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Forbidden herbs: Alzate's defense of pipiltzintzintlis

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In a 1772 newspaper article, José Antonio Alzate y Ramírez (1737–1799) defended the medicinal benefits of cannabis against the prohibition of the Inquisition. Alzate concluded that the indigenous herb pipiltzintzintlis¹ was ‘nothing else but cannabis.’² As Spanish physician Juan de Cárdenas contended almost two centuries earlier, Alzate argued for a disassociation of the plant's narcotic or hallucinogenic properties and effects from its potential demonic influence.³

In the following pages, I investigate the Church's prohibition of the herb pipiltzintzintlis. I analyze Alzate's evidence in support of medicinal cannabis use, ranging from first-hand experience to second-hand accounts to medical encyclopedias, thereby exposing the range of eighteenth-century sources supporting medicinal marijuana use. I end with conclusions on the epistemic value bestowed on different sources of scientific evidence in eighteenth-century Mexico and on the role that censorship played in the circulation of scientific knowledge.

1. Church prohibition of pipiltzintzintlis

The Spanish Inquisition prohibited items, behaviors, and affiliations deemed immoral or contrary to the tenets of Christianity, such as unapproved Bible translations, polygamy, Protestantism, love charms, and witchcraft. Joining the long list of offenses punishable by the Inquisition were hallucinogenic herbs, believed to facilitate communication with the devil.⁴ Psychoactive herbs were at times prohibited by the Inquisition even when they had medicinal benefits.⁵ The herb central to this article, pipiltzintzintlis, was among the plants condemned for use in ‘idolatrous and superstitious rituals’ (Chuchiak 2012, 309). The Supreme Council of the Inquisition explained in 1620 that even herbs with medicinal uses were to be prohibited when they presented danger of associations with the devil.⁶

Several Inquisition cases document indigenous people caught in possession of pipiltzintzintlis. One case from 1698 condemned use of the herb; a Spanish constable reportedly testified under oath:

It is not permitted, nor is it good that they drink this herb because with it they see many vile and evil things and visions and when they take it they speak with demons and other vile monsters. This herb is prohibited and forbidden by the Inquisition. This is the truth under oath. (Chuchiak 2012, 312)⁷

Another case from 1704 tried a mulata midwife and healer named María for possession of a leather bag with the dried herbs of pipiltzintzintlis, along with other herbs, and a child's umbilical cord.⁸ According to the trial records, when asked about the contents of the medicine bag, María reported having herbs that cured ant bites.

The fine line between medicine and substance abuse also accounted for the prohibition of indigenous herbs in hospitals. The 'pagan' activities associated with the herbs were more problematic than the plants themselves. This can be seen in the 1552 hospital regulations outlined by Franciscan missionary and renowned Nahuatlologist Alonso de Molina, which prohibited the use of non-Christian healing practices. Fortune-telling medical practitioners were prohibited from entering the hospital, along with 'various herbs and grass medicines' (Molina 2002, 85).⁹

Several missionary accounts, however, lead one to question whether priests *unofficially* allowed the use of medicinal herbs like pipiltzintzintlis.¹⁰ The account of missionary Fray Toribio de Benavente (also known as Motolinía) is especially interesting:

The Indians have made many hospitals where they cure the sick [...] They have their doctors [...] who know how to apply many herbs and medicines that for them is enough; and there are some of them with so much experience that many old and grave sicknesses that have afflicted the Spanish for long days without any remedy, these Indians have cured. (Motolinía 2001, 182)¹¹

Motolinía's narrative is especially arresting when we take into account the chapter in which it is written, entitled: 'Of the many superstitions and forms of witchcraft which the Indians have.' The first two paragraphs of the chapter *condemn* 'witchcraft and superstitious ceremonies,' but the third paragraph, in part translated above, *commends* indigenous medicine. In what seems on first glance to be a reproving chapter, indigenous medicine was in effect lauded.

Nonetheless, Church decrees continued to condemn pipiltzintzintlis. A 1769 Church ruling explicitly prohibited the herb. The 1769 decree was written by Archbishop Francisco Antonio de Lorenzana y Butrón (1722–1804), prompted by a visit from the Prelate. The text explains: 'our current prelate in his sacred pastoral visit [...] with grave pain to his vigilant heart had noted diverse errors of the Indians' (Lorenzana y Butrón 1770, 67–68). Bishop Lorenzana wrote that even one's own parents and children ought to be denounced for prohibited behaviors, including the use of pipiltzintzintlis,

... executing superstitious cures using methods and materials not conducive to sanity: or abusing *Pipiltzintzintlis*, *peyote*, *chupamirtos* or roses, or other herbs or animals or feigned miracles, revelations, raptures or enchantments ... (ibid., 69)

The mention of pipiltzintzintlis alongside peyote reveals that the Archbishop considered them on a par. Alzate directly references this decree in his newspaper article, which is not surprising since he previously worked for the Archbishop who wrote it. What is notable, however, is that he admits knowledge of the document, at least in regard to the prohibition of pipiltzintzintlis. Alzate writes:

The abuse of the *pipiltzintzintlis** is one of those relics of the times before the Spanish, which is preserved by some of the Indians. The published edicts written by the prelates of this kingdom and most recently in the year of 1769, express that the parish priests were given the task to use their full efforts to uproot this superstition and to do so for the spiritual health of the Indians.

* *Pipiltzintli* is equivalent in our Spanish to *niñito, pequeñito, hijito*. (1831, 4:96; footnote in original text)

As we will see later, Alzate contradicts this decree with his promotion of the use of the herb. Several parts of this quotation can be analyzed. First, we should notice that he writes ‘abuse’ instead of ‘use’ in the first sentence. The word ‘abuse’ right away hints at Alzate’s later conclusion, that there is a moderate and immoderate way to employ this herb. Second, Alzate claims also in the first sentence there was an indigenous use of the herb before the time of the Spanish. According to current-day historians, however, cannabis with hallucinogenic effects (*cannabis indica*) originated in Asia and was brought likely via Muslim travelers to Africa and Europe and from there to Latin America.¹² There is no known use of cannabis in Latin America before the arrival of the Spanish.¹³ The Spanish had attempted to plant *cannabis sativa*, the strain without hallucinogenic effects, commonly used in Europe to produce hemp for shipping ropes and clothing, but the crop would not grow successfully in the Latin American climate. The first known arrival of *cannabis indica*, cannabis that thrives in climates near the equator, was as seeds brought by African slaves on ships crossing the Atlantic.¹⁴ Plantation owners may have even encouraged *cannabis indica* use because it amplified work output through an increased ability to endure the pain of hard labor.¹⁵

With this in mind, it is interesting to consider whether or not Inquisition officials knew the herbal medicine they were prohibiting was known and used throughout Asia and Africa. As only the Nahuatl name for the plant is utilized in the Spanish prohibition decrees (the word Alzate used for cannabis, *cáñamo*, is not mentioned),¹⁶ it appears that biases about the diabolical and heretical use of herbs in indigenous practices overshadowed a closer empirical inspection of the herb’s potential benefits. It would be a worthy endeavor of future research to consider how the Inquisition viewed and banned local versus imported plants.

In addition to the 1769 decree, a list of ‘frequent abuses committed by the Indians’ was presented to the Fourth Mexican Council in 1771, including the use of pipiltzintlis. The decrees were never ratified by the pope or king, but they reveal internal Church discussions over behaviors considered immoral or unorthodox (Melvin 2012, 56).¹⁷ Regarding pipiltzintlis, the report testified that: ‘When they lose something they drink pipiltzintlis, which are indigenous seeds, in order to figure out who stole it.’¹⁸ These decrees condemning pipiltzintlis were challenged by Alzate in his newspaper article from 1772.

2. Alzate: *letrado*, journalist, natural historian, and experimentalist

José Antonio Alzate y Ramírez (Figure 1) represented what Jorge Cañizares-Esguerra terms ‘patriotic epistemology,’ or the belief held by creole intellectuals (born in Latin America with Spanish ancestry) that Latin America could only properly be studied by Latin Americans (2004, 206–10).¹⁹ The sentiments behind this term have been outlined by Pedro Robles and Torres Hernández, when they wrote: ‘Alzate converted into an exalted defender of the American man as a “new man” differentiated and different from the European’ (2004, 324). Alzate, whose father came from the Basque Country in Spain and whose mother was born in Mexico, was proud of Mexican achievements,



Figure 1. José Antonio Alzate. Lithograph portrait by S. Hernández. In *Hombres ilustres mexicanos*, edited by Eduardo L. Gallo, 3:79. Mexico City: Imprenta de I. Cumplido, 1874. Image courtesy of The Hispanic Museum & Library, New York.

but disenchanted with colonial subservience to Spain.²⁰ European foreign observers, he held, were ill-informed, naïve, and dependent on the goodwill of locals for knowledge they then in turn claimed as their own.²¹ Tensions between creoles and Spaniards increased when royally sponsored botanical gardens, surgery hospitals, and mineralogy colleges in Mexico prohibited creole scientists from assuming prominent positions. Even after winning a prize from the College of Mineralogy in Mexico City, to Alzate's dismay, he was not admitted as a fellow. Although at the end of the eighteenth century royal institutions in New Spain were still tightly controlled by Spain, some men like Alzate used indigenous knowledge to establish and enhance their epistemic autonomy.

In the words of the *Encyclopedia of Mexico* Alzate's 'self-appointed mission was to educate the Mexican public on matters of science and natural history' (Werner 1997, 47). And as a priest, Alzate used his theological knowledge to argue against the

prevailing scholastic tradition and firmly established forms of authority (e.g. the Church, municipal authorities, royal officials), which did not meet the standards of knowledge production and validation that he as a *letrado*, journalist, natural historian, and experimentalist expected.²² Alzate's family wealth enabled him to dedicate himself to his studies. His father paid for the establishment of a chantry, so that he had to say only 15 masses per year (Werner 1997, 47). He studied in the Jesuit Colegio de San Ildefonso and later obtained two degrees from the Real y Pontificia Universidad of Mexico City: a Bachelor of Arts in 1753 and a theology degree in 1756 (Saladino García 2001, 19). Although he had no official training as a natural historian, in 1771 Alzate was said to be the only creole scientist in the New World to be nominated as a corresponding member of the prestigious Paris Royal Academy of Sciences (Académie Royale des Sciences) and the Madrid Royal Botanical Garden (Real Jardín Botánico de Madrid), accolades he printed on his newspapers to enhance his authority. Alzate's personal experiments, from estimating the population of Mexico to refining uses of the cochineal beetle, earned him international renown.²³ He was sometimes called 'The Pliny of Mexico,' after the legendary Roman natural philosopher, Pliny the Elder (23–79 A.D.), and compared with Benjamin Franklin, a man Alzate himself applauded (see his article, 'Brief Praise of Benjamin Franklin').²⁴

Alzate's approach to natural history can possibly be best summarized by the fact that he publicly rejected Carolus Linneaus's system of botanical classification for its lack of practicality. Alzate remarked that descriptions of the plants should be followed by a list of their possible uses. For Alzate, a detailed portrayal of plants' physical characteristics was significantly less helpful to the public than a catalogue of the medicinal and practical uses. He wrote: if you were to get sick 'would you rely on an herb whose appearance, but not effects, were known?' (Werner 1997, 47). Alzate would have appreciated the 1552 Aztec herbal book, which was essentially what he wanted instead of Carolus Linneaus's system, but the manuscript had been gifted to the Vatican and only returned to Mexico two centuries after Alzate's death in 1990.²⁵ His focus on the natural endowments of the Americas for public use remained a lifelong passion. A particularly striking example of his pragmatic approach to knowledge is Alzate's 1772 article on pipiltzintzintlis.

Alzate's preferred medium of dissemination were 'learned newspapers,' also known as 'learned journals,' and 'erudite periodicals.' Since the implementation of the printing press in the New World, newspapers developed as a source of information for the public between official regulations and marketplace rumors. Learned newspapers were major channels for the dissemination of eighteenth-century scientific knowledge, with articles sometimes written under pen names which afforded their authors some anonymity.²⁶ Subjects ranged throughout the entire field of natural philosophy in disciplines we today term biology, physics, meteorology, geology, topography and public health, among many more (see Grant 2007). These newspapers 'were uniquely responsible for making science a form of public knowledge' (Broman 2000, 231). In Europe, learned journals granted public access to academic debates, newly published discoveries, and information otherwise reserved for academic circles. From the 1680s they became, in the words of Jonathan Israel, a 'powerful machine undermining traditional structures of authority, knowledge, and doctrine' (2001, 142).²⁷

This was also the case for Mexico. Learned newspapers had existed since the second half of the eighteenth century in Latin America. The first daily newspaper in Latin America

appeared in 1805 (Lavrin 1974). Alzate himself edited four newspapers during his lifetime. After his brief three-month experiment with the *Diario literario de México* (printed by the Biblioteca Mexicana) during 1768, José Antonio Alzate y Ramírez went on to run his own learned newspaper in 1772, the *Asuntos varios sobre ciencias y artes* (printed by José Jáuregui), where the article on pipiltzintzintlis discussed below was published.²⁸ But, in 1733, after 13 issues, the *Asuntos varios* newspaper was prohibited. Both the *Diario literario* and the *Asuntos varios* of Alzate suffered censorship and discontinuation. While the exact reason for the newspaper withdrawals is unknown, scholars have plausibly suggested that Alzate's criticism of viceroys was a major factor.²⁹

We do not know if Alzate's 1772 newspaper article on pipiltzintzintlis played a role in the prohibition of his *Asuntos varios*. What we can garner, though, is that this article is atypical when compared with the other 23 articles published in 1772. In contrast to articles examining the benefits of mechanical devices for agriculture, modes of cotton production, and the best way to conserve seeds, two articles appear to carefully provide criticism of the Church: the first criticized the custom of kissing the hands of religious people (although Alzate repeated this was only a translation of a 1715 article from Paris), and the other article is the one studied here.

In fact, Alzate mentions criticism of his article about pipiltzintzintlis in his response to the letters to the editor, as some people had allegedly questioned his facts, something we will come back to in the following pages. While we do not know if this article led to the closure of his newspaper, it does seem evident that Alzate knew he was dealing with what Martin Mulso has termed *prekäres wissen* ('precarious knowledge').³⁰ As we will see, Alzate, normally confident and confrontational in his writing style, wrote the article on pipiltzintzintlis cautiously, skirting around direct criticism of the Church, likely in an attempt to avoid censorship while circulating his scientific knowledge.

3. Pipiltzintzintlis

For a casual reader, it is not at all clear that Alzate's 9 November 1772 article³¹ supports the use of a herb prohibited by the Inquisition. In fact, a few present-day scholars have even written that Alzate's article *condemns* the use of the herb. A close reading of the text refutes this conclusion, however. Alzate planned the layout of his article very carefully to avoid censorship or reprehension for blasphemous writing. Unlike his articles on less controversial topics, the central topic of this article, pipiltzintzintlis, is not mentioned until paragraph five. Alzate begins by interesting his reader with a general discussion on the unidentified and misunderstood customs of indigenous people in Mexico (Figure 2):

In the moral history of the world, the description of the virtues and vices of its inhabitants does not occupy any minor place. What important service to the literature could someone make, who dedicated himself to giving an idea of the passions, customs and inclinations of the Indians? This part is less told in all of the histories. We have hardly been given any superficial ideas, and of them very far from the truth; who can't admire in them the lack, in general,* of greed and vengeance; passions that do so much harm to humanity?

*One should understand I am speaking about the Indians found as they were, because the mix with other castes and different education changes their character. (Alzate [1772] 1831, 4:95; footnote in original text)



Núm. 3.

LUNES 9. DE NOVIEMBRE de 72.

ASUNTOS VARIOS
SOBRE CIENCIAS, Y ARTES.

Obra periódica, dedicada al Rey N. Sr.
(que Dios guarde) por Don Josef
Antonio de Alzate, y Ramirez.

EN la historia Moral del Mundo, no ocupa el me-
nor lugar la descripción de las virtudes, y vi-
cios de sus habitantes: ¿ Que servicio tan im-
portante haria à la literatura, quien se dedicara
à dar una descripción de las pasiones, usos, é
inclinaciones de los Indios? Esta parte se echa menos en
todos sus Historiadores. Apenas nos han dado unas ideas
superficiales, las mas muy ajenas de la verdad;
¿ quien no debe admirar en ellos la falta, por lo gene-
ral, (a) de la avaricia, y venganza; pasiones, que tanto
daño causan à la humanidad? Miserables en quienes la
pena de nuestros primeros Padres, de solicitar el susten-
to con ansias, y fatigas, se verifica en su mayor exten-
sion: objetos dignos de compasion, han logrado los
indultos, privilegios, y favores, que nuestros Reyes se
han esmerado en concederles, los que con tono de me-
nosprecio los tratan de Idólatras, hacen notable agrava-
vio à los Prelados, y Pastores, que con esmero han pro-
curado desarraygar este efecto de nuestra malicia: ¿ Que
nacion en su origen no ha sido Idólatra? ¿ Los hebreos,
Pueblo escogido por Dios para su Culto, y que paipa-
ba

(a) Se debe entender, hablo de los Indios reconocidos como tales,
pues la mezcla con otras castas, y la diferente educacion muda
su caracter.

1687

Figure 2. José Antonio Alzate y Ramirez. *Asuntos varios sobre ciencias y artes*, no. 3. Mexico City: Imprenta de la Biblioteca Mexicana, 1772. Image courtesy of the Hispanic Museum & Library, New York.

Alzate praises anyone who would embark on the onerous task of discovering the truth behind indigenous customs, and in this case, that person was him. In the next paragraphs, we see Alzate negotiate between theological and scientific knowledge. On one hand, he portrays himself as a close adherent to the Catholic faith: ‘we give thanks to God to see so many people, so many tribes, across large stretches of land converted to the true religion in the space of a few years’ (idem, 4:96). On the other hand, he defends the still existing ‘relics of paganism,’ a position which his clerical overseers may not have much appreciated:

If we notice in them some relics of paganism, we should consider that only a little more than two and a half centuries ago came the first ray of light of the gospel; an amount of time insufficient to erase all of their proceeding traditions of the depraved human heart. How many centuries passed since they have been preaching the gospel in Italy, England and other kingdoms? Even their own authors tell us about the superstitions and abuses in those places. A celebrated English author attributes many of them, not only to the English plebeians, but also to the people of any sphere. (ibid.)

Alzate thus prefaces his article by explaining to his reader that superstitious behavior in converted people is not solely a Mexican phenomenon. Alzate explains that even civilized places like Italy have customs based on pagan traditions absorbed into contemporary Christian culture. He gives an example:

The custom that is practiced in Italy in the gift of fava beans on All Souls Day is recognized as having a pagan origin; thus, it was demonstrated by a wise Italian not too long ago. (ibid.)³²

With this framing in place, he turns to the subject of his article. Alzate first mentions in passing that some observations and discoveries known to him have indicated that great utility can result from the use of *pipiltzintzintlis*. Nevertheless, he shows himself aware of the conventional opinions of the Church, describing the hallucinogenic effects that result from drinking the seeds of *pipiltzintzintlis*. He reports that the Indians have

visions and a thousand episodes, in which the things that reoccur most [in their lives] are manifested to them, with other particularities coming according to their own ignorance or malice. The effects that are produced in them are spontaneous: some show a strange happiness, other remain for a time stupid, others, and this is the most common, vividly represent a madman; and many of them believe that all of these effects are occurrences caused by the mediation of the devil. (idem, 4:97)

In the eyes of his contemporaries, the devil, not a natural phenomenon, was the cause of the effects, a link Alzate now works to dispel. To do this he turns to an evaluation of the herb asking: ‘What type of thing is *pipiltzintzintlis*? Are its effects natural or supernatural?’ (ibid.) (Figure 3) In the next seven paragraphs he shows that because it is a narcotic, *pipiltzintzintlis* has a natural effect, in addition to multiple benefits, both as a medicine and as a resource for making ship ropes. He writes in no uncertain terms: ‘the effects observed in those who internally use *cáñamo* or *pipiltzintzintli* regularly are natural’ (idem, 4:98). Alzate emphasizes, moreover, that a plant’s narcotic or hallucinogenic properties and effects can be disentangled from potential diabolical influence. To prove the herb is a narcotic, Alzate employs a style that accords with the eclecticism typical of the Enlightenment to compile knowledge into encyclopedias.³³ Alzate’s sources can be analyzed in two parts: first- and second-hand experience (3.1); and historical accounts and medical encyclopedias (3.2).³⁴

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emplen todo su anhelo para desarraigár esta superstición, en que va de por medio la salud espiritual de los Indios, y puede añadirse también la temporal. (a) Algunas observaciones, y descubrimientos, que se me han entrado por los ojos, me proporcionan asunto para la presente Memoria, por la gran utilidad, que puede resultar. La superstición de los Indios en el uso de los Pipiltzintlis, se reduce à tomar ciertas semillas, creyendo, que por su medio adivinan, y tienen mil raptos, en los quales se les manifiestan las cosas mas recónditas, con otras particularidades, procedidas, según su respectiva ignorancia, y malicia. El efecto que en ellos producen son espantosos: unos manifiestan una alegría ridícula; otros permanecen por algún tiempo estúpidos; otros, y esto es lo mas comun, representan vivamente à un furioso: y todos estos efectos los creen muchos de ellos, como sucedidos por la mediación del Demonio.

¿Que cosa son los Pipiltzintlis? ¿Su efecto es natural, ó preternatural? à lo primero satisfago con la experiencia: Havrá como diez años, que la casualidad me proporcionó la ocasion del desengaño, conseguí una pequeña cantidad de dichos Pipiltzintlis, la que se componia de una mezcla de semillas, y yervas secas; à la primera vista luego reconocí, no eran otra cosa, que las hojas, y semillas del Cañamo; advertencia que tuve al punto, por haver visto antes en un Jardin la planta del Cañamo. No obstante esta que para mí era una demostracion, en primera ocasion, y para quedar del todo convencido, sembré aquellas semillas con toda la precaucion posible, y logré unas plantas de Cañamo, lo mismo que el de Europa, las que los Indios reconociendo por Pipiltzintlis, fue necesario arrancar las plantas, luego que comenzaron à madurarse las Semillas por quanto procuraban pillar toda la que podian.

Aun se comprueba esto con otro hecho que debe

(a) No hay duda va de por medio su salud temporal. El efecto violento de los Narcóticos lo prueba bastantemente; no ha muchos meses, que una persona à quien le administraron, no se con que fin, los Pipiltzintlis, quiza en demasiada cantidad, perdió el juycio.

Figure 3. José Antonio Alzate y Ramírez. *Asuntos varios sobre ciencias y artes*, no. 3. Mexico City: Imprenta de la Biblioteca Mexicana, 1772. Image courtesy of the Hispanic Museum & Library, New York.

Igual noticia nos presenta el célebre Valmont de Bomace en su Diccionario universal de Historia natural &c. Impreso en Paris en 1767. en la palabra Chambre, Cañamo se explica de este modo: " Las hojas de Cañamo parece contienen una virtud que embriaga, y adormece. Koempser (a) refiere como en algunos lugares de las Indias (orientales) se prepara una bebida, que embriaga, la qual es de uso de este País. Algunos mezclan la Semilla de Cañamo con los alimentos.... pero esta les llena la Cabeza de humos, y si se come en abundancia exita el Delirio, segun, y como el culantro ¿ Què havremos de decir del uso diario, y general en todo el Reyno del Culantro? Por ahora no puedo extenderme mas sobre el particular.

El Testimonio de Monsieur Valmont, és de mucho peso. ¿ A quien otro que á un naturalista se debe creer sobre las virtudes que contienen las producciones de la naturaleza? Segun lo que refiere, el Cañamo es narcótico, (b) y por consiguiente, sus efectos son naturales

(a) El Autor que nos ha dado la mejor historia del Japon.

(b) El modo de obrar de los Narcóticos se refiere en los Autores Médicos, que han escrito de la virtud de los medicamentos. Para dar una idea ligera expondré, traducido del Célebre Diccionario de Treboux el artículo narcotique, lo que dará una ligera idea de lo que han escrito los mejores Médicos,,, Narcótico término de Medicina, que se dice de los remedios, que procuran el adormecimiento; los Narcóticos obran segun que ellos calman, y disminuyen el movimiento de los espíritus, y los impiden durante algun tiempo de moverse con toda la viveza que es necesaria: La Amapola, el Opio, la Mandragora, el Narciso, el Beleño &c. son Narcóticos. Ay muchas opiniones sobre el modo de obrar de los Narcóticos, los antiguos lo atribuyen à la frialdad, que tienen de su naturaleza: Etmullero despues de Willis piensa, que los espíritus animales están cõpuestos de una sal volatil fluida, y que por la mezcla de los azufres, ò de azeytes, en que abundan los Narcóticos, se disuelven. El parecer de Monsieur Andri que advierte se lo comunicò Monsieur Fayon, es, que la sal de los Narcóticos se disuelve por un licor, sea el que fuere, y que sus particulas ramosas, que restan libres de las sales, se enredan unas con otras, y detienen el

Figure 4. José Antonio Alzate y Ramírez. *Asuntos varios sobre ciencias y artes*, no. 3. Mexico City: Imprenta de la Biblioteca Mexicana, 1772. Image courtesy of the Hispanic Museum & Library, New York.

3.1 First- and second-hand experience

Alzate testifies that his own first-hand experience should banish all doubt regarding the nature of cannabis. After obtaining the seeds of *pipiltzintzintlis* and planting them himself, he confirms it is nothing other than *cáñamo*, or cannabis. He writes:

First off, I will reckon with experience: it was about ten years ago when chance presented me with the occasion to be disillusioned: I got a small quantity of the said *pipiltzintzintlis*, which was composed of a mixture of seeds and dry herbs: on first sight I recognized it was nothing else but the leaves and seeds of *cáñamo*; a realization I had immediately, from having seen the *cáñamo* plant before in a garden. Notwithstanding this, which for me was proof, on the first occasion and in order to keep all convinced, I planted some seeds with all of the precaution possible, and I was able to grow some plants of *cáñamo*, the same as in Europe, that which the Indians recognize as *Pipiltzintzintlis* (idem, 4:97)

In this account, Alzate makes no attempt to hide his personal experience growing a herb prohibited by the Inquisition. Carrying out his own experiments first-hand gave him authority within the Republic of Letters and for that he was willing to risk a clash with the Inquisition.

Alzate also relays his contact with sailors who were planning a new fleet for travel from Veracruz (the main Atlantic port of colonial Mexico) to the *mar del Sur* (the Pacific Ocean). He writes that one sailor had the idea to plant cannabis on the coast in order to make nautical supplies:

... when they considered the expedition of Sonora, and when they planned that navigation in the Southern Sea, a person in charge of providing some of the necessary items for a new fleet advised that it would be helpful to plant *cáñamo* in the vicinity near the coast in order to make mooring ropes, sails and the other things for which *cáñamo* is necessary for the maneuvering of ships. Procuring it would avoid the excessive costs that one incurs when one sails from Veracruz to those provinces. His idea was applauded (ibid.)

In this account, growing *pipiltzintzintlis* is said to be a cost-effective method to produce several types of ropes and materials needed for maritime expeditions. Alzate describes his own hand in helping the sailors obtain the herb:

Before this, they turned to me to help get it, and I advised them, already well informed about what had happened to me. It was an easy business, because between the herbalists* in this city, he could find some portion: my speculation had a fortunate success, because they could get quite a number of bushels, and not at the highest price.

* The term herbalist refers to the Indians in the market who work selling herbs and other little medicinal things. They in part do what the botanists in Europe do. (idem, 4:98; footnote in original text)

Alzate mediates between Spanish businessmen and indigenous herbalists; between Europe and Latin America. In his footnote, he explains the work of indigenous botanists with authority to his inexperienced European counterparts in need of his local knowledge. When asked by a sailor where the Indians get *pipiltzintzintlis*, Alzate replied that it grew wild due to the tropical climate.³⁵ The emphasis on climate is not accidental, but part of larger discussions taken up by Alzate elsewhere on the potential advantages and disadvantages of the Americas in comparison with Europe. Alzate added that the Indians had informed him that in addition to growing it for its internal use, they also

grew it for external application for skin ailments. This statement accords with the above-mentioned Inquisition trial account by María, when she is said to have described the herb as a remedy for insect bites.³⁶

3.2. Historical evidence and medical encyclopedias

Prior to the discovery that organisms were made up of cells and without information on molecular structures and the internal life of plants, natural historians had to take recourse to careful observations in order to identify the properties and propensities of plants. Alzate likewise supported his claims with historical examples dating back to the Egyptians. Monsieur Petit's *Dissertation on the Nephthes of Homer*, printed in 1689, is among the sources cited by Alzate.³⁷ The Egyptians had reportedly used cannabis 'to forget about their melancholy and procure happiness' (idem, 4:99).

Alzate includes (citing Petit) that the Egyptians did this by making pills from pulverized cannabis leaves and water:

First of all, it is very useful what Monsieur Petit says in his dissertation about the Nephthes of Homer printed in 1689. It is explained that regarding the herbs and other productions of nature that transform the brain: "Between the drugs (he says) that have this use, the Egyptians used it also in another composition, which they call *asis*. These are some powders made of leaves of *cáñamo*, which they kneaded and mixed it with water to form some pills when they wanted to forget about their melancholy, their worries and procure happiness. They would gobble down five or six of the said pills, which are the size of a chestnut. It takes them little time after to pass to a sort of rapture or static dream, during which they see the most agreeable things in the world: forests, rivers, meadows, or gardens adorned with the most beautiful flowers; the enchanting places where ... * ... [ellipsis in original text] in a word, the true fortunate islands** or to speak with more precision, a true paradise of Mohammed.

*I have truncated part of what Petit says because it is something obscene. Our language and much more my role require me to pass in silence all of those things, which could give someone a red face ...

** The Canary Islands (ibid.; footnotes in original text)

This quote was problematic for some of Alzate's readers, who wrote letters to the editor questioning that the Egyptians really used cannabis and that they did so in such large amounts. Alzate responded to his readers on 28 December 1772, insisting 'this is how it appears in the original I translated' and 'Aren't there people who consume food swallowing portions bigger than a chestnut? Where is the difficulty with this?' (idem, 4:152).

This is a particularly interesting citation for the consequences the argumentation supports. By citing Petit, Alzate highlights the psychological benefits of medical cannabis. Not just a physical relief from pain, but also the improved mental state of euphoria is underscored. He even goes on to argue: 'that it should not be only the Indians of New Spain that practice the internal use of the seeds and leaves of *cáñamo* for their extravagant visions' (idem, 4:98). Alzate appears to approve of these elevated mental states, just as long as they do not lead to 'pagan' visions. Alzate's condemnation of heretical visions is likely a means to show orthodoxy with Church rulings. In another letter to the editor, readers remarked that the indigenous people did not have so many abuses of pipiltzintzintlis, to which Alzate responded that he could only report what the prelates of the kingdom

reported in their published edicts. His response appears to be another attempt to seem uncontroversial before Church authorities and to thus avoid censorship.

Also noteworthy in Alzate's translation of Petit are the footnotes, where Alzate clarifies that as a priest, ignorant of female anatomy, he could not describe some of the reported visions, even though we know he had read the explicit content in preparing his translation. Only the reprinting of expletives in translation stopped him, displaying his knowledge of the censorship boundaries that could call him into question before the Church.

The medical encyclopedias cited by Alzate give us the opportunity to see which sources were available to him in Mexico in the 1770s. He mentions nine scientists in total (see [Appendix 2](#)). Alzate twice cites the French encyclopedia entry on cannabis (*chanvre* in French) from the *Dictionnaire raisonné universel d'Histoire naturelle* by Jacques-Christophe Valmont de Bomare (1731–1807), a French botanist, mineralogist and professor of natural history.³⁸

Alzate translates Valmont de Bomare's documentation on the medicinal uses of cannabis,³⁹ writing that pipiltzintzintlis could be used to treat various ailments:

The seed of *cáñamo* has many medicinal uses, according to Bomare, before cited: it is emulsive and, boiled in milk, it is useful to cure a cough and jaundice. Some other authors see it as a medicine against gonorrhea. (idem, 4:101)

Alzate also quotes Valmont de Bomare's reference to the use of the herb in the East Indies as a drink made from cannabis seeds mixed with foodstuffs written by Engelbert Kaempfer (1651–1716),⁴⁰ a German traveler and naturalist, best known for his history of Japan (this is also noted by Alzate in his article), and considered a pioneer for his first publication, *Amoenitatum exoticarum*, on Japanese plants.⁴¹ *Amoenitatum exoticarum* is the Latin publication from which Bomare quotes Kaempfer's report attributing extra self-confidence, and, when taken in excess, a state of delirium, to the consumption of cannabis seeds. From Kaempfer's account in Bomare's *Dictionnaire*,⁴² Alzate concludes that pipiltzintzintlis is a narcotic. Alzate writes a lengthy footnote translating the French entry for *narcotique* from the *Diccionario de Trévoux* (also known as the *Dictionnaire universel françois et latin*)⁴³ showing us that he is no casual reader. He also diligently translates the encyclopedia entry into Spanish to make it accessible to his readers. In [Appendix 1](#), I transcribe the Spanish text by Alzate alongside the French entry from the *Diccionario de Trévoux* and the almost identical English *Cyclopaedia* (Chambers 1743). This comparison table shows how the Spanish, French, and English versions very closely copied one another, highlighting the knowledge production methods of scholars during the Enlightenment. The non-identical texts, however, also reveal that information was added or omitted at the whim of the compiler or translator.

By determining that pipiltzintzintlis was a narcotic, Alzate concludes that its effects were natural and not caused by mediation of a demonic, supernatural force. In order to not directly undermine the official position of the Church or to convince lay Catholic readers of his viewpoint, Alzate then wrote the following:

It would be rash to affirm that in some instances the effects of *cáñamo* on the Indians are not aided by the spirit of darkness, for that implicit or explicit pact that some of them contract with him; but in general, we should confess that in most cases, the effects and visions are purely natural. Piety, reason and scrutiny dictate that we should not hold as preternatural all that is not extended beyond the limits of nature. (idem, 4:100)

In other words, Alzate writes that on one hand it would be too extreme to say that the devil never played any role in manipulating the Indians (because saying so would aggravate Church officials) but, on the other hand, Alzate argues that the reader should not attribute non-natural causes to natural phenomena. In the context of his overall article on behalf of the manifold benefits of the herb, one is to infer that in the case of pipiltzintzintlis, they are but dealing with a purely *natural* phenomenon. While not contesting the clerical argument in general, Alzate does make clear that it should not apply in this particular instance. In this judgement, Alzate was supported by his friend and intellectual counterpart, the physician José Ignacio Bartolache.⁴⁴

Alzate knew that with such a sensitive topic he had to be as comprehensive as possible, heavily citing well-established and accepted knowledge from a wide array of European sources (see Appendix 2). Medical experts cited by Alzate included Michael Etmuller (1646–1683), a German physician and professor of botany, chemistry and anatomy;⁴⁵ Thomas Willis (1621–1675), an English physician specialized in neurology and psychology;⁴⁶ Nicolas Andry de Bois-Regard (1658–1742), a French physician specialized in parasitology and orthopedics;⁴⁷ Guy-Crescent Fagon (1638–1718), a French physician and botanist, first physician to Louis XIV and director of the Royal Gardens;⁴⁸ Johan Linde-stolpe (1678–1724), also known as Johannes Linder,⁴⁹ a Swedish botanist and physician, author of *De venenis*.⁵⁰ Alzate also cited the *Dictionnaire ou traité universel des drogues simples*,⁵¹ originally published in 1698, written by Nicolas Lémery (1645–1715), a French chemist and pharmacologist, whose 1675 *Cours de chymie* was ‘a standard text for nearly a century.’⁵²

The *Abrégé de l’histoire des plantes usuelles* is cited by Alzate as having a long account of medicinal benefits of cannabis, written by Pierre-Jean-Baptiste Chomel (1671–1740), a French botanist, medical doctor and compiler of descriptions of diverse plants, minerals and rare diseases.⁵³ When compared to the original source, Alzate’s account is faithful to the source. In five out of six paragraphs, Chomel refers to the potential benefits of *chanvre*, or cannabis, also including relief from abscesses, tumors, various burns, urinary problems, and removing the marks left from smallpox (1731, 2:494–96).

Alzate’s citations demonstrate not only the expanse but also the linguistic limit of the sources available to him. It is also interesting to uncover who Alzate does not appear to know. Sources in French and Latin were routinely cited but texts only available in English or German, even when they could have supported Alzate’s claims with more fortitude, went unmentioned. For example, he most likely would have cited the acclaimed experimentalist Richard Hooke, who reported to the Royal Society that cannabis was ‘no cause of fear’ but ‘may be of laughter.’⁵⁴ But Hooke is not the only omission from Alzate’s reference list: the German Benedictine Abbess Hildegard of Bingen (1098–1179) might have been cited for her references to cannabis as a medicine, as would have botanist Jacobus Tabernaemontanus’s 1588 *Neuw Kreuterbuch* [New herbal book], if only Alzate had had access to these sources, and could have read German.⁵⁵

A letter by Alzate to promote the benefits of cannabis arrived in the hands of the Mexican viceroy on 28 March 1778, six years after he wrote the article discussed above. Unsurprisingly, he argued for ‘the utility of the public’ that: ‘The general preoccupation so deeply rooted in New Spain of the prohibition of the seeds of cannabis and flax has impeded the achievement of beneficial advantages.’⁵⁶ With his prototypical Enlightenment

ideals, Alzate combined a variety of sources to build the strongest possible case he could to support use of the prohibited herb.

4. Conclusions

José Antonio Alzate y Ramírez's public endorsement of the prohibited herb pipiltzintzintlis exposes issues disputed in Mexican society at large.⁵⁷ Alzate was a tireless mediator between Church authorities and civil society, between the Spanish Inquisition and his scientific observations, between scientists and the public, and between indigenous and European knowledge. Alzate's hybrid methods were European and typical of the Enlightenment but his mission and focus were specifically creole: he took pride in the natural environment of Mexico and promoted the beneficial uses of indigenous herbs, even when that meant defending them before the Church's prohibition. Supporting himself with European authorities, he argued for the benefits of medicinal cannabis for various ailments. For Alzate, European enlightenment was incomplete without indigenous local knowledge. With the topic of pipiltzintzintlis, Alzate took a reason for European criticism, namely 'backward' indigenous traditions, and turned it into a source of praise for Mexico's natural and cultural heritage.⁵⁸

Alzate's 1772 article demonstrates the methods of knowledge production and circulation in the Latin American Enlightenment and the role that censorship played in the circulation of that knowledge. A combination of empirical evidence, testimony, natural histories, and medical encyclopedias were combined to make the printing press and specifically learned newspapers a tool of mediation and verification of scientific truth. A specific style of writing was employed under censorship which reveals the difficulty, but not impossibility, of presenting scientific evidence that directly challenged the Inquisition. The ability to publish newspapers, and to do so also under pseudonyms, granted creole naturalists a degree of freedom to challenge colonial authority and to mitigate or relativize the influence of Church decrees on public thinking.

Possibly due to censorship or due to his own religious convictions, Alzate did not reflect on whether or not the indigenous people were entitled to their own approach to knowledge. After all, were indigenous uses of medicinal herbs detachable from their spiritual effects? If hallucinogenic visions enlightened the indigenous people with a system of beliefs they trusted as valid, should they have been automatically dismissed as idolatrous? If visions of sorts are a valid form of obtaining knowledge by Christians, for example in mystic experiences or dreams of saints, how could visions by indigenous people baptized in the Christian faith be automatically disqualified as specious? History shows us, though, that even (or especially) mystical prophecies in line with the Catholic faith were seldom tolerated when experienced by newly converted Christians.⁵⁹

Alzate leaves the reader to ask for whose enlightenment his article was written. For Inquisition authorities to reconsider their stance on indigenous herbs? For the Republic of Letters to appreciate the value of indigenous customs? For the sick patient in need of medicine? For the healer who might otherwise fear to make use of the herb? In any case, Alzate unquestionably favors the controlled use of pipiltzintzintlis. In his words: 'I think I have demonstrated the virtue of the choice to use pipiltzintzintlis, and as we say in the language of the theologians: it is bad because it is forbidden, not forbidden because it is bad' (1831, 4:101–2).

Notes

1. Although I have opted to use the standard modern form of the word in this article, it should be noted that Alzate himself never employs this spelling: he uses ‘pipiltzintlis’ twelve times, and ‘pipiltzintlis’ and ‘piltzintlis’ twice each. Additional spellings found in other works include ‘pipizintle’ and ‘piltzintle.’ In direct citations from original sources, I have maintained the authors’ preferred spellings. It should be noted that the plural form used by Alzate, created by adding an ‘s’ to ‘piltzintli,’ is not the correct plural form in the indigenous language Nahuatl, from which the word originates.
2. ‘Demostrado ya que los pipiltzintlis no son otra cosa que el cáñamo’ (Alzate 1831, 4:98).
3. Juan de Cárdenas discussed peyote in his treatise on Mexican natural history: *Problemas y secretos maravillosos de las Indias*, 1591 (Cárdenas 2003). Some scholars associate pipiltzintlis with *Salvia divinorum*, or ‘leaves of the shepherdess,’ based on the works of Gordon Wasson and Jonathan Ott. For a pharmaceutical history, see Schultes et al. 2001, especially 92–101, 124, 164–65.
4. The devil was considered a constant threat responsible for both immoral choices and, notably, for the resistance of non-Christians to conversion. As Kenneth Mills (2013) has demonstrated in depth, Church officials acted in line with the common belief that God created the devil as part of his divine plan to test the dedication of the faithful.
5. For more information on demonology and superstition related to medical knowledge, see Keitt 2013; Müller-Ebeling et al. 2003; and Garza 1990, on pipiltzintlis, see 80.
6. ‘1620 Qualification of the Supreme Council of the Inquisition’, in Chuchiak 2012, 309.
7. This case is also referenced in the table of *curanderos* condemned by the Inquisition in Quezada 1991.
8. Mulato, also spelled mulatto (female form mulata / mulatta), refers to a person born from one black and one white parent.
9. For Latin American healers, see Huber and Sandstrom 2001, especially chapter 3, ‘Curanderismo in Mexico and Guatemala: its historical evolution from the sixteenth to the nineteenth century’ by Carlos Viesca Treviño.
10. For missionary accounts on indigenous plants, see Sahagún 1976 [1545–1590], Book 11, ‘Earthly things. About properties of animals, birds, fish, trees, herbs, flowers, metals, and stones, and about colors’; Acosta 2006 [1590] on indigenous plants in general, 190–233; Hernández 1615.
11. Although written sometime around 1541, the first edition of Motolinía’s *Historia de los indios de la nueva españa* did not appear in print until 1858.
12. For a global history of cannabis, see Duvall 2015; Abel 2014; Lee 2014.
13. Archive sources from the Archivo General de la Nación in Mexico City indeed reveal agricultural records that cannabis was grown alongside wheat in sixteenth-century Mexico, although it was most likely *cannabis sativa* brought from Europe, rather than *cannabis indica* brought from Africa (AGN, Indiferencia Virreinal, caja 6134, exp. 024 (Indios). 1573. Juzgado General de Indios).
14. It is not difficult to imagine why slaves would bring seeds (e.g. cannabis seeds for pain killers and rice seeds for food) with them after they had been sold, since seeds were one of few items small enough to bring and slaves did not know what they would encounter in a new world. Slavers had no incentive to confiscate such seeds; see Duvall 2019.
15. See Duvall 2019; see in particular, Part II, ‘How cannabis came to Africa, what happened to it there, and how it crossed the Atlantic.’
16. According to Duvall (2019, 154), the word *marihuana* is first used in print in Mexico in 1846. Even though we today distinguish the cannabis strains of hemp as *cannabis sativa* (THC < 3%) and marijuana as *cannabis indica* (THC > 5%), Alzate makes no such distinction in his analysis.
17. For the wide range of people involved to improve public health in eighteenth-century Mexico, see Ramírez 2019. For indigenous medicine in the eighteenth century, see Achim 2008.

18. The 1771 decrees are considerably different from the 1769 edict in both style and content, recording more lengthy observations, from yelling under water so that missing animals would reappear (#6) to burying money for use posthumously once reincarnated (#26). In all, forty-four descriptions were given to prove that many years after the conquest, indigenous customs had far but disappeared. See Zahino Peñafort 1999 [1771], 862–64. As Nesvig has shown, there are several reports of hallucinogenic herbal consumption by indigenous people to aid with finding things (2017, 46–47).
19. See also Moreno 1969, 107. For European dissemination of Latin American natural medicine, see Vilchis 2000.
20. *Diccionario biográfico español* 2010, 3:818.
21. *Idem*, 3:819.
22. I am indebted to an anonymous reviewer for this point. See Prieto 2011; Witek 1994; Bolognani 1968. A eulogy described Alzate as a ‘good philosopher, good countryman, and good priest’; see Clark 2009, 148. His role as a priest and scientist, by no means an uncommon combination at this time, gave Alzate as much the ability to sympathize with and receive sympathy, as it would prompt him to criticize and be criticized.
23. He drew maps, excavated indigenous ruins, collected plants, bred seeds, studied volcanoes, documented earthquakes, analyzed instruments like the barometer, and observed the planets, sun and moon. Alzate also advised the local government on the best way to distribute water throughout Mexico City (*Diccionario biográfico español* 2010, 3:818–19). In 1769, he was included on an expedition to chart the path of Venus with scientists from 62 different nations; see Chappe d’Auteroche 1778. Note that Alzate is sometimes referred to in this text as ‘Joseph Anthony Alzate y Ramyrez.’
24. Jesuit Francisco Xavier Clavijero (1731–1787) is considered by many scholars to have been the foremost Mexican Enlightenment scholar. He was in fact a teacher of Alzate and author of the renowned history *Historia antigua de Mexico* (Mexico, 1780); see Tenenbaum and Dorn 1996, 77.
25. In Alzate’s time, the 1552 manuscript was known under various names: ‘librito sobre las hierbas medicinales de los indios,’ ‘Código Barberini,’ and ‘El Libellus de medicinalibus indorum herbis’; it was part of the private Barberini library of the descendants of Pope Urban VII. It was transferred to the Vatican Library in 1902 when the Barberini library was absorbed into the Vatican’s collections; see the introduction by Bruce E. Byland to the Dover edition: Martín de la Cruz, *An Aztec herbal: the classic codex of 1552*, ed. William Gates (Mineola, NY, 2000).
26. Early modern newspapers put new information into the hands of the general public. In Europe, newspapers included practical information (e.g. *Das Münsterische Intelligenzblatt*, 1720–1849), military reports (e.g. *Die Straßburger Relation* 1605–1681), missionary accounts (e.g. *Der Neue Welt Bott*, 1700–1743), moral guidelines (e.g. *The Tatler*, 1709–1711), fictitious dialogues and fables (e.g. *Der Patriot*, 1724–1726), and social satire (e.g. *The Spectator*, 1711–1714), among many others.
27. For more information on learned journals in Europe, see Chapter Seven.
28. See Aceves Pastrana 2001. For a list of learned newspapers in Latin America, see Lechner 1992, 2:72.
29. See Hébert 2011. Almost fourteen years later, Alzate began another newspaper, *Observaciones sobre la física, historia natural y artes útiles*, of which 14 issues were published between 1787 and 1788. These short publication runs culminated in what scholars consider his biggest success, the 1788 to 1795 learned newspaper the *Gazeta de literatura de México* (printed by Felipe Zúñiga y Ontiveros), which generated monthly issues ranging from eight to sixteen pages (*idem*, 153, 156); see also Sánchez Hernández et al. 2008.
30. Martin Mulsow (2012) coined the term *prekäres wissen* (‘precarious knowledge’) to describe the marginal zones of early modern intellectual history.
31. I have accessed the article from the four-volume 1831 reprint: Alzate y Ramírez, *Gacetas de literatura*.

32. The custom to which Alzate refers is said to have started under the Roman Empire, where fava beans were associated with the dead and routinely served at funeral banquets. According to Raven Grimassi, this association was ‘due to the single black stain on an otherwise perfect white petal’ and continued to form part of Italian witchcraft to present times (2000, 62–64).
33. See Blair 2011; Gierl 1999, especially 69–71.
34. For an in-depth study on eighteenth-century medical and natural history sources, see Spary 1999.
35. For Alzate’s contributions to climate research, see Galindo and Saladino 2008.
36. This also concurs with the description of the use of cannabis in Mexico as ‘a remedy for scorpion stings and tarantula bites’ (Rätsch 2005, 592).
37. Pierre Petit, *Homeri Nepenthes; sive, De helenae medicamento luctum, animique omnem aegritudinem abolente, & aliis quibusdam eadem facultate praeditis, dissertatio* (1689).
38. The full title of the work is *Dictionnaire raisonné universel d’histoire naturelle: contenant l’histoire des animaux, des végétaux et des minéraux, et celle des corps célestes, des météores, & des autres principaux phénomènes de la nature*. For more biographical information, see Watkins 1823, 1016. The first edition of the *Dictionnaire* was published in five volumes in 1765 and the second edition in twelve volumes in 1768. It is curious to see Alzate reference a 1767 edition, but further research shows that some versions of the second (1768) edition were printed with the date 1767 on volumes two and five (Schmidler and Bour 2012, especially 28).
39. Valmont de Bomare’s original text appears as follows in the second (1768), third (1776) and fourth (1791) editions of the *Dictionnaire raisonné universel d’histoire naturelle*: ‘Cette graine émulsive, bouillie dans du lait, est utile pour la toux & la jaunisse. Quelques Auteurs l’ont donnée aussi pour un spécifique contre la gonorrhée’ (Engelmann 1846, 200).
40. Kaempfer’s name is included in the first three editions of Bomare’s *Dictionnaire* but not in the fourth edition. See the difference between volume two, page 337 in the third edition (1776) and volume three, page 241 in the fourth edition (1791).
41. The editions I have consulted are: Engelbert Kaempfer, *The history of Japan giving an account of... its metals, minerals, trees, plants, ...* (Glasgow, 1906 [1727]); and *Amœnitatum exoticarum ...* (Lemgo, 1712). For more biographical information, see Speake 2003, 667–69.
42. Engelbert Kaempfer’s name is spelled ‘Kampfer’ in Bomare’s *Dictionnaire* and ‘Koempser’ in Alzate’s *Asuntos varios*.
43. There were nine editions of the *Diccionario de Trévoux* published between 1704 and 1777; see Delon 2013, 386.
44. José Ignacio Bartolache (1739–1790) was the editor of the learned journal *Mercurio volante*. One month later, in a response to Alzate’s article, Bartolache published anonymously under the pseudonym of the ‘discreet cacique’ an article that responded: ‘I think there is not one hundredth the part of abuses that are supposed among the Indians with this seed and herb.’ Bartolache also argues within the necessary theological framework to avoid censorship, emphasizing that God gave the plants their natural virtue to serve as a remedy and even though all herbs can be used for malicious purposes, it does not warrant their prohibition and ‘it would be a shame to take them all out of the pharmacy.’ He further adds his first-hand experience to support Alzate’s central argument: ‘Although in this situation with the pipiltzintlis, what is certain is that the male and female indigenous curers from the villages give them to drink for everything that there is, but to cure well, and because the priest pays them, without making any pacts with the said devil. They do the same thing with other drinks and remedies of the poor, in remote places where something else is not possible’ (Bartolache 1772, 55–56).
45. *A New and general biographical dictionary* 1795, 5:90; Watkins 1823, 485.
46. Hughes 1991; Finger 2000, 85–99.
47. Andry was known for both his ‘judicious reflections upon the medicines we ought to make use of’ and his character as ‘a most irritable man’ who ‘had many disputes with his professional brethren’; see Smith and Smith 1857, 123; Watkins 1823, 79.
48. Cunningham 2010, 144; Pomet et al. 1748, xi.

49. Gezelius 1779, 127–28.
50. The full title is *De venenis in genere, & in specie exercitatio* (Leiden: Andrea Dyckhuisen, 1708); see Gezelius 1779, 127–28.
51. Nicolas Lémery, *Dictionnaire ou traité universel des drogues simples* (Amsterdam: aux Dépens de la Compagnie, 1716).
52. See Guerrini 1994, 184. Alzate references Lémery to list additional benefits attributed to the use of pipiltzintlis/cannabis: ‘Lemeri in his treaty on drugs describes its virtues in this way: “*cáñamo* contains a lot of oil, and little salt, it is very good for burns, and for the humming in the ears; the seed is celebrated for being very good to combat lechery; taken for many days it will ease a cough” (1831, 4:101).
53. *Diccionario histórico o biografía universal compendiada* 1831, 4:137.
54. Hooke published the first detailed account of cannabis use in English, wherein he wrote about the cannabis user: ‘He is not giddy, or drunk, but walks and dances, and sheweth many odd Tricks; after a little Time he falls asleep, and slepeth very soundly and quietly; and when he wakes, he finds himself mightily refreh’d and exceeding[ly] hungry. And that which troubled his Stomach, or Head, before he took it, is perfectly carried off without leaving any ill Symptom. [. . .] this I have here produced, is so well known and experimented by Thousands; [. . .] that there is no Cause of Fear, tho’ possibly there may be of Laughter” (cited in Inwood 2012, 398–400).
55. Jacobus Theodorus, *Neu und vollkommen Kraeuter-Buch* (Offenbach: Johann Ludwig König, 1731).
56. ‘La preocupación general tan arraigada en N.E. de estar prohibidas las siembras de cáñamo y lino, ha impedido que se lograsen los beneficios ventajosos.’ My translation from the Spanish transcription in Moreno 1969, 107.
57. Plants are seldom recognized for their relevance to religious and political debates, although they can make a considerable contribution. Londa Schiebinger (2000) also argues for the significance of plants to religious discourses, international conflicts, customs of daily life, and global trade and legislations. See also Schiebinger and Swan 2007.
58. For criticism of the New World inhabitants as inferior to Europe, see for example, Pauw 1771.
59. Several avenues for future research could be perused to complement this article, such as to investigate whether any Enlightenment scholars endorsed not only the medical use but also the *spiritual use* of indigenous herbs and how the public reacted to such conclusions. A few letters to the editor have been referenced here, but the impact of Alzate’s newspaper articles on his readership still requires future research. Beyond the brief example from the *Mercurio volante* mentioned here, it would be especially interesting if original copies of the articles could be found to inspect the marginalia, underlining, and comments of the reader. Also, the role of indigenous herbal medicine in Mexican cookbooks and women’s roles in acquiring this medical knowledge for in-house use could be explored and compared with Spanish medical cookbooks, such as Isabel Moyano Andrés’s ‘La cocina escrita’ (2010).

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Appendix 1. Alzate's translation alongside the French encyclopedia entry on narcotics and its English counterpart

<i>Asuntos varios</i> , 1772, México	<i>Dictionnaire universel</i> 1743, Paris	<i>Cyclopaedia</i> 1743, London
Narcótico, término de medicina que se dice de los remedios que procuran el adormecimiento;	Narcotique, adj. Terme de Médecine qui se dit des remèdes qui procurent l'assoupissement. Assoupissant, ante, <i>Narcoticus</i> .	Narcotics, in medicine, opiates, or medicines that excite drowsiness, and sleep. See Opiates.
los narcóticos obran según que ellos calman y disminuyen el movimiento de los espíritus y los impiden durante algún tiempo de moverse con toda la viveza que es necesaria.	Les narcotiques agissent en ce qu'ils calment et qu'ils diminuent le mouvement des esprits, et les empêchent pendant quelques temps de se mouvoir avec autant de vitesse que nécessaire.	Narcotics called also hypnotics, and soporifics, act by calming and diminishing the motion of the blood, and spirits. See Hypnotics, and Soporific.
La amapola, el opio, la mandrágora, el narciso, el beleño, etc., son narcóticos.	Le pavot, <i>Popium</i> , la mandragore, le narcisse, la jusquiame, etc. sont <i>narcotiques</i> .	
Hay muchas opiniones sobre el modo de obrar de los narcóticos;	Les opinions sont différentes sur la manière dont opèrent les <i>narcotiques</i> .	Authors are of various opinions, as to the manner wherein <i>narcotics</i> operate:
los antiguos, lo atribuyen a la frialdad que tienen de su naturaleza:	Les Anciens disent que c'est qu'ils sont froids de nature.	the antients [ancients] tell us, it is by their being cold in nature, whereby they] stupefy and deaden the sense.
Etmullero después de Willis piensa que los espíritus animales están compuestos de una sal volátil fluida, y que por la mezcla de los azufres o de	Etmuller, après Willis, pense que les esprits animaux sont composés d'un sel volatil fluide, et que par le mélange des soufres, ou des huiles,	Etmuller, after Willis, takes the animal spirits to be composed of a fluid, volatile salt; and thinks they are dissolved by the mixture of

(Continued)

Appendix 1. Continued.

<i>Asuntos varios,</i> 1772, México	<i>Dictionnaire universel</i> 1743, Paris	<i>Cyclopaedia</i> 1743, London
aceites en que abundan los narcóticos, se disuelven.	dont les <i>narcotiques</i> abondent, ils sont dissous.	sulphurs and oils, wherewith <i>narcotics</i> abound.
El parecer de Monsieur Adrique, que advierte se lo comunicó Monsieur Fayon, es que la sal de los narcóticos se disuelve por un licor, sea el que fuere, y que sus partículas ramosas, que restan libres de las sales, se enredan unas con otras y detienen el curso de la sangre, y de los espíritus.	Le sentiment de M. Andry, qu'il dit tenir de M. Fagon, est que le sel des <i>narcotiques</i> est dissous par quelque liqueur que ce soit ; et que leurs branches rameuses, qui restent dégagées des sels, embarrassent, arrêtant le cours du sang et des esprits.	M. Andry's opinion is, that the salt of <i>narcotics</i> dissolves in any liquor whatever; and that their ramous branches becoming thus disengaged from the salts, are embarrassed among one another, and thus stop the course of the blood and spirits.
En fin, otros juzgan que los narcóticos recierran el orificio de los nervios en su origen.	Enfin, d'autres estiment que les <i>narcotiques</i> resserrent l'orifice des nerfs à leur origine.	Others think, that <i>narcotics</i> close the orifices of the nerves, and thus block up the passage of the spirits.
Linder, en su Tratado de los venenos dice, que la acción de los narcóticos no es la misma en todos, cuando hay tantas causas diferentes, que pueden causar el sueño, y el adormecimiento, como la demasiada abundancia en el cerebro, la cual dilatando las arterias y venas, comprime el origen de los nervios; la coagulación y espesura de la sangre, un cúmulo de flema ó de sangre extraviada en el cerebro y otras mil cosas.	Linder dans son <i>Traité De Venenis</i> , juge que l'action des <i>narcotiques</i> n'est pas la même pour tous, y voyant tant de causes différentes qui peuvent causer le sommeil et l'assoupissement, comme la trop grande abondance dans le cerveau, laquelle dilant les artères et les veines, comprime l'origine des nerfs; la coagulation et l'épaississement du sang; un amas de pituite, ou du sang extravasé dans le cerveau, et cent autres choses.	Lastly, Linden, in his treatise <i>de Venenis</i> , thinks, that the operation of <i>narcotics</i> is not the same in all; drowsiness being producible from a great variety of different causes. See Sleep.

Appendix 2. European authorities mentioned by Alzate as endorsing medicinal cannabis

Researcher	Dates	Specialty	Nationality
Jacques-Christophe Valmont de Bomare	1731–1807	Botany, mineralogy	French
Engelbert Kaempfer	1651–1716	Naturalist, plant cataloguer	German
Michael Etmuller	1646–1683	Botany, anatomy, chemistry	German
Thomas Willis	1621–1675	Neurology, psychology	English
Nicolas Andry de Bois-Regard	1658–1742	Parasitology, Orthopaedics	French
Guy-Crescent Fagon	1638–1718	Botany, doctor to Louis XIV	French
Johan Lindestolpe	1678–1724	Botany	Swedish
Nicolas Lémery	1645–1715	Chemistry, pharmacology	French
Pierre-Jean-Baptiste Chomel	1671–1740	Botany, mineralogy	French