

PUNICACEAE¹ (C. A. Backer, Heemstede)

PUNICA

LINNÉ, Sp.Pl. (1753) 472; Gen. Pl. ed. 5 (1754) no 544.

Shrubs or small trees, usually spiny. *Leaves* opposite, alternate or fascicled, exstipulate, simple, entire, penninerved, small. *Flowers* terminal and subterminal, sessile or nearly so, rather large, ♂, actinomorphic. Calyx thickly coriaceous, coloured, gamophyllous; tube campanulate-urceolate, adnate to the ovary and produced above it, inside with an annular thickening; segments 5-9, valvate in bud, ovate-triangular, acute, persistent. *Petals* the same number as calyx-lobes and alternating with them, imbricate and strongly crumpled in bud, obovate, deciduous. Stamens very numerous, inserted on the annular thickening of the calyx, deciduous; filaments incurved in bud, filiform, free; anthers dorsifixed, 2-celled; cells bursting longitudinally. *Ovary* entirely inferior or free at the top; cells several in 2-3 superposed rows, exceptionally 1-seriate; ovules numerous; those of the lower cells axile, of the upper parietal; style 1, robust, with a thickened base; stigma capitate. *Berry* large, subglobose, crowned by the unaltered calyx-segments, thick-walled, finally bursting irregularly, entirely filled up by the seeds. Seeds very numerous; outer layer of testa thick, fleshy-juicy; inner layer horny; endosperm none; cotyledons convolute.

Distr. Two spp. viz *P. protopunica* BALF. f. confined to Socotra, and *P. granatum* L., a plant of very ancient cultivation in S. Europe, N. Africa, the Orient, tropical Asia, Malaysia, and China. Also introduced in the New World.

1. *Punica granatum* LINNÉ, Sp. Pl. (1753) 472; BURM. f. Fl. Ind. (1768) 116; BL. Bijdr. (1826) 1098; DC. Prod. 3 (1828) 3; BLANCO, Fl. Fil. (1837) 422; ed. 2 (1845) 295; ed. 3, 2 (1878) 184, t. 211; SPAN. Linnaea 15 (1841) 205; MIQ. Fl. Ind. Bat. 1, 1 (1855) 495; Sum. (1860) 120; CLARKE in HOOK. f. Fl. Br. Ind. 2 (1879) 581; DC. Orig. Pl. cult. (1886) 191; KOORD. Minah. (1898) 470; COOK, J. Wash. Ac. Sc. 2 (1912) 434; KOORD. Exk. Fl. 2 (1912) 664; MERR. Fl. Man. (1912) 344; Interpr. Herb. Amb. (1917) 384; Sp. Blanc. (1918) 282; En. Philip. 3 (1923) 141; HEYNE, Nutt. Pl. (1927) 1158; OCHSE & BAKH. v. D. BR. Fruit and Fruit Culture (1931) 105, t. 41; C. R. Ac. Sci., U.R.S.S. 3 (1935) 403; BURK. Dict. 2 (1935) 1839; CAIRNS, J. Bomb. Nat. Hist. Soc. 42 (1940) 13-37.—BACK. Bekn. Fl. Jav. em. ed. 4 (1942) fam. 74, p. 1; STEEN. Fl. Sch. Indon. (1949) 293.—*Malum granatum* RUMPH. Herb. Amb. 2 (1741) 94, t. 24, f. 1.—*P. nana* LINNÉ, Sp. Pl. ed. 2 (1762/63) 676; DC. Prod. 3 (1828) 3.—Fig. 1.

Shrub or small crooked tree, 1/2-5 m high, often much branched from near the base; branches often ending in a spine, moreover frequently with axillary leafbearing or leafless spines; when very young tetragonous or narrowly tetrapterous, afterwards obtusangular or subterete, glabrous. *Leaves* mostly opposite, oblong-lanceolate from an acute or less often rather obtuse base, acute, obtuse or emarginate, entire, firmly herbaceous, shining above, 1-9 by 1/2-2 1/2 cm; midrib much prominent beneath;

lateral nerves rather numerous, erecto-patent or ascending, thin. *Flowers* 1-5 at the top of the branchlets; 1 of them terminal; the others solitary in the highest leaf-axils, odourless. Calyx (receptacle included) 2-3 cm high, red or pale-yellow; segments erecto-patent or slightly recurved, thick, at the apex on the back with a yellowish green gland, along the margin densely and shortly papillose, 3/4-1 1/4 cm long. *Petals* erecto-patent or patent, with a rounded or very obtuse apex, flaming red or white and then turning brown when fading, 1 1/2-3 by 1-2 cm. Stamens glabrous, 1/2-1 cm long. Style surpassing the stamens, 3/4-1 1/4 cm. *Berry* 5-12 cm diam., variable as to colour, yellowish green, white, reddish brown or rarely blackish violet. Seeds obtusangular, red, pink or yellowish white.

Distr. Probably originating from Persia and some adjoining countries, from there introduced into S. Europe, N. Africa (Carthage; hence the name *poma punica*), the Orient, SE. Asia, Malaysia, and China. In the Levant the plant has run wild.

Ecol. Cultivated as a fruit-tree or for medicinal purposes throughout the lower regions of Malaysia, 1-1000 m, always on a very small scale and nowhere naturalized. The fruits produced in Malaysia are of poor quality. The farther from Persia the more inferior, on an average, are the fruit (BURKILL). A dwarfed form (*P. nana* L.) and a double-flowered form are cultivated as ornamental plants, often in pots.

(1) I do not agree with GRIFFITH (Posth. Pap. 2, 1849, p. iii, x) and HALLIER f. (Med. Rijksherb. 35, 1918, 17) who combined *Sonneratiaceae* (and *Crypteroniaceae*) with *Punica* in one family.

Uses. The root-bark is a highly valued specific for tape-worm.

moreover: *gangsalan*, J, and several local names. Note. Fl. Jan.-Dec., mostly sparingly.

Vern. In many languages *dalima* or *délima*,

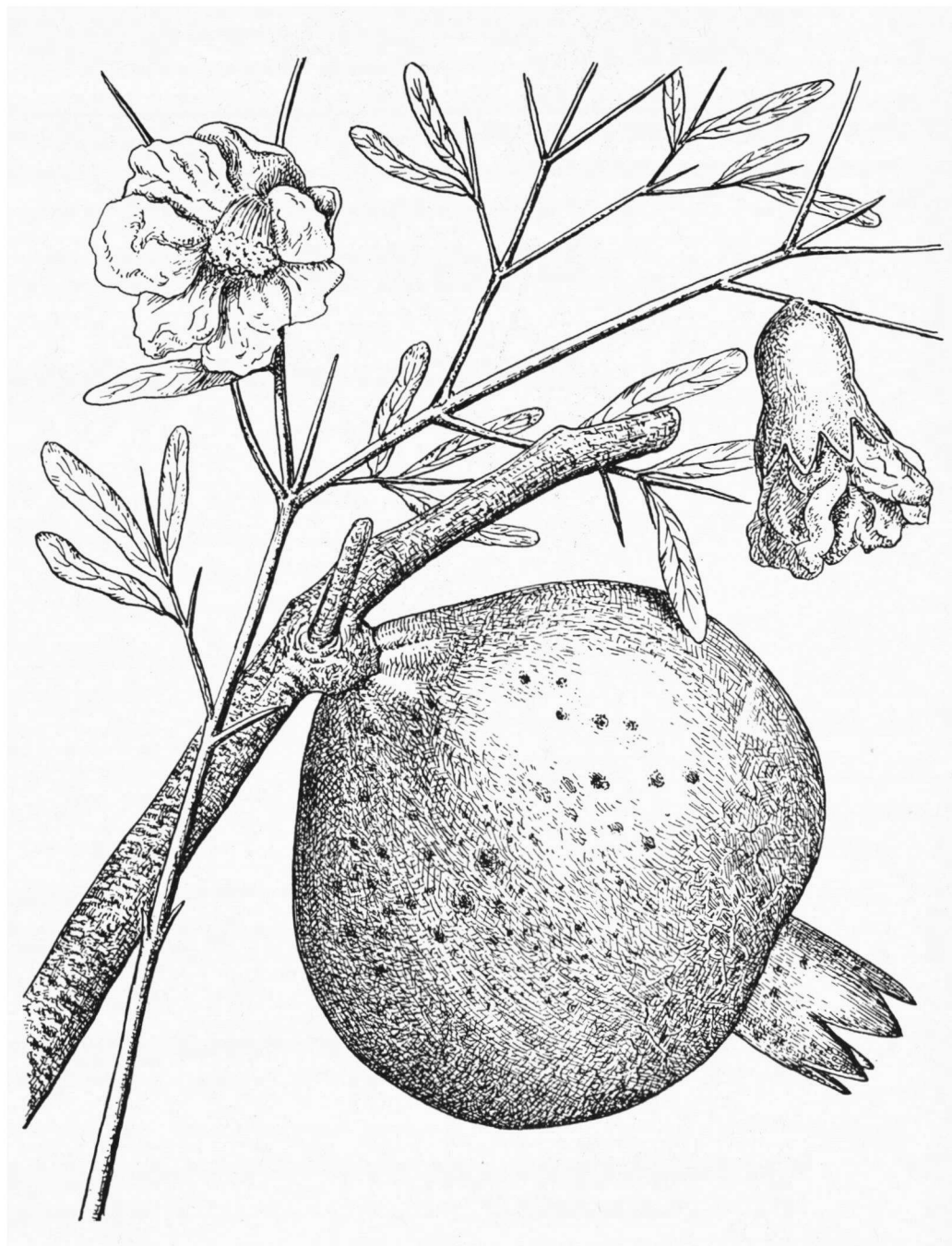


Fig. 1. *Punica granatum* L. Flowering and fruiting twigs, nat. size (after OCHSE).