

Arundinella kokutensis (Poaceae, Arundinelleae), a new species from south-eastern Thailand

Atchara Teerawatananon^{1,3}, Sarawood Sungkaew² & Trevor R. Hodgkinson³

Summary. *Arundinella kokutensis* Teerawat. & Sungkaew is described and illustrated here as a new species from Kut Island, Trat Province, Thailand.

Key Words. *Arundinella*, Gramineae, Poaceae, Thailand.

Introduction

The genus *Arundinella* was established by Raddi (1823) based on the type species *Arundinella brasiliensis* Raddi collected from Brazil but now recognised as *A. hispida* (Willd.) Kuntze. This genus is distinguished by its paired, 2-flowered spikelets which disarticulate above the glumes, scabrid upper lemmas, punctiform hilums and short membranous ligules. Clayton & Renvoize (1986) reported that there are about 50 species of *Arundinella*, distributed chiefly in Asia, an estimate that has now been raised to approximately 60 species (Sun & Phillips 2006).

Among the specimens of the genus *Arundinella* collected from Thailand, a very distinctive collection, *Charoenphol et al.* 5104 from Kut Island, Trat Province, Southeastern Thailand was previously labelled as *Arundinella metzii* Hochst. ex Miq. After re-collecting and critically examining both living and herbarium specimens, from the same locality, their morphology could not be matched with the species descriptions or type specimens of *A. metzii* (*Hohenacker* 297 (K)), nor any other *Arundinella* species. Neither do they fit within the natural range of morphological variation found within those other species. Therefore, a new species *A. kokutensis* Teerawat. & Sungkaew is described here.

Arundinella kokutensis Teerawat. & Sungkaew sp. nov.

Species *A. metziae* Hochst. ex Miq. et *A. holcoidi* (Kunth) Trin. affinis, sed ab illis ramis et pedicellis fere glabris, glumis imus glabris, aristis lemmatum superiorium 5 – 6.5 mm longis, staminibus 2 differt. Typus: *Charoenphol et al.* 5104 (holotypus K!; isotypus BKF!, C!, E!, NY!).

Annual. Culms slender, 5 – 80 cm tall, erect, shortly decumbent at base; nodes sparsely pubescent. Leaf sheaths 2 – 8 cm long, hispid with tubercle-based hairs especially along margins. Ligule a ciliate membrane, 0.8 – 1.3 mm long. Leaf-blades oblong-lanceolate, (1 –) 5 – 30 × (0.3 –) 0.6 – 1.3 cm, hispid with tubercle-based hairs on both surfaces, margins sometimes scaberulous. Panicles open, sometimes drooping, (3 –) 10 – 25 cm long; racemes (2 –) 4 – 10 cm long, alternate, rachis almost glabrous, rarely scabrous. Spikelets green, ovate-lanceolate, 3 – 4 × 0.6 – 1 mm; pedicels 0.5 – 6 mm long, glabrous; lower glumes ovate-lanceolate, 2 – 2.5 × 0.5 – 1 mm, almost glabrous, sometimes scabrous at apex, acuminate to aristate, 3 – 5-nerved; upper glumes ovate-lanceolate, 3 – 3.5 (– 4) × 0.5 – 1 mm, glabrous to sparsely hispid with tubercle-based hairs, caudate, recurved, 5-nerved; lower florets barren; lower lemmas ovate-lanceolate, 2 – 2.5 mm long, acute, 5-nerved; lower paleas ovate-oblong to ovate-lanceolate, 1.5 – 2 mm long; upper lemmas ovate-oblong, 1 – 1.5 mm long, minutely bifid, awned from the sinus, awns 5 – 6.5 mm long, 3-nerved; upper paleas ovate-lanceolate, 1.2 – 1.4 mm long, acute; callus hairy, hairs 0.3 – 0.5 mm long; stamens 2 rarely 3, anthers yellow, 0.3 – 0.5 mm long; styles 2, stigmas purple, 0.5 – 0.7 mm long. Caryopsis ovoid-elliptic, 1 – 1.2 mm long. Fig. 1.

DISTRIBUTION. Endemic to Thailand.

SPECIMENS EXAMINED. THAILAND. Trat: Ko Kut, (12° 35'N 101°31'E), 21 Nov. 1970, *Charoenphol et al.* 5104 (BKF, C, E, K, NY); *loc. cit.*, 3 April 2006, *Teerawatananon & Sungkaew* 914 (BKF, TCD, Herbarium of

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¹ Natural History Museum Thailand, National Science Museum, Technopolis, Pathum Thani, 12120, Thailand. e-mail: teerawaa@tcd.ie

² Department of Forest Biology, Faculty of Forestry, Kasetsart University, Bangkok, Bangkok, 10900, Thailand. e-mail: sarawoodsungkaew@yahoo.com

³ Department of Botany, School of Natural Sciences, Trinity College, University of Dublin, Dublin 2, Ireland. e-mail: hodkinst@tcd.ie

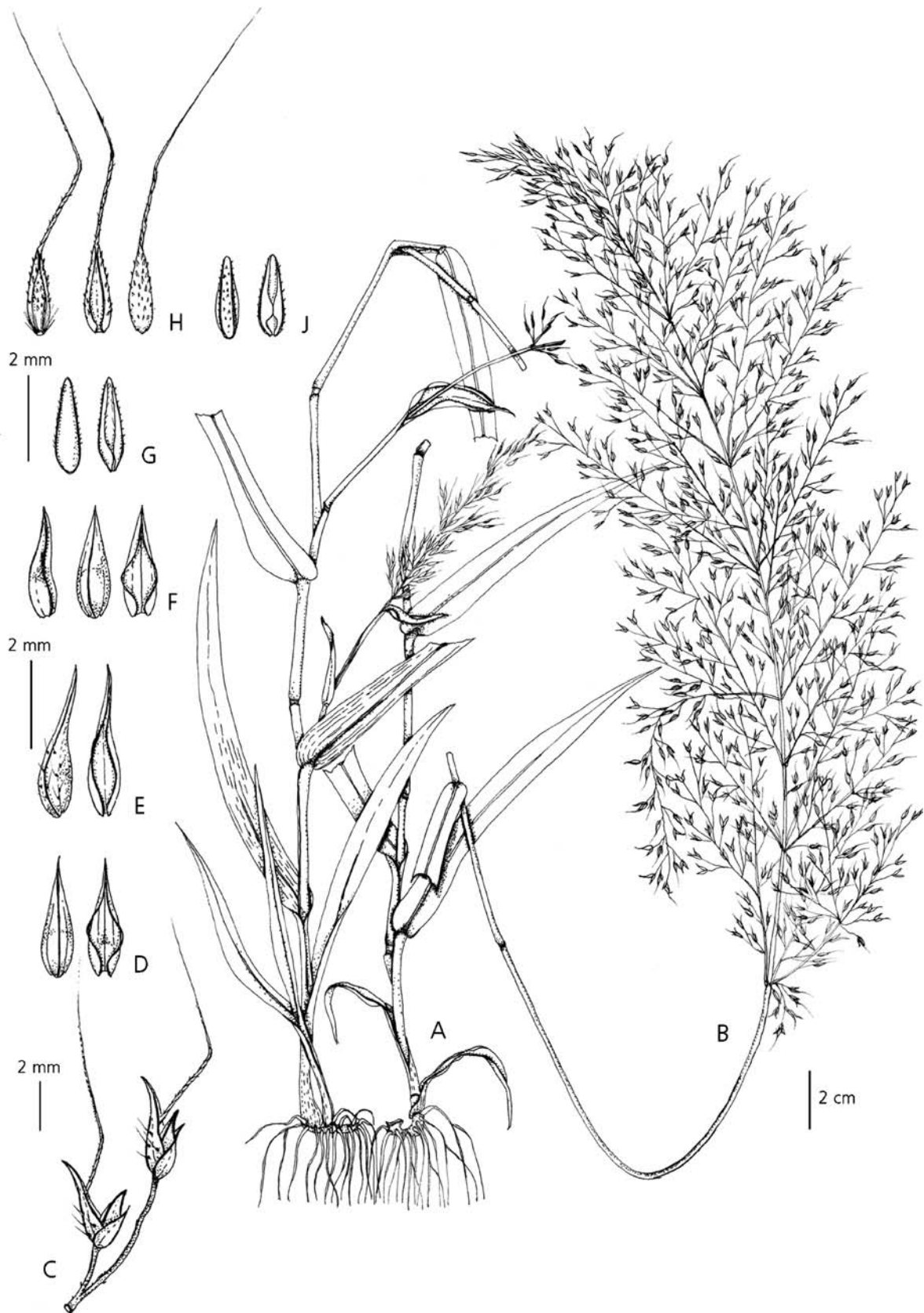


Fig. 1. *Arundinella kokutensis*. A habit; B inflorescence; C spikelets; D lower glumes; E upper glumes; F lower lemmas; G lower paleas; H upper lemmas; J upper paleas. All from Charoenphol et al. 5104. DRAWN BY ATCHARA TEERAWATANANON.

Table 1. Morphological variation in *Arundinella kokutensis* and its close relatives, *A. holcoides* and *A. metzii*.

Species/ Characters	<i>A. kokutensis</i>	<i>A. holcoides</i>	<i>A. metzii</i>
Nodes	sparsely pubescent (3 –) 10 – 25 cm long, an open panicle, sometimes drooping	hirsute	glabrous or pubescent up to 50 cm, an open panicle
Inflorescence	almost glabrous, rarely scabrous	scabrous and pilose with tubercle-based hairs	scabrous
Rhachis	glabrous	glabrous, sometimes sparsely pilose	scabrous
Pedicels	1 – 1.5 mm long	1 – 1.3 mm long	c. 1 mm long
Upper lemmas	0.3 – 0.5 mm long	0.2 – 0.3 mm long	0.4 – 0.5 mm long
Callus hairs	5 – 6.5 mm long	4 – 4.5 mm long	c. 3 mm long
Awns	2 (extremely rarely 3)	3	3
Stamens			

Thailand Natural History Museum, National Science Museum & 3 April 2006, *Teerawatananon & Sungkaew* 917 (TCD, Herbarium of Thailand Natural History Museum, National Science Museum).

HABITAT. Growing on shaded, moist and mossy granite rocks, along streams in tropical monsoon rainforest.

ETYMOLOGY. This species is named after the island ('Ko' in Thai) called Kut, Trat Province, southeastern Thailand, where this plant was collected for the first time.

CONSERVATION STATUS. *Arundinella kokutensis* is extremely restricted in distribution and specific habitat, occurring in small populations. It is very likely an endemic to Ko Kut. We recommend treating this species as Vulnerable (VU) D1 D2 until more data are obtained.

NOTES. *Arundinella kokutensis* has only two stamens instead of three as normally found in other species of the genus (Keng 1936; Bor 1955; Watson & Dallwitz 1992; Clayton *et al.* 2006; Sun & Phillips 2006). Occasional florets with three stamens can be found but the occurrence is extremely rare within an inflorescence that predominantly contains florets with two stamens. This species is similar to *A. holcoides* and *A. metzii* but can be distinguished from them by its almost glabrous rhachis, a glabrous pedicel, an awn of the upper lemma which is longer (5 – 6.5 mm long), and its stamen number which is only two. The differences between *A. kokutensis*, *A. holcoides* and *A. metzii* are summarised in Table 1.

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