

## SPHENOCLEACEAE (H. K. Airy Shaw, Kew)

MART. ex LINDL. Nat. Syst. ed. 2 (1836) 238; DC. Prod. 8 (1939) 548; WIGHT, Ill. Ind. bot. 2 (1850) 115; MIQ. Fl. Ind. Bat. 2 (1857) 569; BOISS. Fl. Or. 3 (1875) 963.

Annual (?) laticiferous herbs, with the habit of *Phytolacca*. Stem erect, somewhat succulent. *Leaves* spirally arranged, simple, entire, exstipulate. Inflorescences terminal, densely spicate, acropetal. *Flowers* subtended by a bract and two bracteoles, bisexual, actinomorphic. Calyx tube adnate to the ovary; segments 5, united below, imbricate, connivent, persistent. Corolla campanulate-urceolate, perigynous; lobes 5, imbricate. Stamens 5, epipetalous, alternating with the corolla lobes; filaments short; anthers rounded, 2-locular, dehiscing longitudinally. Ovary semi-inferior, 2-locular; style short, stigma capitate; ovules  $\infty$ , attached to large spongy stipitate axile placentas. *Capsule* cuneate-obconic, 2-locular, membranous, circumscissile; seeds  $\infty$ , minute, oblong, rugose-costate, albumen very scanty or none (?); embryo axile, straight, subterete.

Distr. Mono-generic, almost pantropical.

Ecol., Uses, Vern., see below under *S. zeylanica*.

Notes. The maintenance of *Sphenocleaceae* as a separate family is abundantly justified; there is no evidence of affinity with *Campanulaceae*, with which it has hitherto been associated. The habit resembles that of *Phytolacca*, and the anatomy shows several significant features occurring in members of the *Phytolaccaceae* and related families. Other characters suggest *Primulaceae*, and provisionally it is suggested that the family represents a 'half-way house' between the families mentioned. From the *Centrospermae* it deviates in the semi-inferior ovary, gamopetalous corolla and straight embryo, and from the *Primulaceae* principally in the alternipetalous stamens. A separate note on the classification will be published in the Kew Bulletin.

### 1. SPHENOCLEA

GAERTN. Fruct. 1 (1788) 113, t. 24, f. 5; MIQ. Fl. Ind. Bat. 2 (1857) 569; B. & H. Gen. Pl. 2 (1876) 560; BAILL. Hist. Pl. 8 (1886) 327, 362, f. 158-161; SCHÖNLAND, in E. & P. 4, 5 (1889) 60; BOERL. Handl. 2, 1 (1891) 257. For characters see family description.

Distr. Two species, one pantropical, one endemic in W. Africa.

1. *S. zeylanica* GAERTN. Fruct. l.c.; Bl. Bijdr. 16 (1826) 1138; MORITZI, Syst. Verz. (1845-6) 66; BLANCO, Fl. Filip. ed. 2 (1845) 62, ed. 3, 1 (1877) 117, t. 143; MIQ. l.c.; F.-VILL. Nov. App. (1880) 121; K. & G. Mat. Fl. Mal. Pen. no 16 (1905) 57; KOORD. Exk. Fl. 3 (1912) 301; MERR. Fl. Man. (1912) 462; Sp. Blanc. (1918) 374; En. Philip. 3 (1923) 588; RIDL. Fl. Mal. Pen. 2 (1923) 204; BACKER, Onkruidfl. Jav. Suik. (1931) 742; OCHSE & BAKH. v. D. BR. Veg. D. E. I. (1931) 93, f. 55, 349.—*Pongatium spongiosum* BLANCO, Fl. Filip. (1837) 86.—*Reichelia palustris* BLANCO, l.c. 220; ed. 2 (1845) 155; ed. 3, 1 (1877) 277, t. 143.—Fig. 1.

Roots long, cord-like. Stem hollow, 7-150 cm. *Leaves* oblong to lanceolate-oblong, attenuate at both ends, acute or obtuse, glabrous,  $2\frac{1}{2}$ - $12\frac{1}{2}$  by  $\frac{1}{2}$ -5 cm; petiole 3-30 mm. Spikes  $\frac{3}{4}$ - $7\frac{1}{2}$  cm long, cylindrical; peduncle 1-8 cm. Bracts and bracteoles  $\pm$  spatulate, the green apices arched over the calyx before and after anthesis. *Flowers* crowded, rhomboid or hexagonal by compression, sessile, wedge-shaped below, attached longitudinally to the rachis by a linear base. Calyx segments deltoid-semicircular, obtuse, ultimately accrescent and con-

nivent. Corolla whitish,  $2\frac{1}{2}$ -4 mm long, caducous, segments ovate-triangular, obtuse or acute, united slightly more than half-way, connivent. Stamens inserted half-way up tube of corolla, filaments slightly dilated at base. Ovary obovoid,  $2\frac{1}{2}$  mm long, apex broad, free, truncate. *Capsule* 4-5 mm in diam., dehiscing below the calyx segments which fall with the lid, leaving the scarious persistent base. Seeds yellowish-brown,  $\pm$   $\frac{1}{2}$  mm long.

Distr. Trop. America (introduced), trop. Africa (incl. Madagascar) (indigenous; cf. BENTH. in Journ. Linn. Soc. Bot. 15 (1875) 13), SW. Persia to Turkestan, India and Formosa (prob. introduced), in *Malaysia* (prob. introduced): Malay Peninsula (scarce, mainly in the prov. Kedah and Wellesley), ?Sumatra, Philippines (Luzon, Biliran, Negros), Java, Bali, SW. Celebes and Timor.

Ecol. A weedy annual occurring in almost any kind of damp ground at low alt. up to 350 m: river banks and dry riverbeds, damp marshy or periodically inundated depressions, seasonal swamps, sides of ponds, ditches, and stagnant water generally, especially rice-fields, both in continuously rainy and in seasonal climates. Almost every flower on

every inflor. sets fruit; only one or two flowers are open at once on any one head. In Malaysia never gregarious, nor growing on mud of tidal creeks, as in Africa.

Uses. In Java young plants and tips of older plants are steamed and eaten with rice; they have a slightly bitter taste; leaves are sold under the name *goenda padi*.

Vern. Java: *goenda*, M, J, Sd, *g. rawah*, *g. lalab*, *g. padi*, *g. sapi*, Sd, *goendha*, Md, *gondo*, J; Bali: *gonda*; Celebes: *gangang karaèng*, Mk., *gonra*, Mk, Bg; Philippines: *mais-mais* (Panay, Bisaya), *siisi-*

*lihan* (Tagalog); the Javanese names are also applied to the superficially similar Hydrophyllaceous *Hydrolea zeylanica* (L.) VAHL.

Notes. The plant is described as laticiferous but METCALFE reports that 'typical laticiferous canals are absent from the phloem, although occasional elongated cells have been observed in this tissue with granular contents which may represent coagulated latex'. Miss M. C. VREEDE, Anatomist in the Treub Lab., Buitenzorg, Java, reported, July 6, 1948, that in fresh material she could find neither milky juice nor laticiferous elements.



Fig. 1. *Sphecoclea zeylanica* GAERTN.  $\times \frac{1}{4}$ . A rich-flowering individual.