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TWO NEW SPECIES OF *PANICUM* L. FROM THE INDIAN SUBCONTINENT

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ABSTRACT

Based on the collections housed in the herbarium of Botanical Survey of India, Pune, two new species of *Panicum* L. are described, one from Sind (Pakistan) and the other from Karnataka (India).

A careful examination of the specimens of *Panicum* deposited in the regional herbarium at Pune (BSI) revealed that two sets of collections could not be satisfactorily assigned to any of the species listed by Bor in his "Grasses of Burma, Ceylon, India and Pakistan" (1960). A reference to Dr. T. A. Cope, Royal Botanic Gardens, Kew confirmed that these were new species.

Panicum jainii Karthik. *et* Raghavan *sp. nov.* Differt a *P. trypheron* Schult. foliis ad basin non aggregatis, plus minusve glabris; paniculis contractis; glumis inferioribus plerumque cuspidatis.

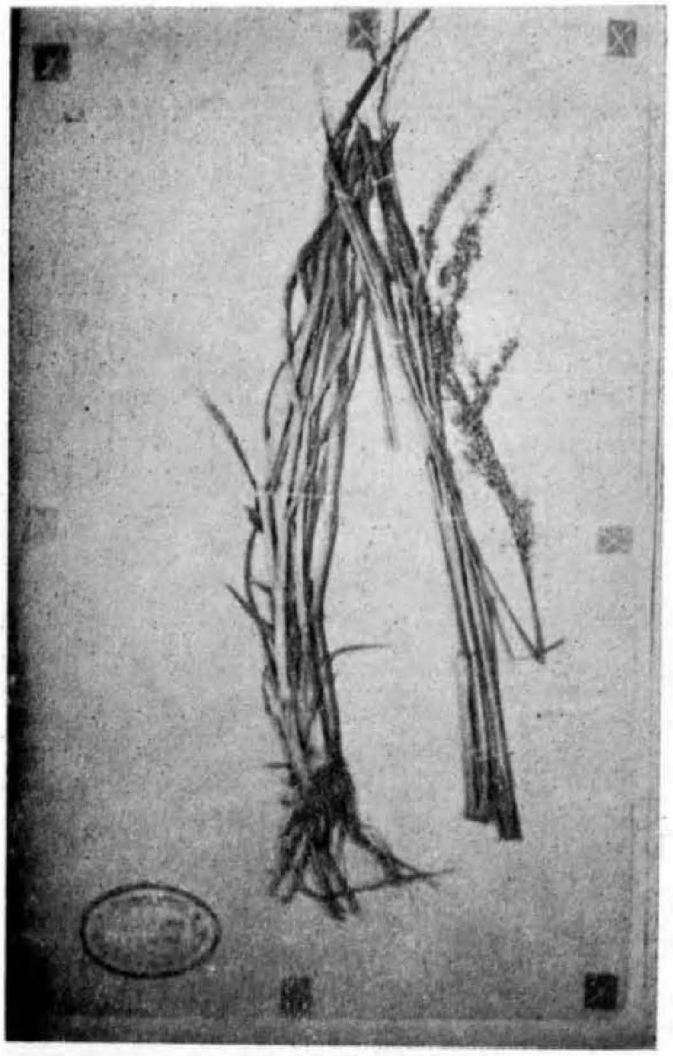
Gramen perenne, caespitosum, basi lignosum, vaginis foliorum veteribus ciliatis tectum. *Culmi ca* 1 m alti, erecti. *Vaginae foliorum* glabrae, marginibus hyalinis; laminae planae, lineares, 5-25 cm × 3-6 mm, infra subtiliter pubescentes, supra vero plus minusve glabrae, ad apices contractae, marginibus cartilagineo-scaberulis; ligulae membranaceae, ciliatae, 0.5 mm longae. *Paniculae* contractae, 15-25 cm longae, ramosae; rami erecti, angulati; rami, ramuli et pedicelli scaberuli. *Spiculae* 3 mm longae. *Glumae* ad anthesin leviter divaricatae; gluma inferior 1.5-1.75 mm × 1.75-2 mm late-ovata, acuta vel breviter cuspidata, glabra; gluma superior 3 × 1.5 mm, ovato-lanceolata, acuminata, glabra, marginibus incurvatis, 9-nervatis. *Lemma* inferius, suveriori simile; palea hyalina, elliptico-lanceolata, 2.75 mm longa, marginibus carinatis. *Stamina* 3; antherae 1.5 mm longae. *Lemma* superius, 2 mm longum, coriaceum, ovatum, acutum, laeve flavidum, marginibus incurvatis; palea lemmati superiori.

PAKISTAN: Sind; Mirpurkas, *R. K. Bhide* s.n. 27.12.1909 (holotypus CAL; isotypi BSI, K).

Panicum jainii Karthik. *et* Raghavan *sp. nov.* Differs from *Panicum trypheron* Schult. in having leaves not crowded at base and more or less glabrous, panicles contracted, lower glumes normally cuspidate.

Perennial grass, tufted; base woody, covered by old hairy leaf sheaths. *Culms ca* 1 m tall, erect. *Leaf sheaths* glabrous, margins hyaline; blades flat, linear, 5-25 cm × 3-6 mm, finely pubescent below, more or less glabrous above, tapering towards apex, margins cartilaginous, scaberulous; ligules membranous, ciliate, 0.5 mm long. *Panicles* contracted, 15-25 cm long, branched, branches erect, angular; branches, branchlets and pedicels scabrous. *Spikelets* 3 mm long; lower glume 1.5-1.75 mm × 1.75-2 mm, broadly ovate, acute or shortly cuspidate, glabrous; upper glume 3 × 1.5 mm, ovate-lanceolate, acuminate, glabrous, margins incurved, 9-nerved; glumes slightly gaping at anthesis. Lower lemma similar to upper glume; palea hyaline elliptic-lanceolate, 2.75 mm long, margins keeled. *Stamens* 3; anthers

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Panicum jainii Karthik. *et* Raghavan

1.5 mm long. *Upper lemma* 2 mm long, coriaceous, ovate, acute, smooth, yellowish, margins slightly incurved; palea similar to upper lemma.

PAKISTAN: Sind; Mirpurkas, *R. K. Bhide* s. n. 27.12.1909 (holotype at CAL; isotypes at BSI, K.).

The specific epithet is in honour of Dr S. K. Jain, F.N.A., Director, Botanical Survey of India for his valuable contributions on Indian grasses.

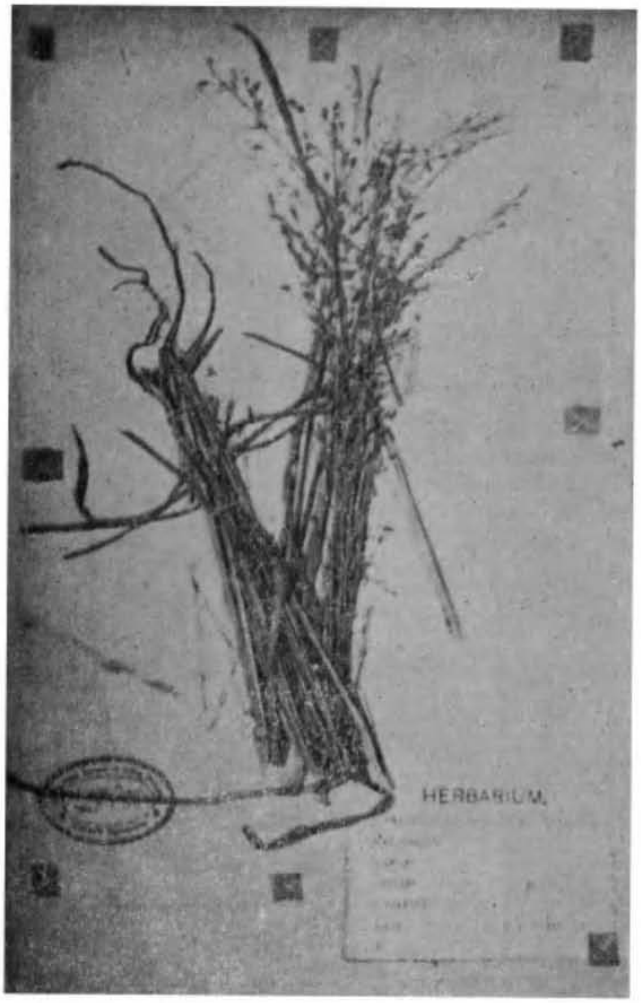
Panicum garadei Raghavan *et* Karthik. *sp. nov.* Differt a *Panicum maximo* Jacq. nodis glabris, folis linearibus, *ca* 25 cm × 6 mm, ligulis brevioribus, gluma inferiori spiculae (fere) dimidiori, 3(-5)-nervis, nervo mediano ad apicem per multum incrassato, lemmaque superiori striolata.

Gramen perenne, *ca* 1.5 m altum, basi lignosus. *Culmi* erecti, gracilis, tenaces, laeves, glabri, supraque nitidi, ad basin pubescentes. *Vaginae* foliorum carinatae, plus minusve compressae, conspicue nervatae, marginibus membranaceis; inferiores laxae; infimae ad basin subtiliter sericeae, supra vero puberulae; superiores culmo arcte adpressae, glabrae; laminae lineares acuminatae 15-25 cm × 3-6 mm, supra pilosae vel glabrae, infra vero glabrae vel interdum ciliatae; pilis basi tuberculatis; marginibus cartilagineis, serrulatis, ligulae 0.5-1 mm longae, membranaceae, breviter ciliatae. *Paniculae* 10-30 × 5-15 cm, laxae, ramuli plus minusve patentes; ramuli *et* pedicelli scaberuli, pedicelli pleurumque binati: apices cupulati. *Spiculae* oblongo-lanceolatae, glabrae, 3-4 mm longae; gluma inferior late ovata, 1.7-2 mm longa, 3 (-5)-nervata, costa prominens, interdum in apiculam brevem producta; margines aliquantum scariosi, intus minute puberuli, extus vero glabri; gluma superior ovato-lanceolata, 3 mm longa, 5-7-nervata, nervi praesertim costa, ad apices incrassati, intus minute puberuli, extus vero glabri. *Lemma inferius* ovato-lanceolatum, 3-3.5 mm longum, 5-nervatum; nervi 3 medioni ad apices incrassati, glabri, palea hyalina, 2.7 mm longa, obscura, 3-nervata, marginibus incurvatis, leviterque carinata. *Lemma superior* 3 mm longum, ovatum, striolatum, obscuram, 3-nervatum, costa ad apicem incrassata, apice minute ciliata *et* incurvata; palea lemmae brevior, aliter similis.

INDIA: Karnataka; Dharwar, *L. D. Garade* s. n. 16.9.1907 (holotypus CAL; isotypi BSI, K); *L. D. Garade ibid.* 17.9.1907 (paratypus BSI).

Panicum garadei Raghavan *et* Karthik. *sp. nov.*

Differs from *P. maximum* Jacq., in having nodes glabrous, leaves linear, *ca* 25 cm × 6 mm, ligules shorter, lower glume ½ the



Panicum garadei Raghavan *et* Karthik.

length of the spikelet or nearly so, 3(-5)-nerved with the midnerve very much thickened towards the apex and upper lemma striolate.

Perennial grass, *ca* 1.5 m tall, base woody. *Culms* erect, slender, tough, smooth, glabrous and shining above, pubescent towards the base. Leaf sheaths keeled, more or less compressed, conspicuously veined, margins membranous, lower ones loose, lowermost sheaths finely silky hairy at the base, puberulous above; upper closely appressed to the culm, glabrous; blades linear; acuminate 15-25 cm × 3-6 mm, upper surface pilose or glabrous, lower glabrous, sometimes hairy, hairs with tubercle bases, margins cartilaginous, serrulate; ligules 0.5-1.0 mm long, membranous, shortly ciliate. *Inflorescence* a panicle, 10-30 × 5-15 cm, loose, branches more or less spreading, branches and pedicels glabrous; pedicels usually paired, 1-6 mm long, tips cupular. *Spikelets* oblong-lanceolate, glabrous, 3-4 mm long; lower glume broadly ovate, 1.7-2 mm long, 3(5)-nerved, midnerve prominent and raised from the middle and sometimes prolonged into a short apicula, margins somewhat scarious, minutely puberulous within, glabrous without; upper glume ovate-lanceolate, 3 mm long, 5-7-nerved, nerves becoming thicker towards the apex, midnerve very much so, minutely puberulous within, glabrous without. *Lower lemma* ovate-lanceolate 3-3.5 mm long, 5-nerved, middle 3-nerves becoming thicker towards the apex, glabrous; palea hyaline, 2.7 mm long, faintly 3-nerved, margins incurved and slightly keeled. *Upper lemma* 3 mm long, ovate, striolate, faintly 3-nerved, the midnerve thick towards the apex, apex minutely hairy, margins rounded and incurved; palea a little shorter than the lemma, otherwise similar.

INDIA: Karnataka; Dharwar, *L. D. Garade* s. n. 16.9.1907 (holotype at CAL; isotypes at BSI, K); *L. D. Garade Ibid.* 17.9.1907 (paratypes BSI).

The specific epithet is named after the collector. Both the species have not been since collected after the type collection. Efforts have been made to re-collect the latter species but in vain.

ACKNOWLEDGEMENTS

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