Aristida tuitensis (Poaceae: Aristideae), a New Species from El Tuito, Jalisco, Mexico

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ABSTRACT. A new species, *Aristida tuitensis* from El Tuito, Jalisco, Mexico, is described and illustrated, and its distribution and ecology are discussed. It belongs to *Aristida* sect. *Streptachne* and is distinguished from *A. schiedeana* by its spreading inflorescence, shorter spikelets, and the lack of dentate glumes, and from *A. hintonii* by its inflorescence shape, the internode, and sheath length. A table summarizing the differences and similarities among the three species is presented.

As part of research to revise the genus *Aristida* L. section *Streptachne* (R. Brown) Domin, some unusual specimens of *Aristida* were collected in the area of El Tuito, Jalisco, Mexico, in early 1993. The material was initially identified as *A. schiedeana*, a common grass in the area. However, with additional studies of these specimens, as well as other collections from IBUG and COCA, it was realized that these specimens represent a new species.

Aristida tuitensis Sánchez-Ken & P. Dávila, sp. nov. TYPE: Mexico. Jalisco: Municipio El Tuito, El Tuito, 9 a 10 km sobre la brecha a las Minas del Cuale (E de El Tuito), elev. 1900 m, 13 ene. 1991, *J. Sánchez-Ken, M. Mayfield & B. Westlund 500* (holotype, MEXU; isotypes, ENCB, IBUG, MICH, MO). Figure 1.

Gramen perenne caespitosum; internodia ramosa, 9–15 infra inflorescentiam; vaginae coriaceae internodiis longiores; ligulae externae presentes; spiculae effusae binatae; glumae infernae glumis supernis longiores; glumae infernae no dentatae, 3-nervatae, nervis centrales conspicui, nervi laterales inconspicui; calli 0.7–1.0 mm longi; lemmata glumis breviores vel eas aequantes raro; columnae lemmatum 6–10 mm longae; aristae laterales absentes; antherae 3–4 mm longae.

Perennial tufted grass, erect; pseudorhizome present, 80–120 cm long. Internodes 2.0–9.0(–12.0) cm long, 1–2 mm diam., glabrous, straight, terete, bamboo-like, branched, with 9–15 internodes below the inflorescence; nodes glabrous, inconspicuous. Leaf sheaths 3–9 cm long, 4–6 mm wide, longer than the internodes, strongly overlapping, glabrous, not striate, strongly coriaceous, including the margins; inner ligule ciliate, 0.2–0.3 mm long; auricles lacking, sometimes a tuft of lateral hairs 2 mm long instead of the auricles in juvenile stages; outer ligule or contra ligule present; blade 10–50 cm long, 2–4 mm wide, linear, flat, straight to slightly flexuous when dry, adaxially scaberulous with scattered hairs toward the base, abaxially smooth or rarely scaberulous, with 7 main conspicuous nerves, but with 21, 23, or 25 nerves in total. Inflorescence an open panicle, 14–35 cm long, 12–20 cm wide; basal internode 18–70 cm long; peduncule 11–30 cm long, glabrous or scaberulous; branches 9–13(–15) cm long, branching until 5th order, ascendant, strongly spreading, with the spikelets located at the apex; pulvinus present in the axils of all branches and pedicels, glabrous; pedicels 5–18 mm long. Spikelets usually paired, 20–28 mm long from the base of glumes to the tip of the awn, spreading; glumes varying in size, usually the first larger than the second one, sometimes the second glume larger, persistent; first glume 4–8 mm long, to 1 mm wide, 3-nerved, the two lateral nerves inconspicuous, glabrous, keeled and scabrous in the keel, apically acute and awned, not dentate, awn 0.5–2.0 mm long; second glume 6.0–7.5 mm long, to 1.0 mm wide, 1-nerved, keeled and glabrous in the keel, apically obtuse and awned, not dentate, the awn 0.5–1.0 mm long; calluses 0.7–1.0 mm long; lemma shorter than or sometimes as long as the glumes, 4.5–6.0 mm long without the column, 1.0–1.3 mm wide, convolute, 3-nerved, terete, scaberulous in the upper third, not articulate with the column, not articulated; column 6–10 mm long, twisted, abaxially scaberulous, adaxially muricate, basally geniculate; awn 1, 8–10 mm long, straight, basally geniculate, thin; lateral awns lacking; palea 0.5–0.7 mm long, not keeled, smooth; lodicules 2, 1.0–1.2 mm long, hyaline; stamens 3; anthers 3–4 mm long; stigma 1–2 mm long. Caryopsis not seen.

Distribution. Aristida tuitensis is endemic to the area of El Tuito in the state of Jalisco, northeast of Chamela. It occurs in a pine and oak forest that also contains some elements that are characteristic

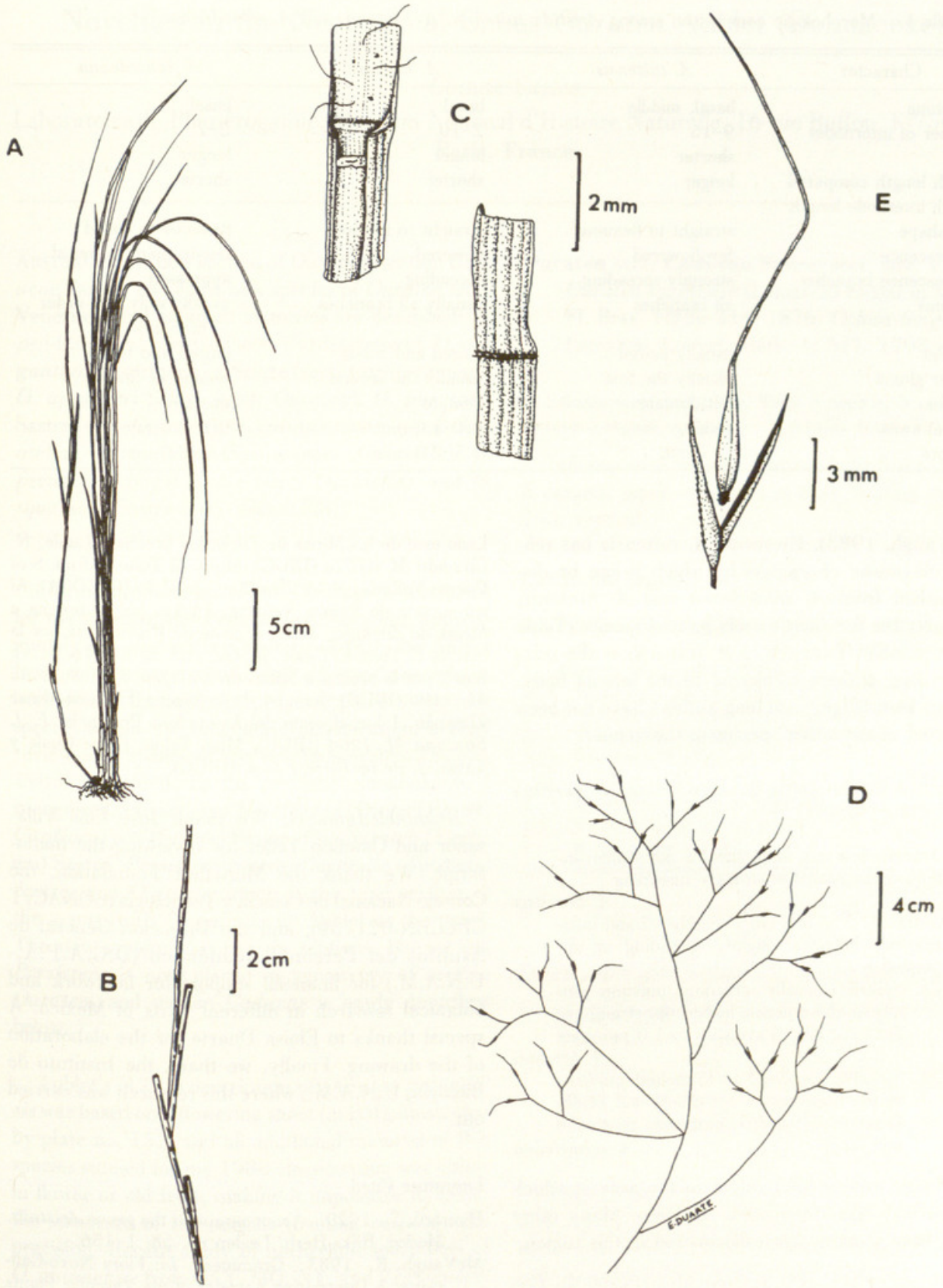

Figure 1. *Aristida tuitensis* Sánchez-Ken & P. Dávila. —A. Habit. —B. Stem. —C. Adaxial and abaxial view of the leaf sheath. —D. Inflorescence. —E. Spikelet (all from *Sánchez-Ken et al. 500*).

of a tropical rainforest. Altitudinally, it ranges from 1300 to 1900 m. The soils are reddish and usually sandy to clayish. Flowering occurs between September and January.

According to Henrard's (1929) criteria, this species belongs to *Aristida* sect. *Streptachne*. As shown by the herbarium annotations, this species was confused with *A. schiedeana* in *Flora Novo-Galiciana*

Table 1. Morphologic comparison among *Aristida tuitensis*, *A. hintonii*, and *A. schiedeana*.

Character	*A. tuitensis*	*A. hintonii*	*A. schiedeana*
Branching	basal, middle	basal	basal
Number of internodes	9–15	2–10	2–7
Stem	shorter	longer	longer
Sheath length compared with internode length	longer	shorter	shorter
Leaf shape	straight to flexuous	straight to flexuous	flexuous to coiled
Inflorescence	few-flowered	flowered	few-to many-flowered
Inflorescence branches	strongly spreading	spreading	appressed
Pulvinus	all branches	usually all branches	usually only first-order branches
Spikelet	usually paired	paired and triads	paired and triads
Larger glume	usually the first	usually the second	second or first
Glumes	not dentate	dentate	dentate
Lateral awns	lacking	0.1–1.0 mm	0.1–2.0 mm
Anthers	3–4 mm	1.5–2.0 mm	1.5–2.0 mm

(McVaugh, 1983). However, *A. tuitensis* has reliable diagnostic characters by which it can be distinguished from *A. schiedeana* and *A. hintonii*, probably the two most closely related species (Table 1). A notable character of *A. tuitensis* is the relatively long anthers compared to the lemma body. To our knowledge, such long anthers have not been reported in any other species of the genus.

ARTIFICIAL KEY TO THREE RELATED SPECIES OF *ARISTIDA* SECT. *STREPTACHNE*

1a. Anthers 3–4 mm long; sheaths not striate; inflorescence branches strongly spreading ..... *A. tuitensis*

1b. Anthers 1.5–2 mm long; sheaths striate; inflorescence branches slightly spreading or appressed.

2a. Spikelets usually spreading; pulvinus usually in all branches; leaf blades straight to flexuous; lateral awns up to 1.0 mm long ..... *A. hintonii*

2b. Spikelet appressed to branches; pulvinus in the branches of 1st order; leaf blades flexuous to coiled; lateral awns up to 2.0 mm long ..... *A. schiedeana*

The specific epithet refers to the area in which the species was discovered, El Tuito. Many other taxa have recently been discovered in this region.

Paratypes. MEXICO. **Jalisco:** Mpio. Cuautitlán, Cerca de 10 km al sur-suroeste de las Joyas, Sierra de Manantlán, *R. Guzmán 6120* (COCA); Mpio. El Cuale, Lado este de las Minas de Zimapán, brecha a Cuale, *R. Guzmán M. 6101a* (IBUG); Mpio. El Tuito, 30 mi. S of Puerto Vallarta, *A. A. Beetle et al. M-3610* (COCA); Al sur-sureste de Puerto Vallarta, 14 km por la brecha a Minas de Zimapán, 1 km al oeste de Providencia por la brecha El Tuito-El Cuale, *R. Guzmán M. 6094* (COCA); Km 2 por la brecha a Minas de Zimapán, *F. J. Santana M. 1196* (IBUG); Km 14 de la brecha El Tuito-Minas Zimapán, 1 km al oeste del Aserradero Provincia, *F. J. Santana M. 1204* (IBUG); Mpio Talpa, Entre Cuale y Talpa, *J. de la Torre V. s.n.* (IBUG).

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