

## 11. HOMALOMENA Schott in Schott & Endlicher, Melet. Bot. 20. 1832.

千年健属 qian nian jian shu

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Herbs, evergreen, aromatic. Stem creeping, erect or ascending. Leaves long petiolate; petiole sheathing up to halfway, usually longer than leaf blade, frequently distinctly articulate ca. halfway along; leaf blade oblong, elliptic, lanceolate, deltoid, or sagittate, thinly to rather stiffly leathery, base usually cordate, apex acuminate usually with tubular tip; primary veins all diverging from midrib, with rather few basal, secondary veins striate, tertiary veins often numerous and very much thinner, all veins straight over most of their length, only near apex arcing into a submarginal vein. Inflorescences usually several together. Spathe persistent, often constricted. Spadix elongate; stipe very short or absent; female flowers usually each with an associated staminode; distal male zone usually separated from female zone by a ring of staminodes, very rarely a naked or near naked interstice; flowers unisexual, naked; female flowers: ovary incompletely 2–5-loculed with parietal and axile (very rarely basal) placentation, ovules numerous, semi-anatropous with long, slender funicle, style minute, stigma sessile or terminating a minute style, disciform or lobed; sterile flowers sometimes present at base of male axis of spadix; male flowers (fertile) consisting of 2–6 stamens, thecae extrorsely dehiscent by a slit, connective broad or narrow. Berry few or many seeded. Seeds on a long funicle, longitudinally striate, ovoid-lageniform.

About 110 species: tropical America and Asia; four species (two endemic) in China.

Since the now long out-of-date full revision of Engler and Krause (in Engler, Pflanzenr. 55(IV. 23Da): 25–81. 1912), there have been fragmentary floristic accounts (Ridley, J. Straits Branch Roy. Asiat. Soc. 41: 169–188. 1905; Merrill, J. Straits Branch Roy. Asiat. Soc., Special Ed., 86–109. 1921; Alderwerelt van Rosenburgh, Bull. Jard. Bot. Buitenzorg 3: 163–229, 320–347. 1922; Furtado, Gard. Bull. Straits Settlement. 10: 183–238. 1939; Proc. 6th Pacific Sci. Congr. (California, 1939) 4: 577–578. 1941), an uncritical species listing for Malesia focusing primarily on Sumatra (Hotta, Gard. Bull. Singapore 38: 43–54. 1985), a revision for New Guinea and the Bismark Archipelago (Hay, Blumea 44: 41–71. 1999), and various ad hoc new taxa (Hotta, Diversity Dynam. Pl. Life Sumatra, 73–120. 1986; Acta Phytotax. Geobot. 44(2): 93–96. 1993; Boyce, Kew Bull. 49: 793–801. 1994; Hay & Hershovitch, Gard. Bull. Singapore 54: 171–178. 2002), but no attempt has been made to undertake a full revision of *Homalomena*. The lack of a reliable taxonomy poses considerable problems for field workers given that *Homalomena* is one of the most speciose and taxonomically intractable aroid genera in the Asian tropics.

The problems presented by a lack of reliable taxonomy are compounded by the poor state of preservation of many of the historical types; the cryptic nature of most of the systematically significant morphologies, notably the presence, absence, and disposition of sterile flowers; the generally large and complex vegetative structures that do not lend themselves readily to traditional herbarium vouchers; and the fleeting anthetic period such that even well-prepared herbarium specimens are frequently taxonomically useless because inflorescences were prepared post-anthesis, by which time many significant structures had deliquesced or been subject to pre-preservation damage by the most frequent inflorescence visitors, chrysomelid beetles, and post-preservation destruction by herbarium beetles.

*Homalomena* is a taxonomically complex group and, notwithstanding the above difficulties, is in urgent need of a rigorous study aimed at resolving the taxonomy and phylogeny. This is imperative not only because *Homalomena* is one of the most abundant, speciose, and least well understood of the mesophytic aroid genera in tropical Asia, but also because the genus is now becoming the focus of interest for pharmaceutical research due to the terpenoids and flavonoids occurring in the plant tissues; such studies must have a basis in sound taxonomic understanding or they risk being futile.

- 1a. Leaf blade rounded at base, ovate, ca. 18 × 12 cm.
  - 2a. Inflorescences 1 or 2 together; staminode equaling associated pistil ..... 1. *H. aromatica*
  - 2b. Inflorescences up to 6 together; staminode exceeding associated pistil ..... 4. *H. hainanensis*
- 1b. Leaf blade sagittate at base.
  - 3a. Spadix ca. 3.5 cm × 4–6 mm ..... 2. *H. occulta*
  - 3b. Spadix 4–5 cm × ca. 12 mm ..... 3. *H. kelungensis*

**1. *Homalomena aromatica*** (Sprengel) Schott in Schott & Endlicher, Melet. Bot. 20. 1832.

芬芳千年健 fen fang qian nian jian

*Zantedeschia aromatica* Sprengel, Syst. Veg. 3: 765. 1826; *Calla aromatica* (Sprengel) Roxburgh; *Zantedeschia foetida* K. Koch.

Herbs somewhat robust, stemless to decumbent, to 60 cm tall, smelling of camphor. Stem initially erect, later decumbent,

1–3 cm in diam. Leaves several together; petiole pale to mid-green with slightly darker longitudinal streaks, to 35 cm; petiolar sheath persistent, 4–7 cm, margins membranous; leaf blade mid-green, drying distinctively pale green, ovate-sagittate to elliptic-sagittate or lanceolate-sagittate, 20–30 × 10–17 cm, thinly leathery, base sagittate, sinus broad, ca. 5 cm, apex acute to long acuminate, with a tubular mucro ca. 2 mm; venation variously differentiated, posterior costae with 4–6 primary lateral veins arising ± simultaneously, anterior costa with 4–6 primary lateral veins and a similar number of virtually indis-

tinguishable interprimary veins diverging from midrib at 45°, secondary venation striate. Inflorescences 1 or 2 together; peduncle erect (developing and floral) to declinate (post-anthesis and fruiting), colored as petiole, 10–18 cm. Spathe oblong, 8–10 cm; limb gaping at anthesis, then closing again. Spadix tapering cylindric, 7–9 cm, subequaling spathe, stipitate; stipe ca. 5 mm; female zone 1.5–3 × ca. 1 cm; ovary pale green, ovoid-globose, ca. 2 mm in diam., with an associated clavate staminode subequaling height; stigma sessile, capitate; staminode ivory-colored; male zone 5.5–6 × ca. 0.5 cm; male flowers white, rhombic-hexagonal in apical view, 1–2 mm in diam., each comprising 2 stamens overtopped by a large connective. Inflorescence when ripe shedding spathe by slightly ragged basal abscission. Berries ripening dull orange yellow, smelling of overripe plums.

Evergreen perhumid broad-leaved tropical and subtropical forests, less often in drier habitats such as seasonally partially deciduous perhumid forests, but then always associated with permanent water; 200–1000 m. ?Guangxi, S Yunnan (Xishuangbanna) [Bangladesh, NE India, Laos, N Myanmar, N Thailand, Vietnam].

**2. *Homalomena occulta*** (Loureiro) Schott in Schott & Endlicher, Melet. Bot. 20. 1832.

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*Calla occulta* Loureiro, Fl. Cochinch. 2: 532. 1790; *Spirospatha occulta* (Loureiro) Rafinesque; *Zantedeschia occulta* (Loureiro) Sprengel.

Rhizome creeping; terminal part of stem erect, 30–50 cm tall; cataphylls and prophylls linear-lanceolate, 15–16 × ca. 2.5 cm. Petiole 25–40 cm, proximal part with 2–5 mm wide sheath; leaf blade sagittate-cordate, 15–30 × (8–)15–28 cm or usually more; primary veins 7 per side, 2–4 of these basal, downward to basal lobes and then arching into leaf margin, secondary and tertiary ones thinner, numerous. Inflorescences 1–3 together; peduncle shorter than petioles, 10–15 cm. Spathe pale green, oblong or elliptic, 5–6.5 × 3–3.2 cm, fusiform before anthesis, distal part slightly spreading and shortly boat-shaped at anthesis, 5–6 cm wide when spread out completely, apex with a beak ca. 1 cm. Spadix sessile or shortly stipitate, 3–5 cm; female zone 1–1.5 cm × 4–5 mm; ovary oblong, 3-loculed, with 1 staminode at side of base; ovules numerous; placentation axile; stigma disciform; male zone 2–3 cm × 3–4 mm. Seeds brown, oblong. Fl. Jul–Sep.

Dense valley forests, bamboo forests, mountain shrub forests; below 100–1100 m. Guangdong, Guangxi, Hainan, Yunnan [Laos, Thailand, Vietnam].

One of us (Boyce) notes that the correct application of the name *Homalomena occulta* is obscure. The type (that almost certainly came from Hué in Vietnam) is lost, and the material that Schott annotated as being *H. occulta* consists of at least three species. The above description appears to be based on at least two species.

The aromatic rhizomes are used medicinally to treat traumatic injuries, fractures, stomach aches, lumbago, intestinal parasites, and rheumatic arthralgia.

**3. *Homalomena kelungensis*** Hayata, Icon. Pl. Formosan. 8: 135. 1919.

台湾千年健 tai wan qian nian jian

Leaves 4 or 5; petiole ca. 60 cm, base sheathing; leaf blade broadly ovate, ca. 33 × 25 cm, membranous, base sagittate-cordate, margin entire, apex triangular-acute; veins almost parallel. Peduncle ca. 35 cm. Spathe pale green, ca. 6 cm, apex acute. Spadix cylindric, 4–5 × ca. 1.2 cm; female zone ca. 1.2 × 1.2 cm; ovary obovoid, 2–2.5 mm, apex obtuse; staminodes clavate; male zone ca. 3 × 1.3 cm, obtuse; stamens flattened, ca. 1.5 mm. Fl. Mar.

• N Taiwan (Jilong).

**4. *Homalomena hainanensis*** H. Li, Acta Phytotax. Sin. 15(2): 103. 1977.

海南千年健 hai nan qian nian jian

Stem erect, ca. 40 cm tall, ca. 1.2 cm in diam. Petiole ca. 46 cm, basal 10–12 cm sheathing; leaf blade green, ovate-oblong, ca. 18 × 11–12 cm, base broadly rounded, apex abruptly acuminate, acute with tubular tip 2–3 mm; primary lateral veins 5 or 6 per side, secondary veins numerous, parallel. Inflorescences several (up to 6) together; peduncle 4–5 cm, slender, 1–2 mm in diam. Spathe yellow-green, cymbiform, ca. 3.5 × 1.2 cm, apex with rostrum 3–4 mm. Spadix shorter than spathe, ca. 2.5 cm; female zone cylindric, ca. 10 × 3 mm; ovary ovoid; stigma subsessile, capitate; usually 1 staminode exceeding associated pistil; male zone clavate, ca. 2 cm × 1.5–3 mm, apex obtuse. Fl. Oct.

• Open forests on mountains. Hainan.

*Homalomena hainanensis* differs from other Chinese species in its leaf blade base broadly rounded (not cordate), spathe small (ca. 3.5 cm), spadix shorter (ca. 2.5 cm), and male zone clavate (ca. 2 cm).

Fl. China 23: 17–18. 2010.