

THE NORTH AMERICAN SPECIES OF BRACHIARIA.

By AGNES CHASE.

INTRODUCTION.

The group of grasses here discussed was until recent years commonly included in the genus *Panicum*. Although the genus *Brachiaria* was proposed in 1853, it was not accepted as valid until 1901. This is because its most distinctive character was overlooked—that of reversed spikelets (that is, spikelets with the back of the fertile lemma turned away from the axis instead of toward it, as in *Paspalum* and in the few species of *Panicum* having racemose inflorescence). As a section of *Panicum*, *Brachiaria* had been made to include a number of heterogeneous species, now referred to five distinct genera, on the one common character of racemose inflorescence.

From *Eriochloa* and *Axonopus*, in which also the spikelets are reversed, *Brachiaria* differs in having a well-developed first glume. From the first it differs also in the unspecialized lower rachilla joint, which in *Eriochloa* is enlarged, and from the second in the turgid spikelets and the racemose instead of digitate arrangement of the racemes.

Brachiaria is one of the few genera of Paniceae which belong chiefly to the Old World.

The text figures, drawn by the author, illustrate part of the inflorescence, one-half natural size, and two views of the spikelet and one of the fruit, magnified 10 diameters. In each case the specimen from which the drawing was made is indicated.

HISTORY OF THE GENUS.

The genus *Brachiaria* Griseb.¹ is based on "*Panicum* sect. *Brachiaria* Trin.," and a single species, *B. erucaeformis* (J. E. Smith) Griseb., is included. Grisebach cites, not the first work² in which Trinius proposes the section *Brachiaria*, but a later work, *Panicearum Genera*,³ in which Trinius includes a somewhat different group of species from those included in his first work. In

¹ In Ledeb. Fl. Ross. 4: 469. 1853.

² Gram. Pan. 51, 125. 1826.

³ Mém. Acad. St. Pétersb. VI Sci. Nat. 3^e: 194. 1834.

De Graminibus Paniceis, Trinius divides *Panicum* into six sections: *a*, DIGITARIA (*Syntherisma*); *b*, PASPALUM; *c*, BRACHIARIA; *d*, ORTHOPOGON (*Oplismenus*); *e*, JUBARIA (*Chaetochloa*, *Pennisetum*, *Hymenachne*, *Valota*, and various other genera of Paniceae having plumelike panicles); and *f*, MILIARIA (*Anthaenantia*, *Tricholaena*, and species from other genera). The sections are all artificial, *Brachiaria* especially so, including, as it does, species of *Paspalum*, *Panicum*, *Thrasya*, and *Echinochloa*, the common character of the assemblage being the simple racemes. Four species having reversed spikelets are included, *Panicum falciferum* Trin., *P. polyphyllum* R. Br., *P. glumare* Trin., and "*P. granulare* Lam.," the last included as a variety under "*Panicum brizoides* Retz." (*P. punctatum* Burm.).

In Panicearum Genera, the work which Grisebach cites, the species with a single raceme (*Paspalum decumbens* and species of *Thrasya*) are placed in the new section *Harpostachys*, leaving the remainder under *Brachiaria*, an assemblage scarcely less heterogeneous than before. Two more species with reversed spikelets, *Panicum isachne* Roth (*P. erucaeforme* J. E. Smith) and *P. plantagineum* Link, are added, but the reversed position is not mentioned, nor are these six species grouped together. Since there is nothing in either work to indicate which species should be considered the type of *Brachiaria*, it seems best to follow Grisebach and take as the type *B. erucaeformis*. Grisebach, however, did not intentionally select this species as the basis of the genus; it was the only species of Trinius's section which occurred in the Russian Empire, the grasses of which he was describing. Grisebach does not mention the reversed spikelets. This character, first noted as generic by Nash¹ ("flowering scale with its opening toward the rachis"), confines the genus to *B. erucaeformis* and its allies. The genus so limited is somewhat diverse, but taken as a whole the morphological resemblances of the species segregated on the combined characters of racemose inflorescence and reversed position of solitary sessile spikelets having a well-developed first glume indicate a fairly natural genus, the extremes being united by a series of intermediate species.²

Like several other genera of Paniceae, *Brachiaria* includes species that appear to be closely related to outlying species of *Panicum*. *Panicum helopus* Trin., from the Mascarenes, has solitary spikelets in strict racemes, and papillose-rugose, awn-tipped fruit as in *B. meiziana* and other species of *Brachiaria*, but the spikelets are placed as in *Panicum fasciculatum* and its allies. *Urochloa panicoides* Beauv., from Mauritius, is, judging from the poor illustration and in-

¹ In Small, Fl. Southeast. U. S. 50, 80. 1903.

² For further history of *Brachiaria* as section and genus, see Chase, Proc. Biol. Soc. Washington 24: 126-129. 1911.

adequate description, closely related to *P. helopus*, and approaches *Brachiaria* in the same way.

Our species represent nearly the extremes of diversity in the genus, with *B. erucaeformis*, the type but not the center of the genus, at one end, and *B. ciliatissima* at the other. The species most nearly related to the latter is *B. gilesii* (*Panicum gilesii* Benth.),¹ of Australia, of which a specimen of the type collection by C. Giles at Charlotte Waters is in the National Herbarium.

In the tropics or subtropics of the eastern hemisphere there are about 70 known species, a single one, *B. erucaeformis*, reaching southern Europe, there probably introduced in ancient times. In America are the six species described herewith. In Africa is a small group in which the spikelets are crowded and almost pectinate on the rachis. This includes *B. brizantha* (Hochst.) Stapf, the type collection of which (*Schimper*, *Iter Abyssinicum* no. 89, October 3, 1837) is represented in the National Herbarium, *B. falcifera* (Trin.) Stapf, *B. soluta* Stapf, and *B. decumbens* Stapf.²

Brachiaria miliiformis (*Panicum miliiforme* Presl³ the type of which, collected by Haenke in Luzón, was examined in the National Museum at Prague by Prof. A. S. Hitchcock in 1907) is apparently a common grass in the Philippines and has been distributed thence under various names. It is represented in the National Herbarium by the following: *Merrill* 332, 352, 9343, in *Kneucker Gram. Exs.* 610; *Elmer* 10414; *Loher* 1737; *Bur. Science* 7624, 12231; *Forestry Bur.* 16661. It was collected in Guam by J. B. Thompson (no. 263).

Other species referable to *Brachiaria*, but which, because of the impossibility at present of examining the type specimens in European herbaria and working up the synonymy, are not here transferred, are: *Panicum intercedens* Domin, *P. reversum* Muell., and *P. polyphyllum* R. Br., of Australia; *P. villosum* Lam. and *P. distachyon* L., of India; and *P. ambiguum* Trin., of the East Indies. Various species of true *Panicum* as well as *P. ambiguum* have been distributed under the last named. In this species the spikelets are paired or solitary, the first glume is nearly as long as the spikelet, and the fruit is awn-tipped.

DESCRIPTION OF THE GENUS AND SPECIES.

BRACHIARIA (Trin.) Griseb.

Inflorescence of several to many usually dense racemes along a common axis; spikelets solitary (rarely in pairs), sessile in 2 rows on one side of a 3-angled, sometimes narrowly winged rachis, the back of the fertile

¹Fl. Austral. 7: 477. 1878.

²Stapf (in Prain, Fl. Trop. Africa 9: 505-567. 1919) describes 55 species of *Brachiaria*, indicating that the species of this genus are chiefly African.

³Rel. Haenk. 1: 300. 1830.

lemma turned from the axis; spikelets dorsally compressed, sometimes turgid; first glume well developed; second glume and sterile lemma equal or nearly so, 5 to 7-nerved, the lemma inclosing a hyaline palea and sometimes a staminate flower; fruit indurate (in the type species smooth and shining), usually papillose-rugose, the lemma usually apiculate or awn-tipped, the margins inrolled.

Annuals or perennials with usually flat blades, the culms often decumbent and rooting at the lower nodes; confined to the warmer temperate and tropical regions of both hemispheres.

KEY TO THE SPECIES.

Spikelets pubescent.

Plants annual; spikelets 2.5 mm. long, the pubescence about evenly distributed 1. *B. erucaeformis*.

Plants perennial; spikelets 3.5 to 4.5 mm. long, the pubescence conspicuously uneven.

Fruit with a pubescent awn about 1 mm. long . . . 2. *B. ophryodes*.

Fruit awnless 3. *B. ciliatissima*.

Spikelets glabrous.

Plants perennial; spikelets about 3 mm. long; fruit awn-tipped.

4. *B. meziana*.

Plants annual; spikelets 4 mm. long or more; fruit awnless.

Rachis 1 to 1.5 mm. wide; spikelets about 4.5 mm. long, not turgid, nor flat-beaked beyond the fruit. 6. *B. plantaginea*.

Rachis 2 mm. wide; spikelets about 4 mm. long, turgid, flat-beaked beyond the fruit 5. *B. platyphylla*.

1. *Brachiaria erucaeformis* (J. E. Smith) Griseb.

Panicum erucaeforme J. E. Smith in Sibth. Fl. Graec. 1: 44. pl. 59. 1806. "In arvis circa Junonis templum in insula Samo." The plate leaves no doubt as to the identity of the species.

Panicum isachne Roth in Roem. & Schult. Syst. Veg. 2: 458. 1817. "In India orient. Heyne." The type specimen has not been examined, but the description identifies the species.

Panicum caucasicum Trin. Gram. Icon. 3: pl. 262. 1831. "Figura ad specimen e Caucaso orientali." The plate identifies the species.

Panicum wightii Nees, Fl. Afr. Austr. 29. 1841. "In graminosis vallis ad Gekau. . . . (Drège)." Two unpublished names based on East Indian collections are cited as synonyms, "*Panicum wightianum* W.-Arn. et N. ab E. Glum. Ind. or. ined.," and "*Panicum Koenigii* Herb. Wight n. 14"; but since it is to be assumed that Nees drew up his description for the African flora from the Drège specimen, this is taken as the type. The description indicates a small specimen.

Echinochloa erucaeformis Koch, Linnaea 21: 437. 1848. Based on *Panicum erucaeforme*.

Panicum pubinode Hochst.; A. Rich. Tent. Fl. Abyss. 2: 363. 1851. "In pl. Schimp. Abyss., sect. III. no. 1855 . . . Crescit in convalle fluvii Tacazzé . . . (Schimper)." The spikelets are described as purple-tinged. It is on this color difference that the author distinguishes it from *P. erucaeforme*.

Brachiaria erucaeformis Griseb. in Ledeb. Fl. Ross. 4: 469. 1853. Based on *Panicum erucaeforme* J. E. Smith.

Panicum isachne var. *mexicana* Beal, Grasses N. Amer. 2: 114. 1896. "Specimen seen was cultivated from seed obtained in Mexico by U. S. Dept. Agricul., 1887." Beal gives "*P. eruciforme* Sibth. . . . var. *mexicana* Vasey, ined."

as a synonym. In the National Herbarium is a specimen of *B. erucaeformis* bearing in Dr. Vasey's hand the note "Closely related to *P. erucaeforme*. Panicum new species. Cultivated by G. Vasey from Mexican seed, of Dr. Ed. Palmer, 1887." The species is not known from Mexico. It is probable that the plants came up as weeds where seed of some Mexican grass was sown and, samples of such seed not having been preserved, the fact that this was not the species planted was not detected.

Roemer and Schultes,¹ doubtless by a typographical error, give the name as "*cruciforme*" instead of "*erucaeforme*" (like *Eruca*), an error which is copied in many later works.

DESCRIPTION.

Plants annual, stoloniferous, extensively creeping, the slender ascending flowering shoots 20 to 50 cm. tall, branching; culms glabrous, commonly grooved when dry, the nodes densely pubescent; sheaths and both surfaces of the blades usually sparsely tuberculate-hirsute (or the blades glabrate), densely puberulent at the junction of sheath and blade; ligule a ring of hairs about 1 mm. long; blades flat, 1.5 to 10 cm. (mostly 2 to 6 cm.) long, 2 to 6 mm. wide, rounded at the base; panicle long-exserted, 2 to 10 cm. long, the 5 to 12 racemes erect-falcate, imbricate, or the lower distant their own length, the common axis and the rachises very slender, angled, the axis scabrous or sparsely pilose, the rachises and minute pedicels pilose; spikelets loosely imbricate, ovate-oblong, about 2.5 mm. long; first glume minute, truncate or notched, glabrous; second glume and sterile lemma about equal, 5-nerved, papillose-pilose, rather obtuse, but the summits commonly folding in, forming a point beyond the fruit; fertile lemma and palea about 1.8 mm. long and 0.9 mm. wide, pale, smooth, and shining, the 3 nerves of the lemma faintly visible.

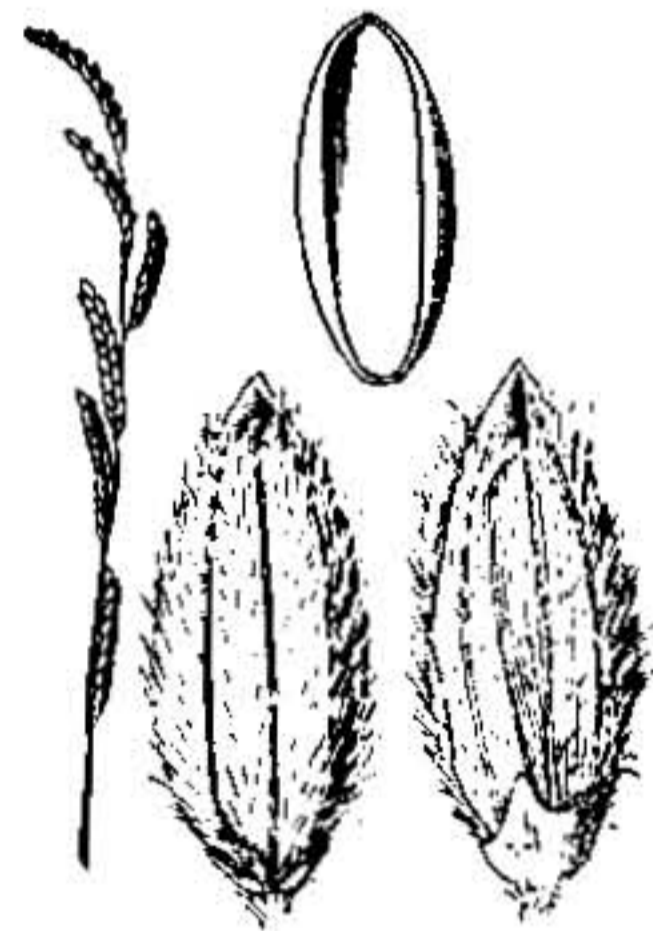


FIG. 1.—*Brachiaria erucaeformis*. From a cultivated specimen, U. S. Nat. Herb. 928637.

In dry ground the plants form small tufts of suberect culms, a habit rarely seen in Old World specimens.

DISTRIBUTION.

Along ditches and in cultivated ground, mostly in arid regions, from Central India west to Spain, and in eastern and southern Africa; in the United States known only from specimens cultivated in the grass garden of the Department of Agriculture at Washington, D. C., and at Arlington, Virginia, and persisting for a short time as weeds, and from specimens grown at Pullman, Washington, and Biloxi, Mississippi. Sparingly introduced in Barbados, West Indies, and in the island of Guam.

2. *Brachiaria ophryodes* Chase, sp. nov.

Plants perennial, grayish green, 15 to 25 cm. tall; culms at first more or less erect, becoming decumbent, freely branching and rooting at the lower nodes, compressed, villous, or becoming glabrate above; sheaths mostly longer than the internodes, somewhat keeled, villous; ligule membranaceous, ciliate, 0.5 mm. long; blades flat, rather thick, 5 to 20 cm. long, 3 to 6 mm. wide, nearly linear

¹ Syst. Veg. 2: 426. 1817.

(or the uppermost shorter and lanceolate, and the basal ones as much as 15 cm. long), acuminate, the white cartilaginous undulate margin scabrous and, toward the rounded base, papillose-ciliate, more or less papillose-hispid on both surfaces; primary panicles long-exserted, the secondary panicles short-exserted or included at base, the common axis and rachises slender, angled, scabrous, the rachises villous at base; racemes 2 to 4, nearly erect, 3 to 4 cm. long, the short, thick pedicels bearing a few long white hairs; spikelets approximate, 4 mm. long, 2 mm. wide, with a dense, silky-villous, or furlike band down each side; first glume half as long as the spikelet, acuminate, villous below, the tip glabrous; second glume and sterile lemma equal, pointed beyond

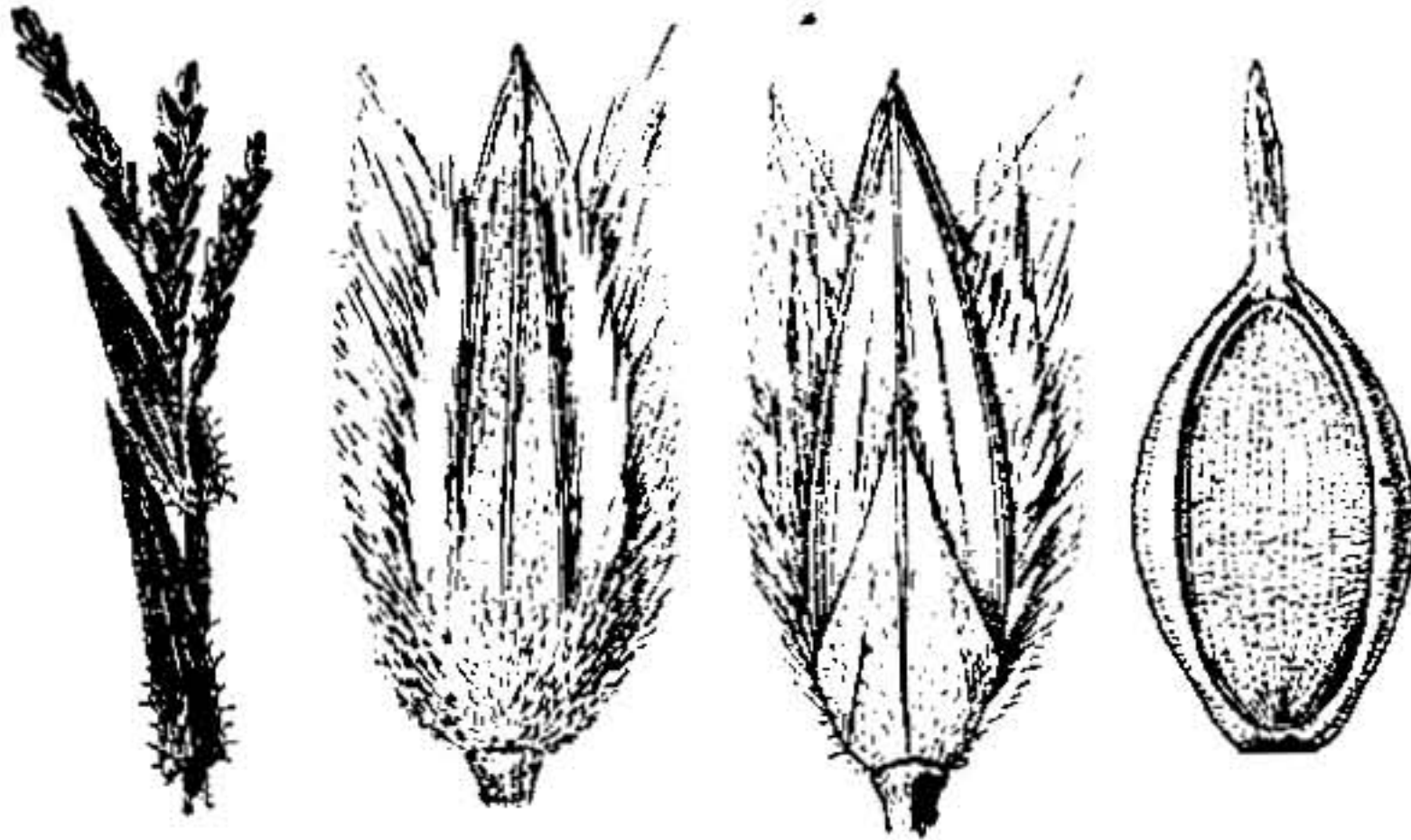


FIG. 2.—*Brachiaria ophryodes*. From the type specimen.

the body of the fruit, the glume villous except at the summit, bearing at each side of the principal lateral nerves a very dense band of ascending pale silky glistening hairs increasingly longer toward the summit, the 2 bands divided by the hidden nerve, or the inner band sometimes wanting, the bands abruptly terminating about one-fourth below the summit; sterile lemma inclosing a long palea and sometimes a staminate flower, 5 to 7-nerved, the third pair of nerves almost marginal, the lateral internerves and margins villous, the second or lateral pair of nerves bearing on the outer side a single band of dense hairs like those of the second glume; fruit about 2.5 mm. long (excluding the awn), 1.5 mm. wide, stramineous, transversely rugose, the lemma tipped with a puberulent awn sometimes nearly 1 mm. long.

Type in the U. S. National Herbarium, no. 693324, collected along an irrigation ditch in loamy soil, at Monterrey, Nuevo León, Mexico, July 6, 1910, by A. S. Hitchcock (no. 5538). Known only from the type collection.

Brachiaria ophryodes is allied to *B. ciliatissima*, from which it differs in the stouter and pubescent culms, in the more densely flowered racemes, in the abrupt termination below the summit of the spikelet of the band of glistening, silky hairs, and in the awn-tipped lemma.

3. *Brachiaria ciliatissima* (Buckl.) Chase.

Panicum ciliatissimum Buckl. Prel. Rep. Geol. Agr. Surv. Tex. App. 4. 1866. "Northern Texas." The type specimen is in the herbarium of the Academy of Natural Sciences, Philadelphia. No locality other than Texas is given on the label.

DESCRIPTION.

Plants perennial, producing long leafy stolons, with short internodes, rooting at the swollen nodes, the blades short, firm, divaricately spreading; flowering culms usually sparingly branching, erect or ascending, 15 to 40 cm. high, glabrous, the nodes bearded; sheaths sparsely (or sometimes rather densely) pilose, mostly shorter than the internodes; ligules densely hairy, less than 1 mm. long; blades 3 to 7 cm. long, 3 to 5 mm. wide, tapering from near the

rounded base to a sharp point, flat, puberulent or glabrous, usually ciliate along the lower part of the thick white margin; panicles finally long-exserted, 3 to 6 cm. long, rarely over 1 cm. wide, the common axis and rachises slender, angled, pubescent, the few branches erect or ascending, not strict racemes with spikelets regularly arranged as in the other species, 1 to 2 cm. long, sometimes reduced to 1 or 2 spikelets; spikelets mostly distant about their own length, 4 mm. long, about 1.8 mm. wide, pointed; first glume three-fourths the length of the spikelet or more, cuneate, 5-nerved, glabrous, or with a few silky hairs at the very base; second glume and sterile lemma subequal, exceeding the fruit, 5-nerved, the internerves densely silky pubescent, or in the lemma sometimes nearly glabrous, the portion from the lateral nerves to the margins densely clothed with glistening white silky hairs; fruit 3 mm. long, about 1.6 mm. wide, ellipsoid, apiculate, transversely rugose.

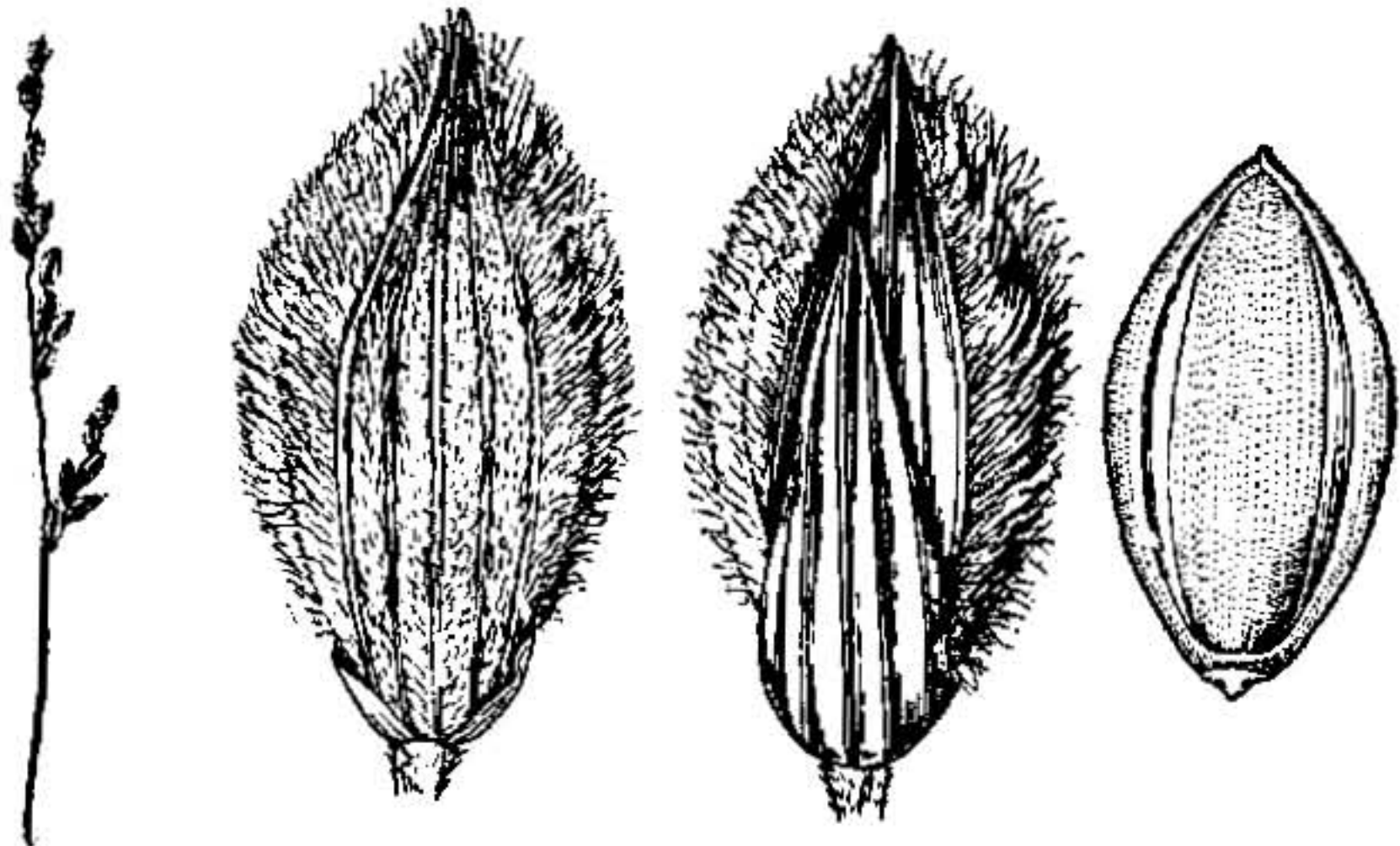


FIG. 3.—*Brachiaria ciliatissima*. Panicle from Tracy 7955; spikelet from the type specimen.

The reversed position of the spikelets places this species more naturally in *Brachiaria* than in *Panicum*. Moreover, *B. ophryodes* is obviously a connecting link between this species and *B. meziana*.

DISTRIBUTION.

Open sandy ground, Arkansas and Texas.

ARKANSAS: Benton County, *Plank* 8.

TEXAS: Kerrville, *Hitchcock* 5320. Austin, *Hall* 824. College Station, *Hitchcock* in 1903. Abilene, *Tracy* 7955. San Antonio, *Amer. Gr. Nat. Herb.* 200. Kingsville, *Piper* in 1906. Rockport, *Chase* 6063. San Diego, *Smith* in 1897. Corpus Christi, *Hitchcock* 5348. Sarita, *Hitchcock* 5448. Pena, *Nealley* 31. Encinal, *Griffiths* 6381. Elsordo, *Griffiths* 6441, 6445. Torrecillas, *Griffiths* 6432. Laredo, *Hitchcock* 5515; *Reverchon* 4150. Big Spring, *Hitchcock* 13358. Western Texas, *Buckley* in 1883.

4. *Brachiaria meziana* Hitchc.

Brachiaria meziana Hitchc. Contr. U. S. Nat. Herb. 12: 140. 1908. "The type specimen is no. 156925 of the U. S. National Herbarium (Pringle's 9592)." This specimen was collected in the Cerro de Guadalupe, Federal District, Mexico, altitude 2,250 meters, August 19, 1901.

DESCRIPTION.

Plants perennial, caespitose; culms flattened, glabrous or sparsely pilose, 15 to 40 cm. tall, at first erect or ascending and simple, later repeatedly branching and decumbent-spreading, sometimes as much as 70 cm. long, often rooting at the nodes; sheaths loose, pilose, or sometimes glabrate, densely ciliate on the

margin; ligule a ring of hairs about 1 mm. long; blades rather thick, 5 to 15 cm. long (rarely longer), 5 to 10 mm. wide, flat, rounded at the base, papillose-ciliate on the margins toward the base, sparsely pilose or nearly glabrous on both surfaces; primary panicles long-exserted, those of the branches short-exserted or included at the base, the common axis rather stout, angled, pilose; racemes mostly 5 to 10, usually approximate, 1.5 to 4.5 cm. long, the lower usually naked at the base; spikelets crowded, glabrous, 3 mm. long, about 1.8 mm. wide, ovate, abruptly acute, turgid, the minute pedicels long-pilose; first

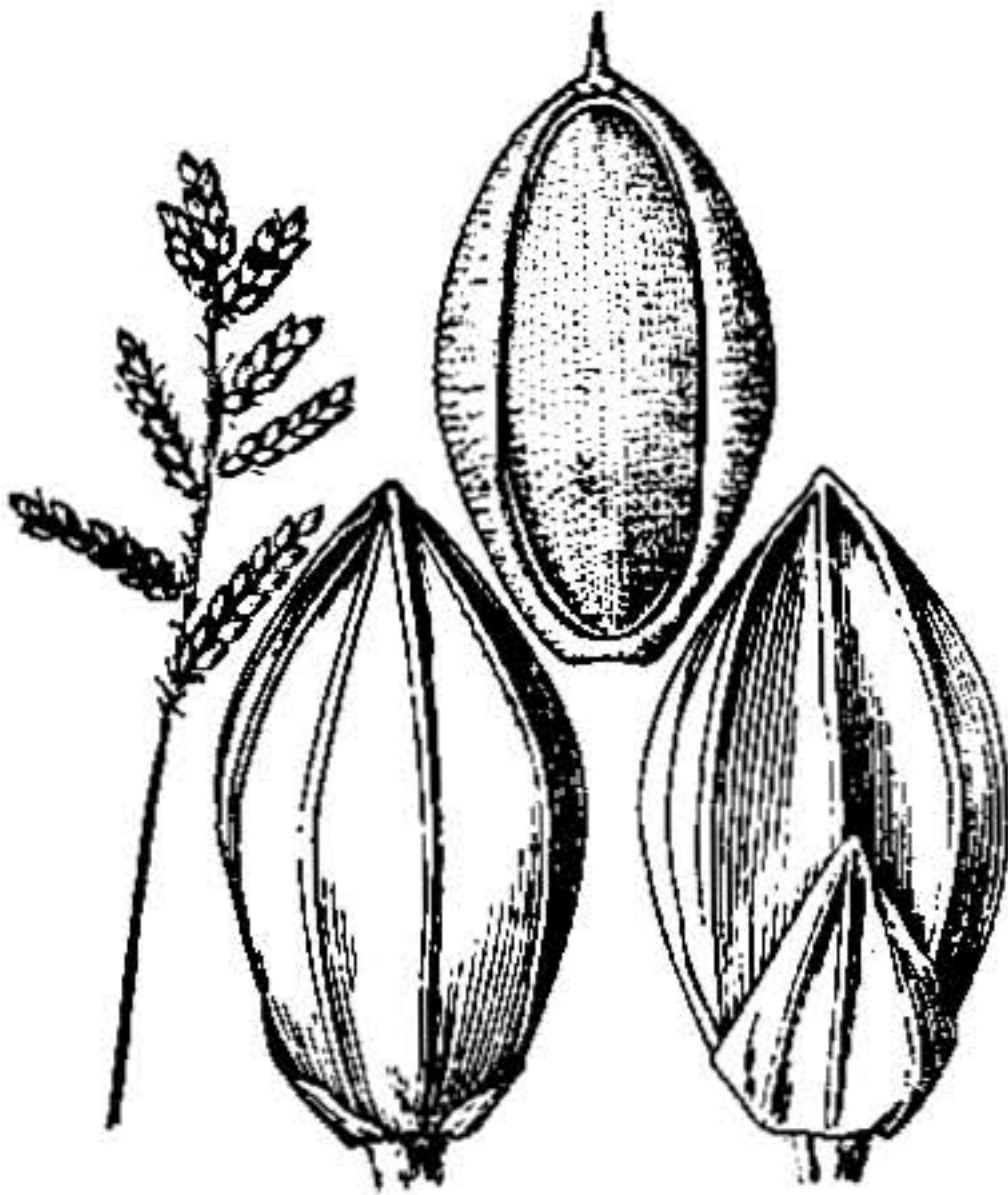


FIG. 4.—*Brachiaria meiziana*. From the type specimen.

glume one-third to scarcely half the length of the spikelet, broad, acute or subacute, 3-nerved; second glume and sterile lemma equal, 5-nerved; fruit 2.5 to 2.6 mm. long (excluding the awn), about 1.5 mm. wide, papillose-roughened, the lemma tipped with an awn about 0.5 mm. long.

DISTRIBUTION.

Low moist open ground on the uplands of Mexico.

CHIHUAHUA: Chihuahua, *Pringle* 375.

COAHUILA: Saltillo, *Hitchcock* 5593.

DURANGO: Durango, *Hitchcock* 7619; *Palmer* 533 in 1896.

SAN LUIS POTOSI: San Luis Potosí, *Hitchcock* 5668. Cárdenas, *Hitchcock* 5770.

QUERÉTARO: Querétaro, *Hitchcock* 5802; *Agniel* 10262.

ZACATECAS: Zacatecas, *Hitchcock* 7516.

AGUASCALIENTES: Aguascalientes, *Hitchcock* 7492.

JALISCO: San Nicolás, *Hitchcock* 7225. Río Blanco, *Palmer* 254 in 1886.

PUEBLO: Atlixco, *Nelson* in 1893; Puebla, *Arsène* 315, 493.

FEDERAL DISTRICT: *Hitchcock* 5891; *Pringle* 9592; *Bourgeau* 222, 439; *Orcutt* 3692.

GUANAJUATO: Acámbaro, *Hitchcock* 6928. Irapuato, *Hitchcock* 7416.

OAXACA: Oaxaca, *Conzatti & González* 348.

5. *Brachiaria platyphylla* (Griseb.) Nash.

Paspalum platyphyllum Griseb. Cat. Pl. Cub. 230. 1866. "Cuba occ. (Wright) 3441), in humidis pr. Zarabanda (Wright a. 1865)." The type specimen in the Grisebach Herbarium consists of two plants, each with two racemes.

Panicum platyphyllum Munro; Wright, Anal. Acad. Cienc. Habana 8: 206. 1871. Based on *Paspalum platyphyllum* Griseb.

Brachiaria platyphylla Nash in Small, Fl. Southeast. U. S. 81, 1327. 1903. Based on "*Panicum platyphyllum* Munro."

DESCRIPTION.

Plants annual, rather coarse; culms compressed, glabrous, decumbent at the base, rooting and commonly branching at the lower nodes, the flowering branches ascending, sparingly branching from the lower nodes; sheaths rather loose, sparsely pilose, at least along the margins and toward the summit; ligule a ring of hairs scarcely 1 mm. long; blades rather thick, 4 to 12 cm. long (rarely longer), 6 to 12 mm. (usually about 10 mm.) wide, flat, glabrous ex-

cept near the margins at the rounded base, scabrous on the white marginal nerve; panicle short-exserted or included at base, the common axis flat; racemes 2 to 6, commonly distant nearly or quite their own length, 3 to 8 cm. long or the lowermost 9 cm. long, ascending or spreading, often arcuate; rachis villous at the very base, winged, 2 mm. wide, scabrous on the slightly upturned margin; spikelets usually barely imbricate, ovate, glabrous, 4 to 4.5 mm. long, about 2 mm. wide, the lower two-thirds turgid, flattened toward the summit; first glume scarcely one-third the length of the spikelet, broad, blunt, 3 to 5-nerved; second glume and sterile lemma equal, exceeding the fruit and forming a flat beak beyond it, 3 to 5-nerved, with faint transverse wrinkles between the nerves toward the summit; fruit 3 mm. long, 1.7 to 1.8 mm. wide, elliptic, turgid, papillose-roughened.

DISTRIBUTION.

Low sandy open ground, southern Louisiana and Texas and in western Cuba.

LOUISIANA: Shreveport, *Ball* 91; *Hitchcock* in 1903.

TEXAS: Houston, *Hall* 814; *Nealley* 70. College Station, *Reverchon* 1879; *Hitchcock* in 1903. Harvester, *Thurrow* in 1898. Ennis, *Smith* in 1897. Jacksonville, *Joor* 25. Harris County, *Joor* 16.

CUBA: Pinar del Río, *Wright* 3441, 3853, 3867. San Diego de los Baños, *León* 4522, 4848. Sumidero, *Shafer* 13850; *Shafer & León* 13637, 13724 (also distributed under the same numbers as *León & Shafer*).

6. *Brachiaria plantaginea* (Link) Hitchc.

Panicum plantagineum Link, Hort. Berol. 1: 206. 1827. Described from a specimen grown in the Berlin Botanical Garden, the habitat given as unknown. In the Link Herbarium, in the herbarium of the Berlin Botanical Garden, is a specimen labeled "*Panicum plantagineum* Link, Lk. Hort 1, p. 206. Brasilia, *Beyrich*." The description does not apply perfectly to this specimen, in that the lower racemes are said to be long-peduncled and the palea of the neuter floret wanting. The racemes in this species are usually spikelet-bearing nearly to the base, but spikelets undeveloped or fallen might give the impression of a peduncle, and the sterile palea, normally present, may sometimes be obsolete. The type may not have been preserved. This is evidently the specimen which was examined by Trinius and which caused him¹ to refer his *P. leandri* to *P. plantagineum* Link.

Panicum leandri Trin. Gram. Icon. 3: pl. 335. 1836. "Figura ad specimen Brasilianum," presumably collected by Leandro de Sacramento, a Carmelite friar,

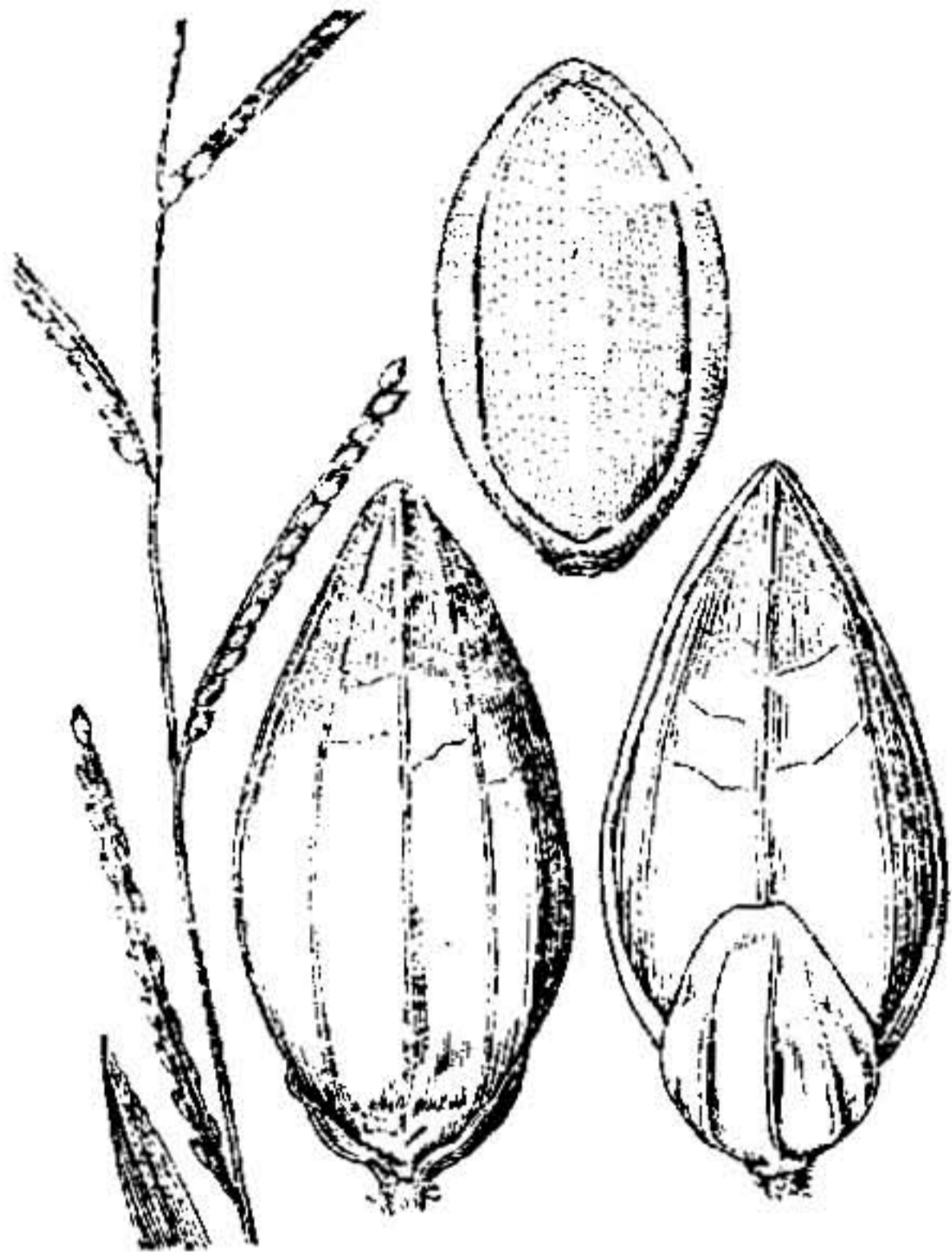


FIG. 5.—*Brachiaria platyphylla*. Part of panicle from León 4848; spikelet from the type specimen.

¹ Gram. Icon. 3: Corr. et Emend. pl. 335. 1836.

who was stationed at Rio Janeiro and who sent botanical collections to Paris and Munich. The specimen was not found in the Trinius Herbarium, but the plate identifies the species.

Panicum distans Salzm.; Doell in Mart. Fl. Bras. 2¹: 186. 1877. A herbarium name given as a synonym of *Panicum plantagineum*.

Brachiaria plantaginea Hitchc. Contr. U. S. Nat. Herb. 12: 212. 1909. Based on *Panicum plantagineum* Link.

DESCRIPTION.

Plants resembling *B. platyphylla*, more widely creeping and commonly taller, the sheaths ciliate on the margin, otherwise glabrous or nearly so, the blades with a few hairs on the margins at the narrowed or slightly rounded base, rather lax, mostly 8 to 12 mm. wide, 5 to 20 cm. long, or rarely longer; panicle short-exserted or included at the base, the common axis more slender than in *B. platyphylla*, mostly folded; racemes 3 to 6, or on the branches 1 or 2, 3 to 10 cm. long, rarely longer, ascending or spreading, sometimes flexuous; rachis 1 to



FIG. 6.—*Brachiaria plantaginea*. From Pringle 3904.

1.5 mm. wide, usually appearing more slender because of the infolded margins; spikelets glabrous, 4 to 4.7 mm. long, about 2 mm. wide, elliptic, less turgid than in *B. platyphylla*, depressed down the middle of the sterile lemma, this and the second glume not forming a flattened beak beyond the fruit; fruit plano-convex, 3 to 3.5 mm. long, minutely papillose-roughened, the rachilla joints between the glumes and lemmas slightly developed, placing the fruit nearer to the summit of the spikelet.

A species of wider range and more variable than *B. platyphylla*.

DISTRIBUTION.

Open, mostly moist ground, at an altitude of 900 to 2,100 meters in the uplands of Mexico, and south to Bolivia and southern Brazil. In 1879 it appeared in ballast at Philadelphia, Pennsylvania (*Burk*), and Camden, New Jersey (*Martindale*).

DURANGO: Durango, *Hitchcock* 7576; *Palmer* in 1896.

SAN LUIS POTOSÍ: Las Canoas, *Hitchcock* 5758; *Pringle* 3904. Cárdenas, *Hitchcock* 5752.

- MORELOS:** Cuernavaca, *Hitchcock* 6853; *Orcutt* 3890.
COLIMA: Jala, *Hitchcock* 7010. Colima, *Orcutt* 4616.
AGUASCALIENTES: Aguascalientes, *Hitchcock* 7488.
GUANAJUATO: Irapuato, *Hitchcock* 7410. Acámbaro, *Hitchcock* 6937.
JALISCO: Guadalajara, *Hitchcock* 7320. Zapotlán, *Hitchcock* 7136. San Nicolás, *Hitchcock* 7192.
VERACRUZ: Orizaba, *Hitchcock* 6315. Jalapa, *Hitchcock* 6653. Córdoba, *Hitchcock* 6405.
OAXACA: Oaxaca, *Hitchcock* 6122; *Conzatti & González* 350a.
MICHOACÁN: Uruápan, *Hitchcock* 6990.
GUATEMALA: Guatemala City, *Hitchcock* 9071. San Miguel Usmanlán, *Heyde & Lux* 3556.
SALVADOR: San Salvador, *Hitchcock* 8961.
NICARAGUA: Masaya, *Hitchcock* 8647.
COSTA RICA: San Francisco de Guadalupe, *Pittier* 16124. San José, *Tonduz* 3029, 6943. Alajuelita, *Pittier* 2998. Guadalupe, *Hitchcock* 8457; *Tonduz* 7592. Atenas, *Hitchcock* 8522. Alajuela, *Jiménez* 521.
BRAZIL: Campinas, *Campos Novas* 1252. Goyaz, *Gardner* 3499. Rio Quebra Anzol, *Dorsett & Popenoe* 161b. Quixada, Ceará, *Löfgren* 3912. Rio Tardo, Rio Grande do Sul, *Jurgens* 646. Locality unknown, *Riedel* 1950; *Glaziou* 3609.
BOLIVIA: Without locality, *Bang* 2588.

EXCLUDED SPECIES.

- BRACHIARIA DIGITARIODES** (Carpenter) Nash¹=*Panicum hemitomom* Schult.
BRACHIARIA OBTUSA (H. B. K.) Nash=*Panicum obtusum* H. B. K.
BRACHIARIA PROSTRATA (Lam.) Griseb.=*Panicum reptans* L.

¹ In Britton, *Man.* 77. 1901. Nash at this time accepted *Brachiaria* as a genus without reference to the reversed spikelets.