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Another new species of *Ischaemum* L. (Poaceae) from Kerala, India

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Abstract

A new species of *Ischaemum* L. viz., *I. pushpangadanii* is described and illustrated

INTRODUCTION

The authors, investigating on the endemic plants of Kerala under a project sponsored by the Ministry of Environment and Forests (MoEF), Government of India, during a collection trip to Kakkayam Hills, Kozhikode District in November, 1998, collected specimens of a species of the genus *Ischaemum* L. On consultation with Dr. Thomas A. Cope of the Royal Botanic Gardens, Kew and Dr. P. V. Sreekumar of the Andaman and Nicobar Circle of the Botanical Survey of India (BSI), Port Blair, they were confirmed as of a new species of the genus. Subsequently, more specimens of the new taxon were collected from the above locality in October, 1999. The new species is described and illustrated here.

Ischaemum, a tropical genus of grass of over 75 species, has so far been represented by 51 species in India and 34 species in Kerala (Bor, 1960; Fischer, 1933, 1934; Hooker, 1896; Karthikeyan *et al.*, 1989; Ravi *et al.*, 1998, 2000 (in ed.); Sreekumar & Nair, 1991 and Sur, 1987). The addition of the present taxon increases the representative species of the genus to 52 in India and 35 in Kerala. A very high percentage of endemism is found within the genus in India. Jain (1986) estimated that 73 % of Indian species are endemic to the country. Recent additions (Ravi *et al.*, 1998, 2000; Sreekumar & Nair, 1991) have increased the percentage to 79. Study of the present authors shows that within the country highest concentration of endemism is recorded in Kerala State, where 29 Indian endemic taxa are found out of which 18 species are exclusively endemic to the state.

Ischaemum pushpangadanii Ravi, Mohanan & Kiranraj *sp. nov.* (Fig. 1)

I. dalzellii Bor ex Stapf, affine, sed distinctum habitu robustiore, recemis constanter binatis, rhachidis articulis brevioribus, 3.5-4 mm longis, spiculis brevioribus, 6-7 mm longis, sessilibus cum callo brevioribus c. 1 mm longo, gluma inferiore spicularum sessilium non

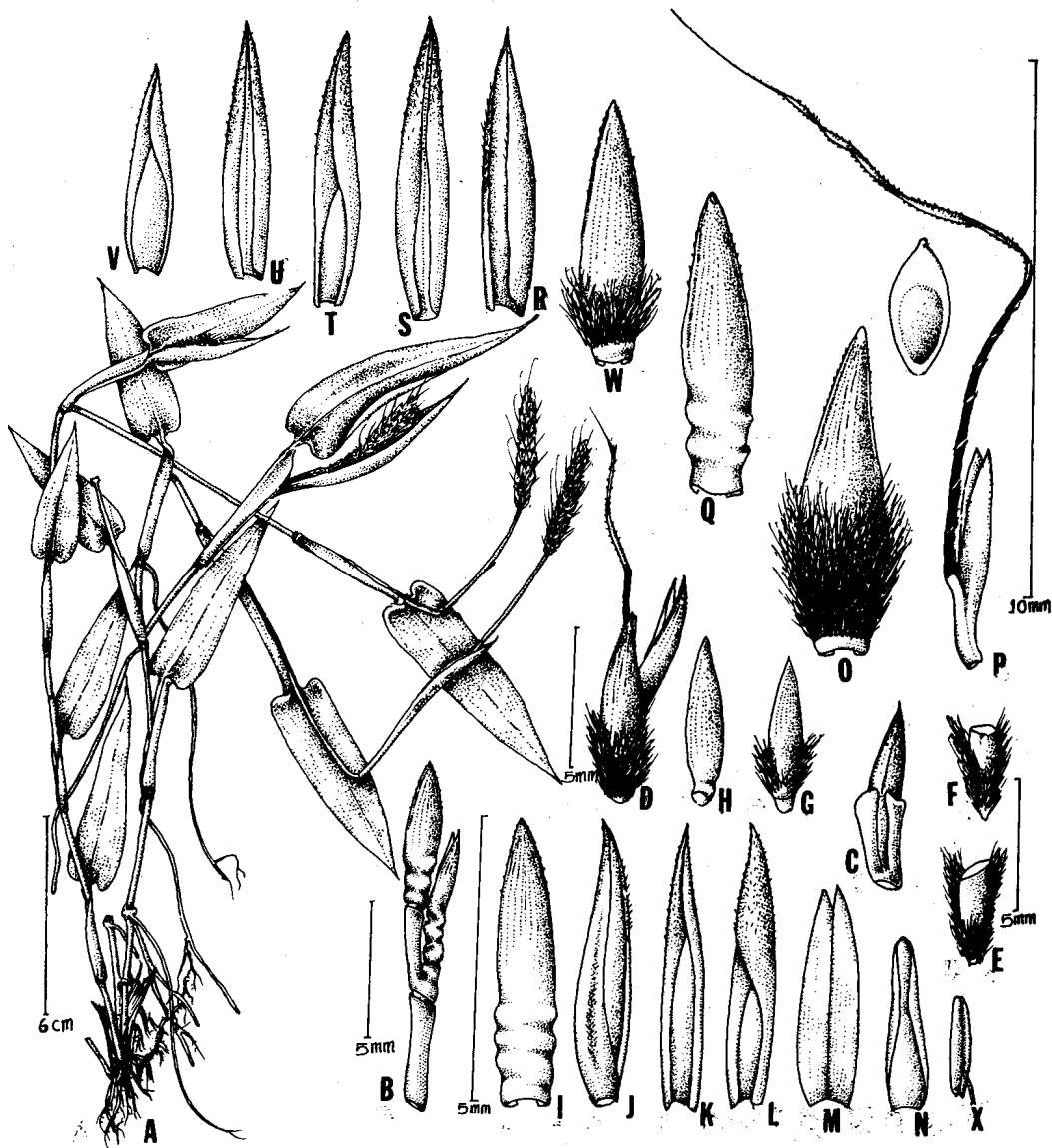
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Fig. 1. *Ischaemum pushpangadanii* Ravi, Mohanan *et* Kiranraj *sp. nov.*

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transverse porcata sed usque ad 2-4 nodulosa, pedicello longiore, 3-3.5 (-5) mm longo, arista brevior, 13-15 mm longa cum columna 6-7 mm longa, spiculis maturis sessilibus pedicellatisque singulariter secedentibus.

Types: India, Kerala, Kozhikode Dt., Koilandy Taluk, Kakkayam Hills \pm 420 m, *Ravi 41460*, 26.10.99 (*Holo* - TBGT; *Iso* - CAL, MH, KFRI, TBGT); *Ibid.*, *Ravi 39622*, 27.11.98 (*Para* - K, TBGT); *Ibid.*, *Ravi 39623*, 27.11.98 (*Para* - TBGT); *Ibid.*, *Ravi 41461 & 41462*, 26.10.99 (*Para* - TBGT).

Ischaemum pushpangadanii is allied to *I. dalzellii* Bor ex Stapf, but distinct in having more robust habit, constantly binate racemes, shorter 3.5-4 mm long joints of rachis, shorter 6-7 mm long sessile spikelets with a shorter c. 1 mm long callus, non-transversely ridged but at the most 2-4-nodulose lower glume of the sessile spikelet, longer 3-3.5(-5) mm long pedicel, shorter 13-15 mm long awn with a 6-7 mm long column and mature sessile and pedicelled spikelets separating singly.

Annual. *Culms* tufted, erect to diffuse, up to 1m x 2mm, stilt-rooted at base and reddish when fresh; nodes villous towards the apex of the culm and glabrous towards the base. *Leaves* all along the culm; sheath up to 5 cm long, keeled on the back, striate and glabrous, some-what spathiform towards the apex of the culm; ligule coriaceous, 2-7 mm long, notched to irregularly lobed at the apex and two keeled on the outside; blade coriaceous, ovate to ovate-lanceolate or linear-lanceolate, cordate-hastate and pseudopetiolate towards the base of the culm and more or less rounded and cordate and sessile upwards and acute and acuminate at the apex, up to 15 cm long including up to 1.5 cm long, pseudopetiole and up to 2 cm wide, scaberulous on the margins and main nerves above and below, glabrous otherwise. *Inflorescence* terminal with 1-3 peduncles from the axil of spathiform sheath; racemes 2, up to 5cm long, glabrous towards base and densely long-villous upwards; joints of rachis crustaceous, clavate-turbinate, 3.5-4 mm long, a few at base of the rachis longer, up to 5 mm long, glabrous towards the base of the raceme to densely long-villous upwards, so densely as to conceal the outline, on the margins and outside towards the base of the joint. *Sessile spikelet* awned or unawned, the lower one/ones unawned and the others awned, linear-

Explanation to Fig. 1. *Ischaemum pushpangadanii* Ravi, Mohanan et Kiranraj *sp. nov.* A. Habit; B. Lowermost spikelet pair; C. A sessile spikelet with a pedicel and a rachis joint; D. A spikelet pair from the middle of a raceme; E. Rachis joint; F. Pedicel; G. A pedicelled spikelet (without pedicel) from the middle of a raceme; H. Same as G but from the upper portion of a raceme; I-N. From sessile unawned spikelet: I. Lower glume; J. Upper glume; K. Lower lemma; L. Lower palea; M. Upper lemma; N. Upper palea; O & P. From sessile awned spikelet: O. Lower glume; P. Upper lemma; Q-V. From pedicelled lower glabrous spikelet: Q. Lower glume; R. Upper glume; S. Lower lemma; T. Lower palea; U. Upper lemma; V. Upper palea; W. From upper pedicelled hairy spikelet-lower glume; X. A stamen; Y. Grain.

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lanceolate, 6-7 mm long including c. 1 mm long callus with the latter glabrous in the unawned to densely long-villous in the awned with the hairs up to 2 mm long. *Lower glume* linear-lanceolate, up to 6 x 1 mm, crustaceous in the lower 2/3, thickly coriaceous above, incurved on the margins, laterally sharply keeled and sparsely scaberulos towards the acute apex, laterally subacutely thickened in the lower portion, glabrous on the outside and laterally 2-4-nodulose in the lower half in the lower portion of the raceme and densely long-villous on the outside and non-nodulose in the lower half upwards of the raceme, often so densely villous as to conceal the outline of the glume with the hairs measuring up to 2.5 mm long. *Upper glume* thickly coriaceous, linear-lanceolate in profile, up to 6 x 1.5 (when folded) mm, keeled on the back, shortly in-rolled on the margins, sparsely scaberulous on the keel towards the acute apex, sparsely short-ciliate on the in-rolled margins from the middle upwards and faintly 2-nerved on each side.: *Lower lemma* hyaline, linear-lanceolate, 4.5-5.5 x 1 (when folded) mm, acute at apex, incurved on the margins, 3-nerved and minutely scaberulous on the outside from above the middle upwards. *Lower palea* hyaline, linear-lanceolate, 4.5-5.5 x 1 (when folded) mm, incurved on the sides, acute at the apex, 2-nerved and minutely scaberulous on the outside from above the middle upwards. *Upper lemma* hyaline, and 3.5-4 x 0.75 (when folded) mm, more or less oblong profile, shortly bifid at the apex with acute to subacute lobes, strongly mid-veined and unawned in the unawned sessile spikelets and linear-oblong-elliptic in profile, deeply cleft to 1/3 below with linear-acute lobes, 3-veined and awned from the sinus in the awned sessile spikelets; awn, when present, 13-15 mm long with a column 6-7 mm long. *Upper palea* hyaline, linear-lanceolate, c. 3.5 mm long, subacute to obtuse at the apex, incurved on the margins and minutely scaberulous on the outside towards the apex. *Pedicelled spikelets* linear-elliptic to lanceolate; pedicel crustaceous, clavate, up to 5 mm long in the lower portion of the raceme and clavate-turbinate and 3-3.5 mm long in upper portion, glabrous in the lower spikelet/spikelets to densely long-villous upwards on the margins and outside towards the base, glabrous and glossy otherwise. *Lower glume* thickly coriaceous, linear-elliptic to -lanceolate, 4.5- 5.5 x 1-1.25 mm, larger ones towards the base and smaller ones towards the apex of the raceme, incurved on the margins, laterally sharply keeled and scaberulous on the margins towards the acute apex and laterally slightly thickened in the lower half, 2-3-nodulose and glabrous in the basal spikelets of a raceme and non-nodulose and glabrous to moderately densely long-villous on the outside towards the base in others. *Upper glume*. *Lower lemma & Lower palea* similar to those of the sessile spikelets but smaller. *Upper lemma* hyaline, elliptic-lanceolate, 3-4.5 mm long, acute at the apex, incurved on the sides, 3-nerved and minutely scaberulose on the outside towards the apex. *Upper palea* similar to that of the sessile, but smaller. *Lodicules* 2, c. 0.75 mm long. *Stamens* 3; anther 1.75-2.5 mm long. *Ovary* c. 0.6 mm long; styles c. 1.5 mm long; stigmas c. 2.5 mm long. *Grains* ellipsoid, sub compressed, 2-2.25 x 0.75-1 mm, apiculate at the apex, cuneate at the base and pale brown to brown.

The specific epithet *pushpangadanii* is in honour of Dr. P. Pushpangadan, the former Director of the Tropical Botanic Garden and Research Institute (TBGRI), Palode and at present Director of National Botanical Research Institute, Lucknow, for his contributions to ethnobotany and conservation of biodiversity in the country particularly in Kerala.

Fl. & Fr.: September to December.

Another new species of *Ischaemum* L.**Acknowledgements**

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