



Use of Aloe Vera in Quilombo communities in the Brazilian Northeast: a systematic review with meta-analysis

Uso da Aloe Vera em comunidades Quilombolas no Nordeste Brasileiro: uma revisão sistemática com metanálise

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ABSTRACT

Aloe vera is a succulent plant known as babosa. Many people use This plant in traditional medicine for its therapeutic properties. This study aims to investigate the use of Aloe vera in quilombola communities in northeastern Brazil, focusing on the forms of use and therapeutic applications. To this end, a systematic search of scientific databases was conducted to identify relevant studies on the therapeutic use of aloe vera. The included studies were analyzed using a meta-analysis that identified the types of use of the plant and the health conditions for which it was used. Twelve studies demonstrated that Aloe vera was used in the traditional medicine of these quilombola communities in various ways, including preparations such as tea, juice, tincture, syrup, and lotions. The health conditions treated were broad and ranged from dermatological problems to cancer. The meta-analysis also showed a significant frequency of use, with an effect size of 41.6% in this review. Notably, the use of babosa plays an essential role in the religious and socio-cultural practices of quilombola communities. Aloe vera was found to be widely used by quilombola communities in northeastern Brazil, both for therapeutic purposes and as part of their cultural and religious traditions.

Keywords: quilombola communities, aloe, phytotherapeutic drugs, human ecology, education.

RESUMO

A Aloe vera é uma espécie de planta suculenta conhecida como babosa, usada na medicina tradicional por diversos povos devido a suas propriedades terapêuticas. Este estudo visa investigar o uso da Aloe vera em comunidades quilombolas no Nordeste brasileiro, com foco nas formas de uso e em suas aplicações terapêuticas. Para tal, realizou-se uma busca sistemática em bases de dados científicas para identificar estudos relevantes sobre seu uso terapêutico. Os estudos incluídos foram analisados a partir de uma metanálise, onde foram identificadas as formas de uso da planta e as condições de saúde em que foi aplicada. Foram encontrados 12 estudos, nos quais se comprovou que a babosa é utilizada de diversas formas na medicina tradicional dessas comunidades Quilombolas, incluindo preparações como chá, suco, tintura, xaropes e loções. As condições de saúde tratadas foram amplas, abrangendo desde problemas dermatológicos até o câncer. A metanálise mostrou também uma frequência significativa de uso, com um tamanho de efeito de 41,6% nesta revisão. Destaca-se que o uso da babosa desempenha papel importante nas práticas religiosas e socioculturais das comunidades quilombolas. Concluiu-se que a Aloe vera é amplamente utilizada pelas comunidades quilombolas no Nordeste brasileiro, tanto para fins terapêuticos quanto como parte de suas tradições culturais e religiosas.

Palavras-chave: comunidade quilombola, aloe, medicamento fitoterápico, ecologia humana, educação.

1 INTRODUCTION

Aloe vera is a plant that is part of popular culture and is often used in traditional medicine. At PAHO (Pan American Health Organization), traditional medicine is "the sum of knowledge, skills, and practices based on theories, beliefs, and experiences of traditional peoples of different cultures, whether or not they can be explained" (Brasil, 2018). The biological composition of babosa consists of active ingredients such as amino acids, mineral salts, flavonoids, vitamins, and saponins, which have antibacterial effects and play a role in strengthening the immune system (Carvalho et al., 2020).

Traditional peoples in Brazil use *Aloe vera* in their medicinal practices. These peoples represent a significant portion of the population, have a historically close relationship with nature, and possess essential traditional knowledge for properly using natural resources. They manage small family farms and fight to assert themselves as



collective subjects for the right to land and to maintain the sustainable use of natural resources (Campos, Correia and Marisco, 2020).

Maffesoli (2021, p.19) states that “there is a nature of things, and we dared to modify it, that the destruction of the natural and social world is the most evident consequence.” Soon, it is clear that man, throughout his existence, has drastically modified his way of coexistence and living on earth, in part commodifying the production process and taking from the land much more than what is necessary for his subsistence; thus, polluting seas, rivers and destroying fauna and flora, necessary for the maintenance of ecosystems.

The human being does not constantly develop a good relationship with the environment, and in the same way that the inadequate exploitation of natural resources occurs, the exploitation of other human beings also occurred throughout history through the process of enslavement. According to Farias et al. (2022), several cultures have fostered enslavement as a form of domination and wealth accumulation since antiquity.

The enslavement process was part of the legal system in several countries for centuries. Having and keeping slaves measured the social, political, and economic power of the person who owned the vanquished in war. The enslaver had the right to punish, including death (*jus vitae et necis*), and flog the individual who did not obey his orders (Farias et al., 2022, p.94).

In this perspective, Gomes (2019) in turn, says that Portugal, Spain, England, and the Netherlands realized how profitable the slave trade was and began to invest

Crown resources in this market niche that, in addition to creating conditions, maintained commercial relations with commercial spaces so that they could trade with tribal chiefs on the African coast and thus expand the territories of those kingdoms.

The formation of the first quilombola communities dates back to 1575 when the first escape of enslaved people and the formation of the first Mocambo in Bahia were recorded (Gomes, 2015). However, the definition of "Quilombo" was only known in 1740 when the Overseas Council, in sending a letter to the King of Portugal, defined the occupation made by the fugitives of "Quilombo," which appears to be the home of more than five fugitive blacks, that do not have raised ranches (Moura, 2020). In these



gatherings of enslaved people who escaped from the large farms, the fear of being discovered or even of the territory yet to be explored was constant. However, families were being formed, crops planted and small businesses with other farms, and small settlements between quilombos, which transmitted their customs and cultures to future generations.

Although the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT) and Decree No. 6,040 of February 7, 2007, have been legal and historical landmarks in the fight for the rights of these peoples, there are still gaps in the recognition, identification, and institution of public policies to value these communities (Little, 2003).

When enslaved people fled the mills because they did not know the territory, they were returned to the slave quarters, “publicly displayed and punished as criminals” (Moura, 2020). When fleeing, they only took cassava flour, which was part of their diet, and some cassava grains placed on the scalp so that, in an eventual escape, they could have the seed for their first planting (Gomes, 2019). Already in the formed quilombos, “they planted and harvested cassava, transformed it, through grinding, sieves, and oven, into flour and other derivatives” (Gomes, 2015, p.21).

When the quilombo was discovered and invaded, the runaway enslaved people hid the seeds among their hairstyles as they escaped into the woods. The fugitives rebuilt their economy based on these seeds, giving rise to what we know today as “creole seeds” (Farias et al., 2022, p.104) in the preparation of medicines for the various diseases that appeared, as stated (Cunha, Magalhães and Adams, 2021). These quilombola communities play a fundamental role in the preservation of biodiversity as they are inserted in territories rich in animal, vegetable, and mineral

species and that also interact in these environments in a sustainable way (Cunha, Magalhães and Adams, 2021, p.65).

According to data from the Palmares Cultural Foundation in 2022, the number of communities recognized as remnants of quilombos is 3,502, with 2,840 already certified. This number is lower than the official data released by the Brazilian Institute of Geography and Statistics-IBGE (2023), which deals with the presence of 5,972

quilombola communities spread across the Brazilian territory, and which shows only a part of this population, with a large portion still in the invisibility for government institutions. Of these, about 3,171 are in the Northeast region, an area widely known for its animal and plant diversity, as mentioned by IBGE (2023).

Studies with traditional peoples of the Brazilian semi-arid region resulted in the identification of more than 100 cultivated and preserved species of plants used in traditional medicine, with more than 90 of these species applicable in the treatment of health problems (Cartaxo, Souza, and Albuquerque, 2010). One of the most significant sociocultural and environmental species is *Aloe vera*, known as babosa, widely cultivated in the Brazilian semi-arid region and present in seven of the nine northeastern states (Cartaxo, Souza, and Albuquerque, 2010). *Aloe vera* is recognized in traditional medicine for its healing, antibacterial, antifungal, and antiviral properties, and recent research has proven its effectiveness, including in the treatment of respiratory viral infections (Souza et al., 2019). Despite this, the medicinal properties of babosa are still little explored by communities in the Northeast (Glatthaar-Saalmüller et al., 2015). In addition to its medicinal properties, *A. vera* is a plant adapted to hot weather, and drained soil and is easy to handle, which makes it well adapted to Brazilian soil (Souza et al., 2019)

According to Ribeiro et al. (2022, p.10266), *Aloe vera* is used as a raw material by the pharmaceutical industry, cosmetics, and compounding pharmacies for “healing of wounds, burns, conjunctivitis, rheumatic pain, among other ailments.” In this sense, the authors state that it is used in medical applications, cosmetics, in homeopathy, with an infinity of pharmaco-biological properties, in addition to traditional medicine.

The present study aims to investigate the use of *Aloe vera* in quilombola communities in Northeast Brazil, focusing on the forms of use and its therapeutic applications based on a systematic review of the literature and meta-analysis.

2 METHODS

A systematic qualitative and quantitative literature review was carried out, seeking ethnobotanical and ethnopharmacological characteristics of *Aloe vera* in studies with quilombola communities in northeastern Brazil.

For the systematic review, the following search descriptors were defined: (Aloe OR babosa) AND (quilombola peoples AND Brazilian Northeast. Google Scholar, Lililacs, and Scielo platforms were used for the research, considering the studies produced in English, Portuguese, or Spanish.

All studies from published articles or indexed book chapters in online digital media that addressed the use of *A. vera* in the traditional medicine of the Quilombola peoples in northeastern Brazil were included.

The abovementioned terms were searched within the publications found among their bibliographic references. The study considered declared and self-declared quilombola communities registered by the Brazilian government, following the norms of Decree nº 6.040 of February 7, 2007. Abstracts or conference proceedings, theses, dissertations, and studies with animal models or based on non-empirical therapy, which did not address quilombola communities in northeastern Brazil, were excluded from this study.

The reviewers carried out the research screening, initially by reading the titles and abstracts, followed by the complete reading of the identified manuscripts for the final selection of articles included in this review. At all stages of the search and selection process, possible selection discrepancies were resolved through discussions between reviewers.

Data compilation was carried out using a spreadsheet, in which the following information was included: name of the first author, year of publication, newspaper/magazine, number, age, and sex of participants, name of the quilombola communities, predominant biome, region (state of the quilombola) and types of sampling. To assess the methodological quality of the primary qualitative studies, the Critical Appraisal Skills Program (CASP) form was applied. The CASP consists of 10 items, which allow classification articles A (low risk of bias) and B (moderate risk of bias), according to the methodological structure (Keynes, 2002). However, no study was excluded due to quality, despite observing their methodological congruence and heuristic relevance, as demonstrated by Lopes and Fracolli (2008). For qualitative analysis, a meta-synthesis was carried out through the analysis of Bardin



(2011), using ATLAS.ti as an auxiliary tool, a software designed to systematically organize and manage textual data, 13480udios, 13480udios, images, and graphics (Sorato, Pires and Friese, 2019).

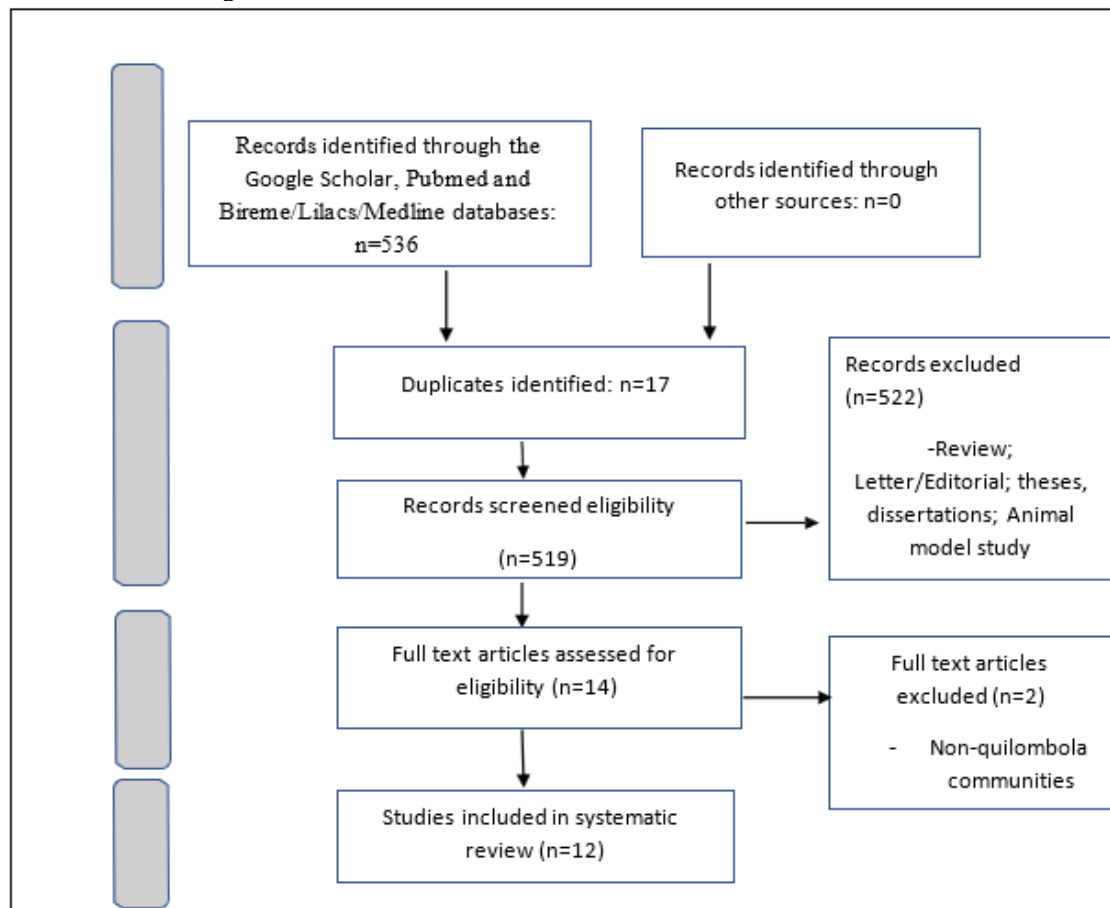
In this analysis, after extracting the information, a set of themes was elaborated, constructed from the codification and categorization of the texts, related to the ecological characteristics of the quilombola communities, influences of their ancestry in the ethnobotanical relations, ethnopharmacological questions, mystical-religious influences and socio-cultural.

A meta-summarization was performed for quantitative analysis, a methodological approach oriented to the quantitative aggregation of qualitative studies, using the frequency and intensity of the effect size, as punctuated by Lopes and Fracolli (2008). In order to identify the contribution of each study to the results of this meta-analysis, the effect size intensities of the primary studies were calculated for all encodings and those codes with a frequency of effect size greater than 25%.

3 RESULTS AND DISCUSSION

Initially, 536 (five hundred and thirty-six) references were identified in the defined research databases. After applying the exclusion criteria, 12 (twelve) articles were selected, including 14 (fourteen) quilombo remnant communities. One of these manuscripts was obtained from reading the chosen articles through their citations and references (Figure 01).

Figure 1. Flow chart of record selection for inclusion in the literature.



Source: Authors, 2023.

Concerning the states where research was carried out for the studies included in this review, there is a study in Ceará (Quilombo Serra do Evaristo), one in Paraíba (Quilombola Ipiranga Community), three in the state of Maranhão (Quilombo Sangrador, Quilombola Santo Antônio dos Pretos, Quilombola Community Olho D'água do Raposo), one in Alagoas (town of Cajá dos Negros) and six studies carried out in regions of Bahia (Quilombola Community Raso da Catarina, Quilombola Community of Barra II, Quilombola Community of Furadinho, Engenho da Cruz, Mutecho Acutinga, Government Land, Guarucu and Quilombola Community Salamina/Putumujú).



Almost half (46%) of the communities studied have the Atlantic Forest as their predominant biome, followed by 30% located in areas of the Caatinga, 16% in the Cerrado, and 8% in the Amazon Forest.

Two manuscripts made independent ethnobotanical records in the same traditional community in Bahia (Comunidade Quilombola Salamina and Comunidade Quilombola Putumujú), in 2014, with publications in 2016 and 2017 (Santana, 2016; Lisboa, 2017).

The works surveyed addressed 393 (three hundred and ninety-three) participating individuals from the Traditional Communities studied, who answered interviews, and semi-structured questionnaires, through participant research, on ethnobotany. All studies were published between 2012 and 2021, with more than 83% in rural communities whose main economic activity is family farming (Table 01).

As for sampling, all studies used non-probabilistic methods, with 50% using the “snowball sampling” technique. This is a technique widely used in qualitative studies in vulnerable communities, difficult to access, or small populations in which it is desired to carry out participatory research with community members with active participation (Baldin and Munhoz, 2011; Valério et al. 2016)

Table 1. Ethnobotanical studies on the use of *Aloe vera* in quilombola communities in northeastern Brazil.

1st Author Year	Journal	Region	Study group(N) Age/Sex(M/F)	Quilombola community	Preparation form	Biome	Uses
Monteles, 2007	Revista de Biologia e Ciências da Terra	Maranhão	N: 10 M: N/R F: N/R	Quilombo Sangrador	Tea/syrup/juice	Amazon rainforest	Diseases associated with the digestive system
Nascimento, 2011	Revista de Biologia e Farmácia	Maranhão	N: N/R	Quilombola Olho D'água do Raposo	Tea/juice	Cerrado	Hair loss, cancer, flu
Gomes, 2012	Acta Botanica Brasilica	Bahia	N:07 M:04/F:03	Quilombola community, at Raso da Catarina	Tea	Caatinga	Verminosis, inflammations, arthritis
Silva et al., 2012	Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas	Bahia	N: 27 Male:07/F:20	Quilombola community of Barra II	Tea/juice/bath	Caatinga	Cancer, verminosis, Stroke, dyspepsia



<i>Oliveira, 2015</i>	Revista Verde de Agroecologia e Desenvolvimento Sustentável	Bahia	N: 14 M:0/F:14	Remnants of the Quilombo of Furadinho	Syrup	Caatinga/ Atlantic Forest	Gastritis, cancer, sore throat, wounds
<i>Lisboa et al., 2017</i>	Revista Fitos	Bahia	N: 50 M 20/F:30	Quilombola community Salamina/Putumujú	Juice	Atlantic Forest	Cancer
<i>Beltrechi, et al., 2019</i>	Environment, Development and Sustainability	Paráiba	N: 100 M: 29/F:71	Ipiranga quilombola community	Tea/syrup	Atlantic Forest	Healing, anti-bacterial, anti-inflammatory, others
<i>Santos, et al., 2019</i>	Forest and Environment	Ceará	N: 41 M: 09/F: 32	Quilombo Serra do Evaristo	Leaf/syrup and tincture	Atlantic Forest	Healing, anti-inflammatory, other, antiviral
<i>Olanda et al., 2020</i>	Ibero-American Journal of Environmental Sciences	Maranhão	N: 20 M: 06/F:14	Santo Antônio dos Pretos quilombola	Tea	Cerrado	Burns; skins disease; laxative; gastritis; wound healing
<i>Santos et al., 2020</i>	Diversitas Journal	Alagoas	N: 25 M:NR/F:NR	Village of Cajá dos Negros	Syrup	Caaatnga	Kidney Disease/Cancer/Inflammation
<i>Farias et al., 2021</i>	Research, Society and Development	Bahia	N: 25 M: 0/F:25	Engenho da Cruz, Mutecho Acutinga, Terreno do Governo e Guarucu	Tea/juice	Atlantic Forest	Gastritis, urinary infection and stomach pain
<i>Santana et al., 2016</i>	Journal of Ethnopharmacology	Bahia	N: 74 M:37/F:37	Quilombola community Salamina/Putumujú	Tincture	Atlantic Forest	Haircare

Legend: N/R- not reported Source: Authors, 2023

According to the quality criteria (CASP), nine studies were classified as A and three as B (Oliveira, 2015; Nascimento, 2011; Santos et al., 2020). All 12 studies were included for qualitative and quantitative analysis.

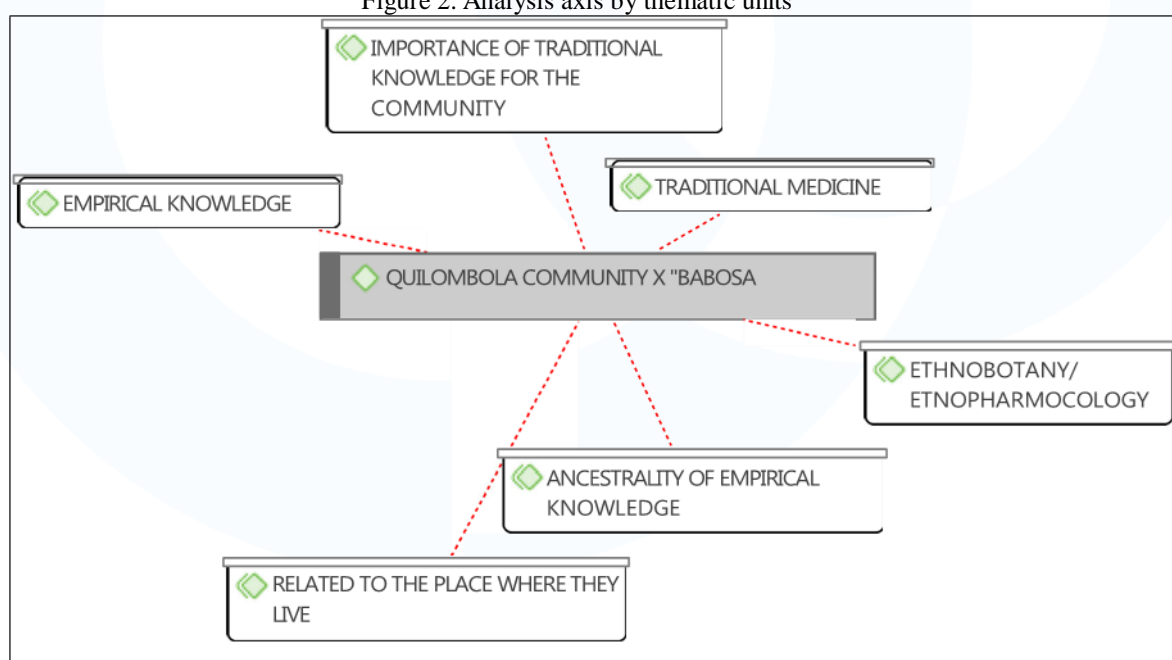
3.1 QUALITATIVE ANALYSIS

For qualitative evaluation, a meta-synthesis was performed through content analysis. The primary studies were categorized into 22 (twenty-two) codes, divided into 06 (six) code groups (thematic units) related to ecological, ethnobotanical, and ethnopharmacological aspects of aloe in quilombola communities in northeastern

Brazil, from the perspective of traditional medicine (empirical), mystical-religious and socio-cultural.

The thematic units consisted of 1) Importance of traditional knowledge in the community; 2) Empirical Knowledge; 3) Traditional Medicine; 4) Ethnobotany/Ethnopharmacology; 5) Related to where you live; 6) Ancestry of empirical knowledge (Figure 02).

Figure 2. Analysis axis by thematic units



Source: Authors, 2023.

3.1.1 Importance of Traditional Knowledge in the Community

However, its religious and socio-cultural significance must be emphasised, as seen in the quotes of Monteles and Pinheiro (2007): "... diseases of the body and soul"; "...healing of ills located both in the organic and spiritual plane". As Nascimento and

Conceição (2011) also state, "...the local therapeutic indications can provide relevant contributions to the conservation of socio-cultural and biological diversity in territories of traditional populations". 13485ommuni, Santana et al. (2016): "... this knowledge reflects the sociocultural base".

In this way, the role played by medicinal plant species such as aloe goes beyond healing the body and enters the epistemic cosmovision of the individual as a collective subject participating in its 13485ommunity. These aspects of traditional medicine cannot be separated, as is the case with allopathic medicine, since it starts from the conviction that health is not only na organic matter, but also a spiritual, mystical and cultural one, with the ecosystem itself as a link (Franco; Barros, 2006; Stier-Jarmier, et al., 2021).

3.1.2 Empirical Knowledge and Ancestry

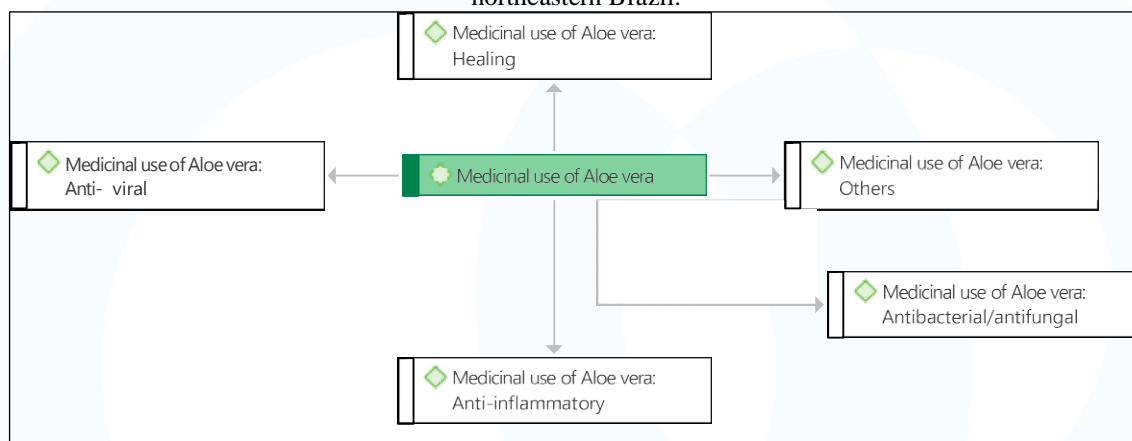
Ethnobotanical studies are fundamental to the analysis of human relationships with the various forms of plant life, the understanding of the construction of these interactions, and the transmission of this knowledge across generations. In this sense, it is evident in the studies of this review that the patriarchs and leaders of the communities play the leading role in the vertical oral transmission of knowledge, maintaining the "chain of knowledge" in the use of medicinal plants with *Aloe vera* (Santos et al., 2019; Lisboa et al., 2017; Oliveira, 2015; Santos et al., 2020).

On the other hand, this transmission of knowledge, which occurs vertically between generations, is weakening yearly, as younger people generally need to show interest in passing on knowledge about medicinal plants (Franco and Barros, 2006). This cultural heritage has been built over generations. It has a strong African ancestry with the influence of other traditional peoples, such as indigenous peoples, described and evaluated by the authors in the different studies conducted in quilombola communities in northeastern Brazil (Monteles and Pinheiro, 2007; Gomes and Bandeira, 2012; Olanda et al., 2020; Santana et al., 2016).

3.1.3 Ethnobotany and Ethnopharmacology

As for the use of *Aloe vera* in traditional medicine, all studies have shown that the babosa leaf is the main component for the production of teas, juices, and syrups for use, especially as an anti-inflammatory, antibacterial, wound healing, and even in the treatment of cancer (Figure 03).

Figure 3. Different uses of *Aloe vera* in traditional medicine in quilombola units in northeastern Brazil.



Source: Authors, 2023.

From the perspective of 13486nticâ treatment, it is observed that this practice was registered in several quilombola communities, in biomes such as the Atlantic Forest, Caatinga, and Cerrado, in the states of Paraíba, Ceará, Bahia, and Alagoas (Beltreschi et al., 2019; Santos et al., 2020; Silva et al., 2012). Lisbon et al. (2017), studying the quilombola 13486nticânce Salamina/Putumujú, identified 13486nticâ as the primary therapeutic indication for *Aloe vera*.

On the other hand, this information was not observed by Santana et al. (2016), who studied the same 13486nticânce (quilombola 13486nticânce Salamina/Putumujú) in a very close period (Table 1). This fact suggests that because it is inherited knowledge consolidated orally between generations, the results 13486nticânce the 13486nticâ nuclei analyzed within the same 13486nticânce (Santos et al., 2019). This knowledge has been the basis for experimental scientific studies that have demonstrated this exotic shrub's 13486nticâncer properties, as Freitas (2014) pointed out.



3.2 QUANTITATIVE ANALYSIS

In this analysis, 22 (twenty-two) codes were created, grouped into 06 (six) thematic units: 1) Importance of traditional knowledge for the community; 2) Empirical Knowledge; 3) Traditional Medicine; 4) Ethnobotany/Ethnopharmacology; 5) Related to where you live; and 6) Ancestry of empirical knowledge.

The code that showed the highest frequency of effect size within the thematic unit “Importance of traditional knowledge for the community” was Traditional Medicine with 100%, denoting the importance of this plant species for quilombola communities

in treating organic diseases. The indications ranged from use in skin wounds and hair loss, in the form of ointments, oils, and saponaceous products, to consumption, in the form of tea and juices, for the treatment of neoplasms, with effect magnitudes of 33% and 41.6%, respectively.

Last but not least, communities' relationships with vegetation go beyond organic issues and into the need for religious and sociocultural affirmation as active subjects fighting for their own identity. Quantitative assessment of these aspects reveals effect sizes of 42% and 50%, respectively. This heterogeneity in the use of *A. vera* in quilombola communities results from their ancestry and experiences, as mentioned by Olanda et al. (2020) and Santana et al. (2016).

In this sense, the participation of subjects younger than 50 years in the studies in this review corresponds to an effect size of only 25%, showing possible neglect of younger subjects. In quilombola communities where efforts are made to preserve ethnopharmacological practices, the transmission of knowledge from father to son and through older relatives was observed in 42% of the studies. Although these results confirm the literature, it was impossible to discuss conjectures explaining this phenomenon in the studied communities. However, the weaknesses of public policies, the constant influence of Western medicine, and the effects of urbanization are possible factors related to the decline of traditional practices (Franco and Barros, 2006).

Concerning ethnobotany and ethnopharmacology, the most frequent preparation of *A. vera* was in the form of tea or juice, with an effect size of 67%, being its main

application as an anti-inflammatory (75%). Other forms of use were also registered with syrups (50% of the studies) and topical ointments and lotions (33%).

Within this theme of traditional medicine, the preparations were applied mainly to problems reported in the digestive and integumentary systems in 50% of the studies, compatible with studies in rural communities (Ribeiro et al., 2022; Silva et al., 2020). A recent review of the use of *Aloe vera* in rural and urban communities in the state of Piauí, Brazil, found a frequent indication of this plant as anti-inflammatory, healing, vermifuge, associated with other organic products cultivated and extracted from the biome, such as honey and cassava flour (Silva et al., 2020).

Regarding the cultural-religious aspects, more than 40% of the studied quilombola communities emphasize the role of aloe as an instrument of spiritual connection and ancestry, as they have a relationship with their origins. However, this practice also has a therapeutic application since the human being is understood not only as organic matter but as a spiritual being (Sousa, Souza, and Lima, 2010)

Regarding the contribution of each study in this review, the article by Silva et al. (2012) was the one with the highest number of codes and, therefore, the greatest intensity of the effect, with 72.7% for all codes and 70% for the codes with a frequency greater than 25%. This was followed by Farias et al. (2021), with 68% of the codes. Both studied quilombola units in Bahia, with biomes between the Caatinga and Atlantic Forest. Of the total number of studies, 42% had an effect size $\geq 50\%$, which is vital in generating the results of this review.

Based on the historical and conceptual reconstruction of the analyzed data, it was possible to observe the importance of the use of *Aloe vera* in the quilombola communities of the Brazilian Northeast, not only in the practices of traditional medicine but also in the cultural and religious affirmations of these peoples. Nevertheless, babosa proved to be a very versatile plant in the traditional communities, processed in tea, juice, tincture, ointment, lotion, and syrup.

Its applicability was not limited to a single therapeutic indication. However, it offered a wide range of benefits, including integumentary and digestive tract diseases and even treating cancer in general. The latter indication was surprising not only because of



the magnitude of its effect (42% of studies) but also because of the role it played in some of the participant observations cited in the studies evaluated.

Despite its importance to communities, younger people appear to have less interest in this body of knowledge, threatening this art that has accompanied people for decades. Therefore, ethnobotanical studies are essential as tools for the ethno- knowledge of these peoples to create space for interdisciplinarity, strengthen traditional practices, and create biologically sustainable premises that recognize, preserve, and value the cultures of traditional peoples.

With this in mind, this review also highlights the need for ethnobotanical and ethnopharmacological studies in traditional quilombola communities in northeastern Brazil. There is a need to address these issues in more detail and to take public action to strengthen this knowledge before the wealth of this traditional knowledge is permanently lost.

REFERENCES

AMOROZO M.C.M. Uso e diversidade de plantas medicinais em Santo Antônio do Laverger, MT, Brasil. **Acta Botanica Brasílica**, v. 16, n. 2, p.189-203, dez./ 2006. <http://dx.doi.org/10.1590/S0102-33062002000200006>.

BARDIN, Laurence. **Análise de conteúdo**. Traduzido por Luís Antero Reto e Augusto Pinheiro. São Paulo: Edições 70, 2011.

BALDIN, N.; MUNHOZ, E.M.B. Educação ambiental comunitária: experiência com a técnica de pesquisa snowball (bola de neve). **Revista Eletrônica do Mestrado em Educação Ambiental**, Carreiros-RS, v.27, 2011. Disponível em: <https://periodicos.furg.br/remea/article/view/3193>. Acesso em 06 mai. 2023.

BELTRESCHI, Letícia; CRUZ, Denise Dias. Traditional botanical knowledge of medicinal plants in a “Quilombola” community in the atlantic forest of Northeastern Brazil. **Environment, Development and Sustainability**, v. 21, p. 1185-1203. 2019. Disponível em: <https://agris.fao.org/agris-search/search.do?recordID=US201900314330>. Acesso em 27 abr. 2023.

BRASIL. DECRETO Nº 6.040, DE 07 DE FEVEREIRO DE 2007. Institui a Política Nacional de Desenvolvimento Sustentável dos Povos e Comunidades Tradicionais. Brasília: Casa Civil, 2007. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/decreto/d6040.htm. Acesso em 27 abr. 2023.

BRASIL. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Política Nacional de Práticas Integrativas e Complementares no SUS – PNPIC-SUS. Brasília: Ministério da Saúde; 2006.

Campos, P. S. S., Correia, R., & Marisco, G. (2020). Plantas medicinais utilizadas por quilombolas na gestação e lactação, e riscos no uso indiscriminado. *Revista Contexto & Saúde*, 20(40), 236–243. <https://doi.org/10.21527/2176-7114.2020.40.236-243>

CARTAXO, Sarahbelle Leitte; SOUZA, Marta Maria de Almeida; ALBUQUERQUE, Ulysses Paulino de. Medicinal plants with bioprospecting potential used in Semi-arid Northeastern Brazil. **Journal of Ethnopharmacology**, v.131, n. 2, p. 326 - 342, 2010. Disponível em: <https://www.sciencedirect.com/journal/journal-of-ethnopharmacology>. Acesso em 27 abr. 2023.

CARVALHO *et al.* Potencialidades farmacológicas da babosa: um estudo realizado por meio das técnicas de prospecção científica e tecnológica. **Caderno de Prospecção**, v.13, n.1, 2020. Disponível em: <https://periodicos.ufba.br/index.php/nit/article/view/32555>. Acesso em: 07 mai. 2023.

CAVALCANTE, Kellison Lima. A ecosofia e a relação entre homem e natureza na sociedade moderna. **Revista Ouricuri**, Juazeiro, Ba, v.10, n.1. p.001-019. jan./jul., 2020. Disponível em: <https://www.revistas.uneb.br/index.php/ouricuri/article/view/7859/7380>. Acesso em 06 mai. 2023.

CUNHA, Manuela Carneiro da; MAGALHÃES, Sônia Barbosa; ADAMS, Cristina. Povos tradicionais e biodiversidade no Brasil: contribuições dos povos indígenas, quilombolas e comunidades tradicionais para a biodiversidade, políticas e ameaças. **SBPC**, 2021. Disponível em: <http://portal.sbpcnet.org.br/publicacoes/povos-tradicionais-e-biodiversidade-no-brasil/>. Acesso em 27 abr. 2023.

FARIAS *et al.* Plantas medicinais utilizadas por mulheres em comunidades quilombolas do recôncavo baiano. **Research, Society and Development**, 10(12), e328101219916-e328101219916. Disponível em: <https://rsdjournal.org/index.php/rsd/article/download/19916/18287/249340>. Acesso em: 05 mai. 2023.

FARIAS *et al.* Tecnologias sociais na comunidade quilombola do Araçá: itinerário histórico de uma comunidade tradicional no Semiárido brasileiro. **Revista SABEH**, v. 8, nº 9, 2022. Disponível em: https://www.sabeh.org.br/book/revista-ecologias-humanas-vol-8-no-9-2022/?grid_referrer=49. Acesso em 27 abr. 2023.

FRANCO, E.A.P.; Barros, R.F.M. Uso e Diversidade de plantas medicinais no Quilombo Olho D'água dos Pires, Esperantina, Piauí. **Revista Brasileira de Plantas Mediciniais**, Botucatu, v. 8, n. 3, p.78-88, 2006. Disponível em: https://www1.ibb.unesp.br/Home/Departamentos/Botanica/RBPM-RevistaBrasileiradePlantasMediciniais/artigo12_v8_n3.pdf. Acesso em: 07 mai. 2023.

FREITAS, V.S.; RODRIGUES, R.A.F.; GASPI, F.O.G. Propriedades farmacológicas da aloe vera. **Revista Brasileira de Plantas Mediciniais**, v.16 n. 2, p. 299-307, 2014. Disponível em: <https://rsdjournal.org/index.php/rsd/article/download/26062/22987/307374>. Acesso em: 07 mai. 2023.

GOMES, Flávio dos Santos. **Mocambos e quilombos: uma história do campesinato negro no brasil**. São Paulo: Ed. Claro Enigma, 2015.

GOMES, Laurentino. **Escravidão: do primeiro leilão de cativos em Portugal à morte de zumbi dos palmares**. vol. 1. Rio de Janeiro: Globo Livros, 2019.

GOMES, Thiago Bezerra; BANDEIRA, Fábio Pedro Souza de Ferreira. Uso e diversidade de plantas medicinais em uma comunidade quilombola no Raso da Catarina, Bahia. **Acta Botanica Brasilica**, v. 26, p. 796-809, 2012. Disponível em: <https://www.scielo.br/j/abb/a/cN9C7SQLfG5Fgdnydh8k6xz/>. Acesso em 06 mai. 2023.

GUATTARI, Félix. **As três ecologias**. 21^a ed. Trad. Maria Cristina F. Bittencourt. Campinas: Papirus, 2012.

GLATTHAAR-SAALMÜLLER *et.al.* Atividade antiviral de um extrato aquoso derivado de *Aloe arborescens* Mill. contra um amplo painel de vírus que causam infecções do trato respiratório superior. **Phytomedicine: International Journal of Phytotherapy and Phytopharmacology**, 22(10), 911–920, 2015. Disponível em: <https://doi.org/10.1016/j.phymed.2015.06.006>. Acesso em 27 abr. 2023.

IBGE. Quilombolas no Brasil: base de informações sobre os povos indígenas e quilombolas. Brasília, DF; 2019. Disponível em: [https://educa.ibge.gov.br/jovens/materias-especiais/21311-quilombolas-no-brasil.html#:~:text=O%20IBGE%20n%C3%A3o%20tem%20uma,de%20localidades%20ind%C3%ADgenas%20\(827\)](https://educa.ibge.gov.br/jovens/materias-especiais/21311-quilombolas-no-brasil.html#:~:text=O%20IBGE%20n%C3%A3o%20tem%20uma,de%20localidades%20ind%C3%ADgenas%20(827)). Acesso em 27 abr. 2023.

IBGE. Indicadores de desenvolvimento sustentável. Brasília; 2022. Nordeste. Disponível em: <https://www.ibge.gov.br/busca.html?searchword=nordeste&searchphrase=all>. Acesso em 07 mai. 2023.

KEYNES, Milton. **Primary care trust: Critical Appraisal Skills Programme (CASP): Making Sense of Evidence**. Oxford: London, 2013.

LITTLE, Paul Elliott. Territórios sociais e povos tradicionais no Brasil: por uma antropologia da territorialidade. **Anuário antropológico**, 2003. Disponível em: <https://periodicos.unb.br/index.php/anuarioantropologico/article/view/6871/7327>. Acesso em 27 abr. 2023.

LISBOA *et al.* **Estudo etnobotânico em comunidade quilombola Salamina/Putumujú em Maragogipe, Bahia**. Disponível em: <https://revistafitos.far.fiocruz.br/index.php/revista-fitos/article/view/362>. Acesso em: 05 mai. 2023.

LOPES. A. L. M.; FRACOLLI, L. A. Revisão sistemática de literatura e metassíntese qualitativa: considerações sobre sua aplicação na pesquisa em enfermagem. **Revista Texto & Contexto - Enfermagem**, 17(4), 771–778. 2008. Disponível em: <https://doi.org/10.1590/S0104-07072008000400020>. Acesso em 06 mai. 2023.

MAFFESOLI, Michel. **Ecosofia: uma ecologia para nosso tempo**. Trad. Fernando Santos. São Paulo: Edições SESC, 2021.

MONTELES, R.; Pinheiro, C. U. B. Plantas medicinais em um quilombo maranhense: uma perspectiva etnobotânica. **Revista de biologia e ciências da terra**, v. 7, n. 2, p. 38-48, 2007. Disponível em: <http://joaootavio.com.br/bioterra/workspace/uploads/artigos/etnobotanica-518178b5ca552.pdf>. Acesso em: 07 mai. 2023.

MOURA, Clóvis. **Resistência ao escravismo**. 2ª ed. São Paulo: Expressão Popular, 2020.

NASCIMENTO, J. M; CONCEICAO, G. M. Plantas medicinais e indicações terapêuticas da comunidade quilombola Olho D'Água do Raposo, Caxias, Maranhão, Brasil. **Biofar: Revista de Biologia e Farmácia**, v. 6, p. 138-151, 2011. Disponível em: <http://plone.ufpb.br/nepfh/contents/documentos/artigos/fitoterapia/plantas-medicinai-se-indicacoes-terapeuticas-da-comunidadequilombola-olho-dagua-do-raposo-caxias-maranhao-brasil.pdf>. Acesso em 07 mai. 2023.

OLANDA, R. F. *et al.* Medicinal plants used in the Santo Antônio dos Pretos quilombola community (Codó municipality, Maranhão, Brazil). **Revista Ibero-Americana de Ciências Ambientais**, v. 11, n. 3, p. 392-401, 2020. Disponível em: <http://repositorio.ufla.br/handle/1/42833?mode=full>. Acesso em: 05 mai. 2023.

OLIVEIRA, L. R. Uso popular de plantas medicinais por mulheres da comunidade quilombola de Furadinho em Vitória da Conquista, Bahia, Brasil. **Revista Verde de Agroecologia e Desenvolvimento Sustentável**, v. 10, n. 3, p. 25-31, 2015. Disponível em: <https://www.gvaa.com.br/revista/index.php/RVADS/article/view/3408>. Acesso em: 05 mai. 2023.

RIBEIRO, Araceli Almeida de V. *et.al.* Uso terapêutico da aloe vera no processo de cicatrização: revisão sistemática. **Brazilian Journal of Health Review**. Curitiba, v. 5, n. 3, p.10265-10279, 2022. Disponível em: <https://ojs.brazilianjournals.com.br/ojs/index.php/BJHR/article/download/48585/pdf/121465>. Acesso em: 07 mai. 2023.

SANTANA, B. F.; VOEKS, R. A.; FUNCH, L. S. Ethnomedicinal survey of a maroon community in brazil's atlantic tropical forest. **Journal of Ethnopharmacology**, v. 181, p. 37-49, 2016. Disponível em: <https://www.sciencedirect.com/science/article/abs/pii/S0378874116300149>. Acesso em 05 mai. 2023.

SANTOS, J.A.D.; SILVEIRA, A.P.; GOMES, V.D.S. Conhecimento e uso da flora em uma comunidade quilombola do nordeste do brasil. **Floresta e Ambiente**. v. 26, n. 3, p. 1-12, 2019. Disponível em: <https://periodicos.ufpa.br/index.php/ethnoscientia/article/view/10502>. Acesso em 06 mai. 2023.

SANTOS, F. S. *et al.* “Prefiro plantas do que remédios”: o uso de plantas para fins medicinais no território quilombola Cajá dos Negros, em Batalha-Alagoas. **Diversitas Journal**, v. 5, n. 1, p. 235-248, 2020. Disponível em: <https://www.grafiati.com/en/literature-selections/comunidade-quilombola-alagoas/>. Acesso em: 07 mai. 2023.

SILVA, Hesley. (2017). Efeitos da alimentação na evolução humana: uma revisão. *Conexão Ciência* (Online). 12. 10.24862/cco.v12i3.580.

SILVA, Nina. *et al.* Medicinal plants use in Barra II quilombola community - Bahia, Brazil. **Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas**. v. 11. p. 435-453. Disponível em:

<https://webcache.googleusercontent.com/search?q=cache:Kc9C9LWl2bMJ:https://www.redalyc.org/pdf/856/85624131006.pdf&cd=3&hl=pt-BR&ct=clnk&gl=br>. Acesso em: 07 mai. 2023.

SILVA, P.C.A. *et al.* Aplicações etnobotânicas de Aloe vera (L.) Burm. f. (Asphodelaceae) no Piauí, Nordeste do Brasil: uma revisão. **Pesquisa e Aplicações de Etnobotânica**. v. 20, p. 1–11, 2020. Disponível em <https://ethnobotanyjournal.org/index.php/era/article/view/2051>. Acesso em 06 de mai. 2023.

SORATO, Jacks; PIRES, Denise Elvira; FRIESE, Susanne. Thematic content analysis using Atlas.ti software: potentialities for researchs in health. **Rev Bras Enfermagem**. v. 73 n. 3, 2020. Disponível em:

<https://www.scielo.br/j/reben/a/mrGZpcKHYbyK5sKSKvRB58D/?format=pdf&lang=en> Acesso em: 07 mai. 2023.

SOUSA, M.S; SOUZA, W.F; LIMA, M.F. (2010). Plantas sagradas nas religiões afro-brasileiras: correlações do seu uso terapêutico e a fitoterapia. Recuperado de <https://www.ufpb.br/nepfh/contents/documentos/artigos/fitoterapia/plantas-sagradas-nas-religoes-afro-brasileiras-correlacoes-do-seu-uso-terapeutico-e-a-fitoterapia.pdf>

SOUZA, Zion Nascimento, *et al.* Plantas medicinais utilizadas no nordeste do brasil: uma revisão de literatura. **Comunicação Oral**. COINTER 2019. Disponível em: <https://cointer.institutoidv.org/inscricao/pdvs/uploadsAnais2020/PLANTAS-MEDICINAIS-UTILIZADAS-NO-NORDESTE-DO-BRASIL:-UMA-REVIS%C3%83O-DE-LITERATURA.pdf>. Acesso em 27 abr. 2023.

STIER-JARMER Marita, *et al.* The psychological and physical effects of forests on human health: a systematic review of systematic reviews and meta-analyses. **Int J Environ Res Public Health**. v. 18, n. 4, p. 1770, 2021. Disponível em <https://pubmed.ncbi.nlm.nih.gov/33670337/>. Acesso em 30 abr. 2023.

VALERIO, Melissa A., *et al.* Comparing two sampling methods to engage hard-to- reach communities in research priority setting. **BMC Medical Research Methodology**. v. 16, n. 146, p. 1-11, 2016. Disponível em: <https://bmcmmedresmethodol.biomedcentral.com/articles/10.1186/s12874-016-0242-z>. Acesso em 05 mai. 2023.