

A Revised Taxonomic Account of *Paspalum* L. (Poaceae) in Thailand

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ABSTRACT.— A taxonomic account of *Paspalum* L. in Thailand is provided. Ten species and four varieties are recognized. Keys, descriptions and illustrations of the species are presented. *Paspalum canarae* var. *fimbriatum* is a new record for Thailand.

KEY WORDS: *Paspalum*; Poaceae; Revision; Thailand

INTRODUCTION

Paspalum, a large genus in the family Poaceae, is currently comprised of some 320 species (Watson and Dallwitz, 1992) and is chiefly distributed in the tropical and temperate regions of the New World. The genus was established by Linnaeus (1759) based on *Panicum dissectum*, belonging to the tribe Paniceae. It is readily recognized by its inflorescent which is spike-like either single or digitate, or racemosely arranged. The spikelets are secund, solitary or paired, alternate on either side of the midrib, with 2-4 rows and are usually plano-convex in cross-section, often with a hemispherical or oblong shape. (Clayton and Renvoize,

1986). An account of this genus in Southeast Asia including Thailand was treated by Lazarides (1980) with 11 species. The main aim of this manuscript is to provide an updated taxonomic account of *Paspalum* in Thailand based on a large number of recent collections and the authors' own fieldwork, which has permitted both the reinterpretation of many species and the discovery of a new record for Thailand. A taxonomic account of *Paspalum* in Thailand is provided with an identification key, descriptions and synonymy, and illustrations.

MATERIALS AND METHODS

Specimens were examined from Thailand and surrounding countries by obtaining herbarium collections from AAU, BK, BKF, BM, C, K, KKU, L, P, PSU, QBG and TCD (Holmgren and Holmgren,

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1998). Fieldwork was also carried out to collect fertile materials in different parts of the country. Geographical data from herbarium specimens have revealed a number of localities in Thailand. Morphological observations together with habitat-associated species and ecological conditions were documented. Specimens were collected using standard procedures for herbarium materials.

SYSTEMATICS

Family Poaceae
Genus *Paspalum* L.

Paspalum L., Syst. Nat. 10(2): 855. 1759.—*Digitaria* Heist. ex Fabr., Enum. 207. 1759.—*Sabsab* Adams, Fam. Pl. 2: 31, 599. 1763, *nom. ill. superfl.*—*Cleachne* Roland ex Rottb., Acta Lit. Univ. Hafn. 1: 285. 1778.—*Ceresia* Pers, Syn. Pl. 1: 85. 1805.—*Reimaria* Humb., Bonpl. ex Flüggé, Gram. Monogr., Paspalum: 213. 1810.—*Panicum* sect. *Paspalum* (L.) Trin., Panic.: 49, 87. 1826.—*Paspalum* sect. *Ceresia* (Pers.) Nees, Fl. Bras. Enum. Pl. 2(1): 76. 1829.—*Paspalanthium* Desv., Mem. Soc. Agric. Angers 1: 163. 1831.—*Moenchlia* Wander. ex Steud., Nomencl. Bot. 2(2): 153. 1841.—*Anachyris* Nees, Hooker's J. Bot. Kew Gard. Misc. 2: 103. 1850.—*Maizilla* Schldtl., Bot. Zeitung (Berlin) 8: 601, 605. 1850, *nom. ill. superfl.*—*Dichromus* Schldtl., Stuttg. Bot. Zeitung (Berlin) 10: 17. 1852, *nom. nud.*—*Cymatochloa* Schldtl., Bot. Zeitung (Berlin) 12(47): 817, 821. 1854.—*Paspalum* sect. *Cymatochloa* (Schldtl.) Müll., Stuttg. Bot. Zeitung (Berlin) 12(47): 817. 821. 1854.—*Paspalum* sect. *Ceresia* (Pers.) Schldtl. ex

Müll., Stuttg. Bot. Zeitung (Berlin) 19(44): 326. 1861, *nom. ill.*—*Dimorphostachys* E. Fourn., Compt. Rend. Hebd. Seances Acad. Sci. 80: 441. 1875.—*Wirtgenia* Döll, Fl. Bras. 2(2): 40. 1877, *nom. nud.*—*Paspalum* subsect. *Anachyris* (Nees) Benth. and Hook.f., Gen. Pl. 3(2): 1097. 1883.—*Paspalum* subsect. *Pseudoceresia* Benth. and Hook.f., Gen. Pl. 3(2): 1098. 1883.—*Paspalum* sect. *Ceresia* (Pers.) Benth. and Hook.f., Gen. Pl. 3(2): 1098. 1883.—*Paspalum* subgen. *Anachyris* A. Chase, Contr. U.S. Natl. Herb. 24(8): 435. 1927.—*Paspalum* sect. *Anachyris* (Nees) Pilg., Repert. Spec. Nov. Regni Veg. 26(7): 229. 1929.—*Paspalum* sect. *Ceresia* (Pers.) Pilg., Repert. Spec. Nov., Regni Veg. 26 (15): 230. 1929.

Annual or perennial. *Culms* tufted, intravaginal branching at base, erect, rhizomatous, stoloniferous, decumbent; nodes glabrous or rarely pilose; internodes solid to hollow, glaucous. *Sheaths* slightly compressed, glabrous or hairy. *Blades* ovate-lanceolate or linear, with hairs at base, apex acuminate. *Ligules* membranous or a fringe of hairs, apex truncate or rounded, glabrous or hairy. *Inflorescences* with 1 to several spicate racemes; main axis subterete to distinctly winged; rachis triquetrous or flattened, spikelets attached by short stalks, single or in pairs, alternately to the sides of the ridge. *Spikelets* all alike in secund racemes with 1 perfect floret, plano-convex, ovate, broadly obovate, elliptic, orbicular or oblong. *Lower glumes* usually absent or membranous, nerveless or 1-nerved. *Upper glumes* membranous, 3–7-nerved, glabrous or hirsute, as long as spikelet. *Florets* 2. *Lower floret* sterile; lemma membranous, 3–5-nerved, as long as upper glume, margin

hairy or glabrous. *Upper floret* hermaphrodite; lemma chartaceous to coriaceous, with inconspicuous, 3–5 nerves, glabrous, with strongly incurved margin; palea indurate, margin membranous, involute, indurate, brownish black. *Lodicules* 2, cuneate, nerveless, glabrous. *Stigmas* divided. *Stamens* 3, yellow to purplish black. *Caryopsis* biconvex; embryo 1/3–1/4 as long as caryopsis. 320 species, pantropics, 10 species and 14 taxa in Thailand.

Key to the species

- 1a Annual; Leaf-blades ovate-lanceolate.....
..... *P. canarae* var. *frimbriatum*
- 1b Perennial; Leaf-blades linear..... 2
- 2a Spikelets ovate, broadly ovate, elliptic
or orbicular..... 3
- 2b Spikelet obovate or oblong-lanceolate ...
..... 8
- 3a Spikelet single..... 4
- 3b Spikelets paired, with one rudiment ... 6
- 4a Plants rhizomatous..... *P. notatum*
- 4b Plants stoloniferous or decumbent..... 5
- 5a Upper glume ciliate..... *P. conjugatum*
- 5b Upper glume glabrous.....
..... *P. scrobiculatum*
- 6a Spikelet glabrous..... *P. dilatatum*
- 6b Spikelet pilose..... 7
- 7a Rachis more than 3.5 mm wide.....
..... *P. longifolium*
- 7b Rachis less than 3 mm wide.....
..... *P. orbiculare*
- 8a Inflorescence with more than 4 racemes
..... *P. plicatulum*
- 8b Inflorescence with 2 or rarely 3 racemes
..... 9
- 9a Lower glume scale-like... *P. districhium*
- 9b Lower glume absent..... *P. vaginatum*

Paspalum canarae (Steud.) var. *frimbriatum*
(Bor) Veldk.

Figure 1

Paspalum canarae (Steud.) var. *frimbriatum* (Bor) Veldk., *Blumea* 21(1): 72. 1973. — *Panicum canarae* (Steud.) var. *frimbriatum* Bor, *Grasses of Burma, Ceylon, India and Pakistan*: 336. 1960. Type: India, Bombay, *P. V. Bole* 305, K1.

Annual, aquatic grass. *Culms* decumbent or ascending to 22–30 cm tall; node swollen, glabrous; internodes glabrous, 1.8–5 by 1–1.2 cm. *Sheaths* chartaceous-coriaceous, 1.6–4 cm long, distinctly keeled, villous on nerves, both surfaces villous, margin membranous, connected the leaf blade margins. *Blades* chartaceous, ovate, 2.5–3.5 by 0.8–1.1 cm, margins pectinate with bulbous-based hairs. *Ligules* a fringe of setose hairs. *Inflorescence* racemose, 1.8–5 cm long; main axis 3–10 cm long, angular, scabrous, along the edge, 14–20-racemose, glabrous; peduncles terete, glabrous; rachis flattened, margin pectinate. *Spikelets* solitary, ovate to elliptic, 1.3–1.5 by 1 mm, glabrous, purple, apex acute. *Lower glume* absent. *Upper glumes* membranous, elliptic, 1.3–1.4 mm long, 5-nerved; lateral nerves setose, apex acute. *Lower floret* sterile; lemma ovate, membranous, 3-nerved, 1–1.2 mm long, lateral nerves setose, margin membranous, glabrous. *Upper floret* hermaphrodite; lemma indurate or crustaceous, elliptic, 1–1.3 mm long, glabrous, margin inrolled, obscurely 5-nerved, apex acute; palea crustaceous, elliptic, 1–1.3 mm long, 2-nerved, glabrous, margin enrolled, apex acute. *Lodicules* 2, cuneate. *Stamens* 2, yellow; anthers 0.5–0.7 mm long. *Caryopsis*

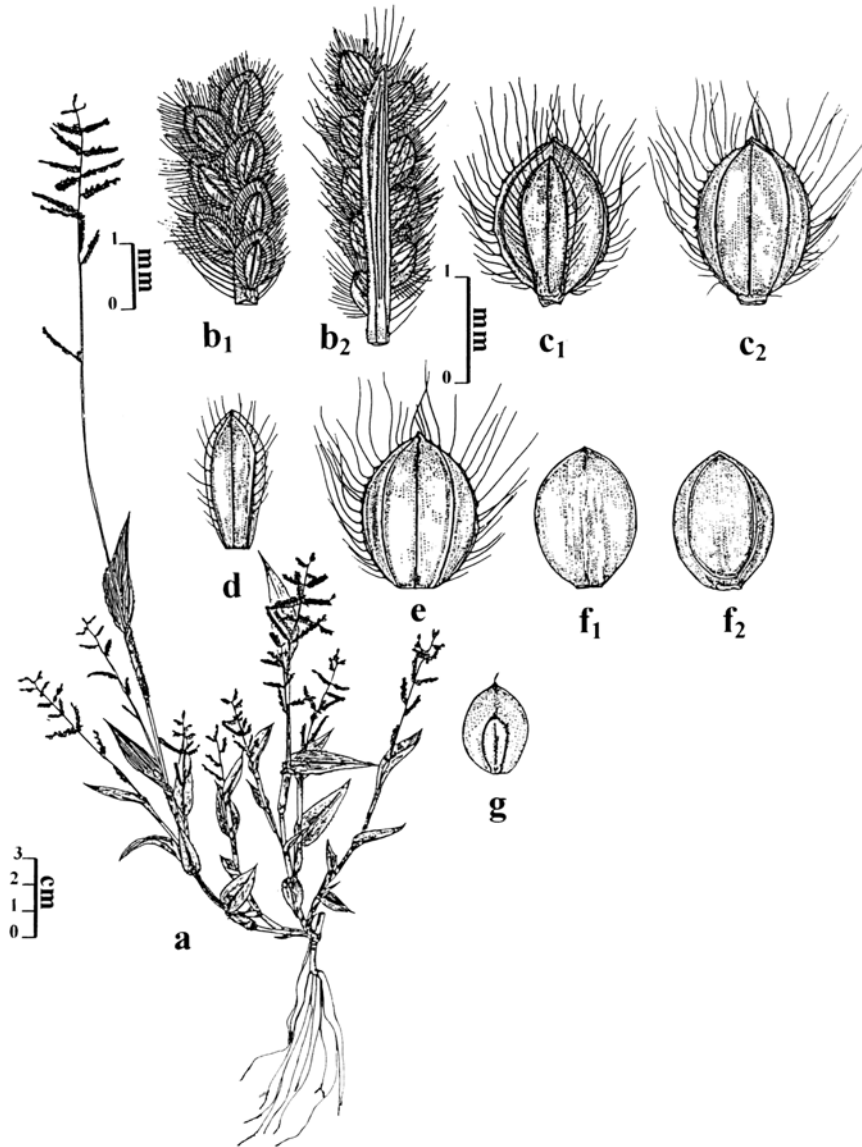


FIGURE 1. *Paspalum canarae* var. *fimbriatum* (a) habit, (b₁)-(b₂) part of raceme, (b₁) adaxial view, (b₂) abaxial view, (c₁)-(c₂) spikelet, two views, (d) upper glume, (e) lower lemma, (f₁)-(f₂) upper floret, (f₁) upper lemma, (f₂) upper palea, (g) caryopsis.

elliptic, brown, 1–1.2 mm long; embryo 1/4 as long as the caryopsis.

Thailand. – EASTERN: Nakhon Ratchasima; SOUTH-WESTERN: Kanchanaburi.

Distribution. – India, Myanmar.

Ecology. – Open areas, in swampy places, alt. 1,200–1,800 m.

Specimens examined. – *C. Charoenphol et al.* 4228 (L); *M. Norsaengsri* 2171 (K, KKU); *T. Smitinand et al.* s.n. (K).

Note. – The *Paspalum canarae* var. *fimbriatum* differs from the typical variety by its a fringe of setae along the lateral nerves of the upper glume and upper lemma.

Paspalum conjugatum P.J. Bergius
Figure 2

Paspalum conjugatum P.J. Bergius, Acta Helv. Phys.-Meth. 7: 129, pl. 8. 1762. Type: Zaire, K!. — *Paspalum renggeri* Steud., Syn. Pl. Glumac. 1: 17. 1855. Type: Paraguay, J.R.Rengger s.n., P. — *Paspalum sieberianum* Steud., Syn. Pl. Glumac. 1: 17. 1855. Type: French Guiana, F.W. Sieber 127, L. — *Paspalum bicrurum* Salzam. ex Döll, Fl. Bras. 2(2): 55. 1877. Type: Brazil, P. Salzman s.n., K. — *Paspalum conjugatum* forma *tristachyum* (Vanderyst) Beetle, Phytologia 28(4): 318. 1974. Type: not located.

Perennial. Culms erect, often tufted, creeping or stoloniferous, rooting at lower nodes, ascending to 10–40 cm tall, often greenish purple; nodes entire, pubescent; internodes more or less compressed, glabrous. Sheaths chartaceous, 3–7 cm long, laterally compressed, strongly keeled, glabrous except margins hairy; collar hairy. Blades chartaceous, linear, 10–15 by 1.2–1.6 cm, base rounded, margins undulate, apex acuminate. Ligules membranous, 0.6–1.5 mm long, truncate, glabrous, with line of hairs on the back. Inflorescence a pair of racemes, rarely 3, 2.3–4 cm long, base softly hairy, tip of racemes with reduced spikelet and drooping. Spikelets solitary, ovate, 2-seriate, 1.7–1.8 by 1.3–1.4 mm, greenish-yellow, turn to brown at maturity, with silky white hairs, apex acute. Lower

glumes absent. Upper glumes hyaline to membranous, elliptic, 1.2–1.3 mm long, obscurely 1-nerved, glabrous except margins with finely silky white hairs, apex acute. Lower floret sterile; lemma hyaline to membranous, elliptic to obovate, 1.2–1.3 mm long, obscurely 3-nerved, glabrous except margins with silky white hairs, apex acute; palea hyaline, lanceolate, obscurely 2-nerved, glabrous, apex acute with a few finely white hairs. Upper floret hermaphrodite; lemma crustaceous, obovate to elliptic, 1.5–1.6 by 1.1–1.2 mm, smooth, glabrous, margins chartaceous-membranous, apex acute; palea crustaceous, ovate to elliptic, 1.4–1.5 mm long, glabrous, apex acute. Lodicules 2, cuneate. Stamens 3; anthers yellow, 0.5–0.7 mm long. Stigmas white or pale greenish.

Thailand. – NORTHERN: Chiang Mai, Chiang Rai, Lampang, Tak; NORTH-EASTERN: Loei; EASTERN: Chaiyaphum, Nakhon Ratchasima; SOUTH-WESTERN: Kanchanaburi; CENTRAL: Krung Thep Maha Nakhon, Saraburi, Samut Prakan, Nakhon Nayok; SOUTH-EASTERN: Prachin Buri, Chanthaburi, PENINSULAR: Ranong, Phangnga, Songkhla, Narathiwat.

Distribution. – America, Argentina, India, Japan, China, SE Asia, Polynesia, Australia.

Ecology. – In wet areas, particularly ditches and river banks. A common weed in rice fields.

Vernacular. – Ya nom non, Ya hep; Sour grass, Buffalo grass, Hilo grass.

Specimens examined. – Abbe and T. Smitinand 9242A (K, L); R. Geesink and T. Santisuk 5280 (L); R. Geesink et al. 7147 (BKF, K); K. Iwatsuki T-10930 (L); Jacksons 6148 (BKF); A.F.G. Kerr 3978

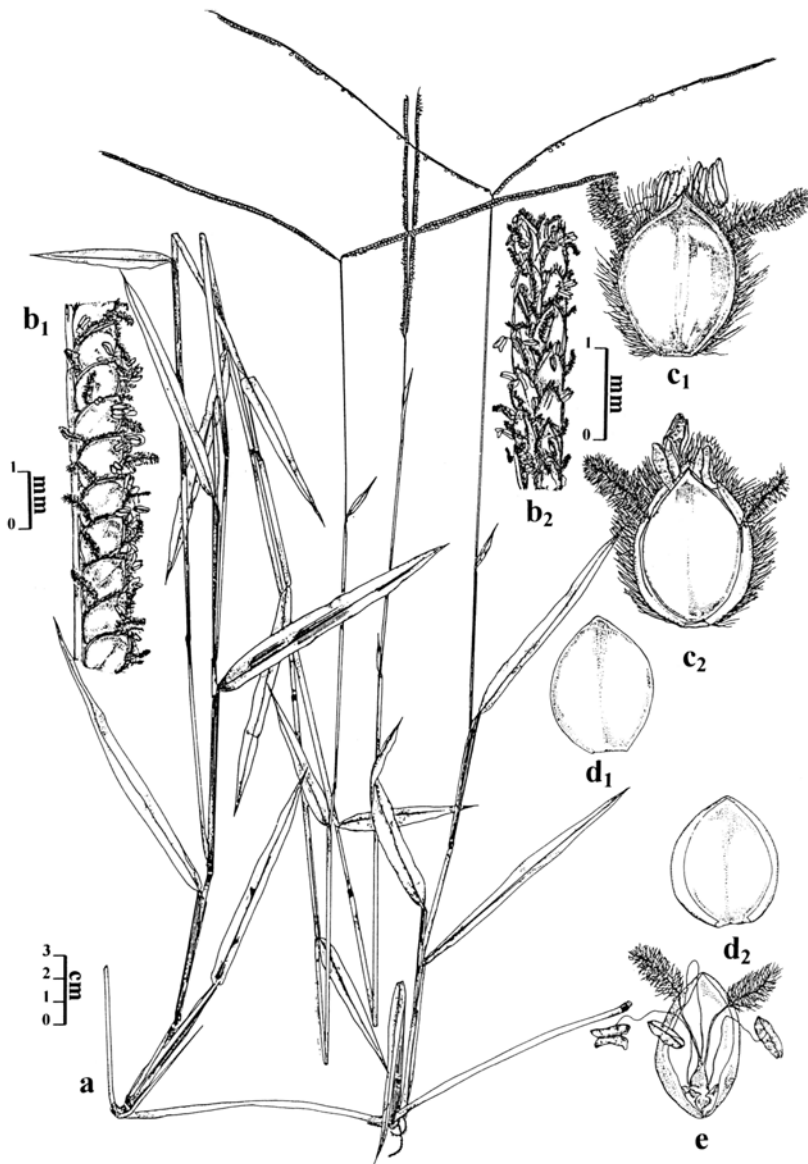


FIGURE 2. *Paspalum conjugatum* (a) habit, (b₁)-(b₂) part of racemes; (b₁) lateral, (b₂) adaxial, (c₁)-(c₂) spikelet, two views, (d₁)-(d₂) upper lemma, (d₁) dorsal, (d₂) ventral, (e) palea and floret.

(K), 4942 (BK), 6713 (K), 6962 (K, TCD);
H. Koyama T-61025 (BKF, L), T-61225
 (BKF, L), T-61514 (AAU, BKF, L); *K.*
Larsen 8615 (C), 8900 (C), 9403 (C), 9828

(BKF, C, K), 9872 (C), 10240 (C, K),
 10241 (C); *K. Larsen et al.* 249 (AAU,
 BKF), 254 (AAU), 1750 (AAU), 32100
 (AAU, BKF), 42365 (AAU), 45496 (AAU,

BKF), 45709 (AAU), 45721 (AAU); *S. Laegaard* s.n. (AAU); *J.F. Maxwell* 71-1920 (BK), 74-963 (AAU, BK), 87-849 (BKF); 88-985 (AAU), 92-283 (AAU), 92-380 (AAU, L), 94-731 (BKF, L), 97-630 (BKF), 00-369 (L); *C. Niyomdham & D. Sriboonma* 1519 (K); *O. Petrmitr* 79 (L); *T. Smitinand* 6786 (L); *T. Smitinand et al.* T-18419 (L), T-26665 (L); *Th. Sørensen et al.* 2102 (L); *T. Tagawa et al.* T-1978 (AAU, BKF); *M. Tamura et al.* 60701 (BKF); *S. Tsugara* T-69676 (BKF, L); *C.F. van Beusekom et al.* 3304 (BKF, K, L).

Paspalum dilatatum Poir.

Paspalum dilatatum Poir., Encycl. 5: 35. 1804. Type: not located.

Perennial. *Culms* erect or decumbent, flattened at base, ascending to 50–150 cm tall; nodes entire, pubescent, rooting at lower nodes. *Sheaths* chartaceous, loose, slightly flattened at keel; collar margins hairy. *Blades* chartaceous, linear, 10–35 by 1–1.5 cm; both surfaces glabrous, base hairy, apex acute to acuminate. *Inflorescence* a compound raceme, with 3–5 racemes, each raceme 5–10 cm long; rachis 1.4–1.6 mm wide, the joint between rachis and main axis with white setose hairs. *Spikelets* paired, ovate, 3.2–3.5 by 2.5–2.7 mm, apex acute; pedicels flattened, 0.5–3.5 mm long, margins scabrous. *Lower glumes* absent. *Upper glumes* membranous, ovate, 3.3–3.5 by 2.4–2.5 mm, 7-nerved, pale green, concave, apex acute. *Lower floret* sterile or male; lemma membranous, ovate to elliptic, pale green, slightly flattened, 3–3.3 by 2–2.2 mm, 6-nerved, apex acute. *Upper floret* hermaphrodite; lemma membranous-chartaceous, ovate, 3–3.3 by 2–2.3

mm, glabrous, apex acute; palea ovate, indurate, similar to upper lemma in texture. *Lodicules* 2, cuneate. *Stamens* 3, purple; anthers 1–1.3 mm long. *Stigmas* divided, purple. *Caryopsis* slightly elliptic or cylindrical in outline.

Thailand. – NORTHERN: Chiang Mai; EASTERN: Chaiyaphum, Nakhon Ratchasima; SOUTH-WESTERN: Kanchanaburi; CENTRAL: Ang Thong, Phra Nakhon Si Ayutthaya, Krung Thep Maha Nakhon; SOUTH-EASTERN: Chanthaburi, Trat; PENINSULAR: Narathiwat.

Distribution. – America, Brazil, Argentina, Chile, Africa, France, India, Philippines, Australia.

Ecology. – Cultivated.

Vernacular. – Ya dallas; Paspalum grass, Water paspalum, Water grass, Dallas grass, Golden crown grass, Hairy-flowered paspalum, Leichardt grass, Bastard millet grass, Millet bastard, Teppich grass.

Specimens examined. – *R. Geesink et al.* 71743 (K); *A.F.G. Kerr* 4361 (K), 6951 (K), 19707A (K), s.n. (K); *K. Larsen* 9972 (K); *K. Larsen et al.* 2744 (K), 33943 (K); *C. Niyomdham* 1937 (K); *C. Niyomdham & D. Sriboonma* 1538 (K), *Put* 145 (K), 2601 (K); *T. Smitinand* 5657 (K), 5768 (K), *Th. Sørensen et al.* 1891 (K), 7143 (K).

Paspalum distichum L.

Figure 3

Paspalum distichum L., Syst. Nat. 10(2): 855. 1759. Type: not located.

Perennial. *Culms* both shortly rhizomatous and stoloniferous, ascending to 30–70 cm tall, glabrous. *Sheaths* chartaceous, glabrous, except margins with fringe of dark purple finely hairs, 5–8.5 cm long.

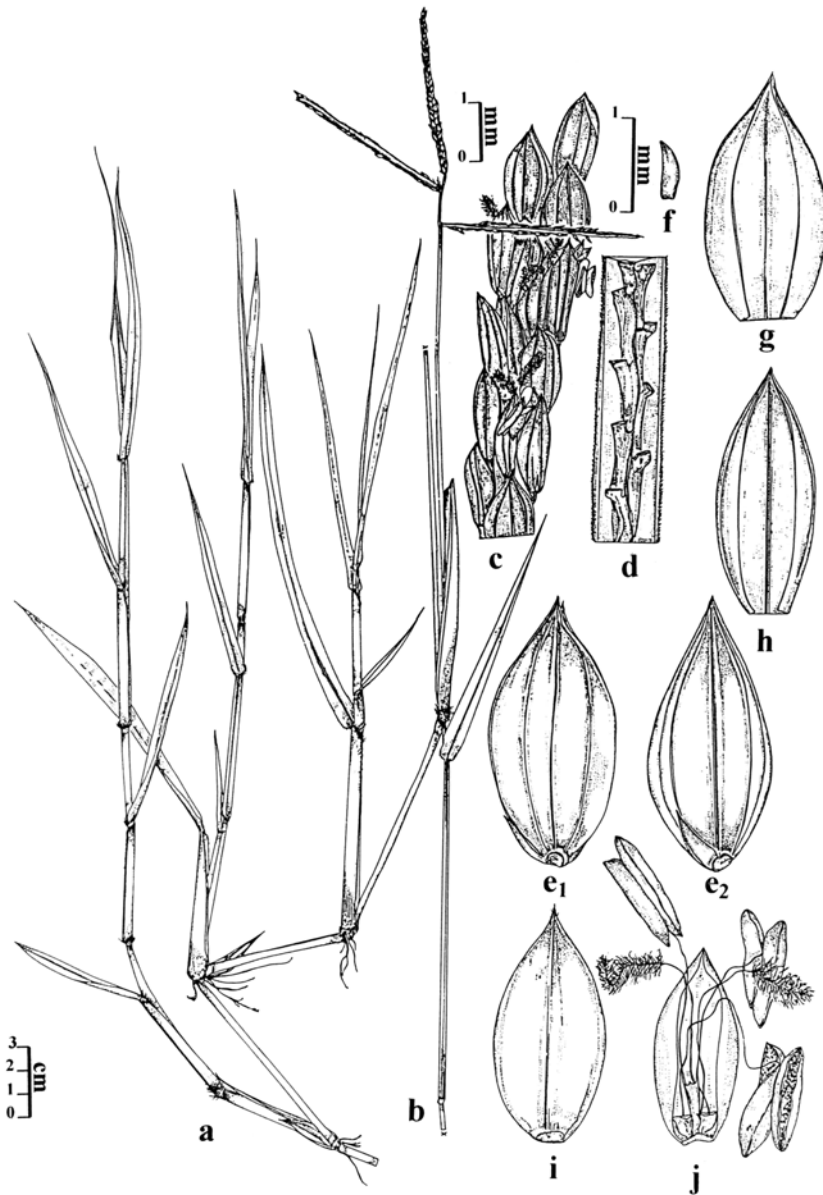


FIGURE 3. *Paspalum districhum* (a) habit, (b) inflorescence, (c) part of raceme, adaxial, (d) part of rachis, adaxial, (e1)-(e2) spikelet, two views, (f) lower glume, (g) upper glume, (h) lower lemma, (i) upper floret, upper lemma, (j) upper palea and floret.

Ligules membranous, 1–1.5 mm long. *Blades* chartaceous, linear, 9–13 by 0.3–0.7 cm, pale green, upper surface hairy, apex acuminate. *Inflorescence* with 2–3 racemes,

alternate; rachis triangular, 5–8 by 0.2–0.3 cm, pale green, glabrous, margins scabrous, softly hairy at base. *Spikelets* oblong to lanceolate, 3–3.2 mm long, secund, 2 or

rarely 3-seriate; pedicels triangular, 0.5–0.7 mm long. *Lower glumes* membranous, glabrous, scale-like, 2–3 mm long, 1-nerved, apex acute. *Upper glumes* membranous, obovate to lanceolate, 3–3.2 mm long, pubescent, 6-nerved, apex acute. *Lower floret* sterile; lemma membranous, 1.8–3 mm long, 5-nerved, glabrous or minutely hairy, apex acute; palea absent. *Upper floret* hermaphrodite; lemma membranous to crustaceous, oblong to lanceolate, 2.8–2.9 mm long, glabrous, apex obtuse to acute, hirsute; palea crustaceous, ovate, 2.4–2.5 mm long, apex acute. *Stamens* 3; anther dark purple or black. *Stigmas* divided, plumose, purple.

Thailand. – NORTHERN: Chiang Mai, Nakhon Sawan; NORTH-EASTERN: Udon Thani; EASTERN: Si Sa Ket, Surin; SOUTH-WESTERN: Ratchaburi; SOUTH-EASTERN: Chon Buri; CENTRAL: Krung Thep Maha Nakhon.

Distribution. – Tropics and subtropics.

Ecology. – Scattered in open swampy places, 0–1,800 m.

Vernacular. – Ya sakat nam khen; Silt grass, Water couch, Knot grass, Joint grass, Fort thompson grass, Sacasebo, Schamgrass.

Uses. – As soil binder along streams subject to erosion in the tropics and subtropics, and substitute to furnish excellent grazing in flat areas near the coast.

Specimens examined. – *G. Heckman* G-18 (K), *S. Laegaard & M. Norsaengsri* 21710 (AAU); *K. Larsen et al.* 1233 (K); *J.F. Maxwell* 71-713 (AAU), 71-714 (BK), 76-665 (AAU, BK); *G. Murata et al.* 49702 (BKF); *Y. Paisooksantivatana* 929-82 (BK); *J. Sadakorn* s.n. (BK); *Vacharae* 809 (BK).

Paspalum longifolium Roxb.

Paspalum longifolium Roxb., Fl. Ind. 1: 283. 1820. Type: India, *W. Roxburgh* s.n., BM!, K! (photo). — *Panicum sumatrense* Roth ex Roem. & Schult., Syst. Veg. 2: 316. 1817. Type: Sumatra, K!. — *Paspalum flexuosum* Klein ex J. Presl, Rel. Haenk. 1: 125. 1830. Type: India Orientalis, K!. — *Paspalum cognatum* Steud., Syn. Pl. Glumac. 1: 28. 1854. Type: Indonesia, Java, BM, K, L!, P!. — *Panicum houttuynii* van Hall ex de Vriese, Pl. Ind. Bat. Orient. 2: 113. 1857. Type: Indonesia, Java, *Kleinoff* s.n., L!. — *Paspalum scrobicullatum* L. var. *philippinense* Merr., Philip. J. Sc. (Suppl. 345.): 1. 1906. Type: Philippines, Culio Island, 13 Dec. 1906, *E.D. Merrill* 478, K!. — *Paspalum longifolium* Roxb. var. *trichocoleum* Hack., Philip. J. Sc.: 3. 1908. Type: Philippines, Mindanao, *E.D. Merrill* 5455, K. — *Paspalum platycoleum* Ridl., Fl. Mal. Pen. 5: 217. 1925. Type: Malaysia, Selangor, *Nur* 4509, K!, SING!.

Key to the varieties

- 1a Rachis up to 4 mm wide.....
..... var. *longifolium*
- 1b Rachis more than 6 mm wide.....
..... var. *lorirachis*

Paspalum longifolium Roxb.

var. *longifolium* Roxb.

Figure 4.

Perennial. *Culms* tufted with short rhizomes and erect, 70–90 cm tall, hirsute at lower part; nodes entire, glabrous, pinkish red. *Sheaths* chartaceous, often longer than internode, terete or slightly keeled, margins

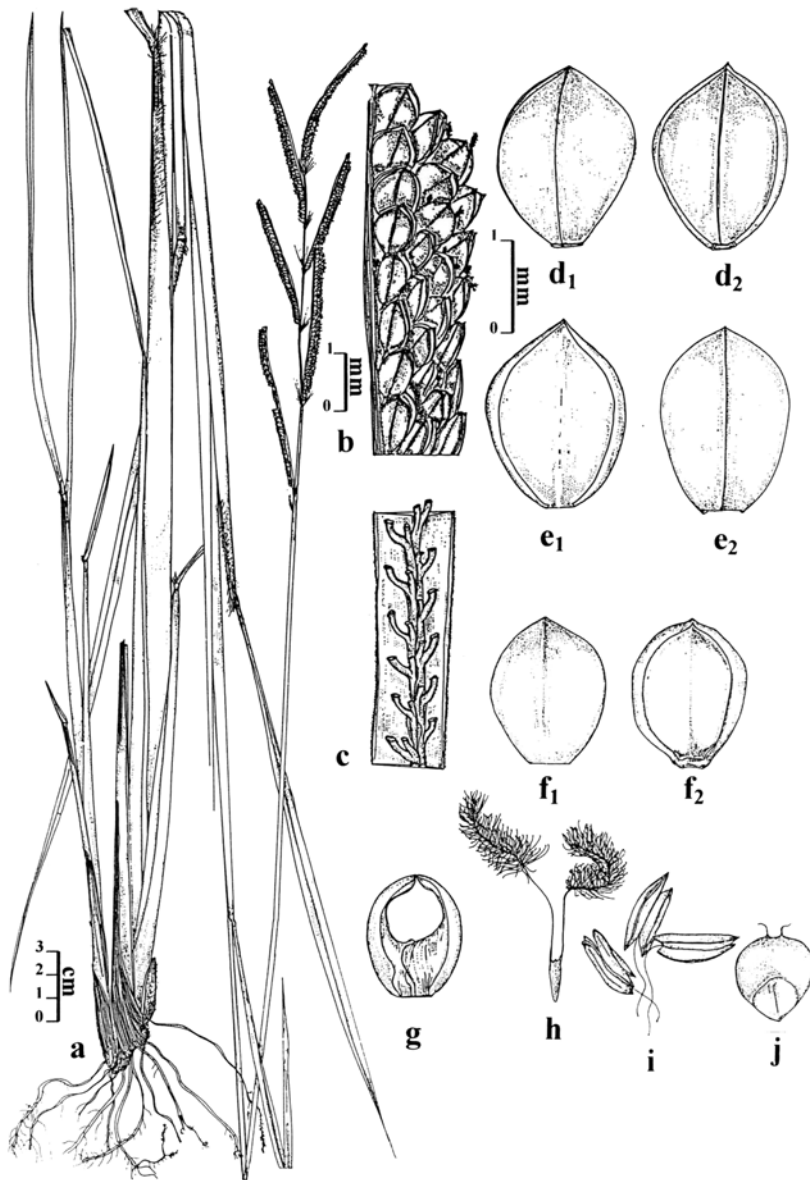


FIGURE 4. *Paspalum longifolium* var. *longifolium* (a) habit, (b) part of raceme, adaxial view, (c) part of rachis, adaxial, (d₁)-(d₂) upper glume, (d₁) dorsal, (d₂) ventral, (e₁)-(e₂) lower lemma, (e₁) ventral, (e₂) dorsal, (f₁)-(f₂) upper floret, (f₁) lemma, (f₂) palea, (g) palea, ventral; (h) ovary, (i) stamens (j) caryopsis.

hairy and extending membranous. *Ligules* membranous, 2.3–2.4 mm long. *Blades* chartaceous, linear, glabrous, 30–50 by 0.5–0.6 cm, apex acuminate. *Inflorescence* a compound raceme, with 6–10 racemes;

rachis 4–7 by 0.2–0.3 cm, base with white hairs. *Spikelets* ovate, 2–2.3 by 1.6–1.8 mm, pinkish red, paired or purplish green, hirsute; apex pointed; pedicels flattened, 0.8–0.9 mm long. *Lower glumes* absent.

Upper glumes membranous, ovate to elliptic, 2–2.3 by 1.6–1.8 mm, 3-nerved, pubescent, apex acute. *Lower floret* sterile; lemma membranous, elliptic or obovate, 3-nerved, pubescent, apex acute; palea hyaline. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 1.8–2 by 1.6–1.7 mm, faintly 5-nerved, indurate, polished, apex pointed; palea crustaceous, ovate-elliptic, 1.8–2 by 1.6–1.7 mm, apex acute. *Stamens* 3; anthers purplish, 0.8–1 mm long. *Stigmas* divided, purple.

Thailand. – NORTHERN: Mae Hong Son, Chiang Mai, Chiang Rai; NORTH-EASTERN: Loei, Udon Thani; EASTERN: Chaiyaphum, Nakhon Ratchasima; SOUTH-WESTERN: Kanchanaburi; CENTRAL: Ang Thong, Phra Nakhon Si Ayutthaya, Krung Thep Maha Nakhon; SOUTH-EASTERN: Chanthaburi, Trat; PENINSULAR: Phangnga, Phuket, Satun, Narathiwat.

Distribution. – India, Myanmar, Malesia, Australia.

Ecology. – Swampy places or river banks.

Vernacular. – Ya kap kae, Ya plong hin, Ya wai, Ya phreak hang chang, Ya rang takka taen.

Specimens examined. – *R. Geesink & C. Phengkklai* 6171 (AAU, L); *R. Geesink et al.* 7143 (AAU, BKF, L); *G. Heckman* G-24 (K); *A.F.G. Kerr* 6951 (BK, TCD), 1272 (K), 13727 (BK, K), 14375 (K), 19707 (BK); *K. Larsen* 9972 (BKF); *K. Larsen & S.S. Larsen* 33943 (AAU, L); *K. Larsen et al.* 2744 (AAU, L), 4571 (AAU), 41144 (AAU); s.n. (AAU); *J.F. Maxwell* 92-541 (AAU, P); *Put* 145 (BK), 2601 (BK); *C. Niyomdham* 1937 (AAU, BKF); *C. Niyomdham & D. Sriboonma* 1512 (P), 1538 (AAU, L, P); *T. Shimizu et al.* T-27248 (L); *Th. Sørensen et al.* 1819 (BKF),

2710 (BKF); *T. Smitinand* 5657 (BKF); *S. Sutheesorn* 2509 (BK); *Umpai* 145 (BK), *E. William* 17267 (AAU).

Paspalum longifolium Roxb.

var. *lorirachis* Bor.

Figure 5.

var. *lorirachis* Bor, Fl. Assam: 251. 1940. Type: India, K!.

Perennial. *Culms* tufted, often decumbent and erect, 1.5–2.5 m tall. *Sheaths* chartaceous, glabrous, loose, margins membranous to hyaline, 12–15 cm long. *Blades* chartaceous, linear, glabrous, 40–45 by 1.2–1.5 cm, apex acuminate. *Ligules* membranous, glabrous, rounded at margins, 2–2.8 mm long. *Inflorescences* a compound raceme, with 9–20 racemes; peduncle glabrous; rachis flattened, 7–7.2 cm by 4–6 mm. *Spikelets* paired, ovate, 2–2.4 by 1.7–1.9 mm, hairy, yellow to purple, apex acute. *Lower glumes* absent. *Upper glumes* ovate to elliptic, as long as the length of spikelet, membranous, 3-nerved, hairy, apex acute. *Lower floret* sterile; lemma membranous, elliptic, membranous, similar to the upper glume in texture, 3-nerved apex rounded; palea minute or absent. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 1.4–1.6 by 1.1–1.2 mm, glabrous, polished, obscurely 3-nerved, apex rounded; palea crustaceous, elliptic, 1.4–1.6 by 1.1–1.2 mm, laterally 2-nerved, apex rounded. *Lodicules* 2, cuneate. *Stamens* 3, yellow; anthers 1–1.2 mm long. *Stigmas* divided, dark purple.

Thailand. – NORTHERN: Chiang Mai.

Distribution. – Sri Lanka, India.

Ecology. – Cultivated.

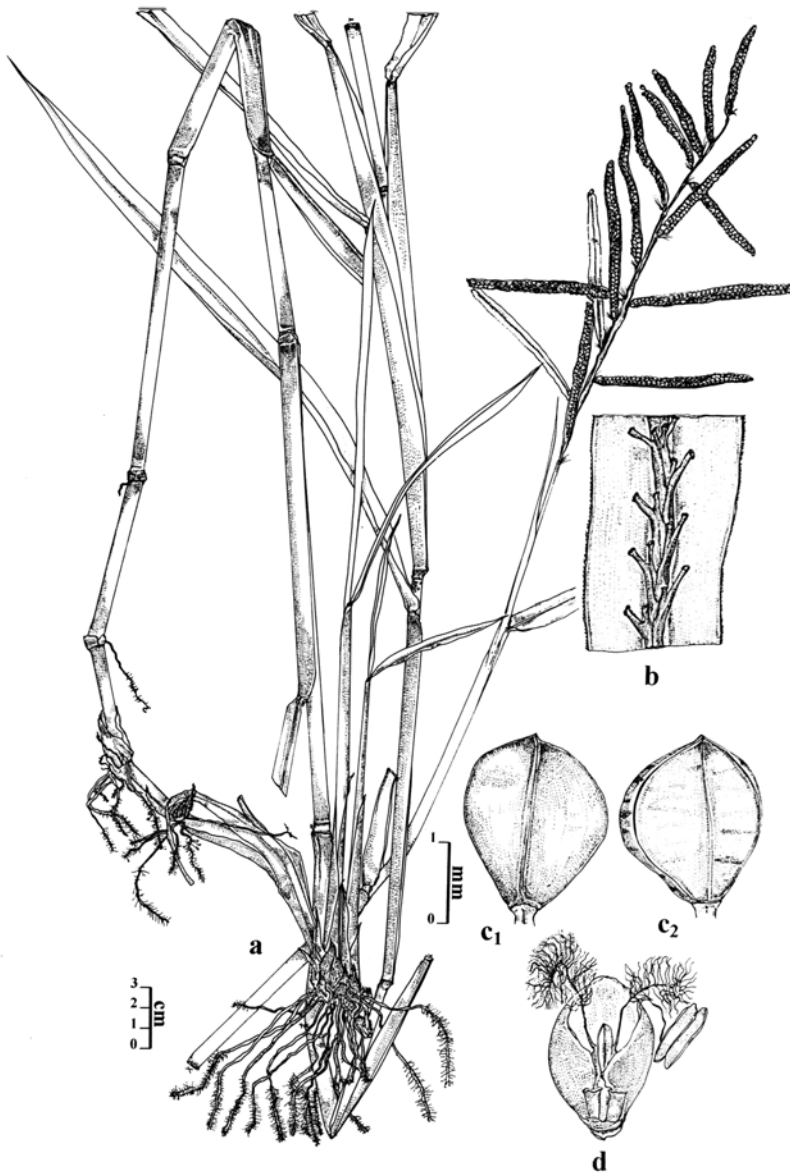


FIGURE 5. *Paspalum longifolium* var. *lorirachis* (a) habit, (b) part of rachis, (c₁)-(c₂) spikelet, (c₁) upper glume, (c₂) lower lemma, (d) upper palea and floret.

Specimen examined. – *M. Norsaengsri* 2058 (KKU).

Paspalum notatum Flüggé, Gram.

Paspalum notatum Flüggé, Gram. Monogr. Paspalum: 106. 1810. Type: Virgin Island, St. Thomas, *Ventenat* s.n., BM!. — *Paspalum cronyorhizon* Trin. ex

Döll, Fl. Bras. 2(2): 74. 1877. Type: Brazil, *F. Sellow* s.n., US.

Perennial; vertical with thickening and long rhizomes. *Culms* tufted, ascending to 10–30 cm high. *Sheaths* glabrous, flattened, 2.5–7.5 cm long, glabrous. *Blades* chartaceous, linear, 10–20 by 1.0–1.2 cm, glabrous, apex acuminate. *Ligules* membranous, 0.8–1.0 mm long, truncate. *Inflorescence* with 2 racemes, rarely 3, digitate, glabrous; rachis triquetrous, 6–9 by 1.2–1.3 cm, purplish green. *Spikelets* solitary, elliptic, 2-rowed on one side of the rachis, glabrous, 3.7–3.8 by 2.5–2.6 mm, apex acute; pedicels 1.3–1.4 mm long. *Lower glumes* absent. *Upper glumes* membranous, ovate to elliptic, 5-nerved, glabrous, as long as spikelet, apex acute. *Lower floret* sterile or male; lemma membranous, obovate, 3.0–3.1 by 2.3–3 mm, 5-nerved, apex acute. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 3.0–3.1 by 2.3–3.0 mm, apex acute; palea crustaceous, elliptic, 2.7–3.0 by 1.8–1.9 mm, indurate, margins membranous, apex acute. *Lodicules* 2, cuneate, 0.6–0.7 mm long. *Stamens* 2, purple; anthers dark purple. *Stigmas* divided, black. *Caryopsis* elliptic.

Thailand. – NORTH-EASTERN: Khon Kaen.

Distribution. – Texas, Mexico to South America.

Ecology. – Cultivated.

Vernacular. – Ya bahia; Bahia grass.

Specimen examined. – *M. Norsaengsri* 2141 (KKU).

Paspalum orbiculare G. Forst.

Paspalum orbiculare G. Forst., Fl. Ins. Austr. Prodr.: 7. 1786. Type: *Forster* s.n., K!. — *Paspalum longifolium* Roxb. var.

pseudo-orbiculare Jansen, Reinwardtia 2: 321. 1953. Type: Philippines, Luzon, Santos 5, K!.

Perennial. *Culms* tufted, 40–80 cm high, glabrous. *Sheaths* chartaceous, 8–15 cm long, glabrous, hairy along margin. *Blades* chartaceous, linear, 15–25 by 0.3–0.6 cm, glabrous and smooth above, minutely puberulous at the base. *Ligules* truncate, membranous, 0.4–0.5 mm long, ciliaolate. *Inflorescence* a compound raceme, with 2–4, one-sided spike; axis 15–25 cm long; rachis flattened, bearing 2 rows, 5–7 cm by 1.9 mm. *Spikelets* ovate-elliptic, 1.6–1.7 mm long, glabrous. *Lower glumes* absent. *Upper glumes* membranous, lanceolate, 1.6–1.7 mm long, 5-nerved, apex acute. *Lower floret* sterile; lemma membranous, elliptic, 1.5–1.7 mm long, 3-nerved, apex acute; palea minutely hyaline. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 1.5–1.7 mm long, dark brownish; palea crustaceous, elliptic, 1.4–1.5 mm long. *Stamens* 3, yellow, 1.5–1.6 mm long. *Stigmas* dark purplish. *Caryopsis* elliptic, 1.1–1.2 mm long.

Thailand. – NORTHERN: Chiang Mai, Lampang, Phitsanulok; NORTH-EASTERN: Loei, Khon Kaen; EASTERN: Chaiya-phum, Nakhon Ratchasima, Roi Et; CENTRAL: Ang Thong; SOUTH-EASTERN: Chon Buri, Chanthaburi, Trat; PENINSULAR: Phangnga, Surat Thani, Krabi, Songkhla, Narathiwat.

Distribution. – India, SE Asia, Polynesia, Australia.

Ecology. – Weeds in rice fields.

Vernacular. – Ya nom non; Ditch millet, Ditch mittet paspalum, Rice grass.

Specimens examined. – *C. Chantara-phasong* 26 (BK); *C. Chermisrivattana* 891

(BK); *C. Chermisrivattana* & *Boonkerd* 1886 (BK); *F. Floto* 7552 (AAU), *R. Geesink* & *T. Santisuk* 4990 (AAU); *C. Hambananda* 175 (BKF); *A.F.G. Kerr* 15704 (BK), 18643 (BK, K); *H. Koyama* T-61008 (BKF), T-61564 (BKF, L); *J.F. Maxwell* 72-438 (BK), 90-1028 (AAU), 96-1037 (BKF); *G. Murata et al.* 17157 (BKF); *K. Larsen et al.* 45711 (AAU); *C. Niyomdham* & *D. Sriboonma* 1572 (AAU); *Y. Paisooksantivattana* 979-82 (BK); Put 2582 (BK); *T. Shimizu* 10585 (BKF); *T. Smitinand* 257 (BKF), 1142 (BKF), 1768 (BKF), 1800 (BKF, K), 1933 (BKF, K), 1955 (BKF, K), 5686 (BKF), 5840 (BKF); *Th. Sørensen et al.* 195 (C), 777 (C), 2359 (BKF, C), 2710 (K); *M. Tamura* T-60003 (BKF); *Umpai* s.n. (BK); *C.F. van Beusekom et al.* 4227 (L), 5877 (L), *C.F. van Beusekom* & *C. Phengkklai* 1208 (AAU).

Paspalum plicatulum Michx.

Figure 6

Paspalum plicatulum Michx., Fl. Bor. Amer. 1: 45. 1803. Type: not located.

Perennial. Culms tufted with rhizomes, ascending and erect to 60–150 cm tall; nodes white beaded, entire. Sheaths chartaceous, glabrous, 10–15 cm long, margins membranous. Blades chartaceous, linear, involute, 20–30 by 0.4–0.5 cm, glabrous, apex acuminate. Ligule membranous-chartaceous, 2–3 mm long, margins pink. Inflorescence compound racemose, with 20–30 racemes, alternate; peduncle terete, glabrous; rachis slightly triangular, 0.5–6 cm by 0.5–1 mm. Spikelets oblong-lanceolate, 2–2.2 by 1–1.2 mm, hirsute, alternate; pedicels flattened, 0.4–0.5 mm

long. Upper glumes herbaceous - membranous, oblong, 3-nerved, glabrous, apex acute. Lower floret sterile or male; lemma membranous-chartaceous, elliptic, 2–2.4 by 1.5–1.8 mm, 3-nerved, glabrous, slightly transverse rugulose near the margins, apex acute. Upper floret hermaphrodite; lemma crustaceous, flattened, ovate to elliptic, 2–2.5 by 1.2–1.5 mm, glabrous, convex on the back, apex acute; palea crustaceous, ovate-lanceolate 1.8–2 by 1.3–1.5 mm, dark brown. Lodicules 2, cuneate or truncate at apex. Stamens 3; anthers purple, 1.3–1.5 mm long. Stigmas purple, divided at base. Caryopsis lanceolate.

Thailand. – NORTH-EASTERN; Maha Sarakham.

Distribution. – America, West Indies, Brazil, Argentina.

Ecology. – Cultivated.

Specimen examined. – *M. Norssaengsri* 2045 (KKU).

Paspalum scrobiculatum L.

Paspalum scrobiculatum L., Mant. Pl. 1: 29. 1767. — *Paspalum commersonii* Lamk., Tabl. Encyl. 1: 175, t. 43. 1791. Type: Mauritius, *Commerson* s.n., Pl! — *Paspalum amazonicum* Trin., Linnaea 10(3): 294. 1836. Type: Brazil, Amazonas, *E.F. Poeppig* s.n., LE.

Key to the varieties

- 1a Culm, erect or decumbent.....
 var. *scrobiculatum*
 1b Culm, stoloniferous..... 2
 2a Spikelets more than 2.5 mm. long. Upper
 glume wrinkled..... var. *auriculatum*

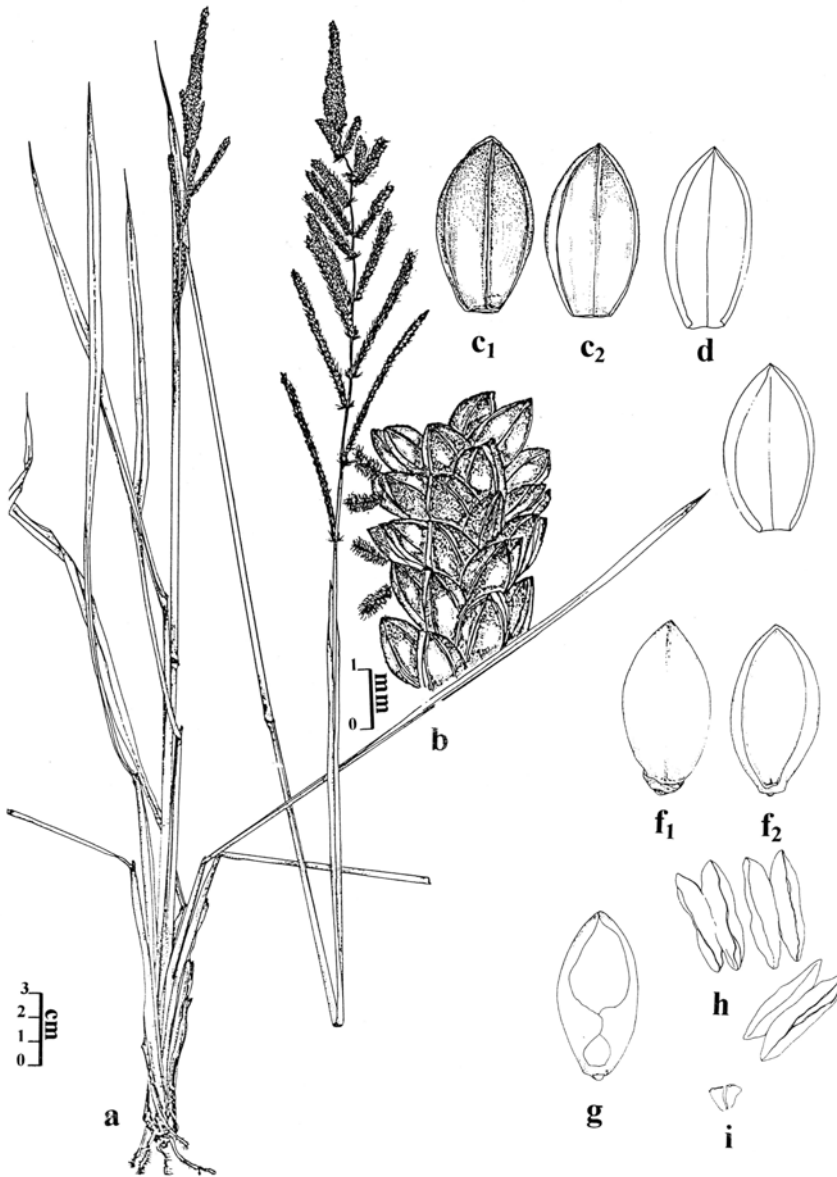


FIGURE 6. *Paspalum plicatulum* (a) habit, (b) part of raceme, (c₁)-(c₂) spikelet, (c₁) upper glume, (c₂) upper lemma, (d) upper glume, ventral, (e) lower lemma, ventral, (f₁)-(f₂) upper glume, (f₁) upper lemma, (f₂) upper palea, (g) upper palea, ventral, (h) stamens, (i) lodicule.

2b Spikelets less than 2.5 mm long. Upper glume smooth or minutely wrinkled between lateral nerves and margins.... 3

3a Lowest raceme less than 5 cm long.....
 var. *commersonii*
 3b Lowest raceme more than 5 cm long.....
 var. *bispicatum*

Paspalum scrobiculatum L.
var. *scrobiculatum* L.

Perennial. *Culms* tufted, erect and ascending 60–100 cm tall, rooting at the lower part, cataphyll and lower sheath hairy; nodes swollen, dark purple, glabrous, with several branches; internodes 10–12 cm long, glabrous. *Sheaths* chartaceous, terete, 5–12 cm long, glabrous, loose, green purplish. *Blades* chartaceous, linear, 20–30 by 1.5–2.0 cm, glabrous, margins scabrid, purplish, apex acuminate. *Ligules* membranous, truncate, 1.0–1.1 mm long. *Inflorescence* a compound raceme, with 6–12 racemes, 5–10 by 0.2–0.3 cm, alternate. *Spikelets* solitary, secund, elliptic, suborbicular or orbicular, 2.4–2.5 mm long, apex rounded; pedicels flattened, 0.5–1.0 mm long. *Lower glumes* absent. *Upper glumes* membranous, elliptic, 2.7–2.8 mm long, strongly convex, 5-nerved, nerves distinct, apex rounded. *Lower florets* absent; lemma membranous, elliptic, undulate, pale green, 2.7–2.8 mm long, apex acute; palea absent. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 2.2–2.3 mm long, glabrous, polished, dark brownish, obscurely 5-nerved, apex acute; palea crustaceous, elliptic, 2.2–2.3 mm long, glabrous, apex acute. *Stamens* 3; anthers 0.5–0.6 mm long, yellow. *Stigmas* divided, dark purple.

Thailand. – NORTHERN: Chiang Mai, Lampang, Phayao; NORTH-EASTERN: Chaiyaphum; SOUTH-WESTERN: Kanchanaburi, Prachuap Khiri Khan, Phetchaburi; CENTRAL: Krung Thep Maha Nakhon; SOUTH-EASTERN: Chon Buri, Chanthaburi; PENINSULAR: Surat Thani, Songkhla, Yala, Narathiwat.

Distribution. – India, Sri Lanka, Malay Peninsula, New Guinea.

Vernacular. – Yap long hin; Indian paspalum.

Ecology. – Swampy places, 0–1,200 m.

Specimens examined. – *A.F.G. Kerr* 7857 (BK); *K. Larsen et al.* 45380 (AAU, BKF), 45498 (AAU); *A. Marcan* 2370 (L); *J.F. Maxwell* 72-438 (AAU), 92-407 (P), 97-933 (BKF), 98-748 (BKF); *M. Newman* 1143 (BKF); *C. Niyomdham & D. Sriboonma* 1512 (K); *Put* 63 (BK); *J. Sadakorn* 242 (BK), 295 (BK); *G. Seidenfaden* 2410 (C), 2752 (C); *Th. Sørensen et al.* 3384 (C), 3645 (C); *S. Suthesorn* 570 (BK); *C.F van Beusekom et al.* s.n. (BKF).

Paspalum scrobiculatum L. var.
auriculatum (J. Presl) Merr.

var. *auriculatum* (J. Presl) Merr., Philipp. J. Sci.: 1. 1906. — *Paspalum auriculatum* J. Presl, Rel. Haenk. 1: 217. 1830. Type: Philippines, Luzon; *T. Haenk* s.n., K!. — *Paspalum zollingeri* Steud., Syn. Pl. Glumac. 1: 28. 1853. Type: Indonesia, Java, K!.

Perennial. *Culms* tufted, rooting at lower nodes; nodes entire, glabrous ascending to 30–60 cm tall. *Sheaths* chartaceous, glabrous, 6–10 cm long, lower sheaths hairy. *Blades* chartaceous, linear, glabrous, 12–35 by 1.0–1.8 cm, margins undulating at lower part, base rounded, apex acuminate. *Ligules* membranous, truncate, 0.6–0.7 mm long. *Inflorescences* a compound raceme, with 5–20 racemes; main axis more or less winged; rachis 7–14 by 0.15–0.3 cm; peduncle terete, glabrous, slender. *Spikelets* solitary, 2-rowed, broadly ovate or elliptic, 2.5–2.6 by 2–2.2 mm, glabrous, apex rounded; pedicels flattened.

Lower glumes absent. *Upper glumes* membranous, orbicular, 2.2–2.5 by 2–2.2 mm, 5-nerved, pale green, apex rounded. *Lower floret* sterile; lemma membranous, elliptic, 2.3–2.4 by 2.0–2.1 mm, 5–7-nerved, pale green or yellow, apex rounded; palea absent. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 2.1–2.3 by 1.7–1.8 mm, glossy, obscurely 5-nerved, pale yellow turn to chestnut-brown at maturity, apex rounded; palea crustaceous-membranous, elliptic, 2–2.3 by 1.3–1.8 mm, margins membranous, dark purple.

Thailand. – NORTHERN: Chiang Mai.

Distribution. – Africa, India, Vietnam (Tonkin), Malay Peninsula, Phillippines.

Ecology. – In swampy area, 200–1,800 m.

Vernacular. – Ya Hu Nu; Kodo millet.

Specimen examined. – *Th. Sørensen et al.* 4620 (K).

Paspalum scrobiculatum L.
var. *commersonii* Stapf

var. *commersonii* Stapf in Prain, Fl. Trop. Afr. 9(1): 573. 1920. Type: not located.

Perennial. *Culms* erect or sometimes prostrate and ascending to 30–70 cm tall; nodes entire with beard of whitish silky hairs; internodes 1.8–5.2 cm by 1.3–1.7 mm. *Sheaths* loose, purplish, glabrous except with silky-hirsute hairs, loose, purplish. *Blades* lanceolate to linear, 6.0–7.5 by 0.3–0.5 cm, glabrous, base rounded, with white silky hairs, apex acute. *Ligule* membranous, 0.3–0.4 mm long, glabrous, truncate. *Inflorescence* a compound raceme, with 2 racemes, rarely 3; peduncles

glabrous, slender; rachis flattened, 3–4 by 0.1–0.2 cm, triangular edge at the middle, margins membranous. *Spikelet* solitary, elliptic, 1.8–2.3 by 1.3–1.5 mm, glabrous, apex obtuse to subacute; pedicels subterete or dorsally compressed. *Lower glume* absent. *Upper glume* membranous, elliptic, 1.7–1.8 by 1.3–1.4 mm, margins, thinly membranous, 5-nerved, glabrous; nerve green, convex, apex obtuse. *Lower floret* sterile; lemma membranous, elliptic, 5-nerved, 1.7–1.8 by 1.3–1.4 mm, apex obtuse; palea absent. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 1.7–1.8 mm long, glossy, convex, obscurely 5-nerved, dark brown, apex rounded; palea crustaceous, elliptic, 1.4–1.5 mm long, apex rounded. *Lodicules* 2. *Stamens* 3; anthers dark purplish. *Stigmas* divided, plumose, dark purple.

Thailand. – NORTHERN: Chiang Mai, Lampang, Phayao, Tak; NORTH-EASTERN: Loei; SOUTH-EASTERN: Chanthaburi; PENINSULAR: Surat Thani, Songkhla.

Distribution. – Tropics and subtropics of the Old World.

Ecology. – Open areas or in cultivated areas, 0–500 m.

Specimens examined. – *A.F.G. Kerr* 15704 (K); *K. Larsen* 10108 (BK, K); *J.F. Maxwell* 98–985 (BKF); *Y. Paisooksanti-vattana* 711–81 (BK); *O. Petrmitr* 79 (BKF); *Th. Sørensen* 1063 (BKF, C, K), 1206 (C), 1870 (C), 3574 (C, K); *Th. Sørensen et al.* 1205 (C), 1871 (BKF), 2509 (BKF); *E. Williams* 17267 (K).

Paspalum scrobiculatum L.
var. *bispicatum* Hack.

Figure 7

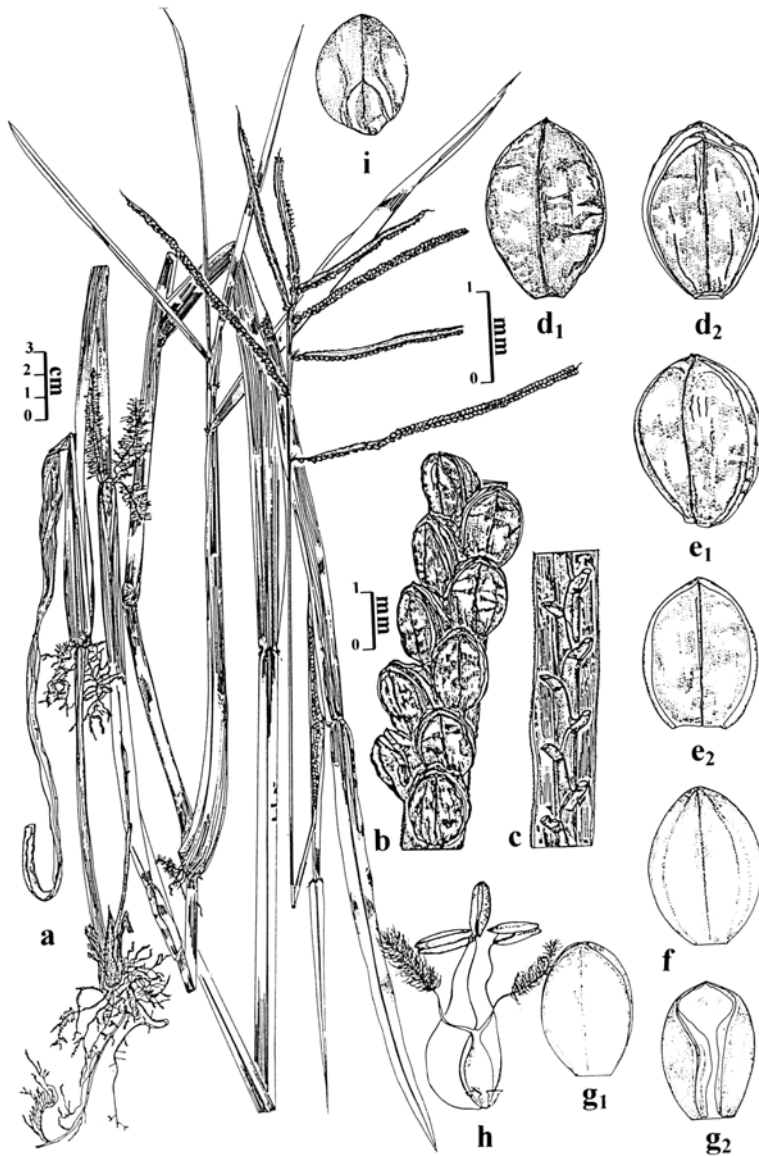


FIGURE 7. *Paspalum scrobiculatum* var. *bispicatum* (a) habit, (b) part of raceme, adaxial view, (c) part of rachis, adaxial, (d₁)-(d₂) spikelet (d₁) upper glume, (d₂) lower lemma, (e₁)-(e₂) lower lemma, (e₁) dorsal, (e₂) ventral, (f) upper lemma, dorsal, (g₁)-(g₂) upper palea, (g₁) dorsal, (g₂) ventral, (h) upper floret.

var. *bispicatum* Hack., Bot. Zeitchr. 20: 146. 1914. Type: Philippines, Luzon, *E.D. Merrill* 803, K!. — *Paspalum polystachyum* R.Br., Prodr. 1: 188. 1810. Type:

Australia, *R. Brown* 6088, K!. — *Paspalum cartilagineum* J. Presl, Rel. Haenk. 1: 216. 1830. Type: Insulis, s.n., K.

Perennial. *Culms* stoloniferous or long creeping and floating, ascending to 60 cm high; nodes glabrous, entire, red or dark purple; internodes terete, glabrous, pink, 5–20 cm by 0.4–0.5 mm. *Sheaths* chartaceous, glabrous, pink to purple, 8–14 cm long. *Blades* chartaceous, linear, 14–16 by 0.4–1 cm, both surfaces glabrous, base hairy, mid-nerve distinguish, apex acuminate. *Ligules* membranous, margins entire. *Inflorescence* a compound raceme; main axis 2.0–4.5 cm long, raceme flat, 6–10 cm by 1.5–2.3 mm. *Spikelets* solitary, 2-rowed, elliptic, 2.0–2.3 by 1.4–1.8 mm, glabrous, apex rounded. *Lower glumes* absent. *Upper glumes* membranous, elliptic, 1.5–2.0 by 1.4–1.8 mm, apex rounded, 5-nerved. rugulose between middle nerve and lateral nerves. *Lower floret* sterile; lemma membranous, elliptic, 1.7–2.1 by 1.3–1.7 mm, apex rounded; palea absent. *Upper floret* hermaphrodite; lemma crustaceous, elliptic, 1.6–2 by 1.3–1.6 mm, glabrous, 5-nerved, apex rounded, dark brown at maturity; palea crustaceous, elliptic, 1.6–1.7 by 1.1–1.5 mm, dark purplish, margins membranous, apex rounded. *Lodicules* 2, cuneate. *Stamens* 3; anthers yellow, 0.5–0.8 mm long.

Thailand. – NORTHERN: Chiang Mai, Phitsanulok; NORTH-EASTERN: Udon Thani; EASTERN: Chaiyaphum; CENTRAL: Ang Thong, Phra Nakhon Si Ayuthaya, Krung Thep Maha Nakhon; SOUTH-EASTERN: Chanthaburi, Trat; PENINSULAR: Surat Thani, Satun, Narathiwat.

Distribution. – India, Vietnam.

Ecology. – On river banks and floating or grown covering the muddy areas, sea level.

Specimens examined. – *Bunnak* 234 (K); *R. Geesink et al.* 7146 (K, L); *G. Heckman* G-26 (K); *A.F.G. Kerr* 3360 (K), 7857 (BK, K), 13922 (K), 15704 (K), 19707 (K); *K. Larsen* 10108 (K); *K. Larsen & S.S. Larsen* 33808 (K); *K. Larsen et al.* 1764 (K); *C. Marcan* 2310 (K), 2370 (K); *G. Murata et al.* T-17157 (L), 2582 (K); *P. Sangchachand* 245 (L); *Th. Sørensen et al.* 3645 (K); *C.F van Beusekom et al.* 1208 (K, L).

Paspalum vaginatum Sw.

Figure 8.

Paspalum vaginatum Sw., Prodr. Veg. Ind. Occ.: 21. 1788. Type: Jamaica, *O.P. Swartz* s.n., US.

Perennial. *Culms* creeping with stolons, branching and rooting at nodes, erect or ascending to 15–30 cm high; nodes swollen, glabrous; internodes glabrous, 1.4–5.0 cm by 1.2–1.8 mm. *Sheath* chartaceous, glabrous, 6–11 cm long, margins membranous. *Blades* chartaceous, linear, 12–27 by 0.3–0.8 cm, glabrous, apex acuminate. *Inflorescence* sub-opposite or opposite racemose, with 2 racemes; rachis triangular. *Spikelets* solitary, 2-seriate, obovate to lanceolate, 2 mm long, apex acute. *Lower glumes* absent. *Upper glumes* membranous, ovate-lanceolate, 1.5–1.6 mm long, 5-nerved, glabrous, apex acute. *Lower floret* sterile; lemma membranous, elliptic, 1.5–1.6 by 1.3–1.4 mm, glabrous, 3-nerved, transversely wrinkled; palea hyaline, elliptic, apex acute. *Upper floret* hermaphrodite; lemma crustaceous, lanceolate, 1.5–1.6 by 1.2–1.3 mm, apex acute; palea crustaceous, lanceolate, 1.4–1.5 by 0.9–1.0 mm, minutely hairy at tip. *Stamens* 3;

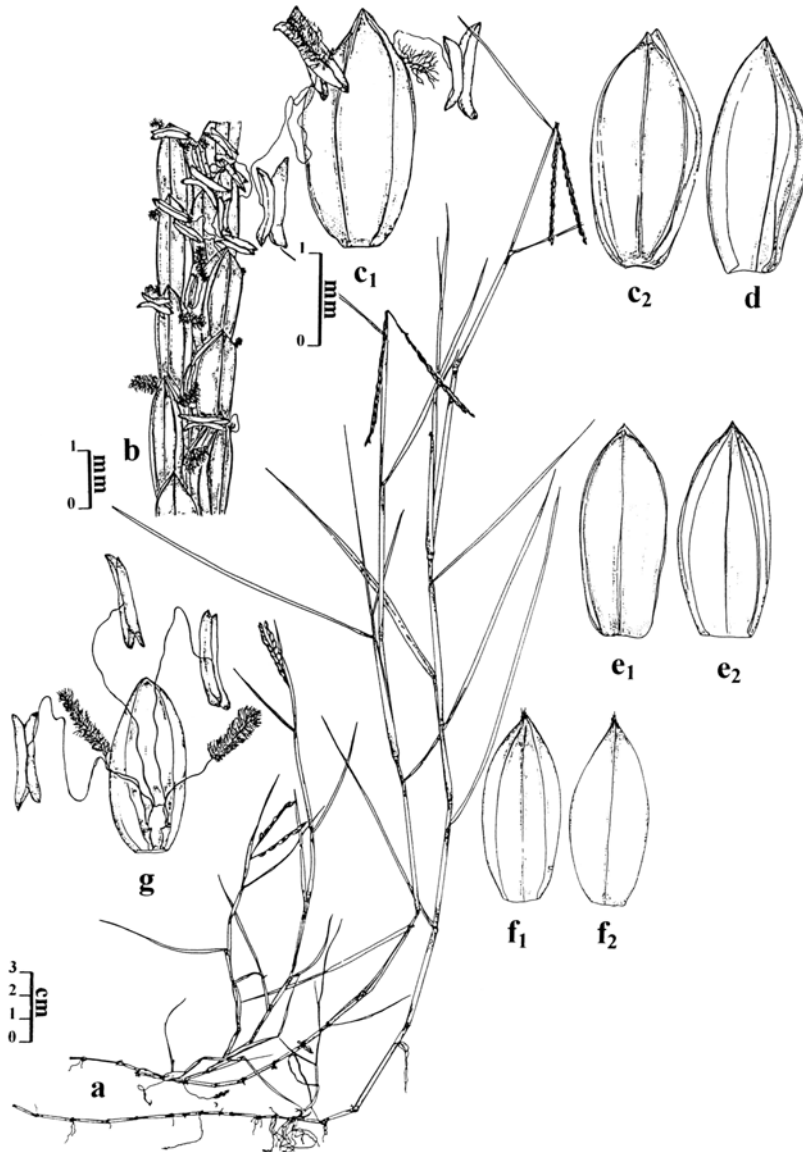


FIGURE 8. *Paspalum vaginatum* (a) habit, (b) part of spikelet, adaxial, (c₁)-(c₂) spikelet, (c₁) upper glume, (c₂) lower lemma, (d) lower glume, ventral, (e₁)-(e₂) lower glume, (e₁) dorsal, (e₂) ventral, (f₁)-(f₂) upper lemma, (f₁) ventral, (f₂) dorsal, (g) palea and floret.

anthers black, 0.7–0.8 mm long. *Stigmas* divided blackish.

Thailand. – SOUTH-WESTERN: Prachuap Khiri Khan; CENTRAL: Suphan

Buri, Krung Thep Maha Nakhon, Samut Prakan; SOUTH-EASTERN: Chachoengsao, Chan-thaburi; PENINSULAR: Surat Thani, Nakhon Si Thammarat.

Distribution. – Tropics and subtropics.

Vernacular. – Ya sakat nam khem bai kaep; Saltwater couch, Seashore paspalum, Seaside millet.

Ecology. – Scattered in open swampy soils or sandy coasts, 0-1,200 m.

Specimens examined. – *K. Iwatsuki* 240 (BKF), *A.F.G. Kerr* 6730 (BK, K), 6765 (BK), 11243 (BK, K), 15611 (K), 16099 (BK, K), 17558 (K); *K. Larsen* 8011 (C); *M. Lazarides* 7438 (K); *Th. Sørensen* 103 (C, L), 105 (C, K), 2027 (C, P), 2034 (C, BKF).

DISCUSSION

Ten species and 14 taxa of genus *Paspalum* are known from Thailand. It is widely dispersed and occurs in swampy areas of lowlands. However, *P. canarae* var. *fimbriatum* strictly grows at high altitudes in open forests often on sandy, moist soils. Many species are economically important for fodder or as lawn such as *P. longifolium*, *P. notatum* and *P. conjugatum*. Frequently, the *P. vaginatum* can be a troublesome in cultivated sites.

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