

**18. HEDYCHIUM** J. König in Retzius, *Observ. Bot.* 3: 61 [“73”]. 1783.

姜花属 *jiang hua shu*

Herbs terrestrial or epiphytic, with tuberous rhizomes. Pseudostems erect, leafy. Ligule conspicuous; leaf blade usually oblong or lanceolate. Inflorescence a terminal spike, densely numerous flowered; bracts imbricate or lax, 1- or more flowered; bracteoles tubular. Calyx tubular, usually split on 1 side, apex truncate or 3-toothed. Corolla tube long, slender; lobes reflexed at anthesis, linear. Lateral staminodes petaloid, larger than corolla lobes. Labellum suborbicular, large, apex usually 2-cleft; claw long or short. Filament usually long, rarely absent; anther dorsifixed, base divaricate; connective appendage absent. Ovary 3-loculed; placentation axile. Capsule globose, 3-valved. Seeds numerous; aril lacerate.

About 50 species: Africa (Madagascar), tropical to warm-temperate Asia; 28 species (18 endemic) in China.

*Hedychium gardnerianum* Roscoe, which is cultivated in China as an ornamental, is not described in this account.

- 1a. Bracts densely imbricate, broad, covering rachis, not or only apical one surrounding flowers; inflorescences conical.
  - 2a. Flowers 1 per bract; filament 1–2 mm ..... 1. *H. efilamentosum*
  - 2b. Flowers 2–6 per bract; filament more than 2 mm.
    - 3a. Flowers white.
      - 4a. Flowers 2 or 3 per bract; corolla tube ca. 8 cm, lobes ca. 5 cm; labellum 4–6 × 4–6 cm ..... 2. *H. coronarium*
      - 4b. Flowers 3–5 per bract; corolla tube 3.5–4 cm, lobes 1.7–2 cm; labellum 2.5–3 × 2–2.2 cm ..... 3. *H. ximengense*
    - 3b. Flowers yellow.
      - 5a. Labellum 2-lobed at apex, lobes ca. 3.8 × 2.8 cm ..... 4. *H. bipartitum*
      - 5b. Labellum 2-cleft at apex.
        - 6a. Leaves glabrous on both surfaces; labellum wholly yellow, wider than long ..... 5. *H. flavum*
        - 6b. Leaves pubescent abaxially; labellum creamy yellow with an orange patch at base, longer than wide ..... 6. *H. flavescens*
- 1b. Bracts laxly or densely arranged, not imbricate, usually surrounding flowers; inflorescences not conical.
  - 7a. Flowers 1 per bract.
    - 8a. Flowers densely arranged, corolla tube to 2.5 cm.
      - 9a. Bracts ca. 0.5 cm; labellum entire and mucronate at apex ..... 7. *H. parvibracteatum*
      - 9b. Bracts 0.7–2 cm; labellum nearly 2-lobed or 2-cleft at apex.
        - 10a. Corolla tube 2.5–3 cm; labellum ca. 1.6 cm ..... 8. *H. densiflorum*
        - 10b. Corolla tube 1.2–1.5 cm; labellum 0.7–1 cm.
          - 11a. Bracts 1.3–1.5 cm; labellum ca. 1 cm ..... 9. *H. sinoaureum*
          - 11b. Bracts 0.7–1 cm; labellum ca. 0.7 cm ..... 10. *H. nutantiflorum*
      - 8b. Flowers laxly or densely arranged; corolla tube 3.5–8 cm.
        - 12a. Corolla tube to 8 cm; filament shorter than labellum; ligule hairy ..... 11. *H. spicatum*
        - 12b. Corolla tube 3.5–5 cm; filament much longer than labellum; ligule glabrous.
          - 13a. Labellum apically entire but projecting ..... 12. *H. convexum*
          - 13b. Labellum apically 2-cleft for 1/2 to all its length.
            - 14a. Labellum 3–3.5 cm.
              - 15a. Petiole 3–7 cm; ligule 3–6 cm; labellum apically 2-cleft for ca. 2/3 its length, lobes narrowly lanceolate ..... 13. *H. glabrum*
              - 15b. Petiole ca. 1.5 cm; ligule ca. 1.5 cm; labellum apically 2-cleft for ca. 1/2 its length, lobes linear ..... 14. *H. tengchongense*
            - 14b. Labellum 1.3–2 cm.
              - 16a. Ligule entire, 1.5–2.5 cm; labellum obovate, ca. 2 cm, apically 2-cleft for ca. 1/2 its length; anther 1–1.2 cm ..... 15. *H. yunnanense*
              - 16b. Ligule 2-cleft, ca. 0.4 cm; labellum narrowly oblong, ca. 1.3 cm, apically 2-cleft to base; anther ca. 0.5 cm ..... 16. *H. pauciflorum*
      - 7b. Flowers more than 2 per bract.
        - 17a. Anther 2–3 mm; bracts and calyx densely brown sericeous ..... 17. *H. villosum*
        - 17b. Anther more than 5 mm; bracts and calyx glabrous or hairy, but not brown sericeous.
          - 18a. Leaves glabrous on both surfaces.
            - 19a. Flowers yellow or red; filament ca. 5 cm.
              - 20a. Flowers yellow; labellum entire, emarginate, or shortly 3-toothed at apex ..... 18. *H. bijiangense*
              - 20b. Flowers red; labellum deeply 2-cleft at apex ..... 19. *H. coccineum*
            - 19b. Flowers white; filament 2.2–4 cm.

- 21a. Bracts 4.5–6 cm; filament 3.5–4 cm, anther ca. 12 mm ..... 20. *H. forrestii*  
21b. Bracts 2.5–4.6 cm; filament 2.2–2.8 cm, anther 5–9 mm.  
22a. Plants 1–1.2 m tall; corolla tube villous; labellum apically 2-cleft to base; filament longer than labellum, anther ca. 5 mm ..... 21. *H. kwangsiense*  
22b. Plants to 0.5 m tall; corolla tube glabrous; labellum apically slightly 2-lobed or 2-cleft for ca. 1/2 its length; filament equaling labellum, anther ca. 9 mm ..... 22. *H. brevicaulis*  
18b. Leaves hairy abaxially, sometimes only along midvein.  
23a. Leaves hairy only along midvein abaxially; labellum wholly white; filament ca. 1.3 cm ..... 23. *H. yungjiangense*  
23b. Leaves uniformly hairy abaxially; labellum white with different color at base or center; filament 2.4–6.8 cm.  
24a. Labellum suborbicular, 1.8–2.2 × 1.8–2 cm.  
25a. Corolla tube yellowish; labellum flesh-colored at base; filament flesh-colored, 5.2–5.7 cm, anther yellow ..... 24. *H. neocarneum*  
25b. Corolla tube white; labellum yellowish at base; filament white, 5.6–6.8 cm, anther white ..... 25. *H. puerense*  
24b. Labellum orbicular, ovate, or obovate, 2.5–3.5 × 2–2.5 cm.  
26a. Labellum pale purple at base; filament purple, 5–5.5 cm ..... 26. *H. simaoense*  
26b. Labellum with yellow midvein or orange spots at center; filament yellow-red, 2.4–3.5 cm.  
27a. Labellum with yellow midvein, broadly ovate, ca. 2.5 × 2 cm; filament ca. 2.4 cm ..... 27. *H. tienlinense*  
27b. Labellum with orange spots at center, obovate, 3–3.5 × 2–2.5 cm; filament 3–3.5 cm ..... 28. *H. qingchengense*

**1. *Hedychium efilamentosum*** Handel-Mazzetti, Symb. Sin. 7: 1319. 1936.

无丝姜花 *wu si jiang hua*

Pseudostems ca. 1 m, base somewhat thickened. Leaves sessile; leaf sheath minutely pilose or glabrescent; ligule 5–10 mm, membranous, pubescent, apex truncate; leaf blade oblong or linear-elliptic, 10–60 × 3–10 cm, adaxially glabrous, abaxially densely pilose especially along midvein, base subrounded or cuneate, margin narrowly cartilaginous, often ciliate, apex subcaudate-acuminate. Spikes cylindric, 16–20 × 3–4 cm; bracts imbricate, dense, broadly ovate, 4–6 cm, 1-flowered, margin membranous; bracteoles 2, membranous, pilose. Calyx cylindric, ca. 3.5 cm, minutely pilose, apex 2-lobed. Corolla yellow, glandular punctate; tube narrowly cylindric, ca. 7 cm; lobes 1.5–2 cm. Lateral staminodes wider than corolla lobes. Labellum obovate, equaling lateral staminodes, apically 2-cleft for just over 1/2 its length, base truncate. Filament 1–2 mm; anther 7–10 mm. Stigma ciliate. Fl. Jul–Aug.

- Forests; ca. 1800 m. Xizang, NW Yunnan.

**2. *Hedychium coronarium*** J. König in Retzius, Observ. Bot. 3: 73. 1783.

姜花 *jiang hua*

*Hedychium coronarium* var. *baimao* Z. Y. Zhu.

Pseudostems 1–3 m. Leaves sessile; ligule 2–3 cm, membranous; leaf blade oblong-lanceolate or lanceolate, 20–40 × 4.5–8 cm, adaxially glabrous, abaxially finely pubescent or thinly hairy, base acute, apex long acuminate. Spikes ellipsoid, 10–20 × 4–8 cm; bracts imbricate, ovate, 4.5–5 × 2.5–4 cm, 2- or 3-flowered. Flowers white, fragrant. Calyx ca. 4 cm, split on 1 side. Corolla tube ca. 8 cm, slender; lobes lanceolate, ca. 5 cm, central one spatulate, apex mucronate. Lateral staminodes oblong-lanceolate, ca. 5 cm. Labellum white, pale yellow at base, obcordate, 4–6 × 4–6 cm, apex 2-cleft. Filament ca. 3 cm; anther ca. 1.5 cm. Ovary sericeous. Fl. Aug–Dec.  $2n = 34$ .

Forests, also cultivated. Guangdong, Guangxi, Hunan, Sichuan,

Cultivated as an ornamental and for medicine and aromatic oil.

**3. *Hedychium ximengense*** Y. Y. Qian, Acta Bot. Austro Sin. 9: 47. 1994.

西盟姜花 *xi meng jiang hua*

Pseudostems 0.6–1.5 m. Leaves sessile; ligule (1–)2–3 cm, membranous; leaf blade elliptic-lanceolate or lanceolate, elliptic on proximal leaves, 6–45 × 3–13 cm, adaxially glabrous, abaxially villous, base cuneate, rounded on proximal leaves, apex long acuminate or caudate. Spikes ellipsoid or oblong, 12–30 × 8–12 cm; bracts imbricate, elliptic, 4–4.5 × 2.6–3.3 cm, pubescent, 3-flowered. Flowers white. Calyx 3–5 cm, pubescent, split to middle on 1 side. Corolla tube 3.5–4 cm, slender; lobes oblanceolate, 1.7–2 cm. Lateral staminodes narrowly oblong, 1.6–1.8 cm. Labellum obovate, 2.5–3 × 2–2.2 cm, apex 2-lobed. Filament 1.2–1.5 cm; anther ca. 1 cm. Ovary sericeous. Capsule ovoid, 1.7–2.5 × 1.3–1.8 cm, obtusely 3-angled, villous. Seeds red; aril red. Fl. Jul.

- Forests; ca. 2000 m. S Yunnan (Ximeng Va Zu Zizhixian).

**4. *Hedychium bipartitum*** G. Z. Li, Guihaia 5: 86. 1985.

深裂黄姜花 *shen lie huang jiang hua*

Pseudostems 1–2 m × 1–3 cm. Leaves sessile; ligule 2–4.5 cm, scarious, densely sericeous, apex rounded; leaf blade adaxially green, abaxially glaucous, oblong-lanceolate, 40–65 × 7.5–13 cm, abaxially sericeous, base broadly cuneate or acute, apex long acuminate. Spikes conical, 15–20 × 4–5 cm; bracts imbricate, ovate or oblong-ovate, 5–6 × 4–5 cm, 4–6-flowered; bracteoles ovate-triangular, 2–4 × 0.5–2 cm, margin involute. Flowers yellow, fragrant. Calyx 4.5–5.5 cm, sericeous, split on 1 side. Corolla tube 6–7 cm. Lateral staminodes oblanceolate, ca. 4 cm × 8 mm; claw red. Labellum broadly obcordate, apex 2-cleft; lobes suborbicular, ca. 3.8 × 2.8 cm. Filament ca. 4 cm; anther ca. 1.6 cm. Ovary densely sericeous distally. Stigma red, ciliate. Fl. Aug.

- Cultivated; ca. 1200 m. NE Guangxi (Guilin Shi).

**5. *Hedychium flavum*** Roxburgh, Fl. Ind. 1: 81. 1820.

黄姜花 huang jiang hua

Pseudostems 1.5–2 m. Leaves sessile; ligule lanceolate, 2–5 cm, membranous; leaf blade oblong-lanceolate, 25–45 × 5–8.5 cm, glabrous, base acute, apex acuminate. Spikes oblong, ca. 10 × 5 cm; bracts imbricate, oblong-ovate, 4–6 × 1.5–3 cm, 3- or 4-flowered; bracteoles ca. 2 cm, tubular. Flowers yellow. Calyx ca. 4 cm, hirsute, split on 1 side. Corolla tube longer than calyx; lobes linear, ca. 3 cm. Lateral staminodes oblanceolate, ca. 3 cm × 8 mm. Labellum yellow, obcordate, wider than long, ca. 4 cm, apex emarginate; claw short. Filament ca. 3 cm; anther 1.2–1.5 cm. Ovary hirsute. Stigma funnellform. Fl. Aug–Sep.

Forests; 900–1200 m. Guangxi, Guizhou, Sichuan, Xizang, Yunnan [India, Myanmar, Thailand].

Cultivated as an ornamental and for aromatic oil.

**6. *Hedychium flavescens*** Carey ex Roscoe, Monandr. Pl. Scitam. t. 50. 1824.

峨眉姜花 e mei jiang hua

*Hedychium emeiense* Z. Y. Zhu; *H. panzhuum* Z. Y. Zhu.

Pseudostems 1–2 m. Leaves sessile; leaf sheath slightly pubescent; ligule 3–5 cm, membranous; leaf blade elliptic-lanceolate or lanceolate, 20–50 × 4–10 cm, abaxially pubescent, base attenuate, margin membranous, apex caudate-acuminate. Spikes oblong, 15–20 × 3–6 cm; bracts imbricate, oblong to ovate, 3–4.5 × 2–4 cm, concave, 4- or 5-flowered; bracteoles tubular, membranous. Flowers yellow or yellow-white, fragrant. Calyx 3.5–4 cm, split on 1 side, apical margin entire. Corolla tube 7–8.5 cm, slender; lobes linear, 3–3.5 cm. Lateral staminodes wider than corolla lobes. Labellum erect, creamy yellow with an orange patch at base, obcordate, longer than wide, apex 2-lobed. Filament subequalling labellum. Ovary hairy. Stigma funnellform, margin bearded. Fl. Jul–Sep.  $2n = 34$ .

Forests; 500–800 m. Sichuan [India, Nepal].

Medicinal.

**7. *Hedychium parvibracteatum*** T. L. Wu & S. J. Chen, Acta Phytotax. Sin. 16(3): 27. 1978.

小苞姜花 xiao bao jiang hua

Pseudostems to 50 cm. Ligule ca. 4 mm, membranous, apex obtuse; petiole ca. 5 mm; leaf blade oblong, 15–17 × ca. 4 cm, glabrous, base attenuate, apex acuminate. Spikes ca. 10 × 2 cm, dense; rachis glabrous; bracts ovate-oblong, 5–6 mm. Flowers golden yellow. Calyx ca. 6 mm, obliquely split on 1 side. Corolla tube ca. 8 mm; lobes linear, ca. 7 × 1 mm. Lateral staminodes wider than corolla lobes. Labellum obovate, ca. 5 × 3 mm, apex entire but mucronate. Stamen orange; filament ca. 7 mm; anther ca. 3 mm. Ovary glabrous, subcubic, ca. 1 mm in diam. Stigma ciliate. Fl. Jul.

- Forests; ca. 2000 m. E Xizang (Bomi Xian).

**8. *Hedychium densiflorum*** Wallich, Hooker's J. Bot. Kew

Gard. Misc. 5: 368. 1853.

密花姜花 mi hua jiang hua

Pseudostems 1–1.2 m. Ligule ca. 1 cm, apex obtuse; petiole absent to 1 cm; leaf blade oblong-lanceolate, 12–35 × 3–10 cm, glabrous, base attenuate, apex caudate. Spikes 10–18 × ca. 3 cm, dense; bracts oblong, ca. 2 cm, 1(or 2)-flowered. Flowers bright yellow, small. Calyx ca. 2.5 cm. Corolla tube 2.5–3 cm; lobes reflexed, linear, ca. 1.5 cm. Lateral staminodes lanceolate, ca. 2 cm. Labellum cuneate, ca. 1.6 cm × 6 mm, apex deeply 2-cleft. Stamen longer than labellum; anther ca. 8 mm. Fl. Jul.

Forests; 2100–2300 m. E Xizang (Bomi Xian) [Bhutan, India, Nepal, Sikkim].

**9. *Hedychium sinoaureum*** Stapf, Bull. Misc. Inform. Kew 1925: 432. 1925.

小花姜花 xiao hua jiang hua

Pseudostems 60–90 cm. Ligule 5–10 mm, membranous; petiole absent to 1.5 cm; leaf blade lanceolate, 15–35 × 3–6 cm, glabrous, base attenuate, apex narrowly caudate. Spikes 10–20 × 3–3.5 cm, dense; bracts oblong, rolled tightly around calyx, 1.3–1.5 cm, distal ones 1-flowered. Flowers bright yellow. Calyx longer than bracts, apex obtuse, 3-toothed. Corolla tube 1.3–1.5 cm; lobes linear, 8–11 mm. Lateral staminodes obliquely lanceolate, ca. 8 mm. Labellum suborbicular, ca. 1 cm, apex 2-cleft. Filament ca. 1 cm; anther 5–6 mm. Fl. Jul–Aug.

Rocky hills; 1900–2800 m. Xizang, Yunnan [Sikkim].

**10. *Hedychium nutantiflorum*** H. Dong & G. J. Xu in H. Dong et al., Acta Phytotax. Sin. 35: 566. 1997.

垂序姜花 chui xu jiang hua

Pseudostems 50–100 cm, base subglobose. Ligule purple, 2–4 mm, glabrous, apex obtuse; petiole ca. 5 mm; leaf blade elliptic-lanceolate or narrowly lanceolate, 15–27 × 3–4 cm, glabrous on both surfaces, base cuneate or shortly so, apex acuminate. Spikes nodding, 4.6–5 cm, glabrous; bracts 7–10 mm, membranous, 1-flowered. Flowers yellow. Calyx ca. 1 cm. Corolla tube ca. 1.2 cm, throat villous; lobes linear, 8–10 × ca. 2 mm. Lateral staminodes petaloid, oblong-lanceolate, ca. 7 × 2 mm. Labellum oblong-ovate, ca. 7 × 2 mm, apically 2-cleft nearly to base. Filament ca. 1 cm × 2 mm; anther ca. 5 mm. Ovary globose, ca. 2 mm in diam., villous. Fl. Aug.

- Forests; 1600–1800 m. S Yunnan (Yuanyang Xian).

**11. *Hedychium spicatum*** Smith in Rees, Cycl. 17: *Hedychium* no. 3. 1811.

草果药 cao guo yao

Pseudostems ca. 1 m. Leaves sessile or shortly petiolate; ligule entire, 1.5–2.5 cm, membranous; leaf blade oblong or oblong-lanceolate, 10–40 × 3–10 cm, glabrous or abaxially sparsely villous along midvein, base acute, apex acuminate. Spikes to 20 cm, laxly few or densely many flowered; bracts oblong, 2.5–3 cm, 1-flowered. Flowers fragrant. Calyx 2.5–3.5 cm, apex 3-toothed, split on 1 side. Corolla pale yellowish; tube to 8 cm, apex sometimes purplish red; lobes linear, ca. 2.5 cm, base sometimes purplish red. Lateral staminodes white or becoming yellow, sometimes purplish red, obovate, apex 2-lobed; lobes

clawed, apex acute. Labellum yellowish, sometimes purplish red. Filament pale reddish, shorter than labellum. Capsule subglobose, 1.5–2.5 cm in diam., 3-valved; valves ca. 6-seeded. Fl. Jun–Oct. fr. Oct–Nov.

Forests; 1200–3200 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, NE India, Myanmar, Nepal, Sikkim, N Thailand].

Medicinal.

- 1a. Spikes densely many flowered; flowers yellowish ..... 11a. var. *spicatum*  
1b. Spikes laxly few flowered; flowers yellowish but apex of corolla tube, base of corolla lobes, lateral staminodes, and labellum purplish red ..... 11b. var. *acuminatum*

**11a. *Hedychium spicatum* var. *spicatum***

草果药(原变种) cao guo yao (yuan bian zhong)

Spikes densely many flowered. Flowers yellowish. Fl. Jun–Jul.  $2n = 34$ .

Forests; 1200–2900 m. Guizhou, Sichuan, Xizang, Yunnan [Myanmar, Nepal, N Thailand].

**11b. *Hedychium spicatum* var. *acuminatum*** (Roscoe) Wall-ich, Hooker's J. Bot. Kew Gard. Misc. 5: 328. 1853.

疏花草果药 shu hua cao guo yao

*Hedychium acuminatum* Roscoe, Monandr. Pl. Scitam. t. 47. 1824.

Spikes laxly few flowered. Flowers yellowish but apex of corolla tube, base of corolla lobes, lateral staminodes, and labellum purplish red. Fl. Aug–Oct.

Forests; 2000–3200 m. Xizang, Yunnan [Bhutan, NE India, Nepal, Sikkim].

**12. *Hedychium convexum*** S. Q. Tong, Acta Bot. Yunnan. 8: 41. 1986.

唇凸姜花 chun tu jiang hua

Pseudostems 50–80 cm. Ligule ca. 5 mm, somewhat leathery, glabrous, apex subtruncate; petiole 5–10 mm; leaf blade narrowly oblong, 16–30 × 3.5–8 cm, glabrous, base cuneate, apex caudate. Spikes capitate, 7–8 × 5–6 cm; bracts narrowly lanceolate, 1.7–2 cm, glabrous, 1-flowered; bracteoles tubular, ca. 1 cm. Calyx ca. 2.5 cm, split on 1 side. Corolla tube ca. 5 cm; lobes yellowish, linear, 4–5 cm. Lateral staminodes white, very narrowly oblanceolate, ca. 3 cm × 3 mm. Labellum narrowly obovate, ca. 3 cm × 7 mm, apex entire but projecting; claw ca. 1.2 cm. Filament yellowish except for orange apex, ca. 5 cm; anther brown-red, ca. 1.2 cm. Ovary green, glabrous. Fl. Aug.

• Forests; ca. 1000 m. SW Yunnan (Jinghong Xian).

**13. *Hedychium glabrum*** S. Q. Tong, Acta Phytotax. Sin. 27: 288. 1989.

无毛姜花 wu mao jiang hua

Pseudostems 1–1.2 m. Leaf sheath green except for red, apical margin; ligule reddish, entire, 3–6 cm, membranous, gla-

brous; petiole 3–7 cm on distal leaves; leaf blade lanceolate or narrowly oblong, 60–70 × 12–15 cm, glabrous, base cuneate, apex acuminate or shortly so. Spikes 20–30 × 8–12 cm, densely flowered; bracts green, ca. 2 cm, 1-flowered; bracteoles red spotted, ca. 1 cm, membranous, glabrous, apex entire. Flowers white becoming yellow. Calyx ca. 2 cm, apex truncate, red spotted. Corolla tube ca. 4 cm; lobes linear, ca. 3.5 cm. Lateral staminodes narrowly lanceolate, ca. 3 cm × 4 mm. Labellum ca. 3 cm, apically 2-cleft for ca. 2/3 its length; lobes narrowly lanceolate. Filament red, ca. 4.4 cm; anther ca. 7 mm. Fl. Jun.

• Forests; ca. 2100 m. S Yunnan (Ximeng Va Zu Zizhixian).

**14. *Hedychium tengchongense*** Y. B. Luo, Acta Phytotax. Sin. 32: 574. 1994.

腾冲姜花 teng chong jiang hua

Pseudostems 70–80 cm. Ligule elliptic, ca. 1.5 cm, membranous, glabrous, apex truncate; petiole ca. 1.5 cm; leaf blade oblong or narrowly so, ca. 40 × 10 cm, base attenuate, apex acuminate. Spikes ca. 25 cm, densely flowered; bracts narrowly oblong, 1.5–1.7 cm, 1-flowered, margin convolute, apex rounded; bracteoles ovate, ca. 1 cm, apex rounded. Flowers yellow. Calyx ca. 2 cm, apex obscurely obtusely 3-toothed. Corolla tube slender, ca. 3.5 cm; lobes linear. Lateral staminodes linear, ca. 3.5 cm, apex mucronate. Labellum ca. 3.5 cm, apically 2-cleft for ca. 1/2 its length; lobes linear. Filament orange, ca. 4.5 cm; anther orange, ca. 8 mm. Ovary ca. 2 cm, glabrous. Stigma capitate. Stylodes filiform. Fl. Jul.

• Forests; 1600–1700 m. W Yunnan (Tengchong Xian).

**15. *Hedychium yunnanense*** Gagnepain, Bull. Soc. Bot. France 54: 164. 1907.

滇姜花 dian jiang hua

Pseudostems stout. Ligule oblong, entire, 1.5–2.5 cm, membranous; leaf blade ovate-oblong to oblong, 20–40 × ca. 10 cm, glabrous, base attenuate into short petiole, apex caudate. Spikes to 20 cm; bracts lanceolate, 1.5–2.5 cm, glabrous, 1-flowered, margin involute. Calyx 1.7–2.8 cm, apex obtusely 3-toothed, ciliate. Corolla tube 3.5–5 cm, slender; lobes linear, 2.5–3 cm. Lateral staminodes oblong-linear, shorter and wider than corolla lobes, base narrowed. Labellum obovate, ca. 2 cm, apically 2-cleft for ca. 1/2 its length. Filament 3.5–4 cm; anther 1–1.2 cm. Ovary pilose. Stigma ciliate. Capsule 1.2–1.4 cm in diam., 3-angled, glabrous. Seeds many; aril red, lacerate. Fl. Sep.

Forests. Guangxi, Yunnan [Vietnam].

**16. *Hedychium pauciflorum*** S. Q. Tong, Acta Bot. Yunnan. 8: 43. 1986.

少花姜花 shao hua jiang hua

Pseudostems ca. 70 cm. Ligule 2-cleft, ca. 4 mm, membranous, glabrous; petiole 5–10 mm; leaf blade narrowly elliptic, 18–32 × 5.3–6.5 cm, glabrous, base cuneate, apex acuminate. Spikes 9–13 × 5–6 cm, laxly few flowered; bracts green, oblong, 2–2.3 cm × 5–6 mm, glabrous, 1-flowered, apex entire; bracteoles tubular, ca. 1 cm, split to middle on 1 side. Flowers

white, glabrous. Calyx ca. 2.3 cm, membranous, apex truncate. Corolla tube ca. 4.8 cm; lobes linear, ca. 1.8 cm. Lateral staminodes narrowly lanceolate, ca. 1.1 cm × 2 mm. Labellum narrowly oblong, ca. 1.2 cm × 8 mm, apically 2-cleft to base; lobes narrowly oblong, ca. 3 mm wide. Filament ca. 1.5 cm; anther brownish red, ca. 5 mm. Ovary brownish pubescent. Style white, linear; stigma orange, ciliate. Fl. Jul.

- Forests; ca. 1200 m. W Yunnan (Longchuan Xian).

**17. *Hedychium villosum*** Wallich in Roxburgh, Fl. Ind. 1: 12. 1820.

毛姜花 mao jiang hua

Pseudostems 1–2 m. Ligule lanceolate, 3.5–5 cm, membranous; petiole 1–2 cm; leaf blade oblong-lanceolate or oblong, 15–35 × 3.5–6(–9) cm, glabrous or abaxially pubescent along midvein. Spikes 15–25 cm, densely many flowered; rachis ± pubescent; bracts oblong, 1.5–2.5 cm, brown sericeous, 2- or 3-flowered. Calyx 2.5–3 cm, golden sericeous. Corolla white; tube ca. 3.5 cm; lobes reflexed, linear, 1.4–2.5 cm. Lateral staminodes slightly wider than corolla lobes. Labellum oblong-ovate, 1.4–2.5 cm, base attenuate into a claw, apex deeply 2-cleft. Filament purplish red, ca. 4.5 cm; anther sagittate, 2–3 mm. Capsule ovoid, ca. 1 cm, 3-valved, brown sericeous. Fl. and fr. Mar–Apr, (Dec).

Forests; 100–3400 m. Guangdong, Guangxi, Hainan, Yunnan [India, Myanmar, Nepal, Thailand, Vietnam].

- 1a. Bracts 1.8–2.5 cm; corolla lobes, lateral staminodes, and labellum ca. 2.5 cm ..... 17a. var. *villosum*
- 1b. Bracts ca. 1.5 cm; corolla lobes, lateral staminodes, and labellum to 1.5 cm ..... 17b. var. *tenuiflorum*

**17a. *Hedychium villosum* var. *villosum***

毛姜花(原变种) mao jiang hua (yuan bian zhong)

Bracts 1.8–2.5 cm. Corolla lobes, lateral staminodes, and labellum ca. 2.5 cm. Fl. Mar–Apr.  $2n = 34$ .

Forests; 100–3400 m. Guangdong, Guangxi, Hainan, Yunnan [India, Myanmar, Thailand, Vietnam].

**17b. *Hedychium villosum* var. *tenuiflorum*** Wallich ex Baker in J. D. Hooker, Fl. Brit. India 6: 229. 1892.

小毛姜花 xiao mao jiang hua

*Hedychium tenuiflorum* (Wallich ex Baker) K. Schumann.

Bracts ca. 1.5 cm. Corolla lobes, lateral staminodes, and labellum to 1.5 cm. Fl. Dec.

Forests; 800–900 m. S Yunnan (Xishuangbanna Dai Zu Zizhizhou) [India].

**18. *Hedychium bijiangense*** T. L. Wu & S. J. Chen, Acta Phytotax. Sin. 16(3): 26. 1978.

碧江姜花 bi jiang jiang hua

Pseudostems 1.2–1.7 m. Leaves sessile; ligule elliptic, 2–3 cm, membranous, glabrous; leaf blade oblong-lanceolate, 25–35 × 6–8 cm, glabrous, base attenuate, apex acute. Spikes ca.

30 cm; bracts 50–60, lanceolate, 3–3.5 cm × ca. 5 mm, (1 or)2-flowered, margin involute; bracteoles linear, ca. 2.5 cm. Flowers yellow. Calyx 2.5–3 cm. Corolla tube ca. 4.5 cm; lobes linear, ca. 3.5 cm × 2–3 mm. Lateral staminodes lanceolate, ca. 3 cm × 5–7 mm. Labellum obovate-cuneate, ca. 3 × 1.5–2 cm, base attenuate into a 6–8 mm long claw, apex rounded, emarginate, or minutely 3-toothed. Filament ca. 5 cm; anther ca. 1 cm. Ovary oblong, ca. 2 mm. Stigma ciliate. Fl. Sep.

- Forests; 2600–3200 m. NW Yunnan (Bijiang Xian).

Cultivated as an ornamental.

**19. *Hedychium coccineum*** Smith in Rees, Cycl. 17: *Hedychium* no. 5. 1811.

红姜花 hong jiang hua

Pseudostems 1.5–2 m. Leaves sessile; ligule 1.2–2.5 cm; leaf blade narrowly linear, 25–50 × 3–5 cm, glabrous, base sub-rounded or attenuate, apex caudate-acuminate. Spikes cylindrical, usually dense, glabrous or sparsely villous; bracts oblong, 3–3.5 cm, leathery, sparsely pubescent, rarely glabrous, 3-flowered, margin involute or rather flat, apex obtuse or acute. Flowers red. Calyx ca. 2.5 cm, sparsely pubescent especially at 3-toothed apex. Corolla tube slightly longer than calyx; lobes reflexed, linear, ca. 3 cm. Lateral staminodes lanceolate, ca. 2.3 cm. Labellum orbicular, ca. 2 cm wide or rather small, apex deeply 2-cleft. Filament ca. 5 cm; anther 7–8 mm. Ovary sericeous, 2.5–3 mm. Capsule globose, ca. 2 cm in diam. Seeds red. Fl. Jun–Aug, fr. Oct.  $2n = 68$ .

Forests. Guangxi, SE Xizang (Médog Xian), S Yunnan [Bhutan, NE India, Myanmar, Nepal, Sikkim, Sri Lanka, Thailand].

Cultivated as an ornamental.

**20. *Hedychium forrestii*** Diels, Notes Roy. Bot. Gard. Edinburgh 5: 304. 1912.

圆瓣姜花 yuan ban jiang hua

Pseudostems 1–1.5 cm. Leaves sessile or shortly petiolate; ligule 2.5–3.5 cm; leaf blade oblong to lanceolate, 35–50 × 5–10 cm, glabrous, base narrow, apex caudate. Spikes cylindrical, 20–30 cm; rachis pubescent; bracts broadly or narrowly ovate, 4.5–6 × 1.5–3 cm, pilose, 2- or 3-flowered, margin incurved. Flowers white or yellow, fragrant. Calyx shorter than bracts. Corolla tube 4–4.5 cm; lobes linear, 3.5–4 cm. Lateral staminodes oblong, ca. 3.5 × 1.5 cm. Labellum orbicular, ca. 3 cm wide, apex 2-cleft. Filament 3.5–4 cm; anther ca. 1.2 cm. Capsule ovoid-oblong, ca. 2 cm. Fl. Aug–Oct, fr. Oct–Dec.

Forests; 200–900 m. Guangxi, Guizhou, Sichuan, Yunnan [Laos, Myanmar, Thailand, N Vietnam].

- 1a. Bracts narrowly ovate, ca. 1.5 cm wide; flowers white ..... 20a. var. *forrestii*
- 1b. Bracts broadly ovate, ca. 3 cm wide; flowers yellow ..... 20b. var. *latebracteatum*

**20a. *Hedychium forrestii* var. *forrestii***

圆瓣姜花(原变种) yuan ban jiang hua (yuan bian zhong)

Bracts narrowly ovate, ca. 1.5 cm wide. Flowers white. Fl.

Aug–Oct, fr. Oct–Dec.

Forests; 200–900 m. Guangxi, Guizhou, Sichuan, Yunnan [Laos, Myanmar, Thailand].

**20b. *Hedychium forrestii* var. *latebracteatum*** K. Larsen, Bot. Tidsskr. 61: 74. 1965.

宽苞圆瓣姜花 kuan bao yuan ban jiang hua

Bracts broadly ovate, ca. 3 cm wide. Flowers yellow. Fl. Aug.

Forests. Sichuan, Yunnan [N Vietnam].

**21. *Hedychium kwangsiense*** T. L. Wu & S. J. Chen, Acta Phytotax. Sin. 16(3): 26. 1978.

广西姜花 guang xi jiang hua

Pseudostems 1–1.2 m. Ligule oblong, 2.5–4.5 × 0.7–1.4 cm, villous to glabrescent; petiole 1–4.5 cm; leaf blade lanceolate, 20–40 × 5.5–8 cm, glabrous, base attenuate, apex caudate-acuminate. Spikes 10–20 × ca. 8 cm, densely numerous flowered; rachis brown hirsute; bracts oblong, 2.5–3 × ca. 1 cm, pubescent, 3-flowered; bracteoles tubular, 2–2.5 cm, hirsute, apex minutely mucronate. Flowers white. Calyx ca. 2.5 cm, hirsute, apex obliquely truncate. Corolla tube 3.3–3.5 cm, villous; lobes linear, ca. 2 cm. Lateral staminodes oblong, ca. 1.8 cm × 4–5 mm. Labellum apically 2-cleft to base; lobes oblong, 1.5–1.8 cm × 4–7 mm. Filament 2.5–2.8 cm, longer than labellum; anther ca. 5 mm. Ovary oblong, ca. 5 mm, brown sericeous. Stigma capitate. Fl. Mar–Jun.

• Forests; ca. 400 m. Guangxi.

**22. *Hedychium brevicaule*** D. Fang, Acta Phytotax. Sin. 18: 225. 1980.

矮姜花 ai jiang hua

Rhizomes creeping. Pseudostems 20–40 cm. Leaves sessile except for 2 apical ones; ligule brownish, 1–5 cm, sparsely appressed villous; leaf blade obovate or oblong, 15–27 × 8–10 cm, adaxially glabrous, abaxially appressed yellow villous along midvein, base cuneate, apex acute. Spikes 8–14 × 4–6 cm; rachis appressed yellow villous; bracts rusty, ovate-lanceolate, 3–4.6 × 1.2–2 cm, membranous, appressed yellow villous, 3-flowered; bracteoles tubular, 2.7–3 cm, appressed yellow villous. Flowers white, slightly fragrant. Calyx brownish, 3.3–3.5 cm, slightly split on 1 side, appressed yellow villous. Corolla tube ca. 4 cm, glabrous; lobes linear, 2.5–3 cm × 3–4 mm. Lateral staminodes oblanceolate, ca. 2.3 cm × 7 mm. Labellum broadly ovate, ca. 2.2 × 1.9 cm, apically slightly 2-lobed or 2-cleft for ca. 1/2 its length. Filament white, equaling labellum; anther ca. 9 mm. Ovary ca. 5 mm, appressed yellow villous. Stigma ciliate. Fl. Feb.

• Forests; 500–700 m. W Guangxi (Napo Xian).

**23. *Hedychium yungjiangense*** S. Q. Tong, Acta Bot. Yunnan. 8: 40. 1986.

盈江姜花 ying jiang jiang hua

Pseudostems 60–80 cm. Leaves sessile; ligule entire, 1.8–

2.2 cm, densely brownish pubescent; leaf blade narrowly lanceolate, 20–30 × 3.5–6 cm, adaxially glabrous, abaxially brownish pubescent along midvein, base cuneate, apex caudate. Spikes ellipsoid, 7–10 × 5–7 cm, densely flowered; bracts white, narrowly obovate, ca. 2.5 cm × 8 mm, slightly brownish hairy, 3-flowered, margin membranous, apex acute; bracteoles tubular, ca. 1.2 cm. Flowers white. Calyx ca. 1.7 cm, brownish pubescent, apex 3-toothed. Corolla tube ca. 2.5 cm; lobes ca. 1.3 cm. Lateral staminodes 1.5–4 cm. Labellum suborbicular, ca. 1.3 × 1 cm, base attenuate into claw, apex deeply emarginate. Filament ca. 1.3 cm; anther ca. 6 mm. Ovary densely white villous. Fl. Sep.

• Forests; ca. 1200 m. W Yunnan (Yingjiang Xian).

**24. *Hedychium neocarneum*** T. L. Wu et al., Novon 10: 91. 2000.

肉红姜花 rou hong jiang hua

*Hedychium carneum* Y. Y. Qian, Acta Bot. Austro Sin. 9: 48. 1994, not Loddiges (1823).

Pseudostems 1–2 m. Leaves sessile; leaf sheath greenish purple or purple, villous; ligule purple, oblong, 1.5–6 cm, villous; leaf blade lanceolate, rarely oblanceolate, oblong or ovate on proximal leaves, 10–50 × 6–16 cm, adaxially glabrous, abaxially villous, base subcordate to rounded or broadly cuneate, apex acuminate or caudate. Spikes cylindric, 22–35 × 14–20 cm; bracts oblong or lanceolate, 4.5–5.5 cm, villous, (1 or) 2–4 flowered, margin involute; bracteoles ovate or oblong, 1.8–3.5 cm, pubescent. Flowers white. Calyx 4.1–4.5 cm, villous, apex 3-toothed. Corolla tube yellowish, 5.3–6 cm; lobes pale green or yellowish, linear, 4–4.5 cm × 3.5–4 mm, apex involute. Lateral staminodes white, flesh red at base, linear-oblanceolate. Labellum flesh red at base, suborbicular, 1.8–2.8 × 1.6–2 cm, apex 2-cleft; claw 6–8 mm. Filament flesh red, 5.2–5.7 cm; anther yellow, 1.1–1.4 cm. Ovary green, oblong, 4–5.5 mm, sparsely villous. Stigma ciliate. Capsule yellow, long ovoid, 2–3.5 × 1–1.5 cm, obtusely 3-angled. Seeds red; aril red. Fl. Sep.

• Forests; 1600–1900 m. S Yunnan (Simao Xian).

**25. *Hedychium puerense*** Y. Y. Qian, Acta Phytotax. Sin. 34: 444. 1996.

普洱姜花 pu er jiang hua

Pseudostems 1.2–2 m. Leaves sessile; ligule 1.8–3.8 cm, densely villous; leaf blade elliptic-lanceolate or oblong-lanceolate, 6–65 × 3–18 cm, adaxially glabrous, abaxially villous, base rounded or cuneate, apex caudate. Spikes cylindric, 26–50 × 16–23 cm; rachis densely villous; bracts narrowly ovate, 4.5–5.5 × 1.5–2 cm, (2–)6(–8)-flowered; bracteoles 1.5–3.5 cm. Calyx 4.4–4.8 cm. Corolla tube white, 5.2–6 cm; lobes green, linear, 3.5–4.2 cm. Lateral staminodes white, 2.5–3 cm. Labellum white, yellowish at base and center, orbicular, 2–2.2 × 1.8–2 cm, apex 2-lobed. Filament white, 5.8–6.8 cm; anther white, 1–1.5 cm. Ovary 4–5 cm, densely villous. Capsule long ovoid, 2.5–4 cm, obtusely 3-angled, villous. Seeds red. Fl. Sep.

• Forests; 1300–1600 m. S Yunnan.

**26. *Hedychium simaoense*** Y. Y. Qian, Acta Phytotax. Sin. 34:

443. 1996.

Edible.

思茅姜花 *si mao jiang hua*

Pseudostems ca. 1.8 m, sparsely villous. Leaves sessile; ligule 1–2.5 cm; leaf blade narrowly linear, 10–50 × 1.5–7 cm, adaxially glabrous, abaxially villous, base rounded or cuneate, apex caudate. Spikes cylindric, 20–35 × 15–22 cm; rachis densely villous; bracts long ovate, 4–5 cm, 3-flowered, apex obtuse. Flowers white or yellow. Calyx 3–3.5 cm, abaxially villous, apex 3-toothed. Corolla tube pale purple, 3.5–4.2 cm; lobes pendent, yellow, linear, 4.3–4.7 cm, apex involute. Lateral staminodes white or yellow, pale purple at base, oblanceolate, 2.9–3.3 cm. Labellum white or yellow, pale purple at base, orbicular, 2.2–2.5 cm wide, apex 2-cleft. Filament purple, 5–5.5 cm; anther purple or orange, 1–1.2 cm. Ovary densely sericeous, 2.5–3 cm. Capsule ovoid-globose or ovoid, 1.3–3 × 1–1.7 cm. Seeds red. Fl. Aug.

- Forests; ca. 1400 m. S Yunnan (Simao Xian).

**27. *Hedychium tienlinense*** D. Fang, *Acta Phytotax. Sin.* 16 (3): 52. 1978.

田林姜花 *tian lin jiang hua*

Pseudostems ca. 85 cm. Leaves sessile; ligule 0.5–2.5 cm, glabrescent, apex rounded; leaf blade oblong-lanceolate, 4–33 × 1.5–6 cm, adaxially glabrous, abaxially sparsely villous, more densely so along both sides of midvein, base rounded to cuneate, apex acuminate. Spikes erect, ca. 15 × 4 cm; rachis ± villous; bracts oblong-obovate, 3.2–4.3 × ca. 2.2 cm, ± villous, ca. 5-flowered; bracteoles broadly ovate-deltoid, ca. 2 cm, ± villous. Flowers white, ca. 9 cm, slightly fragrant. Calyx hairy abaxially, split on 1 side. Corolla tube ca. 5 cm; lobes linear, ca. 2.6 cm. Lateral staminodes linear, falcate, ca. 2.7 cm × 2 mm. Labellum broadly ovate, ca. 2.5 × 2 cm, midvein yellow, apex 2-cleft. Filament yellowish red, ca. 2.4 cm; anther ca. 1.1 cm; connective extending ca. 1 mm beyond anther. Ovary ca. 5 mm, ± villous. Stigma shortly ciliate. Fl. Aug–Sep.

- Valleys; ca. 500 m. NW Guangxi (Tianlin Xian).

**28. *Hedychium qingchengense*** Z. Y. Zhu, *Bull. Sichuan School Chin. Mat. Med.* 30(2): 28. 1992.

青城姜花 *qing cheng jiang hua*

Pseudostems 0.8–1.2 m. Leaves sessile or subsessile; ligule 2–4 cm, membranous, appressed villous; leaf blade lanceolate or elliptic-lanceolate, 20–40 × 4–8 cm, adaxially glabrous, abaxially densely appressed villous, base attenuate, apex caudate-acuminate. Spikes ellipsoid or oblong, 6–15 cm, villous; bracts oblong, 3.5–5 × 1–1.5 cm, villous, 1–3-flowered, margin usually involute; bracteoles lanceolate, 1.5–2.4 cm. Flowers white. Calyx membranous, 3.5–4.5 cm, split on 1 side, distally villous. Corolla tube 7–8 cm; lobes linear, 3–3.8 cm. Lateral staminodes oblong-oblanceolate, 3–3.5 cm × 8–10 mm, margin entire or undulate. Labellum with an orange spot at center, obovate, 3–3.5 × 2–2.5 cm, apex 2-cleft; lobes entire or irregularly undulate at margin. Filament 3–3.5 cm; anther yellow, ca. 1.5 cm. Ovary oblong, white sericeous. Fl. Jul–Sep, fr. Sep–Oct.

- Forests; ca. 500 m. C Sichuan (Guan Xian).

Flora of China 24: 370–377. 2000.