

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*.

ACKNOWLEDGEMENTS

Our grateful thanks are due to Dr. R. S. Rao, Dy. Director, Botanical Survey of India, Shillong and to Dr. S. K. Jain, Dy. Director, Botanical Survey of India, Calcutta for the encouragement and suggestions given in preparing this paper.

(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.

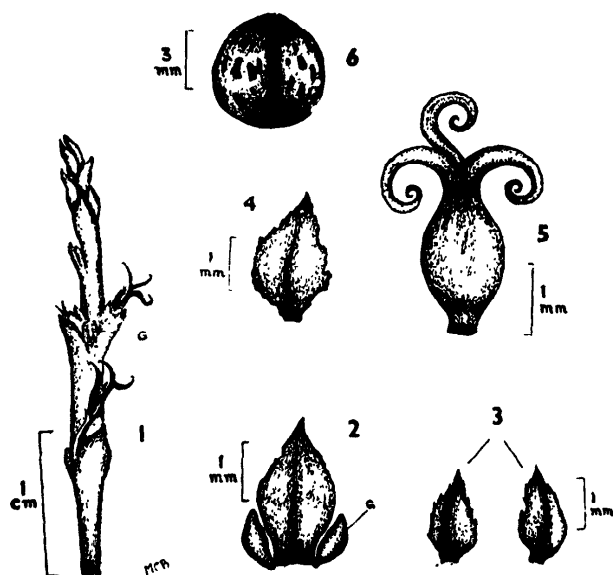
J. D. Hooker (1888) described *Excoecaria robusta* without female flowers and seeds and stated, "*Fem. fl. not seen*". T. Cooke (1906-07) also stated, "*Female flowers not seen*" and further mentioned about three sheets from Coorg and one sheet from Concan which are in the Herbarium, Kew but none with 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,

ovate, entire or serrate acute or acuminate, thickly coriaceous, uniflorous, with two large glands at the



Excoecaria robusta Hook. f.

Figs. 1-6: 1. Female spike. 2. Bract with two glands at its sides; (G-Gland). 3. Bracteoles. 4. Sepal. 5. Gynoecium. 6. Seeds.

sides. *Bracteoles* $\pm 2 \times 1$ mm, two, ovate, acute, irregularly dentate, coriaceous. *Sepals* $\pm 2.5 \times 2$ mm, three, subequal, obliquely ovate, acute, irregularly dentate, chartaceous. *Ovary* 3-celled; styles 3, stout, long, shortly connate at base, spreading, recurved, entire; ovules solitary in each cell. *Seeds* ± 6 mm in diameter, subglobose, mottled, estrophiolate; testa crustaceous.

Specimens examined: TAMIL NADU: Coimbatore Dt., Anamalais, Udumanparai, 30 April 1903, C. A. Barber 5725 (Acc. Nos. 48681, 48689 to 48692) (MH); Anamalais, between Poonachi and Monica, 26 May 1903, C. A. Barber 5972 (Acc. Nos. 48686, 48688) (MH). Madurai Dt., Sirumalai, 23 August 1913, Rangachari 9080 (MH). Nilgiris Dt., Sispara ghat, 1915, Beddome Acc. No. 48678 (MH). Tiruchirappalli Dt., Kollimalai, Selur to Valaram, 28 June 1916, Rangachari 13005 (MH).

M. CHANDRABOSE

Botanical Survey of India, Coimbatore

ABUTILON INDICUM (LINN.) SWEET SSP. *ALBESCENS* (MIQ.) BORSS. VAR. *AUSTRALIENSE* HOCHR.—A NEW RECORD FOR INDIA

This paper records the occurrence of this variety from India for the first time. van Borssum Waalkes (1966) in his recent revision of 'Malesian Malvaceae' indicates the distribution of this variety from Malesia, Australia (Northern Territory, Queensland) and New Caledonia. Further, while confirming the specimen (*Sebastine* 9803) sent to him for examination he states in a communication, "Your specimen is the first one of that segregate which I have seen from India." Thus the common occurrence of this variety on the banks of Krishna river, Nagarjunasagar, Nalconda Dt., Andhra Pradesh turns out to be new record for India. This variety differs from the typical variety of *A. indicum* (Linn.) Sweet as follows:

<i>A. indicum</i> (Linn.) Sweet ssp. <i>indicum</i> var. <i>indicum</i>	<i>A. indicum</i> (Linn.) Sweet ssp. <i>albescens</i> (Miq.) Borss. var. <i>australiense</i> Hochr.
1. Calyx much shorter than the schizocarp; segments 3-4 mm long, ovate.	1. Calyx as long as or even longer than the schizocarp; segments 1-1.5 cm long, narrowly ovate.
2. Mericarps shortly acuminate at apex	2. Mericarps long-acute at apex.

A detailed description with figures are given for the better understanding and easy identification of this variety.

***Abutilon indicum* (Linn.) Sweet ssp. *albescens* (Miq.) Borss. var. *australiense* Hochr.**, Ann. Cons. Jard. Bot. Geneve 6: 20. 1902; Nova Guinea 14: 159. 1924; Van Borssum Waalkes in Blumea 14(1): 175, fig. 19 a-b. 1972. 1966. *A. indicum sensu* Span., Linnaea 15: 171. 1841; ? F.v. M., Descr. Not. Pap. Pl. 4: 55. 1875; Specht, Rec. Am.—Austr. Sc. Exp. Arnhem Land 3: 258. 1958. *A. graveolens* [non (Roxb. ex Hornem.) W. & A. ex Wight] Britten, in Forbes, Nat. Wand., App. 6: 500. 1885.

Undershrubs; stems terete, branched, velutinous by minute stellate hairs, also with scattered simple hairs. *Leaves* 2.24×1.5 -13 cm, alternate, simple, orbicular or ovate, cordate at base, obtusely acuminate, minutely crenate to irregularly dentate, velutinous on both surfaces by minute stellate hairs, also with scattered simple hairs; petioles upto 13 cm long; stipules ± 4 mm long, linear, acute, caducous.