

## Introduction\*

Research on the Āyurvedic *materia medica*, in particular its drugs of plant origin, is a venture bristling with pitfalls despite the apparent confidence displayed in the lists of botanical identifications of medicinal plants in numerous publications on the subject. This self-assurance is unwarranted in quite a few cases, as this study will demonstrate.

The majority of these lists of botanical equivalents of Sanskrit plant names are not based on own research; instead, they usually reflect a consensus reached somehow among Indian Āyurvedic scholars. The course of events that resulted in this agreement remains uninvestigated. Setting aside the role of leading authorities and trend-setting publications, one of the factors involved may be the significance of a seemingly trustworthy and scientifically-looking pharmacopoeia for the Indian Āyurvedici in their competition with western medicine. In this respect the developments referred to are understandable.

From a strictly scientific point of view caution is required. When trying to take stock of the situation, one's attention is arrested by the prevalence of North-Indian influences and opinions in the secondary literature on the Indian *materia medica*. The concurrence mentioned is a North-Indian product that may be looked upon as an artefact since regional differences in the identifications tend to be disregarded. Though exceptions do occur, most often books by authors hailing from northern India fail to pay attention to the plants employed under the same Sanskrit names in southern India and areas such as, for instance, Gujarāt and Orissa.

Western Indologists and other scholars interested in Indian medicine run the risk of being led on a wrong track by the current state of affairs in this field, being unable to allow for disagreements in interpretation dependent on the region where a particular text derives from. An additional hurdle they have to cope with consists in deficiencies of the standard dictionaries. The botanical names they contain are obsolete and no longer valid in many instances. The sources they derive from are generally unknown. The secondary literature that has become available and new texts edited after the completion of these dictionaries present a large number of additional Sanskrit names of plants, new

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\* I am grateful to René T.J. Cappers and Jan E.M. Houben for their remarks on an earlier draft of this essay.

identifications, and new disagreements. It therefore commonly happens that the feeling arises of being lost in a jungle without a reliable guide with expert knowledge.

An easy way out is simply not to be found. An authoritative work of reference does not exist and will probably not be produced in the near future. The obstacles are many and weighty: critical editions of Sanskrit medical texts are extremely rare; the texts presuppose knowledge of the identities of the items of their materia medica; the commentators are for the most part much later than the texts and no experts in botany and related subjects. Other obstacles have to be kept in mind too: a particular name may designate more than one plant; one and the same plant usually bears a string of names; these names, not always consistent among diverse sources, do not aim at a morphological description, but mostly consist of clusters of properties and actions.

Apart from these practical complications there are more fundamental considerations making the task an arduous one. The grounds of the Indian discipline concerning plants are incompatible with those of modern botany, its taxonomy and classificatory system. The basic assumptions of Indian botany are of a disparate order. Plants which are not ritually important, useful, harmful, or ornamental, and those which have no symbolic value are, being of no interest, ignored.

The task to be discharged is therefore to unearth and reconstruct the realm of concepts of Indian thought, particularly of Indian medicine, concerning the plant kingdom, briefly a duty related to archaeology in the sense Michel Foucault<sup>1</sup> gave to it, the digging up of a lost episteme.<sup>2</sup>

All the complexities of this job will become apparent in the investigation concerning the two trees to which this article is devoted.

Sanskrit texts do not describe botanical species at all since the concept of species is completely alien to their world view. Instead, plants, and certainly medicinal plants, are characterized as having a series of names, and, more importantly, a cluster of properties and actions that form a whole. This reveals an essentialist way of dealing with the world of nature, a course also apparent in nosography with its groups of prodromes and symptoms of diseases that form indissoluble wholes.

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<sup>1</sup> Michel Foucault (1966). See also: Lois McNay ((1996), 52–56.

<sup>2</sup> Compare on the problems concerning the interpretation of Indian classifications of living beings: Francis Zimmermann (1982), chapter VIII: Les animaux dans la filière des nourritures; title of chapter VIII in the English translation: Animals in the sequence of foods. See also the remarks on Zimmermann's concepts by Jan E.M. Houben in a forthcoming article.

This type of thought excludes that each string of synonyms, together with the properties and actions belonging to it, necessarily corresponds to only one species of plant.

The scenery thus depicted will be illustrated and discussed in more detail with reference to the two trees called śigru and madhuśigru, a subject of small importance, sufficiently interesting though as an example of how plants are dealt with in Sanskrit medical treatises and their commentaries. The data contained in a number of texts will be analyzed in succession in order to highlight their correspondences and differences.

The two trees which form the subject of this study belong to the genus *Moringa* of the family Moringaceae,<sup>3</sup> if we accept the consensus on this point in the secondary literature, which identifies śigru as *Moringa oleifera* Lam. and madhuśigru as *Moringa concanensis* Nimmo.<sup>4</sup>

*Moringa* is a small genus of quick-growing trees. Since only two species are indigenous to India, the problem to be tackled is to examine whether or not distinctive Sanskrit names for each of them can be found in the texts and whether or not the notion that *Moringa* species are intended by the names śigru and madhuśigru is supported by the collected data. The obstacles met with in an attempt to unravel these problems will be analysed and assigned their place in a more general perspective.

Any interpretation of the textual evidence requires acquaintance with the outward appearance of the trees and the differences between the two species occurring in India.

*Moringa oleifera* Lam. = *Moringa pterygosperma* Gaertn., called drumstick tree and horseradish<sup>5</sup> tree in English, is found wild in the sub-Himalayan tract and cultivated all over India. It grows in all types of soils. Its bark is

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<sup>3</sup> See on the Moringaceae: N.V. Rao et al. (1983) and B. Verdcourt (1985). See on the name *Moringa*: Samia Al Azhariya Jahn (2005), 114–116. I am grateful to Thomas Zumbroich (Austin, Texas) for drawing my attention to this elaborate study.

<sup>4</sup> The numerous books in support of this view will not be listed. Exceptions are S.D. Kamat (2006), 11: śigru and madhuśigru are both identified as *Moringa oleifera* Lam.; the author adds in a footnote that some have accepted *Moringa concanensis* Nimmo as madhuśigru; Satyavati, Gupta and Tandon (1987, 272): both śigru and madhuśigru are names of *Moringa oleifera*; *M. concanensis* is not dealt with. The Wealth of India (VI, 425–429) records śobhāñjana as the Sanskrit name of *Moringa oleifera* without mentioning one for *Moringa concanensis*. Nadkarni, as well as Dymock, Warden and Hooper (1972, I, 396–399), and G. Watt (1972, V), neither give a Sanskrit name of *Moringa concanensis*.

<sup>5</sup> See on the name horseradish: Samia Al Azhariya Jahn (2006), 99–100; she remarks that the name, according to its etymology, means ‘radish of low priority’. The same author (2005, 104) tells that the name drumstick tree is not found in early British botanical literature, but became the standard name of educated English-speaking Indians in the early 20th century.

thick, soft, and deeply fissured. The leaves are tripinnate,<sup>6</sup> sometimes 45 cm long; the leaflets are elliptic. The flowers are white and fragrant, growing in large puberulous panicles. The greenish fruits, resembling pods, are pendulous, 22.5 to 50.0 cm or more in length, usually triangular and ribbed. The seeds are trigonous with wings on angles.<sup>7</sup> These wings made Gaertner name the species *pterygosperma*. The seeds contain an oil, known in the trade as Ben or Behen oil,<sup>8</sup> which explains the species name *oleifera*.

*Moringa concanensis* Nimmo<sup>9</sup> has a more restricted distribution area; it is found in Rajasthan, the dry hills of Konkan, Andhra Pradesh and Coimbatore. It resembles *Moringa oleifera*, but its bark is more glabrous. The leaves are bipinnate and somewhat longer. The flowers grow in thinly pubescent panicles. Their colour is yellow, veined with red.<sup>10</sup> The fruits are, as those of *Moringa oleifera*, triquetrous and the seeds are winged. The seeds contain, like those of *Moringa oleifera*, an oil.<sup>11</sup>

The information on the size of both trees is controversial, which is unfortunate on account of the importance of this detail for an adequate interpretation of the textual evidence. The Flora of India refers to both species as large trees, Hooker's Flora characterizes *Moringa oleifera* as a small tree and *Moringa concanensis* as very similar. The Wealth of India describes *Moringa oleifera* as a small or medium-sized tree, about 10 m high, and *Moringa concanensis* as a small tree.

A not insignificant detail is that *Moringa oleifera* is very easily propagated not only from seed but by simply planting twigs, or even sections of large branches, in moist soil, when they will usually take root, sprout in a very short time,<sup>12</sup> and grow rapidly.<sup>13</sup>

<sup>6</sup> A pinnate leaf is a compound leaf having a series of leaflets arranged on each side of a common petiole. See: The Wealth of India VI, 426, fig. 164; Kirtikar and Basu, plate 283.

<sup>7</sup> See: Kirtikar and Basu I, 677–678; The Wealth of India VI, 426.

<sup>8</sup> This oil is also extracted from the seeds of *Moringa peregrina* (Forsskal) Fiori = *Moringa aptera* Gaertn. See: The Wealth of India VI, 428; Samia Al Azhariya Jahn (2006), 85–86. See on the phytochemistry of *Moringa oleifera*: S.C. Malhotra (1990), 270–271, Satyavati, Gupta and Tandon (1987), vol. 2, 272–278.

<sup>9</sup> Samia Al Azhariya Jahn reports that this tree and wild-growing *Moringa oleifera* are called *kāṭṭu muruṅkai* in Tamil.

<sup>10</sup> The Flora of India (vol. 5, 516) describes the petals as yellowish white, reddish or pink-streaked.

<sup>11</sup> See: The Wealth of India VI, 429. Samia Al Azhariya Jahn (2005, 94) reports that the fruits are bitter.

<sup>12</sup> A.P. Benthall, Trees of Calcutta, 138. The Wealth of India VI, 426.

<sup>13</sup> See Samia Al Azhariya Jahn (2005), 108.