

Dichanthelium (Hitchc. & Chase) Gould

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This treatment is composed of the following taxa: *Dichanthelium*, *Dichanthelium adenorhachis*, *Dichanthelium aequivaginatam*, *Dichanthelium arenicola*, *Dichanthelium assurgens*, *Dichanthelium barbadense*, *Dichanthelium cabrerae*, *Dichanthelium caparaoense*, *Dichanthelium congestum*, *Dichanthelium cucaense*, *Dichanthelium cumbucana*, *Dichanthelium davidsei*, *Dichanthelium hebotes*, *Dichanthelium heliophilum*, *Dichanthelium itatiaiae*, *Dichanthelium peristypum*, *Dichanthelium petropolitanum*, *Dichanthelium pycnocladus*, *Dichanthelium sabulorum*, *Dichanthelium sciurotis*, *Dichanthelium sciurotoides*, *Dichanthelium sendulskyae*, *Dichanthelium stigmosum*, *Dichanthelium stipiflorum*, *Dichanthelium superatum*, *Dichanthelium surrectum*.

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DESCRIPTION

Annual or perennials with or without a basal rosette of shorter, broader leaves than those of the culms. Culms erect or decumbent-erect, usually freely branching at the upper nodes; internodes hollow, with or without glands. Sheaths striate, pilose or glabrous, with or without conspicuous glands. Ligules membranous-ciliate, the membranous portion small, the cilia variable in length. Blades linear to ovate-lanceolate, flat or inrolled, densely pilose to glabrous; foliar dimorphism present or absent. In- florescence terminal and axillary, lax, open, occasionally contracted, axis of the branches with or without glands, pilose or glabrous. Spikelets ellipsoid to obovoid, pilose or glabrous, cleistogamous flowers present or absent. Lower glume of variable length, usually $\frac{1}{4}$ - # the length of the spikelet, generally 1-7-nerved, acute or truncate, a short internode between the lower and upper glume present or absent. Upper glume acute to obtuse, usually not covering the apex of the upper antherium, (5-)7-15-nerved. Lower lemma glumiform, (5-)7-15-nerved. Lower palea conspicuous, as long as its lemma to small, absent in *D. aciculare*; lower flower staminate or absent. Upper antherium indurate, smooth, shiny, with simple papillae all over its surface, pilose toward the apex of the lemma or glabrous, shortly apiculate or crested; lodicules 2, conduplicate, truncate; stamens 3; styles 2, free, the stigmas 2, plumose. Caryopsis with hilum punctiform, embryo $\frac{1}{2}$ or less the length of the caryopsis. Basic chromosome number: $x=9$. Anatomy: C₃, non-Kranz.

COMMENTS

Dichanthelium is widely distributed in the Americas, from Canada to Argentina and Brazil, where is found in both wet and dried environments, from sea level to 3,000 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

It is characterized by having foliar dimorphism with basal leaves forming a rosette during the winter season (in North American species), paniculate inflorescences, spikelets dorsiventrally compressed, the upper glume and the lower lemma generally (5#)7#9(#11)-nerved, and the upper antherium shortly apiculate at the apex.

Life Form

Herb

Substrate

Rupicolous, Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Amazon Rainforest, Caatinga, Central Brazilian Savanna, Atlantic Rainforest, Pampa

Vegetation Types

Anthropic area, Caatinga (stricto sensu), High Altitude Grassland, Grassland, Highland Rocky Field, Cerrado (lato sensu), Riverine Forest and/or Gallery Forest, Seasonally Deciduous Forest, Seasonally Semideciduous Forest, Ombrophylous Forest (Tropical Rain Forest), Mixed Ombrophylous Forest, Coastal Forest (Restinga), Amazonian Savanna, Rock outcrop vegetation

Geographic Distribution

Confirmed occurrences

North (Amazonas, Roraima)

Northeast (Alagoas, Bahia, Ceará, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, Sergipe)

Central-west (Distrito Federal, Goiás)

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

IDENTIFICATION KEY

Key to the species of *Dichantherium* (Hitchc. & Chase) Gould occurring in Brazil:

- 1. Upper glume and lower lemma 10-15- nerved 2
- 1'. Upper glume and lower lemma (5-)7-9- nerved 6
- 2(1). Inflorescences contracted; spikelets obovoid *D. superatum*
- 2'. Inflorescences lax, open; spikelets narrowly ellipsoid to ellipsoid 3
- 3(2). Spikelets 1.5-1.9 mm long *D. sciurotoides*
- 3'. Spikelets 3-6.8 mm long 4
- 4(3'). Spikelets 3-3.3 mm long; lower palea 2.1- 2.4 mm long; lower glume 3-nerved; leaf blades with scabrous margins, ciliate toward the base; the sheaths and nodes hirsute; Venezuela and northwestern Brazil, Roraima *D. davidsei*
- 4'. Spikelets 4.6-6.8 mm long; lower palea 4- 5.5 mm long; lower glume 5-nerved; leaf blades with ciliate margins; the sheaths and nodes glabrous; Brazil (Rio de Janeiro and Espírito Santo) 5
- 5(4'). Spikelets 4.6-5 mm long; upper anthercium 4-4.2 mm long; leaf blades 10-12 cm long *D. itatiaiae*
- 5'. Spikelets 5.9-6.8 mm long; upper anthe- cium 5.2 mm long; leaf blades 14-21 cm long *D. caparaoense*
- 6(1'). Spikelets usually geminate, at least in portions of the inflorescence; lower glume dimorphic; upper anthercium black at maturity; blades asymmetrical at the base *D. hebotes*
- 6'. Spikelets not geminate; lower glume isomorphic; upper anthercium whitish to pale, not black at maturity; blades usually symmetrical at the base 7
- 7(6'). Lower palea conspicuous, as long as or nearly as long as the lower lemma; lower flower present or absent 8
- 7'. Lower palea small or absent, shorter than the lower lemma; lower flower absent 12

- 8(7)**. Lower glume not embracing the upper glume; stipe inconspicuous between the lower and upper glume; spikelets narrowly ellipsoid, 1.8-2.2 mm long *D. surrectum*
- 8'**. Lower glume embracing the upper glume; stipe present between the lower and upper glume; spikelets obovoid to ellipsoid, (1.9-)2-3.2 mm long 9
- 9(8)**. Inflorescences contracted, spiciform or with the first-order branches slightly divergent, the spikelets congested on the branches *D. superatum*
- 9'**. Inflorescences lax, first-order branches divergent, and spikelets not congested on the branches 10
- 10(9')**. Annual. Spikelets narrowly ovoid; upper glume and lower lemma 0.6-0.8 mm longer than the upper anthercium *D. sendulskyae*
- 10'**. Perennial. Spikelets obovoid; upper anthercium as long as the upper glume and lower lemma 11
- 11(10')**. Robust plants leaning on vegetation; leaf blades 10-22 cm long, 1-2.2 cm wide; spikelets glabrous, (1.9-)2.4-3.2 mm long; inflorescence 9-21 cm long, glandular; foliar dimorphism absent *D. stigmatosum*
- 11'**. Caespitose or decumbent perennials not leaning on vegetation; leaf blades 1-9(-15) cm long, 0.2-1.4(-2) cm wide; spikelets hirsute to glabrous, when glabrous 1.9- 2.3(-2.6) mm long; inflorescences 2-10 cm long, the axis glandular or eglandular; foliar dimorphism present *D. sabulorum*
- 12(7')**. Blades clasping the culm, cordate, the length: width ratio 3-5(-7):1 13
- 12'**. Blades not clasping the culm, narrowed to subcordate, the length: width ratio 10-30:1 20
- 13(12)**. Upper glume and lower lemma 5(-7)-nerved, the nerves inconspicuous; lower lemma inflated at base; upper anthercium inserted laterally in relation to the axis of the rachilla *D. sciurotis*
- 13'**. Upper glume and lower lemma 7-9(-11)-nerved, with manifest nerves; lower lemma not inflated at base; upper anthercium inserted horizontally in relation to the axis of the rachilla 14
- 14(13')**. Inflorescences few-flowered; blades overlapping, 1-3 cm long, 0.3- 0.6 cm wide *D. cumbucana*
- 14'**. Inflorescences multiflowered; blades not overlapping, 2-12 cm long, 0.5-2 cm wide ...15
- 15(14')**. Spikelets 1.5-2.5 mm long, without a manifest stipe between the lower and upper glume 16
- 15'**. Spikelets 2.2-3.3 mm long, with a stipe between the lower and upper glume 19
- 16(15')**. Spikelets short-hispid or pilose; inflorescences 1.5-9 cm long; main axis of the inflorescence densely hirsute; blades ovate-lanceolate .; 17
- 16'**. Spikelets glabrous, 1.7-2.5 mm long; inflorescences 10-15 cm long; main axis glabrous; blades linear-lanceolate, with base symmetrical 18
- 17(16)**. Spikelets short-hispid, 1.5-1.9 mm long; upper anthercium 1-1.7 mm long; caryopsis ca. 1.1 mm long, hilum punctiform; main axis of the inflorescence densely hirsute *D. sciurotoides*
- 17'**. Spikelets short-hispid, 1.5-1.9 mm long; upper anthercium 1-1.7 mm long; caryopsis ca. 1.1 mm long, hilum punctiform; main axis of the inflorescence densely hirsute *D. arenicola*
- 18(16')**. Blades amplexicaulous, ovate-lanceolate, 1.5- 3 cm wide, velutinous; upper anthercium 2.2 mm long *D. peristypum*
- 18'**. Blades not amplexicaulous, linear-lanceolate, 0.5-1.3 cm wide, hispid or glabrous; upper anthercium 1.6-1.9 mm long *D. aequivaginatium*

- 19(15')**. Blades with margins cartilaginous and covered with manifest cilia; lower glume 1/2 or less the spikelet length; blades with base symmetrical *D. stipiflorum*
- 19'**. Blades without cartilaginous margins and without cilia on the upper portions of the margins; lower glume 1/2-3/4 the length of the spikelet; blades with base asymmetrical *D. pycnocladus*
- 20(12')**. Lower glume 1/4-1/2 the length of the spikelet 21
- 20'**. Lower glume 3/4-4/5 the length of the spikelet 24
- 21(19)**. Plants with prominent glands on sheaths, blades and axis of the panicles *D. adenorhachis*
- 21'**. Plants without prominent glands on sheaths, blades and axis of the panicles, occasionally present on the axis of the panicle 22
- 22(21')**. Blades 3.5–12(–16) cm long. 0.2–1.3(–1.5) cm wide; panicles 10–15 cm long *D. aequivaginatam*
- 22'**. Blades 1–3(–6) cm long, 0.2–0.5 cm wide; panicles 3–5 cm long 23
- 23(22')**. Spikelets 2–2.3 mm long, ellipsoid, hirsute, covered with whitish hairs; blades linear-lanceolate *D. cabreræ*
- 23'**. Spikelets 2.5–3.2 mm long, long-ellipsoid, glabrous to sparsely pilose, blades ovate-lanceolate to lanceolate *D. barbadense*
- 24(19')**. Spikelets with a stipe between the lower and upper glume 25
- 24'**. Spikelets without a stipe between the lower and upper glume 26
- 25(24)**. Spikelets glabrous, 2.2-2.7 mm long; lower glume 1(-3)-nerved; panicles lax, blades regularly spaced on the culms *D. cucaense*
- 25'**. Spikelets hirsute, 2.8-3.2 mm long; lower glume 5-7-nerved; panicles contracted, blades congested on the culms *D. congestum*
- 26(24')**. Culms 10-25 cm tall; blades 2-5 cm long, 0.1-0.3 cm wide; panicles 2-4 cm long, spikelets glabrous, 2.4-2.6 mm long *D. petropolitanum*
- 26'**. Culms 50-1,000 cm tall; blades 4-32 cm long, 0.3-3.2 cm wide; panicles 4-45 cm long, spikelets pilose or glabrous, 2.6-4.2 mm long 27
- 27(26')**. Spikelets hispid, 2.6-3.1 mm long; upper glume and lower lemma 7-nerved; blades linear lanceolate, 4-5(-12) cm long, 0.3(- 1) cm wide, peduncle and main axis hirsute *D. heliophilum*
- 27'** Spikelets glabrous to sparsely pilose between the nerver, 3.3 mm long, upper glume and lower lemma 9-nerved; blades linear-lanceolate, 8-12 cm long, 0.7-1 cm wide, peduncle and main axis glabrous *D. assurgens*

REFERENCE

Zuloaga F.O. & Morrone O. 1991. Estudios morfológicos en el subgenero *Dichantherium* de *Panicum* (Poaceae: Panicoideae: Paniceae), con especial referencia a *Panicum sabulorum*. *Ann. Missouri Bot. Gard.* 78(4): 915–927.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium adenorhachis (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum adenorhachis* Zuloaga & Morrone

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm inclinate; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** glabrous/pilose. **Leaf:** sheath foliar caducous; **base of the blade foliar** subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** hispid; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** subequal to the antherium upper. **Flower:** **flower cleistogamous** absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Plants perennial; culms trailing, leaning over vegetation, many-noded, sparingly branched, internodes 1.5-4.5 cm long, cylindrical, hollow, glabrous, nodes brownish, short-pilose or glabrous. Sheaths 2.5-4 cm long, striate, caducous, glabrous, covered with small glands, the margins long-ciliate; collar short-pilose. Ligule 0.2-0.6 mm long, a ciliate membrane. Blades narrowly lanceolate, 4-7.5 cm long, 0.3-0.6 cm wide, flat, subcordate, the adaxial surface scabrous, the abaxial surface glabrous and covered with small glands; margins long-ciliate with tuberculate hairs near base, otherwise scabrous. Inflorescence terminal a lax, diffuse panicle 4.5-7 cm long, 4-5 cm wide, few-flowered; main axis flexuous and glandular, the nodes distant; first-order branches widely divergent, solitary at each node with scabrous and glandular axes and long-pilose axils; spikelets solitary and widely spaced; pedicels claviform, short-pilose. Axillary panicles similar to the terminal one. Spikelets narrowly ellipsoid, 2.7-3 mm long, 0.9 mm wide, upper glume and lower lemma short-pilose and subequal, without a stipe between the lower and upper glume. Lower glume 0.7-0.8 mm long, less than 1/3 the length of the spikelet, acuminate, nerveless or 1-nerved, hyaline. Upper glume 2.7-2.9 mm long, 0.8-1.3 mm wide, 9-nerved. Lower lemma 2.6-2.9 mm long, 1-1.4 mm wide, 9-nerved. Lower palea lanceolate, 1.8 mm long, 0.4 mm wide, hyaline, ciliolate on the margins; lower flower absent. Upper antherium narrowly ellipsoid, 2-2.3 mm long, 0.8 mm wide, stramineous, brownish at maturity, papillose with simple papillae in longitudinal rows; lemma short-mucronate and with small microhairs at the apex; rachilla prolonged beyond the upper antherium as a short mucro. Caryopsis ellipsoid, brownish, 1.5 mm long, 0.7 mm wide; hilum punctiform, embryo less than half the length of the caryopsis.

COMMENTS

Distribution: Known only from Pico das Almas in Bahia, Brazil, growing in campos rupestres on rocky, humid soils, 1,000-1,850 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993).

Affinities of *D. adenorhachis* are discussed in Zuloaga & Morrone (1991).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Caatinga, Central Brazilian Savanna

Vegetation Types


Highland Rocky Field

Geographic Distribution


Confirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIAL

R.M. Harley, 26437, CEPEC, 46384,  (CEPEC00046384), Bahia

S.A. Mori, 12451a, MO, 2986261 (MO324971), Bahia, **Typus**

R.M. Harley, 24460, SPF, 60447,  (SPF00060447), Bahia

REFERENCE

Zuloaga, F.O. & Morrone, O. 1991. New species of *Panicum* subgenus *Dichantherium* (Poaceae: Paniceae) from South America. *Ann. Missouri Bot. Gard.* 78(1): 153–163.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium aequivaginatatum (Swallen)

Zuloaga

Has as synonym

basionym *Panicum aequivaginatatum* Swallen

heterotypic *Panicum belmonte* Renvoize

heterotypic *Panicum thinophilum* Renvoize

DESCRIPTION

Root: cycle annual; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate/subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Apparently annual, 20-100 cm tall. Culms decumbent, rooting and branching at the lower nodes, then erect; internodes hollow, 3.5-10.5 cm long, short- hispid or glabrous, nodes compressed, pilose with appressed whitish hairs. Sheaths 3-8.5 cm long, usually shorter than the internodes, hispid or glabrous, striate, the margins ciliate. Ligules 0.3-0.6 mm long, membranous, the apex ciliate; collar pilose with whitish hairs. Blades linear-lanceolate, 3.5-12 cm long, 0.5-1.3 cm wide, ascendent, hispid or glabrous, long-pilose toward the base on the adaxial surface, cordate to subcordate, acute, the margins scaberulous and ciliate, the midnerve conspicuous. Inflorescences exserted, a terminal, lax and diffuse panicle 10-15 cm long, 3-7 cm wide; main axis glabrous, flexuous, smooth, the pulvini short-pilose or glabrous, first-order branches alternate, divergent from the main axis and flexuous, pedicels smooth and glabrous, flexuous. Spikelets paired or solitary, ellipsoid, 1.7-2.5 mm long, 0.7 mm wide, glabrous, with a short, inconspicuous internode between the lower and upper glume. Lower glume ovate-acuminate, 0.9-1.3 mm long, 1/2 or less the length of the spikelet, glabrous, not embracing the upper glume, 3-nerved, the nerves either anastomosing or not toward the apex. Upper glume usually not covering the apex of the upper antherium, 9-nerved, the nerves anastomosing or not toward the apex. Lower lemma glumiform, 9-nerved. Lower palea linear-lanceolate, small, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 1.6-1.9 mm long, 0.6 mm wide, with simple papillae, apiculate; stigmas whitish. Caryopsis .4- ellipsoid, 1.4 mm long, 0.5 mm wide, brownish, hilum punctiform, embryo 1/3 or less the length of the caryopsis.

COMMENTS

Distribution: Occurring in Venezuela, in the states of Bolívar and Amazonas, Guyana, and northern Brazil, from 900 to 2,000 meters. It is frequent in savannas or mountain slopes, in sandy soils in Venezuela; in Brazil it grows in sandy soils of campos rupestres and restingas (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

This species is related to *D. pycnocladus* and *D. sciurotoides*, but has spikelets intermediate in size between both species. It also differs from *D. sciurotoides* in that the latter species has cordate and amplexicaulous leaves, the main inflorescence axis hirsute, and usually pilose spikelets. *Dichanthelium pycnocladus* differs from *D. aequivaginatatum* by its cordate and amplexicaulous, asymmetrical leaf blades, smaller inflorescences, 3-6(-10) cm long, spikelets 2.2-3(-3.3) mm long with a conspicuous internode between the lower and upper glume; lower glume 1/2-3/4 the length of the spikelet. *Panicum thinophilum* only represents a depauperate variant of *D. aequivaginatatum* with profusely branching culms and axillary panicles.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest

Vegetation Types

Highland Rocky Field, Cerrado (lato sensu), Ombrophylous Forest (Tropical Rain Forest), Coastal Forest (Restinga)

Geographic Distribution

Confirmed occurrences

Northeast (Bahia)

Southeast (Minas Gerais, Rio de Janeiro, São Paulo)

South (Santa Catarina)

HERBARIUM MATERIAL

Renvoize, S.A., 17383, K,  (K000003498), Bahia

F.O. Zuloaga, 2469, HUEFS, 213368 (HUEFS0213368), Bahia

Jair da Silva Araújo, 96, CEN, 10561 (CEN00010561), Bahia

R. L. Fróes, 19950, US, 1910768,  (US00133059), Bahia, **Typus**

L. Coradín, 6530, CEN, 9603 (CEN00009603), Bahia

REFERENCE

Swallen, J.R. 1957 [1949]. New grasses from Honduras, Colombia, Venezuela, Ecuador, Bolivia and Brazil. *Contr. U.S. Natl. Herb.* 29: 251-275.

Swallen, J.R. 1957. The Botany of the Guayana Highlands. *Mem. New York Bot. Gard.* 9: 235-392.

Renvoize, S.A. 1982. A new Genus and Several New Species of Grasses from Bahia (Brazil). *Kew Bull.* 37: 323-333.

Renvoize, S.A. 1984. New Grasses from Bahia (Brazil). *Kew Bull.* 39: 179-183.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80: 119-190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01-662.

Dichanthelium arenicola A.O. Matos & R.P. Oliveira

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** glabrous/pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate; **blade foliar** flat. **Inflorescence:** panicle lax; **form of the spikelet** ellipsoid; **indumentum of the spikelet** pilose; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Perennial. Culms decumbent, ramified from the base, freely branching at the upper nodes, 10#100 cm tall; internodes 0.5#7 cm long, puberulent, smooth; nodes glabrous to sparsely pilose. Leaf sheaths clasping the culm, striate, 1.2#3.5 cm long, evenly pilose over the surface, with trichomes up to 1 mm long, but more densely pilose at the base, one margin ciliate and the other glabrous, trichomes 3 × 0.5 mm long; ligules membranous-ciliate, ca. 0.4 mm long; collar pilose. Leaf blades ovate-lanceolate to lanceolate, 1#2.5 × 0.5#1 cm, rigid, ascending, base cordate and amplexicaul, apex acute, pilose on both surfaces, margins scaberulous, ciliate, trichomes 0.5#2.5 mm long. Inflorescences paniculate, open, exserted, multiflowered, 1.5#5 × 0.5#6 cm; main axis flexuous, pilose; primary and secondary branches pilose, divergent, eglandular, pulvini inflated, pilose; pedicels sparsely pilose. Spikelets solitary or paired, ellipsoid, 1.9#2.1 × 0.7#0.8 mm, green tinged with purple, pilose; lower glume lanceolate, 1#1.2 × 0.5 mm, pilose, ½ the length of the spikelet, embracing the upper glume at the base, 1#3-nerved; internode between glumes inconspicuous; upper glume and lower lemma subequal; upper glume 1.6#1.7 × 1#1.1 mm, pilose, 9-nerved; lower antherium sterile; lower lemma ca. 1.8 × 1.2 mm, 9-nerved, not inflated at the base; lower palea 1.1#1.3 × ca. 0.3 mm, hyaline, glabrous; upper antherium 1.6#1.9 × 0.5#0.7 mm, papillose, inflated at the base, pale, apiculus pale to purplish; palea pilose at the apex, striate; anthers ca. 0.9 mm long, purplish; stigmas purplish; lodicules 2, 0.2#0.3 mm long. Caryopsis obovate, ca. 0.9 × 0.4 mm; hilum obovate; embryo 1/3 the length of the caryopsis with a protruding cotyledon.

COMMENTS

Distribution: Endemic to Morro do Chapéu, in the Chapada Diamantina (Bahia, Brazil), where it is found in sandy soils of campos rupestres (Matos *et al.* 2020)

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Caatinga, Central Brazilian Savanna

Vegetation Types

Highland Rocky Field

Geographic Distribution

Confirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIAL

A.O. Matos & R.P. Oliveira, 70, HUEFS, Bahia, **Typus**

FIELD IMAGES / ILLUSTRATIONS



Figure 1: *Dichantherium arenicola* A.O. Matos & R.P. Oliveira



Figure 2: *Dichantherium arenicola* A.O. Matos & R.P. Oliveira

REFERENCE

Matos A.O., Carneiro J.S., Oliveira I.L.C., Leite K.R.B., Silva C., & Oliveira R.P. 2020. Macro and microcharacters reveal a new species of *Dichantherium* (Poaceae, Panicoideae) endemic to sandy soils of the Chapada Diamantina, Bahia, northeastern Brazil. *Phytotaxa* 44(3): 149-162.

Dichanthelium assurgens (Renvoize)

Zuloaga

Has as synonym

basionym *Panicum assurgens* Renvoize

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent/inclinate; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** glabrous. **Leaf:** sheath foliar persistent; **base of the blade foliar** attenuate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate/pilose; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Probably perennial. Culms leaning on adjacent vegetation, up to 2 m long, internodes 4-10 cm long, cylindrical, glabrous; nodes glabrous, compressed. Sheaths 3-7 cm long, shorter than the internodes, striate, sparsely hispid, with one margin ciliate, the other glabrous. Ligules membranous, the membranous portion 0.2 mm long, short-pilose at the apex with hairs nearly 0.1 mm long; collar shortly pilose. Blades linear-lanceolate, 8-12 cm long, 0.7-1 cm wide, flat, sparsely hispid, attenuate at base and with the apex acute, the margins finely scabrous. Inflorescences terminal, long-exserted, lax, diffuse, 12-15 cm long, 7-10 cm wide, first-order branches whorled toward the base of the inflorescence, otherwise subopposite or alternate, axis of the branches flexuous, glabrous, eglandular, pulvini glabrous, pedicels glabrous. Spikelets ellipsoid, 2.7-3.3 mm long, 0.5-1.2 mm wide, glabrous or sparsely pilose between the nerves, greenish, without a conspicuous internode between the lower and upper glume, upper glume and lower lemma subequal. Lower glume ovate-lanceolate, 2.1-2.7 mm long, 3/4 to 4/5 the length of the spikelet, not embracing the upper glume at its base, glabrous, 3-nerved, the nerves anastomosing toward the apex. Upper glume 2.5-2.7 mm long, 1.2-1.5 mm wide, as long as the lower lemma or a little shorter and not covering the apex of the upper antherium, 9-nerved. Lower lemma 9-nerved, 2.3-2.9 mm long, 1.3 mm wide. Lower palea lanceolate, 2 mm long, 0.3 mm wide, hyaline, sparsely pilose; lower flower absent. Upper antherium ellipsoid, 2.5-2.7 mm long, 0.8-1 mm wide, papillose, upper lemma slightly apiculate, the upper margins indurate, sparsely pilose at the apex. Caryopsis ellipsoid, 2.1 mm long, 0.9 mm wide; hilum punctiform, embryo 1/3 or less the length of the caryopsis.

COMMENTS

Distribution: Known only from the type collection, where it grows at edge of forests in the state of Bahia, Brazil, at approximately 1,000 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Caatinga, Central Brazilian Savanna

Vegetation Types

Anthropic area, Highland Rocky Field

Geographic Distribution

Confirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIAL

R.M. Harley, 15229, CEPEC, 10059,  (CEPEC00010059), Bahia, **Typus**S.A. Renvoize, 15229, K,  (K000003501), Bahia, **Typus**R.M. Harley, 15229, MO, 3663763 (MO105085), Bahia, **Typus**

REFERENCE

Renvoize, S.A. 1982. A new Genus and Several New Species of Grasses from Bahia (Brazil). *Kew Bull.* 37: 323–333.**Zuloaga F.O., Ellis R.P. & Morrone O.** 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.**Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J.** 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium barbadense Salariato, Morrone & Zuloaga

DESCRIPTION

Root: cycle perennial; **plant** caespitose/with rhizome short. **Stem:** culm erect; **branching of the culm** in the node upper/in the node median; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** subcordate; **blade foliar** flat. **Inflorescence:** panicle lax; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 9 - 11; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** male.

ADDITIONAL DESCRIPTION

Short rhizomatous perennials, caespitose. Culms 15–40 cm tall, many noded, erect, freely branching, more so toward the middle and upper nodes; internodes 0.5–3 cm long, hollow, terete, shortly pilose, barbate; nodes compressed, dark, pilose. Sheaths 1.2–3 cm long, usually longer than the internodes, overlapping, striate, the margins long ciliate toward the apex, otherwise sparsely pilose to glabrous. Ligules 0.2–0.4 mm long, membranous-ciliate, the membranous portion reduced, with long hairs beneath at the base of the blade; collar pale, pilose. Blades 1–3 × 0.4–0.5 cm, ovate-lanceolate to lanceolate, flat, hispid on both surfaces with papillose-pilose hairs to sparsely pilose, subcordate at the base, the apex acute, margins long-ciliate, scabrous, involute toward the apex. Peduncle up to 3 cm long, included in the uppermost leaves or partially exerted, shortly pilose to glabrous. Inflorescence 3–5 × 1–2 cm, lax, few flowered panicle; main axis wavy, sparsely pilose near the branches, otherwise smooth, glabrous; pulvini pilose, with long whitish hairs; first order branches up to 0.8 cm long, divergent or appressed, alternate, axis of the branches smooth, glabrous, delicate, terete; pedicels 2–5 mm long, claviform, with long whitish hairs toward the base. Spikelets 3–3.2 × 1.2–1.4 mm, long-ellipsoid, acute, green or tinged with purple, glabrous, upper glume and lower lemma acuminate, exceeding the upper antherium in length. Lower glume 1.2–1.6 mm long, ca. ½ or less the length of the spikelet, ovate, subulate, hyaline, glabrous, 1–3-nerved, the nerves not manifest, not embracing the upper glume. Upper glume as long as the spikelet, glabrous to sparsely pilose, 9–11-nerved, tinged with purple at the apex. Lower lemma as long as the spikelet, glumiform, glabrous to sparsely pilose, 9-nerved. Lower palea 2.4–2.6 × 1.2 mm, ovate, hyaline, the margins ciliolate, apex acute; lower flower absent. Upper antherium 2.4 × 1.2 mm, ellipsoid, apiculate, pale, with simple papillae regularly distributed all over its surface, shortly pilose at the apex; lodicules ca. 0.4 mm long, 2, truncate; stamens 3. Caryopsis not seen.

COMMENTS

Dichanthelium barbadense is related, by its distribution and morphology, to *D. congestum* (Renvoize) Zuloaga and *D. stipiflorum* (Renvoize) Zuloaga; all these species grow within the Espinhaço Range, Chapada Diamantina, in northeastern Brazil, although they do not overlap in its present distribution (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium congestum differs by having a lower glume ¾ or more the length of the spikelet, 5–7-nerved, with a conspicuous internode between both glumes. *Dichanthelium stipiflorum* is distinguished by its cordate, clasping blades, and spikelets densely hirsute with a conspicuous stipe between the lower and upper glume. *Dichanthelium barbadense* shares, with other species of *Dichanthelium*, a non Kranz anatomy, with more than four mesophyll cells between consecutive vascular bundles, and also extensions of the outer bundle sheath adaxially and abaxially.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Central Brazilian Savanna

Vegetation Types

Highland Rocky Field

Geographic DistributionConfirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIALA.M. Giuliatti, 1454, ICN, 39257,  (ICN00029373), Bahia, **Typus****REFERENCE**

Salariato, D. L.; Morrone, O. & Zuloaga, F. O. 2011. A new species of Paniceae (Panicoideae, Poaceae) from Brazil. *Systematic Botany*, 36(1):53-58.

Dichanthelium cabreræ (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum cabreræ* Zuloaga & Morrone

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent/inclinate; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** attenuate; **blade foliar** involute. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** hirsute; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Perennial. Culms ca. 50 cm tall, leaning on vegetation, sparingly branching, internodes cylindrical, hollow, sparsely pilose with whitish hairs, nodes many, densely pilose with long whitish hairs. Sheaths striate, 0.5-2 cm long, longer than the internodes, long-hispid, the margins pilose with whitish hairs, more so toward the upper portion; auricles small, pilose; collar pilose. Ligules ciliate-membranous ca. 0.2 mm long. Blades linear-lanceolate, 1.7-6 cm long, 2 mm wide, attenuate at base, acuminate at apex, the margins involute, densely pilose and scabrous, with long, whitish hairs on both surfaces, deciduous at maturity. Inflorescence terminal, a lax, diffuse panicle 1.5-7 cm long, 0.5-7 cm wide, peduncles hispid, 5-7 cm long; main axis cylindrical, densely hispid on the lower portion, otherwise glabrous, the nodes distant; first-order branches alternate, divergent and reflexed, hispid basally, glabrous distally, pulvini pilose to glabrous; pedicels claviform, smooth, glabrous, 2-9 mm long. Spikelets solitary, ellipsoid, 1.7-2.6 mm long, 0.6-1.7 mm wide, plano-convex, hirsute, with whitish hairs on the glumes and lower lemma. Lower glume 0.7-1.6 mm long, 0.5-0.7 mm wide, 1/2 or more the length of the spikelet, 3-nerved, acute, a small stipe present between the lower and upper glume. Upper glume 1.6-2.4 mm long, 0.9-1.1 mm wide, 9-nerved, nerves anastomosing toward the apex. Lower lemma 1.4-1.9 mm long, 0.8-0.9 mm wide, 9-nerved. Lower palea lanceolate, 1.1-1.8 mm long, 0.3 mm wide, glabrous, truncate, hyaline; lower flower absent. Upper antherium ellipsoid, 1.6-2 mm long, 0.6-0.9 mm wide, papillose, with simple papillae all over its surface, glabrous or with a few microhairs toward the apiculate apex; lodicules truncate, ca. 0.2 mm long, anthers 3, 1.2 mm long; rachilla prolonged or not beyond the upper antherium as a short mucro. Caryopsis obovoid, 1.1 mm long; hilum oblong, embryo less than 1/3 the length of the caryopsis.

COMMENTS

Distribution: growing in campos rupestres, in the state of Bahia, Brazil (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Central Brazilian Savanna

Vegetation Types

Highland Rocky Field

Geographic DistributionConfirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIALS.A. Mori, 12475, CEPEC, 16966,  (CEPEC00016966), Bahia, **Typus**S.A. Mori, 12475, K,  (K000003487), Bahia, **Typus**B. Stannard, 26320, K,  (K000003490), Bahia**REFERENCE**

Zuloaga, F.O. & Morrone, O. 1991a. New species of *Panicum* subgenus *Dichantherium* (Poaceae: Paniceae) from South America. *Ann. Missouri Bot. Gard.* 78: 153–163.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium caparaoense (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum caparaoense* Zuloaga & Morrone

DESCRIPTION

Root: cycle unknown; **plant** caespitose. **Stem:** culm erect; **branching of the culm** in the node lower/in the node median; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** attenuate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 11 or more; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Plants perennial?, the base not seen; internodes hollow, cylindrical, glabrous, nodes dark, compressed, glabrous. Sheaths striate, one margin ciliate, otherwise glabrous. Ligules membranous at the base and lacinate at the apex, 0.8 mm long, brownish, surmounted by long whitish hairs on the adaxial surface of the blade; collar densely and shortly pilose. Blades lanceolate, 14-21 cm long, 1 cm wide, flat, attenuate at the base and apex, the adaxial surface with scattered, appressed hairs, the abaxial surface glabrous, commonly purplish, the margins ciliate. Inflorescence terminal, exserted, peduncle terete, ca. 22 cm long, glabrous; panicles lax, diffuse, 23 cm long, ca. 20 cm wide; main axis terete, glabrous, the pulvini brownish, glabrous; first-order branches alternate, divergent, the axis of the branches and pedicels smooth, glabrous. Spikelets solitary, narrowly ellipsoid, 5.9-6.8 mm long, glabrous. Lower glume 4.1 mm long, 2/3 the length of the spikelet, acuminate, 5-nerved, separated from the upper glume by a conspicuous internode. Upper glume scaberulous toward the apex, 13- 15-nerved, the nerves anastomosing toward the apex. Lower lemma scaberulous toward the apex, 13-15-nerved, the nerves anastomosing toward the apex. Lower palea lanceolate, 5.5 mm long, 1.2 mm wide, hyaline, the margins long-pilose with whitish hairs; lower flower male, anthers ca. 3 mm long. Upper antherium narrowly ellipsoid, 5.2 mm long, 1.6 mm wide, smooth, shiny, indurate, with simple papillae regularly distributed over the lemma and palea, lemma 9-nerved, crested and pilose on the upper margins, greenish at the apex, palea pilose on the upper margins; lodicules 2, conduplicate, 0.4 mm long; stamens 3, the anthers 3 mm long; styles free, stigma plumose; rachilla prolonged beyond the upper antherium as a short mucro. Caryopsis unknown.

COMMENTS

Distribution: Known from the state of Espírito Santo in Brazil, where it grows in edge of forests (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Atlantic Rainforest

Vegetation Types



High Altitude Grassland, Ombrophyllous Forest (Tropical Rain Forest)

Geographic Distribution

Confirmed occurrences

Southeast (Espírito Santo)

HERBARIUM MATERIAL

A.C. Brade, 19172, RB, 64129,  (RB00879802), Espírito Santo, **Typus**A.C. Brade, 19172, RB, 64129,  (RB00622682), Espírito Santo, **Typus**G. Hatschbach, 45170, FURB, 44623 (FURB38871), Espírito Santo, **Typus**

REFERENCE

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium congestum (Renvoize)

Zuloaga

Has as synonym

basionym *Panicum congestum* Renvoize

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm erect; **branching of the culm** in the node upper; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** narrowed; **blade foliar** involute. **Inflorescence:** panicle contracted; **form of the spikelet** ellipsoid; **indumentum of the spikelet** hirsute; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** subequal to the antherium upper. **Flower:** **flower cleistogamous** absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Caespitose perennial. Culms erect, freely branching at the upper nodes, 30-50 cm tall, rigid; internodes elongated toward the base of the plant, terete, hollow, densely hirsute, nodes brownish, pilose. Sheaths 0.5-2.5 cm long, persistent or deciduous, striate, densely hirsute, the margins membranous. Ligules membranous-ciliate, ca. 1 mm long, with whitish hairs; collar pilose. Blades linear-lanceolate, 1-5 cm long, 0.2-0.4 cm wide, congested on the culms, the margins involute, narrowed at base and acuminate at the apex, densely hirsute on both surfaces with rigid whitish hairs. Inflorescences with base included within the upper leaves, with a peduncle ca. 0.5 cm long; panicles 2 cm long or smaller, contracted, with only 2-3(-9) spikelets per panicle; main axis hirsute, flexuous, first-order branches short, the axis of the branches and pedicels densely hirsute. Spikelets solitary, ellipsoid, 2.3-3.2 mm long, 1 mm wide, hirsute, with short-papillose hairs, upper glume and lower lemma subequal or the upper glume a little shorter. Lower glume 2.2-2.6 mm long, 0.8-1 mm wide, 3/4 or more the length of the spikelet, acute, 5-7-nerved, the nerves anastomosing toward the apex, with a conspicuous internode between the lower and upper glume. Upper glume 2.2-2.6 mm long, 0.8-1 mm wide, 9-nerved. Lower lemma 2-2.4 mm long, 0.8-1 mm wide, 9-nerved, glumiform. Lower palea lanceolate, 1.5-1.7 mm long, 0.4 mm wide, hyaline, the margins ciliolate; lower flower absent. Upper antherium ellipsoid, 2-2.4 mm long, 0.8 mm wide, papillose, with simple papillae regularly distributed over the lemma and palea, apiculate and pilose at the tip of the lemma, lemma 5-nerved; internodes conspicuous between the upper glume and the upper antherium. Caryopsis ellipsoid, 1-1.5 mm long, 0.5 mm wide, brownish, hilum oblong, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Known only from campos rupestres in the state of Bahia, Brazil, where it is found on sandstone rocks at approximately 1,000 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

This species is distinguished by its densely hirsute and profusely branching culms, hirsute sheaths and blades, and few-flowered inflorescences that are short-exserted with the base included in the upper leaves.

Life Form

Herb

Substrate

Rupicolous, Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Central Brazilian Savanna

Vegetation Types

Cerrado (lato sensu)

Geographic Distribution

Confirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIAL

R.M. Harley, 16869, CEPEC, 10082,  (CEPEC00010082), Bahia, **Typus**

R.M. Harley, 16869, NY,  (NY00546652), Bahia, **Typus**

R.M. Harley, 16869, MO (MO105088), Bahia, **Typus**

REFERENCE

Renvoize, S.A. 1982. A new Genus and Several New Species of Grasses from Bahia (Brazil). *Kew Bull.* 37: 323–333.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium cucaense (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum cucaense* Zuloaga & Morrone

DESCRIPTION

Root: cycle perennial; **plant** caespitose/with rhizome short. **Stem:** culm erect; **branching of the culm** in the node lower; **node geniculate** present; **indumentum of the node** glabrous. **Leaf:** sheath foliar persistent; **base of the blade foliar** linear; **blade foliar** conduplicate. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; flower lower absent.

ADDITIONAL DESCRIPTION

Caespitose, shortly rhizomatous perennial. Culms 20-30 cm tall, many-noded, erect to geniculate- ascending and rooting at the lower nodes, freely branching; internodes 1-4 cm long, cylindrical, striate, glabrous; nodes compressed, glabrous, brownish. Sheaths striate, ca. 1.2 cm long, longer than the internodes, strongly distichous, long-pilose on the distal portion, otherwise glabrous, one margin pilose with long, whitish hairs, the other one membranous. Ligule ciliate-membranous, the membranous portion ca. 0.1 mm long, the ciliate portion 0.4 mm long. Blades linear, 1.5-5.5 cm long, 0.1-0.2 cm wide, folded, attenuate toward the apex, pilose on the adaxial surface toward the ligule, otherwise glabrous, the borders scabrous. Primary inflorescences lax, diffuse, few-flowered, 2-3.5 cm long, 1.5-3.5 cm wide; peduncles up to 6 cm long, glabrous; main axis striate, flexuous, glabrous, somewhat glandular, the branches alternate, divergent and widely spaced, glabrous, the axils of the branches pilose; pedicels glabrous, 1-6 mm long. Secondary inflorescences similar to the terminal one. Spikelets ellipsoid, 2.2-2.7 mm long, 0.8-0.9 mm wide, gaping at maturity, glabrous. Lower glume lanceolate, 1.5-1.9 mm long, 2/3 to 3/4 the length of the spikelet, acuminate, 1(-3)-nerved, a small stipe present between the lower and upper glume. Upper glume and lower lemma subequal, 7-9-nerved, acute. Lower palea lanceolate, 1.7-1.9 mm long, 0.4-0.7 mm wide, hyaline, glabrous; lower flower absent. Upper antherium narrowly ellipsoid, 2.1-2.3 mm long, 0.7-0.8 mm wide, papillose, with simple papillae evenly distributed over the lemma and palea, apiculate, the apex scabrous, otherwise glabrous; lodicules ca. 0.2 mm long; stamens 3, anthers 1.2 mm long. Caryopsis ellipsoid, 1.4 mm long, 0.7 mm wide, brownish; hilum oblong; embryo less than half the length of the caryopsis.

COMMENTS

Distribution: *Dichanthelium cucaense* inhabiting open and dry habitats, in rocky, granitic soils of high-altitude campos of mountains in eastern Brazil, at 2,000-2,500 m. (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Atlantic Rainforest

Vegetation Types

High Altitude Grassland

Geographic Distribution

Confirmed occurrences

Southeast (Rio de Janeiro)

HERBARIUM MATERIAL

G. Martinelli, 814, RB, 176048,  (RB00287305), Rio de JaneiroG. Martinelli, 9011, RB, 216180,  (RB00538805), Rio de Janeiro, **Typus**

REFERENCE

Zuloaga, F.O. & Morrone, O. 1991. New species of *Panicum* subgenus *Dichantherium* (Poaceae: Paniceae) from South America. *Ann. Missouri Bot. Gard.* 78: 153–163.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium cumbucana (Renvoize)

Zuloaga

Has as synonym

basionym *Panicum cumbucana* Renvoize

homotype *Dichanthelium cumbucanum* (Renvoize) Zuloaga

DESCRIPTION

Root: cycle perennial; **plant** rhizomatose/with rhizome short. **Stem:** culm decumbent; **branching of the culm** in the node upper; **node geniculate** absent; **indumentum of the node** hispid. **Leaf:** **sheath foliar** persistent; **base of the blade foliar** cordate; **blade foliar** conduplicate. **Inflorescence:** **panicle** lax; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate/hispid; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** subequal to the antherium upper. **Flower:** **flower cleistogamous** absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Short-rhizomatous perennial. Culms long decumbent, then erect, up to 35 cm tall, freely branching at the upper nodes, internodes 1-2.8 cm long, hispid, hollow, nodes hispid. Sheaths 1-2 cm long, usually shorter than the internodes, hispid or glabrous, one margin long-ciliate, the other short-pilose. Ligules 0.4-0.6 mm long, shortly membranous at the base, ciliate at the apex, arcuate; collar shortly pilose. Blades lanceolate, 0.5-3.5 cm long, 0.1-1.7 cm wide, rigid, ascending and slightly divergent from the culms, cordate and amplexicaulous, acute, glabrous or shortly and densely hispid on both surfaces, with or without long hairs toward the base on the adaxial surface, the margins scaberulous, long-ciliate toward the base of the blades, the midnerve inconspicuous. Inflorescences exerted or with the base included within the upper leaves, panicles lax, few-flowered, 1-6 cm long, 1-4 cm wide; main axis hispid to sparsely pilose, first- and second-order branches shortly pilose, divergent, eglandular, the pulvini pilose; pedicels sparsely pilose. Spikelets solitary or paired, ellipsoid, 1.9-3 mm long, 0.6-0.9 mm wide, shortly hispid or glabrous, upper glume and lower lemma subequal. Lower glume ovate, 1-1.8 mm long, 0.7-0.9 mm wide, 1/2 the length of the spikelet, pilose or glabrous, not embracing the upper glume at its base, (1-)3-nerved, with a conspicuous internode ca. 0.3 mm long between the lower and upper glume. Upper glume 1.5-2.2 mm long, ca. 0.5 mm wide, pilose, 7-9-nerved, usually not covering the apex of the upper antherium. Lower lemma 1.5-1.9 mm long, 0.5 mm wide, glumiform. Lower palea linear- lanceolate, 1.2-1.5 mm long, 0.2-0.3 mm wide, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 1.5-2.4 mm long, 0.3-0.7 mm wide, pale, indurate, papillose, and pilose; lemma 5-nerved, palea 2-nerved, anthers 0.9 mm long, purplish. Caryopsis ellipsoid, 1.2-1.9 mm long, 0.2-0.5 mm wide; hilum punctiform, embryo less than 1/2 the length of the caryopsis.

COMMENTS

Distribution: Found in campos rupestres in the state of Bahia, Brazil, in sandy, rocky soils from 900 to 1,400 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium cumbucana is closely allied to, and perhaps conspecific with *D. stipiflorum*, which only differs by having leaf blades 2-4.5 cm long, usually not overlapping, and inflorescences 3-4.5 cm long. The culms and leaf blades are usually purplish in *D. cumbucana*, and the blades are, in many cases, overlapping.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Caatinga, Central Brazilian Savanna

Vegetation Types

Highland Rocky Field

Geographic DistributionConfirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIAL

L.R. Noblick, 2870, ALCB, 16209 (ALCB019282), Bahia

Oliveira, R.P., 1897, HUEFS (HUEFS0181137), Bahia

R.M. Harley, 15930, B (B 10 0366149), Bahia, **Typus**

REFERENCE

Renvoize, S.A. 1982. A new Genus and Several New Species of Grasses from Bahia (Brazil). *Kew Bull.* 37: 323–333.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium davidsei (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum davidsei* Zuloaga & Morrone

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** hirsute. **Leaf:** sheath foliar persistent; **base of the blade foliar** subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** scabrous; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 11 or more; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Perennial. Culms decumbent, rooting and branching at the lower nodes, then becoming erect, leaning or not on vegetation, up to 2.2 m long, internodes 8-22 cm long, cylindrical, striate, hispid, compressed, nodes hirsute. Sheaths 5-8 cm long, sparsely hirsute with long-tuberculate hairs, one of the margins long-ciliate, the other one membranous; collar long-pilose with whitish hairs. Ligules membranous-ciliate, ca. 0.2 mm long. Blades narrowly lanceolate, 9-13 cm long, 1-1.3 cm wide, flat, subcordate, the apex acuminate, the adaxial surfaces long-pilose toward the base, otherwise glabrous, the abaxial surfaces sparsely pilose, the margins scabrous and ciliate toward the base, the midnerve conspicuous. Inflorescence terminal, long-exserted, a lax, diffuse panicle 12-20 cm long and 7-12 cm wide, peduncle 10-40 cm long; main axis cylindrical, striate, pilose near the branches, otherwise glabrous, eglandular, lower branches whorled, the upper ones subopposite to alternate, the axis of the branches flexuous, glabrous, eglandular, the pulvini pilose; pedicels glabrous, flexuous. Spikelets ellipsoid, 3-3.3 mm long, 1 mm wide, scaberulous, attenuate toward the base and with a small stipe between the lower and upper glume, upper glume and lower lemma subequal with manifest nerves. Lower glume ovate-acuminate, 1.5-1.8 mm long, nearly 1/2 the length of the spikelet, 3-nerved. Upper glume 2.4-2.7 mm long, not covering the apex of the upper antherium, 11-14-nerved, the nerves anastomosing toward the apex. Lower lemma ca. 2.7 mm long, 10-12-nerved, the nerves anastomosing toward the apex. Lower palea lanceolate, 2.1-2.4 mm long, 0.3 mm wide, glabrous, hyaline; lower flower absent. Upper antherium ellipsoid, 2.4-2.7 mm long, 1 mm wide, papillose, apiculate, the lemma with a green, scabrous crest on the apex and with the upper margins membranous, prolonged toward the apex as small wings; rachilla prolonged beyond the upper antherium as a small mucro; lodicules ca. 0.4 mm long; stamens 3, anthers ca. 1.2 mm long. Caryopsis ellipsoid, 1.8 mm long, 0.9 mm wide, hilum punctiform, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Found in Bolívar, Venezuela and Roraima, Brazil, on forest edges (where it leans on the vegetation), or in open places in sandy soils, 1,200-1,300 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Amazon Rainforest

Vegetation Types

Amazonian Savanna


Geographic Distribution

Confirmed occurrences

North (Roraima)

HERBARIUM MATERIAL

Rondon, s.n., RB, 110786 (RB00620888)

Rondon, s.n., RB, 110786,  (RB00620888)

REFERENCE

Zuloaga, F.O. & Morrone, O. 1991a. New species of *Panicum* subgenus *Dichantherium* (Poaceae: Paniceae) from South America. *Ann. Missouri Bot. Gard.* 78: 153–163.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium hebotetes (Trin.) Zuloaga

Has as synonym

basionym *Panicum hebotetes* Trin.

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** narrowed; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** scabrous; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Plants perennial. Culms decumbent, rooting and branching at the lower nodes, then becoming erect, 30-90 cm tall, leaning on vegetation, internodes 3.5-15 cm long, hispid, hollow, nodes compressed, pilose, brownish. Sheaths 2.5-7.5 cm long, shorter than the internodes, hispid, one margin ciliate, the other membranous. Ligules 0.3 mm long, membranous and lacinate at the apex, collar hispid. Blades lanceolate, 4.5-15 cm long, 0.7-2.3 cm wide, flat, hispid or with the adaxial surface glabrous, narrowed at the base, occasionally cordate, the apex attenuate, the margins scabrous. Inflorescences terminal, usually long-exserted, peduncle 12-32 cm long, hirsute; panicles lax, diffuse, 7-22 cm long, 4.5-11 cm wide; main axis flexuous, hispid, eglandular, first-order branches alternate to subopposite, second- and third- order branches glabrous or sparsely pilose, eglandular; pedicels scabrous, terete. Spikelets ellipsoid, 1.5-1.9 mm long, 0.6-0.9 mm wide, scaberulous toward the distal portion of the upper glume and lower lemma, otherwise puberulous or glabrous, greenish, the upper glume and lower lemma subequal with manifest nerves; internodes inconspicuous between the lower glume and upper antherium. Lower glume 0.7-1.5 mm long, ovate, acute to obtuse, 3-7-nerved, glabrous, not embracing the upper glume, dimorphic, some small, 2/5 the length of the spikelet, 1-3-nerved, other longer, 3/4 the length of the spikelet, 7-nerved. Upper glume 1.4-1.7 mm long, 9-nerved, not covering the apex of the upper antherium. Lower lemma glumiform, 9-nerved. Lower palea lanceolate, 0.75-1.2 mm long, 0.3 mm wide, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 1.35-1.7 mm long, 0.7-0.8 mm wide, indurate, smooth, shiny, pale to brownish or black at maturity, puberulous at the apex, papillose, shortly apiculate, lodicules 0.2 mm long, stamens 3, the anthers 0.7 mm long; stigma whitish. Caryopsis ellipsoid, 1 mm long, 0.6 mm wide, brownish, hilum punctiform, embryo less than 1/3 the length of the caryopsis.

COMMENTS

Distribution: Found in forest edges in Venezuela, Ecuador, Bolivia, and Brazil, from 500 to 1,800 m. (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest

Vegetation Types



High Altitude Grassland, Seasonally Semideciduous Forest, Ombrophylous Forest (Tropical Rain Forest), Mixed Ombrophylous Forest, Coastal Forest (Restinga), Rock outcrop vegetation

Geographic Distribution

Confirmed occurrences

Northeast (Bahia, Ceará)
Central-west (Distrito Federal)
Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)
South (Paraná, Rio Grande do Sul, Santa Catarina)

HERBARIUM MATERIAL

V.C. Souza et al., 7418, ESA, 17504 (ESA017504), São Paulo
W.D. Clayton, 4190, NY,  (NY00652131), São Paulo
F.O. Zuloaga, 2373, RB, 270995,  (RB00622169), Rio de Janeiro

REFERENCE

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.
Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium heliophilum (Chase ex Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum heliophilum* Chase ex Zuloaga & Morrone

DESCRIPTION

Root: cycle perennial; **plant** with rhizome short. **Stem:** culm inclinate; **branching of the culm** in the node lower; **node geniculate** present; **indumentum of the node** villose. **Leaf:** sheath foliar persistent; **base of the blade foliar** subcordate; **blade foliar** flat/conduplicate. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** hirsute; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 7; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** male.

ADDITIONAL DESCRIPTION

Short-rhizomatous perennial. Culms 50-70(-100) cm tall, tangled, leaning on vegetation, the basal portion decumbent and geniculate, the upper portion erect, freely branching; internodes cylindrical, pilose, solid toward the base, otherwise hollow; nodes many, villous. Sheaths striate, 0.5-4 cm long, strongly distichous, hispid with short hairs, the margins long-ciliate; auricles small, pilose; collar brownish or purplish, covered with short whitish hairs. Ligule a ciliate membrane, 0.2-0.7 mm long, the cilia 0.1-0.6 mm long. Blades linear-lanceolate, 4-5(-12) cm long, 0.3(-1) cm wide, flat or folded, subcordate, densely hirsute on both surfaces, the margins cartilaginous, scabrous and short-ciliate. Primary inflorescences terminal, exserted, peduncles hispid, up to 8 cm long; panicles lax, diffuse, 4-16 cm long, 3-13 cm wide; main axis flexuous, sparsely hirsute, eglandular, the pulvini brownish, hispid; first-order branches opposite or alternate, the lower ones whorled or not, diverging from the axis; axis of the branches short-hirsute or glabrous; pedicels smooth, glabrous, 2-13 mm long. Axillary panicles similar to the terminal one, smaller. Spikelets solitary, ellipsoid, 2.6-3.1 mm long, 1-1.1 mm wide, hirsute, greenish, without a stipe between the lower and upper glume. Lower glume 2-2.7 mm long, 3/4 the length of the spikelet, acuminate, not embracing the upper glume at its base, 3-nerved, the nerves anastomosing toward the distal portion. Upper glume and lower lemma subequal, 7-nerved. Lower palea elliptic, 2 mm long, 0.3 mm wide, hyaline; lower flower absent. Upper antherium narrowly ellipsoid, 2.4-2.7 mm long, 0.8-0.9 mm wide, stramineous, brownish at maturity, papillose, with simple papillae evenly distributed over the lemma and palea, densely pilose, with appressed, long hairs toward the apex of the lemma and palea; lemma 5-7-nerved, rachilla prolonged or not into a short mucro above the upper antherium; lodicules ca. 0.6 mm long; stamens 3, the anthers ca. 1.3 mm long, purplish. Caryopsis ellipsoid, 1.4 mm long, 0.8 mm wide, brownish; hilum oblong, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Campos rupestres in Minas Gerais, Brazil, in sandy soils between 900 and 1,400 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Central Brazilian Savanna

Vegetation Types


Highland Rocky Field

Geographic Distribution

Confirmed occurrences

Southeast (Minas Gerais)

HERBARIUM MATERIAL

Chase, A., 9147, GH, US, NY,  (NY00414002), MO, Minas Gerais, **Typus**
Burman, A.G., 384, SP

REFERENCE

- Zuloaga, F.O. & Morrone, O.** 1991. New species of *Panicum* subgenus *Dichantherium* (Poaceae: Paniceae) from South America. *Ann. Missouri Bot. Gard.* 78: 153–163.
- Zuloaga F.O., Ellis R.P. & Morrone O.** 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.
- Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J.** 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium itatiaiae (Swallen) Zuloaga

Has as synonym

basionym *Panicum itatiaiae* Swallen

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node upper; **node geniculate** present; **indumentum of the node** glabrous. **Leaf:** sheath foliar persistent; **base of the blade foliar** subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 11 or more; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; flower lower male.

ADDITIONAL DESCRIPTION

Perennial. Culms geniculate, decumbent and rooting at the lower nodes, ascendent and branching at the upper nodes, more than 1 m tall, internodes 3-14 cm long, terete, rigid, hollow, glabrous, nodes purplish, glabrous. Sheaths 3-8 cm long, usually shorter than the internodes, glabrous with only one margin ciliate. Ligules 0.3-0.4 mm long, membranous at the base and short-ciliate or laciniate at the distal portion; collar purplish, short-pilose. Blades lanceolate or ovate-lanceolate, 10-12 cm long, 1-1.4 cm wide, flat, subcordate, glabrous, with long hairs near close to the ligular region, the midnerve manifest, the margins ciliate and scabrous. Inflorescences terminal, exserted, peduncles cylindric, up to 40 cm long, glabrous; panicles lax, diffuse, 13-18 cm long, 10-20 cm wide; main axis flexuous, smooth, glabrous, pulvini brownish, glabrous, first-order branches divergent, alternate or opposite, the axis of the branches triquetrous, purplish, scabrous; pedicels smooth, glabrous, purplish, 3-8 mm long. Spikelets solitary, narrowly ellipsoid, 4.6-5 mm long, 1.6-1.7 mm wide, glabrous, greenish, tinged with purple, the upper glume and lower lemma subequal. Lower glume 2.6-3.2 mm long, 1/2 or more the length of the spikelet, acuminate, 5-nerved, glabrous, separated from the upper glume by a short internode. Upper glume 4-4.3 mm long, usually not covering the apex of the upper antherium, obtuse, (11-)13-nerved, the nerves anastomosing toward the apex, the outer surface scaberulous, herbaceous. Lower lemma 4.3-4.6 mm long, 13-nerved, the nerves anastomosing toward the apex, acute, scaberulous. Lower palea ovate-lanceolate, 4-4.1 mm long, 1-1.1 mm wide, membranous, the margins short-ciliate; lower flower male, the stamens 3, the anthers 2.2 mm long. Upper antherium lanceolate, 4-4.2 mm long, 1.3-1.6 mm wide, apiculate, scabrous and sparsely pilose toward the apex, otherwise glabrous, papillose, with small simple papillae regularly distributed all over its surface; lemma 7-nerved, the palea scabrous at its apex. Caryopsis obovoid, 2.5 mm long, 1.5 mm wide, brownish; hilum punctiform, embryo 1/5 the length of the caryopsis.

COMMENTS

Distribution: Known only from the type collection made in the Sierra de Itatiaia, in Rio de Janeiro, Brazil, in forests at 1,700-1,800 m; collected under bamboo, with the base long decumbent (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains



Atlantic Rainforest

Vegetation Types

Ombrophyllous Forest (Tropical Rain Forest)

Geographic DistributionConfirmed occurrences

Southeast (Rio de Janeiro)

HERBARIUM MATERIALA. Chase, 8327, GH,  (GH00024150), Rio de Janeiro, **Typus**A. Chase, 8327, NY,  (NY00414005), Rio de Janeiro, **Typus**A. Chase, 8327, RB, 58867,  (RB00538808), Rio de Janeiro, **Typus****REFERENCE**

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium peristypum (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum peristypum* Zuloaga & Morrone

DESCRIPTION

Root: cycle perennial; **plant** rhizomatose. **Stem:** culm decumbent; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** glabrous. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate; **blade foliar** conduplicate. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** reduced. **Flower:** **flower cleistogamous** absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Shortly rhizomatous perennial. Culms decumbent and rooting at the lower nodes, then erect, ca. 80 cm tall, internodes 7-12 cm long, compressed, striate, glabrous; nodes compressed, glabrous, brownish. Sheaths striate, 5-9(-18) cm long, usually shorter than the internodes, glabrous, shiny, the margins membranous, ciliate toward the distal portion. Ligules 0.3 mm long, membranous at the base, then shortly ciliate, collar shortly pubescent. Blades ovate-lanceolate, 7-15 cm long, 1.5-3 cm wide, cordate, amplexicaulous, acute, velutinous, the lower margins long-ciliate, otherwise ciliate. Inflorescences terminal, exerted, panicles lax, diffuse, 15 cm long, 8 cm wide; main axis sparsely pilose, eglandular, the pulvini pilose, first-order branches alternate or subopposite, the axis of the branches scabrous, flexuous, eglandular; pedicels claviform, flexuous, scaberulous. Spikelets narrowly ellipsoid, 2.4-2.5 mm long, 1 mm wide, non stipitate, glabrous, greenish or tinged with purple, the upper glume and lower lemma subequal. Lower glume ovate, 1.2-1.4 mm long, 1/2 or a little more the length of the spikelet, glabrous, 1-3-nerved, not embracing the upper glume. Upper glume 1.9-2.3 mm long, (7-)-9- nerved, with manifest nerves, not covering the tip of the upper antherium. Lower lemma glumiform, 2-2.3 mm long, 9-nerved. Lower palea lanceolate, 1.7 mm long, 0.4 mm wide, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 2.2 mm long, 0.8 mm wide, indurate, papillose, lemma crestate, scaberulous; the stamens 3, anthers 1.4 mm long, stigma pink. Caryopsis unknown.

COMMENTS

Distribution: Known only from the type collection in edge of forest in Espírito Santo, Brazil, at 650-850 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Related to *D. sciurotoides*, *D. peristypum* has amplexicaulous, 1.5-3-cm-wide leaves, spikelets 2.4-2.5 mm long, and lower palea 1.7 mm long. It differs from *D. sabulorum* and *D. stigmatosum* by having narrowly ellipsoid spikelets (obovoid in *D. sabulorum* and *D. stigmatosum*), lower glume not embracing the upper glume at its base, and without a short stipe between the lower and upper glume. *Dichanthelium peristypum* also lacks the foliar dimorphism present in *D. sabulorum* and has, as another difference with *D. stigmatosum*, amplexicaulous leaves.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Atlantic Rainforest

Vegetation Types

Ombrophylous Forest (Tropical Rain Forest)

Geographic DistributionConfirmed occurrences

Southeast (Espírito Santo)

HERBARIUM MATERIAL

F.O. Zuloaga et al., 2398, CEN, 087951 (CEN00087951), Espírito Santo, **Typus**

F.O. Zuloaga et al., 2398, MO, 04642679 (MO123197), Espírito Santo, **Typus**

F.O. Zuloaga et al., 2398, RB, 270980,  (RB00620992), Espírito Santo, **Typus**

REFERENCE

Zuloaga, F.O. & Morrone, O. 1991. Novelty in *Panicum* Subg. *Dichanthelium* Sect. *Dichanthelium* (Poaceae: Panicoideae: Paniceae). *Novon.* 1: 111–118.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichanthelium* sect. *Dichanthelium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichantherium petropolitanum (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum petropolitanum* Zuloaga & Morrone

DESCRIPTION

Root: cycle unknown; **plant** stoloniferous. **Stem:** culm decumbent; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** glabrous. **Leaf:** sheath foliar persistent; **base of the blade foliar** linear; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Stoloniferous perennial?. Culms geniculate, rooting and branching at the lower nodes, then becoming erect, freely branching, 10-25 cm tall, few-noded; internodes 1-4 cm long, cylindric to compressed, hollow, glabrous; nodes compressed, brownish, covered with long hairs to glabrous. Sheaths striate, 1.5-5.5 cm long, longer than the internodes, one of the margins long-ciliate with whitish hairs, the other one membranous or with long hairs in the upper portion, the rest of the surface glabrous. Ligules membranous- ciliate, ca. 0.2 mm long; collar brownish, glabrous. Blades linear-lanceolate, 2-5 cm long, 0.1-0.3 cm wide, flat, glabrous, the margins scaberulous, the apex attenuate. Inflorescences terminal, exserted, peduncles up to 16 cm long; panicles lax, diffuse, 2-4 cm long, 1-3.5 cm wide; main axis flexuous, cylindric, glabrous, the pulvini glabrous, first-order branches alternate, divergent, and distant, the axis of the branches glabrous, eglandular; pedicels triquetrous, scaberulous, 1-7 mm long. Spikelets solitary, narrowly ellipsoid, 2.4-2.6 mm long, 0.9 mm wide, glabrous, the upper glume and lower lemma subequal, without a stipe between the lower and upper glume. Lower glume 1.8-2 mm long, 3/4 the length of the spikelet, lanceolate, not embracing the upper glume, 1(-3)-nerved, the midnerve scabrous toward the apex. Upper glume (7-)9- nerved, acute, embracing the lower lemma. Lower lemma 9-nerved, embracing the upper antherium. Lower palea lanceolate, 1.5 mm long, 0.3-0.4 mm wide, hyaline, glabrous; lower flower absent. Upper antherium narrowly ellipsoid, 2.3 mm long, 0.7 mm wide, glabrous, shiny, with simple papillae evenly distributed all over its surface; lemma apiculate, apicule ca. 0.2 mm long, pilose; lodicules ca. 0.3 mm long, embracing the lower margins of the palea; the stamens 3, anthers 1 mm long. Caryopsis ellipsoid, 1.2 mm long, 0.6 mm wide; hilum punctiform, embryo less than 1/3 the length of the caryopsis.

COMMENTS

Distribution: Brazil, in mountains of the state of Rio de Janeiro, growing in open and humid places on borders of streams, on rocky soils (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichantherium petropolitanum differs from *D. cucaense* in its stoloniferous habit; culms geniculate, few-noded, rooting and branching at the lower nodes and then becoming erect; linear-lanceolate, flat, leaf blades; and inflorescence with a peduncle to 16 cm long.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Atlantic Rainforest

Vegetation Types

High Altitude Grassland

Geographic Distribution

Confirmed occurrences

Southeast (Rio de Janeiro)

HERBARIUM MATERIAL

D. Sucre, 2553, RB, 138710,  (RB00538810), Rio de Janeiro, **Typus**

REFERENCE

- Zuloaga, F.O. & Morrone, O.** 1991a. New species of *Panicum* subgenus *Dichantherium* (Poaceae: Paniceae) from South America. *Ann. Missouri Bot. Gard.* 78: 153–163.
- Zuloaga F.O., Ellis R.P. & Morrone O.** 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.
- Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J.** 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium pycnocladus (Tutin) Davidse

Has as synonym

basionym *Panicum pycnocladus* Tutin

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent/inclinate; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** asymmetric; **blade foliar** flat. **Inflorescence:** panicle lax; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate/pilose; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Perennial. Culms leaning on vegetation, decumbent, rooting and branching at the lower nodes, then ascending to erect, freely branching at the upper nodes, 12-60 cm tall; internodes 3-15 cm long, terete, hollow, glabrous or hirsute, nodes compressed, pubescent with retrorse hairs. Sheaths 2-5 cm long, glabrous or hirsute, delicate, the margins long-ciliate. Ligules membranous at the base and short to long-ciliate at the apex, (0.2-0.3-)1-1.5 mm long; collar pilose with whitish hairs. Blades lanceolate or ovate-lanceolate, 2-4.5(-12) cm long, 0.5-1.8 cm wide, herbaceous, flat, divergent, glabrous or sparsely pilose to densely hispid, cordate, the base amplexicaulous and asymmetric, the apex acute, the margins scabrous, the lower margins long-pilose. Inflorescences terminal, exserted, peduncle hispid to glabrous, 6-20 cm long; panicle lax, 3-6(-10) cm long, 1.5-6 cm wide; main axis glabrous or hirsute with long papillose-pilose hairs, eglandular, the pulvini pilose or glabrous, first-order branches flexuous, ascending, alternate or subopposite, occasionally whorled toward the base, glabrescent, eglandular; pedicels pilose toward the distal portion or glabrous, smooth. Spikelets ellipsoid, 2.2-3(-3.3) mm long, 0.8-0.9 mm wide, glabrous or pilose, acute and attenuate at the base, with a stipe between the lower and upper glume, upper glume and lower lemma subequal. Lower glume ovate-acuminate, (0.7-)1.2-1.8 mm long, 1/2 to 3/4 the length of the spikelet, 3(-5)- nerved, embracing the upper glume. Upper glume 1.9-2.7 mm long, 9-nerved, not covering the apex of the upper antherium. Lower lemma glumiform, 7-9-nerved. Lower palea linear-lanceolate, 1.5-1.8 mm long, 0.3 mm wide, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 1.8-2.1 mm long, 0.8 mm wide, indurate, pale, lemma slightly crested at the apex, scabrous and pilose; stamens 3, anthers 0.8 mm long. Caryopsis ellipsoid, 1.5 mm long, 0.8 mm wide, hilum punctiform, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Ecuador, Perú, Venezuela, Guyana, Surinam, and Brazil, on forest edges, often leaning on vegetation, or in open places, between 500 and 2,600 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium pycnocladus shows close affinities to *D. stipiflorum*, and the latter species may represent a variant of *D. pycnocladus*. *Dichanthelium pycnocladus* has spikelets with the lower glume 1/2 to 3/4 the length of the spikelet, and blades with only the lower margins pilose. *Dichanthelium stipiflorum* has spikelets with the lower glume usually 1/2 the length of the spikelet and blades with long-ciliate margins.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Caatinga, Atlantic Rainforest

Vegetation Types

Caatinga (stricto sensu), Highland Rocky Field

Geographic Distribution

Confirmed occurrences

Northeast (Bahia, Ceará)

Southeast (Minas Gerais)

HERBARIUM MATERIAL

S.A. Renvoize, 16634, K,  (K000003502), Bahia

F. França, 5847, HUEFS, 167742 (HUEFS0167742), Bahia

J.J. Wurdack, 535, K,  (K000309314), **Typus**

REFERENCE

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichantherium sabulorum (Lam.) Gould & C.A. Clark

This treatment is composed of the following taxa: *Dichantherium sabulorum*, *Dichantherium sabulorum* var. *cordatum*, *Dichantherium sabulorum* var. *polycladum*, *Dichantherium sabulorum* var. *sabulorum*.

Has as synonym

basionym *Panicum sabulorum* Lam.

DESCRIPTION

Root: cycle perennial; **plant** rhizomatose. **Stem:** culm erect/decumbent; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** glabrous/pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate/subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** obovoid; **indumentum of the spikelet** glabrate/hirsute; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** male.

ADDITIONAL DESCRIPTION

Short-rhizomatous perennials, with two different kinds of culms: young culms simple, erect and with broad, cordate, lanceolate leaves; older culms erect to decumbent, occasionally rooting and profusely branching at the lower and upper nodes, up to 1 m long, with leaves smaller than those of the primary culms; internodes hollow, cylindrical, hirsute, nodes densely pilose to glabrous, dark. Sheaths 2.5-6 cm long, hirsute to glabrous, the margins ciliate, glands present or absent, more conspicuous toward the distal portion. Ligules membranous-ciliate, 0.4-1.1 mm long. Leaves lanceolate, 1-9(-15) cm long, 0.2-1.4(-2) cm wide, flat, the base subcordate or cordate, amplexicaulous, the apex acuminate, rigid to herbaceous, hispid, with short, stiff hairs or with papillose-pilose hairs, or glabrous, the lower margins long-ciliate, otherwise scabrous, the midnerve inconspicuous. Primary inflorescences lax, diffuse, few to multiflowered, panicles 2-10 cm long, 2-8 cm wide; main axis hirsute or glabrous, glandular or eglandular, first-order branches alternate, divergent, the axis of the branches long-hirsute to scabrous and glandular or eglandular; pedicels claviform, hirsute, glandular or eglandular; axillary panicles similar to the terminal one, smaller. Spikelets obovoid, biconvex, 1.9-3 mm long, 0.9-1.4 mm wide, paired or solitary, shortly stipitate, greenish and tinged with purple, hirsute to glabrous, glumes and lower lemma with manifest nerves. Lower glume 1/2 to 3/4 the length of the spikelet, 3-5-nerved, the nerves anastomosing toward the apex, ovate, obtuse to acute and embracing the upper glume on its base. Upper glume 7-9-nerved, obtuse, not covering the apex of the upper antherium. Lower lemma glumiform, 7-9-nerved. Lower palea ovate, 1.6 mm long, 0.8 mm wide, hyaline, the margins short-ciliate; lower flower male or absent. Upper antherium broadly ellipsoid, 1.8-2.5 mm long, 0.7-1.2 mm wide, stramineous, shiny, shortly apiculate, with simple papillae in regular rows; lemma 5-nerved. Caryopsis broadly ellipsoid, 1.5 mm long, 1 mm wide; hilum punctiform, embryo less than half the length of the caryopsis.

COMMENTS

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest, Pampa

Vegetation Types

Anthropic area, High Altitude Grassland, Grassland, Riverine Forest and/or Gallery Forest, Ombrophyllous Forest (Tropical Rain Forest), Mixed Ombrophyllous Forest

Geographic DistributionConfirmed occurrences

North (Amazonas)

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

IDENTIFICATION KEY**Key to the varieties of *Dichantherium sabulorum*:**

1. Leaf blades clasping the culm *D. sabulorum* var. *cordatum*
 1'. Leaf blades not clasping the culm 2
 2. Spikelets (2.2-)2.4-3 mm long, pilose; blades pilose; plants growing in open, dry places *D. sabulorum* var. *sabulorum*
 2'. Spikelets 1.9-2.3(-2.6) mm long, glabrous or sparsely pilose; blades glabrous; plants growing on forest edges in humid places .. *D. sabulorum* var. *polycladum*

HERBARIUM MATERIAL

A. Costa Allem, 1868, CEN, 2068 (CEN00002068), Rio Grande do Sul

A. Costa Allem, 1809, CEN, 2009 (CEN00002009), Rio Grande do Sul

J.F.M. Valls, 1660, CEN, 4015 (CEN00004015), Rio Grande do Sul

REFERENCE

- Zuloaga F.O. & Morrone O.** 1991. Estudios morfológicos en el subgenero *Dichantherium* de *Panicum* (Poaceae: Panicoideae: Paniceae), con especial referencia a *Panicum sabulorum*. *Ann. Missouri Bot. Gard.* 78(4): 915–927.
Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.
Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium sabulorum (Lam.) Gould & C.A. Clark var. *sabulorum*

Has as synonym

basionym *Panicum sabulorum* Lam. var. *sabulorum*

DESCRIPTION

In this variety the spikelets are pilose, (2.2)2.4-3 mm long; the axis of the inflorescence is hirsute; and the blades are rigid and hirsute.

COMMENTS

Distribution: southern Brazil, Argentina, Paraguay, and Chile; found in open places on sandy soils (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest

Vegetation Types

Grassland

Geographic Distribution

Confirmed occurrences

Southeast (Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

HERBARIUM MATERIAL

J.R. Swallen, 9252, US, Rio Grande do Sul

REFERENCE

Zuloaga F.O. & Morrone O. 1991. Estudios morfológicos en el subgenero *Dichanthelium* de *Panicum* (Poaceae: Panicoideae: Paniceae), con especial referencia a *Panicum sabulorum*. *Ann. Missouri Bot. Gard.* 78(4): 915–927.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichanthelium* sect. *Dichanthelium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium sabulorum var. *cordatum* (Zuloaga & Morrone) Zuloaga

DESCRIPTION

In this variety the spikelets are glabrous, 2-2.2 mm long; manifest glands are present on the glabrous sheaths and axis of the inflorescences; and the leaf blades are amplexicaulous, cordate, asymmetrical at base, glabrous and up to 15 cm long and to 2 cm wide.

COMMENTS

Distribution: Found from the states of Minas Gerais and Rio de Janeiro to southern Brazil; also in Paraguay, Uruguay, Argentina, Bolivia, and Chile. Plants grow in shady and wet areas, on forest edges, up to 1,500 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Atlantic Rainforest

Vegetation Types

Riverine Forest and/or Gallery Forest

Geographic Distribution

Confirmed occurrences

South (Paraná, Santa Catarina)

HERBARIUM MATERIAL

J.F.M. Valls, 10087, CEN, Paraná

REFERENCE

- Zuloaga F.O. & Morrone O.** 1991. Estudios morfológicos en el subgenero *Dichanthelium* de *Panicum* (Poaceae: Panicoideae: Paniceae), con especial referencia a *Panicum sabulorum*. *Ann. Missouri Bot. Gard.* 78(4): 915–927.
- Zuloaga F.O., Ellis R.P. & Morrone O.** 1993. A revision of *Panicum* subg. *Dichanthelium* sect. *Dichanthelium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.
- Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J.** 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichantherium sabulorum var. *polycladum* (Ekman) Zuloaga

Has as synonym

basionym *Panicum sabulorum* var. *polycladum* Ekman

DESCRIPTION

Dichantherium var. *polycladum* differs from *Dichantherium* var. *sabulorum* by having smaller spikelets 1.9-2.3(-2.6) mm long that are glabrous or with scattered hairs toward the apex; herbaceous and usually glabrous blades; and panicles with the main axis and branches commonly glandular.

COMMENTS

Distribution: found from the states of Minas Gerais and Rio de Janeiro to southern Brazil; also in Paraguay, Uruguay, Argentina, Bolivia, and Chile. Plants growing in shady and wet areas, on forest edges, up to 1,500 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest, Pampa

Vegetation Types

High Altitude Grassland, Grassland, Riverine Forest and/or Gallery Forest, Ombrophyllous Forest (Tropical Rain Forest), Mixed Ombrophyllous Forest


Geographic Distribution

Confirmed occurrences

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

HERBARIUM MATERIAL

G. Davidse, 10441, MO, 2414420,  (MO-317267), São Paulo

REFERENCE

- Zuloaga F.O. & Morrone O.** 1991. Estudios morfológicos en el subgenero *Dichantherium* de *Panicum* (Poaceae: Panicoideae: Paniceae), con especial referencia a *Panicum sabulorum*. *Ann. Missouri Bot. Gard.* 78(4): 915–927.
- Zuloaga F.O., Ellis R.P. & Morrone O.** 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.
- Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J.** 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium sciurotis (Trin.) Davidse

Has as synonym

basionym *Panicum sciurotis* Trin.

homotype *Dichanthelium sciurotes* (Trin.) Davidse

heterotypic *Panicum rostellatum* Trin.

DESCRIPTION

Root: cycle annual; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node lower; **node geniculate** present; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** hirsute; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 5 - 7; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Annual. Culms geniculate, decumbent, rooting and branching at the lower nodes, then becoming erect, 5-25 cm tall; internodes hollow, compressed, hirsute, 2-8 cm long; nodes dark, densely pilose with retrorse whitish hairs. Sheaths striate, 1-5 cm long, hirsute, with long whitish hairs, the margins ciliate. Ligules membranous-ciliate, ca. 0.4 mm long; collar pilose, brownish. Blades ovate-lanceolate, 1.5-9 cm long, 0.8-2.8 cm wide, herbaceous, flat, hirsute, with papillose-pilose with short, rigid hairs, the base amplexicaulous, the margins ciliate, the midnerve inconspicuous. Inflorescence terminal, exserted; peduncle 5-7.5 cm long, flexuous, hirsute; panicles lax, diffuse, 2-7 cm long, 1-5 cm wide; main axis flexuous, papillose-pilose with long hairs; pulvini pilose; first-order branches divergent, alternate or opposite, the axis of the branches flexuous, smooth, glabrous or with scattered long hairs; pedicels smooth, glabrous; axillary panicles present, similar to the terminal one. Spikelets solitary, ellipsoid, 1.5-1.7 mm long, 0.7-0.8 mm wide, hirsute, with short hairs, the upper glume and lower lemma subequal or the upper glume shorter, the nerves inconspicuous. Lower glume 0.3-0.4 mm long, 1/4 or less the length of the spikelet, nerveless, truncate, not embracing the upper glume at the base. Upper glume obtuse, not covering the apex of the antherium, 5(-7)-nerved, the nerves anastomosing, obtuse. Lower lemma glumiform, obtuse, slightly inflated at the base, 5-nerved, the nerves anastomosing toward the distal portion. Lower palea lanceolate, 0.9 mm long, 0.2 mm wide, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 1.4-1.5 mm long, 0.5-0.7 mm wide, glabrous, smooth and shiny, short-apiculate, with simple papillae all over its surface. Caryopsis obovoid; hilum punctiform; embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Restricted to northeastern Brazil, where it grows in sandy soils, in open places or forest edges (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium sciurotis differs from *D. sciurotoides* in having spikelets with the lower glume nerveless and truncate; upper glume and lower lemma 5(-7)-nerved with the nerves not manifest; upper antherium inserted laterally in relation to the axis of the rachilla; and lower lemma inflated at the base.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Caatinga, Central Brazilian Savanna, Atlantic Rainforest

Vegetation Types

Caatinga (stricto sensu), Riverine Forest and/or Gallery Forest, Seasonally Deciduous Forest, Ombrophylous Forest (Tropical Rain Forest), Coastal Forest (Restinga)

Geographic DistributionConfirmed occurrences


Northeast (Alagoas, Bahia, Ceará, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, Sergipe)

Southeast (Espírito Santo, Minas Gerais, São Paulo)

South (Paraná, Santa Catarina)

HERBARIUM MATERIAL

M.L. Guedes, 7558, ALCB, 049601 (ALCB020994), Bahia

R.M. Harley, 16636, CEPEC, 10063,  (CEPEC00010063), Bahia

L.R. Noblick, 2735, HUEFS, 02515 (HUEFS0002515), Bahia

REFERENCE

Zuloaga, F.O. & Morrone, O. 1991. *Panicum sciurotoides*, a new species of *Panicum* (Poaceae, Paniceae) from América. *Novon* 1: 1–5.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium sciurotoides (Zuloaga & Morrone) Davidse

Has as synonym

basionym *Panicum sciurotoides* Zuloaga & Morrone

DESCRIPTION

Root: cycle annual; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node upper; **node geniculate** present; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate/asymmetric; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** hispid; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Annual. Culms decumbent, geniculate, rooting and branching at the lower nodes, erect portion 10-85 cm tall, branching at the upper nodes; internodes 2.5-11.5 cm long, terete, hollow, hispid to glabrous; nodes dark, compressed, densely pilose with retrorse whitish hairs. Sheaths striate, 3-6.5 cm long, sparsely papillose-pilose to glabrous, the margins ciliate or one margin ciliate and the other one membranous. Ligules membranous-ciliate, small, surmounted by long hairs at the base of the blade; collar pilose. Blades ovate-lanceolate, 3-10 cm long, 0.8-2 cm wide, flat, the base cordate, clasping and asymmetric, either densely hirsute with short to long appressed tuberculate hairs or short-hispid on the abaxial surface, or glabrous, the margins ciliate toward the base, otherwise scabrous. Inflorescence terminal, lax, diffuse, pyramidal, 2.5-9 cm long, 1.5-8.5 cm wide; main axis flexuous, hirsute, with long papillose-pilose hairs; branches alternate, flexuous, the axis of the branches smooth, glabrous; pedicels glabrous. Spikelets solitary, narrowly ellipsoid, 1.5-1.9 mm long, 0.5-0.7 mm wide, greenish, short-hispid, the upper glume and lower lemma subequal. Lower glume ovate, 0.4-0.9 mm long, usually 1/3-1/2 or more the length of the spikelet, acute to truncate, 1-3(-7)-nerved. Upper glume 7-9(-11)-nerved, not embracing the lower lemma. Lower lemma glumiform, 7-9-nerved, acute, not inflated at the base. Lower palea lanceolate to truncate, 0.7-1 mm long, 0.2-0.3 mm wide, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 1-1.7 mm long, 0.4-0.6 mm wide, smooth, shiny, short-apiculate, with simple papillae all over its surface. Caryopsis 0.9-1.1 mm long, 0.3-0.7 mm wide, brownish, hilum punctiform, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Widely distributed from Belize and Panamá to Bolivia and Brazil; common on forest edges, with the culms straggling in low vegetation, often in disturbed and open places in sandy soils; from 100 to 1,400 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium sciurotoides is related to *D. sciurotis* Trin., from which it differs in having the lower glume 1/3-1/2 or more the length of the spikelet and 1-3(-7)-nerved; the upper glume 7-9(-11) nerved; the lower lemma 7-9-nerved and not inflated at base; and the upper antherium inserted basally.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Caatinga, Central Brazilian Savanna, Atlantic Rainforest

Vegetation Types

High Altitude Grassland, Highland Rocky Field, Seasonally Semideciduous Forest, Ombrophyllous Forest (Tropical Rain Forest)

Geographic DistributionConfirmed occurrences



Northeast (Alagoas, Bahia, Ceará)


Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Santa Catarina)

HERBARIUM MATERIAL

R.P. Oliveira, 1377, HUEFS, 124204 (HUEFS0124204), Bahia

Y. E. J. Mexia, 5819, NY,  (NY00414048), S (S14-6650), US,  (US00901543), Minas Gerais, **Typus**

S.A. Renvoize, 4307, K,  (K000003509), Bahia

REFERENCE

Zuloaga, F.O. & Morrone, O. 1991. *Panicum sciurotoides*, a new species of *Panicum* (Poaceae, Paniceae) from América. *Novon* 1: 1–5.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium sendulskyae (Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum sendulskii* Zuloaga & Morrone

DESCRIPTION

Root: cycle annual; **plant** caespitose. **Stem:** culm decumbent/tangled; **branching of the culm** in the node lower; **node geniculate** present; **indumentum of the node** glabrous/pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** subcordate/rounded; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ovoid; **indumentum of the spikelet** glabrate; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** reduced. **Flower:** **flower cleistogamous** absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Annual. Culms tangled, leaning on the adjacent vegetation, the basal portion decumbent and geniculate, the upper portion erect, up to 100 cm tall, branching at the lower nodes, many-noded; internodes cylindrical or slightly compressed, 2.5-9 cm long, hollow, glabrous; nodes pale, shortly pilose or glabrous. Sheaths shorter than the internodes, one margin long-ciliate with papillose-pilose hairs, otherwise glabrous; auricles absent; collar pubescent or glabrous. Ligules membranous-ciliate, 0.4-0.8 mm long, with hairs beneath at the base of the blade. Blades linear-lanceolate, 2.5-9 cm long, 0.3-0.6 cm wide, flat, rounded or subcordate at the base, the apex attenuate, glabrous, the margins scaberulous, ciliate toward the base. Peduncles exerted, up to 25 cm long, cylindrical, glabrous. Inflorescences terminal and axillary, lax, diffuse, 3-8 cm long, 2.5-7 cm wide; branches opposite or alternate, divergent; main axis and branches flexuous, glabrous; axils of the branches shortly pilose or glabrous; pedicels filiform, 1.5—5 mm long, glabrous. Spikelets solitary, narrowly ovoid, 2.8-3.2 mm long, 1 mm wide, glabrous, acute, greenish; upper glume and lower lemma subequal, 0.6-0.8 mm longer than the upper antheridium. Lower glume 1.8—2 mm long, % or shorter than the length of the spikelet, herbaceous, 1—3-nerved, not embracing the upper glume at its base. Upper glume as long as the spikelet, 9-nerved, with conspicuous nerves. Lower lemma glumiform, 9-nerved. Lower palea narrowly lanceolate, 2.2-2.4 mm long, 0.4-0.6 mm wide, hyaline, the margins denticulate; lower flower absent. Upper antheridium ellipsoid, 2-2.4 mm long, 0.7-0.8 mm wide, indurate, pale, minutely papillose, the apex crestate, greenish and shortly pilose; stamens 3, the anthers 0.6-1 mm long; lodicules 2, 0.3 mm long, truncate, hyaline. Caryopsis ellipsoid, 1.6 mm long, 0.8 mm wide; hilum punctiform; embryo ½ the length of the caryopsis.

COMMENTS

Distribution: Campos rupestres in Minas Gerais, Brazil, where it grows in open places (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Central Brazilian Savanna

Vegetation Types

Highland Rocky Field

Geographic Distribution

Confirmed occurrences

Southeast (Minas Gerais)

HERBARIUM MATERIAL

T. Sendulsky, 414, SP, Minas Gerais

REFERENCE

- Zuloaga F.O. & Morrone O.** 1996. New species of Paniceae (Poaceae: Panicoideae) from Brazil. *Ann. Missouri Bot. Gard.* 6: 310–317.
- Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J.** 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium stigmatosum (Trin.) Zuloaga

Has as synonym

basionym *Panicum stigmatosum* Trin.

DESCRIPTION

Root: cycle perennial; **plant** caespitose. **Stem:** culm decumbent/inclinate; **branching of the culm** in the node lower; **node geniculate** absent; **indumentum of the node** glabrous/pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate/subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid/obovoid; **indumentum of the spikelet** glabrate; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous absent; **flower lower** absent/male.

ADDITIONAL DESCRIPTION

Perennial (30-)50-100 cm tall. Culms decumbent, branching and rooting at the lower nodes, then ascendent, leaning on vegetation, branching at the upper nodes; internodes 4-19 cm long, compressed, glabrous, with glands toward the distal portion; nodes compressed, brownish, pilose or glabrous. Sheaths 3-11 cm long, shorter than the internodes, hispid or glabrous, glandular, one margin ciliate, the other one ciliate toward the apex but otherwise glabrous. Ligules (0.3-)1-1.6 mm long, shortly membranous at the base, then ciliate; collar villous or puberulous, brownish. Blades linear-lanceolate, 10-22 cm long, 1-2.2 cm wide, the base subcordate or cordate, slightly asymmetrical, the apex attenuate, sparsely pilose or glabrous on the adaxial surface or hispid on both surfaces, the margins shortly ciliate, scabrous, the abaxial surface glandular or eglandular. Inflorescences exerted, peduncle (6-)9-34 cm long, cylindric, glabrous or sparsely pilose, glandular; panicles lax, diffuse, 9-21 cm long, 6-15 cm wide; main axis flexuous, glabrous or sparsely pilose, glandular, the pulvini pilose, first-order branches divergent, alternate or subopposite, flexuous, the axis of the branches flexuous, scaberulous, glandular; pedicels claviform, shortly hirsute or scabrous. Spikelets ellipsoid or obovoid, (1.9-)2.4-3.2 mm long, (0.9-)1.1-1.3 mm wide, greenish to purplish, glabrous, shortly stipitate, the upper glume and lower lemma subequal. Lower glume ovate, 1.1-1.8 mm long, 1/2 to 3/4 the length of the spikelet, embracing the upper glume, (1-)3-nerved, glabrous. Upper glume (1.6-)2-2.4 mm long, not covering the apex of the upper antherium, glabrous, 7-9-nerved, the nerves manifest. Lower lemma glumiform, (1.6-)2-2.4 mm long, 7-9-nerved. Lower palea lanceolate, (1.6-)1.8-2.1 mm long, 0.6-0.7 mm wide, hyaline, glabrous, the margins ciliate; lower flower present or absent, male when present; stamens 3, anthers up to 0.9 mm long. Upper antherium ellipsoid, 1.9-2.1 mm long, 0.9-1 mm wide, acuminate, stramineous, indurate, with simple papillae all over its surface; lodicules ca. 0.3 mm long; stamens 3, the anthers 0.7 mm long. Caryopsis ellipsoid, 1.3 mm long, 1 mm wide; hilum punctiform, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Brazil, in the states of Espírito Santo, Minas Gerais, Rio de Janeiro, Santa Catarina, and Sao Paulo, on forest edges in tangled colonies, 1,000-2,200 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium stigmatosum is closely related and perhaps conspecific with *D. sabulorum*, differing only in the plants being bigger, scandent, foliar dimorphism is absent, the inflorescence is bigger (6-)9-34 cm long, and leaf blades and axis of the inflorescence glandular.

Panicum stigmatosum var. *parviflorum* Doell is a dubious name. Doell included in his original diagnosis two specimens: *Sellow 4906* and *Regnell III-1360*. There is a fragment of the latter specimen at US which is *P. pantrichum* Hackel (sect. *Cordovensia*).

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest

Vegetation Types

High Altitude Grassland, Highland Rocky Field, Ombrophylous Forest (Tropical Rain Forest), Mixed Ombrophylous Forest

Geographic DistributionConfirmed occurrences


Central-west (Goiás)

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

HERBARIUM MATERIAL

A. Chase, 8261, NY,  (NY00662338), Rio de Janeiro

A. Chase, 9556, NYBG, 00864655,  (NY00864655), Minas Gerais

Khulmann, s.n., RB, 450220,  (RB00488503), Rio de Janeiro

REFERENCE

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium stipiflorum (Renvoize)

Zuloaga

Has as synonym

basionym *Panicum stipiflorum* Renvoize

DESCRIPTION

Root: cycle annual; **plant** caespitose. **Stem:** culm decumbent; **branching of the culm** in the node upper; **node geniculate** absent; **indumentum of the node** pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate; **blade foliar** conduplicate. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** hirsute; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Annual? Culms decumbent at the base, then ascendent, 20-30(-80) cm tall, freely branching at the upper nodes, many-noded, internodes terete, hollow, short-pilose, nodes compressed, densely pilose with short, appressed, whitish hairs. Sheaths striate, sparsely or densely hirsute with short hairs, or long-pilose in the upper portion, the margins long-ciliate, more so in the upper portion. Ligules 0.3 mm long, membranous-ciliate. Blades ovate-lanceolate, 2-6 cm long, 0.6-1.5 cm wide, cordate, amplexicaulous, sparsely to densely hirsute with short, rigid hairs, or glabrescent, the margins cartilaginous, scabrous and long-ciliate with papillose-pilose hairs. Inflorescences terminal, exserted, peduncles up to 20 cm long, cylindrical, shortly hirsute; panicles lax, diffuse, 3-8 cm long, 2-5 cm wide; main axis flexuous, hirsute; pulvini densely pilose; first-order branches alternate, divergent, the axis of the branches hirsute, smooth, eglandular; pedicels hirsute, 0.6-2 mm long. Spikelets paired or solitary, ellipsoid, 2.2-2.6 mm long, 0.9 mm wide, sparsely hirsute with short hairs on the glumes and lower lemma, greenish or tinged with purple. Lower glume acute, 1/2 or less the length of the spikelet, occasionally larger, not embracing the upper glume at its base, 3-5-nerved, separated from the upper glume by a conspicuous stipe. Upper glume 1.8-2.1 mm long, occasionally a little smaller and not covering the apex of the upper antherium, 7-9-nerved, the nerves anastomosing. Lower lemma glumiform, 7-nerved, the nerves anastomosing toward the apex. Lower palea elliptical, 1.5 mm long, 0.3 mm wide, hyaline, glabrous; lower flower absent. Upper antherium ellipsoid, 1.7-1.8 mm long, 0.7 mm wide, indurate, smooth, shiny, papillose with simple papillae regularly distributed all over its surface; lemma 5-nerved, shortly apiculate and pilose toward the apex. Caryopsis ellipsoid, 1.5 mm long, 0.9 mm wide; hilum punctiform, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Bahia, Brazil, in cerrados in rocky, sandy soils, between 900 and 1,100 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium stipiflorum is characterized by its cordate, amplexicaulous leaves with conspicuous ciliate margins, spikelets with a stipe between the lower and upper glume, and lower glume usually less than 1/2 the length of the spikelet.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Caatinga, Central Brazilian Savanna

Vegetation Types

Highland Rocky Field, Cerrado (lato sensu)

Geographic DistributionConfirmed occurrences

Northeast (Bahia)

HERBARIUM MATERIAL

S.A. Renvoize, 17019, K,  (K000003516), Bahia, **Typus**

R.M. Harley, 17004, K,  (K000003514), Bahia, **Typus**

G. Davidse, 11888, K,  (K000003515), Bahia

REFERENCE

Renvoize, S.A. 1982. A new Genus and Several New Species of Grasses from Bahia (Brazil). *Kew Bull.* 37: 323–333.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium superatum (Hack.) Zuloaga

Has as synonym

basionym *Panicum superatum* Hack.

DESCRIPTION

Root: cycle perennial; **plant** caespitose/with rhizome short. **Stem:** culm erect; **branching of the culm** in the node lower/in the node upper; **node geniculate** absent; **indumentum of the node** glabrous/pilose. **Leaf:** sheath foliar persistent; **base of the blade foliar** cordate/subcordate; **blade foliar** flat. **Inflorescence:** panicle contracted; **form of the spikelet** obovoid; **indumentum of the spikelet** glabrate/pilose; **glume lower** enveloping the base of the glume upper; **number of the veins of the glume upper** 7 - 9; **pale lower** reduced. **Flower:** flower cleistogamous absent; **flower lower** absent.

ADDITIONAL DESCRIPTION

Caespitose, short-rhizomatous perennial. Culms erect to ascendent, (0.1-)0.2-1.2 m tall, branching at the base or from the upper nodes; internodes 4-6 cm long, hispid or glabrous, terete, hollow; nodes compressed, long-pilose, or glabrous. Sheaths 4-10 cm long, striate, glabrous or hirsute with long papillose-pilose hairs, one margin long-ciliate, the other membranous. Ligules membranous-ciliate, 0.6-1.5 mm long; collar glabrous or densely pilose. Blades lanceolate to linear-lanceolate, 4.5-16 cm long, 0.6-1.5 (-2.5) cm wide, hispid or glabrous, densely pilose on the adaxial surface near the subcordate or cordate base, the apex attenuate, the margins ciliate. Inflorescence terminal, exserted, peduncle hispid; panicles contracted to slightly open, 5-8(-17) cm long, 0.8-5(-10) cm wide; main axis hispid, the pulvini pilose; first-order branches appressed or slightly divergent from the main axis, alternate or subopposite, the axis of the branches hispid or short-pubescent and eglandular; pedicels flexuous, scabrous, hispid with long hairs. Spikelets congested, obovoid, (2.1-)2.4-3.3 mm long, 0.9-1.2 mm wide, sparsely pilose or glabrous, the upper glume and lower lemma subequal, shortly stipitate. Lower glume ovate-lanceolate, 1.6-2.4 mm long, 1/2-3/4 the length of the spikelet, clasping, 3-5-nerved, with a short stipe between the lower and upper glume. Upper glume (1.8-)2.4-2.5 mm long, (7-)9-11-nerved, not covering the apex of the upper antherium. Lower lemma (1.9-)2.2-2.5 mm long, 7-9-nerved. Lower palea lanceolate, (1.5-)2.1 mm long, 0.6 mm wide, membranous, the margins ciliate; lower flower absent or present, male when present, with 3 anthers each 1 mm long. Upper antherium ellipsoid, 1.9-2.5 mm long, 0.9-1.2 mm wide, indurate, smooth, the apex of the lemma apiculate, scaberulous; stamens 3, the anthers 0.3-1 mm long. Caryopsis ellipsoid, 1.7 mm long, 1 mm wide; hilum punctiform, embryo 1/3 the length of the caryopsis.

COMMENTS

Distribution: Brazil, on mountain slopes from Espírito Santo to Rio Grande do Sul, 900-2,650 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Related to *Dichanthelium sabulorum* and *D. stigmosum*, *D. superatum* can be distinguished by its contracted panicles, and appressed spikelets.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Is endemic from Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest

Vegetation Types

High Altitude Grassland, Highland Rocky Field, Riverine Forest and/or Gallery Forest, Mixed Ombrophylous Forest

Geographic DistributionConfirmed occurrences

Southeast (Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

HERBARIUM MATERIAL

A.F.M. Glaziou, 17904, K,  (K000309285), Rio de Janeiro, **Typus**

J.F.M. Valls, 1398, CEN, 3633 (CEN00003633), Rio Grande do Sul

A. Zanin, 1184, FLOR, 0035583 (FLOR0035583), Santa Catarina

REFERENCE

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.

Dichanthelium surrectum (Chase ex Zuloaga & Morrone) Zuloaga

Has as synonym

basionym *Panicum surrectum* Chase ex Zuloaga

DESCRIPTION

Root: cycle perennial; **plant** rhizomatose. **Stem:** culm decumbent; **branching of the culm** in the node upper; **node geniculate** present; **indumentum of the node** glabrous. **Leaf:** sheath foliar persistent; **base of the blade foliar** subcordate; **blade foliar** flat. **Inflorescence:** panicle lax/diffuse; **form of the spikelet** ellipsoid; **indumentum of the spikelet** glabrate; **glume lower** not enveloping the base of the glume upper; **number of the veins of the glume upper** 9; **pale lower** subequal to the antherium upper. **Flower:** flower cleistogamous present; **flower lower** male.

ADDITIONAL DESCRIPTION

Short-rhizomatous perennial. Culms decumbent to geniculate, then erect, branching at the upper nodes, scandent, 45-120 cm tall; internodes compressed or cylindric, 7-13 cm long, glabrous; nodes compressed, glabrous, brownish. Sheaths 4-10.5 cm long, shorter than the internodes, glabrous to papillose-pilose toward the base, shiny, one margin ciliate, the other one ciliate toward the base, otherwise glabrous. Ligules 0.2 mm long, membranous-ciliate; collar pilose. Blades linear-lanceolate, 5-12 cm long, 0.6-1 cm wide, glabrous to short-hispid, attenuate at the base and apex, the margins scabrous, long-ciliate toward the base; midnerve conspicuous. Inflorescences terminal, exserted; panicles lax, diffuse, 3.5-15 cm long, 3-10 cm wide; main axis glandular or eglandular, flexuous, glabrous, the pulvini glabrous; first-order branches ascendent, whorled toward the base, then subopposite or alternate, the axis of the branches glabrous, flexuous, glandular or eglandular; pedicels triquetrous, glabrous, glandular or eglandular. Spikelets narrowly ellipsoid, 1.8-2.2 mm long, 0.8 mm wide, glabrous, greenish, non-stipitate, the upper glume and lower lemma subequal, the nerves manifest. Lower glume ovate, 0.9-1.3 mm long, 2/5-1/2(-3/4) the length of the spikelet, not embracing the upper glume, (1-)3-nerved, the lateral nerves inconspicuous. Upper glume 1.6-2 mm long, not covering the apex of the upper antherium, 9-nerved. Lower lemma glumiform, 1.8-2.1 mm long, 9-nerved. Lower palea lanceolate, 1.5-1.8 mm long, 0.4 mm wide, shortly pilose near the apex, otherwise glabrous, hyaline; lower flower male or sterile, stamens 3, the anthers 1 mm long. Upper antherium ellipsoid, 1.6-1.8 mm long, 0.7 mm wide, pale, indurate, papillose, the apex of the lemma shortly crested and pilose; stamens 3, the anthers 1.2 mm long, purplish. Caryopsis ovoid, 1.3 mm long, 0.7 mm wide; hilum punctiform, embryo less than 3/4 the length of the caryopsis.

COMMENTS

Distribution: Brazil, occasionally present in Paraguay, found at forest edges, between 600 and 1,800 meters (Zuloaga & Morrone 1991, Zuloaga *et al.* 1993, Zuloaga *et al.* 2003).

Dichanthelium surrectum shows affinities with *D. sabulorum*, *D. stigmosum* and *D. superatum*. *Dichanthelium surrectum* is characterized by its long-ellipsoid, spikelets, smaller lower glume, not embracing the upper glume. *Dichanthelium stigmosum*, *D. sabulorum* and *D. superatum* have lower glume 1/2 to 3/4 the length of the spikelet, covering the base of the upper glume, and ellipsoid to obovoid, globose spikelets.

Dichanthelium surrectum has, as other species of genus *Dichanthelium* (Morrone & Zuloaga 1991), conspicuous glands on the axis and pedicels of some specimens.

Cleistogamous flowers were observed in *Chase 9815*, with anthers 0.6 mm long.

Life Form

Herb

Substrate

Terrestrial

DISTRIBUTION

Native, Not endemic to Brazil

Phytogeographic Domains

Central Brazilian Savanna, Atlantic Rainforest, Pampa

Vegetation Types

High Altitude Grassland, Grassland, Highland Rocky Field, Cerrado (lato sensu), Riverine Forest and/or Gallery Forest

Geographic Distribution

Confirmed occurrences

Central-west (Distrito Federal, Goiás)

Southeast (Minas Gerais, Rio de Janeiro, São Paulo)

South (Paraná, Rio Grande do Sul, Santa Catarina)

HERBARIUM MATERIAL

G. Davidse, 10915, K,  (K001102269), São Paulo

A. Chase, 8324, NY,  (NY00784209), Rio de Janeiro

A. Chase, 8664, NY,  (NY00864480), Minas Gerais

REFERENCE

Zuloaga, F.O. & Morrone, O. 1991. Novelties in *Panicum* Subg. *Dichantherium* Sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae). *Novon.* 1: 111–118.

Zuloaga F.O., Ellis R.P. & Morrone O. 1993. A revision of *Panicum* subg. *Dichantherium* sect. *Dichantherium* (Poaceae: Panicoideae: Paniceae) in Mesoamerica, the West Indies, and South America. *Ann. Missouri Bot. Gard.* 80(1): 119–190.

Zuloaga F.O., Morrone O., Davidse G., Filgueiras T.S., Peterson P.M., Soreng R.J., & Judziewicz E.J. 2003. Catalogue of New World grasses (Poaceae): III. Subfamilies Panicoideae, Aristidoideae, Arundinoideae, and Danthonioideae. *Contr. U.S. Natl. Herb.* 46: 01–662.