



Fig. 1. *Typha angustifolia* L. from Java. $\times 1/2$.

TYPHACEAE¹ (C. A. Backer, Heemstede)

1. TYPHA

LINNÉ, Sp. Pl. (1753) 971; Gen. Pl. ed. 5 (1754) no 924.

Perennial, palustrial or aquatic herbs with a creeping rhizome; stems erect, solid, submerged at the base. *Leaves* biseriate, partly radical or subradical, partly cauline, lower congested, higher remote, elongate-linear, rather thick and spongy, blunt-margined; their sheathing bases excreting slime on their inner side. *Flowers* very numerous, very closely packed in 2 or less often 3, superposed, contiguous or more or less remote terete unisexual spikes; upper spike male; the 1–2 lower ♀; all spikes at the base with a foliaceous bract which falls off long before anthesis; the ♀ spikes here and there between the flowers often with a similar bract. ♂ *Flowers* consisting of 3 flat hairs together surrounding 2–5 stamens; anthers basifixed, linear, 2-celled; connective shortly produced; cells back to back, bursting longitudinally; pollen-grains free or cohering in tetrads. *Rachis* of ♀ *spathe* closely studded with patent cylindrical thickish excrescences; between these excrescences and on their basal part beset with flowers containing a fertile ovary; higher part of the excrescences bearing rudimentary ovaries. ♀ *Flowers* with or without a very narrow bracteole; bracteole with a more or less broadened, often dentate-acuminate apex either entirely hidden by the flowers or their apex visible externally. Ovary borne by a long very thin stalk (gynophore) which bears long hairs on its base, fusiform, 1-celled; style distinct thin; stigma broadened, unilateral, linear or spatulate. *Fruit* small, fusiform, or elongate-ovoid, falling off together with its stalk from the pilose axis of the spike, finally bursting by a longitudinal slit; seed pendulous, striate; endosperm mealy; embryo narrow, straight, nearly as long as the seed.

Distr. Throughout the world between the arctic circle and lat. 35 S, comprising ± 7 spp., in *Malaysia* only one very variable species.

Ecol. Marshy places, shallow pools of fresh or brackish water, often gregarious.

Uses. The rhizomes which are rich in starch are eaten in many regions where food is scarce, or in periods of famine. The leaves are used for thatching huts, for matting and for coarse basket-work. The spikes are often used for decoration; the plush of the ripe ♀ spadices was formerly used for stuffing pillows.

Note. By GÈZE, GRAEBNER, HALLIER, and others following, various names have been given to Malaysian *Typha*, mostly based on the shape of the bracteoles in the ♀ spike. In my opinion no specific delimitation can be based in Malaysian specimens on these characters, as they vary and merge. And I have accepted all of them as belonging to one species.

1. *Typha angustifolia* LINNÉ, Sp. Pl. (1753) 971, *sensu latissimo*; R.Br. Prod. (1810) 338; DECNE, Nouv. Ann. Mus. 3 (1834) 366; SPAN. Linnaea 15 (1841) 479; HASSK. Flora (Bot. Zeit.) 25 (1842) Beibl. 2, p. 112; DE VRIESE, Pl. Jungh. 1 (1854) 106; Miq. Fl. Ind. Bat. 3 (1855) 173; GRAEBN. Pf. R. 2 (1900) 11 (*incl. ssp. javanica* GRAEBN.); ASCH. & GR. Syn. Mitt.-Eur. Fl. ed. 2, 1 (1912) 418; KOORD. Exk. Fl. 1 (1912) 69; GÈZE, Ét. Typha (1912) 97; BACK. Handb. Fl. Jav. 1 (1925) 31, *in ann.*—*T. javanica* SCHNIZL. in ZOLL. Syst. Verz. 1 (1854) 77, *nomen*; ROHRB. Verh. Bot. Ver. Brandenb. 11 (1869) 98; HOOK. f. Fl. Br. Ind. 6 (1893) 489; WARB. Bot. Jahrb. 18 (1894) 185; SCHUM. & LAUT. Fl. D. Sch. Geb. (1901) 158; GÈZE, Ét. Typha (1912) 120.—*T. domingensis* PERS. Syn. 2 (1807) 532; GRAEBN. Pf. R. 2 (1900) 14; GÈZE, Ét. Typha (1912) 115; HALL.

f. Nova Guin. 8 (1913) 912, *in ann.*; MERR. En. Philip. 1 (1922) 8; BACK. Handb. Fl. Java 1 (1925) 31; HEYNE, Nutt. Pl. (1927) 126.—*T. domingensis* var. *javanica* GÈZE, Bull. Soc. Bot. Fr. 58 (1911) 459; BACKER, Bekn. Fl. Java em. ed. 10 (1949) fam. 227, p. 1.—*T. capensis* (*non* ROHRB.) HALL. *f. Nova Guin.* 8 (1913) 911.—Fig. 1.

Robust. Stem terete, 1½–3 m high. *Leaves* linear, tapering in their apical part, rather acute, 8–22 cm by 6–16 mm, very convex beneath, by longitudinal and transverse septa divided into a great number of aeriferous compartments; their upper surface canaliculate at the base, higher up flat; their base very markedly sheathing. ♂ *Spike* 15–30 cm long, longer than the ♀ one, separated from it by an interval of ½–12 cm, very rarely contiguous to it, its rachis very distinctly compressed, tapering in the

(1) This family consists of only one genus.

upper part, without excrescences, densely clothed with longish, \pm woolly hairs, the rachis persistent till long after the fall of the σ flowers but at last falling off. Stamens 2-3 on a minute common stalk, intermixed with narrowly linear or narrowly spatulate hairs; the apex of these often broadened, entire or shortly toothed; anthers linear; connective shortly produced, rounded; pollen-grains free. ρ Spike 1 or not very rarely 2 superposed, close together, cylindrical, oblique or rounded at the base, rounded at the top, 7-28 cm long, when ripe 2-2 $\frac{1}{2}$ cm thick, darkbrown, cushion-like; excrescences on its axis at best 1 mm long. Flowers intermixed with very many bracteoles; these very variable, filiform with a more or less thickened, entire or often toothed-acuminate, brown or brownish apex, either exceeding the slightly brown-tipped hairs of the gynophore and then their apex visible on the outside of the spike or shorter and then hardly or not at all visible externally; hairs on the base of the gynophore rather close-set, white. Style longish; stigma flattened, lanceolate, acute, often curved. Fruit with an acute base and broader obtuse or subtruncate apex.

Distr. Throughout the area of the genus, in *Malaysia*: N. Sumatra, Philippines, Java, Karimondjawa Isl., Bawean, Madura, Kangean Arch., Timor, New Guinea.

Ecol. Especially at low altitudes in the plains and there often in slightly brackish water, but also in mountainous districts, often gregarious, up to 1725 m.

Uses. See under the genus.

Vern. *Ampêt*, Md, *lëmbang*, M, *ëmbët*, J, *asiwung radja mantri*, *walini*, *wawalingian*, S, *takténas* (Timor), *heikrë* (Nw. G.). Philippines: *Balangót* (Tag., S.L. Bis., P. Bis.), *homai homai* (Bis.), *kaidkéd* (Pang.), *lampakánai* (C. Bis.), *tubal-tubal* (C. Bis.), *buhai-buhai* (P. Bis.), *anibung* (Bon.), *badokbadok* (Ilk.), *dosi-dosi* (Ig.), *palabog* (Buk.), *lisdodde*, D, *lesser reedmace*, E.

* Note. On the shape of the bracteoles of the ρ flowers some varieties or species have been based. However, these are connected by transitional forms. The most common form in Java has bracteoles of which the much broadened, often dentate tip is visible externally. It has been distinguished as *Typha javanica* SCHNIZL. = *T. domingensis* PERS. var. *javanica* GÈZE.