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Ethnobotany in Angola: The contribution of late 19th century christian missionaries to the knowledge of medicinal wild plants

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ABSTRACT

Ethnopharmacological relevance: Angola has an extraordinary plant diversity and a great ethnobotanical potential. However, there is a general lack of information about the first botanical explorations in the country and their contribution to the knowledge of the medicinal flora.

Aim of the study: The main aim of this study was to unveil the ethnobotanical legacy of José Maria Antunes and Eugène Dekindt, priests of the first Catholic mission in Huíla (Angola) and shed light on their contribution to the knowledge of medicinal wild plants of the country, including information on the uses, plant parts used, and preparation methods documented in the late 19th century. The findings are discussed considering recent ethnobotanical studies to offer a more comprehensive understanding of the historical and traditional uses of plants in Angola over the last two centuries.

Materials and methods: Based on the information available in manuscripts and on the study of botanical collections preserved in herbaria of Portugal and Angola, we extracted relevant information about the species used in traditional medicine by the rural population of Huíla, the health conditions treated, and the mode of preparation and application.

Results: Our results revealed that Antunes and Dekindt conducted the first ethnobotanical study in Huíla, and documented a large number of medicinal wild plants. From these, we report 191 medicinal species, including 25 endemic and four introduced species, belonging to 56 plant families and 146 genera. Fabaceae family presents the highest richness of medicinal plants (39 taxa), followed by Rubiaceae (13), Asteraceae (10), and Apocynaceae (9). The illnesses reported were classified into 15 different categories, with the highest number of species (49) corresponding to unspecific conditions, such as general pains, chills, and fever. Thirty-seven species were reported for respiratory diseases, 31 for musculoskeletal problems, and 30 for digestive issues. Leaves were the most used plant part for medicinal purposes (84 species). Infusion was the most frequently described preparation method (40 species), followed by maceration (24 species), and powdering (36 species).

Conclusions: The legacy of Antunes and Dekindt's work improves our understanding of Angola's botanical richness and traditional uses of plant resources. Our findings highlight the presence of unique medicinal resources in Angola, especially among endemic species, which hold the potential to improve the quality of life of rural communities. Moreover, our research underscores the lack of knowledge of medicinal species, emphasizing the risk of losing valuable historical information.

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1. Introduction

Angola has an extraordinary diversity of biomes, ecosystems, and species, although this natural richness is poorly documented when compared to other African countries (Huntley, 2017). The plant diversity of Angola is one of the largest in Southern Africa, with approximately 6850 native species and 226 introduced species recognized so far (Goyder and Gonçalves, 2019). Despite the great diversity of Angola vascular flora, studies on medicinal plant species remain scarce. This can be attributed to many factors, including the impact of the civil war (1975–2002) and, more recently, the scarce scientific staff and the absence of technical and financial support from the government (Gonçalves et al., 2019). Some efforts have been conducted to provide information on Angolan useful wild plant species (e.g., Van-Dúnem, 1994; Bossard,1996; Costa, 2012; Göhre et al., 2016; Urso et al., 2016; Heinze et al., 2017; Lautenschläger et al., 2018; Pompermaier et al., 2018; Catarino et al., 2019; Novotna et al., 2020), including recent studies in Huíla province (e.g., Chisingui et al., 2018; Gonçalves et al., 2019; Tchamba and Catarino, 2021; Kissanga et al., 2021; Solazzo et al., 2024); however, knowledge, preservation, and sustainable use of non-timber forest products (e.g. fruit, nuts, bark and fibers, vegetables and bushmeat) are still critically insufficient.

Currently, there is a growing concern about the preservation and perpetuation of ancient ethnobotanical knowledge, which has been passed down only through oral tradition (Taylor et al., 2001; Catarino et al., 2016). As in most African countries, traditional Angolan culture heavily relies on oral transmission, and written records only appeared after the Europeans arrived there. Missionaries were among the first European groups who interacted with local populations, playing a key role as mediators between colonists and local communities (Gifford, 2012).

The earliest documentation of medicinal and edible wild plants in Africa dates to the extensive 19th and early 20th centuries records primarily compiled due to the efforts of Christian missionaries (Calhoun, 2018). In the second half of the 19th century, a particular aspect of European influence in Africa was the establishment of religious missions, mainly Catholic and in the hinterlands, often backed by colonial authorities (Santos and Torrão, 1993). In Angola, the Congregation of the Holy Spirit started its mission in 1866 and founded the Huíla Mission in 1881 supported by the Portuguese crown (Costa, 1970).

Among the first missionaries at Huíla Mission were the priests José Maria Antunes and Eugène Dekindt, who, in addition to their religious functions, were very interested in exploring the local flora. They collected many plant specimens in the region and sent them to European herbaria [COI (University of Coimbra), LISU (University of Lisbon), B (Botanical Museum of Berlin), MPU (University of Montpellier) and P (Natural History Museum of Paris) (Estermann, 1941; Teixeira, 1957)], maintaining correspondence and collaboration with eminent botanists of the time, such as Júlio Henriques (COI) and Henri Hua (P). Specimens with valuable information on the local uses, properties, and names of the plants, offering unique insights into the botanical history of the country and especially the Huíla region, were originally kept by the priests at the Huíla Mission as a 'working herbarium'; later, in 1956, they were entrusted to the Angolan Agricultural Services by the Congregation of the Holy Spirit, in commemoration of the 100th anniversary of José Maria Antunes (Estermann, 1956; Teixeira, 1957; Costa, 1970). These specimens are housed in the LUA herbarium (nowadays Institute of Agricultural Research) in Huambo, Angola, and in LISC herbarium (University of Lisbon). The ethnobotanical information contained in these collections had not been revisited and explored until the present work.

Many people continue to use plants for medicinal purposes and frequently trade them in city markets (Moyo et al., 2015). Such plants play a vital role for those living in rural areas, where access to health facilities is challenging and expensive (Busia, 2005). Under such conditions, a significant part of the rural population still relies on wild plants as remedies against various diseases (Costa, 1970; Bossard, 1996; Huntley and Ferrand, 2019). They also offer a safe way to alleviate poverty and enhance food security (Petrovska, 2012; Madaleno, 2013). Plant-based foods, along with medicines, are extremely valuable resources for rural communities due to their ready availability and affordability (Cunnigham, 2001; Shackleton et al., 2002). Promoting the sustainable use and commercialization of spontaneous plant species could favour alternative livelihoods, supporting local populations while underscoring the importance of preserving and promoting the use of natural resources (Pitso and Lebese, 2014).

The aim of this study is to reveal the ethnobotanical legacy of the first Catholic mission in Huíla and shed light on the contribution of the priests - Antunes and Dekindt - to the knowledge of Angola's wild medicinal plants, including information on the uses, plant parts used, and methods of preparation documented at the end of the 19th century. This historical perspective will highlight the role played by the priests and the Huíla Mission in preserving Angolan traditional medicine, while discussing it according to present ethnobotanical data for a comprehensive understanding of the use and application of plants in Angola.

2. Material and methods

2.1. Study area

The Huíla province, located in the southwest of Angola (Fig. 1A), has 78,179 km^2 and comprises 14 municipalities (Fig. 1B). It is bordered by the provinces of Namibe and Benguela to the West, Cunene to the South, Benguela and Huambo to the North, and Bié and Cuando-Cubango to the East. The estimated population is about 3283 million inhabitants and Lubango, which includes the provincial capital, is the most populated municipality (Instituto Nacional de Estatística, 2016). The local population is multicultural, with many ethnic groups, including the *Nyaneka-Humbi*, *Ovimbundu, Nganguela,* and *Herero*. The *Nyaneka-Nkhumbi* correspond to various subgroups that originally occupied the territories of some municipalities including Lubango, Humpata, Chibia, Gambos, Quipungo, Cacula, and Quilengues (Melo, 2005; Kissanga et al., 2021).

Huíla is part of the great escarpment of southern Africa and comprises five distinct ecoregions: Angolan montane forest-grassland mosaic, Angolan scarp savanna and woodlands, Angolan mopane woodlands, Zambezian *Baikiaea* woodlands, and Angolan miombo woodlands, as defined by Olson et al. (2001). Miombo, *Baikiaea*, and mopane woodlands are the major ecoregions.

Most of the collections and studies conducted by the two priests took place near the Huíla Mission, located approximately 20 km away to the south of Lubango city. The area of this municipality covers about 3140 km^2, with a mean altitude of approximately 1790 m. The climate is predominantly warm temperate, and the region annually experiences two seasons, a dry winter from May to August, and a rainy summer from September to April (Peel et al., 2007; Beck et al., 2018). The average annual temperature strongly varies with altitude, ranging from 18.0 °C in the Jau weather station at an altitude of 1700 m, to 14.6 °C in the Humpata-Zootécnica weather station at an altitude of 2300 m (Huntley, 2019). The municipality comprises five communes: Lubango (São José), Arimba, Hoque, Quilemba, and Huíla.

2.2. Data collection

To review the historical role of Antunes and Dekindt and their contribution to preserving traditional knowledge of medicinal plants in Angola, initial research on their botanical activities and life stories was conducted at the library of the Congregation of the Holy Spirit of Lisbon and in some published studies (e.g. Brásio, 1940; Teixeira, 1957; Costa, 1970; Gonçalves et al., 2019; Tchamba and Catarino, 2021).

Furthermore, a comprehensive study was conducted at the LISC Herbarium (University of Lisbon), where specimens from the 'working herbarium' of Antunes and Dekindt are kept. We found approximately

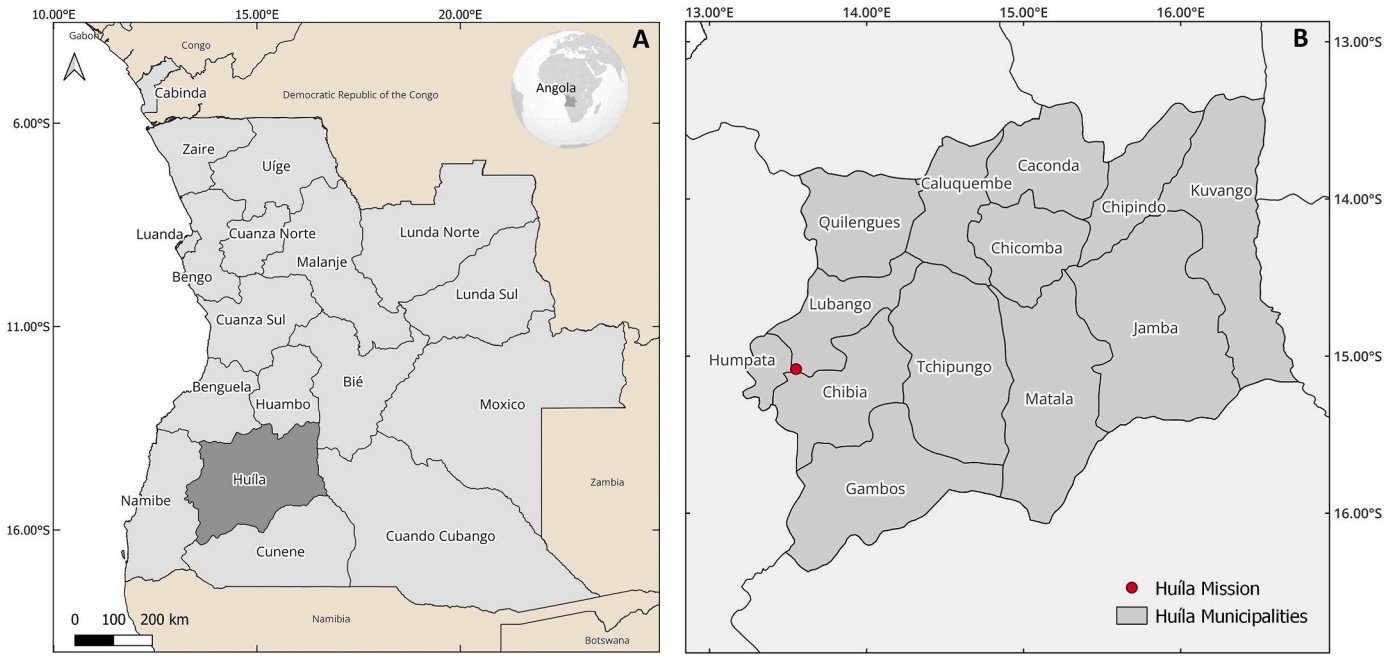

Fig. 1. Map of A) the provinces of Angola; B) the province of Huíla, with the municipalities and the location of the Huíla Mission (15°04′58"S; 13°33′00"E).

2850 herbarium specimens, from which we selected those with available information on the useful properties of the species. Only properly identified specimens were considered. Species described as having one or more useful medicinal properties were analysed, to extract relevant information about the species, the health conditions treated, and the mode of preparation and application. We visited the Herbarium of the Institute of Agricultural Research (LUA) in July 2023, to study further specimens collected by Antunes and Dekindt. However, the information retrieved from this collection was very limited, as most of the specimens were found to be duplicates from those housed in LISC Herbarium.

The species names were updated based on the Plants of the World Online (POWO, 2024) and the native status of the species (i.e., native, native-endemic, or non-native) was verified. The ethnobotanical data recorded for the studied species were further complemented with information from online databases and a literature review (Gossweiler, 1953; Bossard, 1996; Van Wyk and Gericke, 2000; Costa and Pedro, 2013; Göhre et al., 2016; Kissanga, 2016; Bruschi et al., 2017).

The health disorders reported by the priests were classified into illness categories according to the International Classification of Primary Care (ICPC-2) (Wonca International Classification Committee, 2015). The methods of preparation and application were also recorded when available. The methods of preparation were classified into six different categories: (i) poultice (applying crushed or ground plant material to directly treat localized conditions); (ii) infusion (immersing plant materials, usually leaves or flowers, in hot water to extract their active compounds); (iii) decoction (boiling parts of the plant to extract compounds), (iv) maceration (immersing plant materials in a liquid, usually water, at room temperature, facilitating the extraction of compounds); (v) pulverisation (grinding dried plant materials to a powder); and (vi) smoking (burning one or more medicinal plants and applying the resulting fumes or vapours). The mode of application was classified into six categories: (i) ingestion (plants ingested and absorbed through the digestive system); (ii) inhalation (plants inhaled for respiratory or therapeutic effects or applied to the nasal passages); (iii) ophthalmic application (eye drops containing plant extracts); (iv) oral application (placing a medicinal substance in the mouth without swallowing, allowing it to be absorbed through the mucous membranes of the mouth); (v) topical application (plants directly applied to the skin or affected area); (vi) friction (rubbing or massaging specific areas of the body).

The online database Plant Resources of Tropical Africa - PROTA (2024) was consulted to determine whether the species recorded by Antunes and Dekindt are already recognized and documented as medicinal plants in the African continent.

3. Results and discussion

Our study allowed to characterize the pioneering field work performed by the priests Antunes and Dekindt, which can be seen as an early form of ethnobotanical exploration. We reviewed their manuscripts, exsiccates, and particularly their detailed description of the useful properties of the plants they collected and herbarized. This was supported by Dekindt's unpublished manuscript titled *"The diseases and their remedies"* (Fr. J. Mónico, personal communication), which is handwritten and divided into 11 notebooks, totalling about 600 pages. In this manuscript, presumably written in the last years of his life, Dekindt recorded and described the illnesses, the traditional forms of healing and the associated beliefs, as well as the species and parts of the plants used and the methods of utilization, providing descriptions that were as complete as possible. This was based on the knowledge he acquired during a decade in Huíla, and largely supported by the labels of the vouchers collected there.

This valuable information was gathered in the late 19th century from communities surrounding the Missions of Huíla (15°04′58"S; 13°33′00"E) and Munhino (15°01′09.0"S; 13°32′44.0"E). Important details about uses, properties and local names in Nyaneka (N), the predominant ethnolinguistic group in Huíla, and in Vimbanda (V), a kind of exclusive language of traditional medicine practitioners (quibanda or vimbanda, singular and plural respectively) of the plants employed by the local populations were also recorded. This information was meticulously written in a kind of working herbarium sheets kept at the Huíla Mission (Figs. 2 and 3).

3.1. The priests Antunes and Dekindt

3.1.1. José Maria Antunes (1856–1928)

José Maria Antunes (Fig. 2A) was born on May 22, 1856, in São Nicolau, Santarém, Portugal, and died on December 16, 1928, at the age

Fig. 2. A) Priest José Maria Antunes (Painting at the Casa Provincial of Portuguese Province of the Congregation of the Holy Spirit, reproduced with permission); B) Photograph of a representative herbarium specimen collected Antunes and Dekindt, including ethnobotanical information (LISC herbarium).

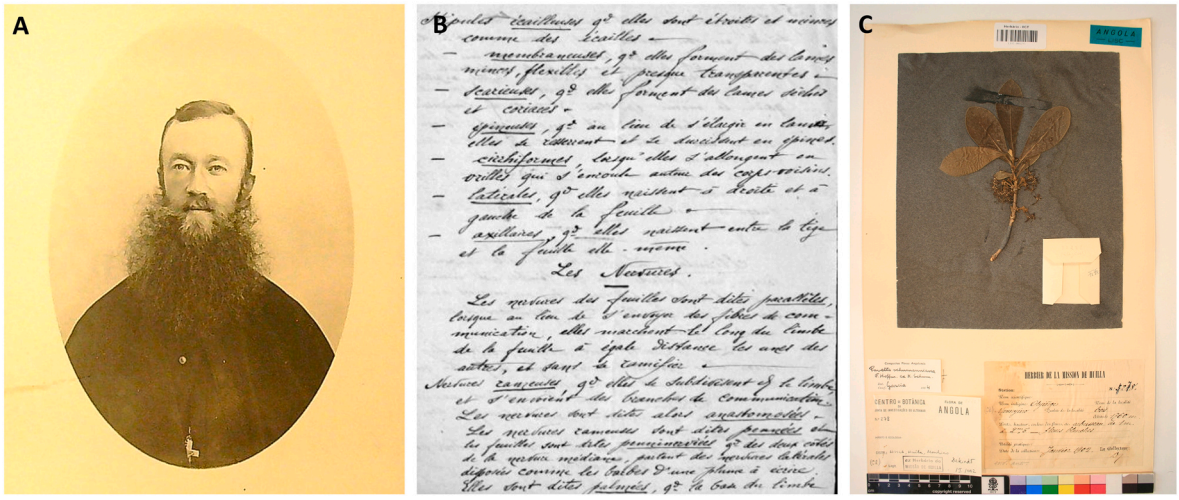

Fig. 3. A) Priest Eugène Dekindt (library of Portuguese Province of the Congregation of the Holy Spirit, reproduced with permission); B) Sample of a page of his manuscript; C) Photograph of a representative herbarium specimen collected by Dekindt, hosted in LISC.

of 72 in Paris, France. In 1868, he entered the Seminary of Congo in Santarém. Over the years, he attended various institutions, including the College of St. Bernard in Gibraltar (in 1871) and studied Philosophy and Theology in Langonet, France (1872–1878), culminating in his ordination as a priest in 1878 (Santana, 1957).

After his ordination, he was sent to Braga (Portugal). He was distinguished for his good spirit, intelligence, and character. In 1881, probably influenced by Priest Charles Duparquet, a profound connoisseur of Southern Africa (Duparquet, 1953), Antunes asked the King of Portugal for permission to establish a mission in southwestern Angola. In 1883, Antunes was admitted as a member of the Geographical Society of Lisbon (Alves, 1966; Anonymous, 2007).

By recommendation of Priest Duparquet, he was named superior of the community of the Huíla Mission, in Angola, and Vicar General of the Chela from 1889. Over the next 11 years in this region, the missionaries of the Holy Spirit, led by Antunes, founded five other Missions: Jau (in 1889), Quihita (in 1893), Gambos (in 1896), Munhino (in 1897), all located in the Huíla province, and the Mission of Tyipelongo, in Humbe, Cunene province (1900). During this period, the Huíla Mission gained unprecedented importance, developing several new areas of activity, such as mechanical workshops, carpentry, printing, and photographic laboratories; agricultural and livestock production also increased. Also, the Sisters of St. Joseph of Cluny settled close to the Huíla Mission, and the Diocesan Seminary was transferred from Luanda to the Mission (Brásio, 1940).

Antunes was not only a devoted missionary but also a naturalist and botanist (Fig. 2B) during his missionary trips. He collected and identified several species, some of which are documented in the "*Conspectus Florae Angolensis*" (Exell and Mendonça, 1956). These collections were formed over approximately 15 years, from 1889 to 1903, during which Antunes meticulously collected, prepared, and studied the flora of some regions of Angola. Due to the challenges of conducting systematic studies in Angola at that time, many specimens he collected were sent to European herbaria and studied by experts, such as Júlio Henriques at Coimbra University and others from the Botanical Museum in Berlin (Teixeira, 1957).

3.1.2. Eugène Dekindt (1865–1905)

Eugène Dekindt (Fig. 3A) was born in Caeskerke, Belgium, on July 21, 1865. He lost his parents very early and grew up in orphanages, including the Alsace orphanage in Thann (France), where he spent the first six years of his life. Despite this challenging life, Dekindt's personal qualities earned him the opportunity to study and teach philosophy at the semi-final level. In 1893, priest Dekindt journeyed to Huíla, where he became professor of the Diocesan Seminary under the care of the Missionary Friends of Huíla, and finally, he was named to take charge of the Munhino Mission (Anonymous, 1906).

In Munhino, Dekindt performed different functions with considerable distinction: while in charge of the native novitiate established in the house of Munhino, directing religious chants, training native auxiliaries, and in-depth studying Bantu culture. He also showed a special talent for singing, and actively worked with indigenous young people, trying to inspire zeal, dedication, and devotion to evangelization, and enhancing the capacity of assistants to help missionaries, catechists, and teachers.

Dekindt was not only a polyglot but also a botanist who left manuscripts and a large collection of herbarium specimens (Fig. 3B and C). One of his most important works was the unpublished manuscript titled "*The diseases and their remedies*" written in the Nyaneka language, with some parts translated into Portuguese and French (P. J. Mónico, pers. comm.). Despite his zeal and persistent dedication to his work, a severe illness compelled Dekindt to return to France in March 1904. He was taken to St. Joseph's Hospital in Paris and submitted to an operation that alleviated his pain, but offered only temporary relief, as the ailment proved incurable. Dekindt underwent a second intervention at St. Joseph's Hospital, but no improvement was obtained. Sent to Portugal in October 1904, he retired to the solitude of Sintra, where he continued to passionately work on his African studies. On September 17, the feast of Our Lady of the Seven Sorrows, he celebrated Holy Mass for the last time. Dekindt died on December 18, 1905 in Lisbon (Anonymous, 1906).

3.2. The herbarium of Huíla Mission

By the end of the 19th century, the region of Huíla remained largely unexplored, and exhaustive collections made by Antunes and Dekindt led to the description of numerous new species. The ethnobotanical studies they conducted were innovative at the time, as there were no prior plant collections associated with records of their use in the region. Their work holds enduring value, given that the identification of the species is still widely accepted today, with only a few names changed. These collections can be regarded as the first successful attempt to record species and their associated uses accompanied by herbarium specimens, in Angola.

In recognition of their contribution to the study of the Angolan flora, many scientific names of native plant species were given in honour to the two priests. Table S1 presents 22 species with names dedicated to Antunes (14 species) and Dekindt (8 species). These species, published between 1893 and 1931, belong to 11 different families, with Fabaceae being the most represented one (9 species); ten of these species are endemic to Angola.

Most of their collection efforts were concentrated in the province of Huíla, particularly near the Catholic Missions, but it is noteworthy that several botanical specimens were also collected in the provinces of Huambo, Bié, Cabinda, Lunda Norte, Malanje, Bengo, and Cunene.

3.3. Diversity of species and their uses

Antunes and Dekindt collected more than 3000 specimens. Among the great diversity of species present in their collection, we identified 191 taxa documented as medicinal plants used in Angola (Table 1). Most of them are native non-endemic (162), but 25 endemic species (13.1%) and 4 introduced species (2.1%) were also reported.

The identified medicinal plants belong to 146 genera and 56 different families. The most reported genera are *Combretum, Crotalaria, Phyllanthus, Rhynchosia*, and *Searsia*, with four taxa each. Among the plant families, Fabaceae presents the highest richness with 39 species, followed by Rubiaceae with 13, Asteraceae with 10, Apocynaceae with nine, and Euphorbiaceae and Lamiaceae with eight species each. These results did not entirely align with the natural richness of the plant families in Angola. Despite Fabaceae being the most represented family in the country, with over 900 native species, as observed in these medicinal plants, it is followed by Poaceae with more than 526 native species, Asteraceae with 463 species, and Rubiaceae with 444 species (Figueiredo et al., 2009). Interestingly, the Poaceae family was not identified among the plants reported as medicinal by Antunes and Dekindt, while Asteraceae presented fewer medicinal species (10) than Rubiaceae (13).

The most reported family, Fabaceae, is the characteristic family of the miombo woodlands, which is the dominant forest component of Angola and one of the major dry forest-savanna biomes of the world (Romeiras et al., 2014). Several legume species plays a crucial role in supporting the livelihoods of people in southern parts of Angola (Dewees et al., 2010; Chisingui et al., 2018) and significantly contribute to meet basic human needs such as food, medicine, timber, and other essential materials (Catarino et al., 2019).

In terms of health conditions, we identified 15 different ICPC categories (Wonca International Classification Committee, 2015) for the medicinal plants reported by Antunes and Dekindt (Fig. 4). The category with the highest number of species (49 in total, including five endemic and one introduced species) corresponds to general and unspecified conditions (A) such as general pains, chills, and fever. Categories related to respiratory (R), musculoskeletal (L), and digestive (D) diseases comprise 37, 31 and 30 species, respectively. Among them, the musculoskeletal category has a high number of endemic species (7 endemics). For skin issues (S), covering ailments like warts, lacerations, and skin infections, 25 species were recorded, including one endemic and one introduced species. For neurological problems (N), including headaches and convulsions, 11 species are indicated, two of them endemic. Eight species (including 1 endemic and 1 introduced) are reported for urological issues (U), which encompass urination problems, kidney, and bladder diseases. The remaining health conditions, i.e., blood and immunological issues (B), eye problems (F), cardiovascular conditions (K), psychological problems (P), endocrine/metabolic and nutritional diseases (T), pregnancy and childbearing issues (W), female genital diseases (X), and male genital diseases (Y), have less than six reported medicinal plants each.

Although medicinal plant species used to treat malaria are very common in other ethnobotanical studies conducted in Angola (Catarino et al., 2019) and in other African countries (e.g., Cabo Verde: Essoh et al., 2023; Guinea-Bissau: Catarino et al., 2016; Mozambique: Ribeiro et al., 2010), we only find one species reported by Antunes and Dekindt. This could be attributed to the relatively low prevalence of malaria in Huíla province, unlike much of Angola's territory, where environmental factors such as precipitation and humidity, temperature, altitude, and land use are the primary determinants of transmission dynamics and malaria incidence (Tavares et al., 2022). However, some of the referenced plants to treat fever may be indirectly related to malaria, as fever is often associated with symptoms of this disease.

Among the studied taxa, three species are noteworthy for their use for three different ICPC categories, namely *Hexalobus monopetalus* and *Strychnos spinosa*, reported for treating unspecified conditions, digestive ailments, and respiratory diseases, and *Ximenia americana*, indicated for unspecified conditions, musculoskeletal disorders, and neurological diseases (Table 1).

In addition to the health conditions treated, most herbarium specimens also provided information on the plant part used, the preparation and the application methods. Leaves are reported as the most used plant part for medicinal purposes, for 84 species of 35 different families (Fig. 5). Use of the whole plant was reported for 35 species; this category, which also comprises taxa with unspecified information, is mainly

Table 1
Species used in Angolan traditional medicine, as recorded by José Maria Antunes and Eugène Dekindt, and their citation as medicinal in PROTA database and in published works on the flora used in traditional medicine in Angola.

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
Acanthaceae										
Phaulopsis johnstonii C.B. Clarke	LISC048144	otyihépe'pe' (N); enkhasa (N)		Ae, Rt	*Contre la toux. Qq soummités en tisane. Raiz contra a hemorragia nasal. (raiz seca e moida).*	R	Infusion, powdering	Ingestion, inhalation		
Amaranthaceae										
Amaranthus graecizans L.	LISC048740	onomboa (N); otyihindé (V)		Rt	*La racine de centre plante mêlée en partie égale avec la racine de l'omuhatyikolo pour la délivrance des méres. Une cuillère des deux poudres réunies, dans une potion.*	W	Powdering	Ingestion	y	
Celosia trigyna L.	LISC048821	otyikerikeri (N); evo (V)		Ae	*En fumigations locales c. l'epistaxis.*	R	Smoke	Inhalation	y	8
Cyathula cylindrica Moq.	LISC048893	oluvu (N); eveta (V)		Fl	*As flores misturado com a raiz de mammona (ricino) freénisst des machoires-gargarisme.*	D	Maceration	Oral	y	
Amaryllidaceae										
Boophone disticha (L.f.) Herb.	LISC062141	ehikihala (N)		Rt	*Le bulbe de cette Buffonia prealabt divisé et bouilli est appliqué sur les jambes euflées.*	L	Decoction	Topical	y	1
Cryptostephanus densiflorus Welw. ex Baker	LISC062231	okaundu (N)		Rt	*La racine est employée comune vomitif.*	D	–	Ingestion		
Cyrtanthus breviflorus Harv.	LISC062235	otyikalahiva (N)		Wp	*Maux dents. Toute la plante en applicationes.*	D	–	Oral		
Anacardiaceae										
Sclerocarya birrea subsp. *caffra* (Sond.) Kokwaro	LISC027401	omuhongo (N); gongo (N)	Edible	Lv	*Febre que produz o fruto da mesma árvore - para tirar esta febre - 2 fuilles composées.*	A	–	Ingestion	y	3, 6
[E] *Searsia angolensis* (Engl.) Moffett	LISC027019	omahola-kandijangi (N); omukalati (N)		Lv	*Contre les accés de toux qui semblent déchirer la poitrine.*	R	–	–		
Searsia kirkii (Oliv.) Moffett	LISC027123	omuhatyikolo (N); omukubendyé (N)		Rt	*Une grande pincée de la racine en poudre dans un verre d'eau tiède, pour la délivrance des méres.*	W	Powdering	Ingestion		
[E] *Searsia obtusata* (Engl.) Moffett	LISC027240	omupomba (N)		Lv	*Feuilles mâchées appliquées sur le front c. les maux de tête. Fleuille d' omunyeme. Même usage (de kihita).*	A, N	Chewing	Topical		
Searsia tenuinervis (Engl.) Moffett	LISC027337	omupombo (N)	Vet	Ae	*Fumo cura omutihi dos bois. omukihi=diarreia de sangue dos bois.*	D	Smoke	Inhalation	y	
Annonaceae										
Annona nana Exell	LISC015933; LISC015930	ombambi (N); maiôlo (N); omuyolo (N); mayolo (N)		Lv	*Vaccine febrifuge, parasiticide. La feuille en poudre décoctée c. la fiévre. Dose: une pincée.*	A, D	Decoction	Ingestion		5, 11

(*continued on next page*)

Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
Hexalobus monopetalus (A. Rich.) Engl. & Diels	LISC016021; LISC016022; LISC016023	omukuma (N); omutengi (N); omunié (N); omona (N)		Tb, Lv	*L'écorce et les feuilles en poudre en aspiration c. les hémorrhagies nasales. La seconde écorce en masticatoire c. le scorbut. Les feuilles en fumigation c. l'hémorragie nasale. Dans le flux dyssenterique 3 pincées de la seconde écorce à l'intérieur - a l'extérieur, la m [a] écorce méleé à celle de l'Ómukuyumbua en fumigations sur l'anus. 2 pincées de la feuille pulv. en potion, c. la fiévre.*	A, D, R	Powdering, smoke	Inhalation	y	
Xylopia tomentosa Exell	LISC016450	omutéhiankunié (N); omupaho (V)		Lv	*Spécifique de la maladie nommé Otyiungulila (qui serre le fond de la gorge et descend à la poutrine) Angine?; une pincée de la feuille dans une potion.*	K	Maceration	Ingestion		11
Apiaceae										
Lefebvrea grantii (Kingston ex Oliv.) S.Droop	LISC032297	ondunda (N)	Edible	Rt	*La racine comestible cura o peito. 2 pincée en potion*	W	Maceration	Ingestion		1, 9
Physotrichia muriculata (Welw. ex Hiern) S.Droop & C.C.Towns.	LISC032318	ondunda (N); omundunda (V)		Lv	*Hoquet - Folhas pisadas com terra de salaloé. 1 gde pincée.*	A	Maceration	Topical		
Pimpinella huillensis Welw. ex Engl.	LISC032352	omupombo (N); omuha (V)		Lv	*Les mains paralysées. As folhas na água quente e aplicar.*	L	Infusion	Topical		1, 9
Apocynaceae										
Cryptolepis oblongifolia (Meisn.) Schltr.	LISC043808	onombinga (N); omulembélembé (V); omuhiho (V)		Rt	*Qq. racines infusées en instillations sur les yeux enflammés. 2 ou 3 racines concassés infusées d'un peu d'eau en instillation contre l'inflammation des yeux.*	F	Infusion	Ophthalmic	y	8, 11
Cynanchum viminale (L.) L.	LISC044348	onondimbo (N); ondimbo (N); ehondo (N)		Sa	*Le suc laiteux de l'Asclepiadée onondimbo épaissi dans la poudre de la feuille d'otyindombo en applications c. les verrues.*	S	Maceration	Topical	y	5
Diplorhynchus condylocarpon (Müll. Arg.) Pichon	LISC042517	omulembélembé' (N); omutopo (N)		Lv	*Une petite pincée de la feuille pulv. administrée comme apéritif aux malades nauyant d'appétit.*	T	Powdering	Ingestion	y	3, 8, 11
Glossostelma cabrae (De Wild.) Goyder	LISC044590	omukahi (N); otyimunyongolo (N); omulondo (V)		Wp	*Pernas em fricção.*	A	–	Topical		
Gomphocarpus fruticosus (L.) W.T.Aiton	LISC044588	onombumbua (N)		Rt	*Le tubercule est employé contre les*	R	–	–	y	

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Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
					douleurs de la poitrine.					
[E] *Gomphocarpus tomentosus* subsp. *frederici* (Hiern) Goyder & Nicholas	LISC043931	omuhomo (N); omulomboki (V)		Lv	*Les feuilles en pâte employées pour frictionner le corps moulu par les fiévres.*	A	Grinding	Topical		
Landolphia parvifolia K. Schum.	LISC042770	omuhungo (N); omungo (N)		Rb	*Un verre rempli de l'écorce de la racine, en poudre, contre l'inflammation de la rate. En plusieurs prises dans un véhicule.*	B	Powdering	Ingestion		
Secamone dewevrei De Wild.	LISC044589	omupameka (N)		Lv	*La paralysie des mains, les feuilles. Aplic chaudes.*	N	–	Topical		
Tacazzea apiculata Oliv.	LISC044400; LISC044401	otyikuyu (N); onondau (V)		Lv	*Contre la pneumonie. Les fuilles pulv., par pincées.*	R	Powdering	–		
Asparagaceae										
[E] *Albuca myogaloides* Welw. ex Baker	Antunes vel Dekindt 70	omukéri (N)		Wp	*Toute la plante contuse en frictions sur le corps. Douleur de la fiévre.*	A	–	Topical		
Asteraceae										
Artemisia afra Jacq. ex Willd.	LISC032915	enthilili (N)		Wp	*Dans la migraine, frictions sur le front et aspirations sur la plante. Durant la fievre, une pincée en potion.*	A, N	Maceration	Ingestion, topical	y	1, 5
[E] *Berkheya welwitschii* O. Hoffm.	LISC033054	omukandula (N); ovi (V)		Lv	*Contre l'oedéme des piede. Les feuilles en cataplasme.*	K	–	Topical		
[E] *Helichrysum benguellense* Hiern	LISC034322			St	*Les sommités en applications sur les gengives atteintes de scorbut.*	D	–	Oral		
Helichrysum subglomeratum Less.	LISC034323	otyifiti (N)		Wp	*Contre le scorbut. Infuser légérement la plante et l'appliquer sur les gengives.*	D	Infusion	Oral		
Hypericophyllum angolense N.E. Br.	LISC034478	omundongi (N)		Wp	*Pernas. Toda a planta. Fricção.*	L	–	Topical		
Macledium poggei (O.Hoffm.) S. Ortiz	LISC037517			Rt	*10 racines en tisane, comme diurétique et contre la Cystite.*	U	Infusion	Ingestion		
Pleiotaxis rugosa O.Hoffm.	LISC037838	tyihongo (N); tyihingo (N)		Rt	*La racine est employée comme amer.*	D	–	Ingestion		4
Roessleria gorterioides (Oliv. & Hiern) Stångb. & Anderb.	LISC034444	otyinkhonkho (N)		Wp	*Tout la plante contre la diarrhé. Dose: deux pincées.*	D	Powdering	Ingestion		
[E] *Senecio brittenianus* Hiern	LISC032753; LISC037952	omuhaina (N); otyinganganthei (N); otyingangantei (V); otyila galandhimba (V)		Wp	*La plant contuse en applications au frictions sur les jambes contre la fatigue de la marchée. Folha. Qd les mains dorment.*	L	Grinding	Topical		
Vernoniastrum latifolium (Steetz) H.Rob.	LISC038545	omunganga (N)	Phyto	Fl, Lv	*2 pincées des sommités (fleurs et feuilles) en tisane contre la fiévre.*	A	Infusion	Ingestion		
Boraginaceae										

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Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
Cordia monoica Roxb.	LISC044568	omutyā (N)	Edible	Fr	*Fruit comestible. Peito-faz tremer todo o corpo. Il serait une maladie contagieuse nominée Elema.*	R	–	Ingestion	y	
Cannabaceae										
Celtis africana Burm.f.	LISC003324; LISC003325	omuthompi (N)		Lv	*5 pincées de la feuille c. les fièvres.*	A	–	–	y	
Capparaceae										
Maerua angolensis DC.	LISC018092	otyohiela (N); omutué-ombau (N)		Lv	*As folhas. Une pincée à l'interieur.*	–	–	–	Y	
Celastraceae										
Gymnosporia senegalensis (Lam.) Loes.	LISC025250; LISC025251	otyipunduka (N); otyirianvanthita (N); omuhinbalo (V)		Lv	*La feuille en topique sur les ulcères. Contre la fièvre. Infusion de qq. feuilles, continuer pendant plusieurs jours.*	A, S	Infusion	Topical, ingestion	y	3
Mystroxylon aethiopicum (Thunb.) Loes.	LISC025360	omungumbei (N); muhiombo (N); omungumbei (N); omumgomé (V)		Rb	*2 pincées de l'écorce de la racine pulv. c. la diarrhée.*	D	Powdering	Ingestion	y	
Loeseneriella africana var. *richardiana* (Cambess.) N. Hallé ex R. Wilczek	LISC025073	ondiangalai (N)		Lv	*Para combater o tremor da febre, tomam uma poção da infusão de quatro folhas.*	A	Infusion	Ingestion	y	
Pleurostylia africana Loes.	LISC001295	omulutua (V)	Edible	Lv	*Peito durante a febre. Folha - 2 pincées.*	A	–	Topical	y	
Combretaceae										
Combretum hereroense Schinz	LISC028931	omuriatamdimba (N); omukungulu (V)		Lv	*Peito: la feuille 2 pincées boisson.*	A	Infusion	Ingestion	y	
Combretum psidioides Welw. subsp. *psidioides*	LISC029351	omupupu (N); omuhondyolo (N); omunthombo (V)		Tb	*1 pincée de l'écorce de l'arbre, en poudre, c. les douleurs à la poitrine, pendant les fiévres. Administrez une potion.*	A	Powdering	Ingestion	y	8
Combretum sericeum G.Don	LISC029215	otyikuho (N); ouambiri (N); uangbiri (N); uanbiri (N); otyipalala (V)	Phyto	Fl	*Contre la purpura hémorragique. La fleur en tisane. La poudre de la fleur en aspiration dans le nez.*	K	Infusion, powdering	Ingestion, inhalation		
Combretum zeyheri Sond.	LISC029531	omuhomdiolo (N); omukaku (V)		Rb	*Contre les crachats rouillés de la pneumonie. 1 gde pincée de l'écorce de la racine.*	R	Infusion	Ingestion	y	3
Terminalia prunioides M.A. Lawson	LISC029846	omuhamo (N); omunthiho (V)		Lv	*Folhas. Reumatismo das pernas para esfregar só.*	L	Powdering	Topical	y	5
Crassulaceae										
Crassula vaginata Eckl. & Zeyh.	LISC028059	eyalu (N); okola iovita (N)		Lv	*C. la folie errante. La feuille écrasée en topique sur le front et le vertex.*	P	Grinding	Topical		
Kalanchoe lanceolata (Forssk.) Pers.	LISC028118	ondiangalai (N)		St	*Contre les rhumatismes. Les sommités en appl. chaudes.*	L	–	–	y	
Cucurbitaceae										

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Table 1 (*continued*)

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Coccinia barteri (Hook.f.) Keay	LISC031403	onteta (N)		Ae	*Hémorrhogie nasale, en infusion. Appl. sur le front et le nez.*	R	Infusion	Topical		
Cucumis hirsutus Sond.	LISC031499	omukalalola (N)		Lv	*C. dor de cabeça, fricções com a folha.*	N	–	Topical	y	
[E] *Zehneria racemosa* Hook. f.	LISC031771	otyinteya (N); otyinvanduela (N); omukata (V)		Wp	*La plant en applications chaudes sur les genoux enflés.*	L	–	Topical		
Dioscoreaceae										
Dioscorea quartiniana A. Rich.	LISC062630	omuhiolé (N); ehilanthohi (N)		Wp	*Peito. Esfrega.*	A	–	Topical	y	
Ebenaceae										
Euclea divinorum Hiern	LISC036032	omunyime (N); munyimi (N);		Lv, Rb	*La feuille sur les blessures et en partic. sur celle de la circoncision. L'écorce de la racine est un laxatif trés doux.*	S, D	–	Ingestion, topical	y	9
Euclea natalensis A.DC.	LISC036082	omutyilombo (N)		Rb	*L'ecorce de la racine en poudre est le purgatif. Des vanuilla. Dose: 10gr. Administré dans de l'eau chaude.*	D	Powdering	Ingestion	y	
Erythroxylaceae										
[E] *Erythroxylum dekindtii* (Engl.) O.E.Schulz	LISC000708	olukoto (N); okunua (V)		Lv, Rt	*As folhas e a raíz sao usadas para combater a febre. 4 ″pincées″ (1 ″pincée″ é equivalente à quantidade que se consegue agarrar entre dois ou três dedos) em poção.*	A	Powdering	Ingestion		
Euphorbiaceae										
Acalypha segetalis Müll.Arg.	LISC052411	otyirantangolo (N)		Wp	*En frictions sur les jambres.*	L	–	Topical		
Croton gratissimus Burch.	LISC053013	omunbango (N); omuhinthala (V)		Lv	*O peito- e a tosse. 2 folhas na água.*	R	Infusion	Ingestion	y	5
[E] *Croton integrifolius* Pax	LISC011593	etu (N)		Lv	*Peito, uma folha com água, sem pisar.*	R	Infusion	–		
Euphorbia inaequilatera Sond.	LISC053541	otyilalavirio (N)		Wp	*En apli. c. rhumatisme de la cheville. Entorse.*	L	Maceration	Topical	y	
[E] *Euphorbia radiifera* L.C. Leach	LISC011574	otyindombuahila (N); omunye' (V)		WP	*Cura as pernas em fricçao com água quente.*	L	Infusion	Topical		
Maprounea africana Müll. Arg.	LISC053965	omuhindi (N); omuhama (V)		Lv	*La feuille reduite en pate en frictions on cataplannes c. le torticolis.*	L	Grinding	Topical	y	7, 8
Shirakiopsis elliptica (Hochst.) Esser	LISC055016	othinkhula (N); bvomukati (N); omuhengala ndongi (N)		Lv	*Les fatigues du poignet et du bras-par suite du travail. Les feuilles échaudées.*	L	Infusion	Topical	y	
Tragia okanyua Pax	LISC011594	okanyua (N); bvokamiua (N)		Rt	*La racine broyée (3 gr) infusée & un verre de Burlungo, employée contre la toux des enfants.*	R	Infusion	Ingestion	y	
Fabaceae										
Albizia coriaria Welw. ex Oliv.	LISC012283	omupapu (N); etakoriombué (N)		Lv	*A folha em poção, pára a micção abundante produzida pelo efeito da aplicação sobre o*	U	Maceration	Ingestion	y	

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Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
					pâncreas da "Etakoriombué" (nome vernáculo).					
Burkea africana Hook.	LISC003267	omukalati (N)	Vet	Rt	*Quando boi comeu otyihéké-casca de raiz d'omukalati uma panela cheia de decoção.*	A	–	Ingestion	y	8, 10
Chamaecrista huillensis (Mendonça & Torre) Lock	LISC011894	omutyihi (N); otyimbangalala (N)		Lv	*1 pincée de la feuille en infusion c. la rétention d'urine. Comme vulnéraire, la feuille en pate sert á frictionner les confusions.*	U, S	Infusion, grinding	Ingestion		10
Colophospermum mopane (J.Kirk ex Benth.) J. Léonard	LISC008613	omutyati (N)		Rt	*Casca da raiz pisada sobre a mordedura ou a chaga*	S	–	Topical	Y	3, 5, 9, 10
Crotalaria abscondita Welw. ex Baker	LISC015173	omuputé (N)		Wp	*Toda a planta demolhada em água quente em aplicação contra "l'enflure" das partes sexuais. Os indígenas chamam a esta doença "onkumbula"*	X, Y	Infusion	Topical		10
Crotalaria amoena Welw. ex Baker	LISC015145	onthumu (N)		Rt	*Diurética; as raízes de Onthumbu e de Ehongo, medidas em partes iguais, reduzidas a pó - uma pitada sobre a retenção da urina (Malongue)*	U	Powdering	Ingestion		9, 10
Crotalaria lachnophora A. Rich.	LISC014100	otyiikuyu (N); omunguyu (N); omutyeketyeke (N)		Wp	*As duas plantas reunidas em fricções para os torcicolos.*	L	–	Topical	y	10
[E] *Crotalaria pittardiana* Torre	LISC012822; LISC012818	omutyeketyeke (N); otyikarimba (N); omundimba (V); ondyahayahilé (V)		Lv	*Fricções quentes contra a curvatura da espinha dorsal. Folhas courbature. 2 pinceés. Potion de 99 (2pinceés-poisons)*	L	–	Topical		10
Desmodium barbatum var. *emirnense* Baker	LISC036741	otyipai (N)		Wp	*Pernas, em fricção.*	L	Grinding	Topical		10
Dichrostachys cinerea (L.) Wight & Arn.	LISC012558	omupangi (N)		Lv	*Les feuilles pilées; maux de tête et torticolis.*	L, N	Grinding	Topical	y	3, 6, 10
Droogmansia megalantha (Taub.) De Wild.	LISC036986: LISC013018	oluti (N)		Rt	*La racine sert de vomitif. 10gr de la racine en poudre, à laquelle ou ajoute un peu de sel.*	D	Powdering	Ingestion		10
Entada goetzei (Harms) S.A. O'Donnell & G. P.Lewis	LISC013018	omungugumbala (N); ekoka (V)		Rb	*Douleur de la poitrine en frictions [Utilizado em fricções para dores peitorais (a casca da raiz)].*	A	Grinding	Topical		10
[E] *Eriosema psilobleparum* Welw. ex Baker f.	LISC013722; LISC013721	ongo (N); otyikukutyisapanda (N); ongopindo (V)	Edible	Rt	*10 racines c. des super purgations dangereuses. Chupam o bolbo.*	D	–	Ingestion		10
Erythrina abyssinica Lam.	LISC037248	omumona mona (N)	Vet	Tb	*Casca da arvore-tosse dos bois - le creux de la main avec du sel.*	R	–	–	y	3, 4, 6, 7, 8, 10, 11
Indigofera antunesiana Harms	LISC037421	–	Phyto	Rt	*Racine amère.*	D	–	Ingestion		10

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Table 1 (*continued*)

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Indigofera charlieriana Schinz	LISC039515	otyondobauka (N)	Vet	Wp	*Sarna. Toda a planta- en friction.*	S	Grinding	Topical		10
Kotschya strigosa (Benth.) Dewit & P.A.Duvign.	LISC039714	otyincopio (N); otuinkopio (V)		Rt, Fl	*Decoction de la racine (á volonté) c. la toux. Tosse- flor sommités- pisar, põem na água morna.*	R	Decoction, infusion	Ingestion		10
Kotschya strobilantha (Welw. ex Baker) Dewit & P.A.Duvign. var. *strobilantha*	LISC039761	omuhetyi (N)		WP	*Elema-para esfregar todo o corpo.*	R	–	Topical		10
Macrotyloma axillare (E. Mey.) Verdc.	LISC039917	ontélékundé (N)		Lv	*Bexiga. Folhas em infusão.*	U	Infusion	Ingestion	Y	
Mucuna stans Welw. ex Baker	LISC040138	hainumata (N)	Vet	St	*Contre la gale des chévres on leur fait une litiére avec les rameaux de cette legumineuse garnie de poils espineux, ce qui les oblige a se gratter et á faire tomber les crôules de la gale.*	S	–	Topical	y	5, 10, 11
Ophrestia unifoliolata (Baker f.) Verdc.	LISC040407	omutena (N)		Lv	*Contre la fiévre. Les feuilles. Cheira, bebe, esfrega.*	A	–	Ingestion, inhalation, topical		
Pericopsis angolensis (Baker) Meeuwen	LISC040431; LISC040430	omupako (N)		Lv	*1 pincée de la feuille contre l'hemorrhagie de la poitrine.*	A	–	–	y	10
Philenoptera nelsii (Schinz) Schrire	LISC040603	omumbongé (N); omulomboki (V)		Lv	*Deux pincées de la feuille pulv. c. les douleurs á la poutrine, dans une potion chaude.*	A	Powdering	Ingestion	y	
Piliostigma thonningii (Schumach.) Milne-Redh.	LISC010169; LISC010172	omatui ongolo (N)	Edible	Rt, Lv, Tb	*Le feuille et l'écorce de l'arbre c. la toux. Em tempos de fome os indígenas comem a raíz.*	R	–	–	y	3
Pterocarpus angolensis DC.	LISC040738; LISC040740	omulilahondé (N); mulilahonde (N); mulilabondé (N)		Sa, Tb	*Le suc rouge de la écorce fourmet in kimo, employé dans la dysenterie. On saupoudre legérement les ulcéres indolents et les mauvaises plaies avec le kimo en poudre pour les purger. (trés douloureux). Diarrhée- Dyssenterie. Casca-3 pincées. Fervidas- pouco.*	D, S	Infusion, powdering	Ingestion, topical	y	3, 8, 10, 11
Pterocarpus lucens subsp. *antunesii* (Taub.) Rojo	LISC040827; LISC040828	omuviu (N); omupondendiamba (V)		Sa, Tb	*Le suc rouge est employé pour guéri les plaies. 1gde pincée de la sous-écorce pulv. en potion la dyssenterie et la diarrhée. La poudre de la sous-écorce sert á sanpoudrer les ulcéres pour les mettroyer. Cette*	D, S	Powdering	Topical	y	10

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Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
					sous-écorce contient un kino semblable á celui du Pterocarpus erinaceus.					
[E] *Rhynchosia dekindtii* Harms	LISC002022	omumboto (N)		Fl	*Les fleurs sont pectorales, 2 gr. en infusion.*	R	Infusion	Ingestion		10
Rhynchosia procurrens (Hiern) K. Schum.	LISC041107; LISC041116	otyingalanganga (N); otuingalanganga (N); onuviviyo iovikatu (N)	Phyto	Rt	*2 racines dans une calebasse de Burlunga pour en jeter la fermentation. Fermentation for ladies use.*	–	Maceration	–		
Rhynchosia resinosa (Hochst. ex A. Rich.) Baker	LISC041135; LISC041136	omuhetyi (N); omeho ombua (N); omuhaama vekuela (N); etakihi (N); etakaki (N); n'dambua (V)		St, Rt	*Contre la toux. 3 pincees des sommités et de la racine dans une potion.*	R	Infusion	Ingestion, topical	y	
Rhynchosia totta var. *fenchelii* Schinz	LISC041167	omangangu (N); omunianiampalo (V)		Wp	*Cabeça, en friction, en aspiration, non friser.*	N	–	Inhalation, topical	y	
Rhynchotropis poggei (Harms) Harms	LISC041192	otyihu (N)		Rt	*Racine diurétique. 10 a 15gr.*	U	–	–		
**Senna occidentalis* (L.) Link	LISC010194	omupanyoka (N)	Phyto	Rt	*Seis raízes trituradas e infundidas durante a noite para a Burlunga e a cistite. Renovar a dose durante 3 dias.*	U	Infusion	Ingestion	y	1, 3, 4, 5, 6, 8, 12
Senna singueana (Delile) Lock	LISC010755	omuhangi (N)	Vet	Fl, Lv	*A flor e a folha esmagadas, em fricçõe sobre a sarna [gale] (Malongue).*	S	Poultice	Topical	y	1, 3, 10
Sesbania macrantha Welw. ex E. Phillips & Hutch.	LISC041308			Lv	*Cabeça - as folhas. Friction.*	N	–	Topical		10
Tephrosia longipes Meisn. var. *longipes*	LISC042023	omumpamena (N); omumbala (V)		Lv	*Poudre de la feuille en frictions sur tout le corps durant paroxysme de la fievre.*	A	Powdering	Topical		
Tylosema fassoglense (Kotschy ex Schweinf.) Torre & Hillc	LISC010797	omangangu (N)		Lv	*As folhas curam a tosse. Podemos misturá-las com as de outra Bauhinia, 'omatui ongolo'.*	R	–	–	y	10
[E] *Vachellia antunesii* (Harms) Kyal. & Boatwr.	LISC011298	omuhaniambunga (N); enthié (V)		Lv	*Les feuilles pulv. en frictions sur de front c. les hermorragies nasales.*	R	Powdering	Topical		10
Vachellia arenaria (Schinz) Kyal. & Boatwr.	LISC011287	muhungé (N)		Rb	*L'écorce de la racine est employée contre les lombries.*	D	–	–	y	10
Vigna unguiculata (L.) Walp.	LISC002062	entélékundé (N); omuhonga (V)		Lv	*La fuille en friction contre les douleurs á la poitrine, pendant les fiévres.*	A	–	Topical	y	10
Gentianaceae										
Exochaenium debile Welw.	LISC046930	omuyohé (N); ekuté (V)	Phyto	Wp	*Utilité pratique: amer. Omkalo nao podem … no joelho esfregar c. água morna.*	L	Infusion	Topical		
Faroa amara Gilg ex Baker	LISC046845	otyinkiri (N)		Ae	*Cura os queixos inchados. Serait-elle tonique. Elle est excessivement amére.*	S	–	–		

(*continued on next page*)

Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
Faroa salutaris Welw.	LISC046851	otykalámeva (N); omuyohe (V)		Ae	*Febre. "Gengiviancée en acne".*	A	–	–		1
Hypericaceae										
Psorospermum febrifugum Spach	LISC019231	omupota (N)	Vet	Lv, Rt	*Les feuilles broyées en application sur la gale ou décocté pâteux de la racine en applications.*	S	Decoction, maceration	Friction	Y	1, 3, 4, 7, 8, 9, 11
Hypoxidaceae										
Hypoxis obtusa Burch. ex Ker Gawl.	LISC062289	otyindindo (N); omukalati (V)		Rt	*Peito. A cebola.*	A	–	–		
Lamiaceae										
[E] *Aeollanthus candelabrum* Briq.	LISC054866	ontumbu (N); omupovi (V)		Lv	*Folha-água quente. Bexiga ½ pincée.*	U	Infusion	Ingestion		
Coleus tenuicaulis Hook.f.	Antunes vel Dekint s.n.	hukahuka (N); omupó (V)		Lv	*Une ½ pincée de la feuille en poudre c. les douleurs de la toux.*	R	Powdering	–		
[E] *Endostemon tubulascens* (Briq.) M.R. Ashby	LISC059681	otyihiti (N); omutopo (V)		Lv	*Peito – em fricção. Folhas.*	–	Grinding	Topical		
Endostemon villosus (Briq.) M.R.Ashby	LISC059654	otyikaloudhymba (N)		Lv	*Constipação do nariz ("espuma"). Cheira folhas.*	D	–	Inhalation		
Haumaniastrum caeruleum (Oliv.) P.A. Duvign. & Plancke	LISC059740	otyiriatadiamba (N)		Wp	*Courbature resultant de porter … toda planta en friction sur le dos et poif.*	L	–	Friction, topical	y	
Haumaniastrum minor (Briq.) A. J.Paton	LISC059771	otyimpuiu (N)		Lv	*Peito. Folha. Une pinceé.*	A	–	–		
Haumaniastrum sericeum (Briq.) A.J.Paton	LISC059811	otyipahu (N)		St	*2 gr de sommités en potion c. l'émotion d'une chute. (cordial?)*	L		Topical		
**Mesosphaerum pectinatum* (L.) Kuntze	LISC059857	etakoriombue' (N); otyikoyankuvi (N)		St	*etak.(peito na febre-2 pincéés.),otyi.(cura o peito-2 pincées sommites pulv.)*	A, R	–	–	y	
Loganiaceae										
Strychnos cocculoides Baker	LISC008779	omulondo (N); omulékéhé (N); omuhahandyna (N); omuhaha (N)	Edible	Rb	*L'ecorce de la racine est un fébrifuge trés énergique. Dose: l' écorce de la racine … réduite en pâte, employée en topiques comme sedatif sur les abcés.*	S	–	Topical	y	5, 8, 11
Strychnos innocua Delile	LISC008757	olutuo (N); omuhombo (N)	HandC	Lv	*Le tronc sert à faire de grandes cuillers pour brasser la bouillie. 4 pincées de la feuille en poudre, sous forme de tisane, c. lésion interne. La feuille en topique sur l'endroit contusionné. Le bois de l'arbuste sert á faire des cuillers.*	A, S	Infusion, powdering	Ingestion, topical	y	
Strychnos spinosa Lam.	LISC044120; LISC044121; LISC044122	omukulangolo (N); omuleke'he' (N); omuhito, makolangolo (N); omukulangolo (N);	Phyto	Tb, Lv, Fr	*Ils emploient l'encre-arbre contre la fiévre paludisme-3 gr par jour. Les indigenes considerent le fruit*	A, D, R	Powdering	Topical, ingestion	y	11

(*continued on next page*)

Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
		omuriambambi (N); omuholo (V); omuhiombo (V)			*comme veneneuse. Douleurs de poitrine, points de cote. 2 pincées de la feuille pulv. En potion. Gorge enplée difficulté d'avaler. La feuille pulv., 2 pincées en potion á l'exterieur, applic. Sur la gorge.*					
Loranthaceae										
Tapinanthus oleifolius (J.C. Wendl.) Danser	LISC051902	otyihambela (N)	Vet	Lv	*Les feuilles écrassées sont appliquées aux boeufs sur l'enflure des genoux. Auparavant on leur incise la peau et on saupoudre l'enflure avec du sel et de la poudre.*	L	Poultice, powdering	Topical		
Lythraceae										
Rotala myriophylloides Welw. ex Hiern	LISC030969	ebongébongé (N)		Wp	*1 pincée de la plante en potion, qd une personne aprés avoir mangé est exposée á vomir.*	D	–	Ingestion		
Malvaceae										
[E] *Grewia cerocarpa* Exell & Mendonça	LISC021455	omuvolé (N); muchululu (V)		Wp	*Mélangé à la poudre que c. les maux de tête.*	N	Powdering	–		
[E] *Grewia cyclopetala* Wawra & Peyr.	LISC021513; LISC021514	omuvolé (N)	Vet	Tb	*L' écorce de l'arbre est un emménagogue qui sert á la delivrance des vaches.*	X	–	–		
Grewia herbacea Hiern	LISC021727	otyikopa (N)	Phyto	Lv	*Deux pincées de la feuille pulv. en potion c/les affections de la poitrine. La racine est un caille-lait.*	R	Powdering	Ingestion		
Hibiscus engleri K. Schum.	LISC020265	omukéma (N)		Lv	*Reumatismo no cheville. Folha en appl.*	L	–	Topical		
Hibiscus rhodanthus Gürke	LISC020140	omuntambeze (N)		Lv	*Rhumatisme l'espine dorsale en friction.*	L	–	Topical		6
[E] *Triumfetta rhodoneura* K. Schum.	LISC000682	omuhatyikolo (N)		Rt	*La racine broyée guérit les blessures.*	S	Poultice	Topical		
Meliaceae										
Ekebergia benguelensis Welw. ex C.DC.	LISC023925	omunthintha (N); omuthinta (N)	Edible	Rt, Fr	*Escorbuto 1 gde. pince à l'intérieur; C. a sarna - raiz en frictions. Fructo comestible.*	D, S	–	Ingestion, topical		6
Menispermaceae										
Cissampelos mucronata A. Rich.	LISC017387	enyati (N)		–	*Amer-racine*	D	–	–	y	2, 3, 5, 6, 11
Moraceae										
Ficus glumosa Delile	LISC055635	omukuyumbua (N)		Tb	*La 2[a] écorce de ce figuier est reduit en poudre et employée en gargarismes et un peu en potion qd on avale avec difficulté.*	R	Powdering	Ingestion, oral	y	

(*continued on next page*)

Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
					Dose: la poudre remplissaut le creux de la main on la délaie de l'eau chaude.					
Ficus pygmaea Welw. ex Hiern	LISC055709	otyikuyu (N)		Fr	*Qq. figues c. la diarrhée.*	D	–	Ingestion		
Myrothamnaceae										
Myrothamnus flabellifolius Welw.	LISC028248	otyengeti (N)		Lv	*Contre la pneumonie. La feuille en tisane. Saveur de bourgeons de sapin.*	R	Infusion	Ingestion	y	1, 5, 9
Myrtaceae										
Eugenia malangensis (O. Hoffm.) Nied.	LISC030235	otyianvantita (N); otyiriambandye (N); omuyoko (V)		Lv	*Contre les maladies de poitrine. Les feuilles.*	R	–	–		
Syzygium benguellense (Welw. ex Hiern) Engl.	LISC030325	omuhombo (N)	Edible	Lv	*C. l'epistaxis. La poudre de la feuille en aspirations.*	R	Powdering	Inhalation		
Ochnaceae										
Ochna afzelii R.Br. ex Oliv.	*Denkint 45*	otyihipai (N); omumbango (N)		Lv	*La feuille reduite en páte appliquée à chaude sur les poumons contre les déchirements de la toux.*	R	Poultice	Topical		4, 8
[E] *Ochna hiernii* (Tiegh.) Exell	*Antunes vel Dekint 1001*	ondyihovi (N)		Lv	*Cura a curcunda-en frictions chaudes.*	L	–	Topical		
Ochna pulchra Hook.	*Denkint 44*	omumbanga (N); omunkhu (N); omundyue (N); omuriatu (V)		Lv	*2 pincées de la feuille contuse contre la fiévre et la courbature. 2 ou 3 fois par jour.*	A	Maceration	Ingestion	y	6, 11
Olacaceae										
Ximenia americana L.	LISC024719	omunpeke (N); omupeke (N); omuthombo (N)	Cosmetict	Fr, Lv	*Contre le stade de froid de la fiévre. Une pincée de la feuille puch., en potion. Contre les contusions, l'huile du fruit, melée avec um peu de la poudre de la feuille. As folhas- ombou- et en frises contre des maux de tete.*	A, L, N	Maceration	Topical	y	2, 3, 5, 8
Ximenia caffra Sond.	LISC024789; LISC024786	epanyéné (N); omuminga (N)	Edible	Rt, Fr	*3 pincées de l'écorce de la racine en poudre contre la fièvre.*	A	Maceration		y	
Orchidaceae										
Cyrtorchis praetermissa Summerh. subsp. *praetermissa*	LISC056396	omuti u'omphunda (N); ohukahuka (V)		Rt	*Aplication quotidienne de la racine c. les verrues.*	S	–	Topical		
Orobanchaceae										
Sopubia ramosa (Hochst.) Hochst.	LISC045839	otyihaina(N); omunianiampala (V)		Wp	*C. les boules dures du cou sur carotides. Toda a planta pisada em fricção.*	B	Poultice	Topical		
Phrymaceae										
Mimulus gracilis R. Br.	LISC045718	omundembue' (N); eholi (V)		Wp	*Pernas em fricção.*	L	–	Topical	y	

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Table 1 (*continued*)

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Phyllanthaceae										
Bridelia micrantha (Hochst.) Baill.	LISC052735	omulenga (N)		Lv	*La feuille est bouillée et le liquide sert en lotions sur les dents creuses. Les feuilles sont aplliquées en topique á l'exterieur. 1 pincée de la feuille en poudre en infusion c. la réteution d'urine.*	D, U	Decoction, powdering	Topical, ingestion	y	8
Bridelia scleroneura subsp. *angolensis* (Müll.Arg.) Radcl.-Sm.	LISC052677	omukuriunku (N); omuvatu (V)		Tb, Fr	*L'écorce de l'arbre et le fruit sont trés-astringents, on peut être mèler avec de rino de l'omuviú pour purifier des ulcéres. Fruit en grappe, semblable au raisin.*	S	–	Topical		5
Flueggea virosa (Roxb. ex Willd.) Royle subsp. *virosa*	LISC055078	omuhetyi (N); omutumbu (N)		Wp, Lv	*Tosse, toda planta. Algumas folhas. Na água um pouco quente.*	R	Infusion	Ingestion	y	
Phyllanthus angolensis Müll. Arg.	LISC054088	omuriatu (N); olukéké (V)		Ae	*La plante amollie dans l'eau tiéde, en applications c. le rhumatisme des geutux (Malongue).*	K	Infusion	Topical		
Phyllanthus microdendron Müll.Arg.	LISC054178	omuhasi (N); omumpumbuti (V)		Ae	*½ pincé de la feuille en poudre en eau chaude c. la toux.*	R	Infusion	Ingestion		
Phyllanthus ovalifolius Forssk.	LISC054205	onoyioi (N); omuhiomunene (V)		Wp	*Cura a febre. Tosse. Doenças todas.*	A	–	–		
Phyllanthus welwitschianus Müll.Arg.	LISC054304	otyindombe' (N); omuilati (V)		Lv	*A folha pisada nas feridas, les épines sont en bois. Dans la toux de la bronchite et de la pneumonie. 2 feuilles infusées dans l'eau chaude.*	S, R	Grinding, infusion	Topical, ingestion		5, 11
Picrodendraceae										
Oldfieldia dactylophylla (Welw. ex Oliv.) J. Léonard	LISC054070	omuipanganga (N)	Vet	Rt	*Une petit pincée de l'écorce de la racine dans une boisson contre le crachement de sang. Même dose contre la fiévre. Deux pincées de l'écorce de la racine aux boeufs phtisiques.*	A	Infusion	Ingestion		11
Pittosporaceae										
Pittosporum viridiflorum Sims	LISC028404	otyingangantei (N); omuhayna (N); omuriankuélé (N)		Wp	*Plante contuse c. la fatigue et maladie des jambes.*	L	Grinding	–	y	
Plumbaginaceae										
Plumbago zeylanica L.	LISC035010	otyihuhuvuzu	Phyto	Lv, Rt	*Les feuilles servent de purgatif, domé en lavement. La racine est vésicante.*	D	–	Ingestion	y	1, 6, 8, 9
Polygalaceae										
Polygala albida Schinz subsp. *albida*	*Dekint 38*	omuhetyi (N); omutumbu (V)		Lv	*Quelques feuilles infuseés dans l'eau chaude contre la toux.*	R	Infusion	Ingestion		
Polygala welwitschii subsp. *pygmaea* (Gürke) Paiva	*Antunes 197*	otyihi (N)		Wp	*Esfregar na cabeça toda planta aspiração sobre pó, em pó. Elema.*	P	Powdering	Inhalation		

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Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
Proteaceae										
Faurea saligna Harv.	LISC050041	omovalahahé (N); omuhahé (N)		Lv	*C. le rhumatisme intercostal. 1 grande pincée des feuilles pulv. de la proteaceae et de l'ombellif reunies.*	R	Powdering	Topical	y	
Ranunculaceae										
Clematis chrysocarpa Welw. ex Oliv.	LISC015694	epeképéké (N); otyiririssa (N)		Rt	*Quando fica maluca. A raiz. 2 pincées. Potion*	P	Maceration	Ingestion		
Clematis simensis Fresen.	LISC015644	ondyi (N)	Vet	Lv	*Les feuilles mâchées c. le scorbut. 3 pincées de la feuille en potion. Dans la dyssenterie des boeufs (Omukihi) une poignée de la feuille à l'intérieur.*	D	Maceration	Ingestion	y	
**Clematis villosa* DC.	LISC015785	otyingangateya (N)	Vet	Lv, Rt	*La feuille en cataplasme guerit la cheville enfleé par suite d'une entorse. La racine pulv. en aspirations c. les hémorrhagies nasales - (purpura hemorrh.). Les feuilles en fumigation a l'interieur, 2 pincées de la racine pulv.*	L, R	Poultice, powdering, smoke	Inhalation, topical		
Ranunculus multifidus Forssk.	LISC015822	ondunda (N); ompiapia (V)		Wp	*Contre les battements du coeur. Toute la plante contuse en applications chaudes sur la poitrine et sur les dos.*	K	Poultice	Topical		
Rhamnaceae										
Rhamnus prinoides L'Hér.	LISC025606	ekomba-nyengo (N); omurianpholankha (N)		Tb	*Émets - cathardique? 3 pincées de l'écorce - arbre.*	D	–	Ingestion	y	
Ziziphus abyssinica Hochst. ex A. Rich.	LISC025630	omukékété (N)		Tb	*L' écorce de l'arbre réduite en pate est appliquée sur les abces sous-maxillaires*	A, D	Poultice	Topical	y	
Ziziphus mucronata Willd.	LISC025703	omutena (N); omungungumbala (V)		Rb	*2 pincées de l'écorce de la racine, en potion, c. les douleurs de la poitrine.*	A	–	–	y	5
Rubiaceae										
Afrocanthium lactescens (Hiern) Lantz	LISC009153; LISC009155;	omuhorihori (N); omuhori-hori (N); omuholiholi (N); omuhoma (V)	Phyto	Lv	*Le liquide de la feuille infusée appliqué sur les yeus enflammés (trés piquant). La feuille pulverisée macerée dans l'eau en instillation sur les yeux enflamés (douloureux). Les feuilles en collyre. Contre-poison du Strychnos (omuhahandya)*	F	Infusion	Ophthalmic, topical		
Hymenodictyon floribundum (Hochst. & Steud.) B.L. Rob.	LISC004386	omuriatymémé (N)		Tb	*Les indi. emploient l'ecorce de cette arbe comme fébrifuge saveur trés amère.*	A	–	Ingestion		9

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Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
Kohautia subverticillata (K.Schum.) Mantell subsp. *subverticillata*	LISC006374	olumite (N)		Lv	*Feuilles sur blessures.*	S	–	Topical		
Leptactina benguelensis (Welw ex Benth. & Hook. f.) R.D.Good	LISC008131	otyingungubala (N)		Lv	*Contre la fievre. Une pincée de la feuille pulv. En potion.*	A	Maceration	Ingestion		8, 11
Oldenlandia echinulosa K. Schum.	LISC006511	olumite (N)		–	*Colocam as flores sobre as feridas.*	S	–	Topical		
Otiophora caerulea (Hiern) Bullock	LISC006124	omuhaina (N)		Rt	*1 pincée de la plante pulv. en potion c. la fiévre. Racine trés sucrée.*	A	Maceration	Ingestion		
Otomeria elatior (A.Rich.) Verdc.	LISC006079; LISC006080	omutianthité (N)		Wp	*Tira o calor da cabeça. 1 pincée de tous la plante.*	N	Maceration	–		
Pavetta radicans Hiern.	LISC041763	okualakasa (N); eyombo (V)		Wp	*Peito. Não se bebe. Ombau.*	A	–	Topical		
Pavetta schumanniana F. Hoffm. ex. Schum.	LISC008280	otyinyé (N); otyiñge (N); otyinge (N)		Lv	*Les quérisseurs emploient la feuille pulvérisée pour quérir des blessures.+s.n.- Hemorrogie de la poitrine. C. le scorbut, les feuilles pulv. en mastigatoire.*	S, T	Powdering	Topical, ingestion	y	5
Psychotria moninensis (Hiern).M.A. Petit	LISC004712	omunomé (N)		Lv	*Febre grande. Infusion des feuilles 2–4 feuilles. Soluços.*	A	Infusion	Ingestion		
Pygmaeothamnus zeyheri (Sond.) Robyns	*Antunes vel Dekint s.n.*	otyindombo (N)		Sa	*Le suc laiteux de l'Asclepiadée onondimbo épaissi dans la poudre de la feuille d'otyindombo en applications c. les verrues."*	S	Powdering	Topical	y	
[E] *Tricalysia griseiflora* var. *benguellensis* (Welw. ex Hiern) Robbr.	LISC005861	omutengualitiko (N)		St	*Les sommités en infusion appliquées c. les rhumatismes.*	L	Infusion	–		
[E] *Vangueria psammophila* (K. Schum.) Lantz	LISC001176	etakoriombua (N)	Edible	Fr, Lv	*Peito-folha. 2Pincée en potion chaude. Tosse e dores de febre.*	A, R	Maceration	Ingestion		
Rutaceae										
Ptaeroxylon obliquum (Thunb) Radlk.	LISC024001	omumbungululu (N); omungai (N)		Rb	*Dans la fiévre-douleur à la poitrine-toux séche 1 petite pincée de l'écorce de la racine, en potion.*	A, R	Maceration	Ingestion	y	5, 9
Vepris nobilis (Delile) Mziray	LISC022814	omupalaua (N)		Wp	*As podadas - ombou curam todo o corpo. En potion; 2 pincées*	A	Maceration	–	y	
Santalaceae										
Osyris lanceolata Hochst. & Steud.	LISC052126	omuhynyinyiki (N); muhynyinyiki (N)		Rt, Lv	*3 a 4gr. de la racine moulue en potion c. les douleurs de la fiévre á la poitrine. Les feuilles sont pilées en topique dans les maux de tête.*	A, N	Poultice, maceration	topical	y	9
Sapindaceae										

(*continued on next page*)

Table 1 (*continued*)

Family and species [a]	Voucher	Vernacular name: N-Nyaneka; V-Vimbanda[b]	Other uses [c]	Parts used [d]	Transcription of uses reported	Illness [e]	Preparation	Application	PROTA [f]	Citations Angola [g]
Cardiospermum corindum L.	LISC026355	onoyivi (N)		Lv	*Olhos - as folhas na água morna - appl. sur les eyes.*	F	Infusion	Ophthalmic	y	
Zanha africana (Radlk.) Exell	LISC026603	omutengula (N)		Lv	*La fuille pulv. sur les blessures récentes.*	S	–	Topical	y	
Sapotaceae										
Manilkara obovata (Sabine & G. Don) J.H. Hemsl.	*Antunes vel Dekint 1097*	omuntyavele (N)		Lv	*Peito- en frictions. Não se bebe.*	A	–	Friction	y	9
Scrophulariaceae										
Hebenstretia angolensis Rolfe	LISC045624	omutyinga (N); omutyinga (V)		St	*Les sommités en friction dans l'ardeur de la fiévre.*	A	–	Friction		
Sladeniaceae										
Ficalhoa laurifolia Hiern	LISC019413	omulenga (N)		Tb	*L'écorce moulue de l'arbre est employée en massage sur les jambes fatiguées par une longue marche.*	L	Grinding	Topical		
Verbenaceae										
**Duranta erecta* L.	LISC048259	omumbulumbumba (N)		Lv	*Cura a sarna. Folha em pó em água.*	S	Powdering	Topical		5
[E] *Stachytarpheta angolensis* Moldenke	LISC048480	omuhoyo (N)	Vet	Wp	*Cura os olhos dos bois. Com toda a planta 5 dias de demolhada em água.*	F	Maceration	Ophthalmic		6
Vitaceae										
Cyphostemma adenopodum (Sprague) Desc.	LISC025975	omutiahé (N); omatui akarimba (V)		Lv	*Contre la maladie onkumbula, probablement la syphilis. La feuille pulvérisée et macérée à froid, est introduite de les voies urinaires. On en saupoudre également les plaies exterieures. On reconnait facilt. cette maladie, dit malongue, a la marche, et à la mauvaise odeur; les hommes la contractent dans le coit impur.*	X, Y	Maceration	Topical		
[E] *Cyphostemma grandistipulatum* (Gilg & M. Brandt) Desc.	LISC026019	erambi (N)		Wp	*Torticolis en appl. (Aplicar no torcicolo).*	L	–	Topical		
Rhoicissus tridentata (L.f.) Wild & R.B. Drumm.	LISC026205; LISC026200	ehalanyinga (N); halanyinga (N); otyikuhé (V)		Lv	*Les feuilles mêlées avec celles de la liliacée otyikuhé employées en applications chaudes contre les douleurs aux jambes.*	L	Infusion	Topical	y	

Notes.

[a] **Family and species:** (E) endemic and (*) introduced species.

[b] **Vernacular name**: N-Nyaneka; V-Vimbanda.

[c] **Other uses:** Edible; Cosmetic; HandC-handcraft; Phyto-phytochemical; Vet-veterinarian.

[d] **Parts used: Ae**-aerial parts; **Fl**-flowers; **Fr**-fruits; **Lv**-leaves**; Rb**-root bark; **Rt**-roots and bulbs; **Sa**-Sap; **St**-stems; **Tb**-trunk bark; **Wp**-whole plant (when the parts of the plant are not specified, we consider the whole plant, together with species in which the use of the entire plant is explicitly mentioned).

[e] **Illness:** The illnesses were classified according to ICPC-2 (Wonca International Classification Committee, 2015): **A-**General and Unspecified (including general pain, chills, fever, malaria, among others); **B**-Blood and Immune system; **D**-Digestive (including vomiting, diarrhoea, teeth/gum/mouth diseases, and others); **F**-Eye; **K**-Cardiovascular (including palpitation, and others); **L**-Musculoskeletal (including muscle pain, rheumatoid arthritis, and others); **N**-Neurological (including headache, convulsion, and others); **P**-Psychological; **R**-Respiratory (including cough, nose bleed, breathing problems, and others)**; S-**Skin (warts, laceration, skin infection,

animal bites and others); **T**-Endocrine/Metabolic and Nutritional (including vitamin deficiency, loss of appetite, and others); **U**-Urological (including urination problems, kidney/bladder symptoms, and others); **W**-Pregnancy, Childbearing, Family planning; **X**-Female genital; **Y**-Male genital.

[f] **PROTA:** Species identified as medicinal in Plant Resources of Tropical Africa (PROTA) database (PROTA, 2024).

[g] **Uses reported in other sources**: [1] Gossweiler (1953); [2] Costa (2012); [3] Costa and Pedro (2013); [4] Göhre et al. (2016); [5] Urso et al. (2016); [6] Heinze et al. (2017); [7] Pompermaier et al. (2018); [8] Lautenschläger et al. (2018); [9] Gonçalves et al. (2019); [10] Catarino et al. (2019); [11] Novotna et al. (2020); [12] Vahekeni et al. (2020).

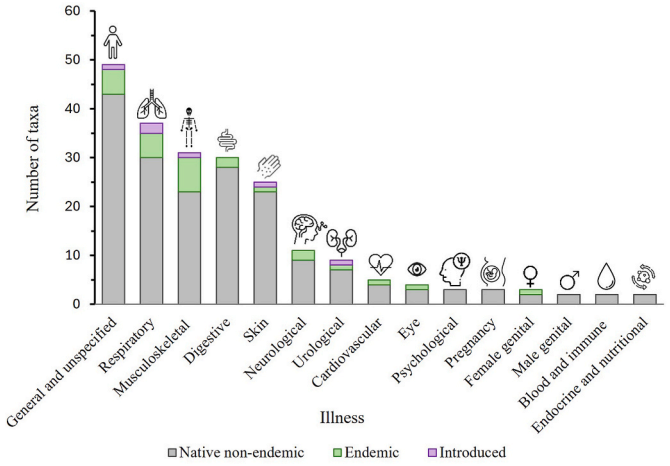

Fig. 4. Number of plant taxa reported by Antunes and Dekindt used to treat each type of health condition. The illness categories are classified accordingly to the ICPC-2 (Wonca International Classification Committee, 2015).

associated with Fabaceae (6), Asteraceae (5), and Euphorbiaceae (3). The use of roots was reported for 36 species, 12 of them belonging to Fabaceae family. Trunk and root barks were also frequently reported, with 14 species (10 families) and 10 species (8 families), respectively. Fruits (e.g., of *Landolphia parvifolia* and *Zanha africana*, Fig. 6), stems and aerial parts were reported for eight species each, while flowers were reported for six species, and sap for four species.

Interestingly, these findings contrast with recent studies (Gonçalves et al., 2019) carried out in the region, which identify roots as the locally most used plant part; roots are also the commonly used plant part in Bié (Novotna et al., 2020). On the other hand, in Cuanza Norte, leaves were also found to be the most used parts (47.5%), followed by roots (24.3%) and bark (11.1%) (Heinze et al., 2017).

Many of the reported leaves are also edible, being commonly used as vegetables and often cooked either alone or combined with other ingredients. For instance, young leaves of *Maerua angolensis,* rich in alkaloids, amino acids, fatty acids, flavonoids, glucosinolates, and steroids (Maroyi, 2020), are utilized in preparing soups and sauces during periods of food scarcity. Leaves of *Piliostigma thonningii* are also ocasionaly eaten and chewed to relieve thirst, while leaves of *Senna singueana* are consumed as a cooked vegetable (Prota, 2024). *Vigna unguiculata*, very rich in protein, lipids, carbohydrates, dietary fibers, minerals, and vitamins (Charrua et al., 2021), is widely consumed for its seeds, but its leaves are also cooked, typically served boiled or fried and eaten with porridge (Prota, 2024). These observations are consistent with a recent study by Kissanga et al. (2021) which confirms the prevalent use of leaves in rural communities.

Regarding the methods of preparation, infusion is the most frequent one (40 species), followed by maceration (34 species), and powdering (36 species) (Table 1). The methods of application are mostly topical (85 species) and by ingestion (70 species). Inhalation of powder or smoke was reported for 11 species, oral application for five, ophthalmic application and friction for four each.

Interestingly, several differences were found in recent studies conducted in other provinces of Angola. In Cuanza Norte, infusion (27%), chewing (13%), and the use as ointment (13%) were the most frequently reported methods of preparation (Heinze et al., 2017). In Uíge province, decoction emerged as the most frequent method of preparation (45%), followed by ointment production (13%), while oral administration is the most reported method (45%) (Lautenschläger et al. (2018).

In addition to medicinal properties, Antunes and Dekindt documented other important uses for 36 species. Among the 191 medicinal species, 11 were reported as edible, 13 for their veterinary applications, and 10 for their phytochemical proprieties.

Our findings highlight the use of wild plant species in the 19th century serving multiple purposes. Some were reported for consumption by humans and animals, either as medicine or food. Certain wild fruits could be consumed directly from the trees or cooked. In other cases, only the leaves were consumed, or the entire plant, as in the case of herbs.

The medicinal properties of some of the reported species have been recently confirmed. For instance, *Strychnos innocua* and *Erythrina abyssinica,* historically used to treat skin issues and respiratory diseases, respectively, have been scientifically recognized for their medicinal properties (e.g., Anywar et al., 2020; Avakoudjo et al., 2020; Aremu and Moyo, 2022; Mollel et al., 2022). Other species, like *Strychnos cocculoides*, remain a very important source of medicine and food, and even an important source of income for rural families. Its fresh fruits are edible and utilized to make jams and jellies. Given their abundance, these fruits are commonly sold along the streets of the cities by people from rural communities (Fatima et al., 2013).

The analysis of information available in the Plant Resources of Tropical Africa (PROTA, 2024) database (Table 1) revealed that only 84 (ca. 44%) of the 191 medicinal species reported by Antunes and Dekindt are currently recognized for their medicinal application in the African continent. Also, the works on Angolan medicinal species published since the mid-20th century (Table 1) refer only a relatively low number of species (74, corresponding to ca. 39%). Costa (2012) focuses on the traditional knowledge of plants in Bengo province and mentions the highest number of species previously reported by Antunes and Dekindt (42 species) (Fig. 7). This study identified over 80 medicinal species, mostly used for gastrointestinal problems (17%), liver disorders (12%), intestinal parasites (10%), and pains (10%). Recently, Gonçalves et al. (2019) reported 38 of the taxa in an ethnobotanical study concerning the life and work of the collector José Maria Daniel (1943–2015); Daniel identified 67 medicinal plants, with the most common therapeutic indications being gastrointestinal problems and skin conditions. In common with Antunes and Dekindt, 37 taxa are identified by Gossweiler (1953) and 28 by Catarino et al. (2019), while less than 20 species are described in each of the other analysed studies (Costa and Pedro, 2013; Göhre et al., 2016; Urso et al., 2016; Heinze et al., 2017; Lautenschläger et al., 2018; Pompermaier et al., 2018; Novotna et al., 2020; Vahekeni et al., 2020).

Senna occidentalis (an introduced species), *Erythrina abyssinica*, and *Psorospermum febrifugum* were the most cited taxa (7 works), followed by *Cissampelos mucronata* (5), and *Colophospermum mopane*, *Plumbago zeylanica*, *Pterocarpus angolensis*, and *Ximenia americana* (4 each); interestingly, of the 25 endemic species reported by Antunes and Dekindt, only five are mentioned in these studies. This underscores the presence of unique medicinal resources in Angola, especially among endemic species. However, it also highlights the lack of studies on these species, and the risk of losing valuable historical information that was generally transmitted through oral tradition.

For instance, *Senna occidentalis*, reported by Antunes and Dekindt for treating cystitis and bladder problems, has been recently documented for a broader range of medicinal applications such as abdominal pain and eye problems (Göhre et al., 2016), snake and scorpion bites, cough,

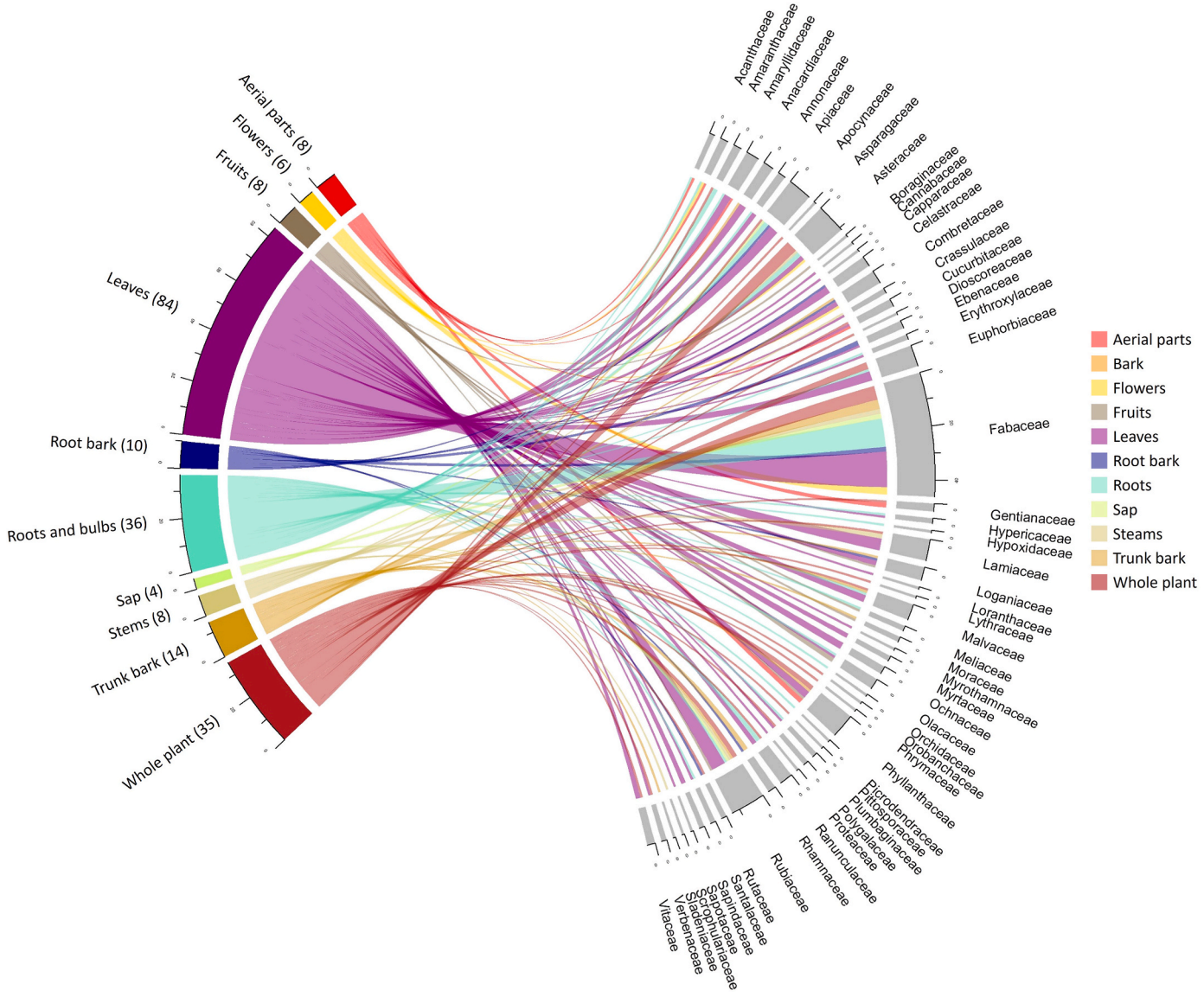

Fig. 5. Plant parts used in traditional medicine reported by Antunes and Dekindt and the corresponding number of species, and their families.

diarrhoea, fever, gonorrhea (Urso et al., 2016), infertility in women, kidney problems, loss of appetite, and respiratory diseases (Lautenschläger et al., 2018). *Erythrina abyssinica*, noted by Antunes and Dekindt for respiratory issues, is currently used for conditions including hepatitis, yellow fever, typhoid fever, infertility (Göhre et al., 2016), pain, mental and neurological disorders, eye problems (Catarino et al., 2019), and constipation (Novotna et al., 2020). *Psorospermum febrifugum*, originally reported for skin problems, is currently recognized for its anti-inflammatory properties (Pompermaier et al., 2018) and used against leprosy, infertility, skin diseases (Göhre et al., 2016), and diarrhoea (Novotna et al., 2020). *Cissampelos mucronata*, which Antunes and Dekindt described for digestive problems, continues to be used for intestinal pains and intestinal parasites (Costa, 2012); furthermore, Urso et al. (2016) noted its use for hemorrhoids and regulating blood pressure, and Novotna et al. (2020) for headaches, epistaxis, cough, postpartum bleeding, and genital dysfunction. *Colophospermum mopane* was traditionally used in Huíla for treating animal bites and wounds. This medicinal application was recently documented by Costa and Pedro (2013), Urso et al. (2016), and Catarino et al. (2019), who also report other conditions such as cough, diarrhoea, stomachache, and toothache. *Plumbago zeylanica*, identified as purgative by Antunes and Dekindt, is currently used to treat fever (Lautenschläger et al., 2018), and *Pterocarpus angolensis*, originally documented for dysentery and skin infections, is now employed for venereal diseases, postpartum bleeding, cough, stomach problems, headaches, menstrual pain, and gonorrhea (Costa and Pedro, 2013; Lautenschläger et al., 2018). *Ximenia americana,* reported for fever, bruises and headaches by Antunes and Dekindt, is currently indicated for cramps (Costa, 2012), malaria and typhoid fever (Costa and Pedro, 2013), snake and scorpion bites, body and hair care, cough, food poisoning, joint pain, measles, otitis, and stomachache (Urso et al., 2016). The evolving applications of medicinal plants in Angola reflect a great diversity in healthcare practices over time and space, emphasizing the importance of research and conservation efforts to safeguard these valuable resources and ensure their sustainable use.

4. Conclusions

Very ancient traditional uses of plants persist among rural Angolan communities, who strongly rely on forest resources for food and medicine, among other essential goods. This study represents the first comprehensive analysis of herbarium specimens and data collected by the priests Antunes and Dekindt in Angola, and particularly in Huíla

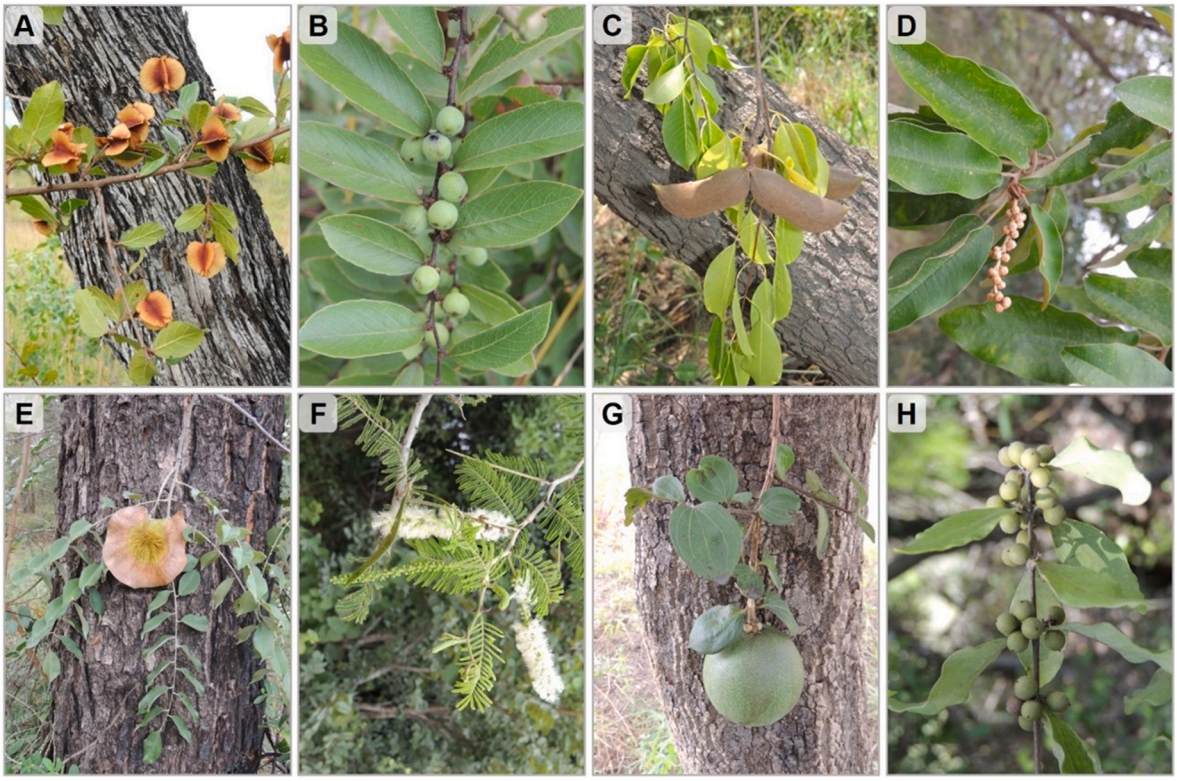

Fig. 6. Leaves, flowers, and fruits of medicinal plants reported by Antunes and Dekindt: (A) *Combretum hereroense*; (B) *Bridelia scleroneura* subsp. *angolensis*; (C) *Diplorhynchus condylocarpon*; (D) *Croton gratissimus*; (E) *Pterocarpus angolensis*; (F) *Dichrostachys cinerea*; (G) *Strychnos cocculoides*; and (H) *Euclea divinorum* (photos by L. Catarino).

Fig. 7. Medicinal taxa documented by Antunes and Dekindt and the number of these taxa published in later studies. The area of the circle is proportional to the number of common taxa.

region (Angola). Their documentation primarily focuses on the richness, diversity and ethnobotanical properties of the plants used by the local populations in the late 19th century.

The medicinal plants are extensively and significantly well represented in their collections, and their properties and efficacy in treating various diseases are specifically documented.

In addition to their medicinal applications, the mentioned plants have other uses that were infrequently mentioned in the priests' works, but are also vital for the rural Angolan population. These include wood, forage, veterinary applications, phytochemical properties, and ornamental uses, all of which are confirmed by available online databases. These additional utilities highlight the multifaceted importance of such species. Some of them exhibit promising properties, which nevertheless require further studies to ascertain their beneficial effects, potential contraindications, and whether current uses align with historical applications, to ensure informed utilization. As pointed by Shackleton et al. (2002) knowledge of the traditional uses, medicinal properties, and the chemical and functional characteristics of useful plants is crucial to promote their biological, cultural, and social values and might contribute to improving the quality of life and food security for rural communities.

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CRediT authorship contribution statement

José João Tchamba: Writing – original draft, Investigation. **Sílvia Catarino:** Writing – original draft, Visualization, Formal analysis. **Maria Cristina Duarte:** Writing – review & editing, Investigation, Data curation. **João M.N. Silva:** Writing – review & editing. **Maria Manuel Romeiras:** Writing – review & editing, Supervision, Data curation. **Luís Catarino:** Writing – review & editing, Supervision, Methodology, Investigation, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

All the data is available in the manuscript and in Supplementary data_Table S1

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jep.2024.118511.

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Glossary

B: Herbarium of the Botanic Garden and Botanical Museum Berlin-Dahlem (Germany)
COI: Herbarium of the University of Coimbra (Portugal)
ICPC-2: International Classification of Primary Care
LISC: Herbarium of the University of Lisbon (Portugal)
LISU: Herbarium of the Natural History and Science Museum of the University of Lisbon (Portugal)
LUA: Herbarium of the Institute of Agricultural Research, Huambo (Angola)
MPU: Herbarium of the University of Montpellier (France)
P: Herbarium of the Natural History Museum of Paris (France)
POWO: Plants of the World Online
PROTA: Plant Resources of Tropical Africa