

190. EULALIA Kunth, Révis. Gramin. 1: 160. 1829.

黄金茅属 *huang jin mao shu*

Chen Shouliang (陈守良); Sylvia M. Phillips

Perennial, rarely annual. Culms tufted, usually erect and unbranched. Leaf blades linear to narrowly lanceolate; ligule short, membranous, margin ciliolate. Inflorescence terminal, composed of several to many racemes inserted digitately or along a short axis; racemes elongate with many spikelet pairs, hairy, fragile, sessile and pedicelled spikelets of a pair similar, pedicelled often slightly narrower, both fertile; rachis internodes linear, ciliate along angles; pedicels resembling internodes, usually slightly shorter and more slender. Spikelets lanceolate to narrowly oblong, dorsally compressed; callus short, bearded, hairs usually less than 1/2 spikelet length; glumes cartilaginous to leathery; lower glume flat or slightly concave, hairy, back veinless or inconspicuously veined, flanks rounded in lower half, keeled toward apex, acute to truncate; upper glume boat-shaped, 1-keeled down midline; lower floret reduced to an empty hyaline lemma, rarely absent; upper lemma linear to oblong, occasionally broader, shortly 2-toothed or 2-lobed to middle, awned (*E. manipurensis* awnless); awn geniculate, sometimes weakly; palea small or absent. Stamens 3. $x = 9, 10$.

About 30 species: tropical and subtropical regions of the Old World; 14 species (five endemic) in China.

- 1a. Basal leaf sheaths covered in dense woolly hairs.
 - 2a. Basal leaf sheath hairs creamy or golden brown.
 - 3a. Sessile spikelets 6–6.5 mm; raceme hairs pinkish 1. *E. siamensis*
 - 3b. Sessile spikelets 4.6–5.7 mm; raceme hairs yellowish 2. *E. speciosa*
 - 2b. Basal leaf sheath hairs dark brown or reddish brown.
 - 4a. Culms robust, 2–5 mm in diam.; leaf blades 25–50 cm 2. *E. speciosa*
 - 4b. Culms slender, 1–1.7 mm in diam.; leaf blades 15–30 cm.
 - 5a. Culms 6–9-noded; spikelets 3–3.5 mm; lower glume pilose with whitish brown hairs, apex truncate 3. *E. micranthera*
 - 5b. Culms 2–3-noded; spikelets 3.5–5 mm; lower glume densely villous with golden brown hairs, apex subacute 4. *E. phaeothrix*
- 1b. Basal leaf sheaths glabrous, or appressed hairy between veins.
 - 6a. Sessile spikelet 5–7 mm; lower glume 2-veined between lateral keels, veins connected below apex.
 - 7a. Leaf blades 8–16 mm wide, apex acute 1. *E. siamensis*
 - 7b. Leaf blades 4–6(–8) mm wide, apex acuminate-filiform 5. *E. quadrinervis*
 - 6b. Sessile spikelet 3–5 mm; lower glume usually not or only obscurely veined between lateral keels.
 - 8a. Spikelets awnless 6. *E. manipurensis*
 - 8b. Spikelets awned.
 - 9a. Plant with slender spreading stolons; raceme hairs brown; lower lemma absent 7. *E. leschenaultiana*
 - 9b. Plant tufted or rhizomatous; raceme hairs white or purplish (spikelets often brown); lower lemma present.
 - 10a. Leaf blades conspicuously pruinose on abaxial surface, lanceolate or linear-lanceolate, 5–10 mm wide.
 - 11a. Leaf blades 3–8 cm, glabrous; upper lemma 2-lobed to middle 8. *E. brevifolia*
 - 11b. Leaf blades 10–20 cm, tomentose; upper lemma very shortly 2-toothed 9. *E. pruinosa*
 - 10b. Leaf blades green or reddish, linear, 2–6 mm wide.
 - 12a. Racemes with long silky hairs concealing the spikelets; plant with slender spreading rhizomes 10. *E. mollis*
 - 12b. Racemes with shorter hairs, spikelets obvious; plant without long rhizomes.
 - 13a. Leaf blades inrolled, tough; upper glume with 2–2.5 mm awn 11. *E. pallens*
 - 13b. Leaf blades flat, herbaceous; upper glume not awned.
 - 14a. Inflorescence with ca. 5 cm axis; upper lemma very shortly 2-toothed 12. *E. splendens*
 - 14b. Inflorescence digitate or axis less than 5 cm; upper lemma deeply 2-toothed.
 - 15a. Culm glabrous below inflorescence; raceme hairs silvery white; upper lemma 2-toothed to middle 13. *E. trispicata*
 - 15b. Culm densely pilose below inflorescence; raceme hairs faintly mauve tinged; upper lemma 2-toothed in upper 1/4 14. *E. yunnanensis*

1. *Eulalia siamensis* Bor, Kew Bull. 1954: 499. 1954.

二色金茅 *er se jin mao*

Perennial; basal sheaths woolly with creamy brown or

golden hairs, or appressed pilose. Culms tufted, robust, up to 2.5 m tall, 3–4 mm in diam., pilose below inflorescence, nodes glabrous or bearded. Leaf sheaths glabrous or pilose; leaf blades linear, tough, 60–100 × 0.5–1 cm, abaxial surface pinkish gray, subglabrous to villous or sericeous, adaxial surface green,

villous throughout or just above ligule, margins scabrid, base narrowed, apex finely acuminate; ligule ca. 2 mm. Racemes 4–7, subdigitate, drooping, 15–21 cm, hairs silvery or pale mauve; rachis internodes and pedicels ca. 2/3 spikelet length, ciliate. Sessile spikelet 6–6.5 mm, brown; callus hairs 2/5 spikelet length; lower glume lanceolate-oblong, back flat, villous in lower 2/3, 2 anastomosing veins between keels below apex, margins long-ciliate in upper 1/3, narrowed to emarginate apex; upper lemma narrow, puberulous on back, shortly 2-toothed; awn 2.5–3.5 cm. Anthers 3.7–4.5 mm. Fl. and fr. autumn.

Dry grassy slopes, open woodlands; 500–1500 m. SW Yunnan [Myanmar, N Thailand].

This is a large, handsome species of apparently restricted distribution.

- 1a. Basal sheaths woolly with cream or golden hairs 1a. var. *siamensis*
1b. Basal sheaths appressed pilose with white hairs 1b. var. *latifolia*

1a. *Eulalia siamensis* var. *siamensis*

二色金茅(原变种) *er se jin mao* (yuan bian zhong)

Basal sheaths woolly with cream or golden hairs; leaf blades subglabrous to villous. Upper lemma 2-toothed in upper 1/5 or less.

Open woodlands. ?SW Yunnan [Myanmar, Thailand].

This variety is reported from SW Yunnan, but its presence in China has not been confirmed.

1b. *Eulalia siamensis* var. *latifolia* (Rendle) S. M. Phillips & S. L. Chen, **comb. nov.**

宽叶金茅 *kuan ye jin mao*

Basionym: *Pollinia quadrinervis* Hackel var. *latifolia* Rendle, J. Linn. Soc., Bot. 36: 357. 1904; *Eulalia wightii* (J. D. Hooker) Bor var. *latifolia* (Rendle) B. S. Sun & S. Wang.

Basal sheaths appressed pilose between veins with white silky hairs; leaf blades glabrous or abaxial surface appressed-sericeous. Upper lemma 2-toothed in upper 1/3.

Dry grassy slopes; 1800 m. Yunnan [N Thailand].

2. *Eulalia speciosa* (Debeaux) Kuntze, Revis. Gen. Pl. 2: 775. 1891.

金茅 *jin mao*

Erianthus speciosus Debeaux, Actes Soc. Linn. Bordeaux 32: 53. 1878; *Eulalia birmanica* (J. D. Hooker) A. Camus; *E. velutina* (Hackel) O. Kuntze; *Pollinia birmanica* J. D. Hooker; *P. phaeothrix* Hackel var. *aurea* A. Camus; *P. speciosa* (Debeaux) Hackel; *P. velutina* Hackel; *Pseudopogonatherum speciosum* (Debeaux) Ohwi.

Perennial, base swollen; basal sheaths woolly with golden brown hairs, becoming fibrous. Culms 0.7–2 m tall, 2–5 mm in diam., white-villous below inflorescence, nodes farinose, sometimes pilose. Leaf sheaths glabrous or pilose; leaf blades linear,

25–50 × 0.4–0.7 cm, adaxial surface farinose, white-pilose at base, otherwise glabrous, apex finely acuminate; ligule ca. 1 mm. Racemes 4–7(–13) on a 3–4 cm axis, 10–25 cm, hairs whitish, pale yellowish or golden brown; rachis internodes and pedicels 2/3 as long to subequaling spikelet, ciliate. Sessile spikelet 4.6–5.7 mm, dark brown; callus hairs 1/6–1/3 spikelet length; lower glume narrowly lanceolate-oblong, back concave, villous below middle, hairs evenly spread or concentrated at flanks, veinless between keels, upper keels stiffly ciliate, apex subobtusate; upper lemma narrow, margins pilose, 2-toothed in upper 1/3; awn 1.5–2 cm. Anthers ca. 3.5 mm. Fl. and fr. Aug–Nov.

Grassy hillsides. Anhui, Fujian, Guangdong, Guizhou, Hainan, Henan, Hubei, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Cambodia, NE India, Japan, Korea, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

This species is usually easy to recognize due to its swollen base clothed in golden brown, velvety sheaths, which split into fine fibers with age. Occasionally specimens occur with dark reddish brown or pallid basal hairs. These are simply color variants, and more than one color may even occur on the same specimen.

A particularly vigorous form from Yunnan, N Myanmar, and N Thailand has been separated as *Eulalia birmanica*. This has long, straight rachis internodes subequaling the spikelet. The type has dark brown basal sheath hairs, but other specimens with long rachis internodes have golden sheath hairs. It simply represents a rather extreme form of this variable species and intergrades with more typical forms.

3. *Eulalia micranthera* Keng & S. L. Chen, Fl. Hainan. 4: 539. 1977.

微药金茅 *wei yao jin mao*

Perennial; basal sheaths woolly with reddish brown hairs. Culms slender, 0.8–1 m tall, ca. 1.7 mm in diam., 6–9-noded, villous below inflorescence with whitish yellow hairs, brown-tomentose around lower nodes, upper nodes glabrous. Leaf sheaths glabrous or thinly pilose above nodes; leaf blades linear, 15–27 × 0.3–0.4 cm, glabrous or abaxial surface thinly pilose, apex long acuminate; ligule ca. 1 mm. Racemes 4–5, digitate, 10–12 cm, hairs whitish at first, becoming pale yellowish brown; rachis internodes and pedicels 3/4 spikelet length, ciliate. Sessile spikelet 3–3.5 mm, brown with pallid tips; callus hairs ca. 1/5 spikelet length; lower glume narrowly oblong, back concave, veinless between keels, pilose with spreading hairs increasing to 2 mm above middle, apex emarginate-truncate or bimucronulate; upper lemma narrow, 2-toothed in upper 1/3; awn 1.5–2 cm. Anthers 2.3–2.4 mm. Fl. and fr. autumn–winter.

- Along streams. Hainan.

This is a more slender species than *Eulalia speciosa*, with the same basal sheath hair color as *E. phaeothrix*. However, it lacks the tussocky habit of *E. phaeothrix* and has smaller spikelets of differing shape and hairiness.

4. *Eulalia phaeothrix* (Hackel) Kuntze, Revis. Gen. Pl. 2: 775. 1891.

棕茅 *zong mao*

Pollinia phaeothrix Hackel in A. Candolle & C. Candolle,

Monogr. Phan. 6: 168. 1889.

Perennial, forming dense tussocks; basal sheaths woolly with dark reddish brown hairs, finally fibrous. Culms slender, 0.3–0.8(–1) m tall, 1–1.5 mm in diam., 2- or 3-noded, white-villose below inflorescence, nodes sometimes farinose and bearded below. Leaf sheaths pilose or glabrescent; leaf blades narrowly linear, 15–30 × 0.1–0.4 cm, glabrous or pilose, apex acute; ligule 0.5–1 mm. Racemes (1–)2–6(–8), digitate, 4–11(–15) cm, hairs golden brown; rachis internodes and pedicels 1/2–2/3 spikelet length, densely ciliate. Sessile spikelet 3.5–5.5 mm, dark brown; callus hairs 1/8 spikelet length; lower glume oblong-lanceolate, back flat or slightly concave, lower 2/3 villous, hairs uniform or concentrated toward margins, veinless between keels, apex pallid, ciliate, subacute; upper lemma narrow, 2-lobed to about middle; awn 1–2 cm. Anthers 2.5–3 mm. Fl. and fr. Aug–Nov.

Grassy hillsides. Hainan, Sichuan, Yunnan [S India, Sri Lanka, Thailand, Vietnam].

This species is common in the hills of S India and Sri Lanka, where it forms dense tussocks of narrow leaves with velvety, dark reddish brown basal sheaths. The culms are wiry, and bear brown, densely golden-villous racemes.

5. *Eulalia quadrinervis* (Hackel) Kuntze, Revis. Gen. Pl. 2: 775. 1891.

四脉金茅 si mai jin mao

Pollinia quadrinervis Hackel in A. Candolle & C. Candolle, Monogr. Phan. 6: 158. 1889; *Eulalia quadrinervis* var. *latighuma* B. S. Sun & S. Wang; *P. villosa* var. *cheifuensis* Franchet; *Pseudopogonatherum quadrinerve* (Hackel) Ohwi.

Perennial, tufted from a short scaly rhizome; basal sheaths glabrous, rarely thinly appressed pilose between veins. Culms 0.6–1.2 m tall, 2–4 mm in diam., pilose below inflorescence, nodes glabrous. Leaf sheaths densely villous to hirsute with tubercle-based hairs, or subglabrous; leaf blades linear, 10–40 × 0.4–0.6 cm, glabrous to tuberculate-villous, abaxial surface glaucous, apex acuminate-filiform; ligule 1–1.5 mm. Racemes 2–7, subdigitate, 10–18 cm, hairs white or pale mauve; rachis internodes and pedicels 1/2–2/3 spikelet length, silky villous. Sessile spikelet 5–6.5 mm, golden brown; callus hairs 1/3 spikelet length, white; lower glume narrowly elliptic, back slightly concave and villous below middle, flat and glabrous above, 2–4 green veins between keels, connected by veinlets below apex and between lateral veins, upper keels shortly pectinate-ciliate, apex membranous, subacute; upper lemma ovate-oblong, 2-lobed in upper 1/3; awn 1.2–2 cm. Anthers 2.7–3.4 mm. Fl. and fr. Sep–Nov.

Dry mountain slopes, grassy places. Anhui, Fujian, Guangdong, Henan, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, N India, Japan, Korea, Myanmar, Nepal, Philippines, Thailand, Vietnam].

Eulalia quadrinervis is very close to *E. villosa* (Sprengel) Nees (*E. wightii* (J. D. Hooker) Bor). The latter species is distributed from Africa to S India and differs in its acute leaf blades and leathery, broader lower glume, which is concave down the whole midline and usually hairy only on the flanks. A few specimens from Yunnan with acute leaf blades are better placed in *E. quadrinervis*.

6. *Eulalia manipurensis* Bor, Grasses Burma, Ceylon, India, Pakistan, 156. 1960.

无芒金茅 wu mang jin mao

Eulalia mutica B. S. Sun & M. Y. Wang.

Perennial, tufted; basal sheaths glabrous. Culms (0.35–)0.75–1 m tall, 2–4 mm in diam., glabrous at nodes and below inflorescence, nodes blackish. Leaf sheaths glabrous or margin ciliate; leaf blades linear, (13–)45–60 × 0.2–0.6 cm, abaxial surface glabrous, adaxial surface hispid with tubercle-based hairs, margins scabrid, apex finely acuminate; ligule ca. 0.5 mm, margin ciliate. Racemes 5–20 or more, subdigitate on an axis to 3 cm, 8–16 cm, hairs white; rachis internodes and pedicels ca. 2/3 spikelet length, densely woolly-ciliate. Spikelets 2.8–3.5 mm, chestnut brown, glossy; callus hairs short, ca. 0.5 mm; lower glume narrowly elliptic-oblong, cartilaginous, back flat, flanks villous in lower 2/3, upper keels stiffly ciliate, veinless between keels, apex acute; upper lemma oblong, apex truncate-denticulate, awnless. Anthers 1.8–2 mm. Fl. and fr. Jul–Nov.

Mountain slopes, wet grasslands; ca. 1600 m. W Yunnan (Tengchong) [Bangladesh, N Myanmar].

7. *Eulalia leschenaultiana* (Decaisne) Ohwi, Bull. Tokyo Sci. Mus. 18: 2. 1947.

龚氏金茅 gong shi jin mao

Andropogon leschenaultianus Decaisne, Nouv. Ann. Mus. Hist. Nat. 3: 357. 1834; *A. aureofulvus* Steudel; *Eulalia cumingii* (Nees) A. Camus; *Pollinia cumingii* Nees.

Perennial, forming tufts on long trailing stolons; basal sheaths glabrous. Culms very slender, 0.3–0.7 m tall, ca. 1 mm in diam., usually pilose below inflorescence, lower nodes bearded. Leaf sheaths ciliate along margin, bearded at mouth; leaf blades linear-lanceolate, 4–10 × 0.2–0.4 cm, glabrous or thinly hispid with tubercle-based hairs, apex acute; ligule ca. 0.5 mm, ciliolate. Racemes 1–3, solitary or digitate, 3–8 cm, hairs golden brown; rachis internodes and pedicels ca. 2/3 spikelet length, ciliate. Sessile spikelet 3–4 mm, golden brown; callus hairs 1/4 spikelet length; lower glume narrowly oblong, ± leathery, back flat, densely villous except below apex, obscurely 1–2-veined between keels, connected by veinlets below apex, apex broadly truncate, densely ciliolate; lower lemma absent; upper lemma oblanceolate, 2-toothed in upper 1/4, teeth ciliate; awn 8–15 mm, column pubescent. Anthers 1.7–2 mm. Fl. and fr. autumn.

Dry exposed hillsides. Fujian, Guangdong, Jiangxi, Taiwan [Indonesia, Malaysia, Philippines, Thailand, Vietnam].

This species is unusual in lacking a lower lemma. The purple stigmas are exerted at the apex of the spikelet, rather than laterally which is more usual, and are an obvious feature of the racemes.

A variant occurs in N India and Nepal with smaller spikelets (2.5–3 mm) and slightly swollen culm bases with white-hairy basal sheaths. This has been described as *Pollinia cumingii* Nees var. *parviflora* Hackel. It may occur in adjacent parts of China.

8. *Eulalia brevifolia* Keng ex P. C. Keng, Acta Bot. Yunnan. 4: 351. 1982.

短叶金茅 duan ye jin mao

Perennial, rhizomatous; rhizome short, branching, densely clothed in scale leaves. Culms with scales at base, 0.5–0.7 m tall, branched above base, glabrous. Leaf sheaths glabrous, lower longer but upper shorter than internodes; leaf blades lanceolate, reddish when dry, 3–8 × 0.5–0.7 cm, glabrous, abaxial surface pruinose, base subcordate, apex acute; ligule ca. 0.5 mm. Racemes 5, digitate, 3–4 cm, hairs whitish; rachis internodes (2–)3–4(–6) mm, densely ciliate. Sessile spikelet 4–4.5 mm, pinkish brown; callus hairs 1/3 spikelet length; lower glume oblong-lanceolate, back almost flat, villous below middle, finely 1-veined between keels, apex obtuse; upper lemma 2-lobed to below middle; awn ca. 6 mm, slightly twisted. Anthers ca. 2.5 mm. Fl. and fr. May–Dec.

- Dry mountain slopes; 1700–2600 m. Yunnan.

9. *Eulalia pruinosa* B. S. Sun & M. Y. Wang, J. Yunnan Univ. 21: 94. 1999.

粉背金茅 fen bei jin mao

Perennial; basal sheaths closely imbricate, appressed hispid between veins. Culms up to 1.8 m tall, ca. 3 mm in diam., glabrous, lower nodes waxy. Leaf sheaths firm, smooth, glabrous, lower longer but upper shorter than internodes, stiffly bearded at mouth; leaf blades linear-lanceolate, 10–20 × 0.8–1 cm, tomentose on both surfaces, abaxial surface glaucous, base rounded, apex acute; ligule ca. 1 mm. Racemes 5–7, digitate, 11–17 cm, hairs dirty white tinged purplish; rachis internodes and pedicels 3/4 spikelet length, ciliate. Sessile spikelet ca. 4.5 mm, purplish; callus hairs 1/3 spikelet length; lower glume narrowly elliptic-oblong, papery, back concave and villous below middle, flanks ciliate at upper 1/3, 2-veined between keels, connected by veinlets below apex, upper keels scabrid, apex narrowly truncate-emarginate; upper lemma narrowly ovate, very shortly 2-toothed; awn 0.9–1.3 cm, column glabrous. Anthers not seen. Fr. Oct.

- Mountain slopes, roadside banks; 1900–2700 m. Yunnan.

10. *Eulalia mollis* (Grisebach) Kuntze, Revis. Gen. Pl. 2: 775. 1891.

银丝金茅 yin si jin mao

Erianthus mollis Grisebach, Nachr. Königl. Ges. Wiss. Georg-Augusts-Univ. 3: 92. 1868; *Pollinia mollis* (Grisebach) Hackel.

Perennial, loosely tufted, with slender spreading rhizomes. Culms ascending or decumbent, 0.25–0.5 m tall, 1–2 mm in diam., villous below inflorescence, nodes glabrous. Leaf sheaths glabrous with ciliate margin or pilose, bearded at mouth; leaf blades linear, 3–8 × 0.2–0.5 cm, glabrous or hispid with tubercle-based hairs, margins thickened, smooth, apex acuminate; ligule a ciliate rim. Racemes 3–7, digitate, 4–7 cm, hairs silvery white or pinkish; rachis internodes and pedicels 2/3 spikelet length, densely hairy with long silky hairs exceeding and obscuring spikelets. Spikelets 4–5 mm, dark brown, pallid near apex, keels green; callus hairs 1/2 spikelet length; lower glume lanceolate, back flat, densely hairy with silky hairs

ca. 1.5 times spikelet length or more, veinless between keels, apex obscurely emarginate or 2-mucronate; upper lemma narrowly oblong, shortly 2-toothed; awn 0.8–1.5 cm, fine, almost straight. Anthers ca. 2 mm.

Dry grassy mountainsides; ca. 2000 m. Xizang [Bhutan, N India, Nepal].

This is a relatively small, Himalayan species.

11. *Eulalia pallens* (Hackel) Kuntze, Revis. Gen. Pl. 2: 775. 1891.

白健秆 bai jian gan

Pollinia pallens Hackel in A. Candolle & C. Candolle, Monogr. Phan. 6: 156. 1889.

Perennial, densely tufted from a short rhizome; basal sheaths glabrous. Culms hard, 0.4–1 m tall, 1.5–2.5 mm in diam., glabrous. Leaf sheaths glabrous, lower longer and upper shorter than internodes; leaf blades tough, narrow, involute, pale green, lower 25–40 × 0.2–0.3 cm (when flattened), abaxial surface smooth, glabrous, adaxial surface strongly ribbed, hirsute, margin scabrid; ligule very short, densely ciliate. Racemes 3–11, subdigitate, 6–13 cm, hairs white; rachis internodes and pedicels 1/2–3/4 spikelet length, ciliate. Sessile spikelet 3.5–4.5 mm, pallid; callus hairs 1/8 spikelet length; lower glume oblong-lanceolate, membranous, back slightly concave, villous except near apex, veinless between keels, upper keels smooth or pectinate-scabrid, apex narrowly truncate or 2-toothed; upper glume apex with 2–2.5 mm awn; upper lemma narrow, 2-toothed in upper 1/4; awn ca. 1 cm, column ciliate. Anthers purplish black, 1.8–2 mm. Fl. and fr. Oct–Nov.

Grassy places. NW Guangxi, S and W Guizhou, Yunnan [NE India].

This is a distinctive species, clearly differing from others in China by its tough, inrolled leaf blades and awned upper glume. The blackish anthers are striking among the white raceme hairs.

12. *Eulalia splendens* Keng & S. L. Chen, Bull. Bot. Res., Harbin 12: 315. 1992.

红健秆 hong jian gan

Perennial; basal sheaths glabrous. Culms ca. 1 m tall, ca. 4 mm in diam., pilose below inflorescence. Leaf sheaths longer than internodes, usually glabrous; leaf blades linear, hard, 15–30 × 0.3–0.4 cm, but uppermost less than 1 cm and basal longer than 40 cm, abaxial surface glabrous, adaxial surface pilose, margins scabrid; ligule ca. 0.5 mm. Inflorescence composed of 7–9 racemes on a ca. 5 cm axis, hairs white; rachis internodes and pedicels 2–3 mm, villous. Sessile spikelet ca. 4 mm, yellowish brown; callus hairs ca. 1 mm; lower glume oblong-lanceolate, membranous, lower back slightly concave, with ca. 4 mm soft hairs below middle, veinless between keels, margins ciliate, apex subhyaline, acute; upper lemma elliptic, very shortly 2-toothed; awn 5–8 mm, weakly geniculate. Anthers ca. 2 mm. Fl. and fr. autumn.

- Mountain slopes; ca. 800 m. Guangxi, Guizhou, Yunnan (Jing-hong).

This species is very close to *Eulalia fastigiata* (Nees ex Steudel) Stapf ex Bor from Bhutan, NE India, and Nepal, but differs in the racemes being inserted singly or in pairs, rather than in whorls. These two species, and the related *Saccharum formosanum*, lie on the boundary between *Saccharum* and *Eulalia*. The presence of a central inflorescence axis, thin glumes, scarcely toothed upper lemma, and weak awn are all characters more typical of *Saccharum*.

13. *Eulalia trispicata* (Schultes) Henrard, *Blumea* 3: 453. 1940.

三穗金茅 san sui jin mao

Andropogon trispicatus Schultes, *Mant.* 2: 452. 1824; *Eulalia argentea* Brongniart; *E. tristachya* (Steudel) Kuntze; *Polinia tristachya* (Steudel) Thwaites; *Pseudopogonatherum trispicatum* (Schultes) Ohwi; *Saccharum tristachyum* Steudel.

Perennial, tussocky; basal sheaths glabrous. Culms slender, 0.3–1.2 m tall, ca. 2 mm in diam., nodes glabrous, glabrous or infrequently thinly pilose below inflorescence. Leaf sheaths usually glabrous or upper margin pilose; leaf blades linear, 10–40 × 0.2–0.6 cm, abaxial surface glabrous, adaxial surface pilose especially at base, apex finely acuminate; ligule very short, ca. 0.5 mm, margin ciliate. Racemes 3–16, subdigitate or inserted on a short axis to 1.5 cm, 4–15 cm, hairs silvery white; rachis internodes and pedicels ca. 1/2 spikelet length, densely ciliate, hairs longer at apex. Sessile spikelet 2.5–4.5 mm, chestnut brown or purplish; callus hairs short, ca. 0.5 mm; lower glume narrowly oblong-lanceolate, papery, back flat, lower flanks villous, upper keels ciliate, veinless between keels, apex narrowly truncate, entire or bimucronate; upper lemma linear, 2-toothed to about middle; awn 0.7–2 cm. Anthers 2–2.8 mm. Fl. and fr. autumn. $2n = 20$.

Grassy mountainsides. Yunnan [Bangladesh, Bhutan, Cambodia, India, Indonesia, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Australia].

This slender, small-spiculate species is widespread in tropical Asia and is to be expected elsewhere in S China.

14. *Eulalia yunnanensis* Keng & S. L. Chen, *Bull. Bot. Res.*, Harbin 12: 316. 1992.

云南金茅 yun nan jin mao

Perennial; basal sheaths glabrous, finally fibrous. Culms slender, ca. 0.6 m tall, ca. 2 mm in diam., nodes glabrous, densely pilose below inflorescence. Leaf sheaths softly ciliate along margins, otherwise glabrous; leaf blades linear, 4–15 × 0.2–0.4 cm, apical blades much reduced, abaxial surface glabrous, adaxial surface villous at base, apex acuminate; ligule rounded, ca. 2 mm. Racemes 5–7, digitate, 8–10 cm, hairs silvery white with faint mauve tinge; rachis internodes ca. 3 mm, 3/4 spikelet length, densely ciliate, pedicel similar but shorter. Sessile spikelet ca. 4 mm, chestnut brown; callus with short soft hairs; lower glume narrowly oblong-lanceolate, papery, back flat, villous below middle, upper keels greenish, scabrid, veinless between keels, apex narrowly truncate, subentire or emarginate; upper lemma narrow, 2-toothed in upper 1/4; awn 1.3–1.5 cm. Anthers ca. 2 mm. Fl. and fr. autumn.

- Mountain slopes, grassy places; 1400–2200 m. Yunnan.

This species is very close to, and probably no more than an extreme local variant of, *Eulalia trispicata*.

Flora of China 22: 585–589. 2006.