

45. TRIKERAIA Bor, Kew Bull. [9] 1954: 555. 1955.

三角草属 san jiao cao shu

Perennial. Leaf blades usually rolled; ligule short, erose, ciliolate. Inflorescence an open or contracted panicle; pedicels short. Spikelets with 1 floret, bisexual, slightly dorsally compressed; rachilla extension absent; glumes subequal or slightly unequal, lanceolate or lanceolate-oblong, herbaceous, scabrid or smooth, 3–5-veined, apex acuminate; callus short, obtuse, bearded; lemma slightly shorter than glumes, lanceolate, covering only flanks of palea, membranous, 3–5-veined, villous, apex 2-lobed, lobes acuminate to setiform, awned from between lobes; awn persistent, scabrid, weakly 1-geniculate, column loosely twisted, sometimes only slightly so; palea hyaline, back exposed, pubescent between veins. Lodicules 2 or 3, lanceolate. Stamens 3, anthers glabrous at apex. Stigmas 2.

Four species: N Pakistan to Bhutan and W China, at high altitudes; three species (one endemic) in China.

- 1a. Lemma with spreading pappuslike brush of hairs above middle, shortly pubescent below; awn 5–7 mm 1. *T. pappiformis*
- 1b. Lemma uniformly hairy; awn 8–15 mm.
- 2a. Glumes 5-veined; awn arising below middle of lemma, lobes acuminate; anthers 1–1.5 mm 2. *T. oreophila*
- 2b. Glumes 3-veined; awn arising above middle of lemma, lobes setiform; anthers 4.5–5 mm 3. *T. hookeri*

1. *Trikeriaia pappiformis* (Keng) P. C. Kuo & S. L. Lu, Fl. Reipubl. Popularis Sin. 9(3): 317. 1987.

假冠毛草 jia guan mao cao

Stipa pappiformis Keng, Sunyatsenia 6: 71. 1941.

Perennial, rhizomatous. Culms 90–150 cm tall, 3–5-noded. Leaf sheaths glabrous, lower equaling and upper much shorter than internodes; leaf blades rolled or lower blades almost flat, 40–50 cm, 2–4 mm wide, scabrid, apex setiform; ligule ca. 1 mm. Panicle open, up to 30 cm; branches usually 2–3(–4) per node, filiform, up to 15 cm, glabrous, lower part bare, upper part densely spiculate. Spikelets yellowish green, rarely gray brown at apex; glumes subequal or upper slightly longer, narrowly lanceolate, 8–10 mm, 3-veined, apex attenuate; lemma 6–7 mm, 3-veined, spreading pappuslike ca. 5 mm hairs in upper part, sparsely pubescent below with 0.5–1 mm hairs, apical lobes 1–2 mm, slenderly acuminate; awn 0.5–0.7 cm, minutely hispidulous, slightly twisted below. Lodicules usually 3, 1–1.2 mm. Anthers 3–3.5 mm. Fl. and fr. Jul–Oct.

• Forest fringes, grassy mountain slopes, river banks; 3400–4300 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan.

This species closely resembles species of *Stephanachne*, but lacks a rachilla extension.

The combination "*Achnatherum pappiforme* (Keng) Keng" (Claves Gen. Sp. Gram. Prim. Sin. 106, 213. 1957) was not validly published because a full and direct reference to the basionym was not provided.

2. *Trikeriaia oreophila* Cope, Kew Bull. 42: 350. 1987.

山地三角草 shan di san jiao cao

Trikeriaia tianshanica S. L. Lu & X. F. Lu.

Perennial, densely tufted. Culms 7–45 cm tall, 2–3-noded. Leaf sheaths glabrous, upper shorter than internodes; leaf blades stiff, involute, 3–12 cm, 1.5–5 mm wide, smooth or scaberulous; ligule 0.4–0.5 mm, obtuse. Panicle contracted, narrow, 1-sided, 2.5–8.5 × 1–1.5 cm; branches 1–2 per node, erect, up to 3.5 cm, scabrid. Spikelets green or yellowish tinged purple; glumes subequal, lanceolate, 9–14 mm, 5-veined, scabrid, narrowly acuminate; lemma ca. 10 mm, 5-veined, pilose,

hairs ca. 2 mm, split almost to lower 1/3, lobes 4.2–7 mm, slenderly acuminate, lateral veins continued into lobes, sometimes excurrent as short mucros; awn 0.8–1.2 cm, geniculate near middle, scabrid, twisted below bend. Lodicules 2 or 3, ca. 1 mm. Anthers 1–1.5 mm. Fl. and fr. Jun–Sep.

Grassy hillsides, windy plains; 2800–5200 m. Xinjiang, Xizang [Bhutan, India (Sikkim), Nepal].

3. *Trikeriaia hookeri* (Stapf) Bor, Kew Bull. [9] 1954: 555. 1955.

三角草 san jiao cao

Perennial, tufted with stout scaly rhizomes; old basal sheaths often pale purplish within. Culms 60–80 cm tall, 2–3-noded. Leaf sheaths slightly scabrid, lower longer and upper shorter than internodes; leaf blades 10–40 × 0.4–0.5 cm (when flattened), abaxial surface scaberulous-puberulous; ligule ca. 2 mm. Panicle contracted or open, 10–30 × 2–10 cm; branches 2–12 cm, scabrid, lower part bare, upper part densely spiculate. Spikelets purplish brown or green tinged purple; glumes oblong-lanceolate, subequal or upper slightly longer, 8–11 mm, 3-veined, scabrid, apex acuminate; lemma 5-veined, villous, hairs 2–4 mm, split to shortly above middle, lobes (1–)2–3.2 mm, acuminate into stiff 0.5–1 mm awnlets; awn stout, stiff, 1.2–1.5 cm, stiff, stout, scabrous, recurved to weakly 1-geniculate, loosely or sometimes only obscurely twisted below bend. Lodicules 1.5–2 mm. Anthers 4.5–5 mm. Fl. and fr. Jul–Sep.

Streams, valleys; 3600–4400 m. Qinghai, Xizang [Kashmir, N Pakistan].

- 1a. Panicle contracted, 10–20 × ca. 2 cm; branches 2–5 cm 3a. var. *hookeri*
- 1b. Panicle open, up to 30 × 7–10 cm; branches up to 15 cm 3b. var. *ramosa*

3a. *Trikeriaia hookeri* var. *hookeri*

三角草(原变种) san jiao cao (yuan bian zhong)

Stipa hookeri Stapf, J. Linn. Soc., Bot. 30: 120. 1894; *Timouria aurita* Hitchcock.

Panicle contracted, 10–20 × ca. 2 cm; branches erect or

obliquely ascending, 2–5 cm, lower 1/3 bare. Spikelets ca. 8 mm; lemma hairs ca. 2 mm. Fl. and fr. Jul–Sep.

Near streams in river valleys; 3600–4400 m. Qinghai (Yushu), Xizang [Kashmir, N Pakistan].

The combination “*Achnatherum hookeri* (Stapf) Keng” (Claves Gen. Sp. Gram. Prim. Sin. 106, 213. 1957) was not validly published because a full and direct reference to the basionym was not provided.

3b. *Trikeria hookeri* var. *ramosa* Bor, Kew Bull. [9] 1954: 557. 1955.

展穗三角草 zhan sui san jiao cao

Panicle open, up to 30 × 7–12 cm; branches up to 15 cm, lower half bare. Spikelets 8–11 mm; lemma hairs 1.5–4 mm.

- Streams, valleys; 3600–4400 m. Qinghai, Xizang.

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