

Garcia d'Orta

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Abstract

Garcia d'Orta, is one of the most important personalities in the history of Portuguese medicine. He gave an important scientific contribution to the world, increasing our understanding in many different areas such as Botany, Hygiene, Epidemiology, Climatology, Hydrology, General Therapeutics, Tropical Medicine, Hospital Practice and Medical Deontology.

Garcia d'Orta fought against the traditional empirical theories.

All his knowledge was based on experimental methodology. In "Colóquios dos Simples e Drogas", one of the most important pharmacological books of the 16th century, he describes the rarest oriental plants and their medical applications in human beings. He also gives us a magnificent picture of the Oriental society of that century.

Key words: Garcia d'Orta.

Introduction

The Portuguese Discoveries were undeniably decisive for the progress of the history of Humanity. The Portuguese expansion of the 15th and 16th centuries placed us at the vanguard of the European countries. The fruit of their courageous explorations beyond the frontiers, our navigators brought new knowledge and out of this, new concepts emerged that influenced the thinking of the old continent, helping to awaken a spirit of renaissance.¹

There are many personalities who are immortally linked to our maritime odyssey. One of the great names that took part in this great adventure was, without doubt, Garcia de Orta, a renowned name throughout the history of Science. He was the pioneer of tropical Medicine, and one of the promoters of modern experimental Medicine. In Goa - Rome of the Far East of the 16th century - Garcia de Orta conceived an authentic primary work of European and worldwide medical science, a true treatise of pharmacognosy and therapy, entitled *Colóquios dos Simples e Drogas e Cousas Medicinai da Índia*² (Colloquies on the Simples and Drugs of India).

The purpose of this brief dissertation is to remember this unique personality. In the last World Exhibition of the century, in Lisbon, Garcia d'Orta gave his name to an enormous open-air pavilion. The Jardim Garcia d'Orta (Garcia de Orta Garden), representative of the eposée of Botany of the Portuguese in the fifteenth and sixteenth centuries. The evocation of Garcia d'Orta is still an obligatory homage to one who contributed so much to writing one of the most sublime chapters in the history of our Medicine.

"(...) Now, the Portuguese know more in one day than the Romans knew in 100 years (...)" (Colloquies dos Simples and Drugs: Fifteenth Colloquy – Canela, Cassia lignea and Cinammon; I Vol: Page: 210).

His life

Garcia d'Orta (1500?-1568?),³ a 16th century physician, besides the medical-scientific interest of his work, Colloquies, which constitutes a cornerstone of medical knowledge, left us a valuable historical, geographical, political, social and ethnographic legacy of sixteenth-century India.

Born in Castelo de Vide,⁴ he was the son of a family of Spanish New Christians, who sought refuge there, after the publication of the notice of expulsion of the Jews by the Catholic Monarchs.

Like so many other Portuguese of that period, he studied at Salamanca and Alcalá de Henares, from 1515 to 1523, where he obtained the licentiate degree in Arts, Philosophy and Medicine. From a very early age, he became interested in Botany, influenced by the famous botanist and also his master, António de Lebrija, for which he came to be nicknamed O Ervas (herbs).

After having submitted to tests before the Chief

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Physician to King D. João III, an essential requirement for the exercise of the profession, for physicians who obtained their qualifications overseas, he began to practice in the place of his birth, in 1526 a very important and populous city for the period, but lacking doctors, and with the due authorization to ride a mule and carrying a knife, a concession granted only to physicians and lawyers of the time.⁵

In 1530 he came to Lisbon, through a recruitment drive, after the University Council had rejected him as professor for three years, to replace the great Pedro Nunes.⁶ This move was understandable when we consider his restless, critical, insatiable and learned spirit. He later occupied the chair of Moral Philosophy, and subsequently, the chair of Natural Philosophy at the University of Lisbon, and was also a member of the Portuguese University Senate, in 1533. He worked alongside illustrious and learned figures of his time, such as António de Ataíde, André de Resende and D. Jerónimo Osório, and the university professors Pedro Margalho and Pedro Nunes. He added, to his teaching profession, the activity of Physician to the King.

But, four years later, in the company of Marfim Afonso de Sousa, his friend and protector, at that time appointed Capitão-Mor do Mar das Índias (Captain-Major of the Seas of India), left for India as the commander's physician. Curiosity to see the lands of the East? Ambition for wealth? A love of scientific rigor, as opposed to the book learning and empirical knowledge gained thus far? Or a sense of insecurity, given that he was of Jewish origin, and foresaw the imminent institution of the Court of Santo Ofício, a fact that came to pass two years later, with the papal bull of Paulo II *Cum ad nobiles magis*, granted to D. João III?

Whether it was due to the growing climate of religious intolerance, or a desire to learn more and become rich, what is certain is that after six months, he arrived in India, accompanying his protector for four years in adventures on land and sea, and taking an immediate interest in the discovery and study of new plants, their active principles, and their application to medicine. "(...) I come with a great desire to know about the medicinal drugs (such as are called the drugs of apothecary in Portugal) and other simple remedies of this country, all its fruits, and the pepper. I wish to learn their names in different languages, as well as lands where they grew and the trees or herbs from which they are taken. I also desire to know how

the native physicians use them (...)" (Colloquies on the simples and Drugs: First Colloquy - Introduction; I Vol: Page: 19).

Also here, quickly reveals his facet of easy negotiator; from Lisbon he took with him five seedlings of pau-santo, a substance used in the treatment of syphilis, a disease that was widespread among the Indian population, which enabled him to amass a small fortune of a thousand cruzados.

His marriage to Brianda de Sólis, also from a well-known family of New Christians and with whom he had two daughters, was not a happy one, due to his wife's greed and arrogance. By an irony of fate, they lived at Rua dos Namorados (in English, Lovers' Street). This matrimonial unhappiness was perhaps what led him to dedicate himself more to research, but not before he too had taken the paths of promiscuity, so frequent at the time, and there are reports that he contracted syphilis.

He traveled throughout the interior of India, Bacaim, Diu, Chaul and Bombay, in military campaigns, always with his master and friend, Martim Afonso de Sousa. At that time, he had a smallholding in Bombay, for purposes of recreation and study where, in his botanical garden, he grew and examined rare plant species. He finally settled in Goa, in a luxurious residence, where he began his research work, furnished with an intense desire to seek out the truth, for which he had to confront Indian physicians whose transmission of knowledge was done over generations, between members of the same family, due to the inexistence of medical schools. "(...) they are men who cure according to experience and custom... they walk along one street curing all out of one flask that they carry ... as for anatomy they do not know where the liver is, nor the spleen, not anything else (...)" (Colloquies on the Simples and Drugs: Thirty-sixth Colloquy – Mungo and Melon of India; II Vol: Page: 137-138). Despite this, this knowledge of Hindu Medicine was not totally rejected by Garcia de Orta, who appreciated it, copied it, and even used it "(...) and there is something very good to cure, and some of us take this remedy and find ourselves cured with it (...)" (Colloquy on the Simples and Drugs: Second Colloquy - Aloes; I Vol: Page: 29). (...) first I try the remedies of my doctors, and when they do not suit me, I take those of the Brahmines of this land "(...) (Colloquies on the Simples and Drugs: Sixteenth Colloquy – Mungo and Melon of India; II Vol: Page:

139). “(...) I knew a lot about these and other things, taking them by mouth... they cure well in the chambers, can tell whether there is fever or not from the pulse, and whether it is weak or strong (...)” (Colloquies on the Simples and Drugs: Thirty six Colloquy – Mungo and Melon of India; II Vol: Page: 137).

This contact with the people of the East, the information on the products used by them, whether in relation to the origin or in relation to the characteristics and therapeutic qualities, enabled him to become a famous physician, and his medical knowledge was sought not only by Portuguese viceroys, but also by princes, noblemen and Indian sultans, one of the most notable being the Sultan Bahadur Sháh and King Buhrán Nizam Sháh “(...) a king in Balagate... gave me forty thousand pardaos in money because I visited him some months of the year (...)” (Colloquies on the Simples and Drugs: Tenth Colloquy - Ber and the Brindões (Kokum); I Vol: Page: 119). This relationship gave him access to Indian medical culture, in particular, to the traditional prescription, which was practically impregnable to foreigners, only possible thanks to the multiracial relationships that Orta always knew how to maintain with the residents of the East.

At the same time, he was a negotiator of drugs, jewels and precious stones, which he sold to Portugal, even owning a ship for this trading business. Through this activity, he gained sufficient wealth to manage an extensive and well-equipped personal library, in which Greek, Latin and Arabic authors abounded. The works housed in this library included those of Hippocrates, Galen, Avicenna, Averrois, Celso, Aristotole, Dioscorides, Plinius, Laguna, Lebrija, Saint Augustus and Vesalio.⁷ It is believed that Garcia de Orta mastered various languages and had sufficient understanding of some Indian dialects. On the other hand, he always tried to keep himself up-to-date, including corresponding with another colleague, the no less famous, Amato Lusitano.

The respect and consideration he received was also the result of his ability to assimilate various medical cultures and apply them to his clinical practice, as Malupa, physician to Orta's slaves, mentions: “(...) Doctor Orta knows better than all of us, for we only know the Gentiles, but he knows Christians, Moors, and Gentiles, better than us all (...)” (Colloquies on the Simples and Drugs: Fifty-Fourth Colloquy - Turbit; II Vol: Page: 332), although sometimes, it was

not easy to impose the treatments recommended by him “(...) the custom of the land... a hand of pulling out ... the learned physicians enjoyed to ... contradict me; so that I being present cured him in one way, and absent in the other (...)” (Colloquies on the Simples and Drugs: Thirty-Sixth Colloquy - Mungo and Melon of India; II Vol: Page: 141).

Despite his trading activities, he never neglected the study and furthering his general knowledge about the East, its peoples and its things, unlike some of his contemporaries, who did not pay the due attention to the reality that they found “(...) the Portuguese, who navigate over a great part of the world, only procure a knowledge of how best to dispose of their merchandise...they are not desirous of knowing anything about the things in the countries they visit (...)” (Colloquies on the Simples and Drugs: Twelfth Colloquy – Camphor and Carambolas; I Vol: Page: 151).

In 1548 he called his mother and sisters, who were beginning to be persecuted in the mainland by the Inquisition, to join him.

Garcia de Orta practiced at the famous Hospital d'El Rei de Goa, a center with capacity for 3000 patients, considered at that time one of the best in the World, due to its high level of technology and comfort. This hospital establishment offered a daily service of consultations and its wards, very luxurious for the time, truly palatial, were visited by a doctor twice a day; on this visit, the doctor would be accompanied by a surgeon, a chemist and a dietician. The three meals a day, also provided to those visiting the sick, were served in fine Chinese porcelain dinner services.⁸

In this city he met Luís de Camões, to whom he composed an ode of recommendation to the Viceroy of India, D. Francisco Coutinho. This ode, the first printed composition of the genial Portuguese poet, appears in the preface to Colloquies.

He also worked at the Hospital dos Lázaros, founded in 1530 to gather all the lepers of the East.

He was a practicing Catholic, and considered Judaism to be a false religion “(...) I asked an apothecary who was Spanish in language, but Jew by his false religion (...)” (Colloquy of Simples and Drugs: Fourth Colloquy - Aloes; I Vol: Page: 60). He was even intolerant with non-Catholics, despising the work of Leonardo Fuchsio “(...) for he knew little of physics, and still less of things to save his soul, being a heretic condemned for Lutheranism (...)” (Colloquy

dos Simples and Drugs: Fifty-Eighth Colloquy LVIII – New Things; II Vol: Page: 379). Garcia de Orta often invoked the name of God “(...) if God grants the time for this and other things (...)” (Colloquy dos Simples and Drugs: Sixteenth Colloquy – Cocoa palm and the Maldives; I Vol: Page: 243) and attributed many of his cures to Divine Providence. He was, otherwise, highly esteemed by the Genoese clergy, cultivating friendships among Jesuit priests and Franciscan friars.

In his work he describes, in detail, the species that he finds and their therapeutic qualities, some of which were totally unknown in the East, others of which were known in inaccurate and made up form: “(...) but the ancient writers saw this spice after it had come from such a distance that they could not have had a correct notice of it, and as the price was very high, there arose a thousand fables which Pliny and Herodotus repeat. They relate them as in true, which in reality, they are quite fabulous (...)” (Colloquies on the Simples and Drugs: Fifteenth Colloquy – Canela, Cassia lignea and Cinammon; I Vol: Page: 201).

Colloquies was printed in Goa at the workshop of the German typography master João de Endem, on 10th April 1563,⁹ after thirty years of careful observation, experimentation and analysis. Up until then, the therapeutic arsenal of the period had been a mixture of art and science, sometimes rigorous, other times empirical and fallacious, and he laments that “(...)but the Portuguese apothecaries show little diligence in obtaining remedies and much in making money (...)” (Colloquies on the Simples and Drugs: Thirty-first Colloquy - Cate; II Vol: Page: 74).

Given the creation in Goa, three years earlier, of the Holy Inquisition Court, the work of Garcia de Orta had to be submitted for approval by the inquisitor Aleixo Dias Falcão, who did not consider it condemnable.

He died in 1568 and was buried together with his mother at the Cathedral of Goa. Despite having lived a life of opulence, he died with dysentery and probable complications of venereal disease, having been practically abandoned by his wife. It was his sister washed and dressed him for the burial.

However, even after his death, he was persecuted by the Inquisition. On 4th December 1580, his mortal remains were exhumed, burned publicly and his ashes were thrown into the Mondovi river. Also on this day, the copies of his writings that were found suffered rejection by the same inquisitor that had previously

approved them, and who, considering them heretical, burned them too. It is presumed that the same would follow with the other copies found, whether in India or in the Kingdom, resulting in the rarity of the bibliography of Colloquies.

Garcia de Orta never hid his love for Portugal or his pride in being Portuguese. Thus it is said, not without good reason, that his death diminished the value of our homeland.

His work

The work of Garcia de Orta was written in Portuguese, despite the current practice of bilingualism, from which not even Gil Vicente and Luís de Camões freed themselves, and also in the colloquial form, as was the habit among the physicians of the time: “(...) I could well compose this treatise in Latin... but translated it into Portuguese because it is more general, and because I know that all those who live in these Indian regions, knowing to whom it is addressed, will not read it (...)” (Colloquies on the Simples and Drugs: dedication to Martim Afonso de Sousa so that, by this, the work could be amended, defended and protected; I Vol: Page: 5).

Clearly, owing to the fact that the writings were originally in Portuguese, Colloquies did not gain the deserved projection. Not only because Latin was the language written and spoken by the physicians of the time, but also due to the non-existence of technical terms of our language. Furthermore, it became prohibited to speak, in the Kingdom of Portugal, of Garcia de Orta, during the entire remainder of the 16th century, as well as in the subsequent centuries. However, they were later divulged by the Belgium Botanist Jules Charles de l'Écluse, who translated them into Latin, *Latino sermone in Epitome contracta*, based on some copies brought to Portugal by Cristóvão da Costa, physician and surgeon to the Portuguese Armada and the hospitals of India, who lived in Goa and Cochim just after the death of Garcia de Orta.¹⁰ This edition, printed in 1567 in the celebrated *Oficina Plantiniana* of Antwerp, was published with etchings, but not in the form of colloquies. Later, successive reeditions were produced in Leiden, Venice, Siena, Seville, Madrid and Paris, among other cities. The translation into Latin, the language par excellence of medieval science, finally made it possible for the whole of Europe to read this work and its subsequent publication into other languages.

Colloquies, besides the introductory notes, consist of fifty-eight chapters arranged alphabetically under the same number of drugs, products of vegetal, animal or mineral origin which, after being transformed, can be used for medical purposes, and simples, medicinal plants that are used without any prior treatment.¹¹ There is also a complementary colloquy, unnumbered, dedicated to Bétele. Each colloquy identifies a species and its varieties, region of origin, manner of collection or extraction, botanical and pharmacological characteristics, its domestic and cosmetic uses, as well as its therapeutic application, from the mode of administration to its clinical indications. In the original work, none of the colloquies presented etchings.

At the end of the last colloquy, again in alphabetical order, there is an explanatory table of the content of the work. The colloquies are difficult to read and understand, not only due to the numerous typographical errors, but also due to incorrect spellings, resulting in a style that is sometimes confusing and even nebulous. Sometimes, the discourse is softened by addressing curious or even anecdotal subjects, not related to medical activity - “(...) It is a colloquy which does not refer to medicine, bid to pass the time (...)” (Colloquy dos Simples and Drugs: Twenty-First Colloquy – Ivory and the Elephant; I Vol: Page: 303); “(...) Though this is not physic, I also rejoice to know more about it than about other things, to relieve the boredom (...)” (Colloquy dos Simples and Drugs: Thirty-Second Colloquy – Mace and Nutmeg; II Vol: Page: 85).

The concepts of Garcia de Orta are exposed in the form of a conversation between Ruano, representing, in his imagination, an academic colleague from university who visits him in Goa, and who is a defender of the traditional ideas, but at the same time, dissatisfied and avid for new knowledge⁷ Ruano states: “(...) I desire nothing better than to get rid of my errors, and to sow my understanding with new seeds (...)” (Colloquy of the Simples and Drugs: Seventh Colloquy – Altiht, Anjuden, Assafetida, Dolce, Odorata, and Anil; I Vol: Page: 79; “(...) I will mention any doubts which occur to me, for I do not wish to remain with them (...)” (Colloquies on the Simples and Drugs: Fifteenth Colloquy – Canela, Cassia lignea and Cinnamon; I Vol: Page: 202) – and Orta, the practical physician, who constantly exposes ideas and facts that he observes, compares and experiences: “(...) they think little of practice and much of the schools.

You and I have done the opposite (...)” (Colloquies on the Simples and Drugs: Second Colloquy - Aloes; I Vol: Page: 24).

Thus, for some,^{12,13} he was the true precursor of experimentalism in Portugal, the direct precursor of scientific method, since through observation and experimentation, Garcia de Orta attempted to search for a new truth, made up of realities and certainties, in contrast to the spirit of the time, and for which the explanation of the World, of Man and of things was merely deductive in nature. This explanation was superficial, subjective and circumstantial, giving rise to concepts that could easily be transformed into dogmas, provided they were recognized by the institutions of the day. And all doubts were judged by faith and religion. However, only careful and active observation of facts experimented by him, produced always in the same way and never in another way, could identify and explain, even though counter-argued, his almost unquestionable knowledge of the classical authors. This concept is very clear in the colloquy of the diamond, faced with the widespread idea that iron would be attracted by diamonds. “(...) You will see the opposite, when you wish to try it (...)” (Colloquies on the Simples and Drugs: Forty-Third Colloquy - Diamonds; II Vol: Page: 202). Furthermore, the knowledge of Garcia d’Orta inspired other authors, whom he recognized honest and worthy of credibility; “(...) because men make all sorts of statements (...)” (Colloquies on the Simples and Drugs: Ninth Colloquy - Benjuy; I Vol: Page: 105); “(...) I will not tell you anything unless they are well known, or said by two people worthy of belief (...)” (Colloquies on the Simples and Drugs: Fifty-fifth Colloquy – Incense and Myrrh; II Vol: Page: 354); “(...) when they tell me, I will believe it and I will state it (...)” (Colloquies on the Simples and Drugs: Sixteenth Colloquy – Cocoa palm and the Maldives; I Vol: Page: 241-242).

The first steps were taken in the inductive method, which would later be consolidated by Francis Bacon. And the same could be said in relation to the methodical doubt of Descartes, doubt as an instrument for arriving at the truth, and the need for evidence for its recognition; “(...) the contrary of which we have tried already ... because men do not get everything right (...)” (Colloquies on the Simples and Drugs: Forty-third Colloquy - Diamond; II Vol: Page: 205); “(...) I have read it, but as I have not seen, I cannot

say whether it is true or not (...)” (Colloquies on the Simples and Drugs: Fifty-fifth Colloquy – Incense and Myrrh; II Vol: Page: 354).

His concern with the learning of the truth could not be subverted by any other value, as is fitting for a true man of Science: “(...) I have no hatred except for errors, and no love except for the truth (...)” (Colloquy on the Simples and Drugs: Seventeenth Colloquy – Costo and the Coleric Passio; I Vol: Page: 255); “(...) my truths said without rhetorical colouring; for the truth must be depicted in its nakedness (...)” (Colloquy on the Simples and Drugs: Seventh Colloquy – Altiht, Anjuden, Assafetida, Dolce, Odorata, and Anil; I Vol: Page: 79). On the unicorn, for example, he prudently reports “(...) There are so many uncertain things said about this animal, from its not being well known, that it is not worth while to recount them, for the persons who relate them are not eye-witnesses (...)” (Colloquies on the Simples and Drugs: Thirty-first Colloquy - Cate; II Vol: Page: 75).

His conclusions were supported by expressions like I experienced, with my own eyes I saw, this is the truth, or as I experienced, and thus, previously undebatable concepts were observed; “(...) $\frac{3}{4}$ Ruano: Have all these you that you mention erred?, $\frac{3}{4}$ Orta: Yes; If you call it error and say that it is not (...)” (Colloquies on the Simples and Drugs: Forth-Sixth Colloquy - Pepper; II Vol: Page: 243). And here we see another facet of Garcia d’Orta, the courageous and independent man, without fear of the difficulties and risks he was running by facing up to the academic authorities, until then immutable, that solidly built the medieval thought; “(...) Do not try to frighten me with Dioscorides or Galen, because I merely speak the truth and say what I know (...)” (Colloquies on the Simples and Drugs: Ninth Colloquy - Benjuy; I Vol: Page: 105), he said, referring correctly to the pepper plant, that wrapped around the trunks of trees, could it not be an upright shrub as Dioscorides believed, or a plant similar to Zimbros, as Plinio thought “(...) for me, as the eye-witnesses lower than all the physicians, it is necessary to have more faith than these priests of medicine, who due to false information will write (...)” (Colloquies on the Simples and Drugs: Fifteenth Colloquy – Canela, Cassia lignea and Cinammon; I Vol: Page: 208). Even his master in Alcalá, Lebrija, did not escape his corrections, although they were given respectfully “(...) It is true that Lebrixa says this, and he was very learned and curious, but he

made a mistake as regards to the Greek name... He was careless (...)” (Colloquies on the Simples and Drugs: Fifth Colloquy - Anacardo; I Vol: Page: 65). He made the exception that the perfidious information of the ancient writers was due to the weak progress of the art of navigation at that time. In relation to the doctors of the Church, his rectifications were even more veiled, as in this amendment to Saint Augustus in relation to peacock flesh “(...) and those who wrote this... speak the truth; and we speak the truth (...)” (Colloquies on the Simples and Drugs: Colloquy of Bétele; II Vol: Page: 399).

On the other hand, the confrontational stance of the physician-writer was largely due to the fact, which he fully recognized, of finding himself in locations far away from those places where he would have been severely punished for such bold statements, even if they were true “(...) because I, being in Spain, would not dare write anything against Galen and against the Greeks (...)” (Colloquies on the Simples and Drugs: Thirty-Second Colloquy - Apple and Nut; II Vol: Page: 83-84).

The dialogs between Ruano and Orta also constitute a true encyclopedia of the Indian pharmacopoeia, as they discuss oriental products, also organized in alphabetical order, and demonstrated and revealed by him. “(...) I know of nothing more than what I have said to the apothecaries, physicians, and others, and it may well be that this has not been a good thing for me, for they say afterwards they found out these things and obtain glory by my work, while I only wish to bring profit to all (...)” (Colloquy of Simples and Drugs: Thirteenth Colloquy – Cardomum and Carandas; I Vol: Page: 182).

But at that time, Garcia d’Orta followed the wise principles of medical ethics, particularly in the chapter on experiments on humans, stating that “(...) it is not good to experiment with unknown remedies (...)” (Colloquies on the Simples and Drugs: Fourth Colloquy - Amomo; I Vol: Page: 59), as can be seen in this dialog: “(...) $\frac{3}{4}$ Ruano: Have you already gave it to one of your servant boys or girls $\frac{3}{4}$ Orta: No. It would be against my conscience to do such a thing (...)” (Colloquies on the Simples and Drugs: Twentieth Colloquy – Datura and the Durians; I Vol: Page: 296).

Also relevant is the observation, still relevant today, that there are no strict formulas for the treatment of various pathologies, rather, it is necessary to treat each case, each patient, and his or her individual

characteristics (...) a shoemaker did not fit everyone with the same pair of shoes (...)” (Colloquies on the Simples and Drugs: Thirty-Sixth Colloquy – Mungo and Melon of India; II Vol: Page: 141).

On witnessing, in 1543, a cholera epidemic that occurred in Goa, Garcia d’Orta gathered sufficient elements to be the first physician to describe it in accurate detail: “(...) the pulse is very low, and can scarcely be felt. Very cold, with some sweat, also cold. Complains of great heat, and a burning thirst. The eyes much sunken but turning around and coming out...weak virtue... cramps (...)” (Colloquies on the Simples and Drugs: Seventeenth Colloquy – Costo and the Colerica Passio; I Vol: Page: 262), recognizing the severity and speed of the progress of this disease, “(...) because it generally kills in twenty-four hours. I have known persons who have not lasted more than ten hours, and the longest endurance of it is four days; As there is no rule without an exception I have seen a man, with the gift of much endurance, who lived for twenty days, always vomiting *colora curginosa*? Finally he died (...)” (Colloquies on the Simples and Drugs: Seventeenth Colloquy – Costo and the Colerica Passio; I Vol: Page: 261). He recommended various treatments, such as inducing vomiting, enemas, external applications of hot oils, cauterization of the foot or theriac, and the preferred one, grains of bezoar stone, “(...) the remedy better suited and the one best for me (...) It is of such use that it almost miraculously dilates the powers of the heart (...)” (Colloquies on the Simples and Drugs: Seventeenth Colloquy – Costo and the Colerica Passio; I Vol: Page: 266). In fact, bezoar was one of Orta’s most frequently used drugs (...) in many old melancholic infirmities I use it, as well as in prickly heat, leprosy, itch, ringworm ... in the wounds of poisonous bites it is useful and in the postumes of the plague ... because in this land the worms and the measles are very poisonous ... with this the poison gets weaker (...)” (Colloquies on the Simples and Drugs: Forty-fifth Colloquy of the Bezoar Stone; II Vol: Page: 233-235).

He also described syphilis in detail, recommending a therapy that would later be followed by other physicians, but probably without great practical results, as it was believed that the victim would die of this disease. He also made reference to other diseases, such as scabies, asthma, measles, smallpox, scurvy, poisoning, intestinal parasitosis, and uterine diseases. He also mentioned diseases which, due to the lack of

description of the symptomology, could not be identified, such as *câmara*, *paixão dos olhos* and *freima*. He also accurately described the euphoria-inducing effects of hashish: “(...) to be beside himself, and to be raised above all cares and anxieties, and it makes some break into a foolish laugh ... when, at night, he wanted to go to Portugal, Brazil, Turkey, Arabia or Persia, he had only to take a little *Bangué* (...)” (Colloquies on the Simples and Drugs: Eighth Colloquy - *Bangué*; I Vol: Page: 97).

He described the ancient Indian tradition of chewing clove leaves to get rid of bad breath, and after his work was published, its use became widespread in dental hygiene, especially in the form of clove oil. Even today, some toothpastes contain eugenol in their formulas, a compound extracted from clove oil. He was also the first European physician to use Hindu Medicine for physiotherapy, with the use of massage, oriental current practice, for the treatment of contractions, as well as describing the neurotoxic symptomology caused by snake venoms. His practice also included the use of the tourniquet.

Likewise, he gave us an account of the Portuguese presence and its influence on Hindu Medicine - “(...) they never used bleeding before, only since we are in this land (...)” (Colloquies on the Simples and Drugs: Thirty-Sixth Colloquy – Mungo and Melon of India; II Vol: Page: 137) ^{3/4} also that of the, at that time, immoderate liking of the Portuguese for new things, new drugs and new Eastern therapies, even those without clearly-demonstrated results: “(...) there are also many people who deceive the Portuguese people, who are easily deceived by them, and what is worse is that... they go away with their view (...)” (Colloquies on the Simples and Drugs: Thirty-Sixty Colloquy – Munto and the Melon of India; II Vol: Page: 137).

With great culture and a prodigious memory, Garcia d’Orta sought his objective, impartial and rigorous: “(...) I do not wish to speak of them... because I do not know this very well (...)” (Colloquy dos Simples and Drugs: Forty-Fourth Colloquy – Precious Stones; II Vol: Page: 218-219). However, his work also had some defects, typical of those who do a work on a grand scale and which, at that time, with rudimentary knowledge and tools at his disposal, it was very costly to avoid.

At the end of Colloquies the critical spirit is once again notorious, but always faithful to the truth, in elaborating an errata of twenty pages, without ne-

glecting to conclude that many other errors had been reported, but because they were so clear, they would easily be recognized by the reader.

His work cites around seventy authors, from the great sages of the Arabic and Greek-Latin culture to naturalists and physicians, his contemporaries, which gives us the idea not only of his solid theoretical training but also of the value of the scientific fountains from which he drank.

Garcia d'Orta brought profound changes to traditional doctrines and concepts; he abolished many unfounded dogmas and knowledge, which would never have been interpreted in light of a scientific logic; he made them clear, real and objective. However, despite all this greatness, he was splendid in his modesty and realistic in his understanding of the limits of human knowledge: "(...) I do not say to you that Serapio erred in this, and it would not be much blame if he did, for he was a man (...)" (Colloquies on the Simples and Drugs: Nineteenth Colloquy - Cubedas; I Vol: Page: 290); "(...) the truth has legs, it walks and never dies (...)" (Colloquies on the Simples and Drugs: fifty seventh Colloquy – Zeduary and Zerumbet; II Vol: Page: 365).

In short, as Orta himself said, "(...) our knowledge is the smallest part of what we are ignorant of (...)" (Colloquies on the Simples and Drugs: Thirteenth Colloquy Cardomum and Carandas; I Vol: Page: 179). ■

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