

**PHYTOGEOGRAPHICAL STUDIES IN THE GENUS
MORUS L. II. GEOGRAPHICAL DISTRIBUTION AND
NATURAL VARIATION OF MORUS LAEVIGATA WALL.
EX BRANDIS**

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Morus L., is an important genus of the family Moraceae and distributed in temperate and subtropical regions of both the hemispheres. Out of the 68 species recognised from different parts of the World, 35 species are found in Asia, and 14 are from continental America. In India, it is represented by four species namely *M. alba*, *M. indica*, *M. laevigata* and *M. serrata* (Hooker, 1985) *M. alba* and *M. indica* are being exploited for sericulture purpose while *M. laevigata* and *M. serrata* are wild species. Realising the importance of wild species in mulberry improvement programmes, systematic work to collect the wild germplasm from Himalayas was taken up by Central Sericultural Research & Training Institute, Mysore. In the present report, geographical distribution and natural variability of *M. laevigata* are discussed in relation to their botanical and sericultural importance.

M. laevigata is one of the distinct species of the genus which was, recognised by Wallich and validated by Brandis (1906). It has been reported as indigenous to India and widely recognised for its wood and edible fruits. Its leaves are rarely used for silkworm rearing (Kanjilal, 1940).

Three explorations were conducted during 1985-89 when plants were in active growth stage (spring and autumn). The geographical areas covered include north-west Himalayan regions in Jammu and Kashmir and Himachal Pradesh; central Himalayas of Uttar Pradesh and north-east states viz., West Bengal, Assam, Manipur, Meghalaya and Nagaland. During the survey agroclimatological informations such as altitude, rainfall, temperature, soil type,

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topography, floristic compositions etc. were recorded. For all the population of *M. laevigata* came across during the survey, details of habitat, population density, and other morphological features were recorded. Stem cuttings were collected and multiplied in the form of bud grafts. Eight accessions which are found useful for sericulture purpose are included in the germplasm collection of the Institute. Chromosome number and ploidy were determined in these germplasm accessions.

Morus laevigata was found distributed as wild tree species in different forests of North eastern states up to the elevation of 1000-1400 m. It is also being cultivated in some parts for rearing silkworms and also as fruit yielding tree in the backyards. Various places of collection of this species made during the survey are shown in Fig. 1.

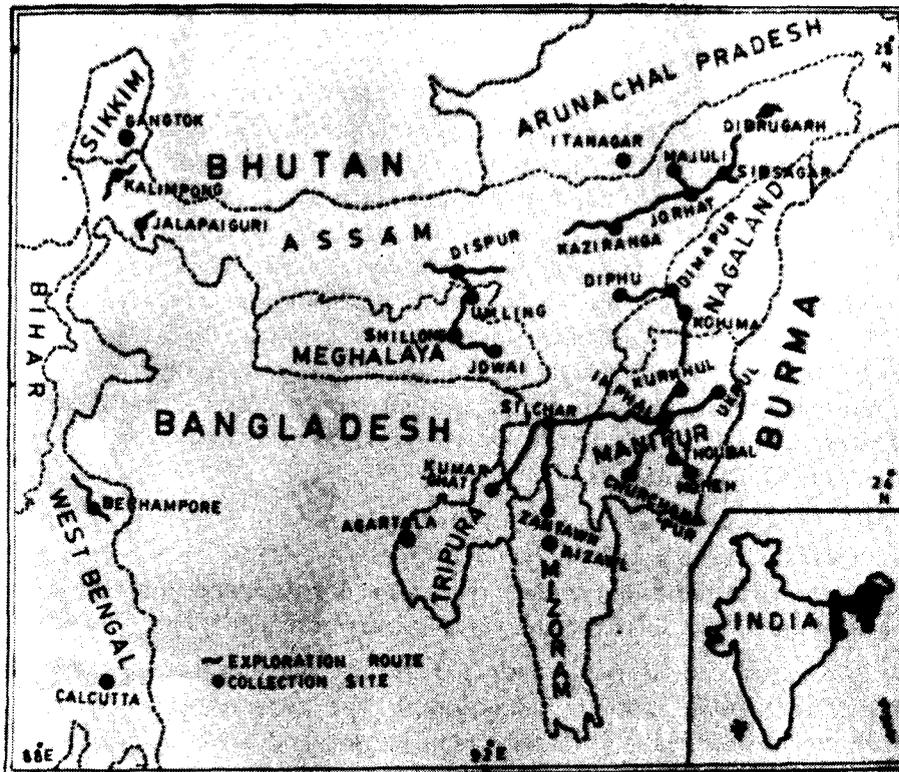


Fig. 1. Distribution of *Morus laevigata* and sites of collection in north-east India

In Assam, this species was found distributed in the forests of Diphu (Karbi Angalang district). Trees were 10-15m ht.; unlobed to heterophyllous

leaves and much larger in size measuring 30 cm breadth and 45 cm length. They also bear large fruits weighting upto 10g. In Nmling forests of Meghalaya, and in the forests of Dimapur and Jalukie of Nagaland, large trees were recorded which have large unlobed leaves and lengthy inflorescence. In West Bengal, isolated trees were noted in the Jalapaiguri, Kalimpong and Lataguri range forests. In these trees, leaves were comparatively smoother than that of other collections. In all these regions the leaves are commonly used for feeding late age silkworms. Trees were also used as timber and firewood source. Morphological variations recorded included large deciduous tree (20-30m), 2-3 m girth; bark brownish-grey with copious milky latex and large lenticels, leaves 15-45 × 10-30 cm coreaceous, ovate-cordate, serrulate; entire or lobed or heterophyllous; stipules 2 cm long, dioecious, catkins pendulant, male catkins 10-12 cm long, slender, drooping, female catkins 10-15 cm long; fruit 6-18 cm long, cylindrical, sweet but insipid. Rooting in stem cuttings was poor (0-10%). Bud grafts on local varieties showed 70-80 per cent survivality. Plants established as bud grafts exhibit luxuriant growth in the germplasm of C.S.R. & T. I., Mysore. Of the 8 collections conserved in the germplasm one is diploid, 5 are triploids and two are tetraploids. Mixoploidy has also been recorded in some collections.

In general *M. laevigata* is a distinct species as recognised by the earlier taxonomists. It is commonly distributed in North eastern regions and not found in central and north western Himalayan forests. In Delhi and other parts of Uttar Pradesh, this species is introduced as avenue/fruit yielding tree.

Preliminary studies made at the Institute revealed that, majority of the accessions showed fast growth, succulent large leaves, size of leaf, late senescence and drought tolerance. Feeding trials also indicated that leaves are acceptable to lateage silkworm. These features of *M. laevigata* are useful in mulberry breeding programmes.

REFERENCES

- Brandis, D. 1906. Indian Trees. London.
Hooker, J.D. 1885. Flora of British India V: 491-493. L. Reeve and Co. Ashford. Kent.
Kanjilal, 1940. Flora of Assam 4 : 272-274.