

**205. ISCHAEMUM** Linnaeus, Sp. Pl. 2: 1049. 1753.

鸭嘴草属 ya zui cao shu

Sun Bixing (孙必兴 Sun Bi-sin); Sylvia M. Phillips

Perennial, or sometimes annual. Culms often decumbent and much branched. Leaf blades linear to lanceolate, narrowed to ligule, sometimes pseudopetiolate; ligule membranous; sheath auricles often present. Inflorescence of paired racemes, or occasionally subdigitate, terminal and axillary, exerted or sometimes supported by a spatheole; racemes 1-sided, when paired often locked back to back and appearing as a single cylindrical raceme, spikelets of a pair similar or not; rachis internodes and pedicels stoutly linear to thickly clavate, U-shaped or triquetrous in cross section. Sessile spikelet dorsally compressed; callus truncate or obtuse, inserted into hollowed internode apex; lower glume papery to leathery, shallowly convex or almost flat, 2-keeled or rounded on flanks, sometimes winged, often rugose; upper glume boat-shaped, awnless or with straight awn from apex; lower floret male, well developed with palea; upper lemma usually deeply 2-lobed, awned from sinus, rarely awnless; awn geniculate, glabrous. Pedicelled spikelet as large as sessile or much smaller, upper lemma sometimes geniculately awned.

About 70 species: throughout the tropics but mainly in Asia, especially India; 12 species (one endemic) in China.

- 1a. Margins of lower glume of sessile spikelet broadly rounded in lower part, narrowly inflexed and keeled above, not coarsely rugose or knobbly.
  - 2a. Spikelets of a pair without obvious awns, or only sessile spikelet awned.
    - 3a. Inflorescence base enclosed in uppermost sheath; plant strongly rhizomatous ..... 1. *I. muticum*
    - 3b. Inflorescence long exerted from uppermost sheath; plant loosely tufted.
      - 4a. Racemes villous; sessile spikelet 8–10 mm ..... 2. *I. antheboroides*
      - 4b. Racemes glabrous; sessile spikelet 5.5–8 mm ..... 3. *I. aristatum*
  - 2b. Spikelets of a pair both clearly awned.
    - 5a. Lower glume of sessile spikelet winged on keels, apex rounded, emarginate.
      - 6a. Racemes paired; rhizomes absent; culms less than 60 cm ..... 4. *I. ciliare*
      - 6b. Racemes (2–)3–6; rhizomes present; culms 60–100 cm ..... 5. *I. polystachyum*
    - 5b. Lower glume of sessile spikelet not winged on keels, apex sharply bicuspidate.
      - 7a. Spikelets ± glabrous; upper glume of sessile spikelet not winged on keel; callus hairs less than 1 mm ..... 6. *I. timorensis*
      - 7b. Spikelets hispid; upper glume of sessile spikelet winged on keel; callus hairs ca. 2 mm ..... 7. *I. thomsonianum*
- 1b. Margins of lower glume of sessile spikelet narrowly and evenly inflexed and keeled along entire length, often coarsely rugose or knobbly.
  - 8a. Lower glume of sessile spikelet not transversely rugose or knobbly.
    - 9a. Lower glume of sessile spikelet wingless, keels pilose; awn 1.8–2.5 cm ..... 8. *I. aureum*
    - 9b. Lower glume of sessile spikelet winged, glabrous; awn 1–1.2 cm ..... 9. *I. setaceum*
  - 8b. Lower glume of sessile spikelet transversely rugose or knobbly on flanks.
    - 10a. Plant annual; lower glume of sessile spikelet coarsely rugose with 4–7 sharp transverse ridges across back ..... 10. *I. rugosum*
    - 10b. Plant perennial; lower glume of sessile spikelet with rounded knobs on keels in lower part, sometimes also with 2–4 weak ridges across back.
      - 11a. Culms up to 1 m tall; sessile spikelet 5–7 mm, awned, awn 1–1.5 mm ..... 11. *I. barbatum*
      - 11b. Culms 1–2 m tall; sessile spikelet 6.5–8 mm, awnless or awn less than 1 mm ..... 12. *I. magnum*

**1. *Ischaemum muticum*** Linnaeus, Sp. Pl. 2: 1049. 1753.

无芒鸭嘴草 wu mang ya zui cao

Perennial, strongly rhizomatous; rhizomes clothed in cataphylls. Culms often red, much branched, stoloniferous or scrambling, several meters long, flowering culms erect, up to 60 cm, nodes glabrous. Leaf sheaths ciliate along outer margin, otherwise glabrous or sparingly appressed hairy; leaf blades lanceolate, tinged reddish brown, 2–10(–18) × 0.3–1.7 cm, glabrous or abaxial surface sparingly pilose, margins smooth or scaberulous, base cordate, very shortly pseudopetiolate, apex acute; ligule 0.2–0.6 mm. Racemes usually paired, appressed back to back, 2–5 cm, base enclosed by subtending sheath;

rachis internodes and pedicels oblong, triquetrous, outer angle narrowly winged, inner angles glabrous or ciliate. Sessile spikelet lanceolate, 4.8–7 × 2.5–2.8 mm; lower glume leathery with expanded rounded flanks in lower 2/3, herbaceous, strongly veined and sharply 2-keeled below apex, glabrous, winged from near base, apex entire; upper glume winged on upper keel; upper lemma subentire, mucronate or with ca. 1 mm awnlet. Pedicelled spikelet laterally compressed, otherwise resembling sessile or smaller, awnless.

Sands near the sea; below 100 m. Taiwan [Cambodia, India, Indonesia, Japan (S Ryukyu Islands), Malaysia, Myanmar, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Australia (Queensland)].

This seashore plant forms extensive colonies that bind the sand at

the back of sandy beaches.

**2. *Ischaemum antheophoroides*** (Steudel) Miquel, Ann. Mus. Bot. Lugduno-Batavi 3: 193. 1867 [“*antheophoroides*”].

毛鸭嘴草 mao ya zui cao

*Rottboellia antheophoroides* Steudel, Flora 29: 22. 1846 [“*antheophoroides*”]; *Andropogon antheophoroides* (Steudel) Steudel; *A. antheophoroides* var. *eristachyus* (Hackel) Honda; *Ischaemum eristachyus* Hackel.

Perennial. Culms loosely tufted, geniculately ascending to shortly decumbent and rooting at lowest nodes, 30–70 cm tall, branching in lower part, nodes bearded. Leaf sheaths loose, villous; leaf blades linear-lanceolate, 5–20 × 0.3–0.9 cm, villous, margins thickened, smooth, base constricted, apex acuminate; ligule 1–3 mm. Racemes terminal, paired, appressed back to back, 5–8 cm, long exserted; rachis internodes and pedicels stoutly cuneate, triquetrous, villous. Sessile spikelet broadly oblong or obovate, 8–10 × 2.5–3.5 mm; lower glume leathery toward base, flanks rounded in lower 1/3, villous with stiff ca. 3 mm hairs, papyraceous and puberulous above, keeled and winged above middle, wings ca. 0.8 mm wide with ciliate margin, apex truncate-denticulate; upper glume keeled and winged above middle, villous on midline below wing; awn of upper lemma weakly geniculate, up to 1.5 cm. Pedicelled spikelet laterally compressed, otherwise resembling sessile, awnless. Fl. and fr. Jun–Sep.

Sand dunes, sandy slopes, near the sea. Hebei, Shandong, Zhejiang (Dachen Dao) [Japan, Korea].

This species occupies a similar seashore habitat to *Ischaemum muticum*, but has a much more limited, more northerly distribution. It is a much hairier species, with exserted racemes of larger spikelets, and lacks the widely spreading, scaly rhizomes of *I. muticum*.

**3. *Ischaemum aristatum*** Linnaeus, Sp. Pl. 2: 1049. 1753.

有芒鸭嘴草 you mang ya zui cao

Perennial. Culms loosely tufted, erect or geniculately ascending, 40–80 cm tall, simple or branching, nodes glabrous. Leaf sheaths glabrous or pilose; leaf blades linear-lanceolate, 5–25 × 0.4–1 cm, glabrous or thinly pilose, margins smooth becoming scabrid toward apex, base attenuate or contracted, apex acuminate; ligule 2–3 mm. Racemes terminal, paired, appressed back to back, 4–7 cm; rachis internodes clavate, triquetrous, scabrid or ciliate along outer angle, inner angles glabrous or shortly ciliate. Sessile spikelet oblanceolate to obovate, 5.5–8 × 2–2.3 mm; lower glume leathery with rounded flanks below middle, herbaceous, broader and 2-keeled above, 5–7-veined, keels narrowly to broadly winged, wing margin scabrid; upper lemma awnless or shortly awned; awn well developed or imperfect, up to 1.2 cm. Pedicelled spikelet dorsally compressed, resembling sessile, asymmetrical, 2-keeled, keels winged, one wing incurled. Fl. and fr. Jul–Oct.  $2n = 56, 72$ .

Open grassy sandy places, often near the sea; 100–1000 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Shandong, Taiwan, NE Yunnan, Zhejiang [Japan, Korea, Vietnam].

This species usually has awnless or only inconspicuously awned racemes, but occasionally the awns are a little longer and more obvious.

Longer awns are weakly associated with a more broadly winged sessile spikelet, and the type of the species name falls within this less frequent variant.

- 1a. Lower glume of sessile spikelet obovate, broadly winged; awn present, geniculate, exserted from spikelet ..... 3a. var. *aristatum*
- 1b. Lower glume of sessile spikelet oblanceolate, winged; awn absent or imperfect, included within spikelet ..... 3b. var. *glaucum*

**3a. *Ischaemum aristatum* var. *aristatum***

有芒鸭嘴草(原变种) you mang ya zui cao (yuan bian zhong)

*Ischaemum crassipes* (Steudel) Thellung var. *aristatum* Nakai; *I. crassipes* var. *formosanum* (Hackel) Nakai; *I. crassipes* var. *hondae* (Matsuda) Nakai; *I. guangxiense* Zhao; *I. hondae* Matsuda; *I. sieboldii* Miquel var. *formosanum* Hackel.

Rachis internodes and pedicels often ciliate along outer angle, inner angles glabrous or shortly ciliate. Sessile spikelet obovate, broadly winged, awned; awn exserted, 0.8–1.2 cm, geniculate.  $2n = 72$ .

Open grassy sandy places, often near the sea; 100–1000 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Taiwan, NE Yunnan, Zhejiang [Japan, Korea].

This awned form of *Ischaemum aristatum* is very similar to *I. ciliare*, and the two have been much confused. *Ischaemum ciliare* clearly differs by its laterally compressed, geniculately awned pedicelled spikelets. It also has bearded nodes and a slightly smaller (4–6 mm) sessile spikelet.

**3b. *Ischaemum aristatum* var. *glaucum*** (Honda) T. Koyama, J. Jap. Bot. 37: 239. 1962.

鸭嘴草 ya zui cao

*Ischaemum crassipes* var. *glaucum* Honda, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 3: 355. 1930; *Andropogon crassipes* Steudel; *Ischaemum aristatum* subsp. *glaucum* (Honda) T. Koyama; *I. aristatum* var. *momiyamae* (Honda) Hsu; *I. crassipes* (Steudel) Thellung; *I. crassipes* var. *hainanense* Keng; *I. crassipes* var. *momiyamae* Honda; *I. sieboldii* Miquel.

Rachis internodes and pedicels scabrid or shortly ciliate on outer angle, inner angles glabrous or shortly ciliate. Sessile spikelet oblanceolate, narrowly to broadly winged, mucronate or shortly awned; awn included, 0.1–0.3 cm, straight.  $2n = 56$ .

Sandy places, usually near the sea. S Anhui, Hebei, Jiangsu, Liaoning, Shandong, Zhejiang [Japan, Korea, Vietnam].

**4. *Ischaemum ciliare*** Retzius, Observ. Bot. 6: 36. 1791.

细毛鸭嘴草 xi mao ya zui cao

*Andropogon patentivillosus* Steudel; *Ischaemum ciliare* var. *villosum* (Nees) Hackel; *I. indicum* (Houttuyn) Merrill var. *breviaristatum* Zhao; *I. indicum* var. *guangdongense* Zhao; *Spodiopogon obliquivalvis* Nees var. *villosus* Benth; *S. villosus* Nees.

Perennial. Culms slender, loosely tufted, erect, spreading or prostrate and rooting at lower nodes, up to 60 cm tall, nodes

bearded. Leaf sheaths sparsely to densely pilose with tubercle-based hairs, or glabrous; leaf blades linear-lanceolate, 5–15 × 0.3–1 cm, tuberculate-villous or sometimes glabrous, base contracted, apex acuminate; ligule 1–2 mm. Racemes terminal, paired, often slightly separated, 2–9 cm; rachis internodes and pedicels oblong, triquetrous, ciliate along angles. Sessile spikelet obovate-oblong, 4–6 × 1.2–1.5 mm; lower glume smooth, glossy, leathery with rounded flanks in lower half, upper half flat, papyraceous, sometimes wrinkled, asperulous, flanks keeled, winged, wings 0.2–0.7 mm wide, forming 2 rounded lobes at apex; upper glume swollen and keeled above middle, keel narrowly winged, apex shortly awned; awn of upper lemma 1–1.5 cm. Pedicelled spikelet laterally compressed; lower glume with a single median winged keel; upper lemma awned.

Moist meadows, field margins, hill thickets; near sea level to 1300 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Sichuan, Taiwan, Yunnan, Zhejiang [India, Indonesia, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam; introduced in America].

This grass has been widely known as *Ischaemum indicum* (Houttuyn) Merrill (*Phleum indicum* Houttuyn), but that name in fact refers to a species of *Polytrias*. *Ischaemum ciliare* is a very variable species, widespread in tropical Asia, and a number of varieties has been described over its range.

**5. *Ischaemum polystachyum*** J. Presl in C. Presl, Reliq. Haenk. 1: 328. 1830.

簇穗鸭嘴草 cu sui ya zui cao

*Ischaemum digitatum* Brongniart; *I. duthiei* Stapf ex Bor; *I. fasciculatum* Brongniart.

Perennial, rhizomatous. Culms loosely tufted, sometimes stoloniferous and rooting at lower nodes, 60–100 cm tall, nodes bearded or glabrous. Leaf sheaths glabrous or sparsely to densely pilose with tubercle-based hairs; leaf blades broadly linear, 5–20 × 0.5–1.5 cm, pubescent, rarely glabrescent, base rounded to subcordate, apex acute; ligule 1–2 mm. Racemes (2–)3–6 or more, mostly terminal, subdigitate, 2–9 cm; rachis internodes and pedicels broadly linear, triquetrous, ciliate on outer angle, shortly ciliate on inner angles. Sessile spikelet lanceolate, 4–5 × 1.2–1.4 mm; lower glume leathery with expanded rounded flanks below middle, herbaceous, strongly veined and sharply 2-keeled above, glabrous or villous, keels usually winged, apex 2-toothed; upper glume attenuate into mucro or awnlet to 2 mm; awn of upper lemma 1.2–1.5 cm. Pedicelled spikelet laterally compressed, similar to sessile, upper lemma awned.

Moist places on grassy plains and hillsides; 100–400 m. Guangdong, Guizhou, Yunnan [India, Malaysia, Myanmar, Sri Lanka, Thailand; Africa, Mauritius, Pacific Islands].

This is a widespread, polymorphic species, long known by different names in various parts of its range.

**6. *Ischaemum timorense*** Kunth, Révis. Gramin. 1: 369. 1830.

帝汶鸭嘴草 di wen ya zui cao

*Andropogon timorensis* (Kunth) Steudel.

Annual or short-lived perennial. Culms slender, loosely tufted or stoloniferous, rooting at lower nodes, branching, flowering shoots 15–50 cm tall, nodes bearded. Leaf sheaths glabrous except toward throat, sometimes margins ciliate; leaf blades linear-lanceolate, 2–8 × 0.2–1 cm, glabrous or pilose with tubercle-based hairs, margins scabrid, base attenuate, apex acuminate; ligule 1–2 mm. Racemes terminal and axillary, paired (rarely 3), loosely arranged, 2–10 cm; rachis internodes and pedicels columnar, triquetrous, ciliate along angles. Sessile spikelet broadly elliptic, 3.5–6 × 1.2–1.5 mm; callus hairs 0.5–1 mm, white; lower glume smooth, glossy, leathery with rounded flanks in lower half, upper half papyraceous, prominently many-veined, asperulous, flanks keeled, keels scabrid, wingless, abruptly narrowed to bicuspidate apex; upper glume keeled above middle, keel wingless, apex narrowed into 2–4 mm awnlet; awn of upper lemma 1–1.6 cm. Pedicelled spikelet laterally compressed, resembling sessile, upper lemma awned.

Fields, damp wayside places; below 100 m. Guangdong, Taiwan [India, Indonesia, Malaysia, Myanmar, Sri Lanka, Thailand; introduced in Africa and America].

The lower glume of the sessile spikelet occasionally has very narrowly winged keels, but the narrowed, sharply bicuspidate apex is characteristic, differing from the more rounded lower glume apex of *Ischaemum ciliare*. Axillary inflorescences are also uncommon in *I. ciliare*.

**7. *Ischaemum thomsonianum*** Stapf ex C. E. C. Fischer in Gamble, Fl. Madras 1722. 1934.

尖颖鸭嘴草 jian ying ya zui cao

*Ischaemum murinum* J. D. Hooker, Fl. Brit. India 7: 135. 1896 [“1897”], not G. Forster (1780).

Annual. Culms slender, shortly stoloniferous at base, branching, 20–45 cm tall, nodes bearded. Leaf sheaths glabrous; leaf blades linear, 2–8.5 × 0.2–0.6 cm, glabrous or a few long tubercle-based bristles toward ligule on adaxial surface, base narrowed or shortly pseudopetiolate, apex setaceous acuminate; ligule 3–5 mm. Racemes terminal and axillary, paired, loosely arranged, 1–3 cm; rachis internodes and pedicels columnar, triquetrous, densely ciliate along angles with yellowish hairs. Sessile spikelet lanceolate, 4.5–5.5 × ca. 1 mm; callus densely bearded, hairs ca. 2 mm; lower glume smooth, glossy, leathery with rounded flanks in lower half, upper half herbaceous, many-veined, bristly, flanks keeled, keels scabrid, wingless, narrowed to bicuspidate apex; upper glume markedly longer than lower, awned, keeled above middle, winged on keel, a tuft of bristles below wing, apex elongate, excurrent into an awn up to 6 mm; awn of upper lemma 1–1.8 cm. Pedicelled spikelet laterally compressed, resembling sessile, bristly, upper lemma awned.

Flatlands; ca. 700 m. W Yunnan [India, Myanmar].

This slender, annual grass is very close to *Ischaemum timorense*, but has hairier racemes, narrower, hairy spikelets, and longer awned upper glumes than are usual for that species. It may simply be an extreme variant of *I. timorense*.

**8. *Ischaemum aureum*** (Hooker & Arnott) Hackel in A. Candolle & C. Candolle, Monogr. Phan. 6: 224. 1889.

金黄鸭嘴草 jin huang ya zui cao

*Spodiopogon aureus* Hooker & Arnott, Bot. Beechey Voy. 273. 1838.

Perennial from short rhizome. Culms loosely tufted, 20–30 cm tall, internodes short and leaves crowded in lower part, nodes glabrous. Leaf sheaths smooth, glabrous; leaf blades broadly linear, 3–12 × 0.3–0.8 cm, smooth, glabrous or a few setae on adaxial surface above ligule, base contracted, apex acuminate; ligule ca. 1 mm, truncate. Racemes terminal, paired, erect but usually separate, 2–5 cm, yellowish hairy; rachis internodes oblong-clavate, triquetrous, outer angle densely ciliate with long yellowish hairs, inner angles shortly ciliate or glabrous. Sessile spikelet lanceolate, 4–5 × ca. 1 mm, yellowish; lower glume subleathery in lower part, 2-keeled, wingless, keels thickened, ciliate, also pilose with ca. 2 mm yellow hairs, sometimes sparsely or ciliate throughout, papery and asperulous toward apex with obvious anastomosing veins, apex bicuspidate; upper glume pilose on upper keel, apex 2-toothed, 2–3 mm awn from between teeth; awn of upper lemma 1.8–2.5 cm. Pedicelled spikelet ± equaling sessile, usually bisexual, slightly laterally compressed, both glumes 1-keeled, shortly awned, upper lemma awned.

Coral rocks and bluffs of the seashore. Taiwan [Japan (Ryukyu Islands)].

This is a very locally distributed grass, with yellowish-hairy racemes and contrasting, reddish brown stigmas. The pedicelled spikelets are usually bisexual, exerting their stigmas and maturing before the sessile spikelets, but otherwise the species is typical of the genus *Ischaemum*.

**9. *Ischaemum setaceum*** Honda, Bot. Mag. (Tokyo) 38: 54. 1924.

小金黄鸭嘴草 xiao jin huang ya zui cao

Perennial. Culms slender, stoloniferous and rooting at base, ascending to 25 cm, lower internodes short with crowded leaves, nodes glabrous. Leaf sheaths glabrous; leaf blades linear-lanceolate, 3–6 × 0.3–0.7 cm, glabrous, apex acuminate; ligule rounded, tongue-like, ca. 1.5 mm. Racemes paired, 2–5 cm; rachis internodes thick, outer angle ciliate with long hairs, inner angles shortly ciliate or glabrous. Sessile spikelet narrowly lanceolate, ca. 4 mm, tinged reddish brown; lower glume subleathery in lower part, 2-keeled, papery and asperulous toward apex with obvious anastomosing veins, keels winged upward, apex bicuspidate; upper glume pilose on keel, apex acuminate or with 1–2 mm awnlet; awn of upper lemma 1–1.2 cm. Pedicelled spikelet resembling sessile, both glumes 1-keeled, cuspidate or mucronate.

• Seashores. S Taiwan (Lan Yu).

No specimens of this narrow endemic have been seen by the authors.

**10. *Ischaemum rugosum*** Salisbury, Icon. Stirp. Rar. 1, t. 1. 1791.

田间鸭嘴草 tian jian ya zui cao

*Andropogon rugosus* (Salisbury) Steudel; *A. segetum* (Trinius) Steudel; *Ischaemum akoense* Honda; *I. rugosum* var. *segetum* (Trinius) Hackel; *I. segetum* Trinius.

Annual. Culms loosely tufted, erect to decumbent, 20–100 cm tall, often branching, nodes pubescent. Leaf sheaths loose, papery, lightly keeled, glabrous or pilose with scattered tubercle-based hairs, margins ciliate; leaf blades linear-lanceolate, 10–30 × 0.5–2 cm, glabrous or thinly pilose, margins scabrid, base variable, rounded and constricted, or attenuate and sometimes briefly pseudopetiolate, apex acuminate; ligule 2–5 mm. Racemes terminal and axillary, paired, appressed back to back or slightly separated, 3–11(–13) cm; rachis internodes inflated, thickly clavate, ciliate along midline, inner angles glabrous. Sessile spikelet oblong-ovate, 4–6 × ca. 2 mm; lower glume 2-keeled throughout, crustaceous, yellowish and transversely 4–7-ridged below, ridges sharp, mostly continuous, herbaceous above with many anastomosing green veins, keels scabrid, wingless or winged on one side, apex obliquely obtuse; awn of upper lemma 1.2–2 cm. Pedicelled spikelet dorsally compressed, variable in size, often much reduced especially toward raceme apex, awnless; pedicel elongate when spikelet rudimentary.

Marshy fields, ditch banks, river banks, other wet often slightly saline grassy places; 100–1800 m. Guangdong, Guangxi, Guizhou, Hainan, Sichuan, Taiwan, Yunnan [Bhutan, India, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand; Australia (Queensland); introduced in Africa and America].

This native of tropical Asia is now widespread as a weed in tropical parts of the world, especially as a weed of rice fields.

**11. *Ischaemum barbatum*** Retzius, Observ. Bot. 6: 35. 1791.

粗毛鸭嘴草 cu mao ya zui cao

*Andropogon lodicularis* (Nees) Steudel; *A. meyenianus* (Nees) Steudel; *Ischaemum aristatum* Linnaeus subsp. *barbatum* (Retzius) Hackel; *I. aristatum* var. *lanuginosum* A. Camus; *I. aristatum* var. *lodiculare* (Nees) Hackel; *I. aristatum* var. *meyenianum* (Nees) Hackel; *I. barbatum* var. *hainanense* Keng & H. R. Zhao; *I. barbatum* var. *scabridulum* Keng & H. R. Zhao; *I. cylindricum* Keng & H. R. Zhao; *I. goebelii* Hackel; *I. imbricatum* var. *pubescens* Keng & H. R. Zhao; *I. lanuginosum* (A. Camus) Keng & H. R. Zhao; *I. lanuginosum* var. *enodulosum* Keng & H. R. Zhao; *I. lanuginosum* var. *erianthum* Keng & H. R. Zhao; *I. nodulosum* Honda; *I. nodulosum* var. *glabriflorum* Keng & H. R. Zhao; *I. rugosum* Salisbury var. *humidum* Keng & H. R. Zhao; *I. sinense* Keng & H. R. Zhao; *I. tientaiense* Keng & H. R. Zhao; *I. yunnanense* Keng & H. R. Zhao; *Mesochium lodiculare* Nees; *M. meyenianum* Nees.

Perennial. Culms erect or ascending, 30–100 cm tall, often branched at base, nodes glabrous or bearded. Leaf sheaths glabrous to villous, margins ciliate or glabrous; leaf blades linear or narrowly lanceolate, 5–30 × 0.3–0.8 cm, glabrous to villous, margins scaberulous, base variable, cordate to attenuate or pseudopetiolate, apex acute; ligule 2–5 mm. Racemes terminal, paired, usually appressed back to back, 4–10 cm; rachis inter-

nodes oblong, triquetrous, ciliate along outer angle, inner angles glabrous or shortly ciliate. Sessile spikelet lanceolate-oblong,  $5-7 \times 1.6-2$  mm; lower glume 2-keeled throughout, glabrous to villous, leathery, marginal nodules in lower 2/3, these sometimes extended into weak transverse ridges, herbaceous above with many anastomosing green veins, keels asymmetrically winged, one wing wider than the other; awn of upper lemma 1–1.5 cm. Pedicelled spikelet dorsally compressed, as large as sessile but marginal nodules less developed, awnless or awned.

Hill slopes, open grasslands, marshes; near sea level to 1000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Taiwan, Yunnan, Zhejiang [Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; W Africa, Australia].

This is a widespread, polymorphic species, to which many specific and infraspecific names have been applied. Variation depends mainly on the degree of hairiness of the leaves and spikelets and the number and prominence of the nodules and ridges on the sessile spikelet. In extreme cases the ridges are particularly well developed and approach the condition in *Ischaemum rugosum*, but such plants can be recognized as *I. barbatum* by their more robust, perennial habit and more oblong sessile spikelets.

**12. *Ischaemum magnum*** Rendle, J. Bot. 32: 102. 1894.

大穗鸭嘴草 da sui ya zui cao

*Ischaemum laeve* Ridley.

Perennial. Culms erect, 1–2 m tall, sparingly branched in upper part, nodes glabrous. Leaf sheaths longer than internodes, pilose with tubercle-based hairs, especially along margins and toward blade; leaf blades broadly linear,  $5-33 \times 0.5-1.8$  cm, abaxial surface densely to sparsely appressed pubescent, adaxial surface glabrous, margins scabrid, base narrowed, apex acuminate; ligule 3–5 mm. Racemes terminal, paired, appressed back to back, 6–12 cm; rachis internodes columnar, slightly expanded upward, triquetrous, ciliate along outer angle, sometimes only at base, inner angles glabrous. Sessile spikelet oblong-lanceolate,  $6.5-8 \times 1.7-2$  mm; lower glume 2-keeled throughout, leathery except near apex, usually with 2–4 marginal tubercles in lower half, sometimes almost smooth, or tubercles transversely connected into coarse shallow ridges, herbaceous above with anastomosing green veins, keels narrowly winged; upper lemma entire, awnless or mucronate, or 2-lobed and awned; awn up to 1 cm, weakly geniculate. Pedicelled spikelet dorsally compressed, equaling or slightly longer than sessile, strongly asymmetrical, winged on one keel only, wing 0.3–1.5 mm wide, awnless; pedicel very short, stout.

Moist meadows, field margins; 800–1000 m. W Yunnan [Malaysia, Myanmar].

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