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Ethnomedicinal study of plants used in the Uvira Territory (Democratic Republic of Congo)

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ABSTRACT

This study aimed to investigate the ethnomedicinal plant knowledge among people living in The Uvira Territory. The data were collected using semi-structured interviews with and field observation in seven villages. The ethnomedicinal data was analyzed using the informant consensus factor (ICF), family importance value (FIV), and Jaccard index (JI). Sixty-nine medicinal plants belonging to 61 genera and 34 families were used to treat eight disease categories. Fabaceae was not only the dominant family but also a family with the high FIV. Decoction and pound were the most common methods of preparation, while leaves were the most used part. We compared this study with 24 other ethnomedicinal studies conducted in RD Congo and neighboring countries, and the results showed that the Jaccard index ranged from 0.57 to 10.94. The highest degree of similarity (10.94) was found with another study conducted in Congo, while the lowest degree of similarity (0.57) was found with a study conducted in Rwanda. The disease category for which there was the highest number of use (66) and plant species (39) was "diseases of the digestive system disorders and intestinal parasites" (ICF 0.42). The investigation of the plants used as drugs in the study area revealed that the population daily relies on medicinal plants to treat different diseases.

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Introduction

The use of plants to treat and cure diseases is as old as the human species (Gurib-Fakim 2006; Oliveira et al. 2011; Arshad et al. 2014), and they are considered essential in human health care (Asadi-samani et al. 2013). Moreover, plants provide firewood, timber, and fodder for livestock. This knowledge evolves across cultures and over time and space (Pieroni and Giusti 2009). Furthermore, each ethnic group has an acquaintance and know-how specific to its historical, cultural, and even spatial environment (Shalukoma 2008), representing an invaluable reservoir of skill and considerable potential for yet undiscovered use of natural resources (Balima et al. 2018).

Approximately 80% of the population in developing countries still rely on medicinal plants (Mugisha and Origa 2005; Mahomoodally 2014). The modern health system is often available only to a restricted number of people. Either the amenity is too expensive, or few facilities are accessible for too many people (Ahmed et al. 2018). For this reason, medicinal plants are still a source of medical care in developing countries (Tabuti et al. 2003).

In D.R. of Congo, 69.6% of the population live in rural areas, and 30.4% live in urban areas (Kabinda et al. 2015). Still, given socio-economic realities which do not allow them to access modern health care, they rely on medicinal plants (Kitadi et al. 2019; Chiribagula et al. 2020).

Although previous studies explored the medicinal plants in Sud-Kivu over the last two decades (Schneider 1996; Chifundera 1998, 2001; Shalukoma 2008; Mangambu et al. 2012; Balagizi et al. 2013; Kasali et al. 2013; Mangambu et al. 2014; Amani et al. 2015; Balagizi et al. 2015; Shalukoma et al. 2015; Mangambu et al. 2015a, 2015b; Shalukoma et al. 2016), little is known about ethnomedicinal research within Uvira Territory. Two studies were carried out in low altitudes of the Uvira Territory: Manya et al. (2020) surveyed anti-malarial herbal of Bukavu and Uvira areas, and Byavu et al. (2000) focused on the ethnoveterinary of cattle. Therefore, implying the assessment of ethnomedicine plants has a great potential to provide essential new insights into the knowledge of some

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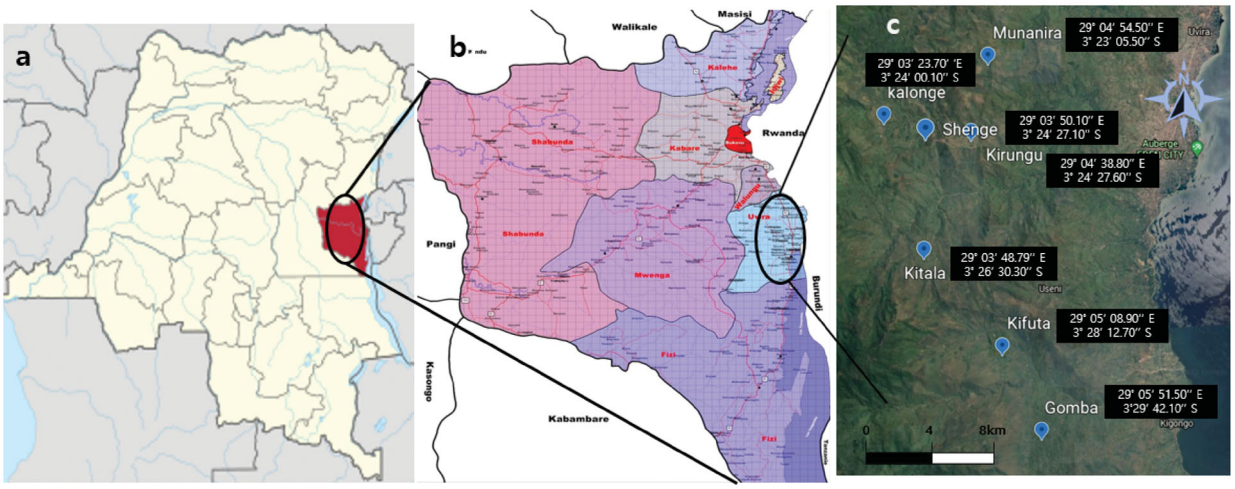


Figure 1. Location of the study area showing (a) the study site in the Democratic Republic of the Congo, a country located in central Africa; (b) the study site of Sud-Kivu province in the Democratic Republic of the Congo; and (c) the study sites in the Uvira Territory.

plant species. Our work investigated the ethnomedicinal plants used by the local people in the Uvira Territory.

Material and methods

Study area

Our ethnomedicinal investigation has been conducted in seven different villages within Uvira Territory: Kirungu, Shenge, Kalonge, Munanira, Kitala, Gomba, and Kifuta (Figure 1). All these villages are located in the middle plateau of the Territory. The altitude of this area ranged between 1334 and 2078 m, with an oceanic climate (Cfb) according to the Koppen climate classification (https://en.climate-data.org). The population largely depends on subsidence agriculture and livestock farming. Farming is based on a rain-fed cropping system, and the main crops of the area are cassava *(Manihot esculanta) and* Corn *(Zea mays).*

Ethnobotanical surveys

During this investigation, 25 traditional healers were interviewed. Information on traditional knowledge related to ethnomedicine was collected through a semi-structured interview conducted in local languages (Fuliiru or Vira) with the help of interpreters. The choice of respondents relied extensively on the professionalization of healers in the communities. An oral agreement was obtained from the participating communities. A survey sheet was submitted to the healers, and the person was asked to give the various diseases that people often consult the healers. The information focused on plants of the recipe, parts used, preparation methods, and administration route. Each time after investigating a traditional healer, a field observation was conducted to collect the specimens. The information for each species, including scientific name, family, local name (Fuliiru or Vira), morphological type, plant parts used, preparation, disease name, and plant habitat, were also collected. The conservation status of plant species was checked in the International Union for Conservation of Nature (IUCN) Red List of Threatened Species (IUCN 2019).

Botanical identification

Voucher specimens of the plants were harvested. The identification of the recognized species was made in the field for the species identified by using some books for spelling and name confirmation (Letouzey 1982; Fischer 1993). Scientific names were updated to currently accepted names according to the plant list (www.theplantlist.org). The collected vouchers were compared with the previously specimens conserved at the herbarium of the Natural Sciences Research Center of Lwiro (CRSN/Lwiro) for the unidentified species, where family and scientific names were confirmed. Voucher specimens were prepared and deposited in the herbarium of the Natural Sciences Research Center of Lwiro.

Quantitative analysis

Various quantitative indices were calculated to test the homogeneity of the collected medicinal plants:

Informant consensus factor (ICF): It was calculated using the following formula (Tilahun and Mirutse 2010; Bakwaye et al. 2013, Mahomoodally 2014):

$$\mathrm{ICF} = \frac{\mathrm{Nur} - \mathrm{Nt}}{\mathrm{Nur} - 1}$$

where Nur is the number of use reports in each disease category and Nt is the number of species used.

Family importance value (FIV): This metric is the number of informants citing the family (FC) divided by the total number of informants participating in the study. It gives the local importance of a family (Kayani et al. 2014):

$$\mathrm{FIV} = \frac{\mathrm{FC\ (family)}}{N} \times 100.$$

Jaccard index (JI): The Jaccard index was used to compare the similarity of named species between our data with studies already published that were

Table 1. Demography profile of the healers interviewed in this study from Uvira Territory, Democratic Republic of Congo.

Background characteristics	Categories	Frequency	%
Gender	Male	23	92
	Female	2	8
Age	21–30	3	12
	31–40	6	24
	41–60	9	36
	>60	7	28

conducted in other parts of the DRC other neighboring countries. This index is based on the presence or absence of species on each list (Molares and Ladio 2009) and was calculated as follows (Faruque et al. 2019):

$$JI = \frac{C \times 100}{A + B + C}$$

where *A* is the recorded number of species of the current study, *B* is the documented number of species of another study, and *C* is the number of species common to both studies.

Results and discussion

Demography profile

A total of 25 healers were interviewed. Out of these, 92% were male, and 8% were female. According to the age of the interviewee, the healers were classified into four groups. The age group of 41_60 was observed to have the highest (36%) participation rate, followed by the healers aged≥ 60 years (28%). The group healers aged between ages 31_40 and 21_30 years corresponded to 24% and 12% of our sampling universe, respectively (Table 1).

Diversity of the ethnomedicinal plants and habitat

Through this study, a total of 74 medicinal plants was inventoried. Of these, 63 were identified down to species level, six were identified only to the genus level (*Cassia* sp, *Hibiscus* sp, *Musa* sp, *Oxalis* sp, *Rubus* sp, *Syzygium* sp), and five plants were not identified. The 69 medicinal plants identified represented 61 genera and 34 botanical families. Forty-five species were harvested from their natural environment, 33 were either fallow or ruderal species, and 12 were cultivated (Figure 2). That is similar to other studies that reported that almost all plants were harvested from nature (Megersa et al. 2013). The recorded plant diversity shows that out of the 69 species, 64 were dicotyledons (93%). Four species were monocotyledons (6%), and one was a Pteridophyte (1%) (Table 2).

Seven families (out of 34) provided 43.5% of the medicinal species. The dominant families were the Fabaceae (eight species), followed by the Asteraceae (six species), Myrtaceae (four species). All the remaining families were either represented by three, two, or one species (Appendix). Our results agree with similar research conducted in the DRC (Ngbolua et al. 2013; Kalonda et al. 2014; Manya et al. 2020; Mbuyi et al. 2019), which reported Fabaceae, Asteraceae, and Euphorbiaceae to be among the dominant families in the treatment of various diseases. The reason for the dominance of these families in medicinal plants could be attributed to their species richness. Fabaceae and Asteraceae are the highest diversified plant families regarding the flora in DRC (Bakwaye et al. 2013), and more than any other plant family worldwide (Islam et al. 2014; Faruque et al. 2019). Similar findings were also observed in the neighboring countries (Kamagaju et al. 2013; Ngezahayo et al. 2015; Tugume et al. 2016; Salinitro et al. 2017).

Almost all genera ($n = 57$) were represented by only one species. Three genera were represented by two species, i.e., *Ficus, Persicaria,* and *Syzygium*. The genus with the highest amount of species was *Albizia,* with three representatives. The investigation on the plant morphological type showed that herbs were the kind of plants most reported for medicinal uses, with 32 species, followed by trees and shrubs (13 species each) and sub-shrubs (11 species) (Figure 3). The frequent use of herbaceous species could result from their relative abundance compared with trees and shrubs (Giday et al. 2010).

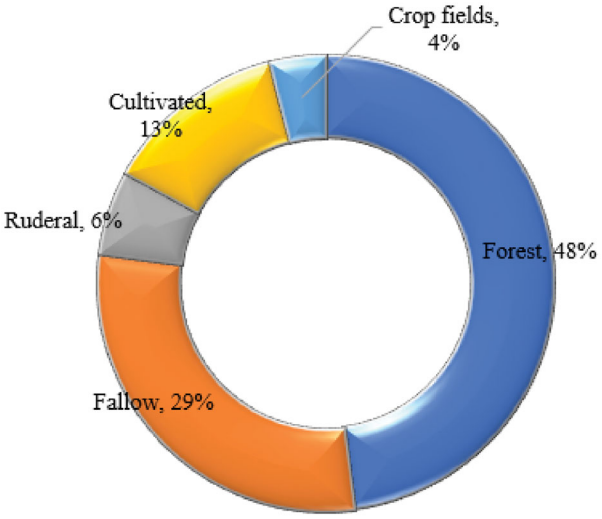


Figure 2. The distribution of species sampled in this study, according to their habitats In U.

Table 2. Diversity of medicinal plants used by the interviewed healers in Uvira Territory, Democratic Republic of Congo.

		Angiosperm		
	Pteridophyte	Dicotyledons	Monocotyledons	Total
Family	1	31	2	34
Genus	1	57	3	61
Species	1	64	4	69

Plant parts used, preparation methods, and administration route

The analysis of the plant parts used as medicine by the healers showed that the leaves were the most commonly utilized plant part in drug preparations,

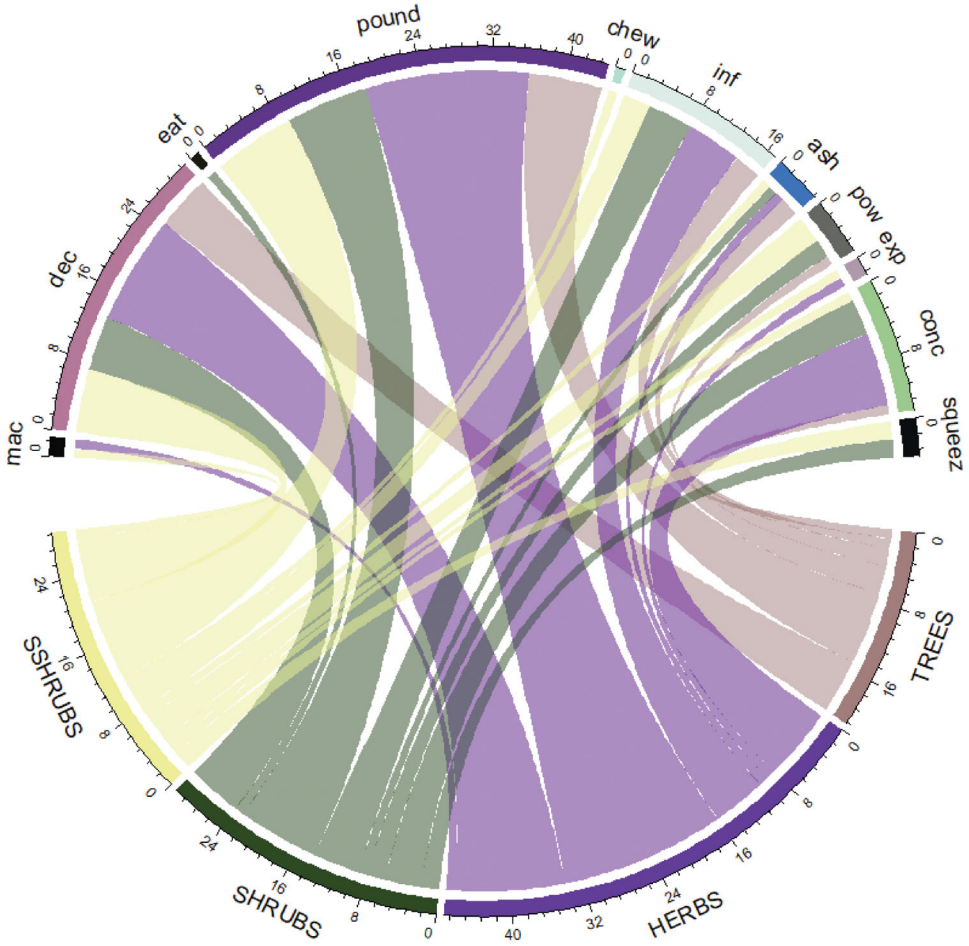


Figure 3. Distribution of medicinal preparation modes by the morphological types of the plants. Eleven parts were used (top half of circle) including (left to right): maceration (mac), decoction (dec), eat, pound, chewing (chew), infusion (inf), ash, powder (pow), expansion (exp), concoction (conc), and squeezing (squeez). Morphological types (bottom half of circle). Scale numbers around the circle indicate cited time.

accounting for 38.9% of the used plant parts. It was followed by the bark of the plants (14.8%), their roots (13.9%), and their stems (13%) (Figure 4). This finding is in line with several studies reported in Congo (Fundiko et al. 2017; Amuri et al. 2018; Masunda et al. 2019) and elsewhere in Africa (Mugisha and Origa 2005; Moshi et al. 2010; Salhi et al. 2010), Asia (Amjad et al. 2015; Panmei et al. 2019), or Europe (Axiotis et al. 2018). The leaves are easier to collect (Faruque et al. 2019). They could contain essential phytochemicals, crude drugs, and many other mixtures valuable in phytotherapy (Amjad et al. 2015). By considering the recipe preparation mode of traditional medicines, reports include decoction, infusion, pound, concoction, maceration, and ash. Among these, the pound was the principal preparation method (34%), followed by decoction. However, other preparation methods, such as maceration, chewing, and squeezing, are used, albeit to a lesser frequency (Figure 3). These findings agree with Inta et al. (2008), who reported that the pound was typical of herbal preparation in the Chinese Akha communities. However, in opposition to other researches, the decoction was the most commonly used method (Lesetsa et al. 2017; Umair et al. 2019).

Most healers suggested taking herbal medicines orally (53%), and the dose ranges from half glass to one glass thrice a day (Figure 4).

Quantitative analysis

ICF, FIV and JI

The documented medicinal plants were utilized to treat 41 different illnesses grouped into nine categories, and the plants were distributed according to the categories (shown in Table 3). "Respiratory and the cardiovascular" were the ones with high ICF value (0.5), followed by the "diseases of the digestive system and intestinal parasites" (ICF 0.42) and "dermatological diseases" (0.22). The mean ICF for all illness categories was 0.19. Among the illness categories, "diseases of digestive system disorders and intestinal parasites" were dominant with 66 use-reports, followed by "dermatological diseases" and the "reproductive system and related disorders" (19 and 16 use-reports, respectively), as shown in Table 3. Approximately 56.5% of plants were used to treat "digestive system disorders and intestinal parasites," followed by "dermatological diseases" (21.7%) and "diseases of the reproductive system and related disorders" (18.8%).

Among the 34 plant families with medicinal uses, all families had the FIV below 0.5. The botanical family with high FIV was Fabaceae with 0.42, followed by Myrtaceae and Asteraceae (0.38, 0.31 respectively). Polygonaceae, Myricaceae, Malvaceae, Lamiaceae, and Euphorbiaceae had 0.19, respectively (Figure 5).

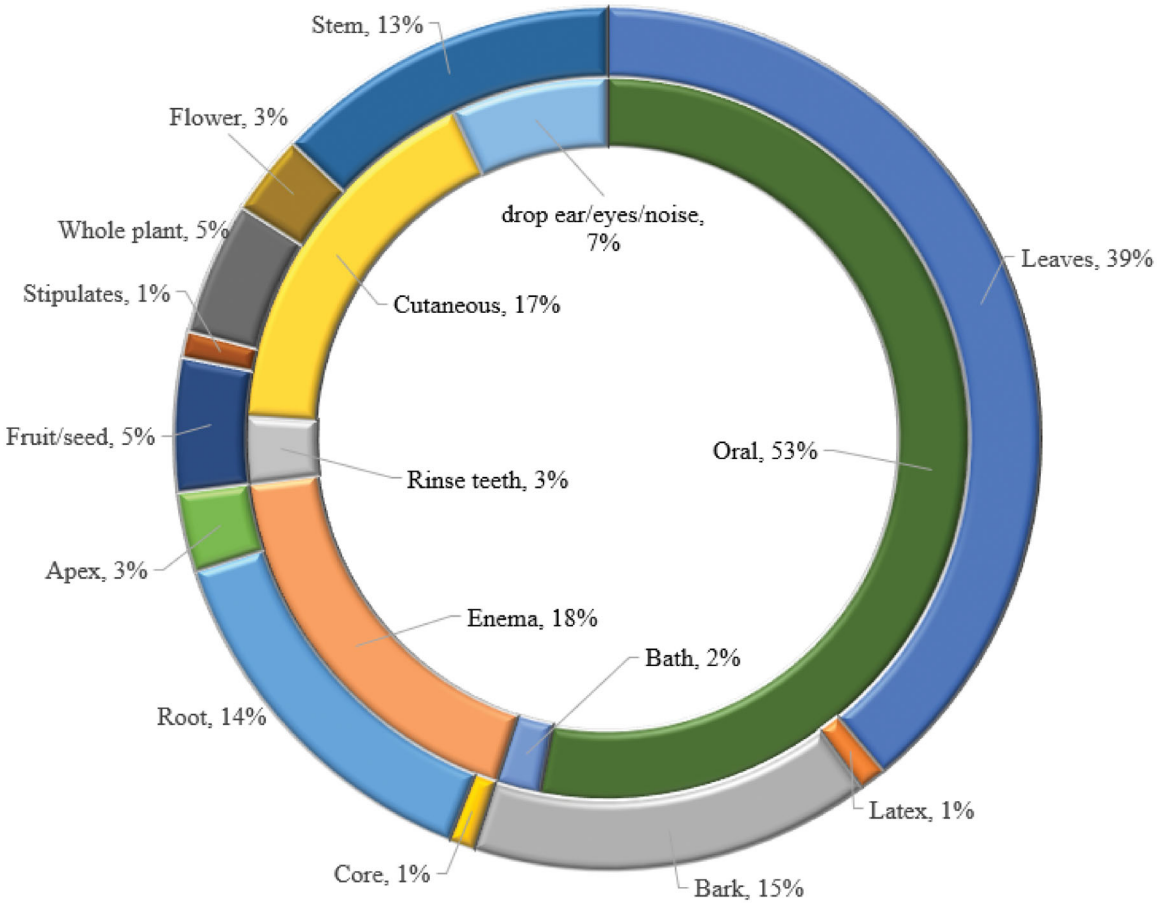


Figure 4. Frequencies of used parts of the plants (outer circles) and administration modes (inner circles) in the Uvira Territory.

Table 3. Informant consensus factor (ICF) by categories of illness in the study area, Uvira Territory, Democratic Republic of Congo.

Illness category	Description of ailments	n_{ur}	n_t	ICF
Diseases of the digestive system and intestinal parasites	Diarrhea, constipation, hernia, hemorrhoids, vomiting, sore throat, stomachache, amebae, tenia, bacillary dysentery, roundworms	66	39	0.42
Malaria and Fever	Malaria and Fever	2	2	0.00
Diseases of the reproductive system and related disorders	Bleeding, sexual impotence, sterility, pregnancy disorder, breasts swelling, abortion, dairy insufficiency	16	13	0.20
Rhumatisme and fracture	Rhumatisme and fracture	5	5	0.00
Respiratory and cardiovascular diseases	Cough, sore throat, hypertension	7	4	0.50
Dermatological diseases	Scabies, wound, pyrosis, furuncle, abscess, mycoses	19	15	0.22
Nervous system diseases	Convulsion, headache, epilepsy, sciatic nerve	7	6	0.17
Ear and eye diseases	Otitis, sore eyes,	5	5	0.00
Others	Poison, evil spirit, Detoxification	6	5	0.20

Nur is the number of use reports in each disease category, and Nt is the number of species used.

In a comparative analysis of medicinal plant use in Uvira Territory within RD Congo and the four neighboring countries, 24 published articles were used. Only 66 species that were identified to species level were considered for the purpose. The high degree of similarity index in the DRC area was with the studies of Shalukoma et al. (2015), Mangambu et al. (2015a), which reached JI values of 10.94, 10.38, Balagizi et al. (2013), and Nyakabwa and Dibaluka (1990), 8.63 respectively, and the lowest similarity index was with Bakwaye et al. (2013) with a JI value of 0.88 (Table 4). Compared with the neighboring countries, the similarity index values between Ngezahayo et al. (2015); Asiimwe et al. (2013) and our area were 8.43 and 7.35. Moreover, the low similarity was with Munyaneza et al. (2006) with JI value of 0.57 (Table 5).

Conservation status

The excessive collection of timber, fuelwood, food plants, and commercial exploitation of medicinal plants has provided a great deal of vulnerability to plant species (Chhetri et al. 2005). The conservation status of all recorded plant species was checked using the International Union for Conservation of Nature (IUCN) Red List of Threatened Species (IUCN 2019). A total of 14 species, namely *Agarista salicifolia* (Lam.) G.Don (Ericaceae), *Albizia adianthifolia* (Schum.) W.Wight (Fabaceae), *Albizia grandibracteata* Taub. (Fabaceae), *Erica arborea* L. (Ericaceae), *Erythrina abyssinica* DC (Fabaceae), *Harungana madagascariensis* Lam. Ex Poir. (Hypericaceae), *Maesa lanceolate* Forssk (Primulaceae), *Myrianthus holstii* Engl. (Urticaceae),

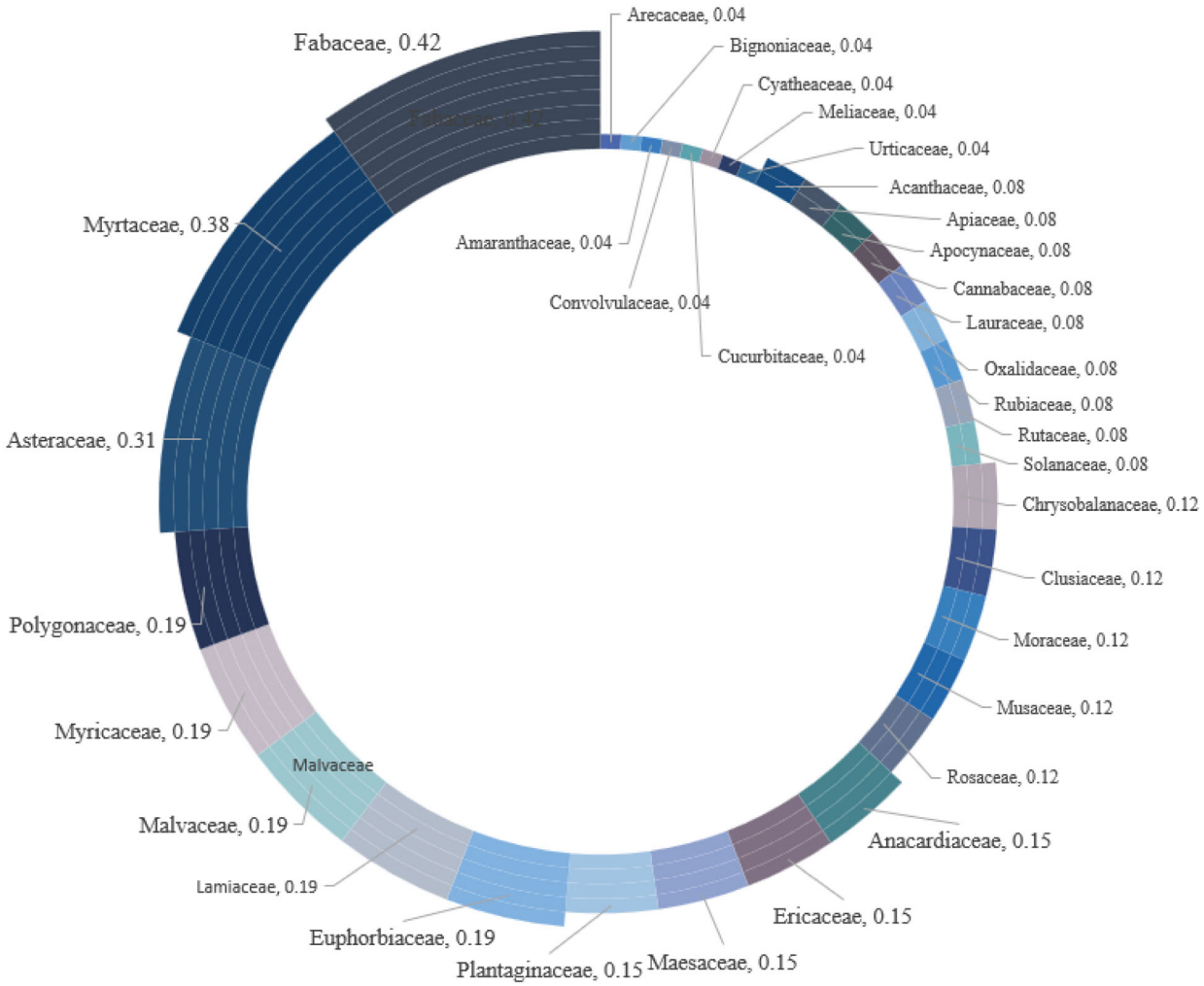


Figure 5. Family importance value (FIV) of medicinal plants in Uvira territory, Democratic Republic of Congo.

Table 4. Comparison between this study and previous studies in D.R of Congo.

Previous study area	Total documented species	Total species in this study	Plants common to both areas	Jaccard index (JI)	References
Mbanza-Ngungu	165	65	2	0.88	Bakwaye et al. (2013)
Kenge	22	65	1	1.16	Ndombe et al. (2016)
Bushi area	170	65	3	1.29	Chifundera (2001)
Kinshasa	49	65	2	1.79	Makumbelo et al. (2008)
Ituri	771	65	16	1.95	Terashima and Ichikawa (2003)
Beni and Lubero	182	65	7	2.92	Kasika et al. (2015)
Dongo	35	65	3	3.09	Mongeke et al. 2018)
Bas- fleuve	25	65	3	3.45	Ngbolua et al. (2013)
Ruzizi valley	85	65	5	3.45	Byavu et al. (2000)
Bukavu and Uvira	45	65	5	4.76	Manya et al. (2020)
Buhozi	86	65	12	8.63	Balagizi et al. (2013)
Kisangani	86	65	12	8.63	Nyakabwa and Dibaluka (1990)
Kauzi-Biega Nat. Parc	52	65	11	10.38	Mangambu et al. (2015a)
Kauzi-Biega Nat. Parc	77	65	14	10.94	Shalukoma et al. (2015)

Psidium guajava L. (Myrtaceae), *Raphia farinifera* (Gaertn.) Hyl (Arecaceae), *Spathodea campanulate* P.Beauv (Bignoniaceae), *Syzygium guineense* (Willd) DC (Myrtaceae), *Tetradenia riparia* (Hochst.)Codd (Lamiaceae), *Trema orientalis* (L.) Blume (Cannabaceae) were recorded in the IUCN list as "Least Concern." In contrast, two species (*Lebrunia bushaie* Benth. (Clusiaceae) and *Khaya anthotheca* (Welw.) C.DC. (Meliaceae)) were recorded as "vulnerable," one species (Mangifera *indica* L. (Anacardiaceae)) was recorded as "data deficient", while others species were not recorded.

Conclusion

This study carried out in the middle plateau of the Uvira Territory revealed the daily used of medicinal plants to cure several diseases. Local people used sixty-nine medicinal plant species to treat 41 various illnesses. Diarrhea, stomachaches, hemorrhoid, and sexual impotence were frequently cited as diseases. The most medicinal plants known by the local people include *Syzygium guineense, Tetradenia riparia, Plantago palmata, Agauria salifolia, Ricinus communis, Myrica salicifolia, Parinari curatellifolia, Erytrina abyssinica, Trema orientalis, Rhus vulgaris, Maessa*

Table 5. Comparison between the present study and previous studies at countries neighboring the Democratic Republic of Congo.

Previous study area	Total documented species	Total species in this study	Plants common to both areas	Jaccard index (JI)	References
Rwanda	112	65	1	0.57	Munyaneza et al. (2006)
Morogoro/ Tanzania	82	65	5	3.52	Amri and Kisangau (2012)
Katabi sub-County/ Uganda	50	65	4	3.60	Nambejja et al. (2019)
Volcanoes national park/ Rwanda	77	65	6	4.41	Nahayo et al. (2010)
Southern Province/ Rwanda	86	65	7	4.86	Mukazayire et al. (2011)
Rwanda	28	65	5	5.68	Kamagaju et al. (2013)
Mabira central forest reserve/Uganda	190	65	14	5.81	Tugume et al. (2016)
Sango bat area/ Uganda	186	65	16	6.81	Ssegawa and Kasenene (2007)
Mbarara and Isingiro/ Uganda	81	65	10	7.35	Asiimwe et al. (2013)
Bujumbura/Burundi	115	65	14	8.43	Ngezahayo et al. (2015)

lanceolata, et Harungana madagascariensis. Some plants have been studied in vitro by Congolese scientists, and their phytochemical compounds illustrated. However, many still lack phytochemical information.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix: List of medicinal plant species reported in Uvira Territory, Democratic Republic of Congo

FAMILY/ species names	Local name	Illnesses	Preparation mode	Administration
ACANTHACEAE				
Brillantaisia cicatricosa Lindau	Kinalwishi	Candidiasis	Inf, pound	Enema
Rungia grandis T.Anderson	NR	Sciatic nerve	Ash	Cutaneous
AMARANTHACEAE				
Dysphania ambrosioides (L.) Mosyakin & Clemants	Mugunduzimu	Child convulsion	Dec	Vapor bath
ANACARDIACEAE				
Mangifera indica L.	Mwembe	Stomachache	Dec, pound	Bath
Searsia pyroides (Burch.) Moffett	Kaguguna	Diarrhea, hernia	Dec, pound, powder	Oral, anoint to epidermis
APIACEAE				
Agrocharis incognita (C. Norman) Heywood & Jury	Majimato	Pregnancy discomfort	Dec	Oral
Steganotaenia araliacea Hochst.	Kafokoba	Stomachache, constipation	Dec	Enema
APOCYNACEAE				
Plumeria alba L.	Namalimbwe	Otitis	Pound	Oral
Wrightia demartiniana Chiov.	Ngafukamwa	Dairy insufficiency	Inf, pound	Oral
ARECACEAE				
Raphia farinifera (Gaertn.) Hyl.	Bubondo	Abortion	Inf, pound	Oral, enema
ASTERACEAE				
Acmella caulirhiza Del.	Kenda	Toothaches	Dec, pound	Rinse teeth
Ageratum conyzoides L.	NR	Sterility	Inf, pound	Oral
Guizotia scabra (Vis.) Chiov.	Namuhehe	Candidiasis	Dec, conc	Oral,
Dichrocephala integrifolia (L.f.) Kuntze	Kitunda mbuga	Stomachache, diarrhea, cow sore eyes	Dec, exp, pound	Oral, nasal, enema
Vernonia amygdalina Delile	Kibirizi	Stomachache	Inf, pound	Oral
Crassocephalum vitellinum (Benth.) S. Moore	Chichununu, Shununu	Stomachache, panaris, sterility	Dec, conc, pound	Oral, cutaneous, enema
BIGNONIACEAE				
Spathodea campanulata P.Beauv.	Mujangalubiro	Sexual impotence	Dec, pound	Oral
CANNABACEAE				
Trema orientalis (L.) Blume	Muhefu	Child convulsion, fracture, stomachaches	Conc, pound	Oral, enema, cutaneous
CHRYSOBALANACEAE				
Parinari curatellifolia Planch. ex Benth.	Mukumu	Stomachache, diarrhea	Inf, pound	Oral
CLUSIACEAE				
Lebrunia bushaie Staner	Igaja	Epilepsy	Ash	Oral, cutaneous
CONVOLVULACEAE				
Ipomoea batatas (L.) Lam.	Bijumbu	Stomachache	Dec, conc	Oral, enema
CUCURBITACEAE				
Mukia maderaspatana (L.) M.Roem.	Mugandaganda	Scabies	Mac	Oral
CYATHEACEAE				
Cyathea manniana Hook.	Kisembekele, Kishemba nyambwe	Diarrhea	Dec	Oral
ERICACEAE				
Agarista salicifolia (Lam.) G.Don	Kafiri, kijojo	Stomachache, scabies, sterility	Dec, inf, pound, squeezing, powder	Oral, enema, cutaneous
Erica arborea L.	Kishasha	Diarrhea	Dec	Oral, enema, powder in ear
EUPHORBIACEAE				
Tragia brevipes Pax	Mashusha	Vomiting	Inf, pound	Oral
Euphorbia hirta L.	NR	Ameba	Dec	Oral
Ricinus communis L.	Magaja	Detoxication, scabies, ameba	Conc, pound	Oral
FABACEAE				
Arachis hypogaea L.	Kalanga	Detoxication, sexual problem	Conc	Oral
cassia sp	Kavisa	Malaria	Dec	Enema
Cassia abbreviata Oliv.	Kawewe	Stomachache	Dec, pound	Oral
Albizia adianthifolia	Kashebeye	Otitis	Pound	Drop in ear
Albizia grandibracteata Taub.	Kashebeye	Rheumatism	Nr	Cutaneous
Albizia gummifera (J.F.Gmel.) C.A.Sm.	Kashebeye	Ameba	Dec	Oral
Mimosa pudica L.	Kopa	Evil spirits	Inf, pound	Cutaneous
Erythrina abyssinica DC.	Kigohwa	Diarrhea, candidiasis, otitis	Dec, conc, pound, powder	Oral
HYPERICACEAE				
Harungana madagascariensis Lam. ex Poir.	Kasombosombo	Stomachache, furuncle, tenia, roundworms	Inf, pound, conc	Oral, cutaneous

(*continued*)

Continued.

FAMILY/ species names	Local name	Illnesses	Preparation mode	Administration
LAMIACEAE				
Tetradenia riparia (Hochst.) Codd	Mushalaba	Diarrhea, cough, headaches, sorethroat, stomachaches	Inf, mac, exp, pound, conc, squeezing	Oral, drop in noise
Leonotis nepetifolia (L.) R.Br.	Namafundo, Muhindohindo	Diarrhea, mycosis	Pound	Oral, enema, cutaneous
LAURACEAE				
Persea americana Mill.	Avocati	Stomachaches, diarrhea	Dec, pound	Oral
MAESACEAE				
Maesa lanceolata Forssk.	Muhanga	Child stomachache	Pound, conc, powder	
MALVACEAE				
Triumfetta rhomboidea Jacq	Mulangalanga	Fracture	Pound	Cutaneous
Hibiscus sp	Kitata	Hemorrhoids, wound	Pound, ash	Food
Sida acuta Burm.f.	Kadundu, Kanvunvu	Diarrhea, hemorrhoids, sexual impotence, breasts swelling	Dec, pound, chewing	Oral
MELIACEAE				
Khaya anthotheca (Welw.) C.DC.	Kavungwe	Diarrhea	Inf, pound	Oral
MORACEAE				
Ficus exasperata Vahl	Kirondorondo Mukobe	Stomachache, hypertension	Dec, inf, pound	Drop in eyes
Ficus glumosa Delile	Kirondorondo	Sore eyes	Ash	Cutaneous
MUSACEAE				
Musa nana Lour.	Malumbungu	Candidiasis	Inf, pound	Oral
Musa sp	Ndizi	Stomachaches	Nr	Cutaneous
Ensete ventricosum (Welw.) Cheesman	Chirembo	Epilepsy	Pound, conc	Oral
MYRICACEAE				
Morella salicifolia (Hochst. ex A. Rich.) Verdc. & Polhill	Kinjigi	Abscess, toothaches, diarrhea	Dec, mac, pound, powder	Oral
Psidium guajava L.	Mapera	Stomachaches	Dec, pound	Oral
Syzygium cordatum Hochst.ex C.Krauss.	Mugote	Hemorrhoids, sexual impotence	Dec, inf, pound, squeezing	Oral, enema
Syzygium guineense (Willd.) DC.	Mugote	Stomachaches, diarrhea, dysentery, ameba, wound	Dec, inf, pound, conc, ash, powder	Oral, enema, cutaneous, rinse teeth
Syzygium sp	Kashishiri	Toothaches	Dec	Oral
OXALIDACEAE				
Oxalis sp	Kabanga njinjira	Teeth aches	Nr	Oral, enema
Biophytum petersianum Klotzsch.	NR	Fracture	Nr	
PLANTAGINACEAE				
Plantago palmata Hook.f.	Mbatama	Diarrhea, ameba, bleeding, abortion	Dec, inf, pound	Drop in ear
POLYGONACEAE				
Persicaria decipiens (R.Br.) K.L.Wilson	Nakazi	Detoxication, sore throat	Chewing	Oral
Rumex nepalensis Spreng.	Nakazi	Sorethroat	Nr	Cutaneous
Persicaria pulchra (Blume) Soják	NR	Sorethroat, sexual impotence	Conc, pound, chewing	Oral
ROSACEAE				
Alchemilla cryptantha Steud. ex A.Rich.	Kanabwaso	Panaris	Dec, pound	Oral
Rubus sp	Bukarata	Stomachaches, constipation, ameba	Pound	Oral
RUBIACEAE				
Galiniera saxifraga (Hochst.) Bridson	Lumole	Scabies	Pound	Enema
Dolichopentas longiflora (Oliv.) Kårehed & B.Bremer	Kayasa muliro	Poison	Conc,pound	Oral
RUTACEAE				
Citrus lemon (L.) Burm.	Ndimu	Fever	Dec,conc	Oral, enema
Zanthoxylum usambarense (Engl.) Kokwaro	longomangoma	Hemorrhoids	Inf,pound,squeezing	Nr
SOLANACEAE				
Physalis peruviana L.	Mbuma, Mpuho	Stomachaches, diarrhea	Dec,pound	Oral, cutaneous
URTICACEAE				
Myrianthus holstii Engl.	kiyufua	Stomachaches	Eat	Oral, rinse teeth

Legend: preparation mode (Dec: decoction, Mac: maceration, Inf: infusion, Exp: expression, conc: concoction), NR: Not Reporte