

Acrachne borii (Poaceae) a new species from Eastern Ghats of Andhra Pradesh, India

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भारत के पूर्वी घाट, आंध्र प्रदेश से अन्वेषित (पोएसी) कुल की एक नवीन जाति *एकरैक्ने बोराई*

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सारांश

भारत के पूर्वी घाट में स्थित आंध्र प्रदेश के सेशाचलम जैवआरक्षित क्षेत्र से पोएसी कुल की एक नवीन जाति *एकरैक्ने बोराई* को अन्वेषित एवं वर्णित किया गया है। यह जाति *एकरैक्ने हेनरार्डियाना* एवं *एकरैक्ने सुंदराराजई* से बाह्याकारकीय लक्षणों में समानता जबकि इसके स्पाइक के लक्षण, संख्या एवं आकार, पुष्प संख्या, ग्लूम एवं लेम्मा में ये भिन्नता प्रदर्शित करती है।

ABSTRACT

A new species *Acrachne borii* is described from Seshachalam Biosphere Reserve of Eastern Ghats, Andhra Pradesh, India. It shares morphological similarities with *Acrachne henrardiana*, *A. racemosa* and *A. sundararajii* but differs in its habit, number and size of spikes, number of florets and size of glumes and lemmas.

Keywords: *Acrachne*, Kadapa, Seshachalam Biosphere Reserve

INTRODUCTION

The genus *Acrachne* Wight & Arn. ex Chiov. comprises 04 species distributed in Africa, Asia and Europe (Kabeer & V. J. Nair, 2009). In India, the genus is represented by three species viz., *Acrachne racemosa* (B. Heyne ex Roth) Ohwi, *Acrachne henrardiana* (Bor) S. M. Phillips and *Acrachne sundararajii* P. Umam., Muthuk. & P. Daniel distributed from Western Himalayas to Peninsular India (Kabeer & V. J. Nair, 2009). The former one is native to old world tropics, distributed widely in tropical Africa, SE Asia, Sri Lanka and Australia and the latter 02 species are endemic to Tamil Nadu, India.

While working on the project 'Preparation of Non Detrimental Findings (NDF) report on Red Sanders

(*Pterocarpus santalinus* L.f.) tree in India', the senior author has collected an *Acrachne* species from the Rayachoti Range, Kadapa Forest Division of Seshachalam Biosphere Reserve, Andhra Pradesh. After critical studies and comparison with all known species, the material was recognized as a novelty that markedly differs from all known species of *Acrachne*. Hence, it has been described here as new species.

TAXONOMY

***Acrachne borii* J. Swamy & Rasingam, sp. nov.**
(Figs. 1, 2)

Type:- India, Andhra Pradesh, Seshachalam Biosphere Reserve, Kadapa district, Rayachoti range, Korthimadugu

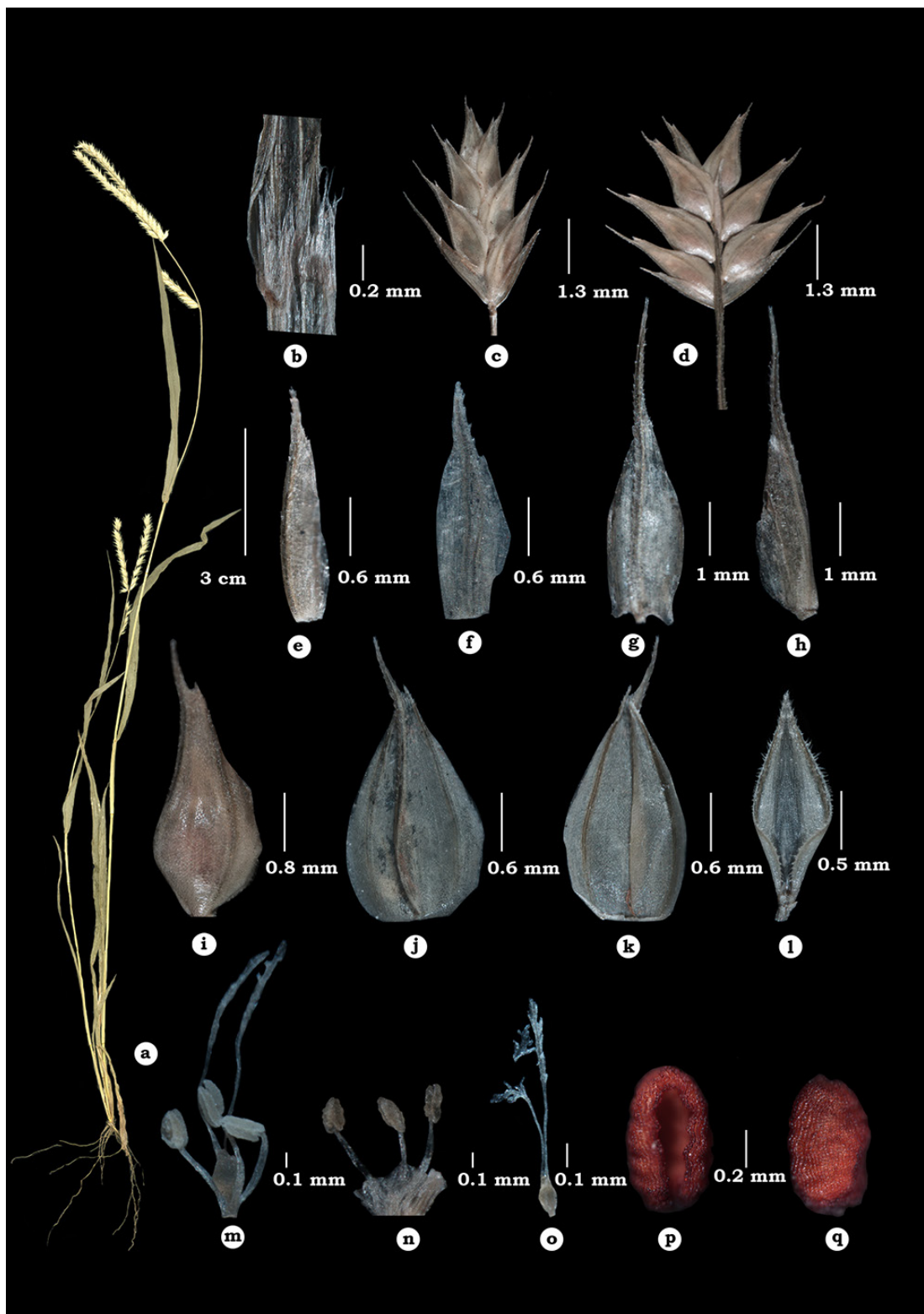


Fig. 1. *Achrachne borii* sp. nov. **a.** Habit; **b.** Ligule; **c–d.** Spikelets; **e–f.** Lower glume–lateral and ventral view; **g–h.** Upper glume–dorsal and lateral view; **i.** floret; **j–k.** Lemma–dorsal and ventral view; **l.** Palea; **m.** Essential organs; **n.** Stamens; **o.** Pistil; **p–q.** Caryopsis ventral and dorsal view.

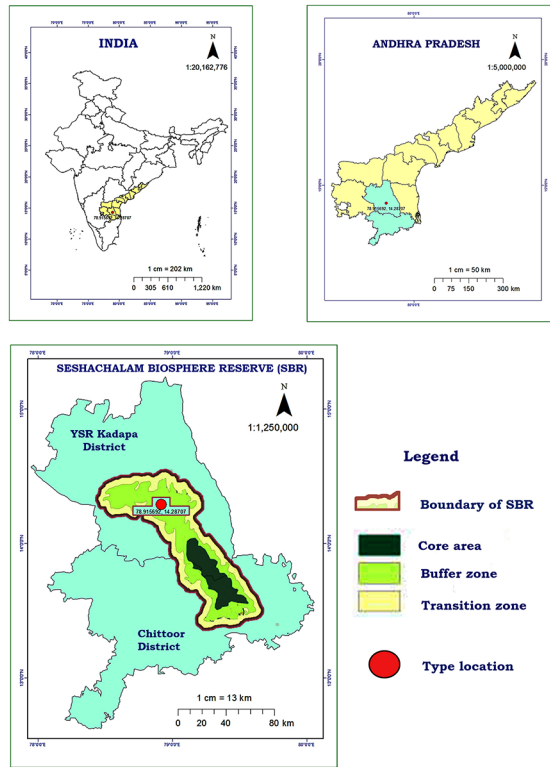


Fig. 2. Map showing the type locality of *Achrachne borii* sp. nov.

beat, 14.28707 N 78.915692 E, 521 m, 15 Sept. 2017, *J. Swamy* 008829 (holotype CAL; isotypes BSID).

Diagnosis:– *Acrachne borii* is allied to *A. henrardiana*, *A. racemosa* and *A. sundararajii* in certain characters but differs in its habit, number and size of spikes, number of flowers, size of glumes and lemmas (Table 1).

An annual slender grass. Culms 5–22 cm high, erect, glabrous, greenish at lower nodes, terete, striate in dry specimens; nodes 0.1 mm long, glabrous; internodes 4.1–6.8 cm long, glabrous. Leaf-sheaths 1.5–2 cm long, striate, keeled, loose, much shorter than the internodes; leaf-blade glabrous; ligule 0.62–0.73 × 0.6–0.83 mm, membranous, lacerate; leaf blade linear-lanceolate, 3.5–7.8 × 0.2–0.32 cm, truncate-rounded at base, scabrid along margins, acuminate at apex, sparsely bulbous based hair on lower $\frac{3}{4}$, midrib prominent, lateral nerves more than 40, prominent. Inflorescence a raceme of spikes terminating a smooth long exerted peduncle; peduncle 2.5–6.5 cm long, glabrous; spikes up to 3, racemosely arranged, 1 or 2 at the node, 0.6–3.2 × 0.2–0.25 cm long; space between the spikes 1–1.5 cm long, glabrous. Spikelets ovate, 5 × 4.82 mm, laterally compressed, 6–7 flowered, arranged in two lax rows upon a scabrid axis; interspaces between the spikelets 2.55–3.52 mm long. Lower glume 2–2.38 × 0.52–0.69 mm, ovate-lanceolate,

Table 1. Morphological comparison of *Acrachne borii* sp. nov. and it's allied species

Characters	<i>Acrachne henrardiana</i> (Bor) S. M. Phillips	<i>Acrachne sundararajii</i> P. Umam. & al.,	<i>Acrachne racemosa</i> (B. Heyne ex Roem. Schult.) Ohwi	<i>Acrachne borii</i> sp. nov.
Culms	10–30 cm high	c. 25 cm high	25–105 cm high	5–22 cm high
Leaf blade	Up to 10 × 0.5 cm	3–16 × 0.8–1 cm	10–25 × 0.5–0.9 cm	3.5–7.8 × 0.2–0.32 cm
Spikes	1.5–2 cm long, 1–2 or 3 at a node, usually increasing in number from below to upwards	3.5–4.5 cm long, 1–4 at a node, up to 30 in number	Up to 11 cm long, 1–4 at a node, up to 17 in number	0.6–3.2 cm long, either 1 or 2 at a node, up to 3 in number
Spikelets	2.5 mm long	3.5–4 mm long	5–8 mm long	5 mm long
Florets	2–4	4–5	5–13	6–7
Lower glume	Ovate, c. 1.5 mm long, acute at apex	Lanceolate, c. 1.5 mm long, shortly awned	Lanceolate, 1.5–2.2 mm long, acute-acuminate at apex	Ovate-lanceolate, 2–2.38 mm long, shortly awned at apex; awn 0.42 mm long
Upper glume	Ovate, 1 mm long, awned; awn 1 mm long	Elliptic, 1.1 mm long, awned; awn c. 1.2 mm long	Ovate-lanceolate, 1.6–2.5 mm long, awned; awn 1.1 mm long	Elliptic, 2.83 mm long, awned; awn 1.21–1.42 mm long
Lemma	Orbicular, 1.5 mm long, awned; awn 0.5 mm long	Broadly ovate, 1.5–1.8 mm long, awned; awn c. 0.7 mm long	Broadly ovate, 2.2–2.5 long, awned; awn 0.3–0.7 mm long	Broadly ovate, 2.43–2.54 mm long, awned; awn 0.82–0.84 mm long

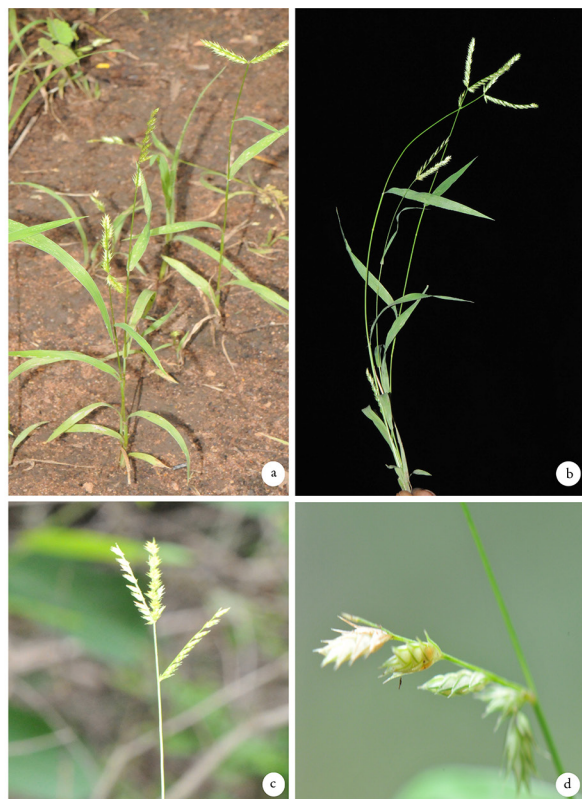


Fig. 3. *Acrachne borii* sp. nov. **a.** Habitat; **b.** Habit; **c.** Inflorescence; **d.** spikes.

when flattened, strongly compressed, hyaline apart from the green keel nerve, entire along margin, shortly awned at apex, awn 0.42 mm long, scabrid or spinulose. Upper glume 2.83×0.90 mm, elliptic, hyaline, the scabrid keel-nerve being prolonged into an awn; awn 1.21–1.42 mm long. Floret $3\text{--}3.06 \times 0.97$ mm long, ovate. Lemma broadly ovate, $2.43\text{--}2.54 \times 1.36\text{--}1.38$ mm, excluding awn, 3-nerved, spinulose or scabrid on midnerve, awned; awn 0.82–0.84 mm long, recurved, antrosely scabrid. Palea 1.79×0.75 mm, lanceolate, acute at apex, hyaline, infolded along margins, 2-nerved, 2-keeled; keels winged, scabrid. Lodicules 2, 0.2–0.3 mm long, truncate, white. Stamens 0.43 mm long; filaments $0.15\text{--}0.27 \times 0.2\text{--}0.3$ mm, hyaline; anthers $0.14\text{--}0.16 \times 0.06\text{--}0.09$ mm, elliptic-oblong, yellowish. Pistil 0.98 mm long; ovary $0.18 \times 0.09\text{--}0.11$ mm, elliptic-oblong; styles 2, 0.41 mm long, slightly unequal, slender, hyaline; stigma 2, 0.39–0.44 mm long, plumose, slightly unequal, hyaline. Caryopsis $0.85\text{--}0.9 \times 0.49\text{--}0.54$ mm, oblong, reddish brown, grooved in middle on one side, rugose, more than 25 rows on another side of the surface.

Flowering and Fruiting: August–October.

Distribution, habitat and ecology: The species is usually found in sandy and shady places of the streams in dry deciduous forests at an altitude of 520 m and in association with *Ageratum conyzoides* L., *Brachiaria distachya* (L.) Stapf., *Dendrocalamus strictus* (Roxb.) Nees, *Paspalidium flavidum* (Retz.) A. Camus, and *Setaria pumila* (Poir.) Roem. & Schult. (Fig. 3).

Etymology: The specific epithet of the novelty is named to honour N. L. Bor, a well known Agrostologist and former Assistant Director of the Royal Botanic Gardens, Kew, for his valuable contributions to the grass taxonomy of Indian subcontinent.

Conservation Status: The population of the species is sparse along the stream, which runs through the bamboo thickets of dry deciduous forests. A total of around 230 individuals were noted during the survey. As per the IUCN guidelines (IUCN, 2012), the species is evaluated here as Data Deficient (DD) due to the non-availability of full population status. Further explorations in the adjacent areas and nearby habitats are necessary to ascertain the exact status of the species.

Notes: The new species is quite remarkable by its inflorescences as it has 1 or 2 spikes at each node or up to 3 in number whereas all other species occurring in India have 1–4 spikes at a node and it usually increases in number from below to upwards. A total of 30 spikes are reported from a single inflorescence of *Acrachne sundararajii* (P. Umam & al., 1997). The lower, upper glumes and lemma are larger than *A. henrardiana*, and *A. sundararajii* but relatively similar to *A. racemosa*. *A. borii* can be easily distinguished from *A. racemosa* by its habit, length and number of spikes. Calyton & al. (2006) treated *A. sundararajii* as a heterotypic synonym of *A. henrardiana* without assigning any valid reason. Kabeer & V. J. Nair (2009) treated *A. sundararajii* as a distinct species in their Flora of Tamil Nadu–Grasses. A key to all four species distributed in India have been provided for easy identification.

KEY TO THE SPECIES OF ACRACHNE IN INDIA

- 1a. Spikelets 5–8 mm long; florets more than 5; upper glume 1.6– 2.8 mm long; lemma more than 2 mm long 2

- 1b. Spikelets 2–4 mm long; florets 2–5; upper glume up to 1.1 mm long; lemma less than 2 mm long **A. racemosa**
- 2a. Culms 25–105 cm high; leaf blade 10–25 × 0.5–0.9 cm; spikes up to 11 cm long, 1–4 at a node, up to 17 in number **A. borii**
- 2b. Culms 5–22 cm high; leaf blade 3.5–7.8 × 0.2–0.32 cm; spikes up to 3.2 cm long, either 1 or 2 at a node, up to 3 in number **A. henrardiana**
- 3a. Spikelets dense, 2.5 mm long; florets 2–4; peduncle up to 10 cm long **A. sundararajii**
- 3b. Spikelets lax, 3.5–4 mm long; florets 4–5; peduncle c. 15 cm long

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