

## PHILYDRACEAE (C. Skottsberg, Göteborg)

Erect herbs with a short rhizome. *Leaves* linear radical or crowded at the stem base, distich, equitant, parallel-nerved. *Flowers* zygomorphic, bisexual, solitary in the axil of spathaceous bracts. Perianth corolline, segments 4, 2-seriate. Stamen 1, inserted at the base of the abaxial segments. Filament flattened; anther 2-celled; cells straight or twisted, opening lengthwise by slits. Ovary superior, 3-celled with axile placentas, or 1-celled with parietal placentas. Style simple. Ovules  $\infty$ , anatropous. *Capsule* with 3 valves. Seeds  $\infty$ .

Distr. Centering in Australia, comprises 4 genera with 5 species.

### KEY TO THE GENERA

1. Outer tepals free. Anthers spirally twisted. Ovary 1-locular . . . . . 1. *Philydrum*  
1. Outer tepals united at the base. Anthers straight. Ovary 3-locular . . . . . 2. *Helmholtzia*

### 1. PHILYDRUM

BANKS & SOL. *ex* GAERTN. Fruct. 1 (1788) 62; MIQ. Fl. Ind. Bat. 3 (1855) 250; HASSK. Bull. Soc. Bot. Fr. 16 (1869) xxiv; RIDL. Fl. Mal. Pen. 4 (1924) 347; SKOTTSB. Bull. J. B. B. III, 13 (1933) 111.

Outer *tepals* free, inner ones more or less united at the base with the filament. Anther spirally twisted. Pollengrains in tetrads. Ovary 1-locular. *Capsule* loculicid. Testa spirally striate.

Distr. Monotypic, E.-SE. Asia, and Australia, rare in Malaysia.

1. *Philydrum lanuginosum* BANKS & SOL. *ex* GAERTN. *l.c.*; MIQ. *l.c.*; HASSK. *l.c.*; BANKS & SOL. Bot. COOK'S Voy. 3 (1905) t. 310; MERR. Philip. J. Sc. 10 (1915) Bot. 88; RIDL. *l.c.*; SKOTTSB. *l.c.*; YAMAMOTO, J. Soc. Trop. Agric. 10 (1938) 119; STEEN. J. Agr. Arb. 28 (1947) 420.—Fig. 1.

Perennial caespitose herb, caudex short. *Leaves* densely rosulate, isolateral monofacial, glabrous, thick and of soft texture, 40–80 cm long incl. the sheath; sheath 14–30 by 1–1½ cm and 2–4 mm thick. Scape 1 m high or more, slender, terete, glabrate below, villous towards the woolly inflo., with few cauline leaves gradually passing into the alternate bracts. Inflo. a terminal spike, simple or paniculate. Bracts ovate, clasping, abruptly acuminate and subulate, 2–7 by ¾–1 cm enclosing the buds, reflexed in anthesis, again embracing the fruit. *Flowers* sessile, yellow. Perianth thin, outer tepals 12–15 by up to 10 mm, acute,  $\infty$ -nerved, long-villous outside, margins inflexed, the posterior with 2 stronger veins and bidentate; inner petals

united below 1–2 mm with the filaments, 8 by 2 mm 3-nerved, spatulate, base hairy outside. Stamen 8–9 mm, glabrous; anther  $\pm$  spherical, 1½ mm across. Ovary 6–7 by 2–3 mm, densely long-woolly; style 3–4 mm, glabrous; stigma broad-triangular long-papillose. *Capsule* triangular-oblong, 9–10 by 4–5 mm. Seeds  $\infty$ , dark-reddish, bulb-shaped, 0.8–0.9 by 0.3–0.4 mm.

Distr. E. to SE. Asia (Riu Kiu Isl., Formosa, Kwantung, Hongkong, Indo-China, Siam, Burma, Andaman Isl.) and NE. Australia, in *Malaysia*: only in the Malay Peninsula, and in SE. New Guinea, to be expected locally elsewhere.

Ecol. In ponds, marshes, and rice-fields at low altitude, in New Guinea in sedge swamps and moist savannahs.

Notes. According to MERRILL (1915) the CUMING specimen credited to the Philippines came from the Malay Peninsula; the HILLEBRAND specimen is certainly erroneously believed to occur wild in Java.

### 2. HELMHOLTZIA

F. v. M. Fragm. 5 (1866) 202; SKOTTSB. Bot. Jahrb. 65 (1932) 260; Bull. J. B. B. III, 13 (1933) 112.

*Tepals* united to form a short cupular tube, the inner connate to half their length with the filament. Anther straight. Pollen grains single. Ovary 3-locular. *Berry* leathery, (apparently) indehiscent. Seed with long funicle, outer testa lengthwise striate and not spirally so.

Distr. 2 species, one in Australia, the other in *E. Malaysia*.



Fig. 1. *Philydrum lanuginosum* BANKS,  $\times \frac{2}{3}$  (after BANKS & SOLANDER).

1. *Helmholtzia novoguineensis* (KRAUSE) SKOTTSB. *ll.cc.*; STEEN. *J. Arn. Arb.* 28 (1947) 419.—'Xerotidae sp.' TEYSM. *Nat. Tijd. N.I.* 37 (1877) 132-133.—'Liliacea' J. J. SMITH, *Teysm.* 12 (1902) 168, 329.—*Astelia novoguineensis* KRAUSE, *Bot. Jahrb.* 59 (1924) 559.

Perennial herb. Rhizome stout, ascending to erect, woody, covered with leaf sheaths, up to 35 by 1-1½ cm; roots coarse, shoots flat, fan-shaped. *Leaves* densely rosulate, ensiform, 75-150 by 3-4½ cm; sheath 20-30 cm long, inside with scanty very long thin arachnoideous hairs, linear, acute, glabrous, of firm texture, a bundle veins on each side forms a prominent costa dissolving to the apex, with short oblique transverse veins; blade monofacial arched or horizontal, with secondary upper and lower surface. Scape terminal 25-50 cm, erect, obtuse-angular, upwards covered with a dense light-grey wool, leafless in its lower half, thence carrying 5-10 reduced ensiform leaves or spathes passing into bifacial alternate bracts. Branches of 1st order of the panicle supported by a spathe, the largest 10-40 by 1½-3 cm, 2-3 lowermost with few branchlets of 2nd order 2-8 cm long. Bracts linear subulate 1-2 by ¼-½ cm, 1-3-nerved, base woolly convolute enclosing the bud. *Flowers* sessile, white,

glabrous except the 2-2½ mm high tube. Outer tepals narrow-triangular, convolute with filiform apex, posterior one bicarinate-bicuspidate, with inflexed margins, 9-12⅓ by 4-5 mm, anterior one 8-11 by 2½-3½ mm. Inner tepals and filament adnate to the tube, small, 1-nerved, 4-5 mm long, irregularly 3-dentate, free portion 1½-2½ by ¾-1½ mm. Free part of the stamen 3¼-3¾ mm; anther 2-2½ by 1-1½ mm. Ovary 2 by 1 mm densely grey-woolly. Style 3-sulcate, 2¾-4½ mm long, stigma small triangular. *Berry* white, slightly 3-sulcate, 7-8 by 6 mm, pericarp tough leathery. Seeds ∞, 2-2¼ by ½ mm, cylindrical-flattened, often slightly curved, dark-brown with a transparent striate outer testa prolonged at both ends.

*Distr. Malaysia:* Moluccas (Ambon, Boeroe, Ceram) and New Guinea, 600-1500 m.

*Ecol.* In groups in muddy or moist, humic open spots in rain forests, and along ponds and margins of lakes. *Fl. & fr.* throughout the year.

*Notes.* Closely allied to *H. acrifolia* F. v. M. from E. Australia, which has an almost glabrous scape, a more robust habit, a trifle smaller flowers, outer petals hairy on the back, style 5-6½ mm long, seeds mostly a little less than 2 mm.