

The genus *Hymenachne* (Poaceae) in Thailand

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ABSTRACT. Two species of *Hymenachne* are enumerated for Thailand. *H. assamica* (Hook. f.) Hitchc., which is a new record, and *H. amplexicaulis* (Rudge) Nees. Descriptions, illustrations and a key to these species are also provided.

The genus *Hymenachne* was established by Beauvois in 1812, based on *Agrostis monostachya* Poir. (a synonym of *H. amplexicaulis* (Rudge) Nees). Its name refers to the membranous glumes, lemmas and paleas (Gilliland, 1971). Hackel (1887) and Hook. f. (1897) placed the genus under *Panicum* sect. *Hymenachne* distinguished from typical *Panicum* in having a cylindrical spike-like panicle and distinct spicules along the mid-nerved ridge of the glumes protruding to aristate awn. The genus *Hymenachne* belongs to Poaceae subtribe Setariinae (Clayton & Renvoize, 1986). It looks very similar to *Sacciolepis* but differs by the culms which are filled with aerenchyma while those of *Sacciolepis* are hollow. The genus consists of five species and is distributed in the tropics (Lazarides, 1980). If one assumes that the spongy culms are an adaptation to growing in water, these could be considered as insufficient for generic status but only future studies will clarify this.

The DELTA file on Grass Genera of the World (Clayton et al. 2005) gives as differentiating characters:

- Culm internodes filled with aerenchyma. Glumes similar. Lower lemma 3–5-nerved. Upper lemma without a germination flap. Styles fused. *Hymenachne*.
- Culm internodes hollow. Glumes very dissimilar. Lower lemma 7-nerved. Upper lemma with a clear germination flap. Styles free to their bases. *Sacciolepis*.

During the present study of the genus *Hymenachne* we have found a new record for Thailand. Descriptions, illustrations, a key and other miscellaneous information to the two species of *Hymenachne* in Thailand are presented.

HYMENACHNE

P. Beauv., Ess. Agrost.: 48, 148, 165, t.10, f.8. 1812.

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Perennial aquatic, semi-aquatic, or long floating. *Culms* with pith. *Ligules* collar-shaped, glabrous. *Blades* broad, base moderately to strongly cordate. *Inflorescences* acontracted panicle, composed of racemes, peduncle glabrous, rachis triquetrous, ribs scabrous. *Spikelet* abaxial, distichous, secund, dorsally compressed, ovate-lanceolate, glabrous, nerves scaberulous. *Florets* 2. *Lower glume* membranous or hyaline, ovate, 3–5-nerved, glabrous, acute at apex. *Upper glume* membranous, ovate-lanceolate or oblong, 5–7-nerved, glabrous, margins hyaline, apex acuminate and scaberulous. *Lower floret* epaleate to paleate, neuter; lemma membranous, ovate-lanceolate or oblong, 5-nerved, glabrous; palea hyaline. *Upper floret* hermaphrodite; lemma crustaceous, ovate-lanceolate, germination flap absent, obscurely 5-nerved, margins lying flat on the palea, apex cuspidate or acute; palea crustaceous, oblong or boat-shaped, glabrous, with 2 obscure nerves. *Lodicules* 2, cuneate. *Stamens* 2–3. *Caryopsis* pale green and turn to black, hilum ovoid, embryo 1/3 length of grain.

Two species in Thailand.

KEY TO THE SPECIES

Spikelet lanceolate, 5–6.5 mm long; lower lemma cuspidate-acuminate
Spikelet ovate-lanceolate, up to 4 mm long; lower lemma acute

1. **H. amplexicaulis**
2. **H. assamica**

1. *Hymenachne amplexicaulis* (Rudge) Nees, Fl. Bras. Enum. Pl. 2: 276. 1829; Bor, Fl. Assam 5: 218. 1940.—*Panicum amplexicaulis* Rudge, Pl. Guian. 1: 21. 1805.—*Panicum myuros* Lam. var. *amplexicaulis* (Rudge) Kuntze, Rev. Gen. Pl. 2. 784. 1891. Type: *Martin* s.n. (lectotype BM, designated by Judziewicz, Fl. Guianas A, 8: 264. 1990).—*Agrostis monostachya* Poir. Encycl. 1: 256. 1810.—*Hymenachne monostachya* (Poir.) P. Beauv., Ess. Agrostogr. 99. 1812.—*Panicum hymenachne* Desv., Mém. Soc. Agric. Angers 1: 183. 1831; Opusc. Sci. Phys. Nat. 82: 1831. Type: *Riedle* s.n. (holotype FI).—*Panicum acutigluma* Steud., Syn. Pl. Glum. 1: 66. 1854.—*Hymenachne acutigluma* (Steud.) Gilliland, Gard. Bull. Sing. 20: 314. 1964. Type: Malay Peninsula; Malacca, *Cuming* 2287 (holotype P; A, K, L, MO).—*Hymenachne pseudointerrupta* C. Muell., Bot. Zeit. 19: 333. 1861; Bor, Grasses of Burma Ceylon, India & Pakistan: 313. 1960. Type: Malay Peninsula, Malacca, *Griffith* s.n. (holotype B, probably destroyed; isotype K). Possibly identical with *Griffith* KD 6471 (K), designated as lectotype by J.F. Veldkamp.—*Panicum myuros* auct. non Lam.: Kuntze, Enum. Pl. 1: 86. 1894.—*Hymenachne myuros* auct. non P. Beauv.; Ridl., Fl. Mal. Pen. 3: 135. 1910. Fig. 1.

Aquatic perennial grass. *Culms* stoloniferous branching at the lower node and ascending 60–100 cm tall. *Sheath* terete, loosely glabrous, dark greenish sometimes purple, mostly longer than internode, 8–12 cm long, margin membranous and hairy. *Blades* linear, 15–30 by 1–2 cm, base rounded with bulbous base hairs, upper surface hairy and glabrous beneath, apex acuminate. *Ligules* membranous, 2–2.4 mm tall. *Inflorescence* 20–30 by 0.9–1.2 cm, the lowest branch 3–8 cm long, axis angular and scattered with minute spines. *Spikelet* lanceolate, 5–6.5 mm long, greenish white. *Lower glume* 1.8–2.1 mm long, 3-nerved, mid-nerve distinct and finely spinulose along the edge toward apex, apex acuminate. *Upper glume* membranous-chartaceous, lanceolate, 4.5–5 mm long, 5-nerved, spinulose along the

nerve, margins hyaline, apex acuminate. *Lower floret* neuter; lemma similar to upper glume, 5–5.2 mm long; palea absent. *Upper floret* hermaphrodite; lemma boat-shaped, 3.3–3.4 mm long, 3-nerved, apex acute; palea boat-shaped, 2.7–3 mm long, obscurely 2-nerved, membranous, ciliolate near apex, apex acute. *Lodicules* 2, cuneate, ca. 0.25 mm long. *Stamens* 3, ca. 1 mm long, dark purple. *Caryopsis* obovoid elliptic, pale green.

Thailand.—NORTHERN: Nakhon Sawan [Bueng Boraphet, Muang, 26 Nov. 1987, *Vacharee* 833 (BK)]; NORTH-EASTERN: Nong Bua Lum Phu [17 Nov. 1963, *P. Sangkhachand* 660 (BK)]; EASTERN: Chaiyaphum [19 Dec. 1971, *C.F. van Beusekom et al.* 4230 (BKF)], Roi Et [Muang, 26 Oct. 2001, *S. Laegaard & M. Norsaengsri* s.n. (AAU, QBG)]; SOUTH-WESTERN: Kanchanaburi [Sai Yok, 6 Dec. 1961, *K. Larsen* 8547 (C, K), Tha Muaeng, 3 Nov. 2003, *M. Norsaengsri* 2193 (KKU)]; CENTRAL: Bangkok [19 Oct. 1919, *A.F.G. Kerr* 3828 (K), 11 Nov. 1927, *A. Marcan* 2304 (K), Bang Khen, 7 Nov. 1952, *Kasin* 328 (BK), Thon Buri, Bang Plat, 23 Jan. 1955, *T. Smitinand* 2145 (K), 4 April. 1958, *Th. Sørensen et al.* 7902 (AAU, C)]; SOUTH-EASTERN: Chon Buri [Nong Kang Dang, Siracha, 7 Dec. 1930, *D.J. Collins* 2249 (K), Tung Brong, Sattahip, 2 May 1971, *J.F. Maxwell* 71-339 (BK), Tung Brong, Sattahip, 2 May 1971, *J.F. Maxwell* 71-340 (AAU)], Chanthaburi [25 Nov. 1970, *M. Lazarides* 7461 (K, L)]; PENINSULAR: Surat Thani [Sarat Thani Horticultural Research, Kanchanadit, 11 May 1987, *Y. Paisooksantivatana* 2146-87 (BK)], Phangnga [Khao Sok, Phanom, 8 Feb. 1979, *T. Koyama* T-15318 (AAU)], Trang [Khao Chong, 12 Nov. 1990, *K. Larsen* 41286 (AAU)], Songkhla [Salayai, 26 March 1918, *A.F.G. Kerr* 14796 (BK, K)], Yala [Ban Lan Lugh, 7 Nov. 1986, *J.F. Maxwell* 66-876 (BKF, L)], Narathiwat [Pa Wai, Sungai Padi, 10 Feb. 1958, *C. Niyomdham* 1661 (AAU, BKF, C, K, L), Sungai Kolok, 17 Oct. 1970, *Ch. Charoenphol et al.* 3947 (AAU, C, K), Bang Khun Tong, Tak Bai, 15 Oct. 1982, *Ch. Charoenphol et al.* 3947 (K), Bang Khun Tong, Tak Bai, 18 Feb. 1984, *C. Niyomdham* 792 (AAU, K), Sungai Kolok, 17 Aug. 1995, *K. Larsen et al.* 45722 (AAU), [Tak Bai, 11 Jan. 1986, *C. Niyomdham* 1122 (AAU, BKF, C, L)].

Distribution.—(Sub)Tropical America (Argentina to Florida), E India to S China, Malesia, N Australia.

Ecology.—In swampy ditches and muddy stream banks, 0–400 m. Often associated with *Eichornia*.

Vernacular.—Ya plong (หญ้าปล้อง).

English.—West Indian marsh grass, swamp panic grass, wick grass.

Uses.—Plants used as fodder for water buffalo with high nutritional value; said to be unsuitable for horses as it causes colic.

2. *Hymenachne assamica* (Hook. f.) Hitch. in Lingnan Sci. J. 7: 222. 1929; Bor, Fl. Assam 5: 219. 1940; Bor, Grasses of Burma Ceylon, India & Pakistan 313. 1960. Type: India, Assam; Jenkins s.n. (Holotype K!).—*Panicum assamicum* Hook.f., Fl. Brit. Ind. 7: 40. 1897. Type: India, Assam; Masters s.n. (K!). Fig. 2.

Semi-aquatic perennial grass. *Culms* stoloniferous branching at the lower nodes, ascending to 30–60 cm tall. *Sheaths* loosely terete, 3–7 cm long, glabrous except for the upper part of margin which is hairy. *Blades* linear-lanceolate 10–25 by 0.7–1 cm, base

rounded, apex acuminate. *Ligule* membranous, rounded, 1 mm tall. *Inflorescence* narrowly 15–20 by 0.4–1 cm. *Spikelet* dorsally compressed, ovate-lanceolate, 2.5–3.6 mm long, glabrous, greenish yellow. *Lower glume* ovate, membranous, ca. 1 mm long, obscurely 3-nerved, acute at apex. *Upper glume* membranous, boat-shaped, 2.7–2.8 mm long, 6-nerved, margin hyaline upper part, acute at the apex. *Lower floret* neuter; lemma lanceolate, 3.1–3.2 mm long, membranous, 5-nerved, nerve distinct, acute at apex; palea absent. *Upper floret* hermaphrodite; lemma chartaceous, ovate-lanceolate, 2.4–2.5 mm long, obscurely 3-nerved, glabrous except hirsutulous at apex, apex acute; palea chartaceous, boat-shaped, obscurely 2-nerved, margins hyaline, glabrous except hirsutulous at apex, apex acute. *Lodicules* 2, cuneate, ca. 0.35 mm long. *Stamens* 2–3, dark purple, 0.5 mm long. *Stigmas* distinct, whitish-yellowish.

Thailand.— NORTH-EASTERN: Khon Kaen [Ban Pet, Muang, 26 September 2003, *M. Norsaengsri* 2139 (KKU)]; EASTERN: Chaiyaphum [Thung Kra Mang, 19 Dec. 1971, *C.F. van Beusekom et al.* 4230 (K), Thung Kra Mang, 9 Aug. 1972, *K. Larsen et al.* 31600 (AAU)]; SOUTH-WESTERN: Uthai Thani [Ban Nong Mang Luk, Thep Tun district, 2 Nov. 2003, *M. Norsaengsri* 2192 (KKU)]; CENTRAL: Bangkok [30 Sept. 1923, *A.F.G. Kerr* 7860 (K)].

Distribution.— India (Assam).

Ecology.— Scattered along the edge of rice fields and in open swampy areas, at 0–600 m.

Vernacular.— Ya plong noi (หญ้าปล้องน้อย).

Uses.— Plants used as fodder for water buffalo.

Notes.— The record for Indo-China is perhaps based on Camus (Fl. Indo-Chine 7: 457) where *P. assamicum* is synonymised with *Sacciolepis polymorphum* (Balansa) Chase ex Camus with a query and a footnote. The holotypes of Balansa's new taxa are in L and these specimens belongs to *Panicum auritum* J. Presl ex Nees.

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REFERENCES

- Beauvois, A.M. F.J. Palisot de. 1812. Essai d'une nouvelle. Agrostographie; ou Nouveaux genres Des Graminees. Imprimerie de Fain, Paris.
- Clayton, W. D., Harman, K.T. & Williamson, H. 2002 onwards. World Grass Species: descriptions, identification and information retrieval. <http://www.kew.org/grasses-db.html>.

- Clayton, W. D. & Renvoize, S. A. 1986. *Genera Graminum (Grasses of the World)*. Royal Botanic Gardens, Kew.
- Gilliland, H. B. 1971. *Flora of Malaya*. vol. 3. (Grasses of Malaya). Lim Bian Han, Singapore.
- Hackel, E. 1897. Gramineae. In: Engler & Prantl (eds), *Die Natürlichen Pflanzenfamilien*. Teil II, Abteilung 2. Leipzig.
- Hooker, J. D. 1897. *Flora of British India*. vol. 7. L. Reeve, U.K.
- Lazarides, M. 1980. *Phanerogamarum monographiae tomes xii. The Tropical grasses of Southeast Asia (excluding bamboos)*. Strauss & Cramer Gmbtt, Hirschberg.

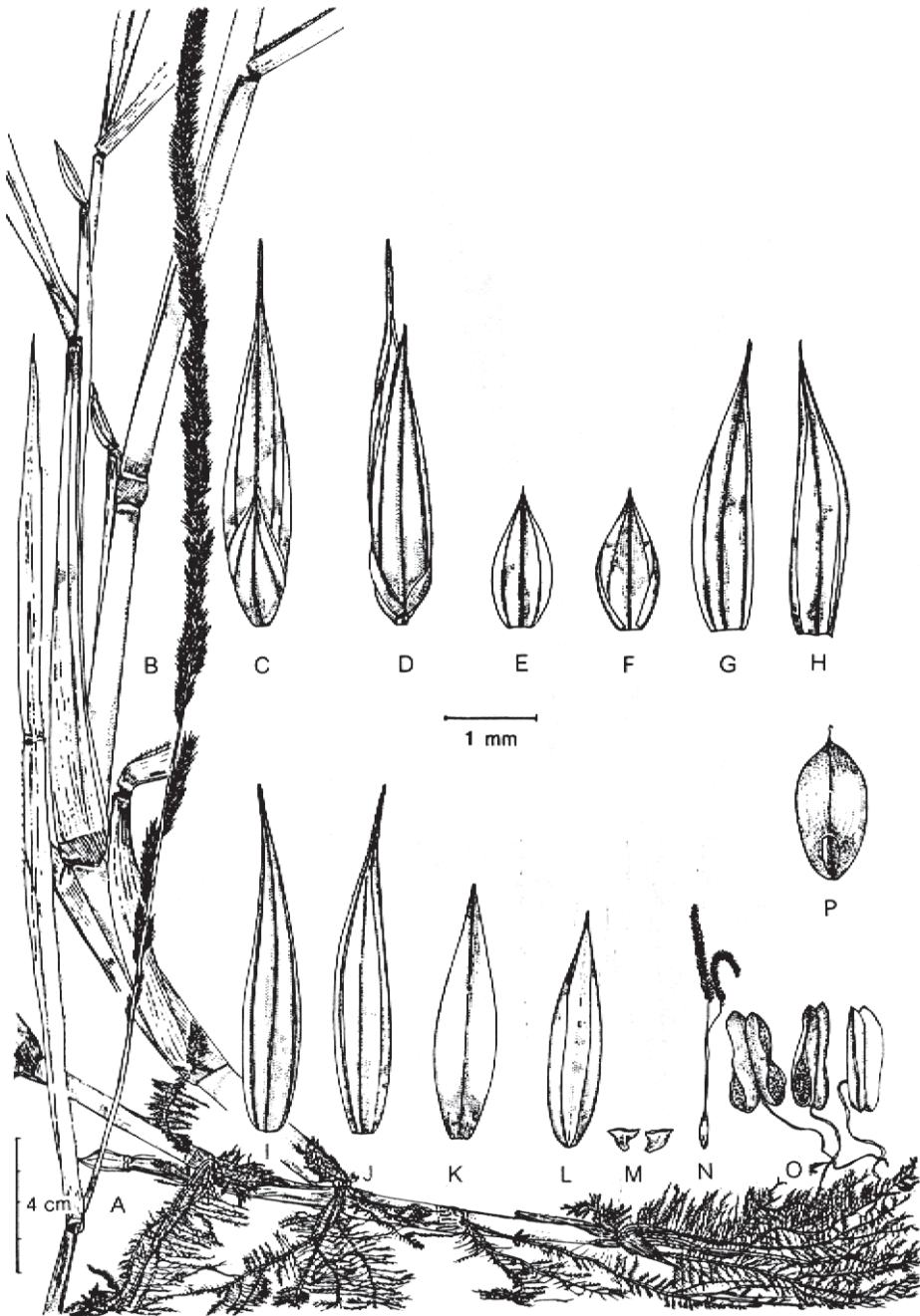


Figure 1. *Hymenachne amplexicaulis* (Rudge) Nees, A. culm; B. inflorescence; C.-D. spikelet; E.-F. lower glume; G.-H. upper glume; I.-J. lower lemma; K. upper lemma; L. upper palea; M. lodicule; N. pistil; O. stamens; P. caryopsis. Drawn by M. Norsaengsri.

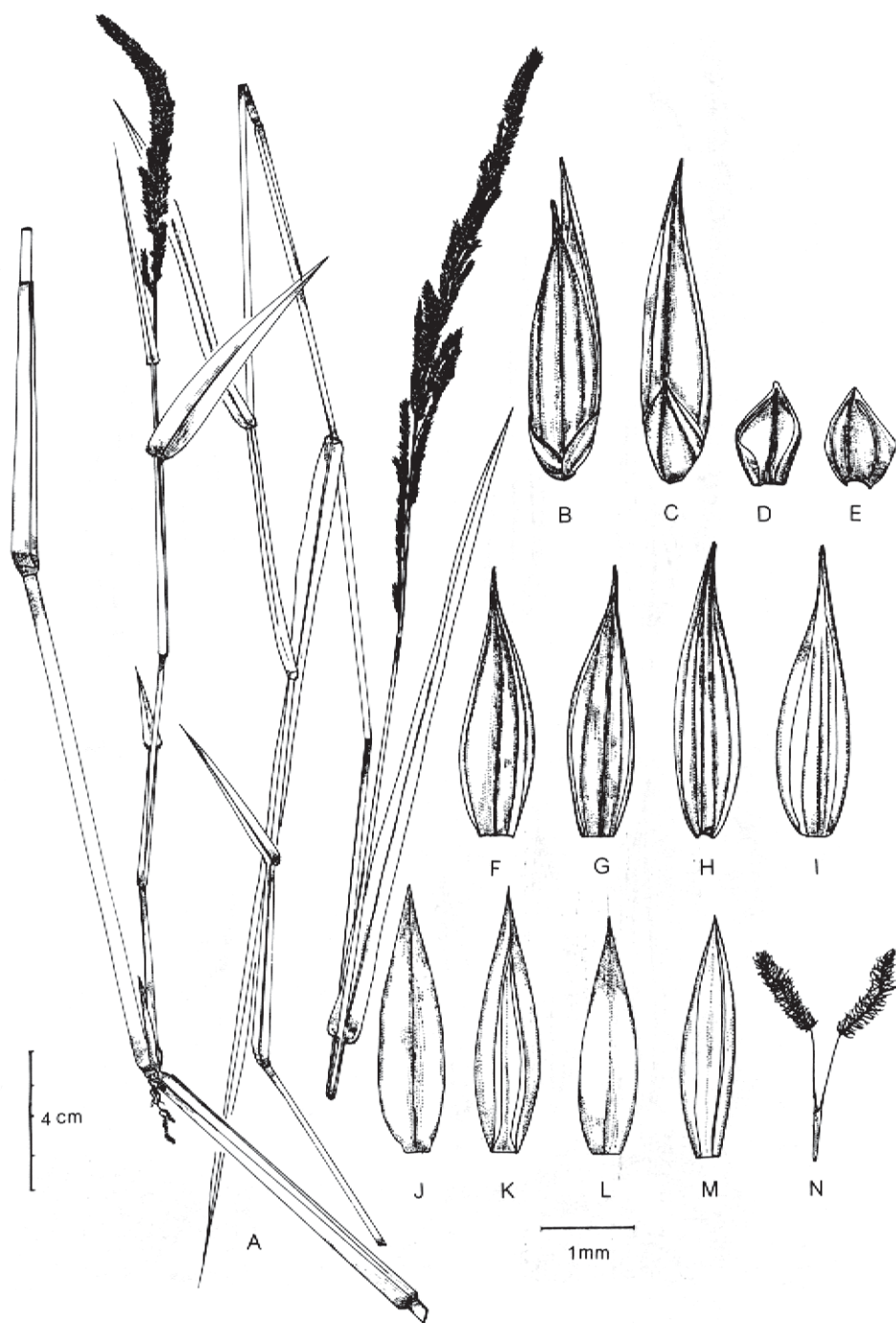


Figure 2. *Hymenachne assamica* (Hook. f.) Hitch.: A. culm & inflorescence; B–C. spikelet; D–E. lower glume; F–G. upper glume; H–I. lower lemma; J–K. upper lemma; L–M. upper palea; N. pistil. Draw by M. Norsaengsri.