

CONTRIBUTION OF INDIAN INDIGENOUS MEDICINAL SYSTEMS TO MODERN MEDICAL SCIENCES: A STUDY OF 16TH CENTURY PORTUGUESE ACCOUNT

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Abstract

In sixteenth century, the 'romantic' movement in Europe, in the background of Renaissance, had generated a lot of interest and inquisitiveness about the past and the orient, particularly India, with emphasis on trade routes leading to India as well as study of its culture, trade, economy, polity, history, language, literature, religions, philosophy, medicinal systems, antiquities, art and architecture. The maritime discoveries and the arrival of European traders and travelers in India started introducing profound changes in the social, political, and economic traditions and institutions of India which ultimately led to the establishment of colonial rule in India over the next couple of centuries. These processes initiated a new phase of globalization, colonization, and multi-culturalism. In the present research paper, a review of the contribution of Garcia d'Orta, a Portuguese physician, herbalist and naturalist in the study and introduction of Indian indigenous medicinal systems to the western world has been presented.

Keywords: Colonization, Garcia d'Orta, Indigenous Medicinal Systems, Multi-culturalism, Botany

Arrival of Europeans in India

The challenges of trade routes via highly disputed Mediterranean and dangerous Arabian Peninsula and the pursuit for riches, encouraged Europeans to undertake expeditions to India via sea. Portuguese King John II initiated the plan for reaching India via the Cape of Good Hope to save trading cost as well as monopolize the spice trade. He was called the Perfect Prince (Portuguese: o Príncipe Perfeito) and ruled Portugal from 1481 until his death in 1495, and also for a brief time in 1477. He is known for re-establishing the power of the Portuguese monarchy, reinvigorating the Portuguese economy, and renewing his country's exploration of Africa and Asia, reviving the work of Henry the Navigator, his great-uncle. Henry the Navigator was a central figure in the 15th century European maritime discoveries and maritime expansion and is regarded as the main initiator of what would be known as the Age of Discovery.

In 1498, Vasco da Gama (1460s– 24 December 1524), sailed to India by circumnavigating Africa via the Cape of Good Hope and arrived in Calicut (Kozhikode in Kerala) on the west coast of India. He was the first European explorer, since Roman times, to sail to India and re-establish direct trade links with India. His expedition established a direct sea link between Europe and Asia, connecting

the Atlantic and the Indian oceans. This development is often referred as a landmark event in human history since it initiated a new phase of globalization, colonization, and multi-culturalism. The search for sea routes to India also led to accidental discovery of Americas by Christopher Columbus in 1492, which eventually led to its colonisation by the Europeans.

The Portuguese were the first to establish maritime contacts with India. Gradually, with their galleons loaded with potent cannons, they successfully confronted the Arab dominance in the Indian Ocean. Eventually, in 1510, the Portuguese took control of Goa, and made it a center of their commercial and political power in India. Over the next couple of centuries, the British successfully challenged the Portuguese and other European powers who had arrived in India and had established their political power. Nevertheless, Portuguese continued to control Goa for nearly four and a half centuries. After a long struggle, Goa was finally liberated from Portuguese colonial rule on 19th December, 1961, that is, more than 14 years after India's independence on 15th August, 1947.

Garcia d'Orta's Study of Indian Indigenous Medicinal Systems

In the early sixteenth century, there was a growing interest in Asian plants and herbs in Europe as

academics in Italy, France, Portugal, Spain, Netherlands, and Germany were revitalizing the botanical sciences. The Portuguese physician, herbalist and naturalist Garcia de Orta arrived in Goa in 1534 as a personal physician to M. A. de Sousa, who had been appointed “captain general by sea” of the Portuguese in India and who later became the viceroy of Portuguese India. Goa had become a strategic commercial hub, where due to trade linkages peoples representing different cultures interacted and lived side-by-side. Over next 30 years, Garcia de Orta extensively studied herbs, spices and the indigenous medicinal systems of India. He never returned to Portugal and died in India in 1568. But before his death, he compiled his research works in a volume titled “Coloquios dos Simples e Drogas da India” (Conversations on the Simples, Drugs and Medicinal Substances of India), which was published in 1563 in Goa by the German or Dutch printer Johannes van Enden. He initiated the investigation of Indian diseases and medical conditions, such as chronic dysentery, cobra bite, and datura poisoning. These were new to European medicinal system. His description of Asian cholera and its symptoms became a standard reference.



"Portuguese Medicine" (1906), by José Maria Veloso Salgado (1864–1945)

(In this painting, Garcia de Orta is standing in the center with a book in his left hand)

Garcia d'Orta traveled extensively in India, particularly along the western coast of India and Sri Lanka, attending M. A. de Sousa on his campaigns. During his travels, he met and provided medical treatment to some of the leading rulers of Indian princely states, such as Burhan Nizam Shah, the sultan of Ahmadnagar, who became Garcia d'Orta's close friend.

In 1538, Garcia d'Orta settled permanently in Goa. In 1554-1555, the King of Portugal, through the Viceroy Dom Pedro Mascarenhas, granted a lifelong lease to Garcia da Orta for the Ilha da Boa Vida ("the Island of the Good Life") which became a part of Bombay. As per the lease condition, he was required to develop the area. He had a manor house with a large garden. Garcia describes the people around Bassein and their traditions in his book. He spoke several languages which helped him interact and work closely with local community, such as Hindus, Muslims and Parsis, and learn about their indigenous medicinal systems, diet and local herbs and spices.

Owing to his services with the Portuguese East India Company, Garcia de Orta had the advantage of exploring and study the Indian plants, animals, and minerals, some of which had been exported to Europe for centuries, while many others that were unknown to the western world. He strived to revise and amend the misunderstandings about the Indian natural history and materia medica in Europe, and provide detailed explanation about the Indian indigenous medicinal systems and the herbs and spices used in these systems (Friedenwald, 1941; Kapil & Bhatnagar, 1976; Grove, 1996; Mathew, 1997; Pimentel & Soler, 2014; Cabral, 2015; Paiva, 2018).

Military expeditions of Garcia de Orta as a personal physician to M. A. de Sousa in India as well as his associations with the Indian elites and practitioners of Indian indigenous medicinal systems helped him gain a fundamental understanding of India as well as its fauna, flora and materia medica. His book *Coloquios dos Simples e Drogas da India* is in the form of dialogues between Garcia de Orta and an imaginary physician Ruano (his alter ego) who had recently arrived from the Iberian Peninsula to Goa and was anxious to know about the materia medica of India. It has 57 chapters elucidating the physical and medicinal properties of about 6 dozen plants, drugs, and minerals from Asia, particularly India. These are arranged in alphabetical order and cover plants, drugs, and minerals, such as aloes, amber, benzoin, calamus, camphor, cardamom, cassis, cinnamon, galangal, ginger, opium, pepper, rhubarb, sandalwood, senna, simlax china, stramonium, and tamarind. Most of the discussions in the book were about the origin and properties of the herbs and spices, however, ivory, amber, and pearls

were also discussed. For each variety, Garcia d'Orta mentioned its local as well as Greek and Arabic names. He referred to areas where it is grown and the method of its cultivation. He also elucidated the sizes and forms of various types of plants, their leaves, flowers, and fruit. He explained the various parts of a plant that should be used, the method of their preparation, and the medical cases in which they should be used. His book was the first western treatise on Indian indigenous medicinal systems, which played a key role in the establishment of the fundamental principles of modern phytotherapy and pharmacology. His works established a medical science that was based on plant preparations and derivatives studied and manipulated through botany and chemistry – the key antecedents of pharmacology.

Garcia de Orta set up a scientifically organized herbarium. He observed, analysed, experimented, contemplated, and then made conclusions. He compared his observations and learning in Asia with what he studied in Europe, with Dioscorides' Pharmacopeia and with Latin translations of Arabic and Medieval works. Based on his findings, he acknowledged that the medieval Arabic scholars on materia medica had a better understating of India than the Greeks, and challenged the authority of classical texts.

Socio-Intellectual Background of Garcia de Orta

In addition to South Asian fauna, flora and materia medica, Garcia de Orta also studied the role of social practices, such as chewing betel (locally called supari) and the use of cannabis (locally called bhaang). Though he patriotically referred to Portuguese accomplishments, one notices that he was quite appreciative of local cultures as well as the indigenous medicinal systems of India. He was one of the first few western academics who believed that European medicinal systems would benefit from closer contact with Asia. Some scholars have argued that "this cultural relativism and skepticism toward Western tradition may be attributed in part to his origins." Garcia de Orta's parents, Fernão and Leonor d'Orta, were Jews from Spain. When the Jews were expelled from Spain in 1492, his parents took asylum in Castelo de Vide, Alentejo province of Portugal. Later, in 1497, his parents were again forced to make

a choice between converting to Christianity or take asylum somewhere else. They eventually converted to Christianity. His family religious background finally caught up with Garcia de Orta. Inquisition investigations by the Holy Office scrutinized his family background and socio-religious beliefs. It seems that it was only due to his influential position that he was able to protect himself and his family. However, after his death in 1568, his sister Catarina da Orta was arrested on 28th October, the same year. During her interrogations, she testified against her brother for following Judaism.

On 25th October, 1569, Catarina da Orta was convicted of following Judaism and was burnt at the stake as "an impenitent Jewess" in Goa. The Inquisitor who convicted Catarina da Orta left office in 1572. The new Inquisitor filed a lawsuit against Garcia de Orta, and in 1580, Garcia de Orta's remains were exhumed from his grave, brought before the Inquisitional tribunal, and he was convicted for following Judaism. His bones were thrown into fire and burnt during an "act of faith", auto-da-fé, at Goa, as a posthumous punishment for being a crypto-Jew during his life. This "deed of faith" which was performed on December 4, 1580, that is, about **twelve years after** Garcia de Orta's death (Ficalho, 1886 ; D'Esaguy, 1937 ; Friedenwald, 1941 ; Dias, 1964 ; Kapil & Bhatnagar, 1976 ; D'Cruz, 1991 ; Mathew, 1997 ; Pearson, 2001 ; Cohen, 2010 ; Liberato, 2011 ; Pimentel & Soler, 2014).

It seems that Garcia de Orta's book was suppressed, and the original edition of the book was lost until a copy of the book was discovered and acquired by a French botanist Charles de l'Écluse (1526-1609), during his visit to Lisbon, capital of Portugal, in 1564. Charles de l'Écluse was also famous by his Latin name, Carolus Clusius. He translated Garcia de Orta's work in Latin and published it in 1567. A summarised and annotated version was published three years later, which was widely distributed throughout Europe. Italian and French translations were also published. A large portion of Garcia de Orta's data later reappeared in a Spanish work. Though the engaging dialogue and insightful annotations were lost in translations, Garcia de Orta's contributions to botanical and medicinal sciences survived and immersed into the mainstream of modern natural history.

Concluding remarks

In sixteenth century, the Renaissance and maritime discoveries generated interest in the orient, particularly India. The arrival of European traders and travelers in India initiated a new phase of globalization, colonization, and multi-culturalism. One has to look at Garcia de Orta's visit to Goa in this background. Working in India for more than thirty years, Garcia d'Orta created his legacy - his book, which described tropical diseases as well as medicinal plants and drugs that were not known to Europe. He introduced the Indian indigenous medicinal systems to Europe. Through his works, he demonstrated how inadequate were the classical Greek and medieval Arabic sources on Indian botany and pharmacology and believed that western medicinal systems could benefit from Indian indigenous medicinal systems. Eventually, further investigations in the Indian indigenous medicinal systems and the rich fauna, flora and materia medica of India played a key role in development of modern botanical and medicinal sciences in the western world. This research is a humble attempt to investigate the contribution of India and its ancient knowledge in the development of modern science. It is hoped that the present research paper will encourage further research and interest aimed at investigating the contribution of India and its ancient knowledge traditions to the modern world.

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5. They were typically square-rigged and had three or more decks and masts.
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 - a. Miranda, widow of Dom Rodrigo de Monsanto. It was in this house that the treaty by
 - b. which Bombay was transferred to the English was signed by Humphrey Cooke on
 - c. February 18, 1665.
10. Bassein (Vasai) is a historical place and a town near Mumbai (Bombay)'s western suburbs, located in Palghar district which was partitioned from the Thane district in 2014. The Portuguese in Goa and Daman built the Bassein Fort to defend their colony and
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28. 17. It was a common convention during this period to write books in the form of a dialogue.
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31. 19. It must be noted that it was common to forcefully obtain testimonies through torture.
32. When Catarina da Orta was taken to be burnt at the stake, she confessed that “the reason
33. of her false denunciations was because it appeared to her that she might receive mercy
- a. and would save her life, and the devil would refrain from tempting her”. (Source:
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61. 33. Clusius’ *Aliquot notae in Garciae Aromatum Historiam* was published in 1582. This 43
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