

ARTHRAOXON SATARENSIS ALMEIDA EMEND. DESHPANDE ET HEMADRI

The authors have critically gone through the description, diagnostic characters and diagrams of *Arthraxon satarensis* Almeida *sp. nov.*, published in the *J. Bombay nat. Hist. Soc.* 66(3): 515-517, 1970, and have also studied the type and a large number of specimens (both living and dried) collected by them and others from various localities in Maharashtra State and Mysore State. A comparison of the description and diagrams provided by Almeida (*l. c.*) with the ones prepared by the authors revealed that Almeida's interpretation of the salient features of the grass differs in the following respects:

(1) Almeida compares *A. satarensis* with *A. purandharensis* Bharucha, the latter belongs to the group, where 'the lower glume of sessile spikelet is distinctly keeled along the margins and not laterally compressed'. The spikelet in the new species is laterally compressed, pedicelled spikelet is totally absent or occasionally represented by a pedicel only, and it has only 2 stamens. Thus it should have been compared with *A. quartinianus* (A. Rich.) Nash, *A. hookeri* (Hack.) Henr. and *A. hispidus* (Thunb.) Makino etc. In *A. satarensis* the lower glume is distinctly echinate and thus superficially the grass also resembles *A. echinatus* (Nees) Hochst.

(2) In the description and diagrams he has misinterpreted the lower glume for upper glume and vice versa (Figs. D. & E) and the lower and upper lemmas as paleas (Figs. F. & G). In fact, usually there are no paleas in the genus *Arthraxon*. Also, the geniculate awn which he terms as 'arista' should have been shown arising from a little above the base of upper lemma (i.e. the upper palea of that author). In figure G, the awn is altogether missing.

(3) Moreover, the range of dimensions of leaf, inflorescence, spikes, spikelets etc. is not mentioned precisely.

It is, therefore, necessary to emend the description including diagnosis and diagrams of *Arthraxon satarensis* Almeida (vide article no. 51 of International Code of Botanical Nomenclature, 1966).

***Arthraxon satarensis* Almeida emend. Deshpande et Hemadri (Figs. 1-11)**

Allied to *Arthraxon quartinianus* (A. Rich.) Nash, *A. hookeri* (Hack.) Henr. and *A. hispidus* (Thunb.) Makino in the absence of pedicelled spikelets and presence of only 2 stamens but can be easily distin-

guished from them by the size and shape of spikelets and distinctly tubercled lower glume also superficially resembles *A. echinatus* (Nees) Hochst.



Arthraxon satarensis Almeida emend. Deshpande et Hemadri
Figs. 1-11: 1. Habit. 2. A part of culm with inflorescence.
3. Sessile spikelets with rachis joints. 4-6: Lower glume. 4. Dorsal view. 5. Side view. 6. T. S. showing tubercles. 7. Upper glume—side view. 8. Lower lemma. 9. Upper lemma. 10. Gynoecium and androecium. 11. Grain.

but can be separated from it due to the total absence of pedicelled spikelets, and sessile spikelets being laterally compressed without keels along the margins.

Annual, ascending grass, upto 40 cm tall, rooting at lower nodes; culm glabrous; leaf-blade 2.4 × 0.6-1.3 cm, ovate with cordate base and acuminate apex, many-nerved, margins with long tubercle-based hairs, also a few on the upper and lower surfaces; leaf-sheath upto 2.5 cm long, distinctly nerved, tubercled hairy along nerves in the upper-half, margins ciliate; ligule scarious about 1.5 mm long, lacerated at apex.

Inflorescence in sub-panicled spikes with very small main axis on a peduncle of upto 10 cm long; *spikes* 4-8 in number, 3-4.5 cm long; *spikelets* solitary, sessile; pedicelled spikelets and pedicels absent or very rarely a few rudimentary glabrous or ciliate pedicels present in the upper part of spike only; *spikelets* hermaphrodite, $5.5-6.25 \times 0.8-1.25$ mm; *callus* white hairy; *rhachis-joint* about 3 mm long, linear somewhat thickened at apex, densely long hairy all over; *lower glume* 5.4-6 mm, oblong-lanceolate, laterally compressed, 8-nerved, tubercled along the nerves with bristle tips, margins scarious; *upper glume* 5.4-6 mm, boat-shaped almost laterally compressed, about 1.75 mm broad when spread open, keel thick with bristly upper half and spinulose lower half, margins hyaline; *lower lemma* $2.6-2.75 \times 0.5-0.75$ mm, hyaline; *upper lemma* 2.75-3 mm long, laterally compressed, boat-shaped, hyaline with an awn starting from a little above the base on its back; *awn* 15-17.5 mm long, geniculate, brown in lower part, paler above the geniculation; *stamens* 2, purple 0.5-0.75 mm long; *ovary* minute; *styles* 2; *stigmata* plumose; *grain* linear, terete, reddish-brown, 2-2.5 cm long.

Specimens examined: SATARA DISTRICT: Satara-Keshyatura, 8 (Holotype, BLAT); POONA DISTRICT: Bowdhan near Poona, S. K. Jain

7555 on 10-10-1956 (BSI); Bibi in Khed taluka, K. P. Janardhanan 81625 on 7-10-1962 (BSI); Purandhar, R. V. Kammathy 82674 on 6-10-1963 (BSI); Pimparwadi, ± 18 km West of Junnar, Hemadri 106807 A-H on 5-10-1965 (Hemadri 106807 A&D in CAL; B-C in BSI; E in K; F in L; G in MO & H in LE); Sangam Bridge, Poona, Hemadri 120596 on 10-10-1970. BELGAUM DISTRICT (Mysore State): Belgaum town, S. D. Mahajan 28624 on 2-11-1957.

Dr. S. K. Jain, who examined the type sheet of *Arthraxon hookeri* (Hack.) Henr. at Kew, informs that the above sheet has two grasses mounted on it, one each of *Arthraxon hookeri* and *A. satarensis*.

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(MISS) U. R. DESHPANDE AND KOPPULA HEMADRI
Botanical Survey of India, Poona

A NOTE ON THE HITHERTO UNDESCRIBED FEMALE FLOWERS AND SEEDS OF *EXCOECARIA ROBUSTA* HOOK. F.

J. D. Hooker (1888) described *Excoecaria robusta* without female flowers and seeds and stated, "*Fem. fl. not seen*". T. Cooke (1906-07) also stated, "*Female flowers not seen*" and further mentioned about three sheets from Coorg and one sheet from Concan which are in the Herbarium, Kew but none with female flowers. Surprisingly even F. Pax (1912) remarked "*Flores feminei ignoti*" in his monumental work on the members of the tribe Hippomaneae of Euphorbiaceae. The same lacuna in the description has continued in the critical flora of Gamble (1925), even though he has seen and worked on some of the sheets, represented in the Madras Herbarium (MH) possessing female flowers and fruits with seeds. These sheets have been studied so as to supplement

the description with female flowers and seeds for the better understanding of this species. (Figs. 1-6)

Excoecaria robusta Hook. f. Fl. Brit. India 5: 474. 1888; Cooke, Fl. Pres. Bombay 2: 624-25. 1906-07; Pax in Engler, Pflanzenr. IV. 147. V. 161. 1912; Gamble, Fl. Pres. Madras 1345. 1925; Pax & Hoffm. in Engler & Harms, Pflanzenfam. ed 2, 19 C: 196. 1931. *E. oppositifolia* Muell.-Arg. in DC. Prodr. 15(2): 1219. 1866 (non Lour.).

Spikes axillary, with female flowers only or with a few female flowers at the base of the male spike; female spikes 0.5-3.5 cm long, short, stout. *Female flowers* few, shortly pedicelled. *Bracts* $\pm 3 \times 2$ mm,