

TWO NEW RECORDS OF *DIGITARIA* SECT. *DIGITARIA* (POACEAE)  
FROM VENEZUELA AND THE NEW WORLD

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ABSTRACT

*Digitaria radicata* is reported for the first time from the New World. The voucher specimens are from lawn gardens and sidewalks in Caracas, the capital city of Venezuela, and can be identified by its essentially smooth rachis margin. Additionally, *Digitaria velutina* is reported new for the Venezuelan flora. The specimens came from disturbed sites of the Andes and Coastal Cordillera, above 1500 m elevation. *Digitaria velutina* is recognized by its inflorescence ramification, clearly branched in the lowest racemes, and also by having the smallest spikelets among the Venezuelan species of section *Digitaria*. A key is provided for the section.

KEY WORDS: *Digitaria radicata*, *Digitaria velutina*, Poaceae, Venezuela, range extension, Neotropics, weeds, invasive

RESUMEN

Se reporta *Digitaria radicata* por primera vez para el Nuevo Mundo. Las muestras testigo provienen de jardines y aceras de Caracas, capital de Venezuela, y pueden ser identificadas por los márgenes del raquis esencialmente lisos. Adicionalmente, se documenta *Digitaria velutina* como nueva para la flora venezolana. Los especímenes provienen de lugares intervenidos de la cordillera andina y Cordillera de la Costa, por encima de los 1500 m de elevación. *Digitaria velutina* se reconoce por su inflorescencia, claramente ramificada en los racimos inferiores, y también por poseer la espiguilla más pequeña entre los representantes venezolanos de la sección *Digitaria*. Se incluye una clave para la sección.

INTRODUCTION

A total of 27 species was reported in the most recent synopsis of the genus *Digitaria* in Venezuela (Vega & Rúgolo 2005), ranking the genus in the top five of the largest grass genera in the country. The synopsis listed a number of Venezuelan specimens from US, VEN and other herbaria, but an important portion of Venezuelan exsiccata remained unidentified or unconfirmed. In our current study we examined *Digitaria* specimens in all the Venezuelan herbaria, especially of *Digitaria* subg. *Digitaria* sect. *Digitaria* (sensu Webster 1983, 1987), recognized as one of the most difficult groups (Webster 1983).

Section *Digitaria* can be identified by the following set of characters (Webster 1983): annual plants with open inflorescences, paired spikelets distributed along the winged rachis, no woolly indumentum, rachilla not elongated between the glumes, second glume shorter than lower lemma, and upper floret (antherium) yellow or greenish-yellow.

Cultivated species excluded, there are four species of section *Digitaria* in Venezuela: *D. bicornis* (Lam.) Roem. & Schult., *D. ciliaris* (Retz.) Koeler, *D. horizontalis* Willd., and *D. nuda* Schumach. (Vega & Rúgolo 2005; Zuloaga et al. 2008). In the course of the present study *Digitaria radicata* was identified as new to Venezuela and the New World and *Digitaria velutina* as new to Venezuela. The two new floristic records are discussed and an identification key for the section is provided.

## NEW RECORD FOR THE NEW WORLD

**Digitaria radicata** (J. Presl) Miq., Fl. Ned. Ind. 3:437. 1857. (**Fig. 1**).

The species is morphologically similar to *D. ciliaris*. Spikelets are 2.4–2.7 mm long and the lower lemma has unevenly spaced nerves (pair of subcentral nerves widely separated from midnerve). It is recognized by its essentially smooth, never scabrous rachis margins, delicate habit, fewer and slender racemes, smaller first glume, and spikelet hairs exceeding the spikelet tip.

*Digitaria radicata* is a ruderal species found along sidewalks and open ground of lawns and gardens. The species often grows with the more common weedy *D. bicornis* (Lam.) Roem. & Schult., but the latter has a rachis with scabrous margin and developed denticules, lower lemma of sessile spikelet with five central nerves evenly spaced and prominent, and pedicelled spikelets with pectinate hairs at maturity.

The species is known from Africa, temperate and tropical Asia, Australia, Pacific (Hawaii), Caribbean (Navassa Island) (Herbst & Clayton 1998; Koba et al. 2012; The Plant List 2013; Clayton et al. 2006 onwards; Tropicos.org 2017; USDA 2017), and now continental America. There is a record of the species from Europe too, as casual alien (Verloove 2008). It is reported as a weed in Häfliger and Scholz (1980).

Voucher specimens of *Digitaria radicata*: **VENEZUELA. Miranda**: Caracas, residence of Julian Steyermark, avenida Sur de Santa Fé, quinta no. 82, Urb. Santa Fé, 890 m elev., 3 Jan 1984, *Julian Steyermark 129692* (VEN, duplicate to be distributed); sobre la acera en zona industrial de La Urbina, 10°29'34.79"N, 66°48'40.99"W, 887 m elev., 27 Jul 2016, *Héctor Hernández I* (VEN); suelo desnudo en el jardín interno del Cjto. Rsd. Jardín Bello Campo, Caracas, 10°29'29.18"N, 66°51'18.06"W, 890 m elev., 28 Nov 2016, *Shingo Nozawa 2200* (TKPM, VEN, duplicates to be distributed).

## NEW RECORD FOR VENEZUELA

**Digitaria velutina** (Forssk.) P. Beauv., Ess. Agrostogr. 51, 173. 1812. (**Fig. 2**).

According to Clayton and Renvoize (1982), the species is morphologically similar to the African *D. pearsonii* Stapf (section *Erianthae*), which is not present in Venezuela. The only consistent difference between the two is the presence of rhizomes in *D. pearsonii* and stolons in *D. velutina*.

*Digitaria velutina* is found in sidewalks, roadsides, and at least in Mérida, abundant in gardens and pastures. It has been declared a noxious weed in the U.S. (USDA 2017), status yet to be confirmed in Venezuela. Other American collections are from Colombia, Costa Rica, El Salvador and México, with the oldest collection from Guatemala in 1955 (Giraldo-Cañas 2016; Tropicos.org 2017). The collection in South America seems to be of recent origin as the first specimen was collected in 2005 (*Meier 12316* [VEN]).

Voucher specimens of *Digitaria velutina*: **VENEZUELA. Aragua**: común en orillas de acera, zona céntrica de Colonia Tovar, 10°24'28.02"N, 67°17'18.6"W, 1785 m elev., 26 Nov 2016, *Shingo Nozawa 2196* (VEN, duplicates to be distributed). **Distrito Federal**: Parque Nacional El Ávila, San Francisco de Galipán, al lado de la carretera, 1700–1900 m elev., 20 Nov 2005, *Winfried Meier 12393* (VEN). **Mérida**: municipio Libertador, cultivos de papa, vía al páramo de la Culata, al oeste de la carretera Mérida-La Culata, Finca La Ensiada, 1800–2300 m elev., 8°38'6"N 71°07'W, 11 Nov 2005, *Winfried Meier 12316* (VEN); orilla de camino, Llanitos de Tabay, ca. 1500 m elev., 6 Jun 2009, *Shingo Nozawa 1548* (VEN, duplicate to be distributed); El Valle, sector El Arado A, en los jardines y bordes de caminos asfaltados, May 2016, *José Grande 543, 544* (VEN); ciudad de Mérida, en el borde de las aceras a la altura del segundo viaducto sobre el río A barregas como maleza, May 2016, *José Grande 545* (VEN).

## KEY TO DIGITARIA SUBG. DIGITARIA SECT. DIGITARIA OF VENEZUELA

1. Inflorescence branched in the lower racemes, spikelets up to 2.1 mm long \_\_\_\_\_ **D. velutina**
1. Inflorescence unbranched in the lower racemes, spikelets greater than 2.1 mm long.
  2. Rachis margin with scattered, elongate hairs, often papillae-based.
    3. Spikelets greater than 2.8 mm long, often up to 3 mm, vegetative part densely pubescent, rare \_\_\_\_\_ **D. ciliaris** var. **rhachiseta**
    3. Basal spikelets less than 2.5(–2.8) mm long, vegetative part densely pubescent to glabrous, common in disturbed sites.
      4. Leaf blades with abaxial surface glabrous, adaxial surface essentially glabrous with scattered hirsute hairs near the base; second glume 2/3 times as long as the spikelet (including pubescence); spikelets 0.65–0.70 mm wide; first glume absent or scale-like with rounded apex \_\_\_\_\_ **D. nuda** (p.p.)
      4. Leaf blades finely pubescent on both surfaces; second glume less than 1/2(–2/3) times as long as the spikelet (including pubescence); spikelets 0.5–0.60(0.65) mm wide; first glume present, triangular or with rounded apex \_\_\_\_\_ **D. horizontalis**

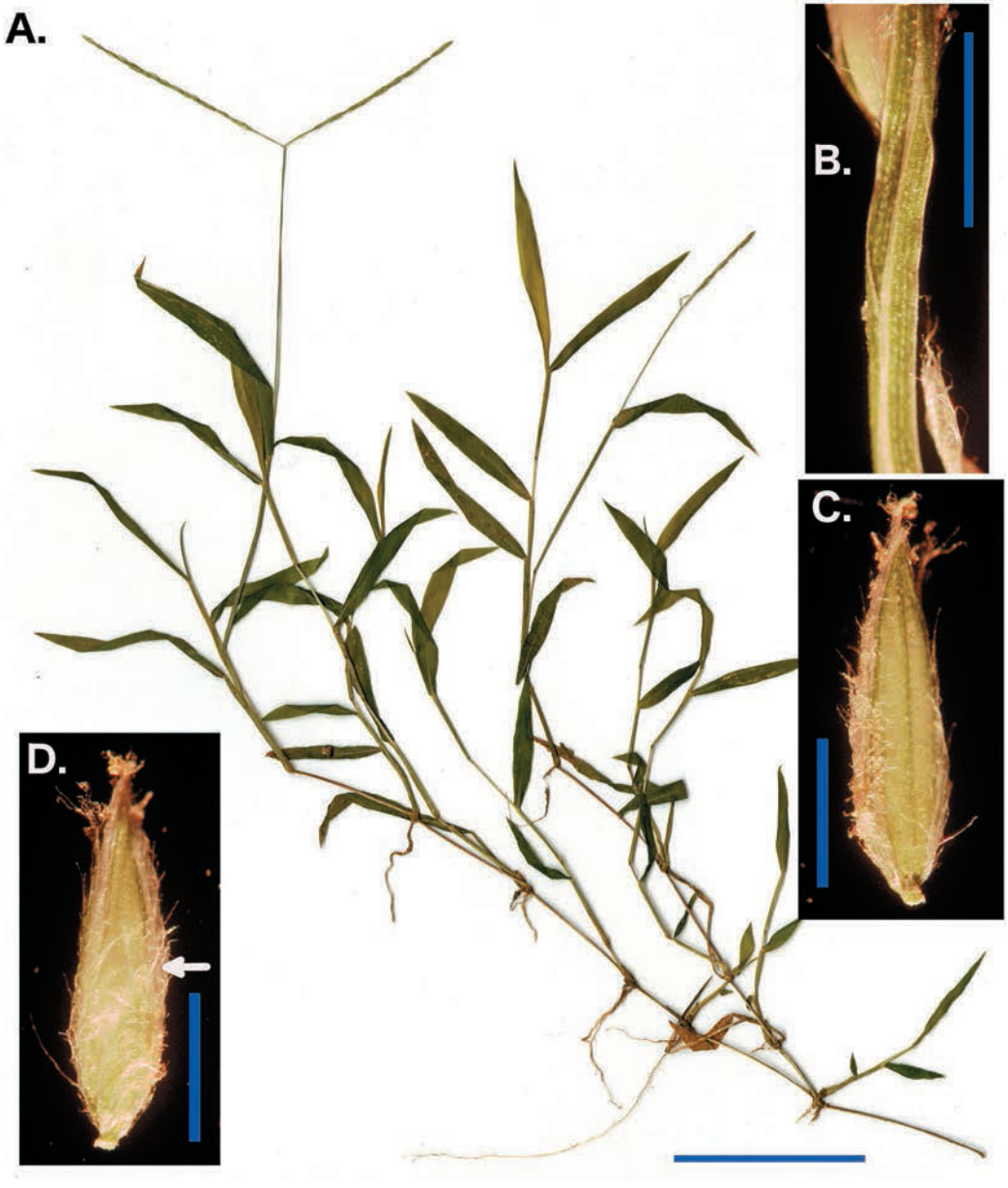


FIG. 1. *Digitaria radicata* (Nozawa 2200 [VEN]). A. Habit and paired inflorescence (scale = 3 cm). B. Rachis with smooth margin (scale = 1 mm). C. Spikelet on first glume side, showing the hairs exceeding the spikelet tip (scale = 1 mm). D. Spikelet on second glume side, arrow pointing at glume tip, 0.4 length of spikelet (scale = 1 mm).

2. Rachis with scabrous or smooth margin, without scattered, elongate hairs.
5. Culms slender; rachis with margins essentially smooth, denticles if present papillae-like \_\_\_\_\_ **D. radicata**
5. Culms slender to robust; rachis margins never smooth, scabrous with developed denticles.
6. Spikelets up to 2.5 mm long; first glume absent or scale-like with rounded apex \_\_\_\_\_ **D. nuda** (p.p.)
6. Spikelets greater than 2.5 mm long; first glume present, triangular or apically rounded.
7. Lower lemma of the subsessile spikelet with five central nerves equidistant and prominent, ribbed; pedicelled spikelets with pectinate hairs at maturity; first glume absent, scale-like or widely triangular \_\_\_\_\_ **D. bicornis**

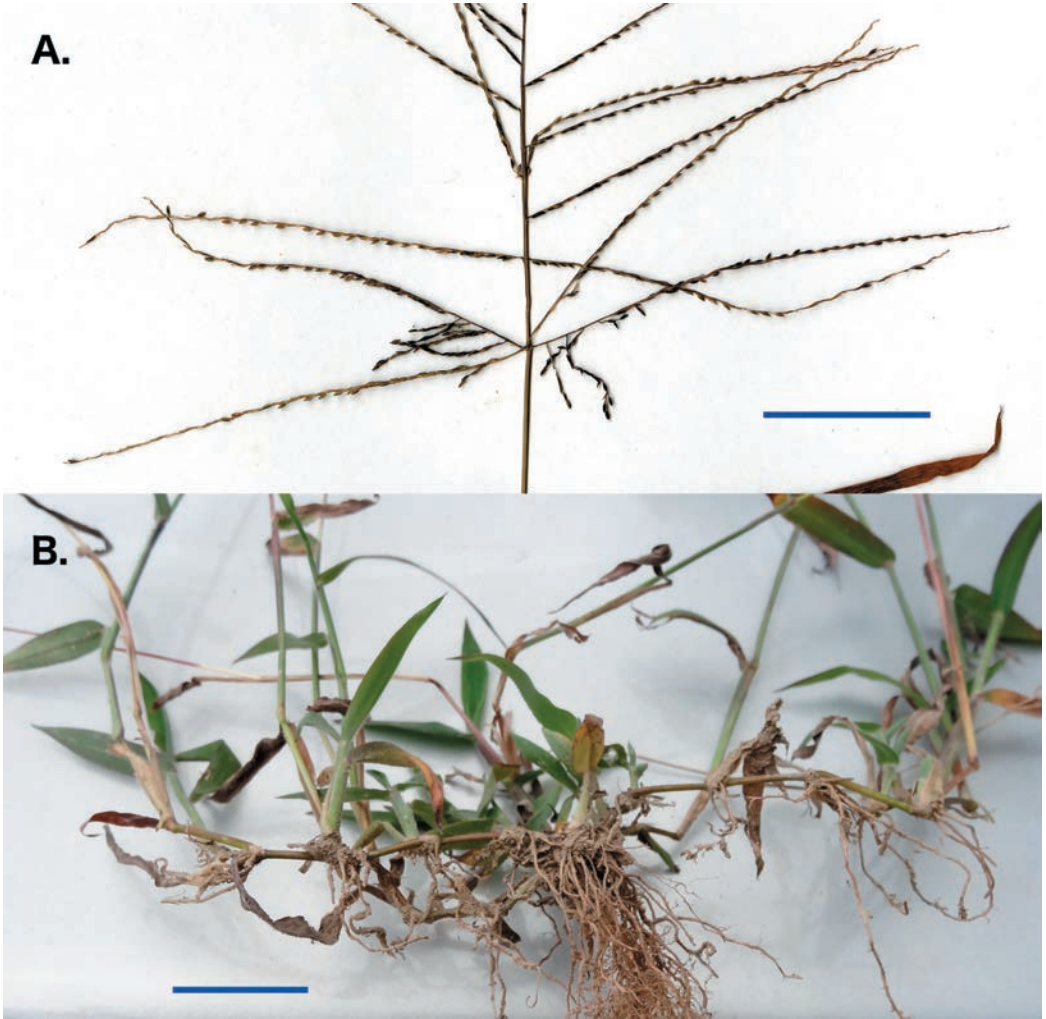


FIG. 2. *Digitaria velutina*. **A.** Inflorescence detail, branched in the lower racemes (scale = 3 cm) (Nozawa 1548 [VEN]). **B.** Stoloniferous habit (scale = 4 cm) (Nozawa 2196 [VEN]).

7. Lower lemma of the subsessile spikelet with pair of subcentral nerves widely separated from the midnerve and close to the marginal nerves, nerves rarely prominent, not ribbed; pedicelled spikelets with hairs rarely pectinate at maturity; first glume present, narrowly triangular. **D. ciliaris** var. **ciliaris**

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