

*NOTES ON INDIAN GRASSES—IX: THE IDENTITY AND DISTRIBUTION
OF CERTAIN TAXA

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ABSTRACT

The paper deals with diagnostic characters and distribution in India of eight grasses, namely *Eragrostis pappiana* Chiov., *Eragrostis tef* (Zucc.) Trotter, *Eriochloa nubica* (Steud.) Hack. et Stapf ex Thell., *Ischaemum bombaiense* Bor, *Oryza glaberrima* Steud., *Setaria paniculifera* (Steud.)ourn. ex Hemsl., *Sorghum miliaceum* (Roxb.) Snowden var. *parvispiculum* Snowden and *Vetiveria lawsonii* (Hook. f.) Blatter et McClann. *Eragrostis pappiana* is being reported from India for the first time.

INTRODUCTION

Recent collections of grasses from different regions of India, and a closer examination of some earlier collections lodged in the herbaria, bring to light fresh information on the distribution of certain taxa, as well as on the natural variation within species. A few such instances have been reported earlier (Jain 1966 a, b, 1968; Jain & Banerjee 1967); some more have come to my notice and are reported here.

Certain grasses are reported in literature as having been introduced into India; details regarding the date of their introduction and purpose of introduction are not always available. Some of these grass species are now found to occur naturally; their occurrence in self-sown populations suggests that either they have become naturalised in India, or their natural distribution actually extended to India. Such grasses cause some difficulty in identification, particularly because the diagnostic keys given in regional floras (or even in larger works, except Bor 1960) do not provide for these taxa. Not seldom, such specimens, suspected as new taxa, have been sent to the author for opinion. The diagnostic characters of some such grasses have been described and/or illustrated here.

***Eragrostis pappiana* Chiov.**

This grass has not, so far, been reported from India. Bor (1960:511) mentions one collection of J. J. Norris from Sind. A specimen of *Eragrostis* recently collected from eastern Rajasthan (D. M. Verma 3466, 27 April 1964, Badagaon, Jhalawar) has turned out to be this species. A note on the sheet says 'Perennial tufted grass, up to 1.5 m high, in dried up nala. Panicles pinkish tinged'.

As the grass was growing in a favourable habitat, several of its spikelets are unusually long (up to 3 cm long). The specimen, however, does not seem to be perennial.

An earlier collection of *E. pappiana* from north India (Mrs. A. S. Bell 3, 21 February 1901, Banda, Uttar Pradesh, local name Muchlighas) has also been located in Calcutta herbarium. A mixture of *E. pappiana* and *E. tremula* Hochst. ex Steud. is mounted on this sheet.

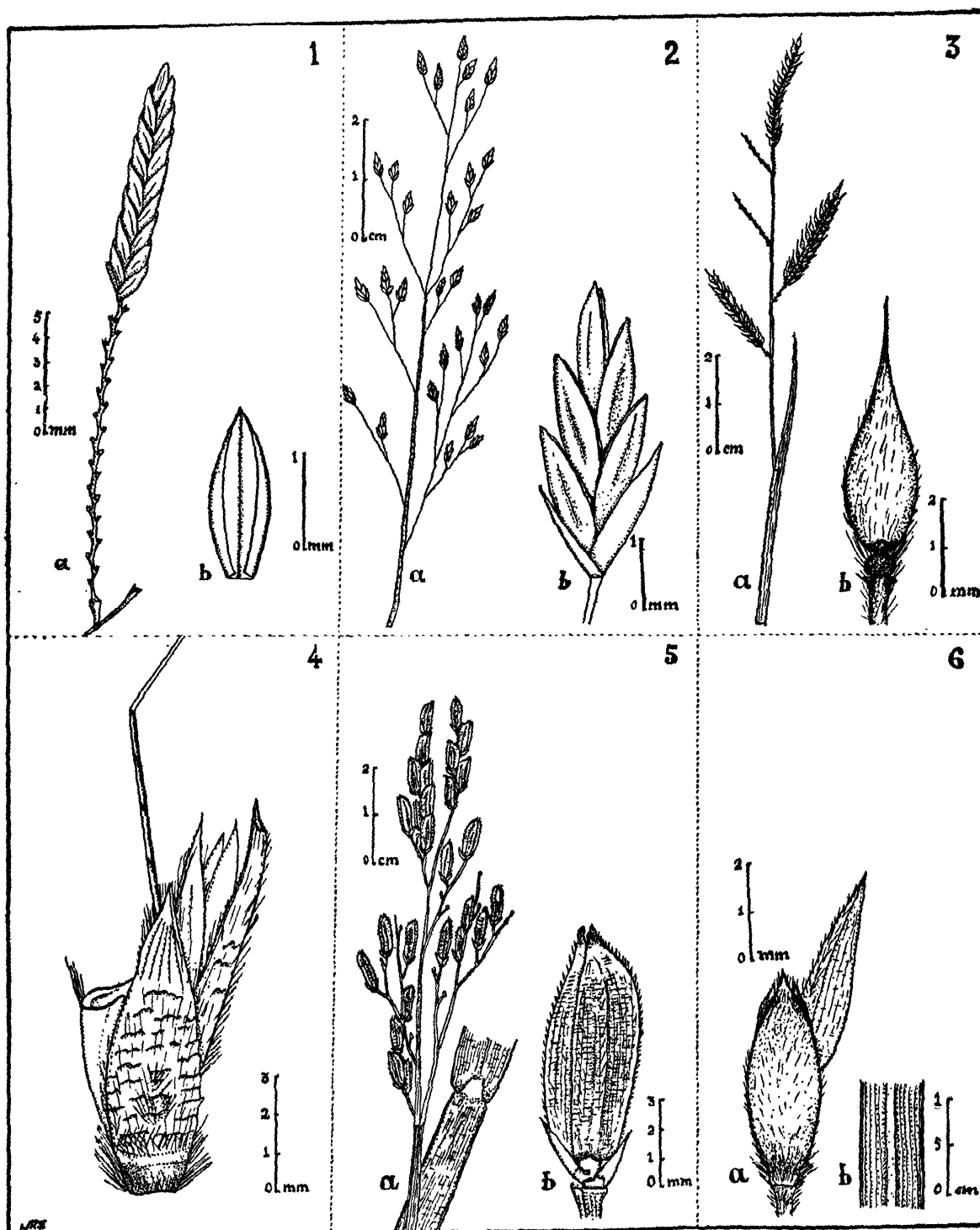
E. pappiana resembles *E. tremula* in general appearance of the inflorescence and spikelets, but differs in having shorter pedicels and narrower, acute lemmas (Fig. 1 a, b). The natural distribution of *E. pappiana*, therefore, extends from eastern Africa to India, at least up to the Upper Gangetic Plains.

***Eragrostis tef* (Zucc.) Trotter**

This grass is a native of north-eastern parts of Africa and has been introduced in several parts of the world. The grass has recently been collected from Rajasthan (D. M. Verma 3465, 27 April 1964, Badagaon, Jhalawar, up to 70 cm high, in dried nala). The indigenous species of the genus *Eragrostis* in India are all characterised by their spikelets breaking up at maturity, that is, at maturity the lemmas (alone or with their paleas) start gradually falling away. In some species, the lemmas fall from below upwards, and in others from tip downwards. In *E. tef*, the small spikelets generally do not break up, and their lemmas do not fall away (Fig. 2 a, b), or they fall very slowly from below upwards. The grass is important economically.

Bor (1960:513) has cited two specimens, one collected by Gamble from Nilgiris, and other by Duthie from northern India. Duthie made collections

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Figs. 1-6 : 1. *Eragrostis pappiana* : a. one spikelet, several lemmas at the base fallen away; b. lemma. 2. *Eragrostis tef* : a. a part of the panicle; b. one spikelet. 3. *Eriochloa rubica* : a. a part of the inflorescence; b. one spikelet. 4. *Ischaemum bombaiense* : one pair of sessile and pedicelled spikelet (the pedicelled spikelet and a joint of the rhachis partly masked). 5. *Oryza glaberrima* : a. a part of an inflorescence, and leaf base showing ligule; b. one spikelet. 6. *Sorghum miliaceum* var. *parvispiculum* : a. one pair of sessile and pedicelled spikelets; b. a part of leaf-blade.

during later part of 19th century; it is not clear what could have been the source and purpose of introduction during that period. Santapau and Shah (1963) reported this grass growing naturally in Malad-Madh area of Salsette Island of Bombay. The grass has again been collected now growing naturally, and it is not unlikely that the natural distribution of this species extends to India.

Eriochloa nubica (Steud.) Hack. et Stapf ex Thell.

This species is based on *Helopus nubicus* Steud. described from Nubia. Certain other species of *Helopus* Trin. and *Eriochloa* Kunth described from Abyssinia, Arabia and Australia are now considered to be synonymous with it. The grass is, therefore, believed to be indigenous to Africa, Arabia and Australia. Bor (1960:312) mentions that this grass is introduced into India. Stapf (1919: 500) mentions about its 'occasional' occurrence in India: he does not say, it is introduced or indigenous.

A scrutiny of the material of the genus *Eriochloa* in the Calcutta (CAL) herbarium has shown that *Eriochloa nubica* does occur wild in India, at least in Rajasthan (P. C. Nanda 403, 4 September 1956, Kota) and Madhya Pradesh. Several specimens of this grass collected by C. Maries (no. 381) from Gwalior (Madhya Pradesh) as early as 1890 have been located. The area of natural distribution of this grass seems to be almost continuous from Africa, through Arabia and India to Australia.

The characters distinguishing *E. nubica* from the common Indian species *E. procera* (Retz.) Hubb. (Bor loc. cit), namely, larger spikelet, distinct awn (about 1 mm long) and usually hairy pedicel and axis in the former are quite marked (Fig. 3 a, b)

Ischaemum bombaiense Bor

This species was described by Bor (1950: 165) from a specimen collected by Blatter from Khandala, and has so far been considered to be endemic to Maharashtra. The grass has been collected recently (D. M. Verma 1832, 20 December 1963, Jhalawar) from eastern Rajasthan. This grass looks like *I. rugosum* Salisb., but has larger spikelets (Fig. 4); the long cilia on joints and pedicels give its inflorescence a more hairy appearance. The grass is being reported from northern India for the first time.

Oryza glaberrima Steud.

This species was described from Guinea in west

tropical Africa, where it is believed to be largely cultivated along with *O. sativa* L. (Chatterjee 1947: 234). This species has been introduced into India and seems to have escaped from cultivation and run wild. It has recently been collected growing naturally in a shallow pond in Madhya Pradesh. This wild rice differs from the common cultivated rice (*O. sativa* L.) in having a much smaller ligule (Fig. 5 a); its spikelets are 8-9 mm long and hispidulous and awnless (Fig. 5 a, b).

Setaria paniculifera (Steud.) Fourn. ex Hemsl.

This is a tropical American grass and is reported to be introduced in Ceylon for fodder and ornament (Senaratna 1956:124). It resembles *S. palmifolia* Stapf. One *Setaria* collected from Bhutan (Thothathri 10388, 13 December 1963, Bhutan, Dhoankhola, Samchi, \pm 400 m) has been identified as *S. paniculifera*. A scrutiny of the material in CAL reveals that my colleague Dr. R. B. Majumdar, who examined some sheets of the Paniceae about two years ago, had also labelled two collections of Dr. D. Prain (August and September 1886) from Kohima in Naga Hills as *S. paniculifera*.

Rominger (1962), in his monograph on the genus *Setaria* of North America, distinguishes *S. paniculifera* from *S. palmifolia* as below:

<i>S. palmifolia</i>	<i>S. paniculifera</i>
Involute tip of lower lemma exceeding upper lemma by as much as 1 mm.	Both lemmas nearly equal.
Branches of panicle seldom exceeding 10 cm in length.	Branches as long as 25 cm.
Leaf-blades up to 6 x 50 cm.	Leaf-blades up to 10 x 60 cm.
Bristles below the spikelets 5 mm long, or less, or inconspicuous.	Bristles 10-15 mm long.
Lower glume half the length of spikelet.	Lower glume $\frac{1}{2}$ the length of spikelet.
Upper glume more or less equal to the spikelet.	Upper glume $\frac{1}{2}$ of spikelet.

Bor (1960: 359) distinguishes these two species by the size of bristle, which, he writes, is less than twice as long as the spikelet in *S. palmifolia*, and much longer (up to 5 times the spikelet) in *S. paniculifera*.

The occurrence of *S. paniculifera* in Bhutan and Naga Hills is rather curious; it might have escaped from cultivation somewhere.

Sorghum miliaceum (Roxb.) Snowden var. **parvipiculum** Snowden

This grass has been described by Snowden from

Dehra Dun, India (Snowden 1955: 209). The list of paratypes mentioned in the original description includes specimens mostly from south India, and it appears that the grass is more common in south India; it also occurs in Punjab. A collection of the grass from Lucknow (R. P. Patil 430, 13 August 1957, 'a tall perennial grass, weed in sugarcane field') has also been seen recently. The grass resembles *S. halepense* (L.) Pers. so closely that there is a great possibility of material of this taxon from other parts of India lying under the name *S. halepense*. The inflorescence of *S. miliaceum* var. *parvispiculum* is comparatively very large and spreading, about 30-60 cm long and half as wide; also leaves are much broader than *S. halepense* (Fig. 6 a, b).

Vetiveria lawsonii (Hook. f.) Blatter et McCann

Hooker (1896: 187) described this species from a specimen collected by Lawson from Mysore. The grass has so far been collected only in Maharashtra and South India. A recent collection of this grass (G. Panigrahi 5725, 11 November 1962, Dasan river bank, Madhya Pradesh 'perennial, rooting firmly on bare rock boulders, rising above water level in river bed') has posed some difficulty in identification. It resembles *V. lawsonii* in most of the characters but differs in having smaller rather unawned pedicelled spikelets and comparatively slender joints and pedicels. I await examination of further collections of this grass, which I suspect might be a distinct variety. However, for the pre-

sent the grass is being left as *V. lawsonii*, and is reported here for the first time from as far north as the northern parts of Madhya Pradesh. The general appearance of the inflorescence is like *V. zizanioides* (L.) Nash, but the joints and pedicels and the callus of sessile spikelet are bearded. The grass may even be mistaken for a *Chrysopogon*, but the spikelets are usually not in triads.

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