

7. *FUIRENA* Rottbøll, Descr. Icon. Rar. Pl. 70. 1773.

芙兰草属 fu lan cao shu

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Herbs, perennial or annual, sometimes with a creeping rhizome. Culms tufted or solitary, usually pubescent, nodose. Leaves mostly cauline, pubescent or glabrous; sheath usually completely surrounding culm; ligule tubular, hyaline; leaf blade usually elongate, linear to lanceolate. Involucral bracts leaflike, sheathing at base. Inflorescences paniculiform, with few to many glomerulate clusters or sessile spikelets at few to several nodes. Spikelets ovoid to ellipsoid, terete, many flowered, usually pubescent. Glumes spirally imbricately arranged, obovate, broadly elliptic, or oblong, each subtending a bisexual flower but basal 1 or 2 empty, apex obtuse and awned. Perianth bristles 3 or 6, 3 outer ones needlelike (sometimes reduced or absent), 3 inner ones squamellate and alternate with outer whorl. Stamens 3. Style not or hardly dilated at base, continuous with ovary, glabrous; stigmas 3. Nutlet ± stipitate, obovoid to ovoid, 3-sided, ± smooth or tuberculate.

About 30 species: warm regions of the world, most species in tropical Africa and tropical America; three species (one endemic) in China.

- 1a. Perianth bristles 3, all alike, obovate, subsessile, gradually narrowed at base; culms 60–120 cm tall; anthers 0.5–0.7 mm 1. *F. umbellata*
- 1b. Perianth bristles 6, of two types, outer ones needlelike and scaberulose or smooth, inner ones with a subquadrate or spatulate blade abruptly narrowed at base to a distinct ca. 0.3 mm stalk; culms 7–68 cm tall; anthers 0.2–0.3 mm.
 - 2a. Annuals; inflorescences glomerulate clusters each with 3–15 spikelets; spikelets 2.5–3 mm wide; inner whorl of perianth bristles with subquadrate blades 2. *F. ciliaris*
 - 2b. Perennials and rhizomatous; inflorescences glomerulate clusters each with 3–5 spikelets; spikelets 3.5–5 mm wide; inner whorl of perianth bristles with spatulate blades 3. *F. rhizomatifera*

1. *Fuirena umbellata* Rottbøll, Descr. Icon. Rar. Pl. 70. 1773.

芙兰草 fu lan cao

Perennials. Rhizomes horizontally creeping. Culms solitary, erect, 60–120 cm tall, acutely 5-angular, glabrous except below inflorescence, basalmost node bulbously thickened. Cauline leaves with sheath 1.2–6.5 cm, tightly surrounding culm; ligule rust-colored, hyaline, truncate; leaf blade pale green, lanceolate to linear-lanceolate, 10–20 × 0.9–1.9 cm, flat, ± rigid, usually glabrous but sometimes basally pubescent, 5-veined, apex acuminate. Involucral bracts leaflike; bractlets setaceous, sheathless. Inflorescences paniculiform, with 4–20 glomerulate clusters of spikelets; glomerules single or binate, 1.5–2.5 cm wide, bearing 6–15 spikelets; peduncles single or binate, occasionally branched, white villous. Spikelets brownish green to dark brownish green at maturity, ovoid to ovoid-ellipsoid, 7–12 × ca. 3 mm, many flowered, wholly covered with woolly hairs. Glumes brown, broadly elliptic to oblong, ca. 2 mm, membranous, apical ones abaxially sparsely pilose, apex emarginate and with a 3-veined costa ending in a short recurved puberulent 0.5–0.7 mm awn. Perianth bristles brown; outer bristles absent; 3 inner bristles obovate, subsessile, gradually narrowed to base, margin ciliate, apex emarginate and with 3 prominent veins, with 1 costa usually excurrent into a short curved awn. Stamens 3; anthers oblong, 0.5–0.7 mm. Stigmas 3, as long as style. Nutlet brown at maturity, shortly stipitate, obovoid, ca. 1 mm (including stipitate base), 3-sided, base cuneate. Fl. and fr. Jun–Dec. $2n = 48, 52$.

Wet grasslands, river margins, paddy fields; near sea level to 1000 m. Fujian, Guangdong, Guangxi, Hainan, Taiwan, SE Xizang, S Yunnan [Bangladesh, Cambodia, India, Indonesia, Japan (Ryukyu Islands), Laos, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; tropical Africa, America, and Australia, Pacific islands, South America].

2. *Fuirena ciliaris* (Linnaeus) Roxburgh, Fl. Ind. 1: 184. 1820.

毛芙兰草 mao fu lan cao

Scirpus ciliaris Linnaeus, Mant. Pl. Alt. 182. 1771; *Fuirena glomerata* Lamarck; *F. rottboellii* Nees.

Annuals. Rhizomes short. Culms tufted, 7–40 cm tall, 3-angled, striate-sulcate, pubescent, clothed at base with 1 or 2 bladeless pubescent leaf sheaths. Cauline leaves with sheath 1–3.5 cm; ligule rust-colored to reddish, 1–2 mm, membranous, mouth truncate; leaf blade linear, 5–15 × 3–7 mm, flat, soft, 3-costate, surfaces and margin ± pubescent, apex acuminate. Involucral bracts leaflike, surpassing inflorescence; bractlets setaceous, sheathless. Inflorescences with 1–3 clusters of spikelets, interrupted, glomerulate, 1–3 cm wide, bearing 3–15 spikelets; peduncles single, mostly enclosed in bractlet sheaths. Spikelets ovoid to oblong, 5–8 × 2.5–3 mm, many flowered, covered with woolly hairs. Glumes basally yellowish brown, apically grayish black, obovate, 1.2–2 mm, thinly membranous, abaxially pilose, apex obtuse, emarginate, and with a 3-veined costa excurrent into a recurved 1–1.5 mm awn. Perianth bristles 6; 3 outer bristles needlelike, occasionally much reduced, retrorsely scabrous; 3 inner bristles brownish, with subquadrate blades abruptly narrowed at base to a distinct ca. 0.3 mm stalk, apex mucronulate. Stamens 3; anthers oblong, 0.2–0.3 mm. Ovary white, oblong, 3-sided; style brownish, 3–4 × as long as ovary; stigmas 3, 1/3–1/2 as long as style. Nutlet brownish, shortly stipitate, obovoid, ca. 1 mm, 3-sided. Fl. and fr. Jul–Dec. $2n = 38$.

Wet places, often in paddy fields, river margins; near sea level to 200 m. Fujian, Guangdong, S Guangxi, Hainan, Hebei, Jiangsu, Shandong, Taiwan, S Yunnan [Bangladesh, Cambodia, India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Africa, Australia].

3. *Fuirena rhizomatifera* Tang & F. T. Wang, Fl. Reipubl. Popularis Sin. 11: 225. 1961 [*“rhizomatifer”*].

黔芙兰草 qian fu lan cao

Fuirena umbellata Rottbøll var. *angustifolia* Kükenthal.

Perennials. Rhizomes oblique; scales purplish brown, broadly ovate, apex acute. Culms laxly tufted, 35–68 cm tall, slender, subangular, striate-sulcate, clothed at base with 2 leaf sheaths. Cauline leaves with sheath 1–3 cm, glabrous; ligule reddish brown, 1–2 mm, membranous, mouth truncate; leaf blade 3–5 mm wide, flat, margin scabrous, apex acuminate. Involucral bracts leaflike, margin and sheath pubescent. Inflorescences with 3 glomerulate clusters of spikelets, each cluster bearing 3–5 spikelets; peduncles compressed, pubescent. Spikelets ovoid to spherical, 5.5–8 × 3.5–5 mm. Glumes brownish green to grayish black, broadly obovate, ca. 3 mm, pubescent, margin ciliate, apex rounded, emarginate, and with a 3-veined costa excurrent into a scabrous ca. 1 mm awn. Perianth bristles 6; 3 outer bristles brownish, needlelike, 1/2–2/3 as long as inner ones, squamellate, pubescent; 3 inner bristles with blades abruptly narrowed at base, distinctly stalked, margin ciliate, apex obtuse. Stamens 3; anthers oblong, 0.2–0.3 mm, apex obtuse. Stigmas 3, as long as style. Nutlet obovoid, ca. 1 mm, 3-sided. Fl. and fr. Jul–Nov.

- Swamps; ca. 800 m. SW Guangxi, Guizhou.

