



Notes on *Aristida achalensis* (Poaceae: Aristidoideae) in the Peruvian agrostological flora

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ABSTRACT

A scientific note is presented, commenting on the presence of *Aristida achalensis* Mez (Poaceae, Aristidoideae) and discussing the most related species within Peru. With the new taxon included the number of *Aristida* species in Peru increases to 21, and the distribution range of *A.*

achalensis expands to South America, initially reported for Argentina, Bolivia, and Brazil. This work includes a key that allows us to differentiate the species with a column between the lemma and the awns occurring in Peru.

Keywords: Agrostological, *Aristida*, Andes, Peru, Poaceae.

The genus *Aristida* L. is recognized as a group of annual and perennial grasses with a cosmopolitan distribution, comprising approximately 305 species (Kellogg, 2015). These species are found in both hemispheres and are floristic components in semi-arid pastures and desert areas associated with disturbed areas (Burkart, 1969). *Aristida* is characterized by lemmas with three awns and a conspicuous or absent column, which may or may not have an articulation. In some species, the lateral awns of the lemma are greatly reduced or absent (Gutiérrez *et al.*, 2019). *Aristida achalensis* is morphologically characterized by presenting a dense, spicate panicle with branches bearing spikelets regularly arranged along its entire length and by presenting a column of (2-)3-7 mm, shorter than the lemma body. In Peru, *Aristida* is recorded in a wide range of bioclimatic zones, including the infratropical, thermotropical, mesotropical, and supratropical zones (Gutiérrez, 2021). In this study, *A. achalensis* Mez is mentioned for Peru, a species that had

not been previously recorded by Brako & Zarucchi (1993), Tovar (1993), or Ulloa Ulloa *et al.* (2004). With the new taxon included, the number of *Aristida* species in Peru increases to 21, of which five species are endemic (*A. chichlayensis*, *A. diego-santiagoi*, *A. pseudochichlayensis*, *A. surperuanensis*, and *A. tovariana*). With this report, the distribution of the species is extended beyond its previously documented occurrence in the agrostological flora of Argentina, Bolivia, and Brazil.

As a result of reviewing specimens collected in the Piura region, located in northern Peru, and herbarium material USM and US (acronyms according to Thiers, 2024), specimens with morphological characteristics similar to those of *Aristida tovariana* Gut. Peralta were identified. *Aristida achalensis* shares a closer morphological resemblance to *A. tovariana*, with which it has an affinity due to the presence of a recurved column and a dense, spicate panicle. However, these specimens exhibited more robust vegetative features, including larger tussocks and greater plant length.

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To confirm this observation, taxonomic keys were consulted (Sulekic, 2003; Gutiérrez, 2021), and a review of the type specimens in the BAA herbarium, along with images of *A. achalensis* from JSTOR (2023), was performed.

Aristida achalensis Mez, Repert. Spec. Nov. Regni Veg. 17(8-12): 149. 1921.

TIPO: Argentina. Córdoba: Sierra de Achala, Paso de la Higuera, March 24 or 25, 1875, collected by Hieronymus s.n. (holotype B; isotype US-81028 fragment). [= *Aristida mandoniana* Henrard, = *Aristida achalensis* var. *elongata* Henrard].

Perennial plant, 50-140 cm tall, rhizomatous. Stems simple, geniculate at the basal nodes. Sheaths striate, scabrous. Sheath collar puberulent. Sheath lobes small, pilose, with hyaline hairs 1-1.5 mm. Ligules 0.3-0.6 mm long, ciliate. Blades 10-50 cm × 0.1-0.3 cm, flat or convolute, linear, acuminate, flexuous, scabrous on both surfaces. Panicle 9-47 cm × 1-3 cm including awns, exerted, dense, spiciform, interrupted at the base or continuous, scabrous rachis, ascending and appressed branches; spikelet pedicels scabrous. Glumes subequal, linear-lanceolate, 1-nerved; the lower one 8-14 mm, apex entire or 2-denticulate, awned, awn 0.7-2.5 mm, the upper one 11-14 mm, apex 2-denticulate, awned, awn 1-3(-5) mm long. Lemma 11-15 mm long, cylindrical, scabrous toward the distal portion, column 3-7 mm long. Callus or anthopodium 0.4-0.7 mm, obtuse, hairy. Awns unequal, filiform, straight, the central one 14-26 mm × 0.07 mm, and the lateral ones 10-23 mm. Palea 1.1-1.3 mm long, 2-nerved, membranous, hyaline, apex 2-denticulate. Lodicules 2, 1.2-1.5 mm long, membranous, hyaline. Stamens 3, anthers 1.4-2.2 mm long. Caryopsis 5-7 mm long, fusiform, without a ventral groove, straight ventral hilum, embryonic spot 1/4-1/3 the length of the caryopsis.

Key to the species of *Aristida* in Peru that exhibit a column between the lemma and awns.

Perennial plants.....2

Annual plants.....3

Upper glume to 14-15 mm, column 4.5-6 mm long, awns 27-40 mm long,.....***A. chichlayensis* Tovar**

Upper glume to 9.5-11 mm, column 7.5-8 mm long, awns 18-20 mm long,.....***A. pseudochichlayensis* Gut.Peralta & R.Castañeda**

3. Lemmas 2.3-3 mm long, awns 5-6 mm.....***A. capillacea* Lam.**

3. Lemmas longer than 3 mm, awns longer than 6 mm.....4

4. Column (6-) 14-24(-52) mm.....***A. riparia* Trin.**

Column 1.5-2.5 mm.....5

Loose panicle, branches divergent or appressed, not spiciform.....***A. laxa* Cav.**

Linear or linear-oblong, dense, spiciform panicle.....6

Lateral awns poorly developed (≤ 0.5 mm).....***A. schiedeana* Trin. & Rupr.**

6. Developed lateral awns (≥ 0.5 mm).....7

Twisted column 25-50 mm, bifid callus.....***A. megapotamica* Spreng.**

7. Twisted column (2-) 2.5-7 mm, obtuse callus.....8

Lemma 5-6 mm, anthers 0.9-1 mm.....***A. tovariana* Gut.Peralta**

8. Lemma 11-15 mm, anthers 1.4-2.2 mm.....***A. achalensis* Mez**

Material studied:

PERU: Piura, Huancabamba, 7 km east of Sondor on the road towards Tabaconas, on slopes and small ridges over cultivated fields with *Dodonea*, *Opuntia*, and *Agave*, March 31, 2000, at 2200 m above sea level. *Peterson, P. M.; Refulio Rodriguez, N.* 15165 (US, USM).

Distribution and ecology: *A. achalensis* is recorded for the first time in Peru, in the Piura region. This species is distributed from south to north, ranging from Argentina, Bolivia, and Brazil, at elevations between 1000 to 3250 meters. It thrives on rocky slopes and uncultivated areas. In Peru, it was discovered on rocky slopes in disturbed areas, growing alongside *Dodonea*, *Opuntia*, and *Agave*. (Fig. 1).



Figure. 1. *Aristida achalensis* Mez. (A) Habit. Entirety from Peterson, P. M.; Refulio Rodriguez, N. 15165 (US).

Commentary: *Aristida achalensis* is morphologically similar to *A. tovariana*, as both species exhibit a contracted, spiciform panicle with appressed spikelets, and the lemma has a twisted column without articulation. However, it differs from *A. tovariana* in having larger spikelets (2.5–3.5 cm) and panicles (9–45 × 1–3 cm), as well as a larger and scabrous lemma measuring 11–15 mm in length. (Fig. 2).



Figure. 2. Morphological differences between the lemmas of *Aristida achalensis* (A) and B. *A. tovariana* (B) (images based on Gutiérrez et al. 2018 and Sulekic 2003).

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Author contributions:

HG: Conceptualization, Writing – original draft, RC: Formal Analysis and Investigation, A-SM: Methodology and Writing – review & editing, D-GP: Data curation, Writing – review & editing.

Conflicts of interest:

The authors declare that they have no conflicts of interest (personal, scientific, commercial, political, or financial).

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