

212. HYPARRHENIA Andersson ex Fournier, Mexic. Pl. 2: 51, 67. 1886.

苞茅属 bao mao shu

Chen Shouliang (陈守良); Sylvia M. Phillips

Perennial, infrequently annual. Culms usually tufted, often tall and robust. Leaf blades not aromatic, linear, midvein distinct, apex acuminate; ligule scarious. Inflorescence a compound spathate panicle, each ultimate spatheole subtending a peduncle bearing a pair of short racemes; spatheoles linear to ovate, often brightly colored; peduncle shorter or longer than spatheole, often bearded; raceme pairs 2- to many-awned, often reflexed at maturity. Each raceme of a pair supported on a short stalk ("raceme base") arising from the peduncle apex (termed "upper" and "lower" raceme base), these subequal or the upper longer, terete or flattened. Racemes with 0–2 pairs of homogamous spikelets below the fertile pairs, these resembling the pedicelled spikelets; pedicels and internodes slender. Sessile spikelet dorsally compressed or subterete; callus obtuse to pungent, bearded, its apex exposed; lower glume lanceolate to linear, leathery, convex, glabrous to villous, flanks rounded, incurving, keeled only near apex; upper glume boat-shaped, 3-veined, awnless; lower floret reduced to a hyaline lemma; upper lemma stipiform, 2-toothed, awned between the teeth; awn geniculate with hairy column. Pedicelled spikelet male or barren, narrowly lanceolate, slightly longer than the sessile, acute to aristulate.

Sixty-four species: mainly in Africa, a few species extending to other tropical regions; five species in China.

As a genus *Hyparrhenia* is easy to recognize, with its short, paired racemes grouped in a spathate panicle, exposed callus tip below the sessile spikelet, and hairy awns. Identification of the species depends on a careful inspection of the details of the pairs of racemes ("raceme pairs"). Homogamous spikelets are pairs of male or barren spikelets, generally resembling the pedicelled spikelets, often found at the base of one or both racemes. Their number and position are relatively stable within a species and provide a useful aid to identification.

- 1a. Racemes not reflexed at maturity; raceme bases terete, slender, clearly unequal.
 - 2a. Awns 2(–4) per raceme pair; spikelets white-hairy 1. *H. filipendula*
 - 2b. Awns 6–13 per raceme pair; spikelets brown or golden-hairy 2. *H. yunnanensis*
- 1b. Racemes reflexed at maturity; raceme bases subequal or unequal.
 - 3a. Raceme with narrow, oblong, purple 1–3 mm scale at base; 1 homogamous spikelet pair at base of lower raceme only 3. *H. newtonii*
 - 3b. Raceme without linear scale at base.
 - 4a. Spatheoles linear, 4–7 cm; 1 homogamous spikelet pair at base of each raceme 4. *H. griffithii*
 - 4b. Spatheoles lanceolate, 2–4.5 cm; 2 homogamous spikelet pairs at base of each raceme 5. *H. diplandra*

1. *Hyparrhenia filipendula* (Hochstetter) Stapf var. ***pilosa*** (Hochstetter) Stapf in Prain, Fl. Trop. Africa 9: 324. 1919.

毛穗苞茅 mao sui bao mao

Andropogon filipendulus Hochstetter var. *pilosus* Hochstetter, Flora 29: 115. 1846.

Perennial. Culms loosely tufted, slender, 1–2 m tall, branching. Leaf sheaths glabrous; leaf blades tough, 15–40 × 0.3–0.6 cm, glabrous, margins scabrid; ligule ca. 2 mm. Spathate panicle with many slender spatheoles in crowded fascicles from each spathe; spatheoles very narrowly linear, 4–6 × 0.1–0.3 cm, becoming reddish; peduncle filiform, flexuously exerted near spatheole tip, glabrous or thinly white bearded. Racemes 2(–4)-awned per pair, awns often twisted together, not reflexed at maturity; raceme bases very unequal, glabrous, the upper filiform, 5–8 mm; 1 pair of homogamous spikelets at base of lower raceme, 2 pairs at base of upper raceme. Sessile spikelet oblong-lanceolate, 5–6 mm; callus pungent, 2–3 mm, white bearded; lower glume linear-oblong, pubescent to villous with white hairs; awn 3–5 cm, the column hirsute with brown 0.7–1.2 mm hairs. Pedicelled spikelet 5–6.5 mm, tipped with a 1–5 mm bristle. Fl. and fr. Jul–Dec.

Hill slopes, grassy places, thickets; 900–1600 m. Yunnan [Indonesia, New Guinea, Philippines, Sri Lanka; Africa, Australia].

Hyparrhenia filipendula may be recognized by the combination of a slender, delicate habit, 2-awned raceme pairs, an elongate, filiform up-

per raceme base bearing 2 homogamous spikelet pairs, a pungent callus, and a hirsute awn.

Hyparrhenia filipendula var. *filipendula* is distinguished by the glabrous lower glume of the sessile spikelet. In Africa both varieties are common and may grow together, but in Asia nearly all specimens belong to var. *pilosa*.

2. *Hyparrhenia yunnanensis* B. S. Sun, J. Yunnan Univ. 21: 95. 1999.

泰国苞茅 tai guo bao mao

Hyparrhenia rufa (Nees) Stapf var. *siamensis* Clayton.

Perennial. Culms erect, slender to robust, 1–3 m tall. Leaf sheaths glabrous; leaf blades 30–60 × 0.2–0.8 cm, glabrous, margins scabrid; ligule subrounded, ca. 2 mm. Spathate panicle variable, lax or contracted; spatheoles linear-lanceolate, 3–5 × 0.3–0.5 cm, finally reddish and rolled; peduncle shorter or longer than spatheole, usually flexuously exerted at least on panicle periphery, glabrous or white bearded. Racemes 6–7-awned per pair, rufous, not reflexed at maturity; raceme bases unequal, terete, glabrous, upper 3–5 mm; 1 pair of homogamous spikelets at base of lower raceme, 1–2 pairs at base of upper raceme. Sessile spikelet 4–5 mm; callus narrowly cuneate, 1–1.2 mm, densely white or golden bearded; lower glume oblong-lanceolate, brownish, glossy, typically with scanty stiff rufous hairs, but sometimes glabrous or pubescent; awn 2–3 cm, the column pubescent with stiff brown hairs. Pedicelled spikelet 3–5 mm,

acute.

Hill slopes; 800–1200 m. Yunnan [Myanmar, Thailand].

This taxon is a uniform, local segregate from the gene pool of the extremely variable, African species *Hyparrhenia rufa* (Nees) Stapf. *Hyparrhenia rufa* s.s. has been introduced to warm parts of America and elsewhere as a pasture grass and is recorded from Yunnan. It has 7–14 awns per raceme pair, a shorter (0.2–0.8 mm) callus, and a slightly shorter sessile spikelet.

Hyparrhenia yunnanensis can be distinguished from the other species in China (except *H. griffithii*) by its long, slender upper raceme base, which may sometimes be partially connate with the shorter lower raceme base. The brown color of the spikelet hairs is also distinctive, although it may sometimes be rather pale.

3. *Hyparrhenia newtonii* (Hackel) Stapf in Prain, Fl. Trop. Africa 9: 363. 1919.

苞茅 bao mao

Andropogon newtonii Hackel, Bol. Soc. Brot. 3: 137. 1885; *A. lecomtei* Franchet; *Hyparrhenia lecomtei* (Franchet) Stapf.

Perennial. Culms tufted, erect or geniculate at base, 50–200 cm tall, glabrous or pilose just below nodes. Basal leaf sheaths tomentose or glabrous; leaf blades 20–60 × 0.2–0.6 cm, pilose on both surfaces or adaxial surface glabrous, margins scabrid; ligule reddish brown, truncate, 0.5–2 mm. Spathate panicle narrow, 30–40 cm; spatheoles narrowly lanceolate, 2–4 cm, reddish brown; peduncle slightly shorter than spatheole, setose with yellow or creamy hairs. Racemes 2–4-awned per pair, purple, reflexed at maturity; raceme bases unequal, stiffly setose, upper 1.5–3 mm, prolonged into a 1–3 mm, lanceolate, purple appendage below the lowest spikelet pair; 1 pair of homogamous spikelets at base of lower raceme only. Sessile spikelet 4–6 mm, purplish; callus 1.5–2 mm, acute to pungent, bearded; lower glume narrowly oblong, glabrous; awn 2–4 cm, column with short brown hairs. Pedicelled spikelet 5–10 mm, tipped with a 1–5 mm bristle.

Hill slopes; 600–1200 m. Guangdong, Guangxi [Indonesia, Thailand, Vietnam; Africa, Madagascar].

This species has a distinctively colored panicle, with purple spikelets and yellowish hairs. Asian material identified as *Hyparrhenia bracteata* (Willdenow) Stapf belongs here. True *H. bracteata* is restricted to Africa.

4. *Hyparrhenia griffithii* Bor, Indian Forest Rec., Bot. 1: 92. 1938.

大穗苞茅 da sui bao mao

Perennial. Culms erect, 1–2 m tall. Leaf sheaths pilose along margin and mouth, becoming glabrescent; leaf blades up to 40 × 0.4–0.8 cm, white pilose near base on adaxial surface; ligule ca. 3 mm. Spathate panicle lax, narrow; spatheoles linear, 4–7 cm, inrolled, brown; peduncle 2/3 as long to slightly longer than spatheole, flexuous, white setose. Racemes 5–10-awned per pair, white hairy, loose, reflexed at maturity; raceme bases unequal, terete, glabrous, the upper filiform, 3.5–8 mm; 1 pair of homogamous spikelets at base of both lower and upper raceme of pair. Sessile spikelet 6–7 mm; callus pungent, 1.5–2

mm, white bearded; lower glume lanceolate, brownish to dark violet, white hirsute; awn 4–6 cm, the column pubescent with brown 0.4–0.6 mm hairs. Pedicelled spikelet 6–8 mm, villous, tipped with a 1–4 mm bristle.

Usually in forest understory; ca. 700 m. SW Yunnan (Gengma) [NE India, N Myanmar; Africa].

This species resembles *Hyparrhenia filipendula* in its white-hairy racemes, long, slender upper raceme base, and long awns. It can be distinguished by the sparser panicle, strongly reflexing racemes at maturity, and the greater number of awns per raceme pair.

5. *Hyparrhenia diplandra* (Hackel) Stapf in Prain, Fl. Trop. Africa 9: 368. 1919.

短梗苞茅 duan geng bao mao

Andropogon diplandrus Hackel, Flora 68: 123. 1855;

Cymbopogon eberhardtii A. Camus; *Hyparrhenia eberhardtii* (A. Camus) Hitchcock.

Perennial. Culms tufted, coarse, 1–2 m tall, sometimes glaucous. Leaf sheaths glabrous; leaf blades 30–60 × 0.3–0.6 cm, glabrous or hirsute at base, margins scabrid; ligule reddish brown, ca. 2 mm. Spathate panicle loose, narrow; spatheoles narrowly lanceolate, 3–5 cm, brownish red; peduncle scarcely exerted from spatheole, glabrous or shortly bearded. Racemes 4–8-awned per pair, reflexed at maturity; raceme bases subequal, flattened, short, broadly oblong, glabrous on outer face, upper 1.5–3 mm; usually 2 pairs of homogamous spikelets at base of both lower and upper raceme of pair; homogamous spikelets scabrid-pectinate on upper keels. Sessile spikelet 6–8 mm; callus 1–1.5 mm, sharply acute, white bearded; lower glume lanceolate, glabrous or pilose; awn 2.5–4.5 cm, column with white or brown 0.2–0.5 mm hairs. Pedicelled spikelet 6–7.5 mm, acute or tipped with a mucro up to 1.5 mm. Fl. and fr. Aug–Nov.

Hill slopes, thickets; 100–200 m. Guangdong, Guangxi, Hainan, Yunnan [Indonesia, Thailand, Vietnam; tropical Africa].

This species can be recognized by its short, flat raceme bases and the pectinately margined homogamous spikelets, which form an involucre at the base of the raceme pair.

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