

CERATOPHYLLACEAE (C. G. G. J. van Steenis, Buitenzorg)

1. CERATOPHYLLUM

LINNÉ, Sp.Pl. (1753) 992; MIQ. Fl. Ind. Bat. 1, 1 (1856) 799; BOERL. Handl. 3, 1 (1900) 399; STEEN. Bull. J.B.B. III, 13 (1933) 102; BACKER, Bekn. Fl. Java 3 (1941) no 31.

Submerged, rootless, monoecious freshwater plants. *Leaves* verticillate, 2–4 times forked, segments linear dentate. *Flowers* actinomorphic, solitary, axillary, unisexual. Perianth valvate, segments 9–12, persistent, narrow. ♂: stamens 8–24; anthers nearly sessile rather broad, connective pointed, the 2 cells mostly crowned by a minute bristle; ovary rudiment absent. ♀: ovary superior, sessile, 1-celled with 1 ovule; style persistent, subulate, sulcate towards the apex; stamen rudiments absent. *Fruit* oblong, compressed, warty, not dehiscent, near the base with 2 straight or curved soft spines, or unarmed.

Distr. *Ca* 2 spp., both ubiquitous.

Ecol. In stagnant pools, small slow streams, shallow parts of lakes and ditches, in ponds, often gregarious. The specimens are frequently rough by incrustations of lime. They 'collect' mud on their surface and contribute to the clearing of water as do *Hydrilla*, *Blyxa*, &c. The stems die at their distal end and grow at the top. They propagate easily vegetatively but remain often sterile; near Batavia they are locally rather frequently found flowering in shallow water. The leaves are slack though in *C. demersum* slightly stiffer than in *C. submersum*. On extracting material from the water the leaves join brush-like.

KEY TO THE SPECIES

1. Leaves mostly 2 times forked, segments 4, rarely 2, 3, or 5. Fruit with 1 apical and 2 basal spines
1. *C. demersum*
2. *C. submersum*
1. Leaves mostly 3–4 times forked, segments 7–12. Fruit with 1 apical spine only
1. *C. demersum*
2. *C. submersum*

1. *Ceratophyllum demersum* LINNÉ, Sp.Pl. (1753) 992; K. SCH. & LAUT. Nachtr. (1905) 261; VAL. Bull. Dép. Agr. Ind. Néerl. 10 (1907) 11; BACKER, Teysm. 22 (1911) 503; MERR. Fl. Manila (1912) 202; SYBRANDI, De Trop. Natuur 5 (1916) 126; MERR. En. Born. (1921) 247; MERR. En. Philip. 2 (1923) 141; HEYNE, Nutt. Pl. (1927) 616; STEEN. Arch. Hydr. Suppl. 11 (1932) 305; Bull. J.B.B. III, 13 (1933) 103; MCCANN, J. Bomb. Nat. Hist. Soc. 37 (1934) 681; BACKER, Bekn. Fl. Java 3 (1941) no 31.—*C. tuberculatum* CHAM. Linnaea 4 (1829) 504; MIQ. Fl. Ind. Bat. 1, 1 (1856) 799.—Fig. 1.

Plant often much branched up to 3 m long, stems mostly red, internodes 1–3 cm. *Leaves* in whorls of 7–10, dark green when adult, 1–4 cm long, base gradually or abruptly thickened above the middle. Pedicel $3/4$ – $1\frac{1}{2}$ mm. *Perianth* segments 9–12, linear, transparent greenish-white with numerous short brown lines, near the apex with few bristles, $1\frac{1}{2}$ –2 mm long. ♂: stamens 8 or more. ♀: ripe fruit black, 4–5 mm long, with 3 spines, apical spine (style) 11–12 mm long, soft, 2 basal ones straight (in Mal. material), patent to slightly recurved, 9–11 mm long.

Distr. Throughout *Malaysia*, not yet known from the Malay Peninsula, ascending to over 1500 m.

Ecol. See above. The 'internodes' of the leaves are sometimes inflated and imitate an articulated structure.

Vern. *Kantjil*, *M*, *ganggeng*, *Sd.*, *ganggang*, *J*, *hoornblad* (Dutch); the Indonesian names are also used for other waterplants.

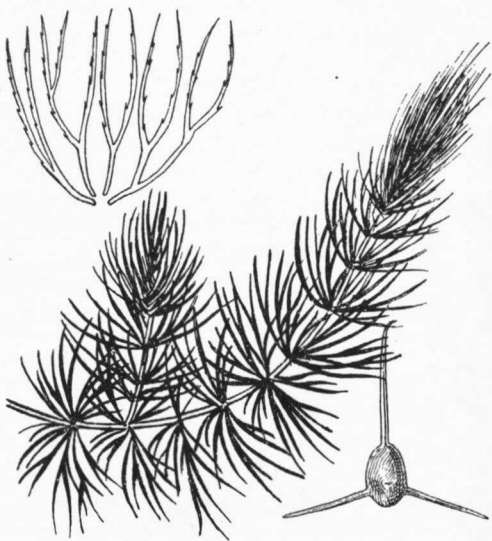


Fig. 1. *Ceratophyllum demersum* L. Habit, detached leaves, $\times 3/4$, fruit enlarged.

Much like the preceding *sp.*, up to 1 m long, *leaves* in whorls of 6–8, adult ones $1\frac{3}{4}$ –2 cm long, bright green. Flowers not yet found in Malaysia. ♀: ripe *fruit* black, \pm 4 mm long, only the style thickened into an apical soft spine, basal spines absent.

Distr. In *Malaysia* rather rare: N. Sumatra, Java, Celebes, and New Guinea, at low altitudes.

Ecol. In places as the prec. *sp.*, the New Guinean specimens were found massed in open water in *Melaleuca leucadendron* swamp forest, plant brown (BRASS).