
**海芋属** 海芋属 (李恒 Li Hen); Peter C. Boyce

*Colocasia* sect. *Alocasia* Schott in Schott & Endlicher, Melet. Bot. 18. 1832; *Ensolenanthe* Schott; *Panzhuyuia* Z. Y. Zhu; *Schizocasia* Schott ex Engler; *Xenophya* Schott.

Herbs, evergreen, rarely seasonally dormant, latex-bearing, medium sized to rarely arborescent and gigantic. Stem thick, often hypogeal, sometimes stoloniferous and bulbiferous, epigeal stem usually erect and later decumbent, rather less often elongated and creeping. Leaves few to several in terminal crown, less often scattered, sometimes each subtended by a cataphyll; petiole long [sometimes minutely asperous, minutely puberulent, or glandular]; sheath relatively long; leaf blade sometimes pubescent abaxially, juvenile blade peltate, at maturity usually sagittate, less often ± hastate or cordate, but remaining peltate in some species, margin entire or sinuate [or slightly to deeply pinnatifid]; posterior divisions ovate or triangular; basal ribs well developed, wax glands present in axils of primary lateral veins and midrib; primary lateral veins pinnate, forming submarginal collective vein, 1 or 2 closely adjacent marginal veins also present, secondary and tertiary lateral veins arising from primaries at a wide angle, then arching strongly toward leaf margin, sometimes forming interprimary veins, higher order venation reticulate. Inflorescences 1 or 2 to many in each floral sympodium; peduncle usually shorter than petioles. Spathes persistent, erect, convolute, gaping only basally, strongly constricted between tube and blade, rarely not; tube with convolute margins, shorter than limb, ovoid or oblong, persistent and then splitting irregularly in fruit; limb oblong, usually boat-shaped, rarely arching, at anthesis at first erect, then reflexing and later usually deciduous. Spadix sessile, sometimes shortly stipitate, rarely obliquely adnate to spathe, shorter than spathe; female zone conic-cylindric, short, separated from male by a much narrower zone of sterile flowers; male zone usually cylindric; appendix conic to cylindric, with irregular, labyrinthine network of fissures. Flowers unisexual, naked. Pistil ovoid or oblong, 1-loculed or partially 3- or 4-loculed at apex; ovules 6–10, orthotropous, hemiarthrotropous, henianatropous, or anatropous; funicle short; placenta basal; stigma depressed capitiate, ± distically 3- or 4-lobed. Male flowers 3–12(–36)-androecous; stamens connate into obpyramidal, subhexagonal, truncate, rarely linear, synandria; thecae oblong to linear-oblong, lateral, dehiscing by apical pore; synandrodes shallow, obpyramidal, compressed, truncate. Fruit a reddish, ellipsoid or obconic-ellipsoid or subglobose odorless berry, 1–5-seeded; stigma remnants persistent. Seed subglobose to ellipsoid, rather large; testa thickish, smooth or scabrous; embryo broadly conic, broadly cylindric, or elongate; endosperm copious.

About 80 species: tropical Asia and Malaysia; eight species in China.

The genus *Alocasia* is vegetatively similar to *Colocasia* but may be readily differentiated by the presence of wax glands present in axils of the primary lateral veins and midrib on the abaxial surface of the leaf and by the mature fruit that are orange or red, odorless, and contain a few large seeds, this in marked contrast to *Colocasia* in which the fruits are inconspicuously colored, smelly, and contain many tiny seeds in slimy mucilage. In addition, the placation is basal in *Alocasia* and parietal in *Colocasia*.

In respect to synflorescence architecture, *Alocasia* may be distinguished by the inflorescences that are generally paired, with each pair oriented ± tangential to the stem, whereas *Colocasia* has numerous inflorescences arising in a centrifugal sequence radial to the stem.

In China, *Alocasia cucullata* and *A. macrorrhizos* are never found away from human disturbance.

1a. Plants massive, pachycaul, at least 1 m tall.

2a. Sinus between posterior leaves naked ................................................................. 4. *A. macrorrhizos*

2b. Sinus between posterior leaves peltate.

3a. Plants lacking stolons; spathe deep yellow ............................................................. 3. *A. navicularis*

3b. Plants with short stolons at base of main stems, these stolons with tubercles at tips; spathe greenish white.

4a. Petiole to 150 cm; leaf blade ca. 130 × 100 cm; appendix conic, 3–5.5 × 1–2 cm ........................................... 1. *A. odora*

4b. Petiole 28–30 cm; leaf blade ca. 25 × 13 cm; appendix narrowly conic, ca. 1.1 × 0.3–0.4 cm .............. 2. *A. hainanica*

1b. Plants not as above, or if taller than 1 m then never massive.

5a. Plants always seasonally dormant; petiole green, leaf blade not peltate; plant producing long (up to 110 cm) horizontal or spreading stolons tipped with tubercles; spathe purple-pink or whitish, not constricted ................. 6. *A. hypnosa*

5b. Plants rarely seasonally dormant, if so then petiole mottled, leaf blade peltate, and plant never with long stolons; spathe green or white, constricted.

6a. Stems stoutly erect and basally much branched; leaf blade broadly ovate; only known from areas of human disturbance .................................................................................................................. 5. *A. cucullata*

6b. Stems weakly erect to decumbent, not branching basally; leaf blade various but never broadly ovate; plants of natural forest.

**海芋**  hai yu

*Arum odoratum* Roxburgh, Fl. Ind., ed. 1832, 3: 499. 1832; *Alocasia commutata* Schott; *A. tonkinensis* Engler; *Arum odoratum* Heynhold; *Caladium odoratissimum* K. Koch; *C. odoratum* Ker Gawler (1822), not Loddlges (1820); *Colocasia odora* (Roxburgh) Brongniart.

Pachycalyb herbs, massive, to 2.5 m, evergreen, with slightly milky latex. Stem erect to decumbent, with short stolons terminating in tubercles arising from base. Leaves several to rather many together, clustered at tips of stems of larger plants; petiole up to 1.5 m, sheath membranous; leaf blade peltate, cordate-sagittate or cordate-ovate, up to 130 × 100 cm, basal margins undulate, apex shortly acuminate; primary lateral veins 9–12 on each side, interprimary veins forming well-defined interprimary collective veins. Inflorescences 2 or 3 together among leaf bases, subtended by membranous cataphylls; peduncle stout, ca. 35 cm, exceeding cataphylls at anthesis. Spathe 13–25 cm, constricted ca. 1/6 of way from base; proximal part green, ovoid; limb cowl-like at anthesis, later reflexed, then deliquescent, greenish white, broadly oblong-lanceolate, 10–30 × 4–8 cm, membranous. Spadix shorter than spathe, shortly stipitate; female zone 1–2 × ca. 1.5 cm; pistil pale green, ca. 3 mm in diam.; stigma sessile, weakly 3-lobed, lobes blunt, pale green; sterile zone equaling male zone, ivory, very slightly narrowed corresponding to spathe constriction; synandros rhombic-hexagonal, ca. 2.5 mm in diam.; male zone whitish, cylindric, 3–5 × ca. 2 cm; synandria rhombic-hexagonal, convex-topped due to cap-forming synconnective, ca. 1.5 mm in diam.; appendix white, narrowly conic, 3–5.5 × 1–2 cm, equaling ca. 1/3 length of spadix, markedly thicker than male zone at base, slowly tapering toward apex. Fruiting spathe ca. 6 cm. Fruit ripening scarlet, globose, ca. 1 cm in diam.

Primary and secondary tropical rain forests, bamboo thickets, riverbanks, swamps, also on limestone; below 1700 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan [Bangladesh, Bhutan, Cambodia, NE India (Assam), Japan (Ryukyu Islands), Laos, Myanmar, Nepal, Thailand].

*Alocasia odora* differs from *A. macrorrhizos* in having shortly peltate leaves (vs. deeply cordate at the base with the lateral lobes partially naked in the sinuses in *A. macrorrhizos*).

The rhizomes are used for treating stomach aches, abdominal pains, cholera, and hernias, and are used externally to treat abscesses and snake and insect bites.


**南海芋** nan hai yu

*Alocasia hainanensis* K. Krause.

Herbs, medium sized to rather small, evergreen. Stem short, epigal. Leaves few together; petiole 28–32 × ca. 1 cm, slender, sheathing to ca. 1/2 length; leaf blade weakly peltate, ovate-sagittate, ca. 25 × 13 cm, thinly membranous, apex acute; posterior lobes ovate-oblong, 8–10 × ca. 5 cm; lateral veins 4 or 5 on each side. Inflorescences solitary; peduncle cylindric, slender, ca. 18 cm × 4–5 mm. Spathe ca. 6.5 cm, weakly constricted; tube narrowly ovoid, ca. 15 × 8 mm, glaucous; limb erect, narrowly oblong, ca. 5 × 2 cm, apex long acuminate. Spadix slightly shorter than spathe; female zone cylindric, 1–1.2 cm; pistil ovoid; style short; stigma ± 3- or 4-lobed; sterile zone narrowly cylindric, 6–7 cm × ca. 2 mm; synandroses depressed, rhombic-hexagonal in outline, ca. 2 × 2.5 mm; male zone ca. 15 × 5 mm; synandria comprised of 6 stamens, rhombic-hexagonal, ca. 2 × 2 mm; appendix narrowly conic, ca. 1.1 × 0.3–0.4 cm, acute. Inflorescence and fruit unknown. Fl. Nov.

Secondary forests in valleys. Hainan [N Vietnam].

*Alocasia hainanica* is very doubtfully distinct from *A. odora* and is apparently based on a depauperate form of that species. The Berlin isotype is in better condition than the Kew holotype and shows clearly the glaucous proximal spathe outside, which is typical of *A. odora*. The spadix, while depauperate, fits well with that of *A. odora*. As with several other species of Araceae described from Hainan, field work is required to verify its taxonomic status. The drawing that accompanies the Berlin isotype is somewhat stylized, especially in the depiction of the female zone.

In publishing *Alocasia hainanensis*, Krause appears to have been unaware of Brown’s earlier publication; Krause’s and Brown’s names are homotypic.


**黄苞海芋** huang bao hai yu


Pachycalyb herbs, massive, to 1.5 m, evergreen, with milky latex. Stem erect to decumbent. Leaves several together, clustered at tips of stems of larger plants; petiole up to 1.5 m, sheath membranous; leaf blade peltate, cordate-ovate, ca. 130 × 120 cm, apex shortly acuminate; primary lateral veins 9–12 on each side. Inflorescences 2 or 3 together among leaf bases; peduncle 40–45 cm, stout, much exceeding cataphylls at anthesis. Spathe 10–20 cm, constricted ca. 1/6 of way from base; proximal part green, ovoid; limb dark yellow, broadly oblong-lanceolate, 18–15 × 4–8 cm, cowl-like at anthesis. Spadix shorter than spathe, shortly stipitate; female zone 1–2 × ca. 1.5 cm; pistil mid-green, ca. 3 mm in diam.; stigma sessile, 3–or 4-lobed, lobes blunt, pale green; sterile zone equaling male zone, ivory, narrowed corresponding to spathe constriction; synandroses whitish, stained purple, rhombic-hexagonal, ca. 2.5 mm in diam.; male zone white, cylindric, 3–4 × ca. 1.5 cm; synandria rhombic-hexagonal, convex-topped due to cap-forming...
synconnective, ca. 1.5 mm in diam.; appendix white, narrowly conic, 3–4 × 1–2 cm, equaling ca. 1/3 length of spadix, ± same thickness as male zone at base. Fruiting spathe ellipsoid, 5–11 cm. Fruit ripening dark red, ellipsoid, ca. 10 × 6 mm.

Moist evergreen lower-montane forests, sometimes on limestone. S Yunnan [N Bangladesh, NE India (Assam), N Laos, N Myanmar, Nepal, N Thailand, N Vietnam].


热亚海芋 re ya hai yu

*Arum macrorhizon* Linnaeus, Sp. Pl. 2: 965. 1753; *Alocasia cordifolia* (Bory) Cordemoy; *A. grandis* N. E. Brown (1886), not Clémenceau (1868); *A. indica* (Loureiro) Spach; *A. indica* var. *diversifolia* Engler; *A. indica* var. *heterophylla* Engler; *A. indica* var. *metallica* (Schott) Schott; *A. indica* var. *rubra* (Hassk.) Engler; *A. indica* var. *variegata* (K. Koch & C. D. Bouché) Engler; *A. marginata* N. E. Brown; *A. metallica* Schott; *A. pallida* K. Koch & C. D. Bouché; *A. plumbea* (K. Koch) Van Houtte; *A. tiihiki* Engler & K. Krause; *A. variegata* K. Koch & C. D. Bouché; *Arum cordifolium* Bory; *A. indicum* Loureiro; *A. mucronatum* Lamarck; *A. peregrinum* Linnaeus; *Caladium indicum* (Loureiro) K. Koch; *C. macrorhizon* (Linnaeus) R. Brown; *C. metalicum* (Schott) Engler; *C. odoratum* Lodgedes (1820), not Ker Gawler (1822); *C. plumbeum* K. Koch; *Calla badian* Blanco; *C. maxima* Blanco; *Colocasia boryi* Kunth; *C. indica* (Loureiro) Kunth; *C. indica* var. *rubra* Hasskari; *C. macrorhiza* (Linnaeus) Schott; *C. mucronata* (Lamarck) Kunth; *C. peregrina* (Linnaeus) Rafinesque; *C. rapiformis* Kunth; *Philodendron peregrinum* (Linnaeus) Kunth; *P. punctatum* Kunth.

Pachycaul herbs, massive, to 4 m, evergreen, latex slightly milky. Stem erect, to ca. 1.5 m, decumbent. Leaves several together, clumped at tips of stems in larger plants; petiole to 1.3 m, sheathing in proximal 1/3–1/2; leaf blade light green on both surfaces, ovate-sagittate, bluntly triangular, up to 120 × 50 cm, ± erect, margin entire to very slightly sinuous; posterior lobes 1/3–1/2 length of anterior, somewhat rotund, often overlapping, naked in sinuses in mature plants, weakly peltate in juveniles; primary lateral veins ca. 9 on each side of anterior lobe, axillary glands distinct, secondary venation not forming interprimary collective veins. Inflorescences paired among leaf bases, subtended by membranous cataphylls; peduncle 20–30 cm. Spatha green, 9–15 cm; proximal spathe 4–8 × ca. 2.5 cm; limb narrowly cymbiform, 5–10 × 3–5 cm. Spadix 8–14 cm; female zone cylindric, 1.5–2.5 cm × ca. 1.7 cm; sterile zone 2–3 cm × ca. 3 mm; male zone yellow, ca. 3.4 cm × 8 mm; appendix yellowish, narrowly conic, ca. 3.5 cm × 5 mm. Fruit rarely produced, a subglobeus berry, 6–8 mm in diam., ripening red. Fl. May.

Watersides, by fields, wild or cultivated; below 2000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Sichuan, Taiwan, Yunnan [Bangladesh, NE India (Khasi Hills, Sikkim), Laos, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam].

The plants are used externally for detoxifying viper bites and are also used for treating abscesses, rheumatism, and arthritis. It is an important good-luck plant in Buddhist temples in Laos and Thailand.


紫苞海芋 zi bao hai yu

Herbs, terrestrial or lithophytic, to 100 cm tall, seasonally dormant. Stem erect or a tuberlike rhizome; rhizome ca. 10 × 13.5 cm; stolons numerous per plant, pale green, simple, trailing horizontally or pendent, 56–110 cm, internodes cylindric, ca. 5.5 × up to 1 cm, with light green cataphylls, tubercles produced terminally, to 4 × 3 cm. Leaves 3–6 together; petiole light greenish, glossy, terete, to 104 × 3–7.5 cm, sheath to 50 cm, membranous; leaf blade triangular-sagittate, to 82 × 64 cm; basal lobes naked in sinuses, membranous, glossy bright green; primary lateral veins 8 per side, conspicuous, interprimary veins forming a feebly collective vein. Inflorescences 2 or 3 together, appearing with leaves; peduncle pale green, cylindric, to 90 cm. Spatha to 28 cm, not constricted between basal convolute part and limb; proximal spathe green, fusiform, ca.
6.5 × 3 cm; limb arched, erect at anthesis, later flopping forward, then deliquescent, purple-pink or whitish, oblong-lanceolate, to 24 × 20 cm. Spadix sessile, shorter than spathe; female zone cylindric, ca. 1.5 × 2 cm; pistil oblong, ca. 5 mm; style short; stigma 3- or 4-lobed; sterile zone cylindric, ca. 5.5 × 1–1.5 cm; synandrodes depressed oblong to depressed ovate, apex truncate or concave; male zone white, cylindric, ca. 3.5 × 2 cm; synandria 5- or 6-merous, rhombic-hexagonal, truncate; appendix white, narrowly conic, to 16.5 × 2.5 cm. Fruiting spathe ellipsoid, ca. 3 × 2.5 cm. Fruit ellipsoid, ca. 1.5 × 0.5 cm, ripening scarlet.

Humid forest margins and exposed areas of forest regrowth in limestone mountains; 900–1000 m. SW Yunnan (Menglian) [N Laos, N Thailand].


尖叶海芋  jian ye hai yu

*Alocasia amabilis* W. Bull; *A. cochinchinensis* Pierre ex Engler & K. Krause; *A. cuspidata* Engler; *A. lowii* Hooker var. *veitchii* (Lindley) Engler; *A. veitchii* (Lindley) Schott; *Caladium veitchii* Lindley.

Herbs, terrestrial, small to robust, to 150 cm tall, evergreen or seasonally dormant. Stem rhizomatous, elongate, erect to decumbent, sometimes subtuberous, 6–80 × 2–8 cm. Leaves 1–3 together, subentbed by lanceolate papery-membranous cataphylls; petiole terete, 30–120 cm, glabrous, sheathing in proximal 1/4, purple-brown to green, strikingly obliquely mottled chocolate-brown; leaf blade pendent, green or flushed with purple abaxially, dark green often with major venation gray-green adaxially, narrowly hasteate-sagittate, 27–85 × 14–40 cm; posterior lobes peltate for (5–)10–30% of their length, acute, anterior lobe with 4–8 primary lateral veins on each side, axillary glands conspicuous, interprimary collective veins weak. Inflorescences usually solitary; peduncle green, 9–20 cm, subentbed by cataphylls. Spathe 7–10 cm, moderately constricted 1.5–2.5 cm from base; proximal spathe green, ovoid; limb pale green, lanceolate, canoe-shaped, 5.5–7.5 cm. Spadix subequaling spathe, 6–9.5 cm, sessile; female zone 1–1.5 cm; pistil green, subglobose, 1.5–2 mm in diam.; stigma white, sub-sessile, very slightly lobed; sterile zone 7–10 mm, narrower than fertile zones; synandrodes narrowly rhombic-hexagonal, flat-topped; male zone ivory, subcylindric, 1.2–2.5 cm × 4.5–8 mm; synandria 4–6-merous, ± hexagonal, ca. 2 mm in diam.; appendix white, 2.5–3.5 cm, demarcated from male zone by a strong constriction, narrowly conic. Fruiting spathe green, ovoid, 3–4 cm. Fruit ripening orange-red, globose-ellipsoid, ca. 0.75 cm in diam.

Everwet to seasonal humid evergreen forests, usually in deep shade, less often on track sides; 600–1800 m. S Yunnan [Bangladesh, NE India, N Laos, N Myanmar, Nepal, N Thailand, ?N Vietnam].

8. *Alocasia acuminata* Schott, Bonplandia (Hannover) 7: 28. 1859.

越境海芋  yue jing hai yu

Herbs, terrestrial, small to medium sized, slightly robust, to 75 cm tall, evergreen. Stem rhizomatous, generally elongate, erect, later decumbent, 8–75 × 2–6 cm. Leaves to 5 together, subentbed by lanceolate papery-membranous cataphylls; petiole bright green, 15–80 cm, glabrous, sheathing in proximal 1/4; leaf blade spreading, bright green, narrowly hasteate-sagittate to ovate-hastate, 15–60 × 8–20 cm; posterior lobes 1/4–1/3 length of anterior, peltate for 25–30% of their length, acute; anterior lobe with 3–6 primary lateral veins on each side, axillary glands hardly conspicuous, interprimary collective veins weakly defined. Inflorescences usually solitary; peduncle green, 9–20 cm, subentbed by cataphylls. Spathe 7–10 cm, moderately constricted 1.5–2.5 cm from base; proximal spathe green, ovoid; limb pale green, lanceolate, canoe-shaped, 5.5–7.5 cm. Spadix subequaling spathe, 6–9.5 cm, sessile; female zone 1–1.5 cm; pistil green, subglobose, 1.5–2 mm in diam.; stigma white, sub-sessile, very slightly lobed; sterile zone 7–10 mm, narrower than fertile zones; synandrodes narrowly rhombic-hexagonal, flat-topped; male zone ivory, subcylindric, 1.2–2.5 cm × 4.5–8 mm; synandria 4–6-merous, ± hexagonal, ca. 2 mm in diam.; appendix white, 2.5–3.5 cm, demarcated from male zone by a strong constriction, narrowly conic. Fruiting spathe green, ovoid, 3–4 cm. Fruit ripening orange-red, globose-ellipsoid, ca. 0.75 cm in diam.

Tropical forests, thickets; 100–1000 m. Guangdong, Hainan, S Yunnan [Cambodia, Indonesia, Laos, Malaysia, S Myanmar, Singapore, Thailand, Vietnam].