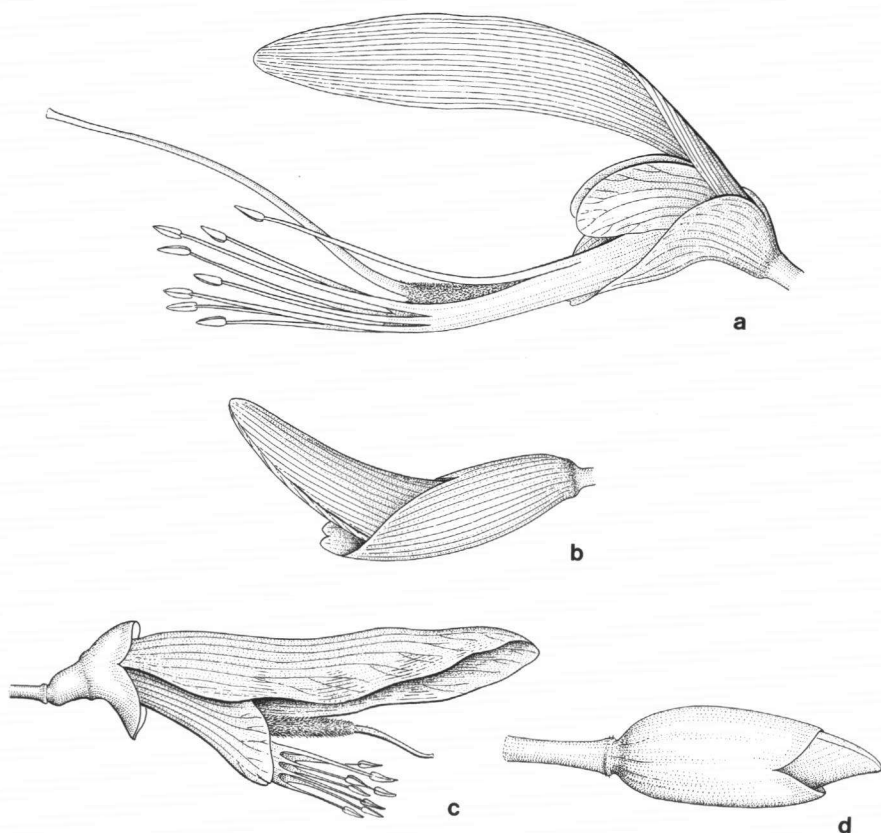


Fig. 1. Open flowers (a, c) and flower buds (b, d) of *Erythrina*-species. — a, b. *E. variegata* L. — c, d. *E. stricta* Roxb. (a, b: Goetghebeur 3364; c, d: van Balgooy 5272). Drawings by J.H. van Os; a–c  $\times 1.5$ ; d  $\times 3$ .

### *Erythrina euodiphylla* Hassk.

*Erythrina euodiphylla* was described by Hasskarl (1858) using specimens from Java and Bali. The specimen from Bali (*Teijsmann s.n.*) belongs to *E. variegata*. The species does, however, occur in the Lesser Sunda Islands, where it was collected on Timor in 1968 (*Kooy 430*).

This species belongs to subgenus *Erythraster* Barneby & Krukoff, which can easily be recognised by the presence of stellate hairs, and by the free keel petals. Within subgenus *Erythraster*, *E. euodiphylla* is most closely related to *E. tahitensis* Nadeau. The only difference between the two species would appear to be the colour of the seeds: purple in *E. euodiphylla*, red in *E. tahitensis*. It is not inconceivable that in the future these two species will be united, which would result in a curious and interesting distribution: E Java, Timor, Hawaii and Tahiti!

***Erythrina merrilliana* Krukoff**

*Erythrina merrilliana* is another species of subgenus *Erythraster*. It was described by Krukoff (1939) on the basis of *Brass* 5265 from Papua New Guinea (Central Province). Krukoff & Barneby (1974) noted that *E. insularis* F.M. Bailey from Turtle Island (Australia, Queensland; see also Verdcourt, 1979) was probably based on an outlying population of *E. merrilliana*.

The type of *E. insularis* consists of several infructescences with ripe pods and seeds, accompanied by a number of loose leaflets and in no way do these differ from those of *E. merrilliana*. As a consequence, the two species are united here. The correct name and synonymy is as follows:

***Erythrina insularis* F.M. Bailey**

*Erythrina insularis* F.M. Bailey, Queensl. Agr. J. 1 (1897) 228. — Type: *F.M. Bailey* 29 (BM, BRI, K), Australia, Queensland, Turtle Island.

*Erythrina merrilliana* Krukoff, J. Arnold Arbor. 20 (1939) 227; Krukoff & Barneby, Lloydia 37 (1974) 435; Verdc., Man. New Guinea Leg. (1979) 425. — Type: *Brass* 5265 (A), Papua New Guinea, Central Province.

***Erythrina microcarpa* Koord. & Valeton**

*Erythrina microcarpa* belongs to a small group of closely related species: section *Suberosae* Krukoff of subgenus *Erythrina*. Krukoff & Barneby (1974) give four species for this section: *E. microcarpa* Koord. & Valeton, *E. resupinata* Roxb., *E. stricta* Roxb., and *E. suberosa* Roxb. This section is easily recognised by the waxy exudate on the lower surface of the leaflets, which forms an intricate pattern of ridges along and across the alveoli, and by the wings which are much shorter than the keel petals.

Niyomdham (1992) reduced *E. suberosa* Roxb. to a variety of *E. stricta* Roxb. because of the great similarity between herbarium specimens of the two species. Contrary to the views of Krukoff & Barneby (1974) there are no differences between *E. microcarpa* and *E. stricta* as to the presence of wax on the lower surface of the leaflets, in the flower parts, or in the pods. For this reason the two are combined here. The full synonymy is as follows:

***Erythrina stricta* Roxb.**

*Erythrina stricta* Roxb., [Hort. Beng. (1814) 53, nom. nud.] Fl. Ind. 3 (1832) 251; Krukoff & Barneby, Lloydia 37 (1974) 352. — Type: *Roxburgh s.n.*, India (n.v.).

*Erythrina suberosa* Roxb., [Hort. Beng. (1814) 53, nom. nud.] Fl. Ind. 3 (1832) 253; Gagnep., Fl. Gén. Indo-Chine 2 (1916) 419; Craib, Fl. Siam. Enum. 1 (1928) 441; Whitmore, Tree Fl. Malaya 1 (1973) 292; Krukoff & Barneby, Lloydia 37 (1974) 351. — *Erythrina stricta* Roxb. var. *suberosa* (Roxb.) Niyomdham, Nord. J. Bot. 12 (1992) 342. — Type: *Icon. Roxburgh* 104 (K), India.

*Erythrina sublobata* Roxb., Fl. Ind. 3 (1832) 254. — Type: *Roxburgh s.n.*, India (n.v.).

*Erythrina microcarpa* Koord. & Valeton, Booms. Java 2 (1895) 61, 63; K. Heyne, Nutt. Pl. Ned. Indië 2 (1916) 324; Backer & Bakh. f., Fl. Java 1 (1963) 627; Krukoff & Barneby, Lloydia 37 (1974) 35. — Lectotype (Krukoff & Barneby, 1974): *Koorders* 66 (holo L; iso K), E Java.

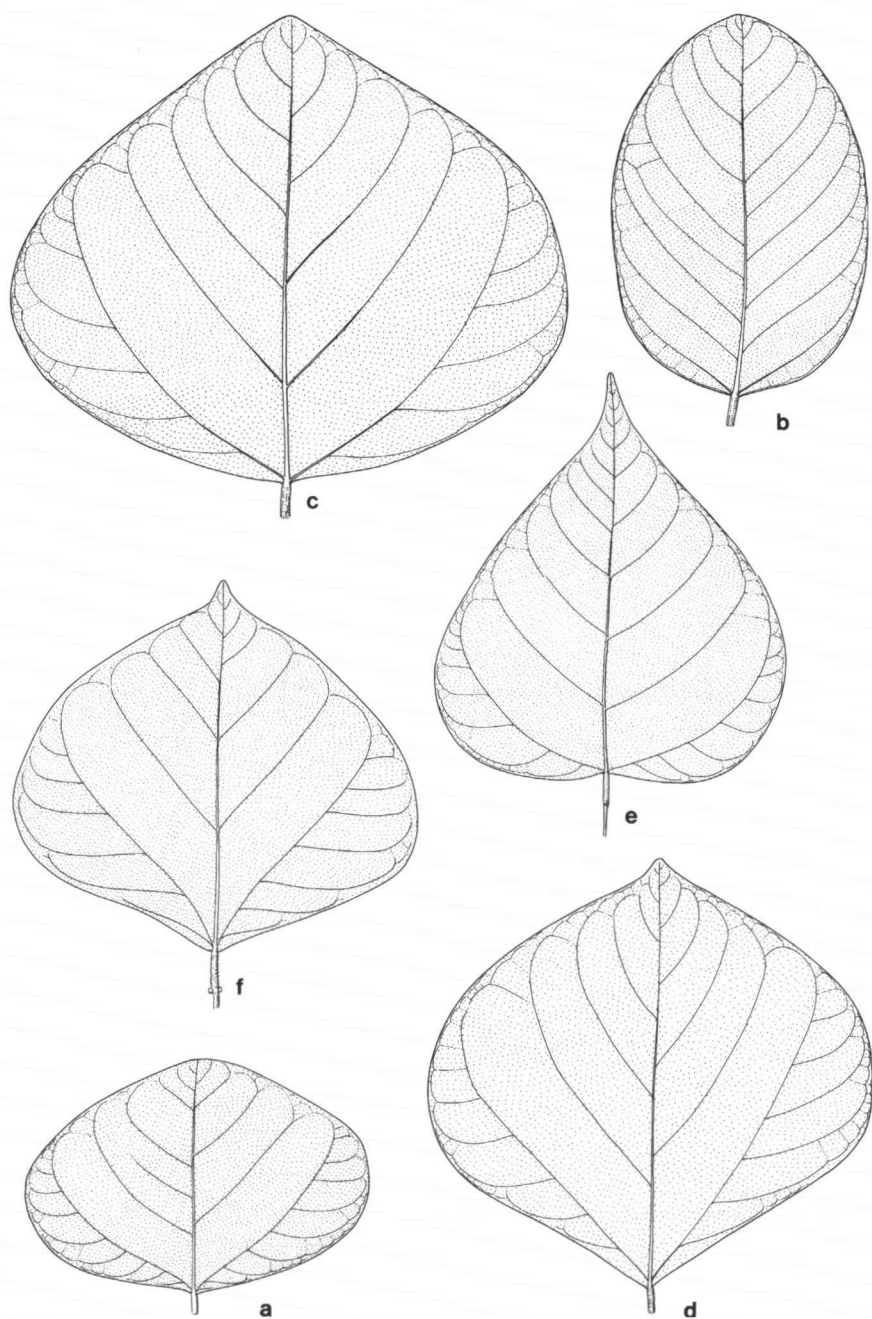


Fig. 2. Terminal leaflets of *Erythrina*-species. — a. *E. euodiphylla* Hassk.; b. *E. fusca* Lour.; c. *E. insularis* F.M. Bailey; d. *E. stricta* Roxb.; e. *E. subumbrans* (Hassk.) Merr.; f. *E. variegata* L. (a: Backer s.n.; b: van Harreveld s.n.; c: NGF 46673; d: Koorders 468; e: PNH 22809; f: Beguin 1082). Drawings by J.H. van Os; all  $\times 0.5$ .

*Erythrina stipitata* Merr., Philipp. J. Sc., Bot. 5 (1910) 112; Enum. Philipp. Flow. Pl. 2 (1923) 305. — Type: Merrill 950 (NY), Philippines, Lubang Island.

*Erythrina suberosa* Roxb. var. *horrida* Ridl., Fl. Malay Penins. 1 (1922) 579; Craib, Fl. Siam. Enum. 1 (1928) 441. — Type: Curtis s.n., Langkawi Isl., Terutao (n.v.).

Distribution — India, Nepal, Bhutan, Burma, Thailand, Vietnam, Malaysia (Langkawi Islands), Java, the Philippines (Lubang Island), Lesser Sunda Islands (Bali, Flores, Timor).

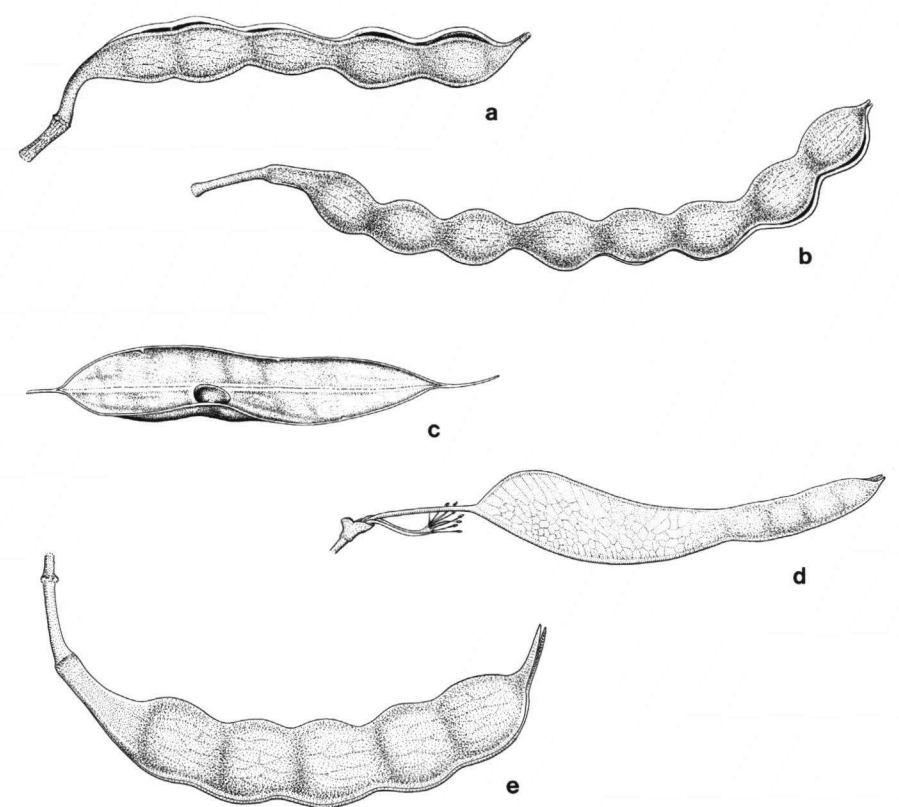


Fig. 3. Pods of *Erythrina*-species. — a. *E. fusca* Lour.; b. *E. insularis* F.M. Bailey; c. *E. stricta* Roxb.; d. *E. subumbrans* (Hassk.) Merr.; e. *E. variegata* L. (a: Koorders 11510 $\beta$ ; b: NGF 7336; c: Maxwell 89-509; d: PNH 22809; e: Goetghebeur 3364). Drawings by J.H. van Os; all  $\times 0.5$ .

#### KEY TO THE MALESIAN SPECIES OF ERYTHRINA

- 1a. Indumentum consisting of simple hairs. Calyx  $\pm$  bilabiate, rarely  $\pm$  spathaceous (Fig. 1c, d). Keel petals almost totally adnate ..... 2
- b. Indumentum consisting of stellately branched hairs. Calyx spathaceous (Fig. 1a, b). Keel petals free ..... 4

- 2a. Leaflets broadly ovate to rhomboid, orbicular or transversely elliptic (Fig. 2a, c–f), 0.8–1.4 times as long as wide, lower surface glabrous to pubescent, at least on midrib and nerves. Blade of standard (broadly) elliptic, 2–4.5 × 1–3 cm. Pod 4–13.5 cm long ..... 3
- b. Leaflets elliptic to broadly ovate (Fig. 2b), 1.2–2 times as long as wide, lower surface sericeous. Blade of standard orbicular to transversely elliptic, 2.5–4 × 3.5–5.8 cm. Pod 14–33 cm long (Fig. 3a). — Lower surface of leaflets glaucous or greyish ..... *E. fusca*
- 3a. Lower surface of leaflets green, without waxy ridges along or across the alveoles. Keel petals shorter than the wings. Pod ± falcate, lower part strongly compressed and sterile, upper part fertile, opening along both sutures (Fig. 3d) ... .. *E. subumbrans*
- b. Lower surface of leaflets glaucous or greyish, with waxy ridges along and/or across the alveoles. Keel petals much longer than the wings. Pod strap-like, fertile over the whole length, opening along the ventral suture only (Fig. 3c) *E. stricta*
- 4a. Pod ± strap-like, constricted between the seeds, 5.5–10 × 1.3–2 cm, regularly opening along both sutures (Fig. 3b). Terminal leaflets transversely elliptic, rarely rounded rhomboid (Fig. 2a, c), 4.5–12 × 5–15 cm ..... 5
- b. Pod sausage-shaped or elongate-cylindric, at most only slightly constricted between the seeds, 10–45 × 2–3.5 cm, opening irregularly (Fig. 3e). Terminal leaflets ovate to broadly rhomboid or transversely elliptic (Fig. 2f), 4–25 × 3–30 cm ..... *E. variegata*
- 5a. Leaflets 4.5–9 × 5–13 cm. Blade of standard ± elliptic, 2.5–3.5 × 2–3 cm. — E Java, Timor ..... *E. euodiphylla*
- b. Leaflets 9–12 × 7.8–15 cm. Blade of standard narrowly elliptic, 6.5–8.5 × 1.3–1.5 cm. — Papua New Guinea ..... *E. insularis*

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