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Review and cross-cultural analysis of medicinal plants traditionally used in Mauritania

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Abstract

Background Mauritania has the most detailed and diverse knowledge on traditional plant remedies of medicinal plant use, despite its comparatively limited native flora due to its low population density and severe desert climate. However, the country is at the crossroads of Sub-Saharan African and Arabo-Berber cultures. Despite this, the country's ethnobotanical expertise is severely under documented.

Methods The study was conducted through an extensive review of ethnobotanical and ethnopharmacological studies, scientific reports, and historical records related to the traditional use of medicinal plants in Mauritania. Data were collected from scientific databases includingGoogle Scholar, PubMed, ScienceDirect, Scopus, Web of Science, and Medline, as well as from dissertations, theses, ethnobotanical books, and local folklore records. The search targeted studies published between January 1950 and January 2025, using specific keywords and Boolean operators to ensure comprehensive coverage of the topic. Additional references were identified by examining the bibliographies of selected articles.

Results The first attempt to compile a traditional herbal pharmacopoeia for Mauritania is presented.According to the sources, a total of 133 medicinal and aromatic plants; these plants are used to treat 17 categories of diseases, with the majority addressing digestive group.These plants are used to treat 17 categories of diseases, with the majority addressing digestive disorders (55 plant species) and dermatological disorders (20 species). Notably, the study emphasises apparentcultural differences: the Moors have the best medical knowledge, while the Pulaar, Wolof, and Soninke have distinct ethnobotanical practices that haven't been widely studied.

Conclusion This review aims to document, in a single work, the medical ethnobotanical traditions of Mauritania, underscoring the country's medicinal flora and its potential for future pharmacological studies. Targeted field investigations are needed to properly capture the diversity and practical usefulness of traditional plant knowledge. The study underlines also significant gaps in the field ethnobotanical documentation, particularly among certain ethnic groups.

Keywords Ethnobotany, Conservation, Moors, Pulaar, Wolof, Soninke, Mauritania

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Introduction

Medicinal plants have long been recognized for their crucial role in healthcare systems worldwide, particularly in regions where conventional medicine may be less accessible [1]. Medicinal plants form the backbone of traditional andalternative medicine, which in many territories continues to be widely practiced due to its perceived safety, cost-effectiveness, and cultural significance [2, 3]. Although the introduction of synthetic drugs has transformed modern healthcare, a substantial portion of the global population still relies on herbal remedies for managing both minor and chronic ailments [4, 5].

The preservation and transmission of traditional medical knowledge hinge on thorough documentation [6]. When traditional practices are passed down through generations, either verbally or in writing, they enrich local pharmacopoeias and cancontribute to drug discovery by revealing novel bioactive compounds [7]. In many countries, such as Saudi Arabia, Mauritius, Thailand, India, or China, increasing public interest has led to more extensive use and documentation of plant-based medicines [8–11]. Similarly, Mauritania— the territory covered in this review—presents an equally compelling but relatively underexplored context for studying medicinal flora. Despite harsh desert and semi-arid conditions, the interplay of indigenous knowledge systems and biodiverse plant resources offers potential for ethnopharmacological research.

Mauritania occupies a strategic biogeographic and cultural position at the interface of Maghreb and sub-Saharan Africa. Its vast territory, over 1,030,000 km², is largely dominated by desert, withless than 0.2% of arable land. It supports a flora that, although relatively limited, is of considerable interest due to the country's placement between Mediterranean and tropical floristic zones [12]. Themain phytogeographical regions include the arids Sahara and Sahel, which also structure the distribution of plant diversity. A third one, the fertile Senegal River Valley, supports agriculture and harborsa richer vegetation. Mauritania's flora, therefore, mirrors a gradient among Mediterranean, Sahelian, Saharan and tropical biomes, sharing affinities with neighboring countries.While also sheltering locally adapted and often underdocumented species.

Although in a global view, it has been proved that highest concentrations of utilised plants are in the tropics [13], it is important to understand and highlight the use of resources in areas where biodiversity is generally scarce such as deserts [14–16]. In these environments, even from limited options, humans have developed the use of diverse environmental resources. With respect to medicinal plantsit is important to ahieveknowledge of local pharmacopoeias and their role and identity, considering the trend towards the development of global pharmacopoeias [17].

Traditional medicine in Mauritania is rooted in both classical Greco-Arabic systems and sub-Saharan practices [20, 21]. It draws on a distinctive pharmacopoeia that reflects the synthesis of Arab-Islamic medicinecharacterised by the theory of the four humors and elements, and introduced during the Islamic expansion of North Africa—and indigenous sub-Saharan knowledge, with each region and ethnic group maintaining specialized healing practices. The transmission of medical expertise remains strongly familial, notably among the Ehl Awfa, Ehl Maqari, and Ehl Ajde lineages, and continues to shape community health, especially in remote areas where biomedical services are scarce [22, 23]. The preservation of this oral and practical heritage is, however, increasingly threatened by social change and the rise of untrained practitioners, raising concerns over the loss of specialized knowledge [12, 21].

Mauritania's traditional healers typically combine herbal remedies with spiritual and ritual elements, underlining the holistic nature of local healthcare systems. Such practices are not only a means of healing but also serve as key markers of cultural identity and social cohesion. Despite the historical significance of these systems, ethnobotanical research in Mauritania remains sporadic and fragmented, often limited to scattered case studies or restricted to northern regions 31. This lack of comprehensive documentation is particularly notable given Mauritania's role as a crossroads between major biocultural zones—its traditional medicine is emblematic of the larger patterns found across North Africa and Middle East.

Although this paper aims to review all the previous literature on the traditionally used medicinal plants, it seems that ethnobotanical research in Mauritania remains limited despite the potential, especially due to the mentioned convergence of sub-Saharan and Arabo-Berber medical traditions, which shape a rich yet underexplored traditional medicinal system.

We aim to compile, evaluate, and highlight the broad spectrum of medicinal plants used in Mauritania, tracing their historical documentation and traditional applications. By consolidating dispersed ethnobotanical data, this work underscores the importance of preserving indigenous knowledge and lays foundation for advanced scientific investigation into Mauritania's plant-based remedies. As a second objective, we also aim to perform a brief cross-cultural analysis of the results, taking into account the four main cultural groups present in the country and in accordance with the limitations of this study.

The importance of documenting and understanding the role that traditional medicines play as a significant part in

health care in many countries, has been clearly emphasised on many occasions [24, 25]. A first step would be to review on a national basis the utilisation of medicinal plants in general and of medicines derived from them [26].

Materials and methods

Study area

Mauritania lies at the crossroads of sub-Saharan Africa and the Maghreb, covering predominantly desert landscapes. Approximately 80% of its territory is arid, with some agricultural activities (Fig. 1). The country encompasses several ecological zones that shape its vegetation and cultural practices:

1. Saharan Zone (nearly 75% of the territory), with extremely limited vegetation and high vulnerability to desertification.
2. Sahelian Zone, characterized by steppe and savanna ecosystems, supporting pastoral and rainfed agricultural activities.
3. Senegal River Valley, relatively small but ecologically and economically an important region, with fertile soils and dense vegetation supporting intensive agriculture.
4. Coastal Zone, rich in biodiversity, including the Banc d'Arguin and Diawling National Parks, shaped by marine upwelling.

Mauritania has a population of approximately 4 million people (thus, a density of 3.5 persons/km^2), marked by a high fertility rate (4.7 children per woman) and a predominantly young population (44.5% are less than 15 years old). The population is ethnically diverse, including Arabo-Berbers (white and black Moors) and Negro-African groups (mainly Pulaar, Soninke, and Wolof), who are more concentrated in the south and the Senegal River Valley. This cultural plurality is reflected in a multilingual

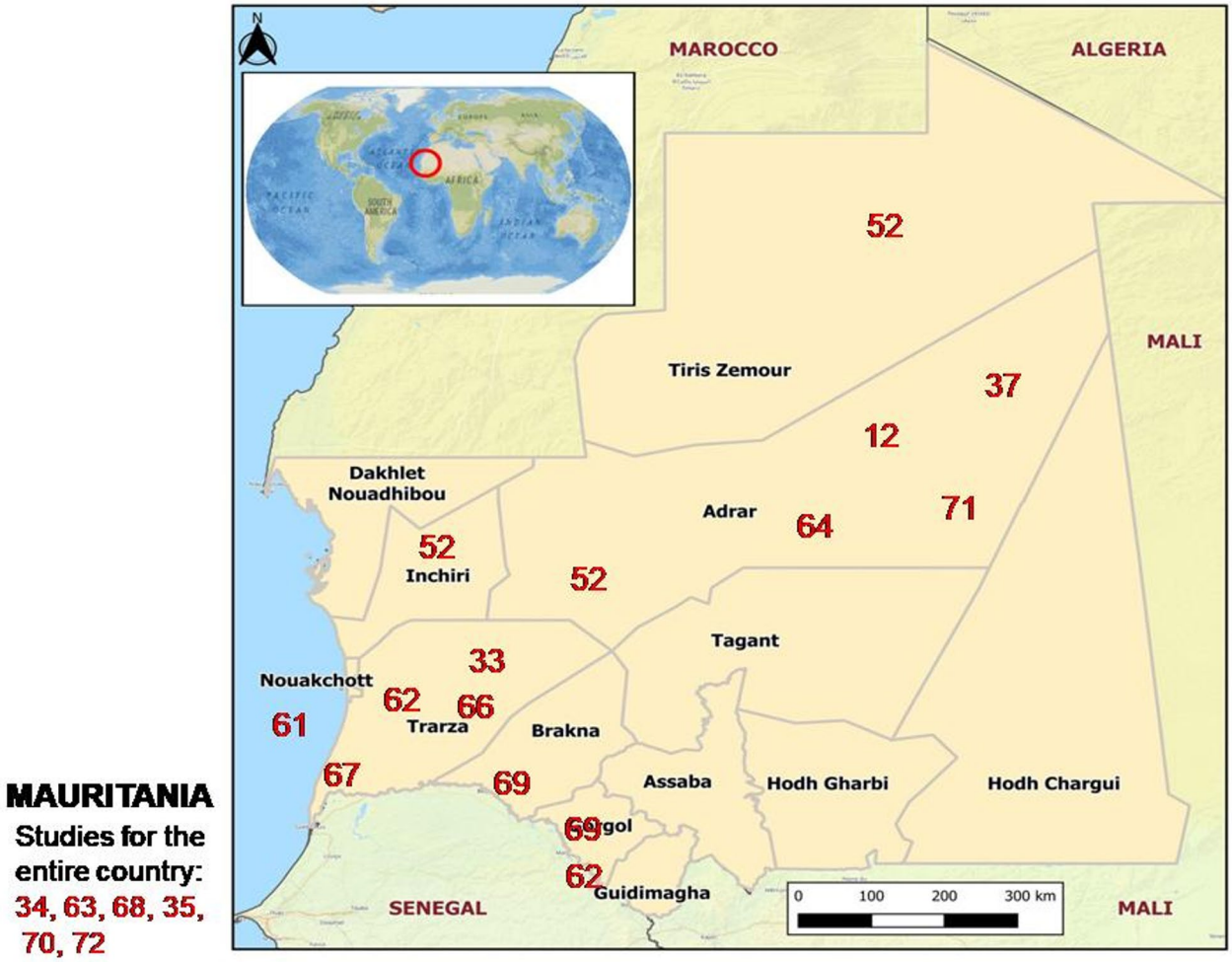

Fig. 1 Map of Mauritania with provinces. Red numbers, according to Table 2, indicate the areas where previous studies have been carried out

context dominated by Hassaniya Arabic, Pulaar, Soninke, and Wolof, contributing to a diverse but under-documented ethnobotanical knowledge.

Botanical explorations in Mauritania extend back to the nineteenth and twentieth centuries and are frequently associated with the work of naturalists and forestry engineers who were particularly concerned with pastures. Strategic French military stations aided operations in the western Sahara. Main collections from historical expeditions are kept in the herbaria of Montpellier (Université de Montpellier; MPU) and Paris (Muséum National d'Histoire Naturelle; P), which were the basis for two key references in the country's flora: Barry & Celles [18], which list 1,000 species, and Lebrun [19], who after a criticall review reduced the number of species – those based in voucher specimens - to 850 wild ones, highlighting underexplored regions and groups. Nevertheless, in our opinion, there is still a necessity for ongoing field ethnobotanical and even botanical surveys to increase the understanding of folk plant knowledge in locations such as Tagant and southern Mauritania.

The Coastal Zone, home to important national parks like Banc d'Arguin and Diawling, boasts rich biodiversity and unique ecosystems driven by upwelling phenomena.

Table 1 Inclusion and exclusion criteria applied during the systematic review

Stage	Reasons for acceptance	Reasons for rejection
Initial check	- Studies published in English or French - Articles addressing ethnobotanical studies and plant utilisation	- Publications not written in English or French - Articles without full text (e.g., conference abstracts)
Title & abstract screening	- Articles on ethnobotanical studies in Mauritania - Studies within the time range (1950–2025) - Publications includingscientific plant names	- Irrelevant study design - Subject matter unrelated to ethnobotany or plant utilisation - Studies withoutscientific plant names
Full-textretrieval	- Studies available in full text	- Articles not retrieved (lack of access to full text)
Full paperreview	- Original empirical research - Articles providing detailed ethnobotanical data (species names, uses, preparation methods) - Articles that were unique versions of other articles	- Not focused on Mauritania - Review articles (not original research) - Incomplete or insufficient data -Duplicate articles or variants of the same study were detected and removed

In Nouakchott, nomadism has declined to fewer than 4%, despite the fact that 60% of the population currently lives in cities. Negro-Africans (Pulaar, Soninkés, and Wolofs), while Arabo-Berbers (White Moors and Black Moors) are dispersed throughout the desert. Contemporary Mauritanians are a mixture of Berbers, Arabs and sub-Saharan Africans consisting of the Pulaar(Toucouleur), Soninke (or Sarakole) and Wolof tribes, whose populations are dispersed all over the southern parts of the country and have constituted, until recently, the bulk of the sedentaryvillage communities [27]. The linguistic situation in Mauritania is characterized by the existence of two main communities: a Arabo-Berbers community and a Black-African one, the latter can be divided into a number of sub-tribes on the basis of the different languages each one uses, particularly Soninke, Pulaar, and Wolof.

Data extraction

The systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines [28]. To capture the breadth of published work on medicinal plant use in Mauritania, we searched the following databases: Google Scholar, PubMed, Science Direct, Scopus, Web of Science, and Medline. The search was conducted in January 2025.

Search terms combined phrases such as: *"medicinal plants Mauritania," "ethnobotany Mauritania," "traditional medicine Mauritania," "indigenous knowledge Mauritania," "plant-based therapies Mauritania," "herbal medicine Mauritania," and "Mauritania pharmacognosy"*. Boolean operators (AND/OR) were used to refine results.

Complementary sources including theses, dissertations, ethnobotanical books, and folklore records were obtained from institutional repositories and local collections. References cited in eligible studies were also screened to identify additional sources. All retrieved articles were saved and organized in EndNote for screening and management.

Inclusion and exclusion criteria

The retrieved articles were screened according to a set of predefined inclusion and exclusion criteria in Table 1. Eligible studies were those conducted in Mauritania between January 1950 and January 2025 and published in English, French, or Arabic, which are the principal languages of scientific and scholarly communication in the region. Only studies that explicitly addressed the ethnobotanical or medicinal uses of plants were considered. In addition, they had to provide empirical data such as scientific or vernacular species names, preparation methods, and modes of application. Accepted sources included original research outputs such as peer-reviewed

journal articles, theses, dissertations, and ethnobotanical books.

Several categories of studies were excluded to maintain methodological rigor. Research conducted outside Mauritania or not specifically focused on medicinal or ethnobotanical uses of plants was omitted. Similarly, studies that reported exclusively on pharmacological or pharmaceutical aspects without a connection to traditional knowledge were excluded. Non-research materials, including review papers, editorials, case reports, guidelines, and manuals, were also removed. Works that lacked sufficient ethnobotanical detail for example, those missing species names or providing incomplete or unclear data were excluded.

Finally, publications that could not be retrieved in full text, such as conference abstracts or inaccessible records, as well as duplicate or redundant versions of the same study, were excluded from the final dataset.

Data analysis

A bibliometric and content-based analysis was conducted to identify medicinal plant species, their ethnobotanical applications, and research trends in Mauritania between January 1950 and January 2025. The systematic search initially retrieved 150 records from scientific databases such as Google Scholar, Scopus, Web of Science, PubMed, ScienceDirect, and Medline, complemented with theses, dissertations, and ethnobotanical books. After removing 30 duplicates and excluding irrelevant or inaccessible records, a total of 17 studies remained eligible for full review (see Fig. 2).

Titles and abstracts were screened to eliminate studies that did not meet the predefined criteria, while full-text evaluation ensured the inclusion of original empirical research containing sufficient ethnobotanical detail. Only works reporting species names, vernacular names, medicinal uses, preparation methods, or application routes were retained.

To assess the methodological quality of the included studies, we applied the Critical Appraisal Skills Programme (CASP) tool, following the framework outlined by Long and French [29]. This tool consists of 10 guiding questions, which were answered as *Yes*, *No*, or *Uncertain*, depending on the content and clarity of each

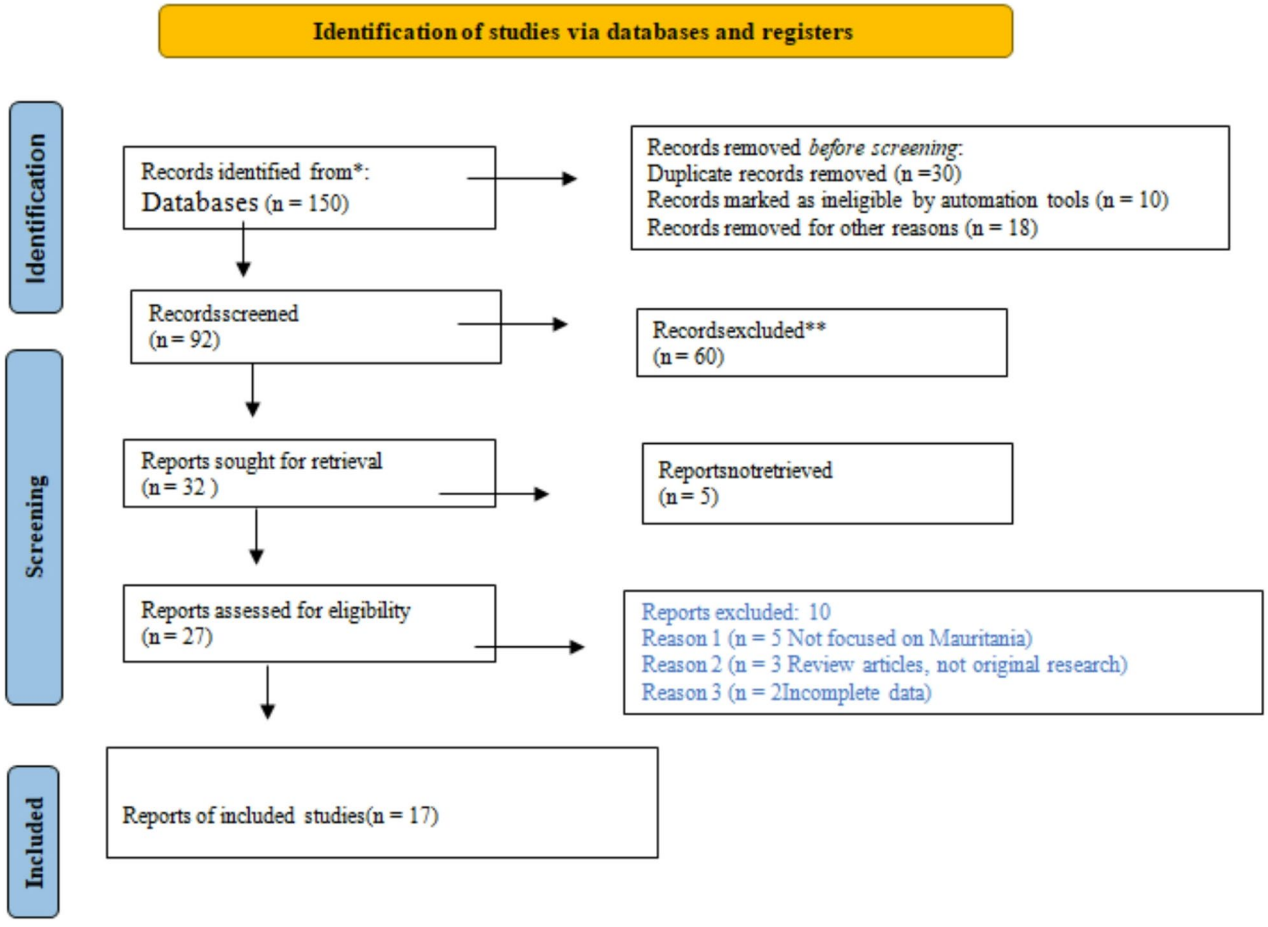

Fig. 2 Flow diagram of study identification, screening, and inclusion for ethnobotanical research in Mauritania (1950–2025) basedon PRISMA guidelines

article. The quality appraisal helped highlight methodological strengths and potential gaps across the reviewed literature.

Microsoft Excel and Access were used to organize the raw data obtained from the literature search, and to perform the analyses. Scientific names were updated using the World Flora Online database (www.worldforaonline.org), although synonyms are provided when they are not clear, considering Lebrun [19] as the reference publication on flora, but not on nomenclature [30–32]. Emic descriptions of the conditions in the original sources were included here as etic ones. For condition names and arrangement according to groups, we followed the ICPC-2 classification [36].

Prior to conducting the cross-cultural analyses, we clearly defined the geographical boundaries of the northern (N), southern (S), and eastern (E) regions of Mauritania. The northern region includes Adrar, Tiris Zemmour, Chami, and Inchiri; the southern region encompasses Trarza, Brakna, Gorgol, Aleg, Boutilimit, and, depending on classification, Nouakchott, while the eastern region corresponds to Hodh Chargui and Hodh El Gharbi, which are typically considered part of eastern ethnobotanical zones.The assignment of data from Table 2 to each regional category was based on the geographical distribution of ethnobotanical surveys and the territories explicitly covered in the original references, rather than on the botanical distribution of plant species alone. This step was essential to ensure that cross-regional comparisons accurately reflect both cultural practices and ecological contexts. The methodological criteria for this regional classification are detailed in the Methods section to enhance transparency and reproducibility.

Finally, to conduct a cross-cultural comparison of medicinal species reported by the four main ethnolinguistic groups in Mauritania, we applied two complementary methods: the UpSet Plot, which visualizes shared and unique knowledge among groups, and the Venn diagram, which highlights overlaps in species use across cultural boundaries.Comparative Jaccard similarity indices are applied to assess overlap between regions. Descriptive statistics (percentages, proportions) were used to summarize plant life forms, growth habits, and plant parts most frequently used.

Results and discussion

Overview of the literature

The outputs of this review are presented from two complementary perspectives: (i) a systematic assessment, which evaluates the state of ethnobotanical research in Mauritania, and (ii) a bibliometric analysis, which highlights publication patterns, thematic orientations, and methodological trends in the field.

Ethnobotany in Mauritania

From the initial eighteen works retrieved (Fig. 3A), one was excluded because it relied on the same field data as another study but focused on different aspects of plant use (references 12 and 37).

The systematic review identified seventeen studies documenting the ethnobotanical uses of medicinal plants across Mauritania. Table 2 provides a detailed summary of these works, including authorship, study regions, methodological approaches, and analytical frameworks.

The total number of participants across the reviewed studies ranged from a single healer to 243 individuals, with a cumulative total of 859 participants when data was specified. Informants varied across genders, ages, and educational backgrounds. Men and women of all age groups were interviewed regarding the traditional uses of plants and their local names. Most studies utilized questionnaires to collect data on medicinal plant usage and associated knowledge (Table 2).

Geographically, while certain regions such as Adrar and Trarza are relatively well-studied, significant gaps remain in the eastern and southern parts of Mauritania, particularly in Tagant, El HodhChargui, Assaba, Gorgol, and Guidimaka. These ecologically and culturally distinct areas hold considerable potential for future ethnobotanical research. From a historical perspective, the reviewed studies span a period of 75years (1950–2025), with the cumulative number of publications over time illustrated in Fig. 3.

Attributes and quality assessment of the included studies

The 17 eligible studies were generally well-structured, presenting clear objectives, relevant qualitative findings, and substantial ethnobotanical data (Table 2). However, their methodological quality varied considerably. Ethical considerations were explicitly reported in seven studies while, 15 studies described the relationship between researchers and participants, reflecting efforts toward participatory approaches. In terms of analytical rigor, ten studies applied robust data analysis, whereas 5 were considered inadequate and 2 were inconclusive. Recruitment strategies were consistent with research objectives in 16 studies; although, one study reported an ambiguous methodological approach.

Study approaches and methods

The final 17 studies revealed diverse methodological approaches. Overall, these findings highlight both the strengths and weaknesses of ethnobotanical research in Mauritania. While the majority of studies contributed significantly to documenting the country's rich heritage of medicinal plant knowledge, persistent shortcomings remain. These include inconsistent methodological rigor, limited reporting of ethical considerations, and

Table 2 Attributes of the 17 eligible ethnobotanical studies in Mauritania (1950–2025)

S/N	Author (Ref.)	Title of the article or book	Region(s) in Mauritania	Collecting method	Sampling method	Analysis type	No. Of informants (*N* = 859)	No. Of species	Voucher specimen	Other notes
1	Mam N'Diack [62]	*Médecine traditionnelle en milieu saharo–sahelien de la République Islamique de Mauritanie*	NorthernMauritania	Direct & participant observation	–	Qualitative	–	-	Not provided	Specimen identified; voucher not deposited
2	Hamidoun [34]	*Précis sur la Mauritanie*	WholeMauritania	Direct & participant observation	–	Qualitative	–	–	Not provided	Specimen identified; voucher not deposited
3	Leriche [63]	*Phytothérapie maure de quelque plantes et produits végétaux utilisés en thérapeutique*	WholeMauritania	Direct & participant observation	–	Qualitative	–	70	Not provided	Specimen identified; voucher not deposited
4	Naegele [64]	*Contributions à l'étude de la flore et des groupements végétaux de la Mauritanie*	Adrar Province	Direct & participant observation	–	Qualitative	–	26	Not provided	Specimen identified; voucher not deposited
5	Abdelaziz et al. [65]	*Phytochemicals, antioxidantactivity and ethnobotanical uses of Balanites aegyptiaca (L.) Del. fruits…*	Aleg, Boutilimit, Chami	Questionnaire & interview	–	Qualitative	70 (43 men, 27 women)	1	Not provided	Specimen identified; voucher not deposited
6	Cheikh [66]	*Les médicaments utilisés dans la Pharmacie de EhlMakhary*	Trarza	Direct & participant observation	–	Qualitative	–	–	Not provided	Specimen identified; voucher not deposited
7	Awfa [33]	*Éléments de médecine Maure Traditionnelle au Trarza*	Trarza	Direct & participant observation	–	Qualitative	–	–	Not provided	Specimen identified; voucher not deposited
8	Adje [66]	*La Phytothérapie en Mauritanie et ses praticiens*	Trarza	Direct & participant observation	–	Qualitative	–	80	Not provided	Specimen identified; voucher not deposited
9	Vall [67]	*Contribution à l'étude des plantes médicinales de Mauritanie*	WholeMauritania	Questionnaire & interview	–	Qualitative	70 healers (14 women, 56 men)	–	Not provided	Specimen identified; voucher not deposited
10	Thouzery & Vall [35]	*Plantes médicinales de Mauritanie. Remèdes traditionnels et guérisseurs du Sahara au fleuve Sénégal*	WholeMauritania	Questionnaire & interview	Probabilisticstratified sampling	Qualitative	–	88	Not provided	Specimen identified; voucher not deposited
11	Amadou [68]	*Les plantes médicinales du Sahel: étude ethnobotanique*	Trarza, Brakna, Gogol	Questionnaire & interview	Probabilisticstratified sampling	Citations (quantitative)	243 (138 men, 105 women)	–	Not provided	Specimen identified; voucher not deposited
12	Soulé [69]	*Plantes ligneuses de Mauritanie: caractéristiques et usages*	WholeMauritania	Direct & participant observation	–	Qualitative	–	–	Not provided	Specimen identified; voucher not deposited
13	Yebouk et al. [12]	*Ethnobotanicalstudy of medicinal plants in the Adrar Province, Mauritania*	Adrar Province	Semi-structured questionnaire & interview	Snowball sampling, fieldsurveys	Use report (UR)	120	68	Deposited at HNM	Specimen identified voucher not deposited
14	Yebouk [70]	*Approche ethnobotanique de la flore d'intérêt médicinal, cosmétique et artisanal dans la Wilaya d'Adrar*	Adrar Province	Semi-structured questionnaire & interview	Snowball sampling, fieldsurveys	ICF, FC	120 (50 men, 70 women)	126	Deposited at HNM	Specimen identified voucher not deposited
*	Yebouk et al. [37]	*The status and perception of medicinal plants by local population of Adrar province (NorthernMauritania)*	Adrar Province	Semi-structured questionnaire & interview	Snowball sampling, fieldsurveys	ICF, FC, FL	120 (50 men, 70 women)	68	Deposited at HNM	Specimeniden voucher not deposited

Table 2 (continued)

S/N	Author (Ref.)	Title of the article or book	Region(s) in Mauritania	Collecting method	Sampling method	Analysis type	No. Of informants (*N* = 859)	No. Of species	Voucher specimen	Other notes
15	Yebouk et al. [71]	*Mauritania, Ethnobotany of NortherAfrica and Levant, Ethnobotany of MountainRegions*	WholeMauritania	Direct & participant observation	–	Qualitative	–	3	Not provided	Specimen identified voucher not deposited
16	Sall et al. [52]	*Ethnobotanicalstudy of somemedicinalspecies of the Mauritanian flora*	Tiris Zemmour, Inchiri, Adrar	Semi-structured questionnaire & interview	Field surveys	FC, RFC	76 (35.5% men, 64.5% women)	56	Deposited at HNM	Specimen identified voucher not deposited
17	Yebouk et al. [61]	*Traditionalethnopharmacological practices for digestive ailments: insights from the population of Nouakchott*	Nouakchott	Semi-structured questionnaire & interview	Snowball sampling, fieldsurveys	FL, ICF, UV	40	35	Not provided	Specimen identified; voucher not deposited

inadequate use of herbarium vouchers. Addressing these gaps will be crucial for strengthening future research and ensuring that traditional knowledge contributes meaningfully to healthcare innovation and biodiversity conservation.

Trends and patterns in ethnobotanical research in Mauritania

Ethnobotanical research in Mauritania has evolved considerably over the past seven decades (1950–2025), shaped by the growing recognition of the importance of traditional knowledge, medicinal plants, and biodiversity conservation. This review outlines the major trends, thematic priorities, collaborative efforts, and research outputs that have defined the field during this period (Fig. 3A). A bibliometric analysis spanning from 1950 to 2025 further illustrates the trajectory and expansion of ethnobotanical studies in Mauritania, highlighting notable shifts in scholarly focus, methodological approaches, and regional coverage.

The development of ethnobotanical research in Mauritania can be broadly divided into three main phases (Fig. 3):

Initial phase (1950–1970): Early documentation and exploration

During this period, Mauritania underwent the foundational stage of ethnobotanical research, producing the first documented references to the medicinal use of plants. Notable landmark publications include *Précis sur la Mauritanie* by Mokhtar Ould Hamidoun (1952) [34] and *La Phytothérapie Maure* by Leriche (1953) [63], which together laid the groundwork for subsequent ethnobotanical investigations in the country. These early investigations offered advantageous perspectives on traditional medical knowledge and plant-based practices, establishing a baseline for later scientific documentation and comparative analyses, which provided pioneering accounts of plant-based remedies. Research during this phase was primarily descriptive, aimed at cataloguing medicinal and pastoral species. Much of this work was linked to French colonial scientific expeditions and broader botanical surveys of the Sahara and Sahel. However, ethnobotanical inquiry was limited by weak research infrastructure, scarce local scientific capacity, and the absence of standardized survey methods, leading to fragmented and largely anecdotal documentation (Fig. 3B).

Expansion and growth (1971–1999): Thematic diversification

In this phase, studies increasingly engaged directly with healers and local communities through semi-structured interviews and participatory observation. Research began

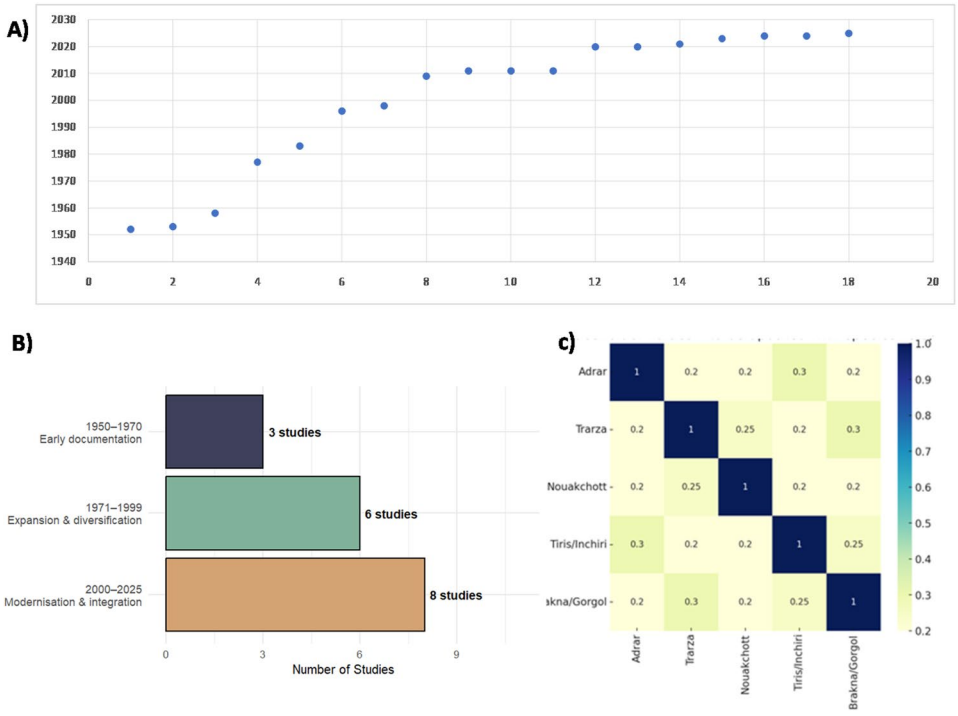

Fig. 3 Trends and patterns of ethnobotanical research in Mauritania: (**A**) distribution of studies across research phases (1950–2025); (**B**) cumulative growth of studies within each phase; (**C**) Jaccard similarity heatmap of ethnobotanical knowledge across regions of Mauritania

to document plant-based treatments for ailments such as malaria, gastrointestinal disorders, and skin infections. Quantitative approaches emerged during this period, with tools such as the Informant Consensus Factor (ICF) and Frequency of Citation (FC) gradually incorporated into analyses. Nonetheless, methodological rigor remained inconsistent, and voucher specimen deposition was irregular, weakening the long-term comparability and verifiability of results.

Modernisation and integration (2000–2025): Towards scientific validation

Recent decades have been characterized by a shift toward methodological rigor and interdisciplinary integration. Studies increasingly apply advanced ethnobotanical indices such as Fidelity Level (FL), Relative Frequency of Citation (RFC), and Use Value (UV). Research has expanded into underexplored regions such as Adrar and Trarza, although major gaps persist in the southeastern and southern regions (Tagant, El HodhChargui, Assaba, Gorgol, Guidimaka). Contemporary works also emphasize biodiversity conservation, the impacts of climate change on vegetation, and the preservation of oral traditions threatened by urbanization and social transformation. Despite these advances, ethnobotany in Mauritania remains underrepresented compared to neighboring countries, underscoring the urgent need for more systematic, community-based, and interdisciplinary research efforts.

The comparative analysis highlights clear ecological and cultural clustering among regions. The overlap between the two regions is modest (Jaccard index = 0.25), indicating some shared ethnobotanical knowledge but also considerable differencesand between Tiris/Inchiri and Brakna/Gorgol (0.25), which likely reflect shared ecological conditions and cultural exchanges in these areas. Moderate similarities are also evident between Adrar and Brakna/Gorgol (0.30) and between Trarza and Brakna/Gorgol (0.30), suggesting flows of ethnobotanical knowledge along transitional ecological and cultural zones. By contrast, Adrar shows only limited overlap with Nouakchott and Tiris/Inchiri (0.20 each), underscoring its ecological specificity as a predominantly Saharan region (Fig. 3C).

Medicinal species and parts of the plants used

Main results for the reviewed list of traditionally used medicinal plants in Mauritania are listed in Table 3. A total of 133 plant species have been or are used as medicines in the country. The 77% of them grow wild, while 15% are cultivated, and 9 species can be either harvested or cultivated. Most of them are woody plants with bushy (60 species) or tree-like (44 sp.) life form, and just a few are herbs (26 sp.) or scandent (3 sp.).

Table 3 Ethnomedicinal plant species documented in Mauritania, including taxonomic identity, vernacular names, growth form, origin (wild or cultivated), treated conditions, plant parts used, Preparation and administration methods, references, and citation/use counts

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Achyranthes aspera L.	Amaranthaceae	H: Beitlabdeةدبالتيب	Shrub	W	Hypertension	Leaves	Decoction	Oral	Sall et al. [52]	1	2
					Gastrointestinal disorders	Leaves	Infusion	Oral	Sall et al. [52]		
Aerva javanica Juss.	Amaranthaceae	H: Temayyaةيمعطل	Shrub/Herb	W	Toothache	Leaves	Decoction	Oral	Sall et al. [52]	2	4
					Migraine	Leaves	Infusion	Oral	Sall et al. [52]		
					Liverdisease	Leaves	Decoction	Oral	Vall [67]		
					Wounds	Leaves	Maceration	Oral	Vall [67]		
Avicennia germinans (L.) L.	Acanthaceae	H: Eizenlibharايزنلبحر W: Sanar	Tree	W	Skin disease	Bark	N/D	N/D	Soulé [69]	1	1
*Nucularia perrinii*Batt.	Amaranthaceae	H: Asskafاسكاف	Shrub	W	Hypotension	Leaves	N/D	N/D	Vall [67]	1	1
Allium cepa L.	Amaryllidaceae	H: Lesalلبصل	Herb	C	Back symptom	Bulbs	Cooked	Cataplasm	Yebouk et al. [12]; Yebouk [70]	4	7
					Wounds	Bulbs	Mashed	Cataplasm	Yebouk et al. [12]		
					Musculoskeletal disease	Bulbs	Cooked	Cataplasm	Yebouk et al. [12]; Yebouk [70]		
					Anal pruritus	Bulbs	Mashed	N/D	Leriche [63]		
					Abscess	Bulbs	Cooked	N/D	Leriche [63]		
					Duodenal ulcer	Bulbs	Mashed	Oral	Yebouk et al. [51]		
					Intestinal parasites	Bulbs	Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
Allium sativum L.	Amaryllidaceae	H: Thoumلثوم P: Ladj	Herb	C	Intestinal parasites	Bulbs	Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	2	3
					Lossofappetite	Bulbs	Decoction	Oral	Yebouk et al. [12]; Yebouk [70]		
					Wounds	Bulbs	Mashed	Oral	Yebouk et al. [12]; Yebouk [70]		
Lannea acida A. Rich.	Anacardiaceae	P: Tchingoli W: Son	Tree	W	Abdominal pain	Bark	N/D	N/D	Soulé [69]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Lannea humilis Engl.	Anacardiaceae	H: Kebkabeكبابة P: Belloki W: Habugan	Tree	W	Abdominal pain	Bark	N/D	N/D	Soulé [69]	1	2
					Headache	Bark	N/D	N/D	Soulé [69]		
Mangifera indica L.	Anacardiaceae	H: Mango وكنام P: Mango	Tree	C	Malaria	Leaves	Decoction	Oral	Amadou [68]	2	3
					Hypotension	Fruits	Fresh	Oral	Sall et al. [52]		
					Bodypain	Stem	Decoction	Oral	Sall et al. [52]		
Sclerocarya birrea (A. Rich.) Hochst.	Anacardiaceae	H: Dembo وبمد P: Eiri W: Ber; S: Tumbé	Tree	W	Toothache	Leaves	Maceration	Oral	Thouzery & Vall [35]	5	9
					Heartburn	Seeds	Decoction	Oral	Thouzery & Vall [35]		
					Syphilis	Fruits	Infusion	Oral	Thouzery & Vall [35]		
					Bronchitis	Stem	Fresh	Oral	Thouzery & Vall [35]		
					Snakebite	Leaves	Infusion	Oral	Soulé [69]		
					Diabetes	Bark	Decoction	Oral	Thouzery & Vall [35], Soulé [69]		
					Malaria	Leaves	Decoction	Oral	Amadou [68]		
					Dysentery	Leaves	Fresh	Oral	Sall et al., [52]		
					Gastrointestinal disorders	Leaves	Dry	Oral	Sall et al., [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Ammodaucus leucotrichus Coss.	Apiaceae	H: El kemmoun الكمون	Shrub	W	Asthma	Seeds	Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	2	5
					Food poisoning	Seeds	Infusion	Oral	Yebouk et al. [12]; Yebouk [70]		
					Acne	Seeds	Powder	Cataplasm	Yebouk et al. [12], Yebouk [70]		
					Measles	Seeds	Powder	Cataplasm	Yebouk et al. [12]; Yebouk [70]		
					Wounds	Seeds	Powder	Cataplasm	Yebouk et al. [12]; Yebouk [70]		
Steganotaenia araliácea Hochst.	Apiaceae	-	Tree	W	Oral disease	Stem, seeds	N/D	N/D	Soulé [69]	1	2
					Earpain	Roots	N/D	N/D	Soulé [69]		
Adenium obesum (Forssk.) Roem. &Schult.	Apocynaceae	H: Tweidi-metdhyb تويدي متذيب	Shrub	W	Toothache	Leaves	Powder	N/D	Yebouket al. [12];Yebouk [70]	4	3
					Snakebite	Latex	N/D	N/D	Leriche [63]		
					Epilepsy	Leaves	N/D	N/D	MamN'Diack [62]		
Calotropis procera (Aiton) Dryand.	Apocynaceae	H: Tourja تورجة P: Badadi W: Faftan S: Touroumba	Shrub	W	Whooping cough	Leaves	Powder	Cataplasm	Yebouk [70]	7	7
					Respiratory pain	Leaves	Powder	Massage	Yebouk et al. [12]		
					Tooth ache	Latex	Extraction	Cataplasm	Yebouk et al. [12]		
					Head ache	Latex	N/D	N/D	Hamidoun [34]		
					Bone & joint pain	Latex	Extraction	Massage	Sall et al. [52]		
					Abdominal pain	Leaves	Decoction	Oral	Yebouk et al. [51]		
					Scabies	Roots	N/D	N/D	Cheikh [23]; Leriche [63]		
Desmidorchis retrospiciens Ehrenb.	Apocynaceae	N/D	Shrub	W	Dermatosis	Leaves	N/D	N/D	Vall [67]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Leptadenia lanceolata (Poir.) Goyder (=*Leptadeniahastata* (Pers.) Decne.)	Apocynaceae	H: Idarرادي P: Thiapatoye	Shrub	W	Coryza	Roots	N/D	N/D	Vall [67]	2	3
					Anuria	Leaves, Stem	N/D	N/D	Vall [67]		
					Stomachache	Leaves	Infusion	Oral	Sall et al. [52]		
Leptadenia pyrotechnica (Forssk.)Decne.	Apocynaceae	H: Titarik/Assabayتيتارك P: Selewlew S: Sarfate-yugo	Shrub	W	Abdominal pain	Stem	Infusion	Oral	Yebouk et al. [12]	7	9
					Diarrhea	Stem	Infusion	Oral	Yebouk et al. [12]		
					Jaundice	Leaves	Infusion	Oral	Sall et al. [52]		
					Constipation	Leaves	Decoction	Massage	Sall et al. [52]		
					Leprosy	Stem	N/D	N/D	Adje [66]; Cheikh [23]		
					Nausea	Stem	N/D	N/D	Adje [66]; Cheikh [23]		
					Edema	Leaves	N/D	N/D	Hamidoun [34]		
					Colds	Leaves	N/D	N/D	Leriche [63]		
					Cancer	Leaves	N/D	N/D	Vall [67]		
Pergularia tomentosa L.	Apocynaceae	H: Oum-jloudدولجام	Shrub	W	Wounds	Latex	Powder	Cataplasm	Yebouk et al. [12]; Yebouk [70]	5	4
					Toothache	Latex	Extraction	Cataplasm	Vall [67]		
					Burns	Latex	Extraction	Cataplasm	Yebouk [70]		
					Intoxication	Leaves	N/D	N/D	Vall [67]; Hamidoun [34]		
Strophanthus sarmentosus DC.	Apocynaceae	H: Grounlemhadeورك داحملن P: Bondji W: Tcor	Shrub	W	Abdominal pain	Leaves	N/D	N/D	Soulé [69]	1	2
					Wounds	Latex	N/D	N/D	Soulé [69]		
Hyphaene thebaica (L.) Mart.	Arecaceae	H: Zguilimمكلزا P: Guelewi W: Guélé S: Guellélémmé	Tree	W, C	Diabetes	Fruits	N/D	N/D	Soulé [69]	1	5
					Digestion affection	Fruits	N/D	N/D	Soulé [69]		
					Schistosomiasis	Fruits	N/D	N/D	Soulé [69]		
					Intestinal parasites	Fruits	N/D	N/D	Soulé [69]		
					Oral disease	Fruits	N/D	N/D	Soulé [69]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Phoenix dactylifera L.	Arecaceae	H: Nkhallنخل P: Tamroki	Tree	C	Anemia	Fruits	Fresh	Oral	Yebouk et al. [12]; Vall [67]	3	5
					Abdominal pain	Fruits	Fresh	Oral	Yebouk et al. [12]		
					Constipation	Fruits	Fresh	Oral	Yebouk et al. [12]		
					Diabetes	Fruits	Fresh	Oral	Yebouk et al. [12]		
					Gastrointestinal disorders	Fruits	Infusion	Oral	Sall et al. [52]		
Agave amica (Medik.) Thiede&Govaerts	Asparagaceae	H: El anbarالعنبر	Herb	C	Abscess	Roots	N/D	N/D	Leriche [63]	1	1
Pulicaria mauritanica Batt.	Asteraceae	H: Tafsalالطفصة	Herb	W	Fever	Leaves	N/D	N/D	Thouzery & Vall [35]	1	1
Pulicaria undulata (L.) C.A. Mey	Asteraceae	H: Tafsalالطفصة	Herb	W	Abdominal pain	Leaves	Infusion		Yebouk et al. [12], Yebouk [70]	2	1
Stereospermum kunthianum Cham.	Bignoniaceae	H: Varkakeفركاكة P: Bannin'danéwi	Shrub	W	Syphilis	Leaves, Root, Bark	Infusion	Oral	Yebouk et al. [12], Yebouk [70]	5	5
					Headache	Roots	N/D	N/D	Soulé [69]		
					Asthma	Bark	N/D	N/D	Soulé [69]		
					Cough	Leaves	Decoction	Oral	Sall et al. [52]		
					Stomach ache	Leaves	Decoction	Oral	Sall et al. [52]		
Cordia sinensis Lam.	Boraginaceae	H: Agjoulالكوجل P: Mégneli S: Dersé W: Mbey	Shrub	W	Fever	Leaves	N/D	N/D	Soulé [69]	1	1
*Heliotropium bacciferum*Forssk.	Boraginaceae	H: Lehbalyaلحبالية	Herb	W	Eyepain	Leaves	Juice	Eyedrop	Yebouk et al. [12]; Yebouk [70]	3	2
					Burns	Leaves	Powder	cataplasm	Yebouk et al. [12]; Naegele [64]		
Heliotropium ramosissimum Sieber ex DC.	Boraginaceae	H: limkhinzahلمخيزنة	Shrub	W	Inflammation	Leaves	cataplasm	Oral	Sall et al. [52]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Anastatica hierochuntica L.	Brassicaceae	H: El-kemchahlالكمشة	Herb	W	Abdominal pain	Wholeplant	Infusion, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	4	4
					Diabetes	Wholeplant	Maceration	Oral	Yebouk et al. [12]; Sall et al. [52]		
					Musculoskeletal disease	Wholeplant	Infusion	Cataplasm	Yebouk et al. [12]		
					Hypertension	Leaves	Infusion	Oral	Sall et al., [52]		
Cardamine pratensis L.	Brassicaceae	H: Hab rchadداش راباح	Herb	W	Ophthalmic diseases	Seeds	N/D	N/D	Leriche [63]	1	1
Schouwia purpurea (Forssk.) Schweinf.	Brassicaceae	H: Jir-jirريچرچ	Shrub	W	Sexual impotence	Leaves	Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	4	2
					Liver disease	Leaves	N/D	N/D	Adje [66]		
Commiphora africana (A. Rich.) Endl.	Burseraceae	H: Address ادرس P: Baddi W: Ngôtgôt S: Gersé	Shrub	W, C	Breast cancer	Gum	Mashed	Cataplasm	Yebouk et al. [12]	6	12
					Constipation	Fruits	Fresh	Oral	Yebouk et al. [12]		
					Mouth symptom	Roots	Mashed	Oral	Yebouk et al. [12]		
					Abdominal pain	Leaves	Infusion	Oral	Yebouk et al. [12]		
					Ulcers	Gum	Mashed	Oral	Yebouk et al. [12]		
					Toothache	Gum	Powder	Cataplasm	Yebouk et al. [12]		
					Heartburn	Leaves	Powder	Oral	Yebouk et al. [12]		
					Body weakness	Leaves	Infusion	Oral	Sall et al. [52]		
					Bone & joint pain	Leaves	Decoction	Oral	Sall et al. [52]		
					Wounds	Gum	N/D	N/D	Adje [66]; Awfa [33]		
					Oesophagus disease	Seeds	Infusion	Oral	Yebouk et al. [12]		
					Skin disease	Gum	N/D	N/D	Adje [66]; Awfa [33]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	N citations	N uses
Celtis toka (Forssk.) Hepper &J.R.I.Wood	Cannabaceae	H: El bounالبون P: Ganki W: M'boul S: Bawa	Tree	W	Rheumatism	Leaves, Root	N/D	N/D	Soulé [69]	1	4
					Asthma	Leaves, Stem	N/D	N/D	Soulé [69]		
					Headache	Leaves, Root	N/D	N/D	Soulé [69]		
					Wounds	Leaves, Root	N/D	N/D	Soulé [69]		
Boscia angustifolia A.Rich.	Capparaceae	H: Etilelkhayebاتيلالخايب	Shrub	W	Sexual impotence	Leaves	N/D	N/D	Soulé [69]	2	6
					Abdominal pain	Leaves, Root	N/D	N/D	Soulé [69]		
					Syphilis	Leaves	N/D	N/D	Soulé [69]		
					Jointpain	N/D	N/D	N/D	Vall [67]		
					Respiratory inflammation	N/D	N/D	N/D	Vall [67]		
					Rheumatism	Leaves	N/D	N/D	Soulé [69]		
Boscia senegalensis Lam.	Capparaceae	H: Eizen/Eyzineايزن P: Gijilé/Guidjile W: Nus S: Gijilé	Shrub	W	Heartburn	Leaves	Powder	Cataplasm	Yebouk et al. [12]	10	7
					Diabetes	Fruits	Maceration	Oral	Yebouk et al. [12]; Sall et al. [52]; Soulé [69]		
					Stomachache	Leaves	Infusion	Oral	Sall et al. [52]; Adje [66]; Yebouk et al. [51]		
					Aphrodisiac	Leaves	Infusion	Oral	Sall et al. [52], Adje [66]		
					Syphilis	Seeds	Infusion	Oral	Thouzery & Vall [35]; Soulé [69]		
					Schistosomiasis	N/D	N/D	N/D	Vall [67]		
					Jaundice	Leaves	Decoction	Oral	Thouzery & Vall [35]; Awfa [33]		
Cadaba farinosa Forssk.	Capparaceae	H: Zromمورزل P: Bogohi W: N'déargué	Shrub	W	Colds	Roots	N/D	N/D	Soulé [69]	1	1
Cappariscorymbosa Lam.	Capparaceae	H: Lehleifaلحليفة P: Gummiballéwi S: Gumikhulle	Shrub	W	Syphilis	Bark, Roots	N/D	N/D	Soulé [69]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Capparis decidua (Forsk.) Edagew.	Capparaceae	H: Iguninكنين P: Goummi W: Gourmèl S: Gourmé	Tree/Shrub	W	Fever	Fruits	Powder	Oral	Yebouk et al. [12]; Yebouk [70]	5	4
					Abdominal pain	Fruits	Fresh	Oral	Yebouk et al. [12]; Yebouk [70]		
					Cough	N/D	N/D	N/D	Vall [67]		
					Constipation	Leaves	Infusion/ Decoction	Oral	Sall et al. [52]; Vall [67]		
Capparis tomentosa Lam.	Capparaceae	P: Goumibamewi	Shrub	W	Schistosomiasis	Leaves	Decoction	Oral	Amadou [68]	1	1
Crateva adansonii DC.	Capparaceae	H: Hakouاوك P: Naiki S: Souname W: Gorel	Shrub	W	Fever	Leaves, Root, Bark	N/D	N/D	Soulé [69]	1	6
					Migraine	Leaves, Root, Bark	N/D	N/D	Soulé [69]		
					Yellowfever	Leaves, Root, Bark	N/D	N/D	Soulé [69]		
					Gastrointestinal disorders	Leaves, Root, Bark	N/D	N/D	Soulé [69]		
Maerua angulensis DC.	Capparaceae	P: Bagui S: Léblebé W: Tote	Shrub	W	Rheumatism	Leaves	Infusion	Oral	Soulé [69]		
					Abdominal pain	Leaves	Infusion	Oral	Soulé [69]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Maerua crassifolia Forssk.	Capparaceae	H: Atillيت S: Sogrui W: DeBa	Shrub	W	Asthma	Leaves, Fruits	Powder	Oral, cataplasm	Yebouk et al. [12, 51]; Yebouk [70]	9	11
					Toothache	Leaves, Fruits	Powder	Oral, cataplasm	Yebouk et al. [12, 51]; Yebouk [70]		
					Abdominal pain	Leaves, Fruits	N/D	N/D	Leriche [63]		
					Constipation	Leaves, Fruits	N/D	N/D	Leriche [63]		
					Wounds	Leaves, Fruits	N/D	N/D	Leriche [63]		
					Jaundice	Leaves, Fruits	N/D	N/D	Adje [66]; Hamidoun [34]; Leriche [63], Vall [67]		
					Rheumatism	Leaves, Fruits	Infusion/ Decoction	Oral	Sall et al. [52]		
					Wounds	N/D	N/D	N/D	Vall [67]		
					Diabetes	N/D	N/D	N/D	Vall [67]		
					Malaria	N/D	N/D	N/D	Vall [67]		
					Lossofappetite	Leaves, Fruits	Infusion/ Decoction	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Gymnosporia senegalensis (Lam.) Loes.	Celastraceae	H: Aych P: Guiyelguti/Gyalgoti W: Dori S: Saasimbana	Shrub	W	Hepatitis	Leaves, Seeds	Infusion, Maceration, Decoction	Oral	Yebouk et al. [12]; Yebouk [70]	7	8
					Jaundice	Leaves, Seeds	Infusion, Maceration, Decoction	Oral	Yebouk et al. [12]; Yebouk [70]		
					Abdominal pain	Seeds	Infusion, Maceration, Decoction	Oral	Yebouk et al. [12], Yebouk [70]		
					Diabetes	Seeds	Infusion, Maceration, Decoction	Oral	Yebouk et al. [12]; Yebouk [70]		
					Dysentery	Bark	Decoction	Oral	Awfa [33]; Hamidoun [34]; Leriche [63]; Sall et al. [52]		
					Toothache	N/D	N/D	N/D	Vall [67]		
					Intestinal parasites	Leaves	N/D	N/D	Soulé [69]; Sall et al. [52]		
					Tuberculosis	Leaves	N/D	N/D	Soulé [69]; Leriche [63]		
Cleome arabica L.	Cleomaceae	H: Limkhinzah	Herb	W	Menstrual pain	Leaves	Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	5	5
					Sexual impotence	Leaves	Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Infertility	Wholeplant	Infusion	Oral	Thouzery & Vall [35]		
					Constipation	Leaves	Decoction	Oral	Yebouk et al. [51]		
					Bronchitis	Wholeplant	Decoction	Oral	Leriche [63]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Combretum aculeatum Vent.	Combretaceae	H: Ikykاكيك P: Lawnandé W: Savat S: Barnéné	Shrub	W	Diarrhea	Leaves, Root	Powder	Oral	Yebouk et al. [12]; Yebouk [70]	4	6
					Intestinal parasites	Leaves, Root	Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Haemorrhoids	Leaves, Root	Decoction, Infusion	Oral	Sall et al. [52]		
					Bodyweakness	Leaves, Root	Decoction, Infusion	Oral	Sall et al. [52]		
					Constipation	Leaves, Root	Maceration, Powder	Oral	Soulé [69]		
					Leprosy	Leaves, Root	Maceration, Powder	Oral	Soulé [69]		
*Combretum glutinosum*Perr. ex DC.	Combretaceae	H: Tikefitتيكفيت P: Doki	Shrub	W, C	Diabetes	Leaves, Stem	Powder, Infusion, cataplasm,	Oral	Yebouk et al. [12]; Yebouk [70]	5	9
					Diarrhea	Leaves, Stem	Powder, Infusion, cataplasm,	Oral	Yebouk et al. [12]; Yebouk [70]		
					Toothache	Leaves, Stem	Powder, Infusion, cataplasm,	Oral	Yebouk et al. [12]; Yebouk [70]		
					Abdominal pain	Leaves, Stem	Powder, Infusion, cataplasm, Decoction	Oral	Yebouk et al. [12, 51]; Yebouk [70]		
					Vomiting	Leaves	Decoction	Oral	Soulé [69]		
					Menstrual disorders	Leaves	Decoction	Oral	Soulé [69]		
					Constipation	Leaves	Infusion	Oral	Sall et al. [52]		
					Anemia	Leaves	Infusion	Oral	Sall et al. [52]		
					Hepatitis	Leaves	Infusion	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Combretum micranthum G. Don.	Combretaceae	H: Davouelدلافوع P: Kinkeleiba W: Sexeoduté S: Kinkeléba	Shrub	W	Vomiting	Leaves, Root	N/D	N/D	Soulé [69]	2	5
					Cough	Leaves, Root	Decoction	Oral	Yebouk et al. [51]		
					Rheumatism	Leaves, Root	Decoction	Oral	Yebouk et al. [51]		
					Migraine	Leaves, Root	Decoction	Oral	Yebouk et al. [51]		
					Constipation	Leaves, Root	Decoction	Oral	Yebouk et al. [51]		
Combretum nigricans Leprieur ex Guill. &Perr.	Combretaceae	H: tikifitelkhaybaتيكفيتالخايبة P: Bouski W: Tabé	Tree	W	Rheumatism	Leaves, Bark	N/D	N/D	Soulé [69]	1	3
					Intestinal disorders	Leaves, Bark	Decoction	Oral	Soulé [69]		
					Cough	Leaves, Bark	Decoction	Oral	Soulé [69]		
Combretum paniculatum Vent.	Combretaceae	H: El karmoussالكرموص P: Diarantioli W: Kindindolo S: Nourmé	Shrub	W	Intestinal disorders	Leaves	Infusion	Oral	Soulé [69]	1	1
Guiera senegalensis J.F. Gmel.	Combretaceae	H: El-leynahالليانة P: Guelloki; W: Ngèr; S: Khamé	Tree	W	Diarrhea	Leaves	Mashed, Maceration	Oral	Yebouk et al. [12]; Soulé [69]; Yebouk [70]	5	5
					Asthma	Leaves	Mashed, Maceration	Oral	Yebouk et al. [12]; Soulé [69]; Yebouk [70]		
					Cough	Leaves	Mashed, Maceration	Oral	Yebouk et al. [12]; Soulé [69]; Yebouk [70]		
					Hypotension	N/D	N/D	N/D	Vall [67]		
					Constipation	Leaves	Infusion	Oral	Yebouk et al. [51]		
Terminalia macroptera Guill. &Perr.	Combretaceae	H: Oudhen-levrassواذنلفرص P: Bode W: Woloba S: Souna	Tree	W	Dysentery	Bark	N/D	N/D	Soulé [69]	2	2
					Malaria	N/D	N/D	N/D	Vall [67]		
Ipomoea asarifolia Roem. & Schult.	Convolvulaceae	P: Ababo	Herb	W	Malaria	Leaves	Decoction	Oral	Amadou [68]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Citrullus colocynthis (L.) Schrad.	Cucurbitaceae	H: Hdaj-lehmaحدج لحمار P: Denenaale/ Denenale W: Hal u buki	Herb	W	Diabetes	Leaves, Fruits	Fresh, Infusion	Oral, cataplasm	Yebouk et al. [12]; Vall [67]; Thouzery & Vall [35]; Yebouk [70]	5	7
					Wounds	Leaves, Fruits	Fresh, Infusion	Oral, cataplasm	Yebouk et al. [12]; Vall [67]; Thouzery & Vall [35]; Yebouk [70]		
					Asthma	Latex, Seeds	Maceration, Infusion	Oral	Sall et al. [52]		
					Anemia	Latex, Seeds	Maceration, Infusion	Oral	Sall et al. [52]		
					Menstrual disorders	Latex, Seeds	Maceration, Infusion	Oral	Sall et al. [52]		
					Diarrhea	Latex, Seeds	Maceration, Infusion	Oral	Sall et al. [52]		
					Constipation	Latex, Seeds	Maceration, Infusion	Oral	Sall et al. [52]		
Citrullus lanatus (Thunb.) Matsum. &Nakai	Cucurbitaceae	H: Dallahالدلاح	Herb	C	Constipation	Fruits	Fresh	Oral	Yebouk et al. [12]; Vall [67]; Thouzery & Vall [35]; Yebouk [70]	6	2
					Intestinal parasites	Fruits	Decoction	Oral	Yebouk et al. [51]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Cucumis prophetarum L.	Cucurbitaceae	H: Tagasraritتكسرارپت	Herb	W	Abdominal pain	Fruits	Powder, Infusion	Oral	Yebouk et al. [12]; Leriche [63]; Vall [67]; Yebouk [70]	4	4
					Diarrhea	Fruits	Powder, Infusion	Oral	Yebouk et al. [12]; Leriche [63]; Vall [67]; Yebouk [70]		
					Intestinal parasites	Fruits	Powder, Infusion	Oral	Yebouk et al. [12]; Leriche [63], ; Vall [67]; Yebouk [70]		
					Cough	Fruits	Powder, Infusion	Oral	Yebouk et al. [12]; Leriche [63]; Vall [67]; Yebouk [70]		
Momordica balsamina L.	Cucurbitaceae	H: Tumbahraتمبهره	Climber	W	Intestinal parasites	Fruits	Powder, Maceration, fresh	Oral	Yebouk et al. [12]; Vall [67]; Yebouk [70]; Sall et al. [52]	4	2
					Respiratory inflammation	Fruits	Powder, Maceration, fresh	Oral	Yebouk et al. [12]; Vall [67]; Yebouk [70]; Sall et al. [52]		
Momordica charantia L.	Cucurbitaceae	P: Bourboki	Climber	W	Intestinal parasites	Wholeplant	Maceration, Decoction, Powder	Oral	Amadou [68]	1	2
					Malaria	Wholeplant	Maceration, Decoction, Powder	Oral	Amadou [68]		
*Bergiasuf fruticosa*Fenzl	Elatinaceae	P: Nipéré	Shrub	W	Toothache	Shoots	N/D	Oral	Thouzery & Vall [35]; Vall [67]	2	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	N citations	N uses
Euphorbia balsamifera Aiton	Euphorbiaceae	H: Ifarnanافرنان	Shrub	W	Rashlocalized	Latex	Extraction	Oral	Yebouk et al. [12]; Yebouk [70]	3	2
					Diarrhea	N/D	N/D	N/D	Vall [67]		
Euphorbia calyptrata Coss. &Durieu	Euphorbiaceae	H: El-ramadahالرمادة	Shrub	W	Bronchitis	Leaves	Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	2	1
Euphorbia hirta L.	Euphorbiaceae	H: Tanoutالتانوط P: Enenguel W: Mbal	Herb	W	Asthma	Aerealparts	Decoction	Oral, cataplasm	Thouzery & Vall [35]; Vall [67]	3	2
					Schistosomiasis	Aerealparts	Decoction	Cataplasm	Amadou [68]		
Euphorbia scordiifolia Jacq.	Euphorbiaceae	H: Oumlbinalمليبنة	Herb	W	Wounds	Leaves, Seeds, Roots	Powder	Cataplasm	Yebouk et al. [12]; Yebouk [70]	4	2
					Constipation	Leaves, Seeds, Roots	Decoction	Oral	Yebouk et al. [12]; Thouzery & Vall [35]; Vall [67]		
Ricinus communis L.	Euphorbiaceae	H: Ewreiwirواريويرة P: Kékémédi W: Hehem S: Dimbéyligala	Shrub	W	Diarrhea	Leaves, Seeds, Roots	Decoction	Oral	Thouzery & Vall [35]; Vall [67]	4	4
					Constipation	Leaves, Seeds, Roots	Decoction	Oral	Thouzery & Vall [35]; Vall [67]; Adje [66]; Leriche [63]		
					Foodpoisoning	Leaves, Seeds, Roots	Decoction	Oral	Thouzery & Vall [35]; Vall [67]		
					Rheumatism	Leaves, Seeds, Roots	N/D	N/D	Adje [66]; Leriche [63]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Senegalia ataxacantha (DC.) Kyal. &Boatwr.	Fabaceae	H: Echram P: Kidi W: Déda S: Gogorlaye	Tree	W	Abdominal pain	Leaves, Bark	N/D	N/D	Soulé [69]	1	5
					Ulcers	Leaves, Bark	N/D	N/D	Soulé [69]		
					Toothdecay	Leaves	N/D	N/D	Soulé [69]		
					Syphilis	Leaves, Bark	N/D	N/D	Soulé [69]		
					Cough	Leaves, Bark	N/D	N/D	Soulé [69]		
Vachellia flava (Forssk.) Kyal. & Boatwr. (=*Acacia ehrenbergiana* Hayne)	Fabaceae	H: Tamat P: Bacancili	Tree	W	Abdominal pain	Leaves, Gum	Powder, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	8	7
					Eyepain	Leaves, Gum	Powder, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]		
					Dyspepsia	Leaves	Maceration, Infusion	Oral	Adje [66]; Hamidoun [34]; Leriche [63]; Thouzery & Vall [35]; Vall [67]		
					Diarrhea	Leaves, Bark	Maceration, Infusion	Oral	Adje [66]; Hamidoun [34]; Leriche [63]; Thouzery & Vall [35]; Vall [67]		
					Gastrointestinal disorders	Leaves	Dry	Oral	Sall et al. [52]		
					Asthma	Leaves	Dry	Oral	Sall et al. [52]		
					Sexual impotence	Leaves	Dry	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Vachellia nilotica (L.) P.J.H.Hurter&Mabb.	Fabaceae	H: Emourأروم P: Guddi W: Gonaké	Tree	W	Eyepain	Leaves, Fruits, Exudates, Seeds	Juice, Powder, Maceration,	Oral	Yebouk et al. [12], Yebouk [70]	5	7
					Hemorrhoids	Leaves, Fruits, Exudates, Seeds	Juice, Powder, Maceration,	Oral	Yebouk et al. [12]; Yebouk [70]		
					Wounds	Leaves, Fruits, Exudates, Seeds	Juice, Powder, Maceration,	Oral	Yebouk et al. [12]; Yebouk [70]		
					Toothache	Leaves	Infusion	Oral	Sall et al. [52]		
					Femaleinfertility	Leaves	Infusion	Oral	Sall et al. [52]		
					Wounds	Leaves, Fruits	Maceration	Oral	Hamidoun [34]; Leriche [63]		
					Dysentery	Leaves, Fruits	Maceration	Oral	Hamidoun [34]; Leriche [63]		
Senegalia senegal (L.) Britton.	Fabaceae	H: Ewerwarراورو P: Patouki	Tree	W, C	Abdominal pain	Leaves, Gum, Fruits	Infusion, Maceration	Oral	Yebouk et al. [12]; Hamidoun [34]; Leriche [63]; Yebouk [70];	6	7
					Wounds	Leaves, Gum, Fruits	Powder	Oral, cataplasm	Yebouk et al. [12]		
					Heartburn	Leaves, Gum, Fruits	Powder	Oral, cataplasm	Yebouk et al. [12]		
					Toothache	Leaves	Infusion, Maceration	Oral	Sall et al. [52]		
					Malaria	Leaves	Infusion, Maceration	Oral	Sall et al. [52]		
					Cancer	N/D	N/D	N/D	Vall [67]		
					Jaundice	Leaves, Gum, Stem	Infusion, Maceration	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Vachellia seyal (Delile) P.J.H.Hurter	Fabaceae	H: Sadra-beydhaصدرةالبيضاء P: Bulbi	Tree	W, C	Abdominal pain	Leaves, Bark	Infusion, Powder, Decoction,	Oral	Yebouk et al. [12]; Yebouk [70]	8	7
					Intestinal parasites	Leaves, Bark	Infusion, Powder, Decoction,	Oral	Yebouk et al. [12]; Yebouk [70]		
					Menstrual pain	Leaves, Bark	Infusion, Powder, Decoction	Oral	Yebouk et al. [12]; Yebouk [70]		
					Diabetes	Leaves, Bark	Decoction	Oral	Soulé [69]; Sall et al. [52]; Adje [66]; Awfa [33]; Thouzery & Vall [35]		
					Aphrodisiac	Leaves, Bark	Decoction	Oral	Sall et al. [52]		
					Cancer	N/D	N/D	N/D	Vall, 2008		
					Bronchitis	Leaves, Bark	decoction	Oral	Sall et al. [52]		
Vachellia sieberiana (DC.) Kyal. &Boatwr.	Fabaceae	H: Eilikاليليك	Tree	W	Kidneydisease	Leaves	N/D	N/D	Soulé [69]	1	1
Vachellia tortilis (Forssk.) Galasso & Banfi	Fabaceae	H: Talhhالطلح P: Cilluki	Tree	W, C	Abdominal pain	Leaves, Bark, Fruits	Powder, Maceration, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	5	5
					Hypertension	Leaves, Bark, Fruits	Powder, Maceration, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]		
					Diarrhea	Leaves, Bark, Fruits	Maceration	Oral	Yebouk et al. [12]; Sall et al. [52]		
					Wounds	Fruits, Bark	N/D	N/D	Leriche [63]		
					Stomach disorders	Leaves, Bark	Decoction	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Arachis hypogaea L.	Fabaceae	H: Guertahكرتة	Herb	C	Jaundice	Seeds	Mashed, Infusion	Oral	Yebouk et al. [12]; Sall et al. [52]	2	4
					Wounds	Seeds	Mashed, Infusion	Oral	Yebouk et al. [12]; Sall et al. [52]		
					Rashlocalized	Seeds	Mashed, Infusion	Oral	Yebouk et al. [12]; Sall et al. [52]		
					Diabetes	Seeds	Mashed, Infusion	Oral	Yebouk et al. [12]; Sall et al. [52]		
Astragalus vogelii (Webb) Bornm.	Fabaceae	H: Theyrالطري	Herb	W	Diarrhea	Leaves	N/D	N/D	Adje [66]	1	2
					Muscle pain	Leaves	N/D	N/D	Adje [66]		
Piliostigm areticulatum (DC.) Hochst.	Fabaceae	H: Tezzikreتزيكرة P: Béwi W: Nguiguis S: Vafé	Tree	W	Mumps	N/D	N/D	N/D	Adje [66]	3	8
					Loss of appetite	N/D	N/D	N/D	Adje [66]		
					Heartburn	N/D	N/D	N/D	Adje [66]		
					Diarrhea	Leaves, Bark	Decoction	Oral	Thouzery & Vall [35]		
					Fluidsretention	Leaves, Bark	Decoction	Oral	Thouzery & Vall [35]		
					Fever	Leaves, Bark	Decoction	Oral	Thouzery & Vall [35]		
					Haemorrhoids	Leaves, Bark	Decoction	Oral	Sall et al. [52]		
					Stomach disorders	Leaves, Bark	Decoction	Oral	Sall et al. [52]		
Bauhinia rufescens Lam.	Fabaceae	H: N'dernاندرن P: Namadi W: Rand S: Gassamé	Shrub	W	Diarrhea	Leaves	Powder, Decoction	Oral	Yebouk et al. [12]; Yebouk [70]	5	5
					Mouthsymptom	Leaves	Powder, Decoction	Oral	Yebouk et al. [12]; Yebouk [70]		
					Schistosomiasis	Leaves	N/D	N/D	Vall [67]; Amadou [68]		
					Fluidsretention	Leaves	Infusion Maceration	Oral	Sall et al. [52]		
					Fever	Leaves	Infusion Maceration	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Cullen plicatum (Delile) C.H. Stirt. (=*Psoraleaplicata*Delile)	Fabaceae	H: Tatraritترارطات	Herb	W	Constipation	Leaves	Powder, Infusion, Fresh, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	6	6
					Heartburn	Leaves	Powder, Infusion, Fresh, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Bronchitis	Leaves	Powder, Infusion, Fresh, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Abdominal pain	Leaves	N/D	N/D	Vall [67]; Adje [66]		
					Migraine	Leaves	N/D	N/D	Hamidoun [34]		
					Diarrhea	Leaves	Infusion	Oral	Sall et al. [52]		
Dalbergia melanoxylon Guill. &Perr.	Fabaceae	H: Sangouوقناس P: Djalambani S: Khofé W: Dialaman	Tree	W	Syphilis	Root, Leaves	Infusion	Oral	Soulé [69]	2	5
					Toothache	Root, Leaves	Infusion	Oral	Soulé [69]		
					Migraine	Leaves, Flowers	Infusion	Oral	Sall et al. [52]		
					Cough	Leaves, Flowers	Infusion	Oral	Sall et al. [52]		
					Hernia	Leaves, Flowers	Infusion	Oral	Sall et al. [52]		
Daniellia oliveri (Rolfe) Hutch. & Dalziel	Fabaceae	P: Tchéwi	Tree	W	Fever	Leaves, Bark	N/D	N/D	Soulé [69]	1	4
					Jaundice	Leaves, Bark	N/D	N/D	Soulé [69]		
					Snakebite	Leaves, Bark	N/D	N/D	Soulé [69]		
					Headache	Leaves, Bark	N/D	N/D	Soulé [69]		
Dichrostachys cinerea (L.) Wight &Arn.	Fabaceae	H: Limkheynzaلمخيزنة P: Burli S: Sinté W: Sink	Tree	W	Snakebite	Bark	N/D	N/D	Soulé [69]	1	5
					Leprosy	Bark	N/D	N/D	Soulé [69]		
					Syphilis	Bark	N/D	N/D	Soulé [69]		
					Cough	Bark	N/D	N/D	Soulé [69]		
					Intestinal parasites	Bark	N/D	N/D	Soulé [69]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	N citations	N uses
Faidherbia albida (Delile) A.Chev.	Fabaceae	H: Avrarارارف P: Tchaski S: Sasséngholle W: Kad	Tree	W	Colds	Bark, Leaves	N/D	N/D	Soulé [69]	2	8
					Flu	Bark, Leaves	N/D	N/D	Soulé [69]		
					Toothache	Bark, Leaves	N/D	N/D	Soulé [69]		
					Kidneydisease	Bark, Leaves	N/D	N/D	Soulé [69]		
					Fever	Bark, Leaves	N/D	N/D	Soulé [69]		
					Cough	Stem, Seeds	N/D	N/D	Soulé [69]		
					Eye inflammation	Leaves	Infusion	Oral	Sall et al. [52]		
					Ulcers	Leaves	Infusion	Oral	Sall et al. [52]		
Indigofera oblongifolia Forssk.	Fabaceae	H: Ntoufelhinaنتوفالج P: Barbarondji S: Garankomé W: Gadé	Shrub	W	Toothache	Stem	N/D	N/D	Soulé [69]	1	1
Indigofera senegalensis Lam.	Fabaceae	H: Tiguinguilitتكنكليت	shrub	W	Headache	Leaves, Stem	Decoction	Oral	Sall et al. [52]	1	1
Kebirita roudairei (Bonnet) Kramina& D.D. Sokoloff	Fabaceae	H: Kbeidit-dhab	Shrub	W	Abdominal pain	Leaves, Stem	Powder, Infusion, fumigation	Oral	Yebouk et al. [12]; Yebouk [70]	5	3
					Breathing problems	Leaves, Stem	Powder, Infusion, fumigation	Oral	Yebouk et al. [12]; Yebouk [70]		
					Schistosomiasis	Leaves	N/D	N/D	Awfa [33]; Cheikh [23]		
Lotus torulosus (Chiov.) Fiori	Fabaceae	H: Oumhallousssامحلوس	Shrub	W	Gastrointestinal disorders	Leaves	Decoction	Oral	Sall et al. [52]	1	2
					Asthma	Leaves	Maceration	N/D	Sall et al. [52]		
Mimosa pigra L.	Fabaceae	P: Gagnangi	Tree	W	Stomachache	Leaves	Decoction	Oral	Sall et al. [52]	1	2
					Sexual impotence	Leaves	Decoction	Oral	Sall et al. [52]		
Parkinsonia aculeata L.	Fabaceae	P: Tchinyéwi	Shrub	W	Schistosomiasis	Leaves	Decoction	Oral	Amadou [68]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Piliostigma reticulatum (DC.) Hochst.	Fabaceae	H: Tezekreتيزكرة P: Béwii W: Nguiguis S: Yale	Shrub	W	Colds	Leaves, Bark	Decoction	Oral	Soulé [69]; Amadou [68]	3	4
					Diarrhea	Leaves, Bark	Decoction	Oral	Soulé [69]; Amadou [68]		
					Hemorrhoids	Leaves	Fresh	Oral	Sall et al. [52]		
					Stomach disorders	Leaves	Fresh	Oral	Sall et al. [52]		
Prosopis juliflora (Sw.) DC.	Fabaceae	H: Grounlemhadeكرونلمحادة S: Maka djébé W: Dakhartoubab	Tree	C	Headache	Leaves, Bark	Powder, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	3	4
					Toothache	Leaves, Bark	Powder, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Stomachache	Roots	N/D	N/D	Soulé [69]		
					Musclepain	Roots	N/D	N/D	Soulé [69]		
*Senna italica*Mill.	Fabaceae	H: Vallejitفلچيط P: Faladjel	Shrub	W	Constipation	Leaves	Decoction	Oral	Yebouk et al. [12, 71]; Vall [67]; Hamidoun [34]; Leriche [63]; Amadou [68]; Yebouk [70]	8	4
					Abdominal pain	Leaves	Decoction	Oral	Yebouk et al. [12]; Yebouk [70]		
					Skin color change	Leaves	Decoction	Oral	Yebouk et al. [12]; Yebouk [70]		
					Diarrhea	Leaves	Maceration,	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Senna occidentalis (L.) Link	Fabaceae	H: Sar'sarراسرس P: Aljanawi	Tree	C	Intestinal parasites	Leaves	Powder, Maceration,	Oral	Yebouk et al. [12]; Yebouk [70]	3	3
					Malaria	Leaves	Powder, Maceration,	Oral	Yebouk et al. [12]; Yebouk [70]		
					schistosomiasis	Roots	Decoction	Oral	Amadou [68]		
Senna tora (L.) Roxb.	Fabaceae	p: Youle/Ulo	shrub	W	Inflammation	Leaves	Infusion	Oral	Sall et al. [52]	1	2
					Eyepain	Leaves	Infusion	Oral	Sall et al. [52]		
Tamarindus indica L.	Fabaceae	H: Aganatكانات P: Diammi W: Dakhar S: Kharallé	Tree	C	Vomiting	Fruits	Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	3	3
					Headache	Fruits	Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Nausea	Fruits	N/D	N/D	Hamidoun [34]		
Vigna unguiculata (L.) Walp.	Fabaceae	H: Adlagan P: Niebe	Shrub	C	Anemia	Seeds, Leaves	Cooked, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]; Sall et al. [52]	4	3
					Jaundice	Seeds, Leaves	Cooked, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]; Sall et al. [52]		
					cough	Seeds	Decoction	Oral	Vall [67]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
*Mentha spicata*L.	Lamiaceae	H: Naenaelالنعناع	Herb	C	Vomiting	Leaves	Powder, Infusion, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	2	4
					Toothache	Leaves	Powder, Infusion, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Dyspepsia	Leaves	Powder, Infusion, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Hypertension	Leaves	Powder, Infusion, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
Ocimum basilicum L.	Lamiaceae	H: Lihbaqلجبق P: Gumgoumeri	Shrub	C	Diabetes	Leaves	Decoction, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	3	3
					Asthma	Leaves	Decoction, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]		
					Malaria	Leaves	Infusion	Oral	Amadou [68]		
Tapinanthus globiferus (A. Rich.) Tiegh.	Loranthaceae	H: Ewzigاوزك P: Tewnawi W: Tob S: Makhébagué	Climber	W	Dysuria	Leaves	Powder, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	2	1
Lawsonia inermis L.	Lythraceae	H: El-hannalالجنة P: Poudi W: Fuden S: Diaba	Shrub	W, C	Headache	Leaves	Powder, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	5	7
					Jaundice	Leaves	Powder, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Burns	Leaves	Powder, Maceration	Cataplasm	Yebouk et al. [12]; Yebouk [70]		
					Rheumatism	N/D	N/D	N/D	Vall [67]		
					Fever	N/D	N/D	N/D	Vall [67]		
					Wounds	Leaves	N/D	N/D	Awfa [33]; Leriche [63]		
					Rheumatism	Leaves	N/D	N/D	Awfa [33]; Leriche [63]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Adansonia digitata L.	Malvaceae	H: Teydoumلتمودي P: Boki W: Ngouye S: Kidé	Tree	W	Diarrhea	Leaves, Fuits, Stem	Powder	Oral	Yebouk et al. [12]; Yebouk [70]	7	13
					Hypertension	Leaves, Fuits, Stem	Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Abdominal pain	Leaves, Fuits, Stem	Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Menstrual disorders	Leaves, Fuits, Stem	N/D	N/D	Soulé [69]		
					Ulcers	Leaves, Fuits, Stem	N/D	N/D	Soulé [69]		
					Dysentery	Leaves, Fuits, Stem	N/D	N/D	Vall [67]; Leriche [63]; Hamidoun [34]		
					Bronchitis	Leaves, Fuits, Stem	Maceration, Infusion, nature	Oral	Sall et al. [52]		
					Rheumatism	Leaves, Fuits, Stem	Maceration, Infusion, nature	Oral	Sall et al. [52]		
					Bodyweakness	Leaves, Fuits, Stem	Maceration, Infusion, nature	Oral	Sall et al. [52]		
					Diabetes	Leaves, Fuits, Stem	Maceration, Infusion, nature	Oral	Sall et al. [52]		
					Dizziness	Leaves, Fuits, Stem	Maceration, Infusion, nature	Oral	Sall et al. [52]		
					Ulcers	Leaves, Fuits, Stem	Maceration, Infusion, nature	Oral	Sall et al. [52]		
					Menstrual disorders	Leaves, Fuits, Stem	Maceration, Infusion, nature	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	N citations	N uses
Corchorus tridens L.	Malvaceae	H: Taghiaتقيةّ P: Laalowalo	Herb	C	Indigestion	Leaves	N/D	N/D	Vall [67]	2	4
					Anemia	Leaves	Maceration	Oral	Sall et al. [52]		
					Diarrhea	Leaves	Maceration	Oral	Sall et al. [52]		
					Dysentery	Leaves	Maceration	Oral	Sall et al. [52]		
Corchorus depressus (L.) C. Chr.	Malvaceae	H: Taghyittrabتقيةاترابت P: Laalo	Herb	W?	Diarrhea	Leaves	Maceration	Oral	Vall [67]; Sall et al. [52]	2	2
					Dysentery	Leaves	Maceration	Oral	Vall [67]; Sall et al. [52]		
Grewia damine Gaertn.	Malvaceae	H: Imijijإمجيج P: Kellibalewi	Shrub/Tree	W	Malaria	Leaves	Decoction, Fresh, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	5	5
					Diarrhea	Leaves	Decoction, Fresh, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Syphilis	Leaves	N/D	N/D	Vall [67]; Adje [66]		
					Asthma	Leaves	Maceration	Oral	Sall et al. [52]		
					Eye inflammation	Leaves	Maceration	Oral	Sall et al. [52]		
Grewia flavescens Juss.	Malvaceae	H: Lihreichaلحباليةّ P: Kellinay W: Horomsap	Tree	W	Constipation	Fruits	N/D	N/D	Soulé [69]	1	1
Grewia tenax (Forssk.) Fiori	Malvaceae	H: Legleia لكليةّ P: Yegnémẽwi W: Kel	Tree	W	Constipation	Leaves	N/D	N/D	Soulé [69]; Vall [67]; Adje [66]	5	3
					Digestive tonic	Leaves, Bark	Maceration	Oral	Yebouk et al. [12]; Sall et al. [52]		
					Lossofappetite	Leaves, Bark	Maceration	Oral	Yebouk et al. [12]; Sall et al. [52]		
Helianthemum lippii (L.) Dum.Cours.	Malvaceae	H: Tirfasseترفاصةّ	Shrub	W	Respiratory inflammation	Leaves	Infusion Maceration	Oral	Sall et al. [52]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Hibiscus sabdariffa L.	Malvaceae	H: Bissamبصام P: Foléré	Shrub	C	Abdominal pain	Leaves, Flowers	Decoction, Cooked, Maceration	Oral	Yebouk et al. [12]; Amadou [68]; Yebouk [70]	4	5
					Cough	Leaves, Flowers	Decoction, Cooked, Maceration	Oral	Yebouk et al. [12]; Amadou [68]; Yebouk [70]		
					Malaria	Leaves, Flowers	Decoction, Cooked, Maceration	Oral	Yebouk et al. [12]; Amadou [68]; Yebouk [70]		
					Bodyweakness	Leaves, Flowers	Infusion	Oral	Sall et al. [52]		
					Aphrodisiac	Leaves, Flowers	Decoction	Oral	Sall et al. [52]		
Sida spinosa L.	Malvaceae	H: Woudhenn'aajواذننعاج	Herb	W	Lossofappetite	Leaves	Maceration	Oral	Sall et al. [52]	1	2
					Cough	Leaves	Infusion	Oral	Sall et al. [52]		
Sterculia setigera Delile	Malvaceae	H: Bav-rywa P: Bobori W: Mbèp S: Deyeh	Tree	W	Cough	Leaves, Bark	Powder, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	4	2
					Gastrointestinal disorders	Leaves, Bark	N/D	N/D	Vall [67]; Soulé [69]		
Azadirachta indica A. Juss.	Meliaceae	H: Sidrayit-kininصدرايتكينين P: Neem/Nouvakini W: Neem S: Neem	Tree	C	Malaria	Leaves, Bark, Fruits	Powder, Decoction	Bodylotion	Yebouk et al. [12]; Yebouk [70]; Sall et al. [52]	5	5
					Fever	Leaves, Bark, Seeds	N/D	N/D	Vall [67]; Soulé [69]		
					Wounds	Leaves, Bark, Seeds	N/D	N/D	Vall [67]; Soulé [69]		
					Bodyweakness	Leaves, Bark	Decoction, Infusion	Massage	Sall et al. [52]		
					Skin irritation	Leaves, Bark	Decoction, Infusion	Massage	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Khaya senegalensis (Desr.) A. Juss.	Meliaceae	H: Tabaliyalطلابلية P: Kahi W: Kay S: Tudo	Tree	W	Fever	Roots, Seeds	N/D	N/D	Soulé [69]	3	10
					Syphilis	Roots, Seeds	N/D	N/D	Soulé [69]		
					Mental illness	Roots, Seeds	N/D	N/D	Soulé [69]		
					Dermatosis	Roots, Seeds	N/D	N/D	Soulé [69]		
					Scorpion sting	Roots, Seeds	N/D	N/D	Soulé [69]		
					Anemia	Bark, Leaves	Infusion, Decoction	Oral	Sall et al. [52]		
					Malaria	Bark, Leaves	Infusion, Decoction	Oral	Sall et al. [52]		
					Intestinal parasites	Bark, Leaves	Infusion, Decoction	Oral	Sall et al. [52]		
					Jaundice	Roots, Leaves	Infusion, Decoction	Oral	Sall et al. [52]		
					Intestinal parasites	Roots	Maceration	Oral	Amadou [68]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Moringa oleifera Lam.	Moringaceae	H: Moringa المورينگ P: Nébéday W: Nébédai S: Sapsap	Tree	C	Hypertension	Leaves	Decoction, Powder, Maceration, Infusion	Oral	Yebouk [70]	5	10
					Headache	Leaves	Decoction, Powder, Maceration, Infusion	Oral	Yebouk [70]		
					Jointpain	Leaves	Decoction, Powder, Maceration, Infusion	Massage	Yebouk [70]		
					Schistosomiasis	Leaves	Decoction	Oral	Soulé [69]; Amadou [68]		
					Skin irritation	Leaves	Maceration, Infusion	Oral	Sall et al. [52]		
					Anemia	Leaves	Maceration, Infusion	Oral	Sall et al. [52]		
					Sterility	Leaves	Maceration, Infusion	Oral	Sall et al. [52]		
					Diabetes	Leaves	Maceration, Infusion	Oral	Sall et al. [52]		
					Sexual impotence	Leaves	Maceration, Infusion	Oral	Sall et al. [52]		
					Abdominal pain	Leaves	Infusion	Oral	Yebouk et al. [51]		
Eucalyptus sp.	Myrtaceae	P: Khoultouboutel	Tree	W	Malaria	Leaves	N/D	N/D	Amadou [68]	1	2
					Intestinal parasites	Leaves	N/D	N/D	Amadou [68]		
Boerhavia diffusa L.	Nyctaginaceae	H: Rokbitj'melركبتاجمل	Herb	W	Inflammation	Leaves	Infusion	Oral	Sall et al. [52]	1	3
					Sexual impotence	Leaves	Infusion	Oral	Sall et al. [52]		
					Flu	Leaves	Infusion	Oral	Sall et al. [52]		
Nitrariaretusa (Forssk.) Asch.	Nitrariaceae	H: Guerzimكرزين	Shrub	W	Hypotension	N/D	N/D	N/D	Vall [67]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Scopariadulcis L.	Plantaginaceae	P: Belwelguel	Herb	W	Intestinal parasites	Leaves	Infusion	Oral	Amadou [68]	1	1
Cenchrus americanus (L.) Morrone	Poaceae	H: Moutriمرتي	Shrub	C	Breathing problems	Seeds	Mashed	Oral	Yebouk et al. [12]; Yebouk [70]	2	2
					Localizedrash	Seeds	Mashed	Oral	Yebouk et al. [12]; Yebouk [70]		
Hordeum vulgare L.	Poaceae	H: Sha-irاشعير	Shrub	C	Jaundice	Seeds	Powder	Oral	Yebouk et al. [12]; Yebouk [70]	3	3
					Diabetes	Seeds	Powder	Oral	Yebouk et al. [12], Yebouk [70]		
					Hepatitis	Seeds	Infusion	Oral	Vall [67]		
*Panicum turgidum*Forssk.	Poaceae	H: Oum-rekbaامركبة P: Senbao	Shrub	W	Constipation	Seeds, Stem	Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]	2	1
					Jaundice	Seeds, Stem	Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]	3	3
Sorghum bicolor (L.) Moench.	Poaceae	H: Zraaزرعا	Shrub	C	Hepatitis	Seeds	Maceration	Oral	Yebouk et al. [12]; Vall [67]; Yebouk [70]		
					Abdominal pain	Seeds	Infusion	Oral	Yebouk et al. [12]		
Stipagrostis pungens (Desf.) De Winter	Poaceae	H: Sbattطبس	Shrub	W	Dysuria	Stem	Powder, Infusion	Oral	Yebouk et al. [12]; Yebouk [70]	3	3
					Aphrodisiac	Leaves	Decoction, Maceration	Oral	Sall et al. [52]		
					Fluid retention	Leaves	Decoction, Maceration	Oral	Sall et al. [52]		
Rogeria adenophylla Gay ex Delile	Pedaliaceae	H: Sawabrassoوصاوصارب	Shrub	W	Inflammation	Leaves	Decoction, Maceration	Oral	Sall et al. [52]	1	1
Flueggeavirosa (Roxb. ex Willd.) Royle	Phyllanthaceae	H: Limleiseلمليسة P: Tiambélgorél W: Key	Shrub	W	Syphilis	Roots	N/D	N/D	Soulé [69]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Ziziphus lotus (L.) Lam.	Rhamnaceae	H: Sder-hreytekطتيرەردس P: Diabi	Shrub	W	Abdominal pain	Leaves, Fruits	Maceration, Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]	4	10
					Fever	Leaves, Seeds	Maceration, Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Hypertension	Leaves, Fruits	Maceration, Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Wounds	Leaves	Maceration, Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Toothache	Leaves, Fruits, Seeds	Maceration, Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Kidneydisease	Leaves, Fruits, Seeds	Maceration, Infusion, Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Colic	Leaves, Fruits, Seeds	N/D	N/D	Leriche [63]		
					Diabetes	Leaves, Fruits, Seeds	Infusion Maceration	Oral	Sall et al. [52]		
					Intestinal parasites	Leaves, Fruits, Seeds	Infusion Maceration	Oral	Sall et al. [52]		
					Gastrointestinal infection	Leaves, Fruits, Seeds	Infusion Maceration	Oral	Sall et al. [52]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Ziziphus mauritiana Lam.	Rhamnaceae	H: Sder-lahbylسدرلهبيل P: Diabidieri W: Dèm S: Fa	Tree	W, C	Abdominal pain	Leaves, Fruits	Maceration, Powder, Fresh	Oral	Yebouk et al. [12]; Yebouk [70]	5	7
					Fever	Leaves, Fruits	Maceration, Powder, Fresh	Oral	Yebouk et al. [12]; Yebouk [70]		
					Hypertension	Leaves, Fruits	Maceration, Powder, Fresh	Oral	Yebouk et al. [12]; Yebouk [70]		
					Diabetes	Leaves, Fruits	Maceration, Powder, Fresh	Oral	Yebouk et al. [12]; Yebouk [70]		
					Malaria	Leaves	Infusion,	Oral	Vall [67]; Amadou [68]		
					Intestinal parasites	Bark	Infusion	Oral	Sall et al. [52]		
					Gastrointestinal infection	Bark	Infusion	Oral	Sall et al. [52]		
Ziziphus spina-christi (L.) Desf.	Rhamnaceae	H: Keleyleكليلة P: Kelélé S: Kelélé	Tree	W	Rheumatism	Leaves	Infusion	Oral	Soulé [69]	2	2
					Colic	Leaves	N/D	N/D	Leriche [63]		
Rhizophora racemosa G.Mey.	Rhizophoraceae	H: Bkhakh W: Ndangan	Tree	W	Diarrhea	Bark	N/D	N/D	Soulé [69]	1	1
Gardenia ternifolia Schumach. &Thonn.	Rubiaceae	H: Sedrayet-esselalصدرايتالسلال P: Dignaly W: Bos S: Mandakhé	Shrub	W	Sexual impotence	Leaves	Infusion	Oral	Thouzery& Vall [35]	2	3
					Back pain	Leaves, Roots	Infusion	Oral	Thouzery & Vall [35]		
					Abdominal pain	Fruits	N/D	N/D	Soulé [69]		

Table 3 (continued)

Species	Family	Local names	Growth form	Ori-gin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Mitragyna inermis (Willd.) K. Schum.	Rubiaceae	H: Aglalالالك P: Koyli W: Hos S: Khilé	Tree	W	Complications of puerperium	Leaves	Decoction, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	5	9
					Constipation	Leaves	N/D	N/D	Soulé [69]		
					Malaria	Leaves, Seeds	N/D	N/D	Soulé [69]		
					Rheumatism	Leaves, Seeds	N/D	N/D	Soulé [69]		
					Epilepsy	Leaves, Seeds	Decoction	Oral	Amadou [68]		
					Syphilis	Leaves	Decoction	Oral	Amadou [68]		
					Rheumatism	Leaves	Maceration	Oral	Sall et al. [52]		
					Headache	Leaves	Maceration	Oral	Sall et al. [52]		
					Pneumonia	Leaves	Maceration	Oral	Sall et al. [52]		
*Salix mucronata*Thunb.	Salicaceae	H: Kolésafraكولاالصفرة P: Kélélé mayo W: Kélélé	Tree	W	Dysentery	Leaves	N/D	N/D	Soulé [69]	1	3
					Syphilis	Leaves	N/D	N/D	Soulé [69]		
					Burns	Leaves	N/D	N/D	Soulé [69]		
Salvadora persica L.	Salvadoraceae	H: Ivarchylافرشي P: Goudi W: Ngao S: Tenjequte	Tree	W	Anemia	Leaves	Infusion, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]	4	4
					Malaria	Leaves	Infusion, Maceration	Oral	Yebouk et al. [12]; Yebouk [70]		
					Fever	Leaves	Mashed	Oral	Yebouk et al. [12]; Vall [67]		
					Oral disease	Leaves	N/D	N/D	Yebouk et al. [71]		
Lepisanthessenegalensis (Poir.) Leenh.	Sapindaceae	H: Djangrouniyéدجينكمي W: Héver/Kéver	Shrub	W	Snakebite	Bark	N/D	N/D	Soulé [69]	1	1
Datura stramonium L.	Solanaceae	H: Lebtheymaلبثيمة	Shrub	W	Musclepain	Leaves	N/D	N/D	Thouzery & Vall [35]	1	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Hyoscyamus muticus L.	Solanaceae	H: Lebtheimaلبثيمة	Shrub	W	Wounds	Leaves	Powder	Oral	Yebouk et al. [12]; Yebouk [70]	3	4
					Renal colic	Leaves	N/D	N/D	Adje [66]		
					Bladderpain	Leaves	N/D	N/D	Adje [66]		
					Asthma	Leaves	N/D	N/D	Adje [66]		
Tamarix senegalensis DC.	Tamaricaceae	H: Tarvalفرطلة W: Mburndi	Tree	W	Constipation	Stem	Mashed	Oral	Yebouk et al. [12]; Yebouk [70]	2	1

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Balanites aegyptiaca (L.) Delile	Zygophyllaceae	H: Teyshittطشيت P: Mourtouki W: Soump	Tree	W, C	Abdominal pain	Leaves	Infusion, Maceration, Powder	Oral	Yebouk et al. [12]; Yebouk [70]	9	15
					Diabetes	Fruits	Infusion, Maceration, Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Wounds	Fruits	Infusion, Maceration, Powder	Oral	Yebouk et al. [12]; Yebouk [70]		
					Colds	Leaves	Infusion	Oral	Thouzery & Vall [35]; Vall [67]		
					Migraine	Leaves	Infusion	Oral	Thouzery & Vall [35]; Vall [67]		
					Constipation	Leaves	N/D	N/D	Cheikh [23]; Hamidoun [34]		
					Intestinal parasites	Leaves	N/D	N/D	Leriche [63]		
					Wounds	Leaves	N/D	N/D	Adje [66]		
					Cardiovascular illnesses	Fruits	Maceration, Juice	Oral	Abdelaziz et al. [65]		
					Hypertension	Fruits	Maceration, Juice	Oral	Abdelaziz et al. [65]		
					Diabetes	Fruits	Maceration, Juice	Oral	Abdelaziz et al. [65]		
					Cough	Fruits	Maceration, Juice	Oral	Abdelaziz et al. [65]		
					Constipation	Fruits	Maceration, Juice	Oral	Abdelaziz et al. [65]		
					Dermal infections	Fruits	Maceration, Juice	Oral	Abdelaziz et al. [65]		
					Asthma	Fruits	Maceration, Juice	Oral	Abdelaziz et al. [65]		

Table 3 (continued)

Species	Family	Local names	Growth form	Origin (W/C)	Diseases treated	Part used	Preparation	Admin.	References	*N* citations	*N* uses
Tribulus terrestris L.	Zygophyllaceae	H: Tymo-glyst تصلمويت P: Toupéré S: Dagaare	Herb	C	Toothache	Leaves	Mashed	Oral	Yebouk et al. [12]; Yebouk [70]	3	2
					Tingling in extremities	Leaves	Maceration	Oral	Sall et al. [52]		

C = Cultivated; **W** = Wild; **H** = Hassaniya; **P** = Pulaar; **W** = Wolof; **S** = Soninké; **N/D** = Not determined

Comparatively, similar patterns are observed in neighbouring regions such as Mali and Senegal [38, 40], where shrubs and trees dominate traditional medicine due to their availability and durability in arid conditions. The predominance of shrubs and trees in Mauritania corresponds with their adaptive characteristics, including drought resistance and longevity, rendering them essential resources in arid and semi-arid ecosystems. Furthermore, the southern regions of Morocco reflect this dependence on shrubs and trees, extensively employing species in genus like *Ziziphus* and *Vachellia* and related for similar medicinal applications [41, 43]. The cross-regional similarity highlights the significance of these growth forms in maintaining traditional medicine systems throughout the Sahel and Sahara.

Medicinal plants are grouped in 45 botanical families (Fig. 4), outstanding Fabaceae (28 species), Malvaceae (10species) and Capparaceae (9species). This result, although in consonance with some of the previous works [10] and other territories with a similar desertic flora (e.g. Saudi Arabia; [44, 45],and supported by reports on the prevalence of Fabaceae in other arid and semi-arid contexts [46–48], is nonetheless striking when compared to Mediterranean studies, where the dominant medicinal plant families are Asteraceae and Lamiaceae, which are more diverse in northern latitudes [49, 51], and reflect the idea of a national flora in transition in between the Mediterranean and Sub-Saharan floras.

Taking the data of the spontaneous flora in Mauritania from Lebrun [19], we have analysed the proportion of species used as medicinal according to this review, with respect to the total number of species of that family, updating Lebrun's families to those used in this article, i.e. according to Angiosperm Phylogeny Group; thus, unifying Fabaceae, Mimosaceae and Cesalpiniaceae). Results for the 10 most used families are showed in Fig. 5. Other generally important families are Asteraceae with nearly 3%, considering 69 species according Lebrun [19] and 2 medicinal ones (Table 2), or Lamiaceae with 33% (2 medicinal over 6 wild species).

The analysis revealed that woody species (shrubs and trees) overwhelmingly dominate the medicinal flora of Mauritania, accounting for over three-quarters of the reported species. This pattern is not merely descriptive but reflects a broader ecological adaptation: in arid and semi-arid ecosystems, ligneous plants are more resilient to drought and thus remain available year-round, providing a dependable source of medicinal material when herbaceous species are scarce. Similar trends have been documented in ethnobotanical studies from Niger, Sudan, and Morocco, where shrubs of Combretaceae and trees of Fabaceae and Balanitaceae are key pillars of traditional healthcare systems in desert and Sahelian zones. By contrast, ethnobotanical inventories from humid

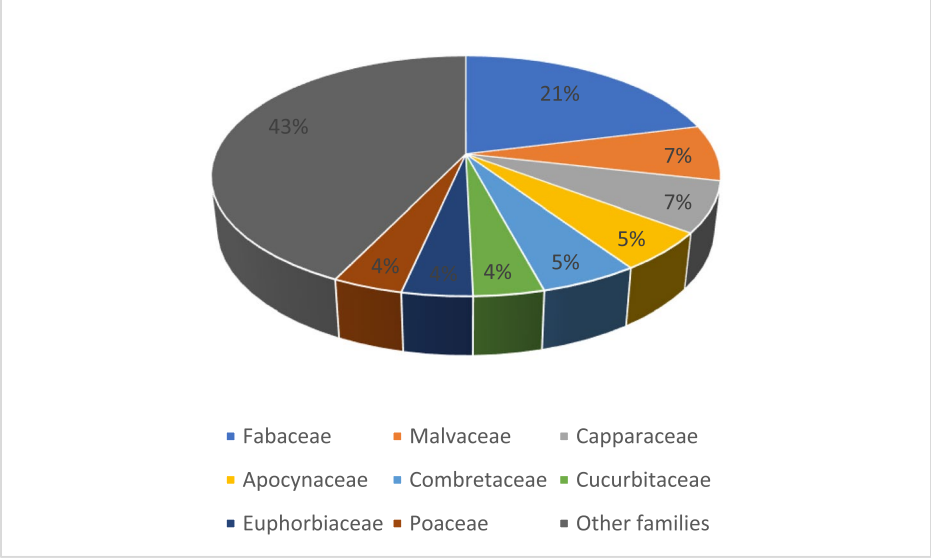

Fig. 4 Botanical families with more medicinal plants

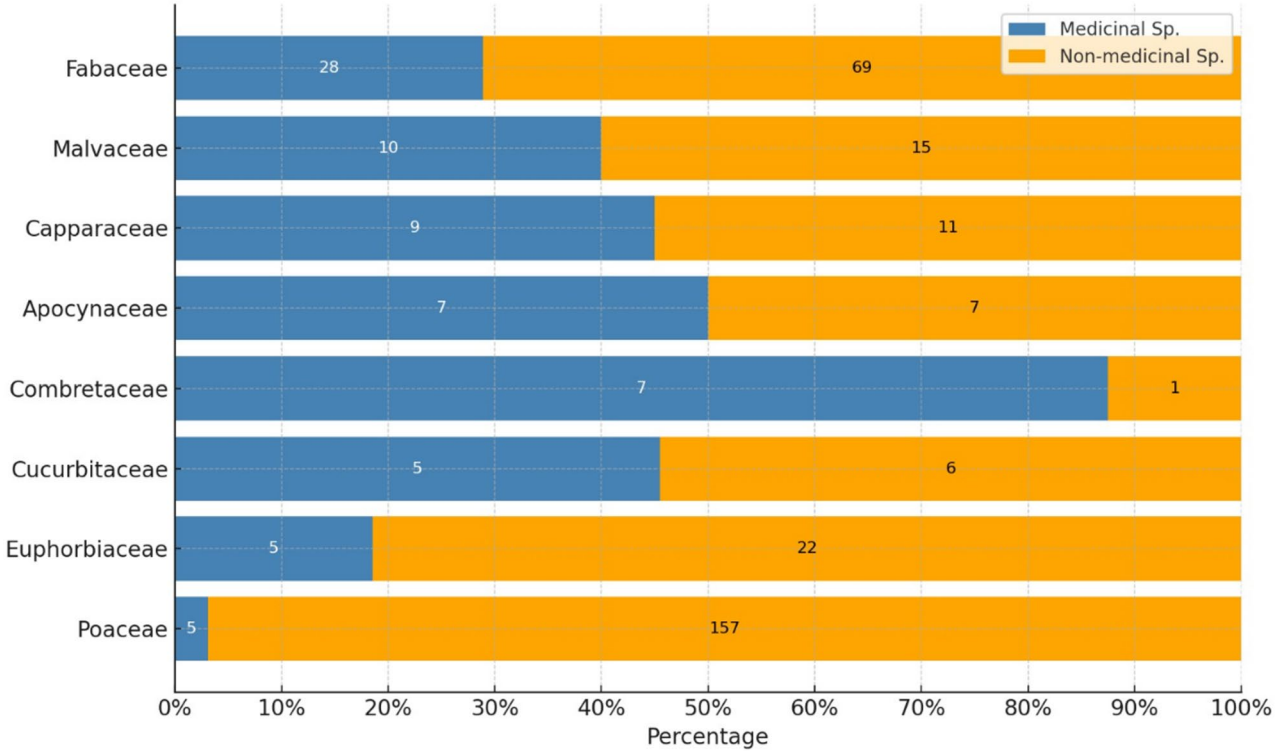

Fig. 5 Proportion of medicinal and non-medicinal species across main families

forest regions, such as southern Nigeria or Cameroon, report a predominance of herbaceous taxa, illustrating how local floristic composition and ecology directly shape medicinal repertoires.

The most used parts of the plants are the leaves (50% cases, 338 uses among 671 total parts used), fruits (73 uses; 10%), barks (72 uses; 10%), and seeds(62 uses; 9%), what is in consonance with the type of plants used in this desertic environment, mostly shrubs and trees, which leaves must be gathered in the wet season. National studies conducted in Mauritania [12, 37, 51, 52], Senegal [53], and Algeria [54] all reach similar conclusions. However, these results are in contrast with those of Gueye [38], who found that among the Malinké of Senegal, bark was the most commonly used portion of plants for curing or avoiding specific diseases.

One reason for the high usage of leaves is that they are easily accessible and simple to harvest [55]. Another reason is that the plant's healing properties are stored in active substances known as secondary metabolites, which are found mostly in the leaves [56]. In addition, moderate leaf harvesting does not damage plants or hinder their ability to grow or reproduce [57]. Actually, research by Poffenberger et al. [58] proved that plants may survive with moderate leaf harvesting (up to 50%).

Conversely, the overharvesting of bark and roots jeopardizes plant populations. In particular, bark harvesting is detrimental because it creates large wounds that caterpillars, birds, and fungus can use as entry routes [59]. When plants lose their roots, they lose the capacity to absorb and retain nutrients, which has negative effects on the plant's vegetative structure and physiological processes [60].

Medicinal uses

We recorded a total of 506 medicinal uses (i.e., the use of a certain part of the species, with a specific preparation and administration form, for a certain condition). The reviewed works included botanical remedies for the treatment of 112 different conditions, grouped in 17 groups, according to the ICPC-2 classification, thus, covering all the groups in the classification. This confirms the wide range of diseases that are treated with traditional methods based on plant resources in the country.

There are 15 conditions with more than 10 possible plant species as a remedy: abdominal pain (32 sp.), constipation (23sp.), wounds (23sp.), diarrhea (21sp.), diabetes (1sp.), intestinal parasites (19sp.), toothache (19sp.), malaria (17sp.), cough (15sp.), fever (14sp.), asthma (13sp.), rheumatism (13sp.), syphilis (13sp.), jaundice (12sp.), and headache (11sp.). On the other hand, for 25 conditions there are just two possible plant-based remedies in the tradition, and for 42 more, only one.

Figure 6 shows the number of uses and species recorded per all conditions within each ICPC group. Group D (digestive conditions) stands out with 196 medicinal uses for the treatment of 32 different emic conditions. Groups A (general and unspecified conditions), R (respiratory) and S (skin) also have a number of uses and species.

A total of 133 medicinal plant species have been documented in Mauritania for the treatment of a wide range of health conditions, categorised accordingtothe ICPC-2 system. Table 3 summarises the conditions, uses and species per ICPC group.With 196 recorded uses involving 97 species spanning 32 different health conditions, group D (digestive conditions) is by far the largest represented category. This highlights the importance of gastrointestinal disorders in conventional medicine. This result is consistent with earlier ethnobotanical research in Mauritania [12, 37, 51], which also found that medicinal plant use was prevalent for digestive problems. Similar findings have been noted in Morocco and other nearby North African nations, where Redouan et al. [49, 61] emphasized the crucial role that gastrointestinal disorders play in traditional therapy.Other significant groups are A (general and unspecified conditions) which has 63 applications spanning 48 species and 12 conditions; R (respiratory), which has 51 applications among 44 species for 12 different respiratory diseases; and S (skin), which has 51 uses overall and spans 38 species and 15 skin ailments. It is unlikely that earlier research conducted in other parts of Mauritania, like Adrar and Nouakchott [12, 37],

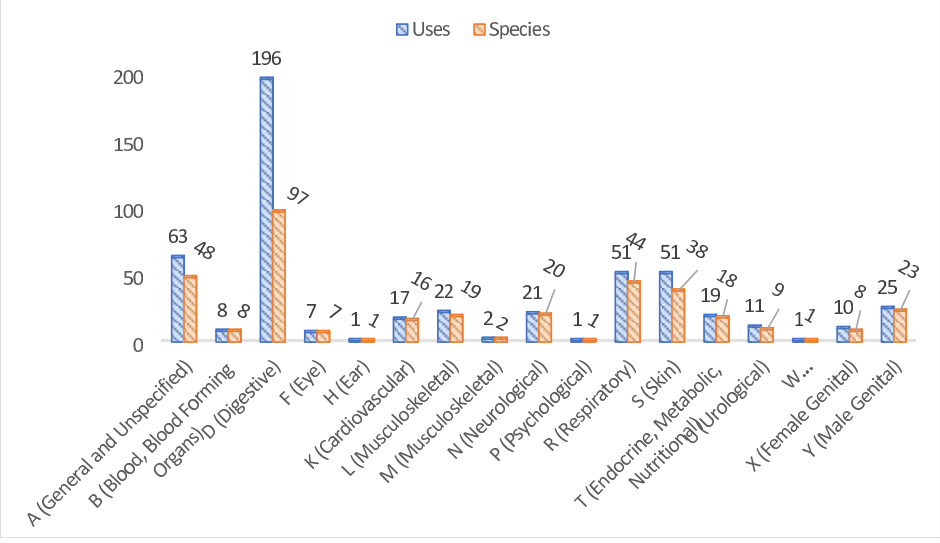

Fig. 6 Uses and species for all condition within each ICPC group

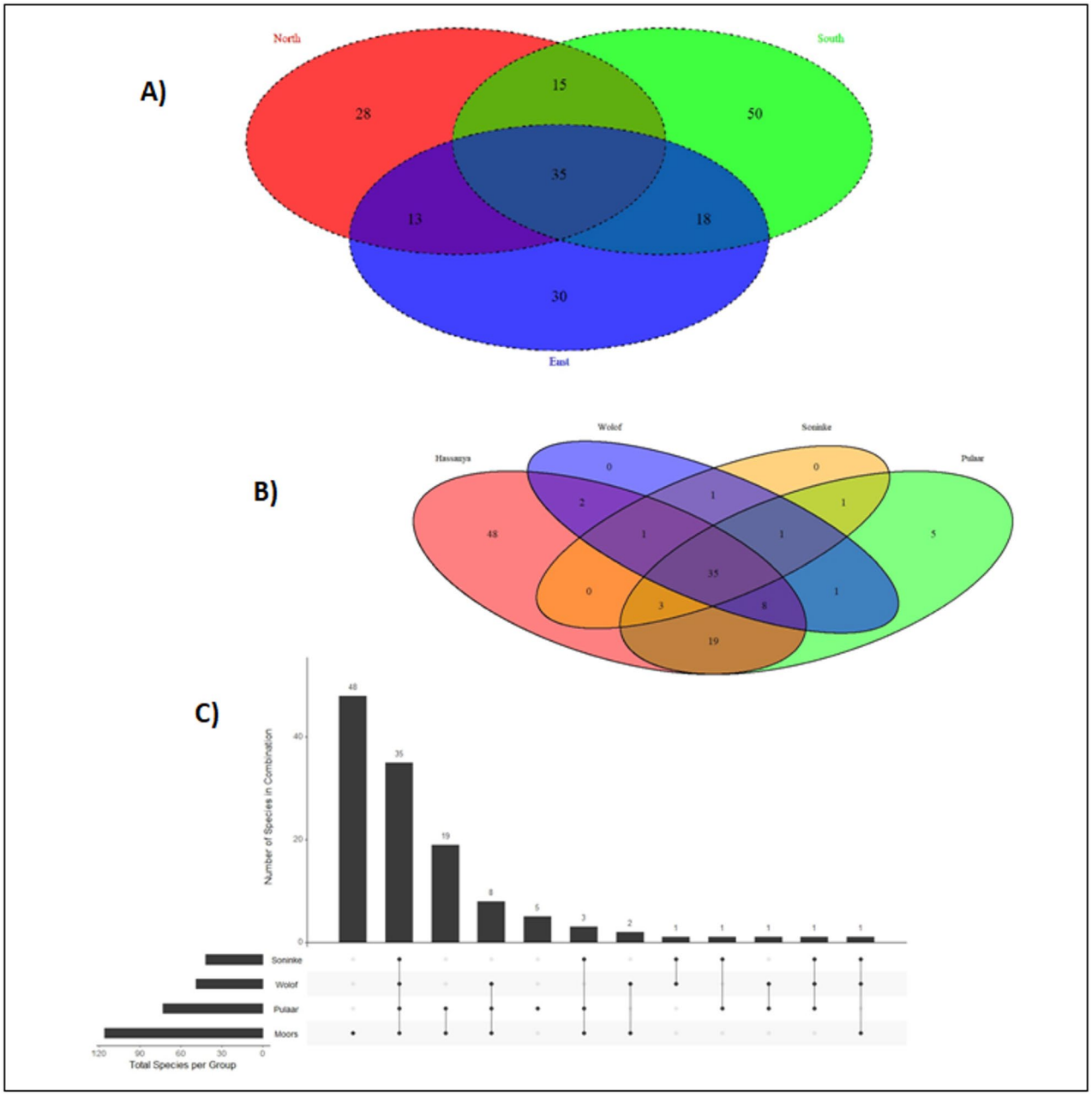

Fig. 7 Cross-cultural analysis of medicinal plant knowledge in Mauritania. (**A**) Venn diagram comparing ethnobotanical uses across regions. (**B**) Venn diagram illustrating overlaps and distinctions in plant knowledge among Moors, Pulaar, Soninké, and Wolof communities. (**C**) UpSet plot showing shared and unique medicinal plant species among the main ethnic groups

showed that the highest level of agreement was observed for gastrointestinal disorders.

As usual, the main ways of preparing remedies are simple, mainly infusion (157 cases; 29.4%), maceration with water (127 cases;23.8%) or decoction (98 cases;18.4%; Table 3). For several uses the original source did not cite the form of preparation (152 N/D, 28.5%), and less than 25% of uses can be prepared in powdered, fresh or other forms.

Cross-cultural and geographical analysis of medicinal plant knowledge in Mauritania

The Venn diagram (Fig. 7A) highlights regional variation in plant use across the North, South, and East. The South records the highest number of unique species [50], reflecting its ecological richness and strong ethnobotanical traditions, while the North and East contribute 28 and 30 unique species, respectively. A core set of 35 species is shared across all three regions, representing a nationally recognized medicinal base. Bilateral overlaps

North–South (15 species), East–South (18 species), and North–East (13 species) point to cultural and ecological exchanges across transitional zones. The North shows the highest ethnomedicinal diversity, with 103 species used to treat 72 ailments, while the South, though documenting slightly fewer plants (78) and ailments [55], demonstrates comparable richness (99 species, 69 ailments).

According to the cross-cultural analysis of medicinal plant knowledge across northern, southern, and eastern Mauritania, ten species emerge as the most widely shared.*Boscia senegalensis* is used in Adrar for heartburn [12] and in Tiris/Inchiri for diabetes [52]. *Balanites aegyptiaca* demonstrates remarkable versatility, being applied in Adrar for abdominal pain, diabetes, and wounds [12], in Trarza for colds and migraine [35, 67], and for constipation [23]. *Maerua crassifolia* is employed in Adrar to treat asthma and toothache [12], and in Tiris/Inchiri for rheumatism [52]. *Senna italica*. is reported from Guidimaka for the treatment of constipation [68]. *Vachellia flava* is used in Adrar for eye pain [12], in Trarza for diarrhea [66], and in Inchiri/Tiris Zemmour for sexual impotence [52]. *Vachellia seyal* is documented in Trarza as a remedy for diabetes [33].*Adansonia digitata* shows wide cultural use. In the eastern region, it is reported for dysentery [34, 63]; in Tiris/Inchiri, for ulcers, diabetes, and rheumatism [52]; in Trarza and Guidimagha, for ulcers, menstrual disorders, and dysentery (70; 68); and in Adrar, for diarrhea, hypertension, and abdominal pain [12, 37]. *Calotropis procera* is also widespread, being used in the east for headache [34], in Adrar for toothache [12], in Nouakchott for abdominal pain [51], and in Inchiri and Trarza for bone and joint pain [52].

Gymnosporia senegalensis is used in Gorgol and Guidimagha for intestinal parasites [69], in the east for tuberculosis [63], and in Adrar for diabetes, abdominal pain, and hepatitis [12]. Finally, *Leptadenia pyrotechnica* shows a broad medicinal range: in the east, it is applied against cancer [67]; in the south, against nausea [23, 66]; in the north, against constipation and jaundice [52]; and in Adrar, for diarrhea and abdominal pain [12].

At the cultural level, however, convergence remains limited (Fig. 7B). The Moors, Pulaar, and Wolof share only five species in common, suggesting that knowledge transmission occurs primarily within, rather than between, ethnic groups. This fragmentation highlights the importance of preserving ethnobotanical knowledge within its cultural and linguistic context, while recognizing the value of intra-national diversity.

The Moors stand out as custodians of an especially rich and diverse medicinal heritage. Their distinctiveness stems from multiple factors: historically, they served as traders and caravan leaders along trans-Saharan routes particularly through hubs such as Chinguetti [12, 34], facilitating knowledge exchange between North Africa, the Mediterranean, and sub-Saharan regions. Their wide geographic distribution across varied habitats further expanded their exposure to diverse plant resources. Moreover, strong oral transmission systems and cohesive social structures enabled the preservation and reinforcement of this knowledge across generations. Together, these dynamics have produced a uniquely rich ethnobotanical tradition among the Moors, setting them apart from other groups in Mauritania.

The UpSet plot (Fig. 7C) shows clear differences in the depth of ethnobotanical knowledge among the main ethnic groups. The Moors possess the richest repertoire, with 48 species used exclusively by them. They also share 35 species with the Pulaar, indicating a substantial overlap likely rooted in historical, cultural, or ecological connections. Although the Pulaar and Wolof have fewer unique species, their medicinal knowledge remains distinct, underscoring the diversity of practices within the country.

At the cultural level, little convergence of knowledge is observed across ethnic boundaries (Fig. 7B–C). Instead, plant use is shaped by fragmentation and cultural specificity: the three major groups—the Moors, Pulaar, and Wolof—share only five species in common. This suggests that knowledge transmission occurs primarily within, rather than between, ethnic or linguistic communities. Such patterns underline the importance of documenting and preserving ethnobotanical knowledge within its cultural context while recognizing intra-national diversity.

Among these groups, the Moors stand out for their extensive and diverse medicinal repertoire. This distinctiveness can be attributed to several interlinked factors. Historically, the Moors served as traders and caravan leaders along trans-Saharan routes, particularly through hubs such as Chinguetti [10, 22], where knowledge from North Africa, the Mediterranean, and sub-Saharan regions was exchanged and assimilated. Their broad geographic distribution across varied habitats further enriched their exposure to plant resources. In addition, strong oral transmission systems and cohesive social structures enabled the preservation and expansion of this knowledge over generations. Collectively, these dynamics produced a uniquely rich ethnobotanical heritage among the Moors, setting them apart from other Mauritanian groups.

The Moors, in particular, stand out for their extensive knowledge and use of medicinal plant species compared to other ethnic groups. This pattern can be attributed to several interrelated factors. Historically, the Moors served as pivotal traders and caravan leaders along trans-Saharan routes, especially through centers such as Chinguetti [12, 34], which facilitated the exchange of knowledge between North Africa, the Mediterranean,

and sub-Saharan regions. This unique position as cultural and economic intermediary enabled them to assimilate, adapt, and expand medical knowledge from diverse sources. Their broad geographic distribution exposed them to a wide range of habitats, further enhancing their plant-use repertoire. In addition, robust oral transmission networks and strong social structures helped preserve and develop this Local Ecological Knowledge (LEK) across generations and vast areas. As a result, the detailed and diverse ethnobotanical heritage of the Moors is a product of their historical mobility, trade, settlement patterns, and active knowledge exchange, setting them apart from other Mauritanian ethnic groups.

It is common for sociocultural factors and scientific limitations to explain cross-cultural variations in the quantity of medicinal plants used. The Soninke and Wolof, for instance, don't seem to utilize as many plant species as the Pulaar or Moors. The lack of published or comprehensively recorded ethnobotanical data for these Mauritanian tribes could be a contributing factor. It is more likely that this underrepresentation is due to problems with field research, language limitations, or the oral character of knowledge transmission in these groups than to a real absence of traditional plant use. Consequently, documented bias may have a greater impact on the seeming variance in plant consumption than actual cultural variations in ethnobotanical activities. We can learn more about the Soninke and Wolof people's plant use traditions if we make more of an effort to connect with them and record their traditional knowledge in a way that is respectful of their culture.

Distribution of plant names across languages

Through the literature review, we documented 267 vernacular names for medicinal plants in Mauritania (Table 3). The majority of these are in Hassaniya Arabic (104 names, presented with English transcriptions in Table 3), reflecting its role as the most widely spoken language in the country [34]. Additional names were recorded in Pulaar (62 names), Wolof (58 names), and Soninke (43 names), indicating the broad linguistic and cultural embedding of ethnobotanical knowledge.

Figure 7 show the distribution of medicinal plant species documented according to their vernacular naming across different linguistic coverage levels. Most species[are recorded under a single local name, all of them in Hassaniya, the language of Arab–Amazigh origin spoken by the Moors, who represent the largest ethnic group in the country. A further 40 species are known in two languages, most commonly Hassaniya and Pulaar, with examples including *Vachellia tortilis* (Talhi in Hassaniya; Cilluk in Pulaar) and Vachelliaseyal (Sadra-beydha in Hassaniya; Bulbi in Pulaar). Some species carry names in Pulaar and Wolof, such as *Lanneaacida* (Tchingoli in Pulaar; Son in Wolof), while others are shared between Hassaniya and Wolof, for instance *Avicennia germinans* (Izen el-Bahr in Hassaniya; Sanar in Wolof). A relatively large number of species are documented in four languages, reflecting their widespread cultural recognition, such as *Sclerocarya birrea* (Dembo in Hassaniya; Eiri in Pulaar; Ber in Wolof; Tumbé in Soninke). In contrast, only 18 species were recorded with names in three languages, and one species (*Desmidorchis retrospiciens*) had no recorded local name.

These patterns highlight the strong relationship between linguistic diversity and ethnobotanical knowledge in Mauritania. While single-language naming indicates that much of the knowledge is deeply rooted within specific communities, multilingual naming reflects cultural exchange and shared traditions across groups. This underscores the importance of comprehensive documentation of vernacular plant names, both to safeguard intangible cultural heritage and to ensure the transmission of knowledge across generations and linguistic communities.

Limitations of the study

The current review makes a significant contribution to advancing our understanding of Mauritania's ethnobotany; however, it is important to acknowledge several inherent limitations. First, the studies considered primarily cover the period from 1950 to 2025. This temporal focus excludes earlier periods and may lead to the omission of valuable traditional knowledge that has been lost over time due to the lack of systematic documentation of oral traditions and historical records. Moreover, the national inventory of medicinal plants remains potentially incomplete, as some data are available only in local Mauritanian languages or transmitted orally. Despite efforts to include publications in multiple languages, both linguistic and historical gaps persist, which may limit the comprehensiveness of this review.

A second limitation concerns the uneven geographical coverage of ethnobotanical research across Mauritania. While certain regions are culturally and biologically rich, they have been insufficiently studied, particularly in the southern and eastern parts of the country. This spatial bias may result in the underrepresentation of specific regional medical practices and knowledge systems. Additionally, the number and type of databases consulted may have constrained the total number of eligible studies retrieved. Major databases often fail to index relevant ethnobotanical information contained in local archives, institutional reports, and grey literature, potentially leading to data omissions.

Finally, this review is largely framed within an ethnobotanical perspective, with limited integration of insights from complementary disciplines such as

ethnopharmacology, phytochemistry, and conservation biology. This lack of interdisciplinary engagement may restrict the depth of understanding regarding the medicinal potential, ecological roles, and conservation status of many plant species. Nevertheless, despite these limitations, this review provides a solid foundation for future scientific research and represents an important step toward preserving Mauritania's rich cultural and biological heritage.

Conclusions

This study represents the first effort to compile and analyze the traditional use of medicinal plants in Mauritania. A total of 506 medicinal uses for 133 species of vascular plants have been compiled from 17 basic works.The 112 different treated conditions are among the 14 groups in the ICPC-2 classification of diseases, showing the wide variety of traditional uses for which the plant resources of the territory have served and continue to serve. As a result of adaptations to the semi-arid and dry climate, leaves, fruits, and barks, are utilized extensively.

Despite possible bias in the number of studies for the southern areas where the ethnicities Pulaar, Soninke and Wolof are more present, Moors use larger numbers of species possibly due to their widespread geographic dispersion, longer history of settled life, and stronger oral transmission networks. The fewer species recorded for the Pulaar, Soninke and Wolofmay be due to a bigger lack of documentation of their traditional knowledge, their smaller occupation area in the country, or limited exposure to different habitats. Cultural, environmental, and historical factors have a role in shaping ethnobotanical knowledge, and filling these gaps requires inclusive research that is both urgent and diverse. In addition, the assessment highlights major areas where ethnobotanical research is lacking, particularly in southern and southeast Mauritania.

This paper concludes by highlighting the importance of medicinal plants in health care systems in Mauritania and by urging researchers, lawmakers, and environmentalists to take action. Unlocking the full potential of Mauritania's ethnobotanical legacy, preserving it for future generations, and integrating it into sustainable healthcare solutions requires bridging the gap between traditional knowledge and current scientific inquiry.

Abbreviations

C	Cultivated
CASP	Critical Appraisal Skills Programme
FC	Frequency of Citation
H	Hassaniya
ICF	Informant Consensus Factor
ICPC-2	International Classification of Primary Care, 2nd edition
N/D	Not determined
P	Pulaar
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
S	Soninké
W	Wild
W	Wolof

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Competing interests

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