

The taxonomy of *Paspalum paspalodes* and *P. vaginatum* as represented in South Africa

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ABSTRACT

The taxonomy and distribution of two species of the subgenus *Disticha* of *Paspalum*, as represented in South Africa, are presented. Two distinct, closely related species are recognized, namely *Paspalum paspalodes* (Michx.) Scribn. (previously known as *P. distichum* L., the name being rejected as a *nomen confusum*), and *P. vaginatum* Swartz.

Authors of floras and various taxonomic works which include the geographical areas occupied by *Paspalum paspalodes* (Michx.) Scribn. and *P. vaginatum* Swartz, differ in their taxonomic and nomenclatural treatment of these species.

Stapf (1900) recognized two species of the subgenus *Disticha* from South Africa, namely *P. distichum* L. and *P. vaginatum* Swartz with its variety *nanum* Doell. Stapf in his own hand altered his copy of Fl. Cap. 7: 371 (1900), changing *P. distichum* to *P. vaginatum* and placing *P. digitaria* Poir. in synonymy under *P. distichum*.

Chase (1929) and Chippindall (1955) recognized both *P. distichum* and *P. vaginatum* as distinct species, but not variety *nanum* Doell of the latter species.

Launert (1970) considered *P. vaginatum* to be a synonym of *P. distichum*. The material which he cites, does not, in my opinion, agree with either the material of *P. paspalodes* or that of *P. vaginatum* as defined below.

Clayton (1972), in a more recent work, suggests that, "the name *P. distichum* be rejected as a *nomen confusum* due to a mistake in typification". Confusion arose when it was found that there are two species represented on the type sheet of *P. distichum* in the Linnean Herbarium. The specimen which fits modern usage of the name *P. distichum*, i.e. with pubescent upper glumes, cannot be regarded as the type because it was collected by Patrick Browne about ten years after *P. distichum* was described. The other specimen matches the material of *P. vaginatum*, i.e., with glabrous upper glumes.

In following Clayton, the name *P. distichum* is rejected as a *nomen confusum*, the correct name for the plants with pubescent upper glumes being *P. paspalodes* (Michx.) Scribn. The plants with glabrous upper glumes remain as *P. vaginatum*, and *P. distichum* L. is regarded as a synonym of this species.

Morphologically these species may be distinguished on spikelet characters, the differences being summarized in Table 1. The most important character used to distinguish them is whether or not the upper glume of the spikelet is pubescent or glabrous. In *P. paspalodes* the upper glume is finely appressed pubescent, (Fig. 1 C), while in *P. vaginatum* the upper glume is glabrous, (Fig. 2 B).

In *P. paspalodes* the lower glume is usually present in many of the spikelets of a raceme. The lower glume is usually present as a small triangular scale, (Fig. 1 B), more rarely half as long as the spikelet (Fig. 1 D) or, in some, reduced to a small rim, (Fig. 1 A). The lower glume of *P. vaginatum*, however, is absent, (Fig. 2 A).

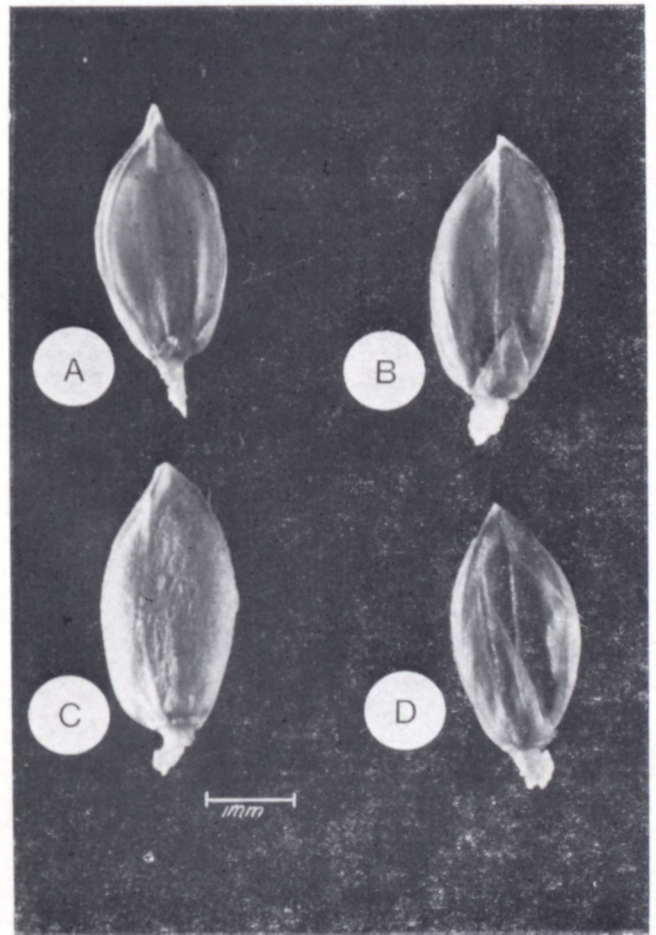


FIG. 1.—*Paspalum paspalodes*: A, lower glume reduced to a rim; B, lower glume a triangular scale; C, upper glume appressed pubescent; D, lower glume more than half the length of the spikelet.

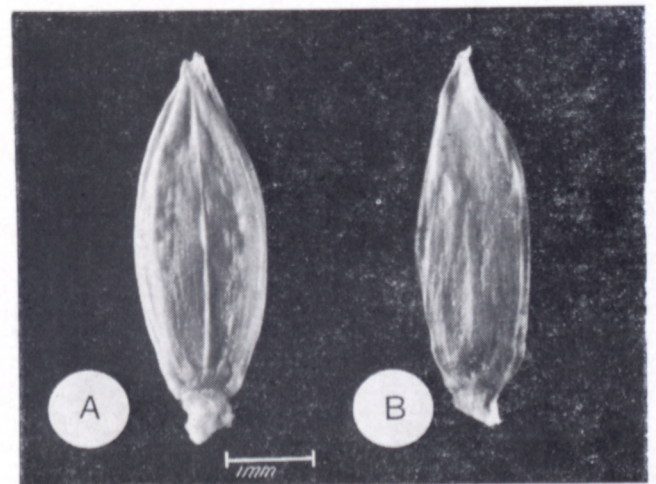


FIG. 2.—*Paspalum vaginatum*: A, lower glume absent; B, upper glume glabrous.

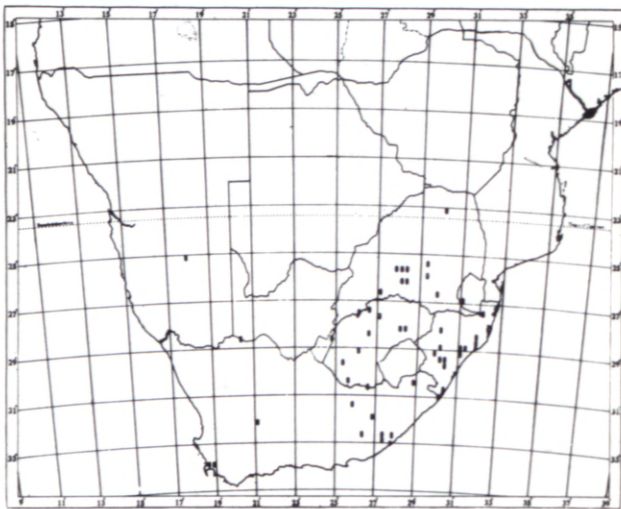
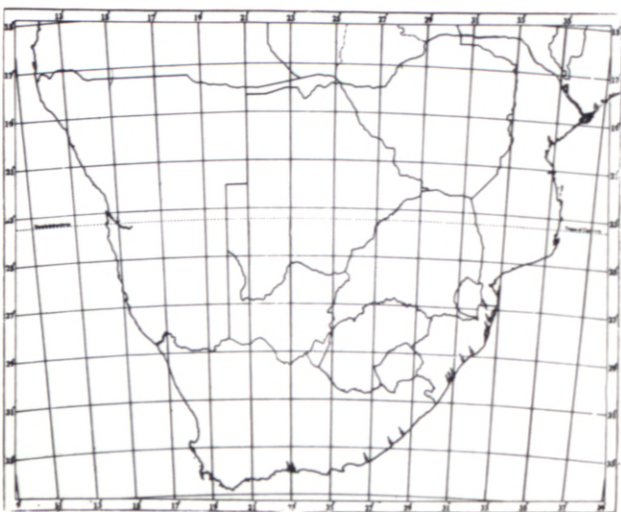
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TABLE 1.—Comparison of spikelet characters of *Paspalum paspalodes* and *P. vaginatum*.

	<i>P. paspalodes</i>	<i>P. vaginatum</i>
Upper glume.....	appressed—pubescent.....	glabrous
Lower glume.....	present as a small triangular scale, rarely half as long as the spikelet or, in some, reduced completely	absent
Spikelet length (mm)...	2, 5–3, 4 (4).....	3, 6–4, 0 (4, 5)
Shape.....	ovate—acuminate.....	ovate—lanceolate
Lower lemma.....	midnerve prominent.....	median nerve and two laterals protruding slightly, but not prominent.

Anatomically the two species are readily separable, the major differences lying in the distribution of the marginal sclerenchyma, the shape and size of the leaf margins and the shape of the adaxial ribs and furrows. Ellis (1974) discusses their anatomical differences in greater detail.

The distributions and habitat preferences of these species are quite different. From Fig. 3, it can be seen that *P. paspalodes* is the more widespread of the two and is usually found growing under fresh-water conditions. *P. vaginatum* is restricted to saline conditions along the coast, (Fig. 4). The only evidence of this species moving inland is indicated by a plant (Ward 2009), which was found growing at Inyamiti pan in northern Zululand.

FIG. 3.—Distribution of *Paspalum paspalodes* in South Africa.FIG. 4.—Distribution of *Paspalum vaginatum* in South Africa.

Paspalum paspalodes (Michx.) Scribn. in Mem. Torr. Bot. Club, 5: 29 (1894). “paspaloides”.

Digitaria paspalodes Michx. in Fl. Bor. Amer. 1: 46 (1803).

Paspalum digitaria Poir. in Lam. Encycl. Suppl. 4: 316 (1816).

P. distichum auct., non L.

A loose, mat-forming perennial, creeping by means of slender rhizomes and many-noded stolons; culms, subcompressed, sparingly branched, erect or decumbent up to 50 cm high; leaves well developed, 2–7 mm wide, up to 14 cm long, usually glabrous except for a few hairs at the sheath-mouth; ligule a short membrane about 0.5 mm long, with white hairs from behind; inflorescence of 2 (3) racemes, 1, 5–7 cm long, widely expanded to deflexed; spikelets solitary, rarely in pairs, imbricate, ovate—acuminate, tapering towards the base, 2.5–3.5 (4mm) long, 1.3–1.5 mm wide (the variation in size often found on the same plant); lower glume frequently present as a minute triangular scale, rarely up to half as long as the spikelet or, in some, reduced completely; the upper glume minutely appressed—pubescent, equal in length to the lower lemma; the midnerve of the lower lemma prominent.

Material Examined:

S.W.A.—2517 (Gibeon): Wittendorf on the Hardap Dam (—BB), *Giess, Volk & Bleissner* 5598.

TRANSVAAL.—2330 (Tzaneen): 20 km on Witvlag Road from Louis Trichardt (—AA), *Stephen* 284 = *Oakes* 1581. 2527 (Rustenburg): Brits, Hartebeestpoortdam (—DB), *de Winter* 113; 2528 (Pretoria): Sewage works (—CA), *Repton* 3475; Wonderboom, *Abercrombie sub PRE* 19604; Caledonian grounds, *Repton* 3113; Constantia Park extension (—CB), *Ellis* 146. 2529 (Witbank): Middelburg (—CD), *Du Plessis* 1170. 2627 (Potchefstroom): Nooitgedacht (—CA), *Louw* 1631. 2628 (Johannesburg): Rietfontein (—AA), *Cohen* 878; Springs, Strydpan (—AB), *du Toit* 8212. 2629 (Ermelo): Nooitgedacht (—DB), *Potter* 1453. 2726 (Odendaalsrus): Maquassie, Kommando-drift on Vaal River (—CA), *Morris* 1066.

ORANGE FREE STATE.—2726 (Odendaalsrus): Bothaville on Vals River (—BC), *Goossens* 1131. 2727 (Kroonstad): Middenspruit, 11.3 km north of Kroonstad (—CA), *Scheepers* 1324. 2826 (Brandfort): Theunissen, Erfenis Dam Reserve (—BC), *Wipplinger* 2. 2828 (Bethlehem): Suzanna 16.1 km north of Bethlehem (—AB), *Wenger* 295. 2925 (Fauresmith): Flood plain, north of Fauresmith (—CB), *Leistner* 1091. 2926 (Bloemfontein): Botanical gardens (—AA), *van Heerden* 95. 3025 (Colesburg): Springfontein (—BC), *Pole-Evans* 1649.

NATAL.—2732 (Ubombo): Mkuze (—AC), *Strey* 5664. 2830 (Dundee): Vantsdrift (—AA) *Codd* 163; Weenen district, Tugela estates (—CC), *Edwards* 2057. 2831 (Nkandla): Black Umfolozi River (—BD), *Moll* 5249. lower Tugela (—CC), *Edwards* 188; Mtunzini, Twinstreams (—DD), *Moll* 5396. 2929 (Underberg): Estcourt district (—BB), *Edwards* 2045. 2930 (Pietermaritzburg): Lions River (—AC), *Moll & Mauve* 1689; Albert Falls (—AD), *Comins* 362; Table Mountain, outside Amatula forest (—CB), *Killick* 413; Chase Valley, *Gordon-Gray* 146; Durban, Isipingo North (—DD), *Ward* 5259; Durban, Umbilo River, *Ward* 5 51 & 6153. 2931 (Stanger): Mapumulo, Umvoti Valley (—AA), *Moll* 1531; Tongaat beach (—CA), *Hillary* 330. 3030 (Port Shepstone): Amanzimtoti (—BB), *Ward* 6 44; Eureka farm, 3 km from Marburg on Izotsha Road (—CB), *Ellis* 726. 3130 (Port Edward): Umtavuma Pont (—AA), *Ward* 5266.

CAPE.—2820 (Gordonia): Aughrabies Falls (—CB), *Acocks* 18817. 2824 (Kimberley): Kalkdrift (—DB), *Brueckner* 787. 3026 (Aliwal North): Aliwal North (—AD), *Coetzee A* 18, *Higgins* 8213. 3028 (Matatiele): 22 km from Matatiele on Quachas Nek road (—BD), *Ellis* 254. 3126 (Queenstown) on bank of Komani River (—DD), *Dickin* 37. 3221 (Merweville): Kookfontein, Riet River (—AA), *Acocks* 2577. 3227 (Stutterheim): Komga, Fort Warden (—DB), *Ellis* 1106. 3318 (Cape Town): Rondebosch, Keurboom Park (—DC), *Adamson* 7:1. 3327 (East London): Selbourne (—BB), *Ratray* 1368; Lilyfontein, *Dickin* 15.

Paspalum vaginatum Swartz, Prodr. Veg. Ind. Occ. 21 (1788).

P. distichum L. Syst. Nat. ed. 10, 2: 855 (1759).

Perennial, up to 60 cm high, creeping by means of horizontal rhizomes and stout or slender, wiry stolons; culms simple or branched, subcompressed, usually grooved, decumbent or erect, often with overlapping, keeled sheaths and stiffly ascending blades; ligule membranaceous approximately (about) 0,5 mm long with a row of white hairs at the back of it; leaves 2,5–15 cm long, up to 4 mm wide, rarely more; inflorescence of 2 (3) racemes, 1,5–7 cm long, conjugate, usually spreading or deflexed at maturity; spikelets solitary, imbricate, commonly 3,5–4 (4,5 mm) long, 1,2–1,5 mm wide, ovate-lanceolate; lower glume absent; upper glume glabrous, weakly 5-nerved, the midnerve of upper glume and lower lemma suppressed, not prominent, the lower lemma often transversely undulate.

Material Examined:

NATAL.—2632 (Bella Vista): Ingwavuma district, Inyamiti lake (—CD), *Ward* 2009. 2732 (Ubombo): Sordwana Bay (—BC), *Ward* 3363. 2831 (Nkandla): Umlalazi Nature Reserve (—DD), *Moll* 5401. 2930 (Pietermaritzburg): Congella Beach (—DD),

Medley Wood 11982, *Franks* 12963. 2931 (Stanger): Tugela River mouth (—AB), *Edwards* 1727; Durban Bay (—CC), *Strey* 6418. 3030 (Port Shepstone): Umbogintwini lagoon (—BB), *Ward* 5276.

CAPE.—3228 (Butterworth): Mazeppa Bay (—BC), *Ellis* 276; Haga Haga (—CC), *Ellis* 1114. 3326 (Port Alfred): Kowie, Saltvlei (—BD), *Britten* 2996. 3422 (Mossel Bay): Wilderness, De Vleie (—BB), *Ellis* 1299; Swartvlei, Cloverdale Beach, *Jacot-Guillarmod, Shaw & Saenger* 7090. 3423 (Knysna): Woodbourne (—AA), *Duthie* 878.

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OPSOMMING

Die taksonomie en verspreiding van twee soorte van die subgenus *Disticha* van *Paspalum*, soos in Suid-Afrika verteenwoordig, word behandel. Twee onderskeibare, maar naverwante soorte word erken, naamlik *Paspalum paspalodes* (Michx.) Scribn. (voorheen bekend as *P. distichum* L., maar die naam word verwerp as 'n *nomen confusum*), en *P. vaginatum* Swartz.

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