

## 12. ROSCOEA Smith, Exot. Bot. 2: 97. 1806.

象牙参属 *xiang ya shen shu*

Herbs small, with annual pseudostems from erect, reduced rhizome; roots fascicled, tuberous, fusiform. Ligule a curved line at junction of tubular leaf sheath and leaf blade; petiole absent; leaf blade oblong or lanceolate. Inflorescence terminal on pseudostems, a spike; peduncle short and enclosed by leaf sheaths to long and exserted; bracts persistent, 1-flowered; bracteoles absent. Calyx tubular, split on 1 side, apex 2- or 3-toothed. Corolla tube usually exserted from calyx, slender, wider at throat; central lobe erect, usually cucullate; lateral lobes spreading, narrower than central one, usually free. Lateral staminodes erect, petaloid. Labellum reflexed or not, cuneate, large, apex emarginate to 2-lobed. Filament short; anther linear; connective extended at base into a spur. Ovary cylindrical or oblong, 3-loculed; ovules numerous per locule, superposed. Style filiform; stigma funnelform, margin ciliate. Capsule oblong, cylindrical, or clavate, 3-valved. Seeds small, arillate.

About 18 species: Bhutan, China, India, Kashmir, Myanmar, Nepal, Sikkim, Vietnam; 13 species (eight endemic) in China.

- 1a. Corolla tube 1.6–4(–5) cm; labellum usually less than 2.5 cm.
  - 2a. Plants usually less than 15 cm tall when mature.
    - 3a. Central lobe of corolla orbicular; labellum not reflexed ..... 1. *R. alpina*
    - 3b. Central lobe of corolla oblong; labellum slightly to conspicuously reflexed.
      - 4a. Leaves obscurely to densely hairy especially when young; bracts elliptic; lateral staminodes oblong, 1–1.3 cm ..... 2. *R. tibetica*
      - 4b. Leaves glabrous; bracts tubular; lateral staminodes narrowly obovate-cuneate, ca. 1.4 cm ..... 3. *R. kunmingensis*
  - 2b. Plants usually more than 15 cm tall when mature.
    - 5a. Leaves appearing after anthesis, 3–6 cm wide; bracts much shorter than calyx ..... 4. *R. humeana*
    - 5b. Leaves appearing before anthesis, 1–2.8 cm wide; bracts longer than calyx.
      - 6a. Lateral staminodes elliptic to obliquely obovate, 1–1.4 cm; labellum 1.3–2 × 0.8–1.2 cm, with white lines at throat ..... 5. *R. scillifolia*
      - 6b. Lateral staminodes obliquely spatulate, ca. 2 cm; labellum ca. 2.5 × 1.4 cm, without white lines at throat ..... 6. *R. capitata*
- 1b. Corolla tube (3–)4–12.5 cm; labellum usually more than 2.5 cm.
  - 7a. Bracts obtuse or truncate at apex.
    - 8a. Leaves glaucous abaxially ..... 7. *R. wardii*
    - 8b. Leaves not glaucous abaxially.
      - 9a. Leaves distinctly narrowed and petiolelike between sheath and blade; ligule prominent ..... 8. *R. debilis*
      - 9b. Leaves not narrowed and petiolelike between sheath and blade; ligule obscure ..... 9. *R. forrestii*
  - 7b. Bracts acute at apex.
    - 10a. Leaves auriculate ..... 10. *R. auriculata*
    - 10b. Leaves not auriculate.
      - 11a. Leaves absent at anthesis ..... 11. *R. praecox*
      - 11b. Leaves present at anthesis.
        - 12a. Leaves forming a rosette at apex of pseudostem; labellum not reflexed, lobes usually emarginate; stigma hooked ..... 12. *R. schneideriana*
        - 12b. Leaves not forming a rosette at apex of pseudostem; labellum reflexed, lobes usually not emarginate; stigma not hooked ..... 13. *R. cautleoides*

### 1. *Roscoea alpina* Royle, Ill. Bot. Himal. Mts. 1: 361. 1839.

高山象牙参 *gao shan xiang ya shen*

*Roscoea intermedia* Gagnepain.

Plants 10–20 cm tall. Bladeless leaves 2 or 3. Normal leaves 2 or 3; ligule ca. 0.5 mm; leaf blade oblong-lanceolate or linear-lanceolate, 3–12 × 1.2–2 cm, glabrous, base subrounded, apex acuminate. Inflorescence with peduncle enclosed by leaf sheaths; bracts 3–10 mm. Flowers purple or lilac, opening one at a time. Calyx 4–5 cm, apex 2-toothed. Corolla tube exserted from calyx, long, slender; central lobe erect, orbicular, ca. 1.5 cm in diam., apex apiculate; lateral lobes reflexed, linear-oblong. Lateral staminodes erect, similar to corolla lobes but shorter. Labellum not reflexed, cuneate-obovate, ca. 1.5 cm, apex 2-lobed. Anther white to cream, locules 5–6 mm; connective spur 1.5–2 mm. Capsule 2.5–3.5 cm. Seeds subcubic,

slightly constricted near middle. Fl. May–Aug.

Coniferous forests; 3000–3600 m. Xizang [Bhutan, India, Kashmir, Myanmar, Nepal, Sikkim].

### 2. *Roscoea tibetica* Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 14: 183. 1895.

藏象牙参 *zang xiang ya shen*

*Roscoea intermedia* Gagnepain var. *minuta* Gagnepain; *R. intermedia* var. *plurifolia* Loesener; *R. tibetica* var. *emarginata* S. Q. Tong.

Plants 5–15 cm tall. Leaves 1–3, forming a rosette; ligule obscure, ca. 0.5 mm; leaf blade elliptic, widest near base, 2–6 × 1–2.5 cm, obscurely to densely hairy especially when young, apex obtuse to acute. Inflorescence enclosed by leaf sheaths;

bracts elliptic, 2.2–4 cm. Flowers purple or violet, held just above leaf rosette. Calyx brown spotted, 3–4 cm, apex 3-toothed. Corolla tube 4–5 cm; central lobe oblong, cucullate, 1.5–1.7 cm × ca. 8 mm, apex apiculate; lateral lobes lanceolate, 1.5–1.8 cm × 4–5 mm. Lateral staminodes oblong, 1–1.3 cm. Labellum slightly reflexed, obovate 1.4–2.5 × 0.8–1.8 cm including claw, usually deeply lobed for more than 1/2 its length. Anther cream; connective spur 3–7 mm. Ovary cylindrical, ca. 1.5 cm. Fl. Jun–Jul.

*Pinus* forests, scrub, alpine meadows; 2400–3800 m. Sichuan, Xizang, Yunnan [Bhutan, India].

**3. *Roscoea kunmingensis*** S. Q. Tong, Bull. Bot. Res., Harbin 12: 248. 1992.

昆明象牙参 kun ming xiang ya shen

Plants 8–12 cm tall. Bladeless leaves ca. 4. Ligule ca. 3 mm; leaf blade lanceolate or narrowly so, 8–20 × 2.5–3(–4.2) cm, glabrous, apex acuminate or shortly so. Inflorescence 1- or 2-flowered; peduncle enclosed by leaf sheaths; bracts tubular, 0.5–0.7(–3.5) cm, rarely to 8 cm after anthesis, apex acuminate, 2-toothed. Corolla tube 3.5–4 cm; central lobe oblong, 1.5–2 cm × 6–8 mm; lateral lobes linear-oblong, narrower than central one. Lateral staminodes narrowly obovate-cuneate, ca. 1.4 cm. Labellum reflexed, with white lines on claw, obovate-cuneate, 1.6–2.1 × 1–1.5 cm, apex deeply 2-lobed. Anther locules ca. 4 mm; connective spur ca. 3 mm. Ovary cylindrical, 3–3.5 cm × 6–7 mm. Seeds obovoid, ca. 3.5 mm. Fl. May–Jun.

• Forests; 2100–2200 m. Yunnan.

- 1a. Leaf blade 2.5–3 cm wide; bracts 0.5–0.7 cm ..... 3a. var. *kunmingensis*
- 1b. Leaf blade to 4.2 cm wide; bracts 2.5–3.5 cm, to 8 cm after anthesis ..... 3b. var. *elongatobracteata*

**3a. *Roscoea kunmingensis* var. *kunmingensis***

昆明象牙参(原变种) kun ming xiang ya shen (yuan bian zhong)

Leaves 2.5–3 cm wide. Bracts 0.5–0.7 cm. Fl. May.

• *Pinus* forests; ca. 2200 m. Yunnan (Kunming Shi).

**3b. *Roscoea kunmingensis* var. *elongatobracteata*** S. Q. Tong, Bull. Bot. Res., Harbin 12: 249. 1992.

延苞象牙参 yan bao xiang ya shen

Leaves to 4.2 cm wide. Bracts 2.5–3.5 cm, to 8 cm after anthesis. Fl. Jun.

• Forests; ca. 2100 m. Yunnan (Kunming Shi).

**4. *Roscoea humeana*** I. B. Balfour & W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 122. 1916.

大花象牙参 da hua xiang ya shen

*Roscoea sichuanensis* R. H. Miao.

Plants 13–25 cm tall. Leaves 4–6, appearing after anthesis; ligule ca. 2 mm; leaf blade broadly lanceolate or ovate-lanceolate, 10–30 × 3–6 cm, glabrous, apex acute. Inflorescence with

peduncle enclosed by leaf sheaths; bracts lanceolate, usually much shorter than calyx. Flowers 1 to many opening together, violet, purple, pink, white, or yellow. Calyx narrowly tubular, 10–14 cm, apex oblique, 2-lobed. Corolla tube slightly longer than calyx; central lobe broadly ovate, 3–4 × 2.5–3 cm, base erect, narrow, cucullate, apex rounded, apiculate; lateral lobes oblanceolate, 3–3.5 × ca. 1.5 cm. Lateral staminodes white tinged with purple, oblanceolate, 1.5–1.7 cm. Labellum reflexed, obovate, usually smaller than central lobe of corolla, 2–2.5 × ca. 3 cm, apically 2-cleft to near base, margin cristate; claw hard. Filament ca. 5 mm; anther white, ca. 1.2 cm; connective spur yellowish green, 6–8 mm. Style ca. 10 cm; stigma turbinate, pilose. Ovary cylindrical, ca. 1 cm. Capsule oblong, ca. 2.5 cm × 5 mm. Fl. Apr–Jul.  $2n = 24^*$ .

• *Pinus* forests, scrub at forest margins, alpine meadows, grassy and rocky hillsides, screes, ledges and crevices of limestone cliffs; 2900–3800 m. Sichuan, Yunnan.

Chinese records of *Roscoea purpurea* Smith and *R. purpurea* var. *procera* Wallich (e.g., in FRPS) are based on misidentifications, mostly of *R. humeana*.

Ornamental.

**5. *Roscoea scillifolia*** (Gagnepain) Cowley, Kew Bull. 36: 765. 1982.

绵枣象牙参 mian zao xiang ya shen

*Roscoea capitata* Smith var. *scillifolia* Gagnepain, Bull. Soc. Bot. France 48: lxxiv. 1902; *R. yunnanensis* Loesener var. *scillifolia* (Gagnepain) Loesener.

Plants 10–25 cm tall. Leaves 1–5; ligule 2–3 mm; leaf blade lanceolate to linear, 11–21 × 1.5–2 cm, proximal ones sometimes falcate, apex obtuse to acute. Inflorescence with peduncle enclosed by or exerted from leaf sheaths; bracts green, 2.6–5 × 1.2–3 cm, basal one tubular and enclosing inflorescence, soon splitting. Flowers blackish purple, pink, white, or occasionally mauve, opening one at a time. Calyx whitish brown, 1.5–2.1 cm, apex 2(or 3)-toothed. Corolla tube 1.6–3 cm; central lobe elliptic, 1.4–2 cm × 6–10 mm; lateral lobes linear-oblong, 1.1–2 cm × 4–6 mm. Lateral staminodes elliptic to obliquely obovate, 1–1.4 cm × 3–5 mm. Labellum with white lines at throat, obovate, 1.3–2 × 0.8–1.2 cm, scarcely to deeply lobed; lobes sometimes emarginate at apex. Anther white; connective spur 5–6 mm. Ovary 1–1.5 cm × 3–4 mm, 3-angled. Seeds ellipsoid to 3-angled. Fl. Jun–Aug.

• Moist open mountain pastures; 2700–3400 m. Yunnan.

**6. *Roscoea capitata*** Smith, Trans. Linn. Soc. London 13: 461. 1822.

头花象牙参 tou hua xiang ya shen

Plants 30–50 cm tall. Leaves several; leaf blade linear, rarely lanceolate, 15–25 × 1–2.8 cm, strongly keeled, base narrowed, apex acuminate. Inflorescence capitata, densely flowered; peduncle 5–10 cm; bracts green, lanceolate, 4–4.5 × ca. 1 cm. Flowers blue. Calyx ca. 2.5 cm, strongly pubescent especially along veins, split on 1 side, apex 2-toothed. Corolla tube shorter than calyx; central lobe oblong-cuneate, cucullate, ca. 2 cm, apex apiculate; lateral lobes longer than central one. Lateral

staminodes obliquely spatulate, ca. 2 cm. Labellum not reflexed, oblong-cuneate, ca.  $2.5 \times 1.4$  cm, lobed for ca. 1/4 its length; lobes conspicuously emarginate at apex. Anther creamy white, locules ca. 5 mm; connective spur ca. 1 cm. Ovary pink. Capsule clavate, ca. 2.5 cm. Fl. Jul–Aug.

Forests; 2300–2400 m. Xizang [Nepal].

**7. *Roscoea wardii*** Cowley, Kew Bull. 36: 768. 1982.

苍白象牙参 *cang bai xiang ya shen*

*Roscoea blanda* K. Schumann var. *pumila* Handel-Mazzetti.

Plants 14–30 cm tall. Bladeless leaves 3 or 4, with pink veins. Normal leaves 2(or 3); ligule 1–2 mm; leaf blade abaxially glaucous, elliptic,  $7-8 \times 1.7-4.5$  cm, sparsely scaly-hairy on both surfaces, margin hyaline, minutely papillose, apex acute to acuminate. Inflorescence enclosed by or very shortly exerted from leaf sheaths; peduncle smooth; bracts pale, 3.5–5 cm, apex obtuse, basal 2 initially fused, splitting when second flower opens. Flowers deep purple. Calyx 3.3–4.5 cm, apex 2-lobed; lobes rounded at apex. Corolla tube usually exerted from calyx at anthesis, 4–8 cm; central lobe obovate or broadly elliptic,  $2-3.2 \times 1.3-2.5$  cm; lateral lobes oblong to linear-oblong, 1.7–3.4 cm. Lateral staminodes elliptic, 1.6–2 cm; claw short. Labellum reflexed, obovate,  $2.2-4.5 \times 1.6-4.5$  cm including 8–10 mm long claw, deeply lobed; lobes with 3 white, raised stripes at base, apex emarginate. Anther white, locules 6–9 mm; connective spur 5–8 mm. Ovary 1–1.2 cm. Style purple; stigma white. Capsule ca.  $3 \times 1$  cm. Seeds ellipsoid to 3-angled. Fl. Jun–Aug.

Scrub, meadows, open grassy places; 2400–3500 m. Xizang, Yunnan [India, Myanmar].

**8. *Roscoea debilis*** Gagnepain, Bull. Soc. Bot. France 48: lxxvi. 1902.

长柄象牙参 *chang bing xiang ya shen*

Plants (10–)25–50(–60) cm tall. Bladeless leaves 2 or 3, marked pinkish brown. Normal leaves 3 or 4; ligule pinkish brown, 1–2 mm; leaf blade oblong, elliptic, or lanceolate,  $9-2.2 \times 1.5-4$  cm, abaxially glabrous or pubescent, base narrowed and petiolelike, apex acute to acuminate. Inflorescence sometimes with peduncle shortly exerted from leaf sheaths; bracts lanceolate, 3.5–5.5 cm apex obtuse. Flowers 1–3 opening together, purple, red, or white. Calyx 2.7–3.5 cm, apex 2-toothed. Corolla tube 3.5–7.5 cm; central lobe elliptic to narrowly so, 2.2–3.5 cm, apex strongly apiculate; lateral lobes elliptic to linear-oblong, 2.2–3.5 cm. Lateral staminodes obliquely oblanceolate, ca. 2.5 cm, clawed. Labellum slightly reflexed, with white lines at throat, obovate,  $2.3-3.5 \times 1.4-3$  cm including 5–6 mm claw, apex narrowly 2-lobed. Anther curved, locules 6–9 mm; connective spur 7–9 mm. Ovary 1–1.5 cm. Fl. Jun–Aug.

• Grasslands; 1600–2400 m. Yunnan.

1a. Leaves abaxially glabrous ..... 8a. var. *debilis*  
1b. Leaves abaxially pubescent ..... 8b. var. *limprichtii*

**8a. *Roscoea debilis* var. *debilis***

长柄象牙参(原变种) *chang bing xiang ya shen* (*yuan bian zhong*)

*Roscoea blanda* K. Schumann.

Leaves abaxially glabrous.

• Grasslands; 1600–2400 m. Yunnan.

**8b. *Roscoea debilis* var. *limprichtii*** (Loesener) Cowley, Kew Bull. 36: 775. 1982.

白象牙参 *bai xiang ya shen*

*Roscoea blanda* K. Schumann var. *limprichtii* Loesener, Notizbl. Bot. Gart. Berlin-Dahlem 8: 600. 1923.

Leaves abaxially pubescent.

• Grasslands; 1900–2000 m. W Yunnan (Dali Xian).

**9. *Roscoea forrestii*** Cowley, Kew Bull. 36: 775. 1982.

大理象牙参 *da li xiang ya shen*

Plants 17–30(–35) cm tall. Bladeless leaves 3–5, tinged or dotted pink. Normal leaves 1–3; ligule 2–3 mm; leaf blade oblong-ovate to lanceolate,  $6.5-13 \times 2-5$  cm, glabrous or rarely pubescent, apex obtuse to acute. Inflorescence with peduncle enclosed by leaf sheaths; bracts pale green, shorter than or equaling calyx, sometimes very reduced or fused together, apex obtuse. Calyx tinged pink, 5–13 cm, apex 2- or 3-toothed. Corolla tube usually well exerted from calyx, 5–12.5 cm; central lobe dark veined, broadly elliptic,  $2.5-4 \times 1.5-2.5$  cm, apex apiculate; lateral lobes linear-oblong to elliptic,  $2.6-4 \text{ cm} \times 5-10$  mm. Lateral staminodes obliquely obovate to rhombic,  $1.1-2.5 \times 7-11$  mm, shortly clawed. Labellum reflexed, obovate,  $3-4.1 \times 2.1-3$  cm including claw, usually lobed to below middle; lobes emarginate at apex. Anther cream, locules 5–8 cm; connective spur 5–9 mm. Ovary 1–5 cm. Style white. Seeds globose or cubic. Fl. May–Jul.

• Among shrubs and dwarf bamboo, crevices and ledges of cliffs; 2000–3400 m. W Yunnan.

**10. *Roscoea auriculata*** K. Schumann in Engler, Pflanzenr. 20(IV. 46): 118. 1904.

耳叶象牙参 *er ye xiang ya shen*

*Roscoea purpurea* Smith var. *auriculata* (K. Schumann) H. Hara.

Plants erect, 20–40 cm tall. Leaves 3–7; leaf sheath purple, tubular, wholly closed; leaf blade lanceolate,  $7.5-20 \times 2-2.5$  cm, glabrous, base auriculate and clasping, apex acuminate. Inflorescence several flowered; peduncle enclosed by leaf sheaths; bracts linear-lanceolate, 2–2.5 cm, membranous. Flowers usually bright purple or white. Calyx ca. 3.5 cm. Corolla tube longer than calyx; lobes lanceolate, ca. 3.5 cm. Lateral staminodes erect, white, falcate, ca. 2 cm, shortly clawed. Labellum reflexed, obovate, ca.  $4.5 \times 3$  cm, apex 2-cleft. Stamen ca. 2 cm; anther ca. 1 cm; connective spur short. Capsule 2–3 cm. Seeds brown. Fl. Jun–Aug.

Grasslands; 2400–2700 m. SC Xizang (Nyêmo Xian) [Bhutan, Nepal, Sikkim].

**11. *Roscoea praecox*** K. Schumann in Engler, Pflanzenr.

20(IV. 46): 122. 1904.

先花象牙参 xian hua xiang ya shen

*Roscoea intermedia* Gagnepain var. *anomala* Gagnepain;  
*R. intermedia* var. *macrorhiza* Gagnepain.

Plants 7–30 cm tall. Bladeless leaves 4 or 5, pinkish brown veined, margin hyaline, apex obtuse. Normal leaves absent at anthesis, sometimes 1 or 2 short, underdeveloped leaves present; ligule apparently not raised. Inflorescence exerted from leaf sheaths; peduncle enclosed or exerted; bracts greenish, lanceolate, 4–6.5 cm. Flowers 1–3 opening together, violet, purple, or white. Calyx 3–4.5 cm, apex 2-toothed. Corolla tube scarcely exerted from calyx; lobes lanceolate, equal, ca. 3 cm. Lateral staminodes rhombic, 1.7–2.5 cm, midvein weak, base narrowed into a claw. Labellum reflexed, white marked at junction of limb and claw, obovate, 2.5–4 × 1.5–2 cm including ca. 7 mm long claw, apically 2-cleft for more than 1/2 length of limb; lobes sometimes emarginate at apex. Anther cream; connective spur ca. 7 mm. Fl. Apr–Jun.

- Shrubby hillsides, grassy mountains; 2200–2300 m. Yunnan.

**12. *Roscoea schneideriana*** (Loesener) Cowley, Kew Bull. 36: 762. 1982.

无柄象牙参 wu bing xiang ya shen

*Roscoea yunnanensis* Loesener var. *schneideriana* Loesener, Notizbl. Bot. Gart. Berlin-Dahlem 8: 600. 1923; *R. brevisbracteata* Z. Y. Zhu; *R. yunnanensis* var. *dielsiana* Loesener.

Plants 9–45 cm tall. Leaves (2–)4–6, ± forming a rosette at apex of pseudostem; ligule ca. 0.5 mm; leaf blade narrowly lanceolate to linear, usually falcate, (5–)10–22 × 0.4–2 cm, glabrous, apex acute to acuminate. Inflorescence with peduncle enclosed by or shortly exerted from leaf sheaths; bracts elliptic, 3.3–7 cm, basal one tubular. Flowers purple or white, usually opening one at a time. Calyx 3–4 cm, apex 2-toothed. Corolla tube 4–4.5 cm; central lobe elliptic, 1.7–3.5 cm, apex apiculate; lateral lobes linear-oblong, 2–3.5 cm. Lateral staminodes obovate to rhombic, 1.5–2.5 cm. Labellum not reflexed, obovate, 1.8–3.5 × 1–2.5 cm, apically 2-cleft for ca. 1/2 its length; lobes emarginate at apex. Anther yellow, locules 6–9 mm; connective spur 8–9 mm. Stigma funnelform, abruptly hooked. Fl. Jul–Aug.

- Mixed forests, moist stony pastures, rocky mountain cliffs; 2600–3500 m. Sichuan, Xizang, Yunnan.

**13. *Roscoea cautleoides*** Gagnepain, Bull. Soc. Bot. France 48: lxxv. 1902.

早花象牙参 zao hua xiang ya shen

Plants 15–40(–60) cm tall. Leaves 3 or 4; leaf sheath glabrous or densely subappressed pubescent; ligule ca. 1 mm; leaf blade lanceolate or linear, 5–15(–40) × 1.5–3 cm, strongly keeled, scabrous, adaxially with scaly pustules, abaxially glabrous or densely subappressed pubescent, base narrowed, apex obtuse to acute. Inflorescence shortly to long exerted from leaf sheaths; peduncle ridged; bracts green with brownish veins, tubular, 4–6 cm. Flowers 1 to several opening together, purple, yellow, white, or rarely pale pink, sometimes appearing before leaves develop. Calyx 3–5.6 cm, split to middle on 1 side, apex

2-toothed. Corolla tube 3–3.5 cm, slender; lobes lanceolate, 2.5–2 cm. Labellum reflexed, obovate, 2.5–3 cm, external margin crisped, apex 2-lobed. Anther linear, 1–1.5 cm including spur. Capsule oblong, 1.5–3.5 cm. Seeds ellipsoid to 3-angled. Fl. May–Aug.

- *Pinus* forests, dwarf scrub, meadows, grasslands; 2000–3500 m. Sichuan, Yunnan.

- 1a. Leaf sheath and blade abaxially glabrous; capsule ca. 1.5 cm ..... 13a. var. *cautleoides*
- 1b. Leaf sheath and blade abaxially densely subappressed pubescent; capsule 2–3.5 cm ..... 13b. var. *pubescens*

**13a. *Roscoea cautleoides* var. *cautleoides***

早花象牙参(原变种) zao hua xiang ya shen (yuan bian zhong)

*Roscoea capitata* Smith var. *purpurata* Gagnepain; *R. chamaeleon* Gagnepain; *R. sinopurpurea* Stapf; *R. yunnanensis* Loesener; *R. yunnanensis* var. *purpurata* (Gagnepain) Loesener.

Leaf sheath and blade abaxially glabrous. Capsule ca. 1.5 cm. Fl. May–Aug.  $2n = 24^*$ .

- *Pinus* forests, dwarf scrub, meadows; 2000–3500 m. Sichuan, Yunnan.

**13b. *Roscoea cautleoides* var. *pubescens*** (Z. Y. Zhu) T. L. Wu, Novon 7: 441. 1997.

毛早花象牙参 mao zao hua xiang ya shen

*Roscoea pubescens* Z. Y. Zhu, Acta Phytotax. Sin. 26: 315. 1988.

Leaf sheath and blade abaxially densely subappressed pubescent. Capsule 2–3.5 cm.

- Grasslands; ca. 2000 m. SW Sichuan (Xichang Xian).

Flora of China 24: 362–366. 2000.