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## Indian Knowledge Tradition and its Contribution to Development of Medicinal Sciences

**Dr. Rewant Vikram Singh**

Director, Swami Vivekananda Cultural Centre, Colombo, Sri Lanka

### **Abstract:**

In 15<sup>th</sup> century, the Renaissance generated immense curiosity in Europe about India's knowledge tradition. The development of maritime sciences encouraged overseas expeditions. Eventually, in 1498, a new sea route via the Cape of Good Hope to India was discovered. The arrival of Europeans ultimately led to the establishment of European colonial rule in India, and drain of its wealth to Europe. The colonization process also initiated a new phase of globalization and multi-culturalism. In this research paper, the relationship between colonization of India and development of modern medical science in the west is reviewed by investigating the role of Garcia d'Orta, a Portuguese physician, herbalist and naturalist, who introduced the Indian indigenous medicinal systems to Europe.<sup>1</sup>

**Keywords:** *Colonization, Coloquios, Indian Knowledge Tradition, IKT, Medicinal Systems.*

### **Arrival of Europeans in India**

The riches and mystical charm of India encouraged Europeans to undertake maritime expeditions to India. Portuguese King John II initiated the plan for reaching India via the Cape of Good Hope<sup>2</sup> to save trading cost as well as monopolize the spice trade. He ruled from 1481 to 1495, and also for a brief time in 1477. He is known for re-establishing the power of the Portuguese monarchy, strengthening 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 15<sup>th</sup> century European maritime discoveries and maritime expansion and is regarded as the main initiator of what would be known as the Age of Discovery (Elbi: 1991.73-89).

In 1498, Vasco da Gama, sailed to India by circumnavigating Africa via the Cape of Good Hope. He arrived in Calicut (Kozhikode in Kerala) on

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1 Disclaimer: The views and opinions represented in this research paper are personal and belong to the author. They are not intended to malign any religion, ethnic group, club, organization, company, individual or anyone or anything.

2 A rocky headland on the Atlantic coast of the Cape Peninsula in South Africa.

the west coast of India. His expedition established a direct sea link between Europe and Asia. This development initiated a new phase of globalization, colonization, and multi-culturalism (Cliff (201)). The search for sea routes to India also led to accidental discover of Americas by Christopher Columbus in 1492.

The Portuguese, with their galleons<sup>3</sup> loaded with potent cannons, ended the Arab dominance in the Indian Ocean, and in 1510, they took control of Goa. Soon, Goa became 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 in India and established their political power. Nevertheless, the 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 19<sup>th</sup> December, 1961, that is, more than 14 years after India's independence.

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

In the early sixteenth century, there was a growing interest in plants and herbs of the orient. It was a period when the academics of 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)<sup>4</sup>, 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. is description of Asian cholera and its symptoms became a standard medical reference.

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<sup>3</sup> Galleons were sailing ships used both in trade and war between 15<sup>th</sup> and 18<sup>th</sup> centuries. They were typically square-rigged and had three or more decks and masts.

<sup>4</sup> The 'conversations' refer to the dialogues, and the 'simples' refer to the wild varieties of plants and their medicinal properties.

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.



'Portuguese Medicine' (1906), by José Maria Veloso Salgado (1864-1945)  
(Garcia de Orta is standing in the center with a book in his left hand)

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 (Malabari;1910. 21). Garcia describes the people around Bassein<sup>5</sup> and their traditions in his book. (Cunha, & Gerson: 1900. 98-114). 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: 9: Kapil &

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<sup>5</sup> Bassein (Vasai) is a historical place and a town near Mumbai (Bombay)'s western suburbs, locate 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 participate in the lucrative spice trade and the silk route that converged in the area.

Bhatnagar:1976. 449-452; Paiva:2018.:Mathew, 1997: 369-376; Pimentel & Soler, 2014: 101-120; Cabral: 2015).

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 , 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.<sup>6</sup> 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, similax 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.

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<sup>6</sup> It was a common convention during this period to write books in the form of a dialogue.

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.”<sup>7</sup> The parents of Garcia de Orta, 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 28<sup>th</sup> October, the same year. During her interrogations, she testified against her brother for following Judaism.<sup>8</sup> On 25<sup>th</sup> 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. (Luis s,n, p. 68).. This 'deed of faith' was performed on December 4, 1580, that is, about twelve years after Garcia de Orta’s death (Ficalho:1886: D’Esaguy:1937. 43-487; Friedenwald: 1941.487-504; Dias: 1964. 18-21;Kapil & Bhatnagar: 1976.

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<sup>7</sup> <https://www.encyclopedia.com/science/dictionaries-thesauruses-pictures-and-press-releases/orta-garcia-dor-da-orta>. Last Accessed on 9th November, 2021.

<sup>8</sup> It must be noted that it was common to forcefully obtain testimonies through torture. When Catarina da Orta was taken to be burnt at the stake, she confessed that “the reason of her false denunciations was because it appeared to her that she might receive mercy and would save her life, and the devil would refrain from tempting her”. (Source: <https://daortagoa.wordpress.com/catharina-da-orta/> Last accessed on 11<sup>th</sup> November, 2021)

449-452; D'Cruz:1991. 1593-4; Mathew:1997'372; Pearson: 2001. 112; Cohen: 2010. 104, 118;; Liberato: 2011. 115; Pimentel & Soler: 2014. 101-120).

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, the capital of Portugal, in 1564.<sup>9</sup> 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.<sup>10</sup> A summarized 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 India's knowledge traditions. Colonization started a new phase of globalization and multi-culturalism. 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. He strongly 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

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<sup>9</sup> This original copy is currently archived in the library of University of Lisbon. It must be noted that it was common to forcefully obtain testimonies through torture. When Catarina da Orta was taken to be burnt at the stake, she confessed that "the reason of her false denunciations was because it appeared to her that she might receive mercy and would save her life, and the devil would refrain from tempting her".(Source: <https://daortagoa.wordpress.com/catharina-da-orta/> Last accessed on 11<sup>th</sup> November, 2021)

development of modern botanical and medicinal sciences in the western world. This research is a humble attempt to investigate the contribution of ancient Indian knowledge traditions in the development of modern medicinal science.

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