

Muhlenbergia aguascalientensis (Poaceae: Chloridoideae: Eragrostideae), a New Species from Mexico

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ABSTRACT. *Muhlenbergia aguascalientensis*, from Sierra Fría, Aguascalientes, Mexico, is described and illustrated. A tabular comparison with its related species, *M. durangensis* Herrera and *M. michisensis* Herrera & Peterson, is given.

The genus *Muhlenbergia* Schreber (Poaceae, Chloridoideae) is comprised of over 160 species (Clayton & Renvoize, 1986), most of which are distributed in North and South America. In the southwestern United States and northern Mexico, species of *Muhlenbergia* make up about 25% of the grassland flora and provide a considerable amount of forage for livestock (Cronquist et al., 1977). The majority of species are xeromorphic, and a large percentage of the Mexican species are endemic (44% of the *M. montana* (Nuttall) Hitchcock complex; Herrera-Arrieta & Grant, 1993). A distinct taxon belonging to this complex was found during an examination of herbarium specimens at HUAA to complete the monographic descriptions of the *Muhlenbergia montana* complex, and to make a floristic study of the grasses from Aguascalientes. Additional field collections were made in the Sierra Fría, Aguascalientes, Mexico, where the species was first collected. The new species is named after this region.

***Muhlenbergia aguascalientensis* Herrera & De la Cerda**, sp. nov. TYPE: Mexico. Aguascalientes: Mpio. de San José de Gracia, NW of Aguascalientes, 12 km NW from La Congoja, Playa Mariquitas, Monte Grande de la Sierra Fría, 2850 m, 22°15'6.7"N, 102°37'24.9"W, 8 Nov. 1986, G. García 2801 (holotype, HUAA; isotypes, CIIDIR, ENCB, IEB). Figure 1.

A *Muhlenbergia michisensis* culmis 30–58 cm altis, ligulis 0.5–0.7(–1) mm longis, auriculis 1–2(–6) mm longis; laminis basalis 5–10(–15) cm longis; paniculis 5–8(–15)

cm longis; spiculis 5–6.5 mm longis; aristis 2–3.5 cm longis; antheris 2.4–3 mm longis differt.

Caespitose perennial, rhizomatous, 30–58 cm tall. Sheaths up to 1.5 cm long, glabrous to scaberulous, striate, shorter than the internodes, with hyaline margins, elongated toward the blade forming auricles 1–2(–6) mm long. Ligules 0.5–0.7(–1) mm long, membranous, hyaline, fimbriate, rounded. Basal blades 5–10(–15) cm long, 1–2.5 mm wide, scaberulous, flat to folded, the margins and central rib sclerosed, scabrous. Panicles 5–8(–15) cm long, 2–4 cm wide, open, loosely flowered, pyramidal, largely exserted, olive, the ascending branches appressed to spreading at maturity, 20–40° from the culm axis, 2–5 cm long; pedicels 1–2.5 mm long, scabrous; inflorescence branches 2–5 cm long; central axis 8-ribbed at the base of the panicle, scabrous. Spikelets 5–6.5 mm long, erect, 1-flowered. Glumes 5–6.5 mm long, oblanceolate, entire, longer than the lemma, usually equal in length, the apex sharply apiculate to mucronate, the mucron 0.5–1 mm long, 1-nerved, olivaceous; second glume with the 2 lateral nerves inconspicuous, scabrous along the entire length. Lemma 4.5–5 mm long, oblong-lanceolate, hyaline to yellowish, awned, glabrous to shortly pilose on the lateral nerves at base; apex acute, minutely bifid, the lobes to 0.2 mm long; awn 2–3.5 cm long, flexuous, yellowish. Palea 4.2–4.8 mm long, oblanceolate, entire, glabrous to pilose on the nerves at the base. Anthers 2.4–3 mm long, purplish. Caryopsis not seen. Chromosome number $2n = 20$.

Distribution and habitat. *Muhlenbergia aguascalientensis* is known from northwestern Aguascalientes, northwest of La Congoja, San José de Gracia, at 2850 m. It occurs in grassland in open forest of *Juniperus deppeana* Steudel and *Quercus sideroxyla* Humboldt & Bonpland.

Muhlenbergia aguascalientensis resembles *M.*



Figure 1. *Muhlenbergia aguascalientensis* Herrera & De la Cerda (*G. García 2801*). —A. Habit. —B. Ligule. —C. Inflorescence branch. —D. Spikelet. —E. Glumes. —F. Lower glume, dorsal view. —G. Floret. —H. Lemma, lateral view. —I. Palea, dorsal view.

Table 1. Characters distinguishing *Muhlenbergia agascalientensis*, *M. durangensis*, and *M. michisensis*.

Characters	<i>M. durangensis</i>	<i>M. agascalientensis</i>	<i>M. michisensis</i>
Rhizomes	Present	Present	Absent
Ligule apex	Truncate-fimbriate	Truncate-fimbriate	Acuminate
Ligule length	0.5–0.7(–1) mm	0.5–0.7(–1) mm	4–7 mm
Leaves	Caulinar	Basal	Caulinar
Panicle length	10–25 cm	5–8(–15) cm	12–17 cm
Spikelet length	6–7(–7.5) mm	5–6.5 mm	4.5–5 mm
Glume length	(5–)6–7(–7.5) mm	5–6.5 mm	4.5–5 mm
Lemma length	5–6.7(–7) mm	4.5–5 mm	3.5–4 mm
Lemma apex	Entire	Minutely bifid	Minutely bifid
Lemma lobes length	0.0 mm	0.2 mm	0.2 mm
Lemma awn length	15–20 mm	20–35 mm	12–13 mm
Palea length	5–6 mm	4.2–4.8 mm	2.8–3.5 mm
Palea apex	Entire-apiculate	Entire	Bilobed
Anther length	(2.5–)3–3.5 mm	2.4–3 mm	2–2.4 mm

michisensis Herrera & Peterson and *M. durangensis* Herrera; however, these two species differ in many morphological characteristics (Table 1). *Muhlenbergia agascalientensis* is similar to *M. flaviseta* Scribner, a species of restricted distribution in the Sierra Madre Occidental, sharing with it macro-morphological features such as basal leaves and a long-exserted panicle, but differing in most of the spikelet features.

The flavonoid chemistry of *M. agascalientensis* is very similar to *M. eriophylla* Swallen and *M. michisensis* Herrera & Peterson. They share: quercetin 3-0 rhamnosilxyloside, luteolin 6 galactoside, luteolin 6 glucoside, luteolin 8 glucoside, apigenin 7-0 arabinoside, apigenin 7-0 diarabinoside, apigenin 7-0 glucoside, tricin 5-0 glucoside, tricin 7-0 glucuronide, and 4'hydroxyflavone 7-0 glucoside (Herrera & Bain, 1991). *Muhlenbergia agascalientensis* also contains luteolin 6 xylosilglucoside, which was previously thought to be a unique compound of *M. durangensis*.

Paratypes. MEXICO. **Aguascalientes:** Playa Mariquitas, Sierra Fría, 12 km NW from La Congoja, San José de Gracia, 22°15'6.7"N, 102°37'24.9"W, 2850 m, 25 Nov. 1993, *Herrera & De la Cerda 1185* (CIIDIR, HUAA, IEB, ENCB, MEXU, US).

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Literature Cited

Clayton, W. D. & S. A. Renvoize. 1986. Genera Graminum, Grasses of the World. Kew Bull., Addit. Ser. XIII: 1–389. Her Majesty's Stationery Office, London.

Cronquist, A., A. H. Holmgren, N. H. Holmgren, J. L. Reveal & P. K. Holmgren. 1977. Intermountain Flora. Vol. 6, The Monocotyledons. Columbia Univ. Press, New York.

Herrera A., Y. & J. F. Bain. 1991. Flavonoid profiles in the *Muhlenbergia montana* complex (Poaceae). Biochem. Syst. Ecol. 19: 665–672.

Herrera-Arrieta, Y. & W. F. Grant. 1993. Correlation between generated morphological character data and flavonoid content of species in the *Muhlenbergia montana* complex. Canad. J. Bot. 71: 816–826.



Cerda Lemus, Margarita de la and Herrera Arrieta, Yolanda. 1995.
"Muhlenbergia aguascalientensis (Poaceae: Chloridoideae: Eragrostideae), a new species from Mexico." *Novon a journal of botanical nomenclature from the Missouri Botanical Garden* 5, 278–280. <https://doi.org/10.2307/3392265>.

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