



Fig. 1. *Azima sarmentosa* (BL.) B.&H. Female twig with fruits, part of male inflorescence, $\times \frac{1}{2}$, single male flower, $\times 8$. Courtesy Pasuruan Exp. Station.

SALVADORACEAE¹ (C. A. Backer, Heemstede)

1. AZIMA

LAMK, Enc. 1 (1783) 343.—*Actegeton* BL. Bijdr. (1826) 1144.—*Monetia* subg. *Azima* BAILL. *Adansonia* 9 (1870) 289.

Much-branched, erect or rambling shrubs, armed with axillary spines. *Leaves* opposite, often with rudimentary stipules, simple, quite entire. *Flowers* in axillary or terminal racemes or panicles, or in axillary fascicles, unisexual (monoecious or dioecious) or sometimes partly bisexual, actinomorphic, 4-merous. Calyx campanulate, 4-lobed or 2-4-partite. Petals 4, free, imbricate in bud, oblong or lanceolate. Disk absent. ♂: Stamens 4, alternating with the petals, longer than the corolla, in ♀ reduced to staminodes; filaments slender, free or connate at the base; anthers oval, cells 2, back to back, opening longitudinally; no rudimentary ovary. ♀: Staminodes 4, not exceeding the corolla, anthers barren. Ovary superior, globose, 2-celled or imperfectly 4-celled; ovules 4, erect from the base; style short or almost absent; stigma subsessile, large, deeply bifid. ♀ like ♀, but with 4 perfect stamens. *Berry* globose; with a thin endocarp. Seeds 1-3, erect, flat, orbicular, exalbuminous; cotyledons cordate, thick; testa coriaceous.

Distr. Few *sp.* in tropical and subtropical Africa and tropical Asia, one extending into *West Malaysia*.

Ecol. Like most members of the family the Malaysian *sp.* occurs in hot, dry regions.

1. *Azima sarmentosa* (BL.) B. & H. Gen. Pl. 2 (1876) 681; CLARKE in HOOK. f. Fl. Br. Ind. 3 (1882) 620; O.K. Rev. Gen. 2 (1891) 412; BOERL. Handl. 2, 2 (1899) 338; KOORD. Exk. Fl. 3 (1912) 55; MERR. Fl. Man. (1912) 366; Sp. Blanc. (1918) 305; En. Philip. 3 (1923) 309; BACK. Onkr. Suiker. (1931) 483, t. 458; DOP, Fl. Gén. I.C. 3 (1933) 1084, f. 124; BURK. Dict. 1 (1935) 276; SLEUM. in E. & P. ed. 2, 20b (1942) 237.—*Actegeton sarmentosum* BL. Bijdr. (1826) 1144; SPAN. Linnæa 15 (1841) 187; A. DC. Prod. 17 (1873) 30.—*Azima nova* BLANCO, Fl. Filip. (1837) 68; ed. 2 (1845) 49; ed. 3, 1 (1877) 91.—*Monetia barlerioides* (non L'HÉR.) MIQ. Fl. Ind. Bat. 1, 2 (1859) 596.—*Monetia sarmentosa* BAILL. *Adansonia* 9 (1870) 289, t. 10.—Fig. 1.

Erect glabrous shrub with often long, rambling or drooping branches, 2-4 m long; leaf-axils often with 1-2 patent thin, straight, very sharp, 2-16 mm long spines which easily break off. Stipules at the base of each petiole 2, minute subulate, subpersistent. *Leaves* variable as to shape, ovate, elliptic, oblong, oval, suborbicular or obovate from an acute, obtuse or rounded base, abruptly tipped with a small triangular not or hardly spinous point, thinly coriaceous, flexible with a strongish midrib and thin lateral nerves and veins, shining, 2-6½ cm by 1½-6½ cm; petiole 3-7 mm. *Flowers* in racemes or panicles of 1-25 cm long; lower of these axillary, higher often united in a terminal panicle with wide-divaricating branches; rachises thin. Distribution of sexes various; some specimens ♂, others ♀ or (♂♀); the (♂♀) ones sometimes with a few ♂ flowers. Bracts persistent, patent, elongated-triangular, very acute, not spiny, ¾-2½ mm long. Calyx,

corolla, staminodes of ♀ and stamens of ♂ persisten after anthesis. ♂ *Flowers* rather crowded, sessile or subsessile. Calyx more or less deeply divided into obtuse erect segments, 2-2½ mm long. Petals somewhat exceeding the calyx, oblong, entire or at the apex slightly dentate-serrate, green, 2-2½ mm long. Filaments exceeding corolla; anthers oblong, 1¼-1½ mm. ♀ *Flowers* on 1-8 mm long pedicels. Calyx 1¼-1½ mm long. Corolla as in ♂ but only 1½-2 mm long. Staminodes not exceeding the corolla; barren anthers sagittate. Ovary imperfectly 4-celled; stigmatic arms broad, widely divaricating. ♀ like ♀, but with perfect stamens. *Berry* globose, white, ± 6 mm diam. Seeds 2-3, less often 1.

Distr. Continental SE. Asia, in *Malaysia* not yet recorded from Sumatra, the Malay Peninsula, Borneo, the Moluccas, and New Guinea.

Ecol. In northern Java in dry coastal regions from the plains up to 160 m, in periodically very dry localities: thickets, hedges, field- and forest-borders, locally not rarely rather numerous.

Vern. *Papadjaran*, S, *bulangan*, Md, *añgañgri* (Ilk.).

Notes. The crushed branches emit an offensive smell reminding of that of the bruised leaves of *Diplotaxis tenuifolia* DC.

Monetia barlerioides L'HÉR. = *Azima tetra-cantha* LAMK, with which MIQUEL, F.-VILLAR, &c. confounded this species, differs *i.a.* by its stiff erect habit, narrower, more rigid, strongly spine-tipped leaves with a narrowed base and the often 4-nate and on the whole, stronger axillary spines. Acc. to BURKILL it has been introduced in Penang (Dict. 1935, 276).

(1) Palaeotropical and subtropical, small family, in *Malaysia* only represented by one genus.