

## Two New Naturalized Grasses in Taiwan

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(Manuscript received 12 October, 1999; accepted 15 November, 1999)

**ABSTRACT:** *Anthoxanthum odoratum* L. and *Paspalum paniculatum* L. are two new naturalized grasses which have been found recently in central Taiwan. Description and line drawings for both species are provided.

**KEY WORDS:** *Anthoxanthum odoratum* L., *Paspalum paniculatum* L., Poaceae.

**Anthoxanthum odoratum** L., Sp. Pl. 1: 28. 1753 ; Hitchcock, Manual of the Grasses of the United States 549. 1950; Bor, Grasses of Burma, Ceylon, India and Pakistan (excluding Bambuseae) 431. 1960; Osada, Illustrated Grasses of Japan- Enlarged Edition 270. 1993.

香黄花茅 Fig. 1

Perennials, without conspicuous rhizome. Culms tufted, erect, slender, 20 to 60 cm tall, rarely to 1 m tall, 1 mm thick, glabrous, 3 to 4 nodes. Leaves radical and cauline; blades short-linear, 2 to 13 cm long, 2 to 4 mm wide, flat, soft, generally sparsely pilose on both surfaces; ligules 3.5 mm long, white hyaline; sheaths sparsely pilose. Panicle erect, contracted and spike-like, lanceolate, 2 to 4.5 cm long, 5 to 10 mm wide, contiguous or somewhat interrupted with vestige branches below, light green and eventually yellow-brown; branches short, scabrous, sparsely pilose. Spikelets on pubescent short pedicel, lanceolate, 7 to 8 mm long, compressed, yellow-brownish, shiny, 3-flowered; the lower two sterile, and the uppermost one perfect and fertile. Glumes unequal, strongly folded with acute keel, the keel scabrous above, sometimes hairy on keel; lower glume narrowly ovate, hyaline, 3.5 to 4 mm long, 1-nerved; upper glume widely lanceolate, dotted, 7 to 8 mm long, 3-nerved. Both sterile lemmas narrowly oblong, 3 mm long, brownish, pubescent with brown hairs except at bilobed apex; the lower lemma with a straight awn arising at 3/4 from the base; the upper lemma with a longer, geniculate, twisted awn arising at 1/4 from the base. Fertile lemma obovate, 2 mm long, glabrous, smooth, faintly 3-nerved. Palea lanceolate oblong, 1-nerved. Anthers 2, each 3.5 to 4 mm long.

Chromosome number  $n=10$ ;  $2n=20$ .

Native to Europe and Siberia; introduced to Japan as a forage grass.

In Taiwan, found only at median altitude in Nantou County, around Jen-ai Hsiang, growing at moist roadside and parking area in Tien-chih (N 24°13'15.3", E 121°14'15.4").

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Fig. 1. *Anthoxanthum odoratum* L. A: Plant body with spike-like panicle. B: Lateral view of pilose sheath, and hyaline ligule. C: Upper margin of ligule. D: Part of spike-like panicle, showing the rachis and pedicel. E: Lower glume and upper glume. F: Three florets, showing the lower two sterile, and the uppermost fertile floret. G: Lemma of the uppermost floret. H: Palea of the uppermost floret. (Bar= 1 mm unless noted).

More information on nomenclature can be consulted from Missouri Botanical Garden - TROPICOS Nomenclatural Data Base, [http://mobot.mobot.org/cgi-bin/search\\_pick](http://mobot.mobot.org/cgi-bin/search_pick), TROPICOS # 25506855.

**Paspalum paniculatum** L. Syst. Nat. 2: 855. 1759; Koning and Sosef, Blumea 30: 279-318. 1985; Webster, Australian Paniceae (Poaceae) 177. 1987. 多穗雀稗 Fig. 2

Perennials, tufted, stolons absent. Culms ascending to erect. Flowering culms erect, 30 to 100 cm tall, often branching; nodes with whitish hairs. Sheaths slightly keeled, hirsute. Ligule collar-shaped, brownish membrane, 1 mm long, entire. Leaf blades flat, linear to lanceolate, gradually tapering to a narrow apex, rounded at the base, 4 to 35 cm long, 2 to 20 mm wide, hairy, with a tuft of long white hairs at the immediate base of the ligule. Inflorescence fully exerted at maturity. Main axis present, 7 to 20 cm long, smooth. Racemes 10 to 30, alternate, the lowermost one 2.5 to 7 cm long, the others distally becoming shorter. Rachis flat, winged, straight to slightly zigzag at the upper end, 0.5 mm wide. Spikelets overlapping, usually paired, evenly distributed along the length of the branch, elliptic to obovate, 1.2 to 1.4 mm long, 0.9 to 1 mm wide, yellow-brown or purplish with dots of hair base, apex rounded. Lower glume absent. Upper glume elliptic to obovate, convex, slightly shorter than, sometimes as long as the spikelet, 5-nerved, hyaline, hairy, puberulent. Lower floret neuter. Lower lemma flat, membranous, 3-nerved. Palea of lower floret absent. Upper lemma glabrous, smooth to irregularly striate, rounded on the back, thickly coriaceous, with obscure nerves. Palea flat to slightly convex, coriaceous, 2-nerved. Anthers 0.8 mm long, brown to purple. Stigmas dark brown to dark purple. Caryopsis ovoid, unequally biconvex, 1 mm long.

Chromosome number  $2n=20$ ; 40.

Native to tropical South America and West Africa; introduced to elsewhere in the tropics as a pasture grass, e.g. in Malesia, and Australia.

In Taiwan, found at low altitude in Taichung City at Ta-keng area, and to median altitude in Taichung County around Ho-ping Hsiang, growing along Li-Leng forest roadsides. A weedy species prefers moist sites, extending rapidly from forest margins to waste grounds, orchards, and plantations. Records have been taken at the following sites: (N 22°07'12.6", E 120°52'34.9" ; N 23°54'26.4", E 120°51'45.6"; N 24°06'59.6", E 121°12'10.1"; N 24°07'03.8", E 120°55'58.9"; N 24°07'12.8", E 120°54'22.0"; N 24°07'16.1", E 120°55'31.5"; N 24°07'31.2", E 120°56'11.6"; N 24°08'09.9", E 120°58'09.8"; N 24°08'22.7", E 120°56'11.8"; N 24°08'31.3", E 120°56'20.3"; N 24°13'15.3", E 121°14'15.4")

More information on nomenclature can be consulted from Missouri Botanical Garden - TROPICOS Nomenclatural Data Base, [http://mobot.mobot.org/cgi-bin/search\\_pick](http://mobot.mobot.org/cgi-bin/search_pick), TROPICOS # 25512329.

### ACKNOWLEDGEMENTS

This study was partially supported by the grant of the Council of Agriculture (88 conservation Foundation-05-2) to Chang-Sheng Kuoh and Ming-Yih Chen.



Fig. 2. *Paspalum paniculatum* L. A: Plant body with tufted culms. B: One inflorescence with numerous racemes. C: One node densely cover with long hairs. D: Part of main axis, showing long hairs on the base of rachis, and two paired pedicels on rachis. E: Ventral view of rachis. F: Dorsal view of rachis. G: Spikelet viewing from upper glume. H: Spikelet viewing from lower lemma. I: Upper palea viewing from adaxial side. J: Upper lemma viewing from adaxial side. K: Flower with stamen and pistil. L: Lateral view of sheath and basal part of the blade, noted densely indumenta on them. (Bar= 1 mm unless noted).

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## 兩種台灣新歸化禾草記錄

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(收稿日期：1999年10月12日；接受日期：1999年11月15日)

### 摘 要

本文報導香黃花茅 (*Anthoxanthum odoratum* L.) 及多穗雀稗 (*Paspalum paniculatum* L.) 兩種最近發現於台灣中部之新歸化禾本科植物。文中並給予描述及手繪圖。

關鍵詞：香黃花茅，多穗雀稗，禾本科。

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