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The Indian Species of Mimosa

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ROYAL BOTANIC GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

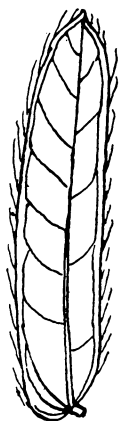
No. 1]

[1920

I.—THE INDIAN SPECIES OF MIMOSA.

J. S. GAMBLE.

In the 'Flora of British India' only three species of *Mimosa* are recognized (vol. ii. p. 291). The FIRST of these is the introduced *M. pudica*, Linn.,* the 'Sensitive Plant,' now so well established in the hotter and damper regions of India that it has become a very troublesome weed, most difficult to eradicate. One noticeable point about it is that while it has been admitted to a place in several Floras, it is only in Dr. Cooke's 'Flora of Bombay' that the curious stiff pectinate bracteoles are mentioned.



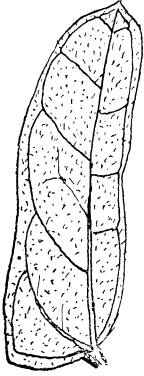
1. *Mimosa pudica*.

The SECOND species is *M. rubicaulis*, Lamk., which is given as found throughout practically the whole of India under a level of 5000 ft., and in which are included *M. octandra*, Roxb., *M. mutabilis*, Roxb., and *M. Rottleri*, Spreng., as well as the undescribed *M. spinosisiliqua*, Rottler. I have been permitted to examine carefully the whole of the collections in the Herbaria of Kew, Edinburgh, Calcutta and Madras, and I have come to the conclusion that they contain at least four different species, as I propose to show.

M. rubicaulis, the 'Acacie à tiges de ronce,' was described by Lamarck (Encyc. Meth. Bot. i. 20) in 1783 from specimens received by him from M. Sonnerat, very likely from Pondicherry or its neighbourhood. I have not seen the specimens, but M. Gagnepain

* The sketches which accompany this give what I consider to be the average form of the leaflets of the 7 species. They have been taken from the middle of the pinna because the uppermost and lowest ones usually differ a little from the middle ones which give the average. They have also been selected so as to show, as nearly as possible, the average shape.

of the 'Museum d'Histoire Naturelle' in Paris tells me that there are two sheets of it in their Herbarium, one of them bearing Lamarck's autograph, and that the leaves and pod agree with those of Indian specimens I sent him for comparison, a comparison which he most kindly made. The description says that the leaves have five pairs of pinnae and 12-15 pairs of leaflets, which are large for the genus. The specimens which belong to true *rubicaulis* are easily separated and among them are those from which Wight prepared the excellent figure published in Hooker's *Icones* t. 156. The plant occurs only in South India and I have seen no specimens from north of the Godavari. It is represented in the Wallich Collection by nos. 5289 C (Herb. Russell) and D. (Herb. Wight) and the specimens in the Edinburgh Herbarium show that it is the



2. *M. rubicaulis*.

Mimosa Intsia described by Roxburgh in *Fl. Ind.* ii. 565. Mr. W. G. Craib, in his paper on the climbing Acacias entitled 'Mimosa caesia and *M. Intsia*' (*Kew Bull.* 1915, p. 407) showed that *Mimosa Intsia*, Linn. Sp. Pl. 522 instead of being a climbing Acacia as commonly supposed, is, partly at any rate, *Mimosa rubicaulis*, Lamk. The confusion described so fully by Mr. Craib seems to exclude the possibility of taking *M. Intsia*, Linn. as the earliest name for the plant.

There is now the question of *M. octandra*, Roxb. *Cor. Pl.* t. 200 and *Fl. Ind.* ii. 564. Both Roxburgh's figure and descriptions seem to me to represent *M. rubicaulis*, Lamk., but Roxburgh's own specimens, named in his own handwriting, in the Kew Herbarium and Wallich Collection do not agree. They have 8-10 pinnae instead of 3-6, 14 pairs of leaflets instead of 8, and the leaflets are quite small. No locality for the specimens is given on the labels so that possibly they may have come from plants grown in the Calcutta Botanic Gardens. I cannot assume that they come from South India.

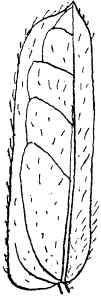
Of *M. mutabilis*, Roxb. *Fl. Ind.* ii. 564 with only four pinnae, there seems to be no specimen preserved. It was collected 'on the banks of the Ganges near Benares,' and this may have been the northern limit of *M. rubicaulis*.

Mimosa Rottleri, Spreng. *Syst.* ii. 206 appears to be merely a new name invented to associate Rottler with the plant which he called *M. spinosisiliqua*, admitted to agree with *M. rubicaulis*, Lam., by Sprengel. The description fits *M. rubicaulis* well enough.

Thus I conclude that the common species of the Southern part of the Madras Presidency is *Mimosa rubicaulis*, Lamk., including *M. octandra* of the 'Coromandel Plants.'

It now remains to identify the North Indian species of which a fine series exists in the Herbaria I have examined. The specimens come from the whole range of the Himalaya, from Afghanistan on the West to the Mishmi hills on the East, and extend to the Assam Valley, the Khasia Hills and Silhet. Southwards, it seems to come down to the Ganges, and further

South, but is apparently scarce. Specimens of my own collected in Hazaribagh and Palamow, and one recently sent by Mr. H. H. Haines from Singbúm show that it extends to the forests of Chota Nagpur. The chief character which distinguishes this plant is that of long leaves with eight to 12 pairs of pinnae each



3. *M. himalayana*.

with 16 to 20 pairs of leaflets, most commonly 19. The pod is also narrow and has usually an acuminate apex, though sometimes even the same specimen shows it more or less rounded. The series of specimens shows a good deal of variation in pubescence, for Afghan and Punjab specimens are sometimes almost woolly while the pubescence seems to decrease as it proceeds eastwards. I propose to call it *Mimosa himalayana* as I cannot find that any collector or writer has done otherwise than identify it with *M. rubicaulis*. In the Wallich Collection at Kew there is a specimen with very narrow pod and small pubescent leaflets, collected by Buchanan-Hamilton at Bogdwar in January, 1809. I have quite failed to find Bogdwar on any map, but think it must have been in Bengal, for he spent most of 1809 in Rangpur and Purneah. The plant seems to me distinct from *M. himalayana* and to agree with one collected by Dr. C. A. Barber on the Godavari in the Madras Presidency. I propose to call it *M. Barberi* and to consider Dr. Barber's specimen as the type.



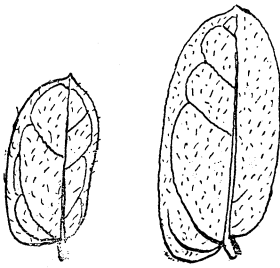
4. *M. Barberi*.

The THIRD species is *M. hamata*, Willd., a very well-marked one, well described by Willdenow to whom specimens had been sent by Klein, and having very small leaflets and a very prickly pod. Rottler called it *M. armata*, unaware, presumably, that it had already been described.



5. *M. hamata*.

Among the specimens which I collected myself in South India in the years 1882 to 1890 were several sheets which puzzled me much, and in 1902 I wrote to Major D. Prain, now Sir David Prain, then in charge of the Calcutta Gardens and Herbarium, about them. He very kindly went into the matter fully, and indicated to me that among the specimens identified as *M. hamata*, Willd., there were a great many which were certainly distinct from that species, which he agreed was the very small-leaved one so well described by Willdenow, and called *M. armata* by Rottler. I now recognize that among them there are two distinct species, (1) that which, in his remarks under *M. hamata*, Mr. Bentham, in *Trans. Linn. Soc.* xxx. 421, identified with the American *M. polyancistra*, and (2) one which I have described as *M. Prainiana*. As regards *M. polyancistra* I fully agree with Mr. Bentham. I have not seen Pavon's specimens of the American plant, but the Lane (not McLane) specimens from a garden in Cuba are at Kew and agree with the Indian ones except that the calyx and corolla are more hairy. My *M. Prainiana* differs



6. *M. polyancistra*.
7. *M. Prainiana*.

from *M. polyancistra*, as also from *M. hamata*, in several respects, and especially by having pods with 6-8 seeds and more and larger leaflets closely approximate instead of being far apart. I append to this paper the description of this new species as well as those of *M. himalayana* and *M. Barberi* already referred to.

If my views are correct, the number of distinct species of *Mimosa* in India will thus be raised from three to seven including the introduced but universally run-wild *M. pudica*.

The following is a brief Key to the species:—

- | | |
|---|--------------------------|
| Pinnae of the leaves 1-2 pairs digitately arranged | 1. <i>pudica</i> . |
| Pinnae of the leaves more than 2 pairs, pinnate:— | |
| Leaves under 1 in. long with 3-5 pinnae; pods grey-puberulous | 2. <i>hamata</i> . |
| Leaves much over 1 in. long:— | |
| Leaflets semi-cordate at base; sutures of pod with strong recurved prickles:— | |
| Pinnae 3-5 pairs about .75 in. apart; leaflets 4-5 pairs, distant; pods usually acute at tip, .6 in. broad | 3. <i>polyancistra</i> . |
| Pinnae 5-7 pairs about .5 in. apart; leaflets 7-8 pairs, touching; pods obtuse at tip, .4-.5 in. broad | 4. <i>Prainiana</i> . |
| Leaflets semi-rectangular at base; sutures of pod with few small or no prickles:— | |
| Pinnae 4-6 pairs, pinnules 10-15 pairs, .4-.7 in. long; pods little curved, broad (.6-.7 in.) | 5. <i>rubicaulis</i> . |
| Pinnae 6-8 pairs, pinnules 12-18 pairs, .3-.4 in. long; pods much curved, narrow (.3-.4 in.) | 6. <i>Barberi</i> . |
| Pinnae 8-12 pairs, pinnules 16-20 pairs, .2-.3 in. long; pods little curved, narrow (.4-.5 in.) | 7. <i>himalayana</i> . |

***Mimosa himalayana*, Gamble** [Leguminosae-Mimosoideae]; *M. rubicauli*, Lamk., affinis, legumine angustiore acuminato, et foliis longioribus circiter 10-12-jugis nec 4-6-jugis differt.

Frutex erectus, ramis striatis puberulis vel interdum fulvo-pubescentibus aculeis validis ornatis. *Folia* bipinnata, 12-20 cm. longa, rhachi puberula aculeata, juniora pubescentia; pinnae 8-12-jugae, 3-4 cm. longae; foliola 16-20-paria, 5-8 mm. longa, 2-3 mm. lata, oblonga, apice obtusa vel paullo acuta, mucronata, basi semi-rectangularia, hirsuta vel aliquando fulvo-pubescentia, costa margini superiori propinqua, nervis ad costae latus inferius 1-3 arcuatim junctis; stipulae subulatae; stipellae minutae. *Flores* rosei, in capitulis axillaribus ramulorum apices versus pedunculatis, circiter 1 cm. diametro cum staminibus; bracteolae

minutae, clavatae, pubescentes. *Calyx* campanulatus, 1 mm. longus, glaber. *Corolla* infundibularis, 2.5 mm. longa, glabra, lobis 4 oblongis tubo aequilongis. *Stamina* 8, longa, exserta. *Ovarium* glabrum. *Legumen* suturis decurrentibus e basi acuto stipitatum, apice longe acuminatum et mucronatum, circiter 8 cm. longum, 1 cm. latum, glabrum, rectum vel paullo curvatum, aculeis perpaucis vel nullis ad suturas ornatum. *Semina* 4-10.

NORTH INDIA. Along the whole of the outer Himalayan Range from Afghanistan to Assam at low elevations and in the forests of the Terai and Bhabar tracts, in the East up to about 1500 m. Southwards to the Ganges and Chota Nagpore.

CENTRAL INDIA. At Gwalior (*Maries*).

Mimosa Barberi, *Gamble* [Leguminosae-Mimosoideae]; *M. himalayanae*, *Gamble*, affinis legumine angustiore et foliorum pinnis paucioribus pinnulis minoribus differt.

Frutex erectus, ramis striatis angulosis puberulis parce aculeatis. *Folia* bipinnata, 10-12 cm. longa, rhachi puberula parce aculeata; pinnae 6-8-jugae, 2-4 cm. longae; foliola 16-20-paria, 4-7 mm. longa, 2-3 mm. lata, oblonga, apice mucronata, basi semi-rectangularia, hirsuta, costa lateri superiori propinqua, nervis ad costae latus inferius 1-3 arcuatim junctis; stipulae lineares; stipellae minutae. *Flores* rosei, in capitulis axillaribus pedunculatis circiter 7 mm. diametro ramulorum apices versus. *Calyx* campanulatus, 1 mm. longus, glaber, dentibus 4 brevibus. *Corolla* infundibularis, 2.5 mm. longa, glabra, lobis 4 brevibus. *Stamina* 8, longe exserta. *Ovarium* puberulum. *Legumen* longe- (5-7 mm.) stipitatum, curvatum, basi acutum, apice acutum et mucronatum, 8-10 cm. longum, 8-10 mm. latum, glabrum, suturis haud sinuatis aculeis perpaucis vel nullis ornatis. *Semina* 8-10.

NORTH INDIA. At Bogdwar, Assam? *Wallich Cat.* 5289 A2 (ex Herb. Ham.).

CENTRAL INDIA. At Tummileru, Godavari Agency, Dec. 1902, *Barber* 5282.

This species was, inadvertently, given in the 'Flora of the Madras Presidency' p. 421 as *M. angustisiliqua*, a name which would seem to be inadmissible.

Mimosa Prainiana, *Gamble* [Leguminosae-Mimosoideae]; *M. hamatae*, Willd., et *M. polyancistræ*, Benth., affinis, ab illa foliis multo longioribus et leguminibus glabris, ab hac pinnis regularibus 5-7-jugis et foliolis majoribus approximatis subtus minute glandulosis differt.

Suffrutex erectus, in ramulis et foliorum rhachi et pedunculis aculeis multis recurvis ornatus, fere glaber et glaucescens. *Folia* bipinnata, 5-9 cm. longa; pinnae 5-7-jugae, 2 cm. longae, 1-2 cm. distantes, rhachi pubescenti; foliola 7-11-juga, oblonga, basi semicordata, 5-7 mm. longa, 2-3 mm. lata, subtus minute glandulosa, glabra, nervis lateralibus inferioribus 3-4 inconspicuis, superioribus obscuris; stipulae lineares; stipellae minutae. *Flores* rosei, in capitulis pedunculatis axillaribus circa 1 cm. latis ramulorum apices versus paniculatis; pedunculi 1.5-2.5 cm. longi, fere semper aculeis recurvis ornati, pubescentes; bractea

minutae, caducae; bracteolae sub calyce clavatae. *Calyx* perbrevis, ciliatus, vix 1 mm. longus, dentibus minutis acutis. *Corolla* infundibularis, 2 mm. longa, ad apices loborum acutorum minute puberula. *Stamina* 8, longe exserta. *Ovarium* minute pubescens vel glabrum. *Legumen* curvatum, glabrum, obtusum vel paullo acutum, ad 10 cm. longum, 10–12 mm. latum, suturis sinuatis aculeis reflexis conspicue ornatis. *Semina* 6–8 albuminosa, cotyledonibus planis orbicularibus 4 mm. latis.

CENTRAL INDIA. Central Provinces, at Nagpore and Chanda, H. H. Haines 3251, 3249.

SOUTH INDIA. Kistna District, at Masulipatam and Bezwada, *Gamble* 12603, 21757; Anantapur District, at Penekacherla, 360 m., *Gamble* 20832; Hyderabad, *Meebold* 1512; Kurnool District, at Atmakur, *Bourne* 4701 (leaflets rather larger and more distant, peduncles longer and less prickly).

WEST INDIA. At Poona, *Jacquemont* 459.

II.—MOMORDICA COCHINCHINENSIS.

During the work connected with the preparation of the Monograph on "The Genus *Strychnos* in India and the East," by Capt. A. W. Hill, K.B., Nos. 4–5, 1917, information was received from Mr. W. J. Tutcher, Director of the Botanical and Forestry Department, Hongkong, that seeds of *Momordica cochinchinensis*, Spreng., received from Szechuen, were sometimes sold in Hongkong as *Strychnos* seeds, and on sending for seeds of *Strychnos Nux-vomica*, L. he had received seeds of the *Momordica*. He added "I am informed by the Imports and Exports Office, Hongkong, that seeds of *Momordica cochinchinensis* are imported as *Strychnos Nux-vomica* seeds under the name of 'Muk Pit Tsze' from Annam and Haipong In a note I have received from Mr. A. N. Pullen, Government Apothecary, Hongkong, he says *Momordica cochinchinensis* seeds are certainly poisonous and appear to contain alkaloids similar, if not identical, with those contained in *Strychnos Nux-vomica*." In order to test the validity of this suggestion, seeds of the *Momordica* were submitted for examination to Professor H. G. Greenish, Director of the Pharmacy Research Laboratory of the Pharmaceutical Society of Great Britain, and under his supervision an investigation was conducted by Mr. E. R. Baines which resulted in the following report:—

EXAMINATION OF THE SEEDS OF *Momordica cochinchinensis* RECEIVED FROM THE ROYAL BOTANIC GARDENS, KEW.

"The average weight of each seed was 3.13 grammes, the seed-coats constituting 36.7 per cent. of the total weight and the kernels 63.3 per cent.

From part of the specimen received the seed-coats were separated and powdered. The moisture and ash were then determined and the powder exhausted with petroleum spirit, ether, chloroform and alcohol successively in a Soxhlet extractor.