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. Garcia 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 scabrous, scabrous. Panicles 5–8(–15) cm long, 2–4 cm wide, open, loosely flowered, pyramidal, largely exerted, olive, the ascending branches compressed 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, oblong-lanceolate, 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, oblong-lanceolate, 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, 2850 m. It occurs in grassland in open forest of Juniperus deppeana Steudel and Quercus side-roxyla Humboldt & Bonpland.

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

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

*michisensis* Herrera & Peterson and *M. durangensis* Herrera; however, these two species differ in many morphological characteristics (Table 1). *Muhlenbergia aguascalientensis* is similar to *M. flaviseta* Scribnér, 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. aguascalientensis* 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, trim 5-0 glucoside, trim 7-0 glucuronide, and 4'-hydroxyflavone 7-0 glucoside (Herrera & Bain, 1991). *Muhlenbergia aguascalientensis* also contains luteolin 6 xylosilglucoside, which was previously thought to be a unique compound of *M. durangensis*.

**Paratypes.** MEXICO. *Aguascalientes:* Playa Mariquitas, Sierra Fria, 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 (CIDIR, HUAA, IEB, ENCB, MEXU, US).

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**Literature Cited**

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