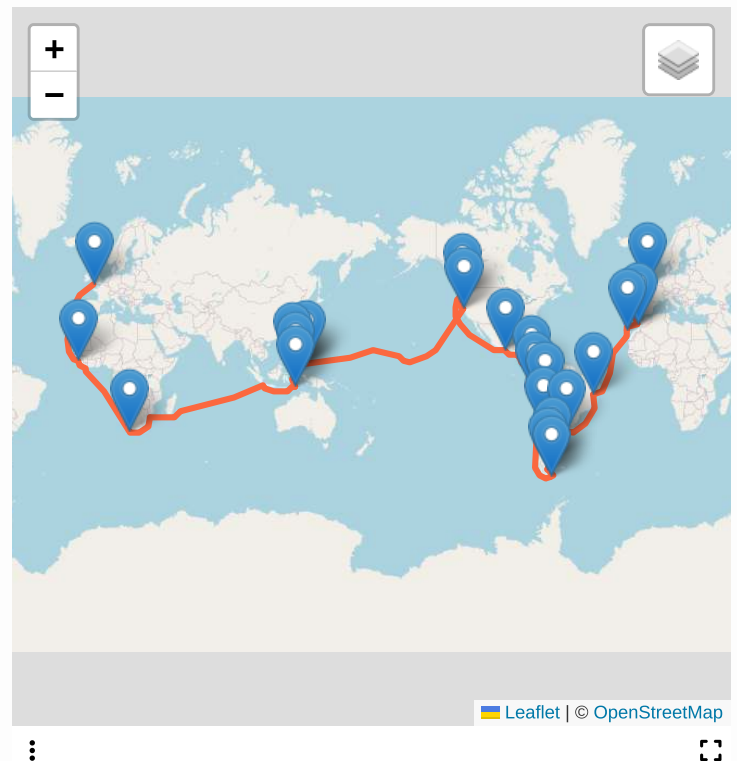




Drake's Root

In September of 1580, explorer Francis Drake became the first Englishman to circumnavigate the globe. During his three-year journey, Drake sailed west from England, through the Straits of Magellan (southern Chile), up the west coast of South America to Peru, and finally as far north as present-day California before crossing the Pacific Ocean. He then travelled through Moluccas and Java (Indonesia) before rounding the Cape of Good Hope (South Africa) and returning to England. Along the way, Drake kept personal notes and drew images of the exotic plants he encountered.



As long-distance seaborne trade and European colonialism grew over the course of the early modern period, explorers like Drake as well as merchants, diplomats, privateers, and travelers became essential in the collection and dissemination of local or indigenous plant knowledge and specimens to European naturalists, physicians, and apothecaries. Which is why, in 1581, famed naturalist Charles Ècluse (often referred to as Clusius) travelled to [London](#) to meet Drake and his men, hear their stories, and learn about what new plants they had encountered.



⋮ Drake

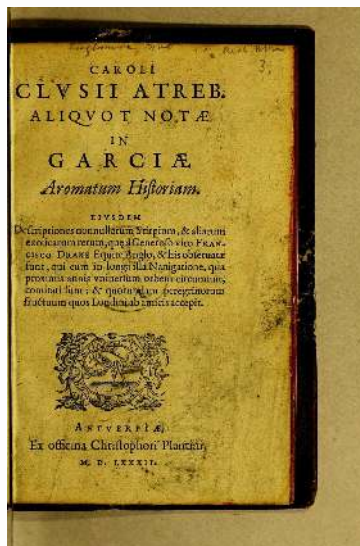


This was not the first nor the last time Clusius would seek the botanical discoveries of men like Drake. Thanks to European voyages of exploration, sixteenth-century Europe saw an influx of exotic flora and fauna from the Americas, Africa, and Asia. Because of this, the study of plants became fashionable, and, as historian Florike Egmond explains, manifested itself in the cultures of collecting and gardening.¹ It is also why the sixteenth century saw the establishment of the first University botanical gardens and academic chairs in medical botany. Clusius was at the center of these cultures and a key figure in their development. Clusius relied on a vast network of apothecaries, aristocratic men and women, merchants, explorers, physicians, and even local herbalists to become an expert on exotic plants.

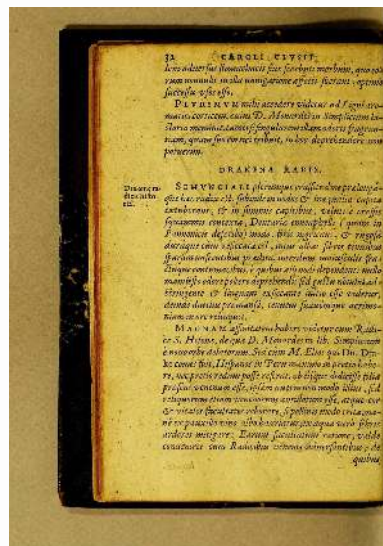


⋮ Part of Carolus Clusius's expansive and influential... ⌘

After meeting Drake and many of his crew, Clusius returned to the continent and published *Aliquot notae in Garciae aromatum historiam* (1582), which detailed Drake's botanical discoveries and was the first substantial published record of Drake's voyage. In this work, Clusius described a valuable root that Drake had collected. He even named the root, "Drakena Radix," or Drake's Root, in honor of Drake. Clusius described the root as half an inch thick, swelling with knots, and irregular; blackish on the outside, white on the inside, and fibrous. He also noted that it was astringent in taste and biting to the tongue but became agreeable in the mouth.



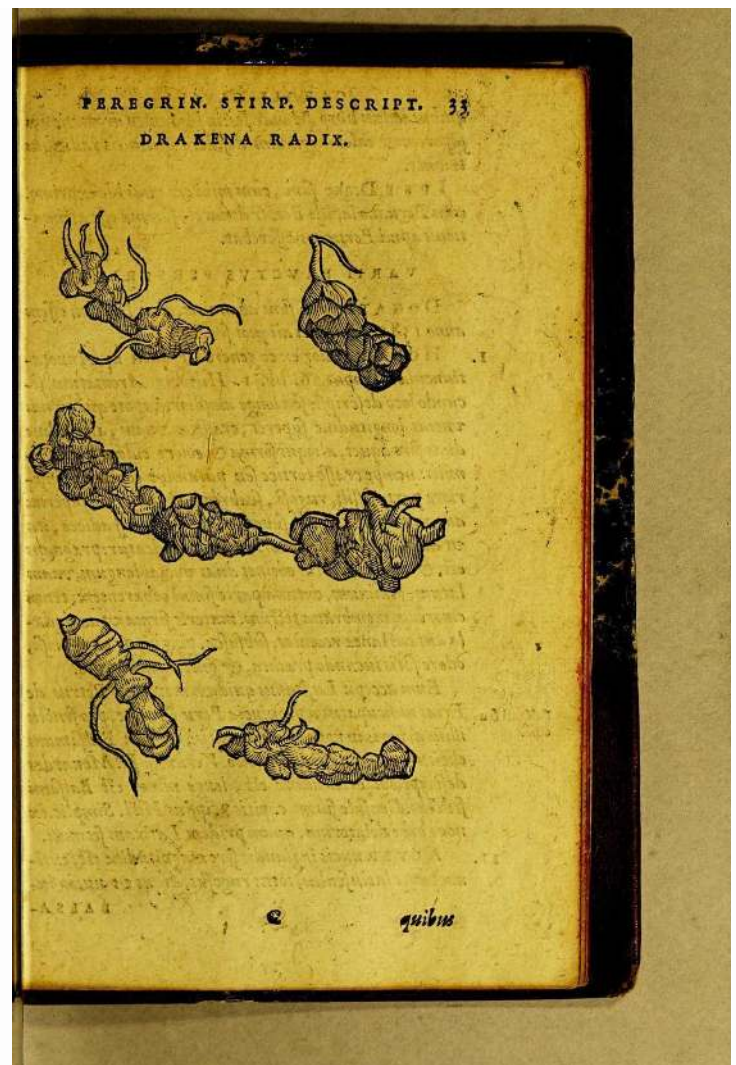
⌋ Caroli Clusii Atrebr....



⌋ Caroli Clusii Atrebr....



Clusius's work recounted the story and significance of the root as it was told to him but one of Drake's gentlemen sailors, Lawrence Eliot. According to Eliot, the root was highly valued by the Spaniards in Peru, who would not part with it for any price. The leaves of the plant were an active poison, but the root was the antidote to that poison as well as every other kind of poison. The root strengthened the heart when ground and mixed with white wine in the morning, and the water in which the root was soaked was a fever remedy. The wood block image that accompanied Clusius's account of Drake's root shows only gnarled fragments of what appear to be dried specimens of the root. Other than highlighting the knotty look of the roots, the image does not depict any other part of the plant, making it difficult to identify. What was the root that Drake learned about in Peru and brought home to England? And did the Spanish learn of this root from indigenous peoples in Peru?

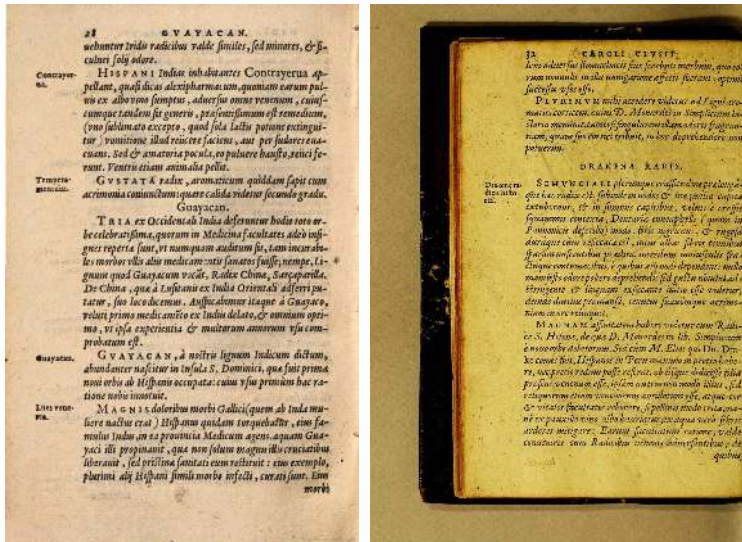


⋮ Caroli Clusii Atreb. aliquot notæ in Garcizæ...



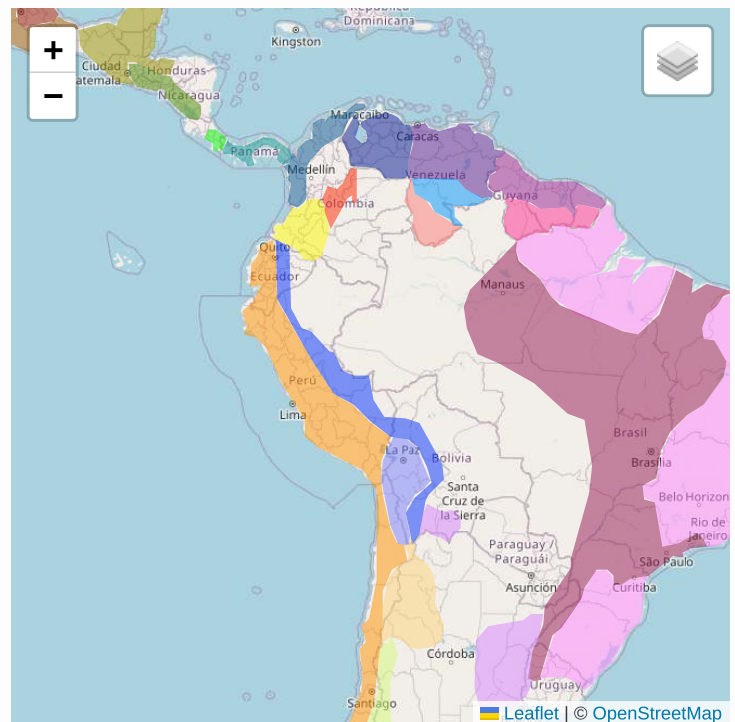
What's in a Name?

Unbeknownst to Clusius, he had already published information on Drake's Root. In 1574, Clusius published his Latin translation of the first two books of Nicolz s Mondardes's *Historia medicinal*, which was originally published in three parts in 1565, 1571, and 1574. In a 1579 Latin version of Monardes's work, Clusius translated Monardes's description of a root the Spanish called "contrayerva." According to Monardes, the "roots that fight poison" came from a province in Peru called Charcas. He explained that the Spaniards who live in the Indies called it Contrayerva (which meant "antidote"), because when ground into a powder and drunk in white wine, it was an excellent remedy for "any sort of poison, which it will make the patient vomit or sweat out."



Page from Simpliciu... Caroli Clusii Atreb...

Although Monardes never left Spain, he collected plants, information, and eyewitness accounts of New World medicinal plants, often recording indigenous uses in the process. Monardes even propagated and experimented with many of the plants he was sent in his garden in Seville, Spain. Like Monardes, Clusius never traveled to the New World. And so, two of the earliest and most important authors disseminating knowledge of New World plants into Europe relied on disparate information from European agents in the New World. This, of course, was problematic. Like Europe, the cultures of the Americas were not monolithic and plant names and uses could, and often did, vary by region. As specimens and information on New World plants flooded Europe, confusion over plant names and identification proliferated. Between 1571 and 1686, contrayerva appeared in numerous European herbals and was identified by at least five different names.

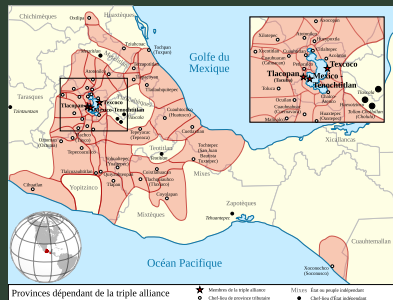


Leaflet | OpenStreetMap

Translating Nature

Of course, neither Drake nor Mondardes's Spanish informants discovered contrayerba. Rather, they translated local or indigenous plant and medicinal knowledge for European consumers. Coanenepilli, as it was known in Nahua-speaking cultures, was a well-established therapeutic in pre-Columbian medicine. In her attempt to reconstruct a Nahua pharmacopeia, Historian Paula de Vos noted that coanenepilli, which translated to "serpent's tongue," was one of the most cited medicines across post-contact Nahua codices.² An important function of coanenepilli was its application as an antidote. For that reason, it was called "contrayerba" by the Spaniards. If a snake or a scorpion bit someone, "the Indians" anointed the bite with the coanenepilli.³ Though the Spanish were interested in coanenepilli as an alexipharmic, a survey of early sources on Nahua materia medica reveals the plant's numerous virtues and applications.

Historians have to rely on a limited number of surviving Nahuatl sources, all of which were produced after the fall of Tenochtitlan and “all within the framework and with the support of the colonial regime.”⁴ These include the Badianus, the Florentine Codex, and the posthumous works of Francisco Hernandez. In addition to the Eurocentrism of source material and tendency to value textual knowledge over oral and embodied knowledge, are numerous issues stemming from linguistic nuances, miss-translation, and the loss or adulteration of indigenous knowledge across the colonized world. At the same time, these processes also created new meanings and applications of materia medica for Europeans and indigenous populations alike.⁵



Map of the Mexica Empire lead by Tenochtitlan circa 1519, before the arrival of the Spanish.

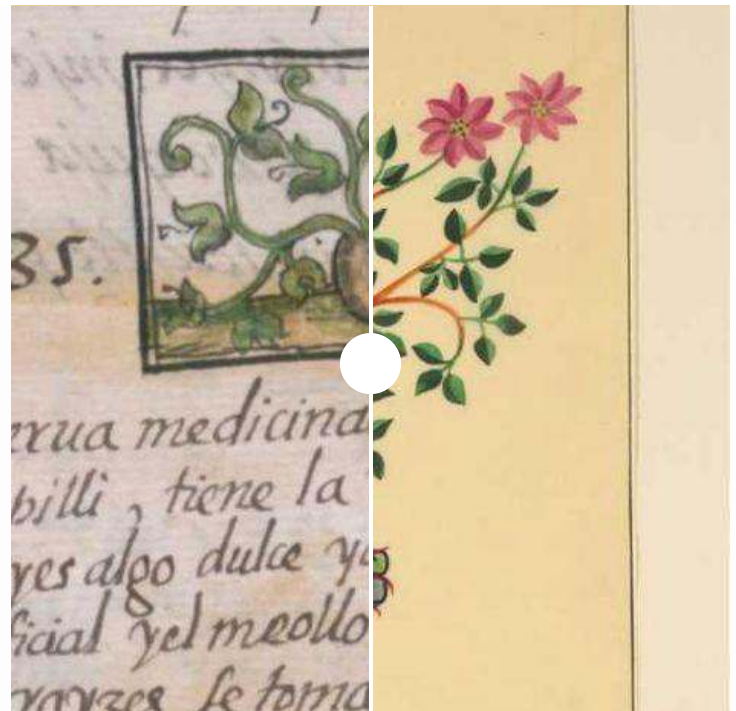
1325

THE MEXICA EMPIRE

The Mexica found Tenochtitlan, the city that would become the capital of their empire.



The earliest of these Nahua sources is known simply as the Badianus. Its full name is *Libellus de Medicinalibus Indorum Herbis*, or *Little Book of the Medicinal Herbs of the Indians*. This illustrated manuscript was produced by at least two Nahua men at the Franciscan school of the Colegio Santa Cruz in Tlatelolco in the 1550s. The manuscript features detailed botanical illustrations with accompanying recipes, virtues, and names of indigenous medicinal plants in both Nahua and Latin. In the Badianus, “cohuanenepilli” appears in recipes to treat urethritis and an “injured body.”⁶ Only one illustration is provided for cohuanenepilli, above the entry for urethritis. Interestingly, if we compare this image of cohuanenepilli in the Badianus with the image of Coanenepilli in the Florentine Codex, compiled around the same time period, we see two very different plants.



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Originally titled, *La Historia General de las Cosas de Nueva España*, the Florentine Codex is a massive twelve-volume ethnographic study of the Mexica compiled in the mid-sixteenth century by the Spanish Franciscan friar Bernardino de Sahagún.

Collaborating with Nahua men from the same college where the Badianus was produced, Sahagún documented the culture, religion, rituals, social structures, economics, animals, agriculture, and medicinal herbs of the local Mexica. During his life and following his death, Sahagún’s work remained in manuscript form and was never published. Today,

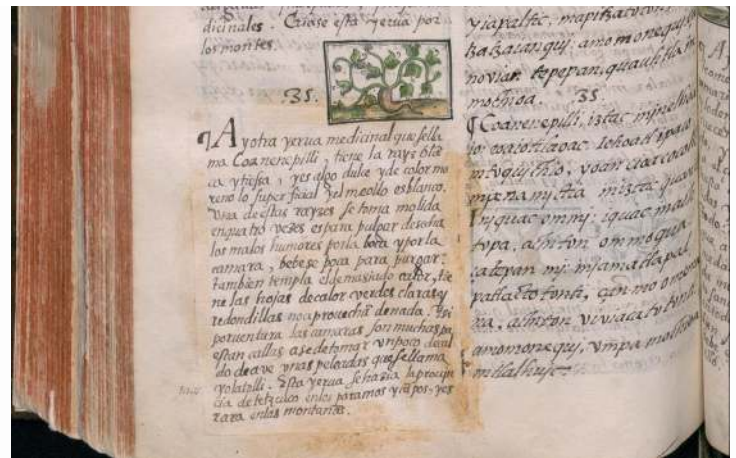


: Florentine Codex Open

☐

this important encyclopedic source on Nahua society is better known as the Florentine Codex, since the only extant complete copy of the manuscript is housed in the Biblioteca Medicea Laurenziana in Florence, Italy.

The Florentine Codex describes coanenepilli as a white root with a thick outer skin. According to Sahagún's Mexica informants, the root was used as a purgative and an emetic, as it expelled bad humors through the mouth and stool.⁷ Coanenepilli was also described as a "medicine for ailments of men and women," possibly referring to its use as a treatment of some sort of venereal disease.⁸ Unlike the image of cohuanenepilli in the Badianus, however, the illustration of coanenepilli in the Florentine codex emphasizes the plant's substantial rhizome and bilobed leaves.



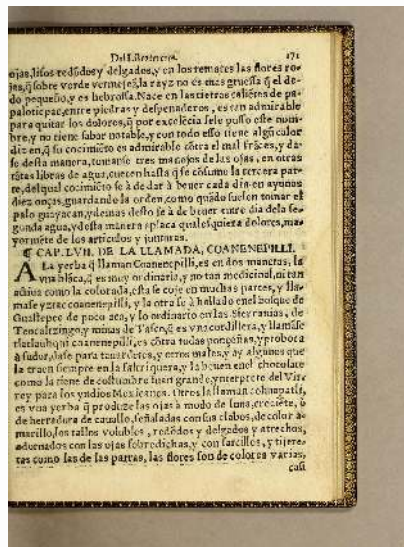
FC Coanenepilli



The posthumous works of Francisco Hernandez also documented the uses and virtues of Nahua coanenepilli. Sponsored by the King of Spain, Phillip II, Francisco Hernández traveled to New Spain in 1570 and spent 7 years traveling around Mexico and collecting specimens and indigenous knowledge of plants and animals.⁹ Hernández identified at least two varieties of coanenepilli, which he described as physically different, but endowed with the same properties. Thus, according to Hernández, both were used locally to treat pulmonary affections and fevers.¹⁰ Unfortunately, Hernández's research was not immediately published upon his return to Spain, and much of it was later destroyed by fire. Surviving notes from Hernández were eventually compiled and published, but these notes contained no images, just brief descriptions of the two kinds of coanenepilli.



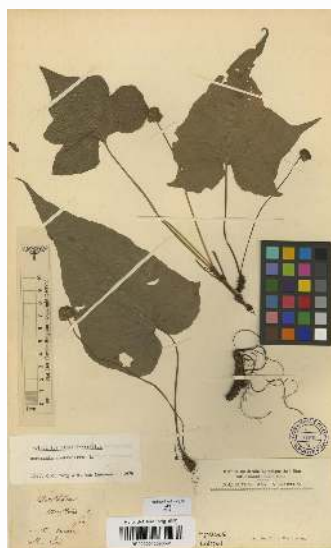
De materia medica Nova...



Quatro libros. De la...



These few surviving sources on Nahua materia medica, produced by locals or by the Spanish in collaboration with local informants, offer different descriptions and illustrations of several plants all identified as coanenepilli. Scholars postulate that these sources associate the name coanenepilli (and its spelling variants) with at least three different plants. Two of these are now believed to be *Dorstenia contrayerva* L. (contrayerva) and *Passiflora* (passionflower, possibly *Passiflora jorullensis*). Historian Emily Walcott Emmart noted the plant illustrated in the Badianus does not physically match either *Dorstenia contrayerva* L or *Passiflora*. Instead, she postulated that the plant depicted as coanenepilli in the Badianus was a species of *Dahlia*.



: Filed as Dorstenia... []



: Type of Passiflora... []

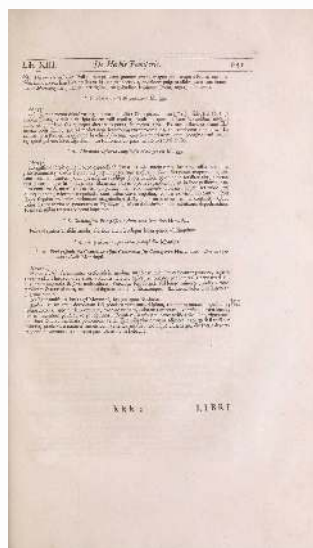


: Isotype of Dahlia... []

Despite early confusion over identification, by the seventeenth century, European naturalists like John Ray concluded that coanenepilli and contrayerva were the same. Ray reproduced and cross-referenced Hernandez's index of plants in his *Historia plantarum* published in 1686. In this index he not only linked coanenepilli and contrayerva, but he also directed the reader to his entry on "Flori passionis" or "Granadillæ," linking the identification of contrayerva and coanenepilli with central American passionflower.

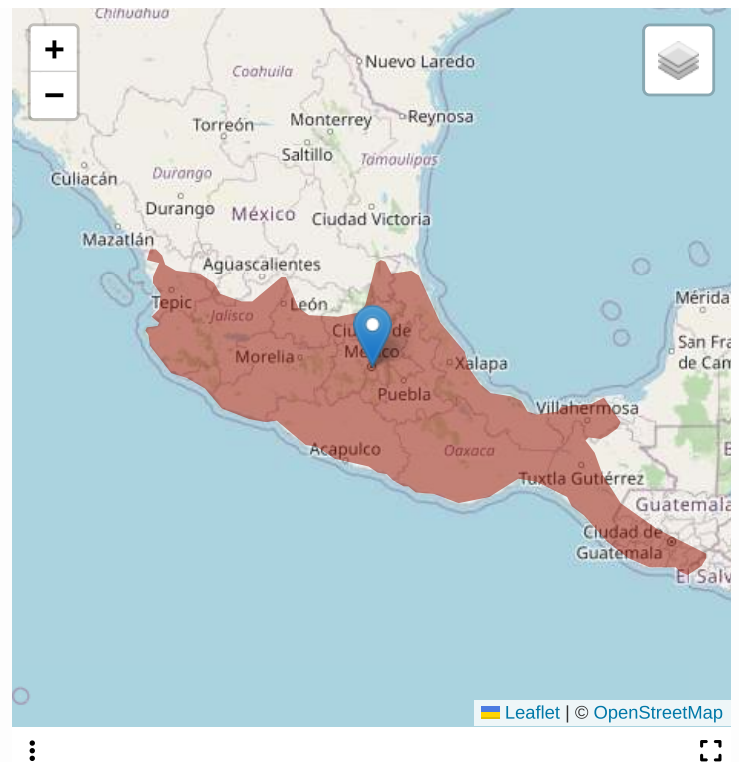


: Historia plantaru... []



: Historia plantaru... []

The Nahuatl meaning of coanenepilli, snake tongue, sheds some light on how very different plants were all identified by the same name. As we saw in the Florentine Codex, the leaves of that coanenepilli plant were bilobed, resembling a snake's tongue. This physical characteristic likely led to the plant's name. Physically different plants, however, were also called coanenepilli since they were used to treat poisonous snake bites. Scholars have noted that the same Nahua name was used for entirely different plants and could differ dramatically across regions.¹¹ Paula de Vos has also emphasized the difficulty identifying Nahua plants via historical texts, as Mesoamerican identifications are further complicated "by the multiple languages of the region, Nahua naming practices, and Spanish misunderstanding."¹² Due to these types of misunderstandings, the Spanish, and subsequent European naturalists, applied the name *contrayerva* to all plants called coanenepilli.



From an Indigenous Therapeutic to a Medici Secret

While the Badianus, Florentine Codex, and notes of Hernandez, offer important insights into the Nahua medicinal knowledge and practice, they were not published or widely disseminated in their day. Both the Badianus and Florentine Codex remained in manuscript form and largely forgotten in private collections for centuries. Hernandez's work was eventually published; however, the first printed edition did not appear until 1615. In contrast, Mondardes's and Clusius's works were widely circulated and influential in the sixteenth century. So, although at least two unrelated New World plants were exported as contrayerva and associated with coanenepilli, the medical root described by both Mondardes and Clusius was the most common form of contrayerva circulating the medical market of Europe throughout the early modern period.



⋮ Contrayerva specimen

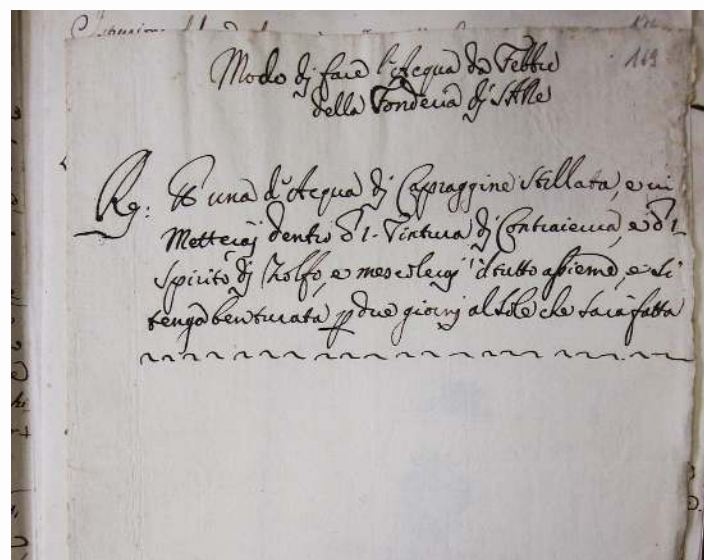


By the eighteenth century, the contrayerva root had largely been disconnected from its Nahuatl name. It did, however, retain its application as a diaphoretic for the treatment of fevers. As William Woodville explained in his *Medical Botany* (1790), the root was still rarely grown on the European continent, although the plant had been recently introduced to the Royal Botanic Garden at Kew. Woodville described contrayerva as “[...] externally brown, internally whitish, and furnished with numerous fibres: the leaves are various, of an irregular shape, lobed, serrated, or rather dentated, pointed, veined, and placed upon long radical footstalks, which are winged towards the leaves:[...]” Woodville credited a Dr. Houston, who travelled to the West Indies and observed contrayerva plants “in their native soil,” as the authority on the identity of true contrayerva. Woodville appeared to agree with Houston, that numerous similar and related species of contrayerva were exported as the medicinal root. Woodville also noted that although the plant was first praised as an alexipharmic, it was now chiefly employed against fevers.



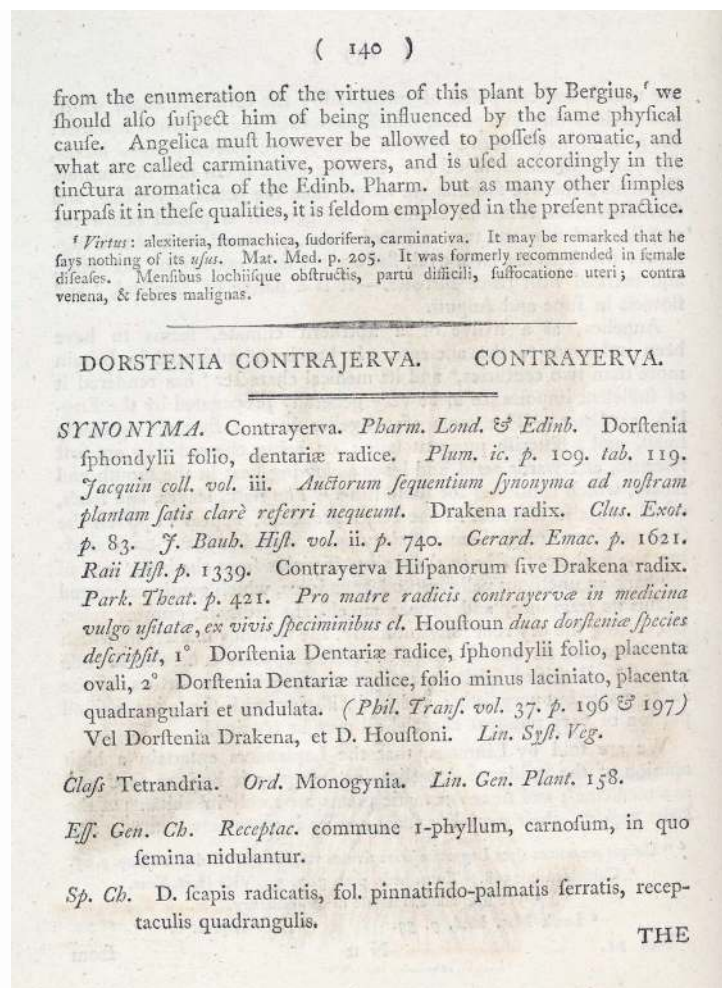
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The famed Medici graducal pharmacy used contrayerva as the key ingredient in their prized “Aqua da Febbre,” or fever water. The secret recipe, discovered in the personal handwritten recipes of the last Medici princess, Anna Maria Luisa, reveals just three ingredients: distilled Capraggine water (*Galega officinalis*), tincture of contrayerva, and spirit of vitriol. Medicines like this fever water were produced by the Medici court pharmacy and were highly valued across Europe, acting as an important form of political capital for the Tuscan principality. As such, Medici therapeutics were often gifted in elaborate wooden medicine chests to important courts and dignitaries across Europe.



Fever water

As we can see, indigenous knowledge of coanenepilli was in many ways misunderstood and mistranslated by the first Europeans who learned it from local informants. Despite this, some of the plants identified as coanenepilli were firmly appropriated into European medicine as contrayerva by the eighteenth-century. As a system for naming and classifying plants developed, European botanists concluded that the roots circulating as Drake's Root, Contrayerva, *Cyperus longus inodorus Peruanus*, and The Indian Spanish Counterpoison were the same or related plants. Today, botanists have classified at least 120 species of plants under the genus *Dorstenia*, to which we now know Drake's Root and Monardes's contrayerva belong.



: Medical botany containing systematic and general... []

Due to a lack of surviving textual evidence and the erasure of Nahua medicinal knowledge over the course of Spanish colonization, we may never fully understand the cultural histories and significance of coanenepilli. Identifying plants through texts across languages, geographies, and historic periods is difficult and imperfect. As we can see, plants like contrayerva are often not simply a single plant that can be trace through translation and text. Despite these challenges, understanding contrayerva's indigenous roots highlights the circulation and dynamic nature of indigenous knowledge as well as how threads of such knowledge, although formed and reformed, also became politically and socially valuable as they were assimilated into European pharmacopeias.¹³



⋮ Dorstenia contrajerva



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12. De Vos, "Methodological Challenges Involved in Compiling the Nahua Pharmacopeia," 227. [↔](#)
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Explore the cultural histories of plants and their influence on human societies