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Traditional use of medicinal plants for the treatment of prevalent diseases in afro-descendant communities of southwestern Colombia

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ABSTRACT: Traditional plant-based medicine constitutes a central pillar of community care in Afro-descendant populations of southwestern Colombia, especially in territories marked by structural inequalities and limited access to formal health services. However, gaps remain in the systematic documentation of these practices, particularly regarding their diversity, perceived effectiveness, and cultural value. This study aimed to characterize the traditional use of medicinal plants in six municipalities of Cauca (Guachené, Corinto, Caloto, Santander de Quilichao, Guapi, and Timbiquí) through a qualitative and participatory ethnobotanical approach. Through semi-structured interviews, focus groups, and botanical collection, knowledge associated with the species used, their therapeutic applications, and preparation methods was identified. The relative use value index (UR) was used to determine the cultural relevance of each plant in the different territories. Among the recorded species, *Dysphania ambrosioides*, *Peumus boldus*, *Moringa oleifera*, *Eucalyptus* sp., and *Solanum americanum* stood out. These species were mainly associated with the treatment of respiratory, digestive, and skin diseases. Beyond their therapeutic function, these plants play a key role in the transmission of knowledge, cultural identity, and local sustainability. This work represents the most comprehensive report to date on Afro-descendant ethnomedicine in southwestern Colombia and offers valuable input for intercultural health policies and biocultural conservation. The findings highlight the urgency of recognizing and safeguarding these knowledge systems as pillars of community resilience and health sovereignty.

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1. INTRODUCTION

Traditional and complementary medicine (T&CM) constitutes an essential component of primary health care for numerous populations around the world, particularly in rural settings where state coverage is limited and access to biomedical services is restricted or inadequate (World Health Organization, 2019; Gómez-Estrada, 2011). In such contexts, ancestral healing practices based on the use of medicinal plants not only address immediate therapeutic needs but also represent complex systems of local knowledge that interweave health, spirituality, territoriality, and collective memory. Evidence suggests that these systems have proven fundamental to ecological sustainability and community resilience in the face of social, climatic, and health-related changes (Awoke et al., 2024).

In Colombia, the importance of T&CM is especially evident in regions such as Cauca, a multiethnic and biodiverse territory marked by longstanding inequalities in access to health care, education, and basic services. In this department of southwestern Colombia, Afro-descendant communities have developed strong traditional medical systems based on their close relationship with the environment, the oral transmission of knowledge, and the use of both native and naturalized plants to treat common ailments. Far from being residual, these practices represent legitimate and effective forms of community care and cultural expression. Moreover, recent research in Indigenous communities from the same region has revealed notable ethnobotanical richness that supports both physical health and the cultural and spiritual fabric of these communities (Paz-Perafán & Montenegro-Paz, 2024).

Adopting a biocultural approach, the traditional use of medicinal plants should be understood not merely as a therapeutic alternative but as a manifestation of the interdependence between biological and cultural diversity. Bioculturality acknowledges that these practices are deeply rooted in local ways of understanding the body, illness, and well-being and are closely dependent on the availability and management of natural resources within specific territories. As Otamendi-Urroz et al. (2025) assert, conserving biocultural diversity entails not only protecting plant species but also ensuring the continuity of knowledge systems and the rights of the communities that safeguard them. From this perspective, recent studies on the phytochemical variability and traditional use of species in the Central Andes highlight the richness and complexity of local knowledge associated with medicinal plants and underscore the need for interdisciplinary approaches that integrate science and tradition (Ulloa del Carpio et al., 2024).

Additionally, research focused on medicinal plants used throughout Latin America reinforces that these resources not only provide direct therapeutic benefits but also significantly influence food sovereignty and preventive health in rural communities (Leiva Vega et al., 2024). Collectively, this body of evidence supports the urgency of advancing public policies that recognize and integrate traditional medical systems into national health and conservation strategies.

However, despite their value, Afro-Colombian traditional medical systems have historically been marginalized by both hegemonic medicine and public conservation policies. This marginalization has led to the invisibilization, loss of knowledge, and weakening of vital practices. The existing literature is often fragmented or methodologically limited, and persistent gaps remain in the systematic characterization of medicinal uses, preparation methods, and the intergenerational transmission of knowledge (Bekele Beressa et al., 2024). Research on Afro-descendant ethnomedicine in Cauca remains scarce and fragmented, with limited systematic documentation integrating species diversity, therapeutic applications, preparation methods, and cultural relevance across multiple municipalities. This lack of institutional recognition threatens not only functional biodiversity but also the health and cultural sovereignty of the communities involved.

In light of the above, the objective of this study is to characterize the traditional use of medicinal plants in Afro-descendant communities across six municipalities in Cauca: Guachené, Corinto, Santander de Quilichao, Caloto, Timbiquí, and Guapi. Through an ethnographic and participatory approach, the study explores therapeutic uses, preparation practices, and the cultural logics that underpin traditional health knowledge, thereby contributing to the documentation of Afro-Colombian biocultural heritage and promoting its recognition as a strategic axis for territorial sustainability, epistemic justice, and intercultural health.

2. MATERIALS AND METHODS

2.1. Study area

This study was conducted between October 2021 and February 2022 in rural communities of six municipalities in the department of Cauca, southwestern Colombia: Guachené (3°08’01”N, 76°23’33”W), Corinto (3°10’26”N, 76°15’34”W), Santander de Quilichao (3°00’30”N, 76°29’02”W), Caloto (3°02’08”N, 76°24’28”W), Timbiquí (2°46’19”N, 77°39’54”W), and Guapi (2°34’11”N, 77°53’10”W) (Figure 1). These municipalities were selected

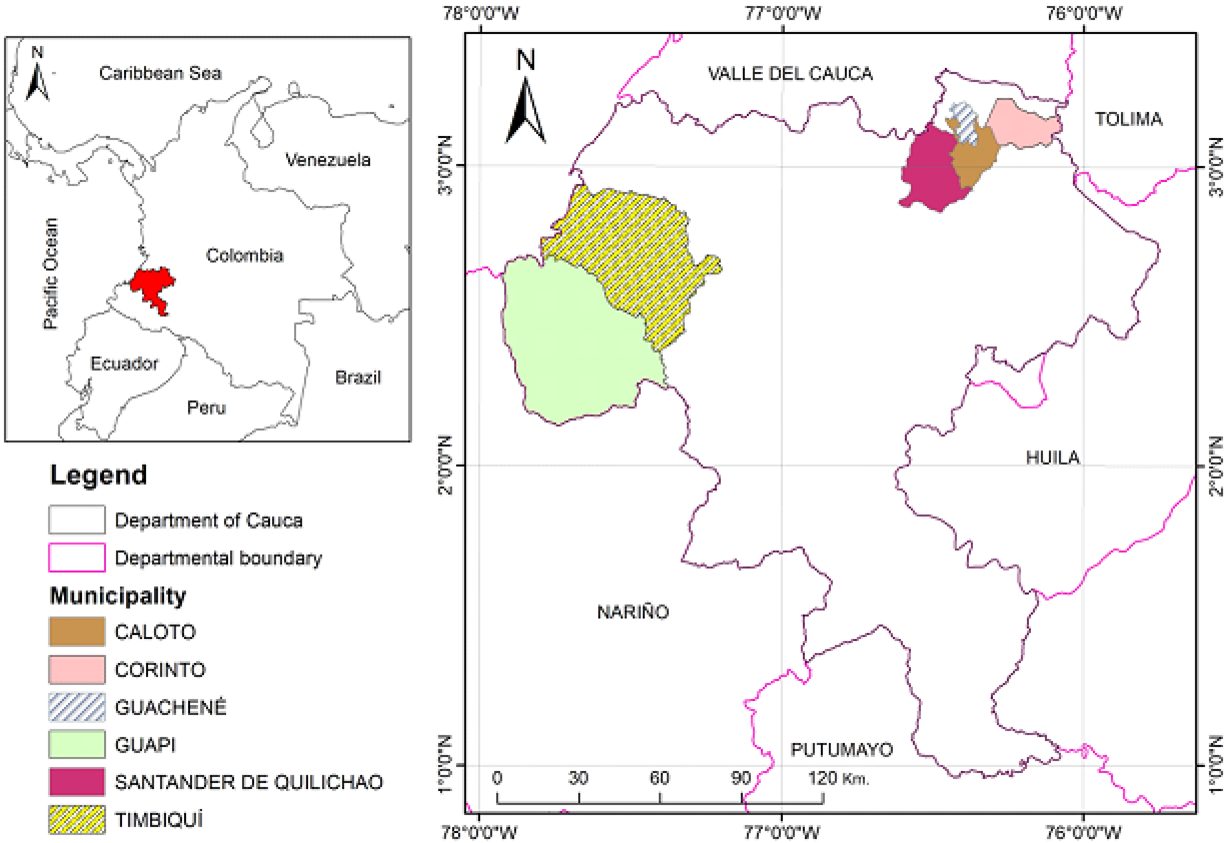

Figure 1. Location of the municipalities with Afro-descendant communities where the ethnobotanical inventory was conducted.

because they represent key Afro-descendant territories in Cauca with legally recognized community councils and contrasting ecological and socio-economic conditions, allowing comparison of medicinal plant knowledge across both inland and Pacific coastal contexts. These localities span an altitudinal range from 300 to 1000 meters above sea level and encompass territories of tropical rainforest, sub-Andean forest, and foothill zones. The participating Afro-descendant communities are organized into legally recognized community councils, with economies primarily based on agriculture, fishing, artisanal mining, and the traditional use of biodiversity.

2.2. Study design and sampling

A qualitative and participatory approach was adopted, with emphasis on applied ethnobotanical perspectives. Sampling was purposive and aimed at identifying bearers of traditional knowledge recognized by their communities, following practices recommended in ethnobotanical studies (local expert sampling; Tardío & Pardo-de-Santayana, 2008). In each municipality, an open call was carried out with the support of the community councils. A total of 104 participants were included (61 women and 43 men), all adults with a minimum residence of 10 years in the area and experience in the use of medicinal plants. The unit of observation was the individual, avoiding generalizations to the entire community, as recommended by Bernard (2017) and other ethnographic studies. Although participation included both women and men, gender balance was not controlled through quotas because recruitment depended on voluntary participation and the availability of local knowledge holders, which may have influenced the distribution of perspectives captured.

2.3. Data collection

Data were collected through semi-structured interviews, participant observation, and focus groups conducted in Spanish and, when necessary, with community-based translation. The interviews were structured around three core questions: (1) What medicinal plants do you know and use? (2) What ailments or diseases do you treat with each one? (3) How do you prepare and administer each remedy? This type of methodology is widely used in studies employing interviews and focus groups to deepen understanding of traditional knowledge (Longhurst, 2003). The focus groups enabled collective triangulation and validation of the information, identifying overlaps, local synonyms, and shared knowledge, as recommended in participatory ethnography (Longhurst, 2003).

2.4. Botanical collection and identification

During fieldwork, botanical specimens of the mentioned species were collected, always with prior verbal consent. Specimens were pressed and stored following standardized protocols and deposited in the CAUP Herbarium of the Natural History Museum of the Universidad del Cauca under unique collection codes. Taxonomic identification was based on botanical keys, specialized literature, and consultation with experts. Nomenclature followed the International Code of Botanical Nomenclature and was verified through the Plants of the World Online portal (POWO, 2024). Common names, scientific names, botanical family, growth habit, and parts used were recorded in accordance with ethnobotanical documentation standards (Martin, 1995).

2.5. Categorization and data analysis

Data were organized into an ethnobotanical matrix. Species were classified according to the type of ailment treated (digestive, respiratory, infectious, dermatological, gynecological, among others), part used (leaf, root, stem, flower, bark, fruit), and method of preparation (infusion, decoction, poultice, maceration, bath, etc.). Disease groups were standardized across Tables 1 and 2 using a harmonized set of categories to ensure consistent classification of reported ailments and improve comparability between plant uses and preparation methods. The relative use value (UR) was calculated for each species using the formula:

$$UR = (N/n) \times 100,$$

where n is the number of mentions of a given species by informants, and N is the total number of mentions across all species. This index helps identify the species with the greatest cultural or therapeutic relevance within the communities (Tardío & Pardo de Santayana, 2008).

3. RESULTS

3.1. General composition and most frequently used species

A total of 19 medicinal plant species were recorded for the treatment of prevalent diseases in Afro-descendant communities across six municipalities in Cauca (Table 1). Although 103 mentions of species were documented across all municipalities, many of them overlapped across territories, and only 19 corresponded specifically to uses aimed at treating prevalent conditions such as respiratory, digestive, skin, and febrile diseases. The most commonly used species was *Dysphania ambrosioides* (commonly known as paico), reported by 6.8% of participants. Its use is primarily associated with the treatment of intestinal parasites and is widely recognized in all communities for its effectiveness and local availability.

Following in frequency of use are *Eucalyptus* sp., *Cymbopogon citratus* (lemongrass), *Matricaria chamomilla* (chamomile), *Gliricidia sepium* (madreado/matarratón), and *Moringa oleifera* (moringa), each with 4.85% of mentions. These species are predominantly used to treat diseases of the respiratory system. Similarly, *Peumus boldus* (boldo) is used for digestive disorders and general inflammation, while *Solanum americanum* (black nightshade) is mainly employed for skin conditions.

3.2. Therapeutic categories and use percentages

Calendula officinalis (calendula) is used in 3.88% of cases for skin ailments, digestive disorders, and inflammation, and *Zingiber officinale* (ginger) is valued for its expectorant effect in respiratory diseases. Slightly below that level (2.91%), *Mentha × piperita* (peppermint) and *Lippia alba* (pronto alivio) are used for respiratory and digestive conditions, respectively.

Some less frequently mentioned species (1.94%) include *Citrus × limon* (lemon), used as a complement in respiratory illnesses; *Petiveria alliacea* (anamú), with uses related to general inflammation and genetic conditions; and *Ruta graveolens* (rue), employed in inflammatory ailments and blood-related disorders.

Within the group of digestive diseases, notable species include *Persea americana* (avocado), also applied in hematologic disorders; *Mentha × piperita* (mint), additionally used for nervous system ailments; and *Aloe vera* (sábila), reported for external application in skin problems. Finally, *Tanacetum parthenium* (Santa María feverfew) is used to treat tropical diseases and genitourinary conditions.

Table 1
Medicinal plant species recorded in Guachené, Corinto, Santander de Quilichao, Caloto, Timbiquí, and Guapi.

Common name	Scientific name	Municipality	Therapeutic applications	Disease group	% Use
Paico	*Dysphania ambrosioides*	Guapi	Covid-19	Respiratory diseases	6,80%
		Guapi	Intestinal parasites	Digestive diseases	
		Stder. de Quilichao	Intestinal parasites	Digestive diseases	
		Guachené	Intestinal parasites	Digestive diseases	
		Corinto	Intestinal parasites	Digestive diseases	
		Caloto	Intestinal parasites	Digestive diseases	
		Timbiquí	Intestinal parasites	Digestive diseases	
Boldo/ acetaminofén	*Peumus boldus*	Guapi	Intestinal parasites	Digestive diseases	4,85%
		Stder. de Quilichao	Pain	Inflammatory conditions	
		Guachené	Pain	Inflammatory conditions	
		Caloto	Pain	Inflammatory conditions	
		Timbiquí	Fever	Febrile conditions	
Eucalipto	*Eucalyptus* sp.	Guapi	Covid-19	Respiratory diseases	4,85%
		Stder. de Quilichao	Covid-19	Respiratory diseases	
		Guachené	Covid-19	Respiratory diseases	
		Corinto	Fever	Febrile conditions	
		Corinto	Covid-19	Respiratory diseases	
Hierba mora	*Solanum americanum*	Guapi	Wound healing	Dermatological diseases	4,85%
		Stder. de Quilichao	Wound healing	Dermatological diseases	
		Guachené	Wound healing	Dermatological diseases	
		Corinto	Wound healing	Dermatological diseases	
		Timbiquí	Wounds	Dermatological diseases	
Limoncillo	*Cymbopogon citratus*	Guapi	Covid-19	Respiratory diseases	4,85%
		Stder. de Quilichao	Covid-19	Respiratory diseases	
		Guachené	Covid-19	Respiratory diseases	
		Corinto	Fever	Febrile conditions	
		Caloto	Flu/congestion	Respiratory diseases	
Manzanilla	*Matricaria chamomilla*	Guapi	Stomach ache	Digestive diseases	4,85%
		Corinto	Covid-19	Respiratory diseases	
		Caloto	Stomach ache	Digestive diseases	
		Caloto	Flu/congestion	Respiratory diseases	
		Caloto	Colic	Digestive diseases	
Matarratón	*Gliricidia sepium*	Guapi	Malaria	Infectious and tropical diseases	4,85%
		Guapi	Covid-19	Respiratory diseases	
		Guapi	Fever	Febrile conditions	
		Guachené	Fever	Febrile conditions	
		Caloto	Flu/congestion	Respiratory diseases	
Moringa	*Moringa oleifera*	Stder. de Quilichao	Covid-19	Respiratory diseases	4,85%
		Guachené	Covid-19	Respiratory diseases	
		Corinto	Covid-19	Respiratory diseases	
		Caloto	Immune system	Other conditions	
		Timbiquí	Covid-19	Respiratory diseases	
Caléndula	*Calendula officinalis*	Guapi	Wound healing	Dermatological diseases	3,88%
		Guapi	Anti-inflammatory	Inflammatory conditions	
		Guachené	Wound healing	Dermatological diseases	
		Caloto	Colic	Digestive diseases	

(continued)

Table 1
(Continued)

Common name	Scientific name	Municipality	Therapeutic applications	Disease group	% Use
Jengibre	*Zingiber officinale*	Stder. de Quilichao	Covid-19	Respiratory diseases	3,88%
		Guachené	Covid-19	Respiratory diseases	
		Corinto	Covid-19	Respiratory diseases	
		Caloto	Flu/congestion	Respiratory diseases	
Hierbabuena	*Mentha x piperita*	Guapi	Covid-19	Respiratory diseases	2,91%
		Guapi	Stomach ache	Digestive diseases	
		Caloto	Stomach ache	Digestive diseases	
Pronto alivio	*Lippia alba*	Stder. de Quilichao	Covid-19	Respiratory diseases Febrile conditions Digestive diseases	2,91%
		Corinto	Fever	Other conditions	
		Caloto	Stomach ache	Digestive diseases	
Aguacate	*Persea americana*	Guapi	Diabetes	Inflammatory conditions	1,94%
		Guachené	Stomach ache	Other conditions	
Anamú	*Petiveria alliacea*	Stder. de Quilichao	Pain	Respiratory diseases	1,94%
		Caloto	Cancer prevention	Respiratory diseases	
Limón	*Citrus x limon*	Guapi	Covid-19	Digestive diseases	1,94%
		Stder. de Quilichao	Covid-19	Nervous system conditions	
Menta	*Mentha x piperita*	Guapi	Stomach ache	Hematologic conditions	1,94%
		Guachené	Nervousness	Inflammatory conditions	
Ruda	*Ruta graveolens*	Stder. de Quilichao	Hemorrhage	Digestive diseases	1,94%
		Corinto	Infections	Dermatological diseases	
Sábila	*Aloe vera*	Guapi	Stomach ache	Infectious and tropical diseases	1,94%
		Caloto	Burns	Genitourinary diseases	
Santa maría	*Tanacetum parthenium*	Guapi	Malaria	Respiratory diseases	1,94%
		Timbiquí	Cystitis	Digestive diseases	

The table shows the common and scientific names, territories of use, therapeutic applications, disease groups treated, and relative use percentages (% UR).

3.3. Usage patterns and cultural relevance

Overall, 19 medicinal plant species were documented across the six municipalities, totaling 103 mentions linked to prevalent health conditions. *Dysphania ambrosioides* showed the highest relative use at 6.80 percent, while a second group of frequently cited species reached 4.85 percent each, including *Eucalyptus* sp., *Cymbopogon citratus*, *Matricaria chamomilla*, *Gliricidia sepium*, *Moringa oleifera*, and *Peumus boldus*, with uses concentrated in respiratory and digestive conditions. *Calendula officinalis* and *Zingiber officinale* followed at 3.88 percent, and *Mentha × piperita* and *Lippia alba* at 2.91 percent. The remaining taxa were less frequently reported at 1.94 percent and were associated with complementary uses across respiratory, digestive, dermatological, tropical, genitourinary, nervous system, and blood-related conditions. Preparation practices were dominated by infusions and decoctions, whereas macerations and baths were reported more often for skin problems, fever, and generalized pain.

These variations in plant use reflect both the local availability of plant resources and the cultural trajectories of traditional knowledge and community health priorities. Nevertheless, the widespread presence of certain species, such as *Dysphania ambrosioides* and *Peumus boldus*, underscores their ethnomedical importance within the cultural matrix of Afro-descendant communities in Cauca. Their high frequency of use and wide range of applications suggest sustained empirical community validation over time, consistent with the cultural importance approach (Tardío & Pardo-de-Santayana, 2008). Table 1. Medicinal plant species recorded in Guachené, Corinto, Santander de Quilichao, Caloto, Timbiquí, and Guapi. Common and scientific names, territories of use, therapeutic applications, disease groups treated, and relative use percentages (% UR) are presented.

Table 2
Traditional preparation methods of medicinal plants recorded in Afro-Colombian communities.

Plant species	Municipalities where it is used	Diseases treated	Disease group	Preparation methods
Dysphania ambrosioides	Guachené, Corinto, Santander de Quilichao, Caloto, Timbiquí, Guapi	Intestinal parasites, respiratory diseases, COVID-19	Digestive diseases, Respiratory diseases	Maceration (juice), infusion
Eucalyptus sp.	Guachené, Corinto, Santander de Quilichao, Guapi	Respiratory diseases, fever, COVID-19	Respiratory diseases, Febrile conditions	Decoction, infusion
Cymbopogon citratus	Guachené, Corinto, Santander de Quilichao, Caloto, Guapi	Flu, congestion, fever, respiratory diseases	Respiratory diseases, Febrile conditions	Decoction, infusion
Zingiber officinale	Guachené, Corinto, Santander de Quilichao, Caloto	COVID-19, respiratory diseases	Respiratory diseases	Decoction
Moringa oleifera	Guachené, Corinto, Santander de Quilichao, Caloto, Timbiquí	COVID-19, respiratory diseases, immune system	Respiratory diseases, Other conditions	Infusion
Gliricidia sepium	Guachené, Caloto, Timbiquí, Guapi	Fever, COVID-19, malaria, respiratory diseases	Febrile conditions, Infectious and tropical diseases, Respiratory diseases	Juice, topical application, bed laying
Matricaria chamomilla	Guachené, Corinto, Caloto, Guapi	Stomach pain, colic, flu	Digestive diseases, Respiratory diseases	Decoction, infusion
Peumus boldus	Guachené, Corinto, Santander de Quilichao, Caloto, Timbiquí, Guapi	Intestinal parasites, pain, general inflammation, fever	Digestive diseases, Inflammatory conditions, Febrile conditions	Infusion
Solanum americanum	Guachené, Corinto, Santander de Quilichao, Timbiquí, Guapi	Wounds, skin diseases	Dermatological diseases	Maceration (juice), infusion
Calendula officinalis	Guachené, Caloto, Guapi	Wounds, inflammation	Dermatological diseases, Inflammatory conditions	Infusion
Mentha x piperita	Caloto, Guapi	Stomach pain, anxiety, nerves	Digestive diseases, Nervous system conditions	Decoction, topical use
Lippia alba	Corinto, Santander de Quilichao, Caloto	Stomach pain, fever, COVID-19	Digestive diseases, Febrile conditions, Respiratory diseases	Infusion
Citrus x limon	Santander de Quilichao, Guapi	COVID-19, respiratory diseases	Respiratory diseases	Decoction, infusion
Petiveria alliacea	Santander de Quilichao, Caloto	Pain, inflammation, cancer prevention	Inflammatory conditions, Other conditions	Infusion
Ruta graveolens	Corinto, Santander de Quilichao	Infections, hemorrhages	Inflammatory conditions, Hematologic conditions	Infusion
Aloe vera	Caloto, Guapi	Burns, skin diseases, stomach pain	Dermatological diseases, Digestive diseases	Infusion, ointment, topical use
Tanacetum parthenium	Timbiquí	Cystitis	Genitourinary diseases	Infusion, bath
Persea americana	Guapi	Diabetes, blood diseases	Other conditions, Hematologic conditions	Infusion

These results also reveal that the most common preparation methods, such as infusions, decoctions, macerations, and baths, are closely associated with the treatment of prevalent diseases in Afro-descendant communities, particularly those of a respiratory, digestive, dermatological, and febrile nature. Infusions and decoctions predominate in the management of respiratory and gastrointestinal conditions, while macerations (juices) and baths are more frequently used to treat skin diseases, fever, and generalized pain (Table 2). These practices reflect a local therapeutic rationale based on accumulated experience and adapted to the most common epidemiological conditions of southwestern Colombia, where high morbidity rates persist due to infectious and chronic diseases that are not adequately addressed by the formal health system.

4. DISCUSSION

The results obtained reveal remarkable richness and diversity in the use of medicinal plants by Afro-descendant communities in northern and southwestern Cauca, reflecting an adaptive strategy in response to limited access to formal health services. This knowledge is not only deeply rooted in oral tradition and intergenerational experience but also demonstrates a collective capacity to select, adapt, and maintain effective therapeutic practices in contexts of high socioeconomic and ecological vulnerability (Albuquerque et al., 2005; Gómez Estrada et al., 2011).

Comparable patterns have been documented in other Colombian settings, which helps situate the present findings within the national ethnobotanical landscape. In the Afro-descendant community of San Basilio de Palenque, Quintana Arias (2016) reported a broad set of medicinal species and described local healing logics that connect plant use with territorial identity and embodied experience. In Cauca, research conducted in the southeast of El Tambo documented a large inventory of medicinal plants used by traditional specialists and linked these practices to local conservation and the continuity of community medical systems (Polindara Moncayo & Sanabria Diago, 2022). Likewise, in Colón, Putumayo, an ethnobotanical study recorded dozens of medicinal species and emphasized that systematic documentation contributes to safeguarding traditional knowledge and supporting community health strategies (Bastidas Bacca et al., 2023). In contrast with broader inventories, the present study focuses specifically on plants used for prevalent conditions across six Afro-descendant municipalities in Cauca and identifies culturally salient species and applications through UR, providing a targeted view of therapeutic consensus and local health priorities.

One of the most significant findings was the recurrence of widely recognized species such as *Dysphania ambrosioides* (paico), *Eucalyptus* sp. (eucalyptus), *Peumus boldus* (boldo), and *Moringa oleifera* (moringa), whose frequency of use suggests cultural consensus regarding their therapeutic efficacy. The widespread prevalence of paico across all territories highlights its role as a multifunctional plant used for both respiratory and parasitic diseases. This widespread use coincides with previous studies that identify paico as one of the most versatile and valued species in popular medicine in Latin America (Bussmann et al., 2006). Likewise, moringa has been positioned as an emerging adaptogenic plant in community health systems, potentially linked to its accessibility and growing scientific legitimacy in treating inflammatory conditions (Bennett et al., 2018). Additionally, recent studies indicate that moringa extract modulates inflammatory markers in experimental models of respiratory inflammation, reinforcing its traditional use for respiratory tract ailments (Thampithak et al., 2024; Chiș et al., 2024).

The usage pattern also reveals that the most frequently treated diseases are related to the respiratory, digestive, and dermatological systems. This prioritization seems to respond both to the high prevalence of these conditions in tropical rural contexts, associated with environmental factors such as humidity, vectors, and the consumption of untreated water, and to the proven effectiveness of these plants in community settings. In particular, the treatment of respiratory diseases with species such as *Eucalyptus* sp., *Cymbopogon citratus*, *Zingiber officinale*, and *Lippia alba* gains special relevance in the post-COVID-19 context, reinforcing what was documented by Cappa et al. (2019) regarding the differential impact of these diseases on quality of life. Astriyani et al. (2025) confirm that inhalation of essential oils from eucalyptus and lemon significantly improves lung function and reduces mild symptoms in rural adults.

Beyond their therapeutic dimension, the plants documented in this study fulfill a primary sociocultural role by serving as vehicles of collective memory, knowledge transmission, and identity reaffirmation. The documentation process not only recovered knowledge but also strengthened its internal recognition, which is particularly relevant in a historical context of marginalization of Afro-descendant knowledge systems. Community validation of the information through focus groups also enabled the identification of local synonyms, symbolic associations, and ritual uses that enrich the ethnobotanical dimension of the study.

A significant methodological contribution was the use of the relative use percentage (UR), which enabled the identification not only of species diversity but also of the cultural centrality of certain plants across different territories. As suggested by Tardío and Pardo de Santayana (2008), this type of quantitative analysis effectively complements qualitative approaches, allowing for the prioritization of species with high biocultural value in future conservation and valorization processes.

It is also worth noting some unexpected observations. For example, the inclusion of *Petiveria alliacea* (anamú) for conditions related to chronic diseases or even cancer suggests a local reinterpretation of complex illnesses within traditional frameworks. This kind of re-signification finds resonance in recent works exploring the links between chronic systemic inflammation and community treatment with anti-inflammatory plants such as moringa and ginger (Bennett et al., 2018). In fact, it has been confirmed that the phenolic compounds of

Petiveria alliacea exhibit antiproliferative activity in cellular models, which helps explain its local use in more serious conditions (Cal et al., 2022).

The treatment of skin diseases with species such as *Solanum americanum*, *Calendula officinalis*, and *Aloe vera* also deserves special attention, given the growing global burden of skin diseases and their impact in contexts of health inequity (Yakupu et al., 2023). These findings support the role of traditional medicine as an effective primary care system that addresses not only biological needs but also cultural and symbolic ones.

Nonetheless, this study presents certain limitations. Although purposive sampling allowed access to recognized knowledge bearers, the information cannot be generalized to the entire population, and no in-depth exploration was conducted of the biochemical or pharmacological aspects that would scientifically validate the reported applications. Because the data relied on interviews and group discussions, recall bias may have influenced reports of plant uses, preparation details, and perceived effectiveness. The gender distribution may have shaped the prominence of certain reported practices, so future work should consider stratified recruitment to ensure more balanced representation. Furthermore, the fact that some extracts are prepared using water-based methods means that concentrations are not comparable with those used in other pharmacological methodologies, which requires clarification when interpreting results for formal therapeutic purposes (Albuquerque et al., 2006).

Finally, this work provides a solid foundation for future initiatives in collaborative research, biocultural conservation, and intercultural health policy. The high species diversity recorded, as well as the richness of the associated knowledge, underscores the urgency of designing safeguarding strategies that protect not only plant species but also the knowledge systems that support them and give them meaning within the territory.

5. CONCLUSIONS

This study represents the most comprehensive report to date on the traditional use of medicinal plants in Afro-descendant communities of southwestern Colombia and provides a substantial contribution to the understanding of these practices in contexts marked by social vulnerability, structural violence, and limited access to conventional health systems. Through an ethnobiological and participatory approach, a significant diversity of species used for the treatment of prevalent diseases was documented, highlighting their therapeutic, cultural, and symbolic relevance.

The results show that species such as *Dysphania ambrosioides*, *Peumus boldus*, *Moringa oleifera*, *Solanum americanum*, *Eucalyptus* sp., and *Petiveria alliacea* not only have a high relative use percentage but are also associated with multiple ailments, reflecting an empirical and cultural consensus regarding their efficacy. This therapeutic versatility, combined with their local accessibility, contributes to consolidating a community health system based on resilient traditional knowledge.

Moreover, a correlation was observed between the most commonly treated categories of diseases (respiratory, digestive, and dermatological) and the socio-environmental conditions of the communities, reinforcing the ecological and functional relevance of these practices. The use of plants with anti-inflammatory, antimicrobial, and antiparasitic properties aligns with the most pressing health needs in territories with high rates of infectious and chronic diseases that are not addressed by the formal health system.

Beyond their therapeutic role, the documented plants serve as vehicles for knowledge transmission, collective memory, and identity reaffirmation. The community validation of knowledge through focus groups helped strengthen the internal legitimacy of these practices while also highlighting their spiritual and symbolic dimensions.

Finally, this work lays the groundwork for designing biocultural conservation strategies and integrating traditional medicine into intercultural public health policies. The prioritization of species with high biocultural value through indicators such as relative use percentage (UR), along with the identification of their therapeutic and cultural uses, provides key input for future collaborative research, safeguarding processes of biocultural heritage, and the promotion of community care from the perspective of epistemic justice.

As a concrete recommendation for policymakers and future research, intercultural health programs should be co-designed with community councils to support the safe and culturally appropriate use of prioritized species, including local training, referral pathways with primary care services, and collaborative studies to assess the safety and effectiveness of the most frequently used remedies.

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DATA AVAILABILITY

The data used to support the findings of this study are available from the corresponding author upon reasonable request.

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AUTHOR CONTRIBUTIONS

L.E.TV conceptualized the study, designed the methodology, supervised the work, collected the data, conducted the research, and wrote the final manuscript. M.K. contributed to writing and reviewing the final version. J.B. and E.V. analyzed the data, prepared the figures, and supported the writing of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest with respect to research, authorship and/or publication of this article.

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