Traditional uses of native legumes of the Caatinga: an integrative review

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Review

Abstract

Background: The Caatinga, an exclusively Brazilian phytogeographic domain, hosts remarkable biodiversity and provides essential resources for local populations, who have historically depended on its flora to meet diverse needs. Among its plant groups, the Leguminosae (Fabaceae) stands out as the most representative, with high nutritional and pharmacological potential. However, knowledge regarding the ethnobotanical uses of native legumes by traditional communities remained scattered across the literature, highlighting the need for integrative synthesis.

Methods: This study consists of an integrative literature review that systematized the ethnobotanical roles of native legumes in the Caatinga. A total of 13 ethnobotanical studies published between 2000 and 2025 were analyzed. Data was collected through searches in Google Scholar, CAPES Journal Portal, and SciELO databases.

Results: The analysis identified 43 useful species distributed across 24 genera. Among these, *Amburana cearensis*, *Stryphnodendron adstringens*, and *Erythrina velutina* were the most frequently cited. The studies revealed the multifunctionality of these species, with uses categorized into eight purposes. Medicinal use was predominant (63.8% of citations), followed by timber/energy, forage, food, and ritual applications.

Conclusions: Native legumes of the Caatinga represent valuable and strategic resources for rural, indigenous, and quilombola communities, contributing to food security, healthcare, energy supply, and the maintenance of cultural and spiritual practices. This review also highlights underrepresented regions in the reviewed literature ethnobotanical knowledge and underscores the urgency of integrating traditional knowledge with biodiversity conservation strategies to ensure sustainable management in the face of increasing extractive pressures.

Keywords: Fabaceae; Ethnobotany; Brazilian semiarid; Traditional knowledge.

Background

Local botanical knowledge and the use of plant resources play a fundamental role in the relationship between human populations and plant species. Ethnobotany investigates these interactions, encompassing the different ways plants are perceived, managed, and utilized by communities (Rocha *et al.* 2015; Dario 2018; Fontenele & Rosal 2024). This knowledge supports practices associated with medicinal, nutritional, and economic uses of plants, contributing to the maintenance of traditional livelihoods and the sustainable management of natural resources (Araújo *et al.* 2021; Reis *et al.* 2023). In addition, ethnobotanical knowledge is closely linked to biodiversity conservation, particularly in ecosystems such as the Caatinga Domain (CD), where local populations have developed specific strategies for the use of plant resources under challenging environmental conditions (Albuquerque *et al.* 2017; Borges *et al.* 2024).

Research in this field has been conducted in different regions of Brazil, revealing the diversity of plants used by traditional communities and emphasizing the importance of this knowledge for conservation strategies (Albuquerque *et al.* 2017). In the semi-arid region, notable examples include: Lima *et al.* (2016), who documented the diversity of woody species used for firewood and charcoal (energy purposes) in the state of Paraíba; Albergaria *et al.* (2019), who carried out ethnobotanical surveys in rural communities in Pernambuco; the study by Cerqueira *et al.* (2020) on medicinal plants in the state of Alagoas; and Vitório *et al.* (2023), who investigated the multiple uses (medicinal, ornamental, timber) with some species having more than one use in the state of Bahia.

Although it remains one of the least conserved domains in the country (Leal *et al.* 2003, Fiaschi & Pirani 2009, Santos *et al.* 2011, Melo *et al.* 2023), the CD stands out for its high species richness, with more than 3,300 native species and a high incidence of endemism, totaling over 500 endemic species (Queiroz *et al.* 2017, Fernandes *et al.* 2020). Some of these species provide primary goods used to meet human needs for a wide range of purposes, including food, clothing, leisure, construction, timber, energy, and healthcare (Albuquerque & Andrade 2002, Giulietti *et al.* 2003, Maia 2004, Ferraz *et al.* 2006, Brasileiro 2009, Gariglio *et al.* 2010, Lucena *et al.* 2012, Pareyn *et al.* 2013, Lima *et al.* 2016). This biological heritage is intrinsically linked to the subsistence and cultural practices of human populations that have historically inhabited Brazil's semi-arid region, who have developed extensive and complex knowledge regarding the use of plant resources (Albuquerque & Andrade 2002, Albuquerque *et al.* 2017).

With approximately 800 genera and more than 23,000 species (LPWG 2025), Leguminosae (Fabaceae) is the third largest family of angiosperms in terms of species number, after Asteraceae and Orchidaceae (Bruneau *et al.* 2024). The CD harbors 765 species of Leguminosae, 190 (~25%) of which are endemic, distributed across 128 genera, making it the most representative plant family in the domain (BFG 2015, Queiroz *et al.* 2017, BFG - Leguminosae 2024, Flora e Funga do Brasil 2026). In addition to their remarkable diversity and endemism, Leguminosae are notable for their efficient symbiotic association with nitrogen-fixing bacteria and their economic importance. They are also widely used by rural communities to meet multiple needs, such as food, firewood, forage, medicinal products, and even in religious rituals (Queiroz 2009, Stagnari *et al.* 2017, Taylor *et al.* 2020, Goyal *et al.* 2021).

Leguminosae is one of the most economically and ecologically important angiosperm families worldwide, encompassing species used for a wide range of purposes. Many legumes are valued as food resources due to their protein-rich seeds and fruits, while others are widely employed in traditional medicine because of their diverse secondary metabolites and associated pharmacological properties (Amarowicz 2020; Shea *et al.* 2024). In addition, several species are used for timber, fuelwood and charcoal production, forage, ornamentation, apiculture, soil restoration, and nitrogen fixation, contributing both to local livelihoods and ecosystem functioning (Queiroz 2009; Stagnari *et al.* 2017; Goyal *et al.* 2021). Within the CD, native legumes play a particularly important role in rural and traditional communities, where they provide resources for food, healthcare, construction, energy production, handicrafts, and cultural practices (Queiroz 2009; Albuquerque *et al.* 2017). This diversity of uses highlights the multifunctional character of the family and reinforces its relevance for ethnobotanical studies in seasonally dry tropical environments.

In this light, integrative reviews have become increasingly important in ethnobotanical research as they allow the synthesis of dispersed knowledge regarding useful plant species, traditional ecological knowledge, and patterns of resource use across different sociocultural contexts (Sousa *et al.* 2017; Reis *et al.* 2023). In biodiversity-rich regions such as the Caatinga, where ethnobotanical information is often fragmented among local case studies, integrative reviews help identify research gaps, geographical biases, and priorities for conservation and sustainable management (Albuquerque *et al.* 2017; Reis *et al.* 2023).

Therefore, we aimed to conduct an integrative review of the scientific literature to compile and systematize information on native legume species of the Caatinga and their uses by peoples and communities of the Brazilian semi-arid region. Specifically, we intend to: (i) identify the species of Leguminosae with recorded uses; (ii) categorize the main traditional uses attributed to these species; and (iii) analyze the geographical and sociocultural distribution of ethnobotanical studies conducted in the region. It is expected that this synthesis will contribute to strengthening the field of ethnobotany in the Brazilian semi-arid region and provide a consolidated foundation for future research and sustainable management actions.

Materials and Methods

Study area

The Caatinga Domain (CD) harbors the largest and most diverse core of Seasonally Dry Tropical Forests and Woodlands, representing approximately 31% of the total area of this domain in the Neotropics (Pennington *et al.* 2000, DRYFLOR *et al.* 2016, Albuquerque *et al.* 2017, Queiroz *et al.* 2017, Fernandes *et al.* 2020, Fernandes *et al.* 2022). Located in the semi-arid region of northeastern Brazil and in the northern part of Minas Gerais, it covers an area of 862,818 km², corresponding to about 54% of the region (IBGE 2019, Ganem *et al.* 2020).

The vegetation of the Caatinga (a name derived from the Tupi language meaning "white forest") is predominantly deciduous, characterized by the shedding of leaves by trees and shrubs during the dry season (Prado 2003, Queiroz *et al.* 2017, Fernandes *et al.* 2020). Despite historical perceptions of low biodiversity, recent floristic studies have revealed high species richness and endemism, with more than 3,300 native plant species recorded, highlighting the Caatinga as one of the most important centers of biodiversity among tropical dry forests worldwide (Fernandes *et al.* 2020; Moro *et al.* 2024).

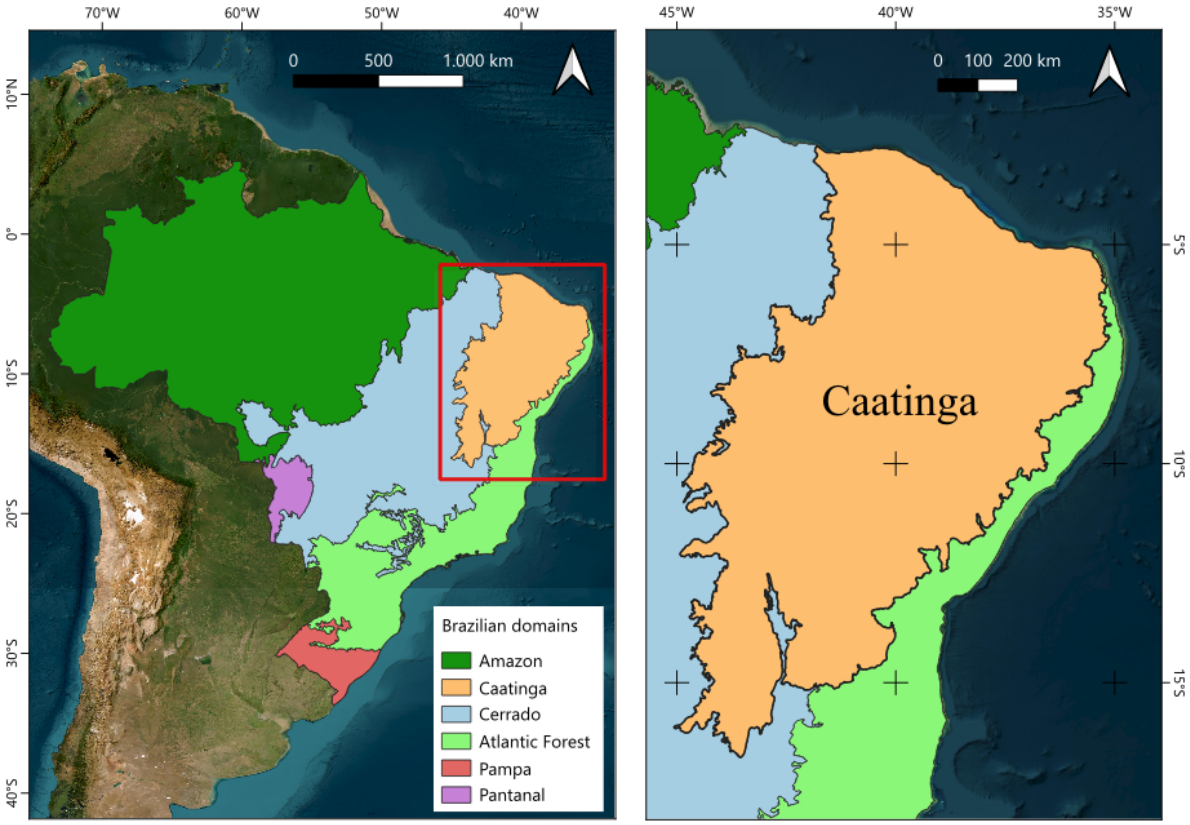

Figure 1. Map showing the distribution of the principal Brazilian biomes (sensu IBGE 2019), highlighting the Caatinga Domain.

Study design

The present study consists of an integrative literature review, a methodological approach that allows for the systematic synthesis of results from both theoretical and empirical research on a given topic (Roman & Friedlander 1998, Sousa *et al.* 2023, Hassunuma *et al.* 2024). This type of review enables a critical analysis of the current state of scientific knowledge and the identification of gaps that require further investigation (Sousa *et al.* 2017, Reis *et al.* 2023). The review was conducted following the stages proposed by Mendes *et al.* (2008): (i) definition of the guiding research question; (ii) establishment of inclusion and exclusion criteria; (iii) search and selection of studies; (iv) extraction and categorization of information; and (v)

analysis and synthesis of results. The guiding research question was: which native legume species of the Caatinga are used by peoples and traditional communities of the Brazilian semi-arid region, and what traditional uses are attributed to them?

Legal aspects of the research

This study is part of the project "Conhecimento e valorização da diversidade biocultural. Etnobiologia, bioprospecção e divulgação científica como estratégias para a conservação da sociobiodiversidade", which is part of the Biodiversity Research Program PPBIO Network: Past, present and future of the biodiversity of the Semi-arid region (CNPq/MCTI Process No. 441271/2023-5). The project was approved by the Research Ethics Committee of the State University of Feira de Santana (CAAE: 82209824.1.0000.0053; Process No. 7,911,546).

Elegibility criteria

Considering the guiding question of this study, articles addressing both general uses (useful plants) and specific uses (e.g., medicinal or food plants) were selected. The inclusion criteria adopted were: original articles published between 2000 and 2025, in Portuguese, English, or Spanish; available online, and free of charge; ethnobotanical studies conducted in the Caatinga or that explicitly stated the data collected in the Caatinga; and articles that presented a species list including Leguminosae and their respective use indications. Studies conducted in transition or ecotone areas with the Caatinga were also included. The choice of this period is because, since the end of the 20th century and throughout the first two decades of the 21st century, knowledge about the biodiversity of the CD has steadily increased, with many plant species being documented each year (Moro *et al.* 2024). We excluded purely pharmacological or chemical studies, research without clear taxonomic identification of the species or that did not address traditional knowledge associated with plants. Additionally, review articles, books, academic theses (undergraduate theses, master's dissertations, and doctoral theses), and duplicate works were also excluded.

There was no restriction regarding the community types of the selected studies, as CD is not only biologically rich but also culturally diverse, shaped by the presence of various ethnic groups distributed across the region (Albuquerque et al., 2017). Nevertheless, this review included studies involving rural communities, Indigenous peoples, quilombola communities, and traditional market vendors. Despite a history of disturbance and unsustainable use, CD vegetation remains a key subsistence resource for these groups, supporting both material and cultural needs (Albuquerque et al., 2007). The resource use may vary among ethnic groups, reflecting differences in social, economic, cultural, and ecological contexts (Silva, 2003; Silva et al., 2006; Albuquerque et al., 2011).

We focused on studies published between 2000 and 2025 as the ethnobotanical research in the CD has shifted from scattered, scarce studies (Magalhães et al, 2019) to a larger, more diversified body of work in recent years (Albuquerque et al., 2012; Santos-Neves et al., 2024). Reviews and mapping efforts show clear growth in publication numbers and thematic breadth focused on Caatinga plants and local knowledge (Ritter et al., 2015; Bezerra-Silva et al., 2024; Santos-Neves et al., 2024).

Limitations

This review has some limitations: a) Only studies published between 2000 and 2025 were considered; b) Only freely accessible online articles were included; c) Books, dissertations, and theses were excluded; d) The final dataset comprised only 13 studies. Therefore, the results should be interpreted as a synthesis of the accessible literature rather than an exhaustive representation of all ethnobotanical knowledge related to native legumes in the Caatinga.

Data sources

Articles were obtained from the following databases: Google Scholar, Portal de Periódicos da CAPES, and Scientific Electronic Library Online (SciELO). These databases were selected because they perform well in data collection for systematic reviews (Bramer *et al.* 2017). The search strategies considered the following descriptors:

1. Google Scholar: Fabaceae OR Leguminosae AND Nordeste AND Caatinga AND povos tradicionais OR povos indígenas AND etnobotânica -químico -farmacológico
2. SciELO: Fabaceae OR Leguminosae AND Nordeste AND Caatinga AND Povos tradicionais OR Povos indígenas AND NOT Químico AND NOT Farmacêutico
3. Portal de Periódicos da CAPES: Etnobotânica AND Fabaceae AND Caatinga OR Nordeste AND povos tradicionais (the search in this database was modified due to inconsistencies when attempting to isolate only the Caatinga within the Northeast region).

In the SciELO and Portal de Periódicos da CAPES databases, the search was performed based on title, abstract, and keywords; Google Scholar, which does not allow such restrictions, was searched across the full text of documents.

Data analyses

Scientific names of the species were checked against the Flora e Funga do Brasil (2026) database to ensure taxonomic accuracy. In cases of uncertainty or lack of records, only the genus was retained. Species classification as native, cultivated, or naturalized was determined based on the "Origin" field in the Flora e Funga do Brasil (2026) database, excluding species classified as naturalized or cultivated.

After reading the titles and abstracts, potentially eligible studies were analyzed in full to compose the research corpus. Extracted information included bibliographic data, geographic location of the studies, recorded species, categories of traditional use, and the social groups involved. Data were organized into spreadsheets using Microsoft Excel® software, enabling descriptive analysis and systematic organization of the results.

Data were analyzed descriptively through frequencies of species citations, use categories, geographic distribution of studies, and sociocultural contexts. It is important to emphasize that citation frequency was used only as an indicator of occurrence in the reviewed literature and should not be interpreted as a direct measure of cultural importance.

Results

Studies selection

The databases provided a total of 282 studies (Periódicos da CAPES: 49; Google Scholar: 222; SciELO: 11). After removing 6 duplicates, 276 articles remained. Of these, 258 were removed following title, abstract, and full-text screening (Figure 1). Excluded works included ethnobotanical studies from domains other than the Caatinga, research with no link to traditional peoples' knowledge, and/or studies that did not mention species of the Leguminosae family or their uses. Of the 18 articles that met the criteria for full-text assessment, five were identified as reviews and were consequently excluded. A final total of 13 studies was included in this integrative review (Figure 1; Table 1).

Table 1. Work reviewed in an integrative way.

Study No.	Author(s)	Title	Journal	Type of use
1	Alves *et al.* (2016)	Comercialização de plantas medicinais: um estudo etnobotânico na feira livre do Município de Guarabira, Paraíba, nordeste do Brasil	Gaia Scientia	Medicinal
2	Albuquerque *et al.* (2008)	Comparisons between the use of medicinal plants in indigenous and rural caatinga (dryland) communities in NE Brazil	Boletin Latinoamericano y del Caribe de plantas Medicinales y Aromaticas	Medicinal
3	Albuquerque and Andrade (2002)	Conhecimento botânico tradicional e conservação em uma área de caatinga no estado de Pernambuco	Acta Botânica Brasilica	Multiple
4	Marreiros *et al.* (2015)	Conhecimento botânico tradicional sobre plantas medicinais no semiárido da paraíba (Nordeste, Brasil)	Revista Ouricuri	Medicinal
5	Lima (2023)	Conhecimento etnobotânico das plantas de cura em uma comunidade do norte alagoano, nordeste do Brasil	Revista Ouricuri	Medicinal
6	Sobrinho *et al.* (2021)	Estudo etnobotânico de plantas medicinais comercializadas no mercado público de Iguatu-Ceará	Research Society and Development	Medicinal
7	Rodrigues *et al.* (2021)	Estudo etnobotânico de plantas medicinais utilizadas por alguns moradores de três comunidades rurais do município de Cabaceiras do Paraguaçu/Bahia	Biodiversidade Brasileira	Medicinal
8	Castro *et al.* (2011)	Ethnobotanical study of traditional uses of medicinal plants: the flora of caatinga in the community of Cravolândia-BA	Journal of Medicinal Plants Research	Medicinal

9	Andrade e Sousa (2016)	Práticas indígenas de cura no Nordeste brasileiro: discutindo políticas públicas e intermedicalidade	Anuário Antropológico	Medicinal
10	Santos *et al.* (2020)	Prefiro plantas do que remédios": o uso de plantas para fins medicinais no território quilombola Cajá dos Negros	Diversitas Journal	Medicinal
11	Farias *et al.* (2019)	Uso atual de plantas medicinais na comunidade Lagoa da Prata, estado do Piauí, Nordeste brasileiro	Gaia Scientia	Medicinal
12	Dario (2018)	Uso de plantas da caatinga pelo povo indígena Pankararu no Estado de Pernambuco	Revista Geotemas	Multiple
13	Vitório *et al.* (2023)	Usos botânicos da comunidade de Santa Terezinha, região ecotonal entre mata atlântica e caatinga na Bahia, Nordeste do Brasil	Acta Biológica Catarinense	Multiple

Studies characteristics

All the studies included were ethnobotanical surveys. Most focused on specific uses: nine explored medicinal applications (one of which addressed both medicinal and ritualistic uses), and four studies reported multiple uses (Table 1). Geographically, there was no significant clustering of studies in a single area: Bahia and Pernambuco each had three studies; followed by Alagoas, Ceará, and Paraíba (two each), and Piauí with only one. Some states such as Maranhão, Rio Grande do Norte, Sergipe, and Minas Gerais were not represented in the final dataset. However, this absence should not be interpreted as evidence of a lack of ethnobotanical research in these states, as relevant studies may exist outside the databases and criteria adopted in this review.

Although only 13 studies were met the inclusion criteria, there is a progressive increase in ethnobotanical research conducted in the CD over the last few decades, with a higher concentration of publications from 2008 onward. The reviewed studies involved different sociocultural contexts, including rural communities, Indigenous peoples, quilombola communities, and traditional plant vendors.

Overall, the data show that ethnobotanical research in the Caatinga has prioritized the documentation and preservation of traditional knowledge, used participatory methodologies and focused on specific territories within the semi-arid region. The reviewed studies document the use of native plants in contexts related to subsistence, health, culture, and social practices among local populations, while also providing relevant insights for biodiversity conservation strategies and sustainable use of plant resources in the Brazilian semi-arid region.

Most research is focused on the medicinal use of plants, both for curing diseases and in spiritual contexts. However, studies also address other use categories, such as food, forage, timber, energy, and shade, indicating the multifunctionality of Caatinga legumes. Furthermore, some studies incorporate quantitative analyses, such as use value, utilitarian redundancy, and socioeconomic factors associated with plant knowledge and use, broadening the understanding of the relationships between communities and plant resources.

Useful Leguminosae of the Caatinga

Among the cataloged species, 13 had outdated scientific names (Flora e Funga do Brasil, 2026) and were subsequently revised and updated to currently accepted nomenclature. The selected studies recorded a total of 43 species distributed across 24 genera. At the genus level, *Anadenanthera* Speg., *Bauhinia* L., and *Senna* Mill. stood out as having the highest number of species, each presenting diverse ethnobotanical uses, especially in traditional medicine.

Species of *Anadenanthera* are primarily indicated for the treatment of respiratory conditions such as flu and cough, with the leaves and bark commonly prepared as teas and syrups. In addition to medicinal applications, their wood is used for construction, and their flowers represent an important resource for apiculture. Species of *Bauhinia* are mainly recognized for their medicinal potential, particularly in the treatment of renal disorders. Their leaves are the most commonly used plant part, typically prepared as infusions (teas) for therapeutic purposes. Similarly, *Senna* species are widely used in traditional medicine, especially for respiratory ailments such as flu and cough. The roots are frequently employed in the preparation of teas and syrups, while the leaves are also utilized medicinally, although with less specificity regarding preparation methods and therapeutic indications.

At the species level, *Amburana cearensis* (Allemão) A.C.Sm. stands out due to its multiple uses. Although valued for its wood, it is predominantly used for medicinal purposes. Its bark is widely employed in the treatment of various conditions, including colds, cough, inflammation, tonsillitis, and sinusitis, typically prepared as decoctions or syrups. The seeds are also used in teas, particularly for managing hypertension. Additionally, the bark, seeds, and inner bark are used in the production of "campiô", a traditional Indigenous smoking pipe, highlighting its cultural significance. *Stryphnodendron adstringens* (Mart.) Coville is another species with extensive medicinal applications. Its bark is commonly used to treat inflammation, colds, uterine hemorrhages, ulcers, and wounds, often due to its healing and astringent properties. This species is also mentioned in ritualistic contexts; however, the studies do not provide detailed information regarding preparation methods or specific purposes in these practices. *Erythrina velutina* Willd. is frequently cited for medicinal use, however, there is a lack of detailed information concerning which plant parts are utilized, as well as the modes of preparation and specific therapeutic indications. These species were the most frequently mentioned, appearing in seven, five, and four studies, respectively (Figure 2, Table 2). Furthermore, ten species are endemic to Brazil, including *Libidibia ferrea* (Mart. ex Tul.) L.P.Queiroz, *Cenostigma microphyllum* (Mart. ex G.Don) Gagnon & G.P.Lewis, *Cenostigma pyramidale* (Tul.) Gagnon & G.P.Lewis, *Macropsychanthus grandiflorus* (Mart. ex Benth.) L.P.Queiroz & Snak, *Mimosa caesalpiniifolia* Benth., and *Pithecellobium diversifolium* Benth., all of which are also endemic to the CD (Flora e Funga do Brasil, 2026) (Table 2).

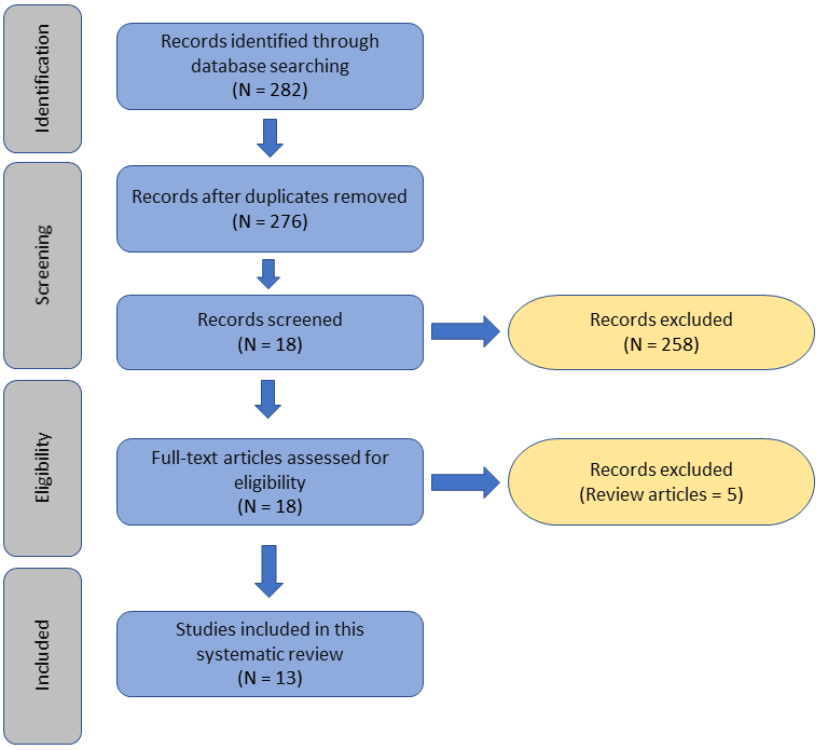

Figure 2. Flowchart showing the study selection process.

Table 2. List of Leguminosae species, common names, and their uses in traditional communities of the Caatinga.

Study No.	Species	Vernacular name	Mentions	Use
12	*Abarema cochliacarpos* (Gomes) Barneby & J.W.Grimes*	**Rompe-gibão**	1	Medicinal
1, 2, 3, 4, 8, 12, 13	*Amburana cearensis* (Allemão) A.C.Sm.	**Imburana-de-cheiro; Cumaru**	7	Medicinal, Wood
4, 11, 12, 13	*Anadenanthera colubrina* (Vell.) Brenan	**Angico-branco**	4	Medicinal, Wood, Apiculture
8	*Anadenanthera colubrina* (Vell.) Brenan *var. colubrina*	**Angico**	1	Medicinal
10	*Anadenanthera falcata* (Benth.) Speg.	-	1	Medicinal
12	*Anadenanthera macrocarpa* (Benth.) Brenan	**Angico**	1	Wood, Medicinal
4, 12	*Bauhinia cheilantha* (Bong.) Steud.	**Mororó**	2	Medicinal
6, 13	*Bauhinia forficata* Link	**Pata-de-vaca**	2	Medicinal
4	*Bauhinia pentandra* (Bong.) D.Dietr.	**Mororó**	1	Medicinal

11	*Bauhinia ungulata* L.	**Mororó/pata-de-vaca**	1	Medicinal
2, 12, 13	*Bowdichia virgilioides* Kunth	**Sucupira**	3	Medicinal, Wood
3	Canavalia sp.	**Chorão**	1	Shade
11	*Cenostigma bracteosum* (Tul.) Gagnon & G.P.Lewis*	**Catingueira**	1	Medicinal
12	*Cenostigma microphyllum* (Mart. ex G.Don) Gagnon & G.P.Lewis**	**Catingueira-rasteira**	1	Medicinal
12, 13	*Cenostigma pyramidale* (Tul.) Gagnon & G.P.Lewis**	**Catingueira**	2	Wood, Medicinal, Apiculture
8	*Chamaecrista cultrifolia* (Kunth) Britton & Rose ex Britton & Killip	**Sene**	1	Medicinal
12, 13	*Erythrina mulungu* Mart.	**Mulungu**	2	Wood
2, 3, 4	*Erythrina velutina* Willd.	**Mulungu**	3	Medicinal, Ritualistic
1	*Erythrina verna* Vell.*	**Mulungu**	1	Medicinal
4, 6, 13	*Hymenaea courbaril* L.	**Jatobá**	3	Medicinal
11	*Hymenaea* sp.	**Jatobá**	1	Medicinal
12	*Hymenaea stigonocarpa* Mart. ex Hayne	**Jatobá**	1	Food, Wood
12	*Inga laurina* (Sw.) Willd.	**Ingazeiro**	1	Food, Medicinal
4	*Inga* sp.	**Ingazeira**	1	Medicinal
4, 6, 11	*Libidibia ferrea* (Mart. ex Tul.) L.P.Queiroz**	**Bagi de Jucá/Jucá**	3	Medicinal
3, 12	*Macropsychanthus grandiflorus* (Mart. ex Benth.) L.P.Queiroz & Snak**	**Mucunã**	2	Food, Medicinal, Poison
11, 12	*Mimosa caesalpiniifolia* Benth.**	**Sabiá**	2	Medicinal, Wood
9	*Mimosa* sp.	**Jurema**	1	Ritualistic
4, 13	*Mimosa arenosa* (Willd.) Poir.	**Jurema-branca**	2	Apiculture
4, 12, 13	*Mimosa tenuiflora* (Willd.) Poir.	**Jurema-preta**	3	Wood, Medicinal, Apiculture
2	*Myroxylon peruiferum* L.f.	**Bálsamo**	1	Medicinal
13	*Periandra mediterranea* (Vell.) Taub.	**Arcançu**	1	Medicinal
4	*Piptadenia retusa* (Jacq.) P.G.Ribeiro, Seigler & Ebinger	**Jurema-branca**	1	Medicinal
4, 12	*Pithecellobium diversifolium* Benth.**	**Espinheiro**	2	Medicinal
13	*Poecilanthe ulei* (Harms) Arroyo & Rudd**	**Carrancudo**	1	Apiculture
6	*Pterodon emarginatus* Vogel	**Sucupira**	1	Medicinal
4	*Senegalia polyphylla* (DC.) Britton & Rose	**Unha-de-gato**	1	Medicinal
8	*Senna alata* (L.) Roxb.	-	1	Medicinal
11, 12	*Senna obtusifolia* (L.) H.S.Irwin & Barneby	**Mata-pastão**	2	Medicinal
5, 13	*Senna occidentalis* (L.) Link	**Fedegoso**	2	Medicinal
1, 7, 8, 11, 13	*Stryphnodendron adstringens* (Mart.) Coville*	**Barbatimão**	5	Medicinal, Ritualistic
10	*Stryphnodendron* sp.	**Barbatimão**	1	Medicinal
11	*Vachellia farnesiana* (L.) Wight & Arn.	**Coronha**	1	Medicinal

The study numbers correspond to the article numbers in Table 1. (*) Species endemic to Brazil; (**) Species endemic to the Caatinga.

Discussion

Traditional knowledge associated with native legumes in the Caatinga

The reviewed studies demonstrate that native legumes play an important role in the daily lives of traditional communities throughout the Brazilian semiarid region. Rural communities, Indigenous peoples, quilombola groups, and medicinal plant vendors reported the use of these species for multiple purposes, including medicine, food, timber, energy production, apiculture, forage, and ritual practices. This diversity of uses reflects the close relationship between local populations and the CD vegetation, as well as the long process of knowledge accumulation regarding the management and use of plant resources (Albuquerque & Andrade 2002; Albuquerque *et al.* 2017).

The occurrence of similar uses across different sociocultural groups suggests that some native legumes constitute widely recognized resources within the Caatinga (Albuquerque *et al.* 2008). However, variations in species selection and use patterns may reflect differences in local resource availability, environmental conditions, cultural traditions, knowledge

transmission processes, and socioeconomic contexts (Albuquerque & Andrade 2002; Lucena *et al.* 2007).

Medicinal use as the predominant category

Medicinal applications represented the most frequently recorded use category among the reviewed studies, accounting for 63.8% of all use records. This predominance is not exclusive to legumes and has been widely reported in ethnobotanical studies conducted throughout the Caatinga, where medicinal knowledge constitutes one of the most important dimensions of human-plant interactions (Roque *et al.* 2010; Coutinho *et al.* 2015; Reis *et al.* 2023).

The therapeutic applications recorded encompass a wide range of health conditions, including respiratory disorders, inflammatory processes, gastrointestinal problems, infections, and hypertension. Preparation methods such as teas, decoctions, syrups, medicinal baths, and infusions were commonly reported. These practices illustrate the persistence of traditional healthcare systems and highlight the role of medicinal plants as accessible therapeutic resources, especially in rural areas where access to formal healthcare services may be limited.

The prominence of medicinal uses may also reflect a methodological tendency within ethnobotanical research, since most of the studies included in this review specifically focused on medicinal plants. Therefore, the predominance of this category should be interpreted cautiously, as it may partly result from the thematic focus of the available literature.

Multipurpose species and resource versatility

Several species were reported in more than one use category, demonstrating the multifunctionality of native legumes in the Caatinga. Species such as *Amburana cearensis*, *Mimosa tenuiflora*, *Cenostigma pyramidale*, and *Anadenanthera colubrina* were associated with combinations of medicinal, timber, apicultural, forage, food, and ritual uses. This multifunctionality increases the local value of these species because a single resource may satisfy different community needs. Similar patterns have been documented for other dry tropical forests, where plant selection is often influenced by the diversity of services provided by each species (Albuquerque & Andrade 2002).

From a conservation perspective, multipurpose species deserve particular attention because they may be subjected to multiple extraction pressures simultaneously. Harvesting bark for medicinal purposes, wood for construction or fuel, and other plant parts for cultural practices may affect population regeneration and long-term persistence (Albuquerque *et al.* 2017; Melo *et al.* 2023).

Frequently cited species in the reviewed literature

Among the recorded species, *Amburana cearensis*, *Stryphnodendron adstringens*, and *Erythrina velutina* were the most frequently mentioned in the reviewed studies. However, it is important to emphasize that frequency of citation in the literature should not be interpreted as a direct indicator of cultural importance. Citation frequency reflects the occurrence of records within the selected studies and may be influenced by factors such as research location, sampling effort, study objectives, and publication availability. Consequently, the higher number of records for certain species indicates greater representation in the reviewed literature rather than necessarily greater cultural significance. Nevertheless, the recurrent appearance of these species across different studies suggests that they constitute relevant components of ethnobotanical knowledge in several regions of the Caatinga.

Sociocultural dimensions of plant use

The reviewed studies indicate that traditional knowledge related to native legumes is maintained and transmitted within different social groups, including Indigenous peoples, quilombola communities, and rural populations. In many cases, knowledge transmission occurs orally between generations and is associated with cultural practices, local beliefs, and everyday experiences. Some species were also associated with ritualistic and symbolic uses, demonstrating that plant use extends beyond utilitarian purposes. These findings reinforce the multidimensional nature of ethnobotanical knowledge, which encompasses medicinal, economic, social, cultural, and spiritual dimensions.

Implications for future research and conservation

Although only 13 studies met our inclusion criteria, and most were concentrated in a few states, this review provides a substantive synthesis of ethnobotanical knowledge on native legumes. The predominance of studies centered on medicinal uses may reflect a research emphasis on therapeutic applications, which could shape the distribution of use categories observed. This highlights the need for broader investigations covering diverse use categories and underrepresented regions, in order to build a more comprehensive understanding of the cultural and utilitarian significance of native legumes. The

identification of frequently used and multifunctional species may help guide investigations on sustainable management, conservation priorities, phytochemistry, pharmacology, and the development of bioeconomy initiatives.

Similarly, the absence of studies from certain states in our final dataset should not be taken as evidence of a lack of ethnobotanical research in those areas. Relevant data may exist in grey literature, regional publications, or studies not meeting our inclusion criteria. This underscores the need for further ethnobotanical surveys, especially in underrepresented regions and among diverse traditional groups, to gain a more comprehensive picture of native legume uses across the Caatinga domain. Future investigations would benefit from including quantitative approaches to better evaluate the cultural significance of these plants, thereby deepening our understanding of how traditional communities interact with native plant resources.

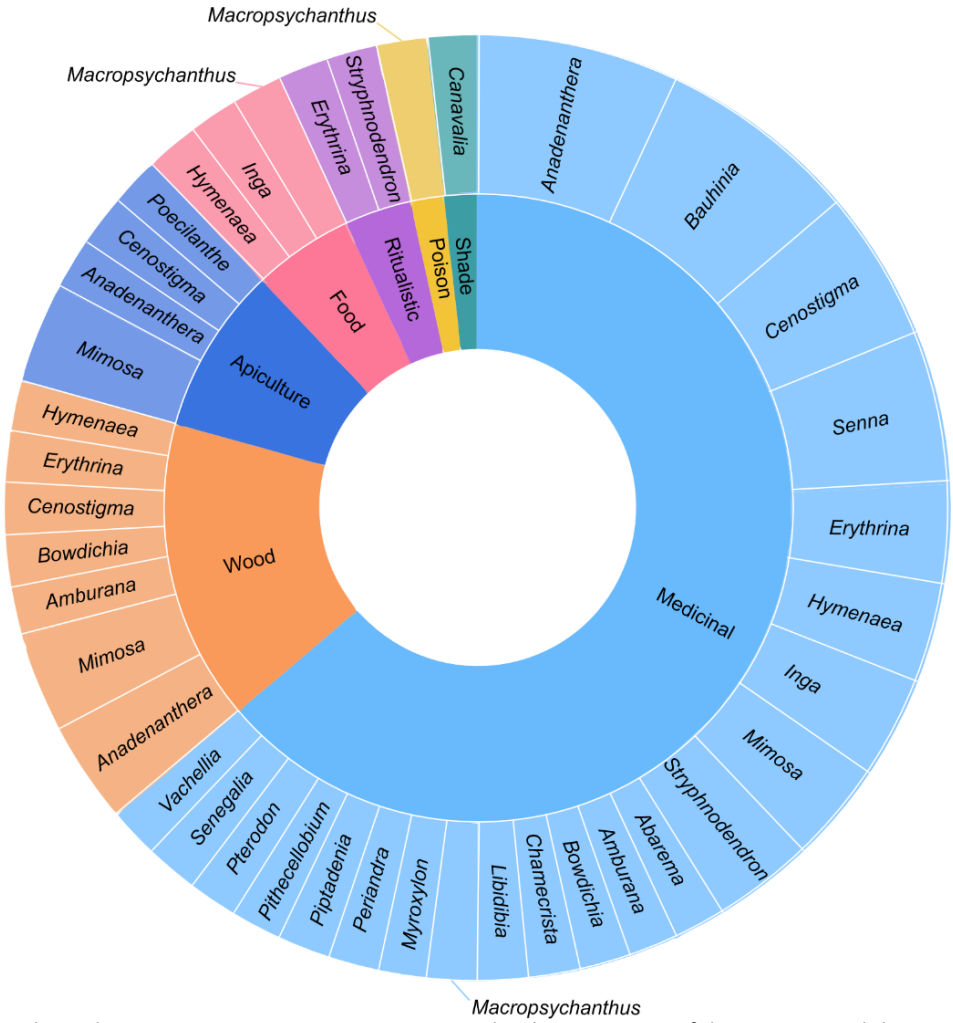

Figure 3. Correlation between Leguminosae use categories in local communities of the Caatinga and the number of species per category by genus. Cell size represents the number of species cited per category per genus.

Conclusion

This integrative review highlights the multiple uses of native legumes from the Caatinga for the traditional communities in the Brazilian semi-arid region. The analysis of the 13 selected studies revealed 43 native species from 24 genera being used for various purposes. The concentration of records in medicinal use categories and the recurrent occurrence of species with multiple functions emphasize their ecological, cultural, and socioeconomic importance. Although the absence of studies in some regions may not represent lack of ethnobotanical studies in the area, this finding reinforces the need to expand ethnobotanical research to these regions in order to obtain a complete overview of the biocultural diversity of the CD. Future investigations should prioritize underrepresented regions and sociocultural groups to improve our understanding of plant use patterns and support conservation and sustainable management initiatives in the Brazilian semiarid region.

Declarations

List of abbreviations: Caatinga Domain (CD); Piauí (PI)

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Availability of data and materials: Not applicable

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