

# The Search for Green Gold: Study of Medicinal Plants in Bengal Presidency

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**Abstract:** *The present paper attempts to trace such efforts undertaken during the colonial period to constitute a reservoir of knowledge about the Indian medicinal plants until 1868 when Pharmacopoeia of India was written. Beginning with the earliest chroniclers in the field, the paper goes on to list the works authored by several medical officials until 1896 and deals with the shifts occurring within the colonial attitude, simultaneously citing the broader politics involving colonial botany.*

**Keywords:** colonial botany, medicinal plants, Bengal Presidency, material medica

A study conducted by the World Health Organization (WHO) in 1988 shows that the majority of the global population still resort to both traditional and western medicine simultaneously.<sup>1</sup> The gravity of the situation determines the modus operandi. While in face of an acute or critical health situation western medicine is being preferred, in cases of chronic diseases, traditional medicine finds favour. Of course, within the broad rubric of traditional medicine, medicinal plants constitute an important segment<sup>2</sup>. Both in the pre-colonial and colonial periods, there has been a continued interest in medical botany and the medicinal properties of the plants.

Before delving into the paper, it needs to be mentioned that there was no uniform attitude towards Indian medicine across time. Mark Harrison in his article points out that until 1670 there were no such fundamental differences between the practitioners of medicine in Europe and the East except for one. In the case of western medicine, the ancient knowledge of the likes of Galen was brought under scrutiny. However, in this questioning, Indian medicine was never rendered an 'inferior' status as it would be done later. Thus these European practitioners were fraught with a contradiction which, according to Harrison, is best personified in Gracia Da Orta.<sup>3</sup> Additionally, during this period it was commonly believed since the Indian environment was different from that of Europe, India was afflicted with a very different types of diseases. Hence many of the European remedies might not be efficient here. But with the development of anatomical knowledge in Europe the previous fabled remedies and Indian medical science came to be criticized.

The epithet of the earliest chronicler of the knowledge of medicinal plants of India can be attributed to Garcia da Orta. He along with Hendrik Von Tot Drakenstein Reede compiled vast knowledge about the medicinal plants of South Asia. With the opening of trade routes in 1498, the Portuguese were soon followed by the Dutch, English and the French. This initiated a process of transfer that involved not only commodities but also knowledge, men, flora and fauna. Since the focus of the paper is medical botany the rest of the factors will be discussed about it. It should be mentioned at the outset that such a process of plant transfers was not unilateral. The Europeans too introduced several plants that have been gradually incorporated into Indian pharmacopeias. The move to investigate the local materia medica was conducted globally. In the case of India, this attempt of cataloging the plants as well as enlisting their medicinal properties finds its first manifestation in the work of Garcia da Orta.

Garcia da Orta intended to compile descriptions of the plants in the East and particularly that of India from which drugs were extracted. His book '*Colloquies dos simple's e drogas he cons as medicines da Indica*' (colloquies on the simple drugs of India by Garcia da Orta) was written in 1563 in Goa. As has been mentioned previously, Orta personifies the contradiction prevalent among the European practitioners of the time which often leads to a form of eclecticism that

can be used to describe his preference for the Islamic system of medicine, when confronted with a choice between the Galenic system and Islamic system. Such a preference could also have been a result of a wide practice of Islamic medicine along the western coast as well. But this eclecticism can never be equated with uncritical acceptance of the system; rather it involved proper investigation and examination of the prevalent practices. For instance, he was not convinced about the therapeutic value of an Indian variety of purgative aloe until he was able to achieve it through the experiment.<sup>4</sup>

Orta's book, a compilation of field observation and indigenous knowledge, privileged the European preconceptions and learning over indigenous knowledge. It is evident from his work that Orta was much reliant on the Malayali doctors for procuring information. But there remains much doubt to the extent he was able to acquire knowledge from them<sup>5</sup> as this information seldom flowed outside caste barriers.<sup>6</sup>(O.P.Jaggi). The greatest significance of Orta's work lies in the fact that that it was based on the network of plant and drug transfer centered on the Leiden botanical garden<sup>7</sup>. Grove interestingly points out that how the compilation of these works is related to the wider political history of the fall of Portuguese and the rise of the Dutch power in the Malabar region.<sup>8</sup>

Another pioneer in this regard is Hendrik Van Reede to Drakenstein's 'Hortus Malabaricus'. Organized essentially on 'Non-European precepts', his study shows how in studies of colonized societies Brahmanical knowledge might have been privileged but in the case of diffusion of medico botanical knowledge, the non-Brahmanical knowledge found favour. Though there lie certain structural and organizational differences between the two works (Hortus Malabaricus and Colloquies.) both these books are very similar in their approach. The most important similarity and perhaps the most pertinent one in our discussion is the rejection of the Arabic and European nomenclature in favour of the indigenous system<sup>9</sup>. Van Reede soon concluded that the knowledge of Brahmins was restricted only to the texts only. For the greater part of field collection, they relied more on the knowledge of the lower castes. Hortus malabaricus was much more influenced by Ezhava's knowledge. They identified the plants, talked about their virtues and their methods of classification. 780 species of most important plants of Malabar were described in Hortus Malabaricus, supported by 794 illustrations. This Ezhava categorization of the plants was later even included in the works of Roxburgh, Linnaeus. Thus these texts were much instrumental in the successful survival and cooption of this indigenous knowledge.

A lesser-known text in this respect is L'Empereur's '*Jardin de Lorixa*'. Nicolas L'Empereur who joined the Campaign des Indes as a Surgeon-Major undertook the project around the 1690s intending to extend the rather limited traditional European knowledge on herbs. Another important rationale behind this project was that the herbs so thus carried lost its efficacy at the end of the journey. So to translate the Indian books on medicine, L'empereur took this project. Much like Orta and Van Reede he too did not rely on the Brahmanical knowledge. The actual source of his information as he confesses was the fakirs. Though a rough translation of the book suggests it be based on the flora of Orissa the some of the names thus so available in the book were written in Tamil such as *chinamalli* which is small jasmine in Tamil.<sup>10</sup> Many similarities lay between *Hortus Malabaricus* and *Jardin de Lorixa* in terms of illustrations. But there lies a basic difference between the two texts- unlike Van Reede who transcribes the local names in Roman script along with their Malayali and Konkani names, L'empereur only provides such names he gathers in Latin scripts.<sup>11</sup> Despite his hard work and toil, *Jardin de Lorixa* was never acknowledged in contemporary French academia and did not receive its due acknowledgment.

Anna Winterbottom in her article focuses upon the collaboration with the native apothecaries and botanists in Madras, an important settlement on the Coromandel Coast. Her article emphasizes the works undertaken by two medical surgeons Samuel Browne (1668) and Edward Bulkley (1692) within the backdrop of the exchange networks centred around court rulers of Arcot and Golconda, East India Company, Maratha armies, city hospital and bazaar. They collected specimens of dried plants and sent them to England along with the Tamil names. But unlike *Hortus Malabaricus*, the names of the collaborators are not mentioned.<sup>12</sup>

By the eighteenth century, the English East India Company was able to oust other European companies from the subcontinent. With the victory of the English East India Company at the Battle of Plassey (1757), a political stronghold was established. Political stronghold coupled with an interest in tropical science, technology, medicine and religion resulted in the growth of Asiatic Society (1784), botanical garden (1787), Agri-horticultural society (1820), Serampore mission (1799)<sup>13</sup>. The botanical and geographical investigation drew young explorers and botanists to the subcontinent. In the post-1750 period, the new group of explorers who came to India received greater support from their peers in England. Among the several fields of investigation, botany was of utmost importance. The continued interest in Indian flora drew European explorers. Joseph Banks was foremost among them. He showed great enthusiasm for topography he never visited. In 1759, James Anderson joined East India Company and in 1778 obtained a large land near the fort of St. George from the Madras government where he introduced insects, various commercial plants such as coffee, sugar cane, European apples and American cotton<sup>14</sup>. A significant contribution in this respect was left by William Roxburgh whose study, according to Mark Harrison, was a shift towards the more systematic study of Indian materia medica. Harrison attributes this shift to i) the introduction of the Linnean system and ii) economic and military necessity which was a natural outcome of the territorial expansion in India.<sup>15</sup> Roxburgh's greatest achievement lay in bringing to Calcutta botanic garden 2200 species of plants beside 800 species of plants<sup>16</sup>. By the middle of the seventeenth century the East India Company in quest of actively cultivating the medicinal plant set up a botanical garden at Samalkot in Carnatic and Calcutta. William Roxburgh's correspondences, for instance, reveal that there was an extensive interchange of information about medicinal plants not only between Indians and Europeans but among other Europeans as well, despite their severe colonial rivalry<sup>17</sup>.

The advancement in the scientific sphere also led to an awareness about the ancient civilizations of not only Greece and Rome but also of Egypt, China and India. This inquisitive nature is reflected upon the works undertaken by the early Orientalists. This reverence for the ancient heritage and the search for it is best personified in William Jones.<sup>18</sup> A contemporary of Roxburgh, Jones's treatise '*Botanical observations on select Indian plants*' emphasized the uses of Indian medicinal plants<sup>19</sup>. An amateur plant lover, Jones collected Sanskrit names of the plants and sought their medicinal properties. However, it is worthy to mention here that Jones was not in favour of the Linnaean system.

During this time specific remedies were highlighted rather than Indian medicine in totality. Even those interested in Indian medicine could only appreciate certain aspects of Indian medicine. This gulf widened particularly with the development of the knowledge of physiology and anatomy.<sup>20</sup> Poonam Bala too agrees that the initial accommodation of the indigenous medicine under the colonial rule gradually gave way to divergence in later years. Hence we see that in 1813, the Court of Directors of the English East India Company recommended that the government must go through Indian tracts on medicine which might prove valuable to Indian doctors.<sup>21</sup>

*'There are also many tracts of merits, we are told, on the virtues of plants and drugs, and the application of them in medicine, the knowledge of which might prove desirable to the European practitioners.'*<sup>22</sup>

Much like the field of medicine, in the field of botany shifts in colonial attitude were evident as there was a change in the way colonial botany came to be viewed. It reflected a deeper impulse towards the framing of Indian botanical material in a manner that dissociated them from their socio-cultural milieu.<sup>23</sup> The debate in colonial botany apart from being affected by torn and pull between Linnaean and natural system was characteristic of colonial botany. But another constant dilemma that refused to subside was the use of indigenous or Latin names. While William Roxburgh was in favour of accommodating indigenous names, Francis Buchanan was not.<sup>24</sup> Mukharji distinguishes between the overall attitudes prevalent amongst the botanists. According to him, there were two types of attitude prevalent- i) Those who had written of their access to plants in a socio-cultural milieu like Brian Hodgson and ii) Those colonial botanists who had narrated their discoveries in a pre-cultural natural frame.<sup>25</sup>

Until the 1860s, there was a peaceful co-existence of both forms of medicine. However, the period since the 1860s was characterized by increasing professionalization and standardization of drugs which led to eventual tensions between the two. The third and the final stage began in the twentieth century during which period the divergence widened even further, As a result of increasing professionalization and growth of the chemical industry.<sup>26</sup>

The earliest catalogue on Indian medicinal plants and drugs was authored by John Fleming in 1820. He wrote this book for the medical practitioners arriving in India to acquaint them with the articles of material medica in this country and the names by which one can find them. The biggest conundrum in this venture was the identification of the plant itself.<sup>27</sup> *'Indian Medicinal Plants and Drugs'*, John Fleming, clearly outlived the intended readership.<sup>28</sup> The subsequent growth in this form of literature can be attributed to the following factors- i) mobility of medical men and ii) The need to buy drugs locally.

The identification of the medicinal plants itself has been a problem. C.B. Clarke in the reprint of William Roxburgh's *'Flora Indica'* complains about the non-sustainability of vernacular names.<sup>29</sup> Despite the vast literature produced to organize the vast chaotic mass of botanical products, there remained much confusion well into the end of the nineteenth century<sup>30</sup>. Thus *'Pharmacopoeia of the city of Patna'* (1848) by R.H. Irvine or *'List of articles of material medica obtained in the bazaars of western and Northern provinces of India'* (1832) by John Forbes Royle were documented to keep a catalogue of the drugs that can be procured from bazaar by using local names. But the descriptions so provided often did not match the reality.<sup>31</sup>

From the 1820s -30s onwards, as Harrison points out in his article, a more assertive attitude was observed among the colonial officials such as James Mill and Ranald Martin who were in unison when they agreed that ancient Indian texts had very little to offer<sup>32</sup>. This shift to a particular selective remedy is reflected even in Whitelaw Ainslie's *'Materia Medica'* (1826), a collection of remedies he had found through the translation of Indian texts.<sup>33</sup> Another pioneer Sir William Brook O'Shaughnessy compiled the *'Bengal Pharmacopoeia'* dealing a great deal with the medicinal plant available in Bengal. O'Shaughnessy while working with the government even proposed for an inquiry of the Indian material medica for knowing certain remedies. After this, cannabis was included in British pharmacopeia.<sup>34</sup> A medical lab was even set up in Calcutta to process the drugs which were used in various charitable hospitals<sup>35</sup>.

From the 1830s onwards dependence on indigenous sources for procuring indigenous drugs came to be increasingly resented coupled with the aim of expenses of importing the drug. Thus

the Medical Board of all the three presidencies were keen to look for an alternative. In 1837 the '*Quarterly Journal of the Medical and Physical Society*' stated that the official materia medica of Bombay consists of 90 European medicines and 70 locally procured drugs. During this time much trial and experimentation were conducted before making a drug available in the market.<sup>36</sup> It is interesting to note that John Forbes Royle, author of '*Essays on the antiquity of Hindoo Medicine*' (1837), admits to having relied on native assistance for the compilation.<sup>37</sup>

In 1841, certain indigenous remedies were implemented by western medical men.<sup>38</sup> Poonam Bala says that country medicine such as Kala dana, kut kelija were introduced. Even drugs composed of opium were greatly in vogue. Perhaps due to no mortality, these medicines were continued use in the state dispensaries.<sup>39</sup> Such a study of Indian medicinal plants and minerals can be quite aptly termed as an appropriation rather than a thirst for knowledge.<sup>40</sup> These remedies, however, were not accepted without any scientific testing. While compiling medical topographies between 1825 and 1860, folk medicine and folk knowledge on health, medicinal herbs/treatment formed an essential part of the inquiry.<sup>41</sup>

With the widening of the distance between indigenous and western medicine from the 1840s, another development was simultaneously assuming much importance. From this time onwards the government started upholding the drug substitution policy. As has been previously mentioned, cutting down the import expenses was one of the agendas of the colonial government. Citing this rationale it now went on to implement it through the drug substitution policy.<sup>42</sup> From the 1850s, with the standardization of western pharmacopeia, Indian remedies were being critically looked upon<sup>43</sup>. Many of the local remedies were excluded from Western materia medica. However, to reduce the cost of drug importing, the government encouraged the use of local remedies. Thus in 1868, the '*Pharmacopoeia of India*' was written by E.J. Waring.

### Conclusion

Grove lauds Van Reede for filling up the gap of the reliable information on South /South East Asia at a stroke. But it has to be noted that the premise for it was built by Da Orta. The legacy continues as we have seen when L'Empereur wrote *Jardin le Lorixa*. These works apart from preserving the traditional medico botanical knowledge also reflect upon the various actors that played crucial roles in the formation of these texts. Contemporary political scenario coupled with economic interests solely does not define this complex web that is colonial science. Even during the colonial period, a large number of texts were dedicated to catalogue the medico botanical knowledge. The common thread that binds these writings is the involvement of native intermediaries and the exploitation of their knowledge. This continued to be a problematic area to which the colonial rulers could never provide an adequate answer. While completely negating this knowledge was never an option, uncritical acceptance too was equally unthinkable. Though during this time, efforts from Indians were seen they too were caught up in the debates that plagued the colonial botanists.

### References

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- <sup>3</sup> Mark Harrison, 'Medicine and Orientalism: Perspectives on European Encounter with Indian medical system', in Biswamoy Pati and Mark Harrison ed. '*Health, Medicine and Empire: Perspectives on colonial India*', Orient Longman, New Delhi, 2001, pp 37-81

- <sup>4</sup> Garcia Da Orta, 'Colloquies dos simples e drogas he consas medicinas da Indica', 1563, Goa
- <sup>5</sup> Richard H.Grove, 'Green Imperialism: Colonial expansion, tropical island Eden and origin of Environmentalism, 1600-1860', Oxford University Press, Delhi, 1995, pp 73-94
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- <sup>9</sup> ibid
- <sup>10</sup> Kapil Raj, 'Surgeons, fakirs, merchants and craft people: making L'Empereur's Jardin in early modern South Asia', in Londa Schiebinger and Claudia Swan ed. 'Colonial Botany: Science, Commerce, politics in early modern World', University of Pennsylvania press, Philadelphia, 2007, pp270-288
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- <sup>12</sup> Anna Winterbottom, 'Medicine and Botany in the making of Madras' in Vinita Damodaran, Anna Winterbottom, Alan Lester ed. 'East India Company and the natural world', Palgrave Macmillan, London, 2015, pp35-57
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- <sup>14</sup> Deepak Kumar, 'Botanical exploration and the East India Company' in Vinita Damodaran, Anna Winterbottom, Alan Lester ed. 'East India Company and the natural world', Palgrave Macmillan, London, 2015, pp16-34
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Through his regular contact with the Danish Moravian mission in Tranquebar and the French he was aware about about the medicinal remedies employed by them. His work was published in 'Asiatik Researches', sample of which were sent to Europe for examination.
- <sup>18</sup> ibid
- <sup>19</sup> Ibid(Asiatic Researches, no.4 1793-94,231-303)
- <sup>20</sup> ibid
- <sup>21</sup> Chittabata Palit, 'Ayurveda in Colonial Bengal: Survival and Revival' in Chittabrata Palit ed. 'Scientific Bengal: Science, Technology, Medicine and Environment under the Raj' Kalpaz Publication, Calcutta, 2006, p.15
- <sup>22</sup> Poonam Bala, 'Imperialism and medicine in Bengal', Sage Publications, Calcutta, 1991, pp 41-64
- <sup>23</sup> Projit Bihari Mukharji, 'Pharmacology, Indigenous knowledge, Nationalism: A few words from the epitaph of subaltern science' in Biswamoy Pati and Mark Harrison ed. 'Social History of Health and Medicine in colonial India', Routledge, New York, 2009, pp195-212
- <sup>24</sup> Ibid
- <sup>25</sup> Ibid
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<sup>36</sup> Mark Harrison, 'Medicine and Orientalism: Perspectives on European Encounter with Indian medical system', in Biswamoy Pati and Mark Harrison ed. '*Health, Medicine and Empire: Perspectives on colonial India*', Orient Longman, New Delhi, 2001, pp 37-81

<sup>37</sup> ibid

<sup>38</sup> Poonam Bala, '*Imperialism and medicine in Bengal*', Sage Publications, Calcutta, 1991, pp 41-64

<sup>39</sup> ibid

<sup>40</sup> Irschik in Mark Harrison, 'Medicine and Orientalism: Perspectives on European Encounter with Indian medical system', in Biswamoy Pati and Mark Harrison ed. '*Health, Medicine and Empire: Perspectives on colonial India*', Orient Longman, New Delhi, 2001, pp 37-81

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<sup>42</sup> Anil Kumar, 'Indian Drug industry under the Raj, 1860-1920', Biswamoy Pati and Mark Harrison ed. '*Health, Medicine and Empire: Perspectives on colonial India*', Orient Longman, New Delhi, 2001, pp 356-382

<sup>43</sup> Poonam Bala, '*Imperialism and medicine in Bengal*', Sage Publications, Calcutta, 1991, pp 41-64