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Ethnobotanical survey of anti-hemorrhoidal plants in the Bamboutos division, West region of Cameroon

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Abstract

Introduction: Haemorrhoidal disease is a major public health problem. However, very little data is available on anti-haemorrhoidal plants in Africa. The aim of this study was to carry out an ethnobotanical survey on the management of haemorrhoidal disease among traditional practitioners in the Bamboutos Division.

Methodology: The survey was carried out using interview upon informed consent from the traditional healers.

Results: Fifty traditional healers (38 men and 12 women) were interviewed and data were stored onto a survey card. The results identified 48 plant species (32 families) that were used to prepare 72 recipes, including 40 recipes made from each individual plant species and 32 from plant species association. The most represented species were: *Paullinia pinnata* (11 times), *Piper umbellatum* (9 times), *Raphia farinifera* (9 times), *Canarium schweinfurthii* (7 times), *Psidium guajava* (6 times), *Musa acuminata* (6 times), *Cola anomala* (4 times), *Hibiscus noldae* (3 times), *Elaeis guineensis* (3 times), *Eremomastax speciosa* (3 times), *Ocimum gratissimum* (3 times) and *Mangifera indica* (3 times). Leaves and bark were the most used parts (36% and 16% respectively) in the treatment of haemorrhoids (internal or external). The number of associated plants ranged from two to five. The treatment was mainly administered orally, although certain administrations were done locally and most often depended on the recipe preparation.

Conclusion: This study revealed that Cameroonian flora is rich in anti-haemorrhoidal medicinal plant species. The results constitute a database for future studies for evaluating the biological and chemical potentials of these plants.

Keywords: Ethno botany survey, haemorrhoids, medicinal plants, recipes

1. Introduction

Haemorrhoids are masses of normal vascular tissue present in the foetus as early as the 28th week, which contributes to anal continence [1]. The pathogenesis of hemorrhoidal disease is not clearly defined but seems multifactorial [2]. Mechanical factors such as the relaxation of the musculo-ligamentary suspension apparatus, alteration of the muscular and fibrous fixation of the hemorrhoidal plexuses and vascular factors such as pressure increase in the anal cushions, vascular anatomical changes are described as mechanisms by which the causes of the disease trigger the evolution of the disease [3]. Clinical examinations classify haemorrhoids in four progressive stages ranging from simple venous dilation upon effort to permanent and irreducible anal prolapse [4]. The haemorrhoidal disease is the most common pathology of the terminal intestine whose prevalence varies from 4.4% to 86%, causing considerable discomfort among the affected people [5, 6]. This disease affects both men and women; with earlier symptoms in men [3]. Haemorrhoidal disease occurs most often after 30 years and its incidence is estimated at 50% of the population aged 50 and over in the developed world [7]. In Cameroon, the haemorrhoidal disease represents 40.83% of lower gastrointestinal diseases [8]. The pain and discomfort of haemorrhoids are debilitating and can lead to high morbidity in people who suffer from it thereby lowering productivity in all areas of activity [9]. The inability of modern medicine to provide effective solutions to haemorrhoidal disease, coupling with its high cost and undesirable side effects has encouraged many people to turn to traditional medicine [10]. Medicinal plants, provided with many biological activities exhibited by phenolic compounds may present the best alternative for the management of common rectal and anal disorders such as haemorrhoids [11, 12]. One of the ways to explore biological properties of medicinal plants is via ethnobotanical surveys to make an exhaustive inventory of

plant species used in traditional medicine by the local populations [11, 13, 14]. Many studies in Africa have identified a wide range of medicinal plants against haemorrhoidal diseases and some investigations have been conducted to justify the use of some of them in the treatment of this disease [11, 15, 16]. However, despite the ethnobotanical knowledge of

medicinal plants, studies on anti-hemorrhoidal plants remain embryonic in Cameroon. Therefore, the objective of the present work was to conduct an ethnobotanical survey on the various recipes commonly used in the treatment of hemorrhoidal disease in the Bamboutos Division.

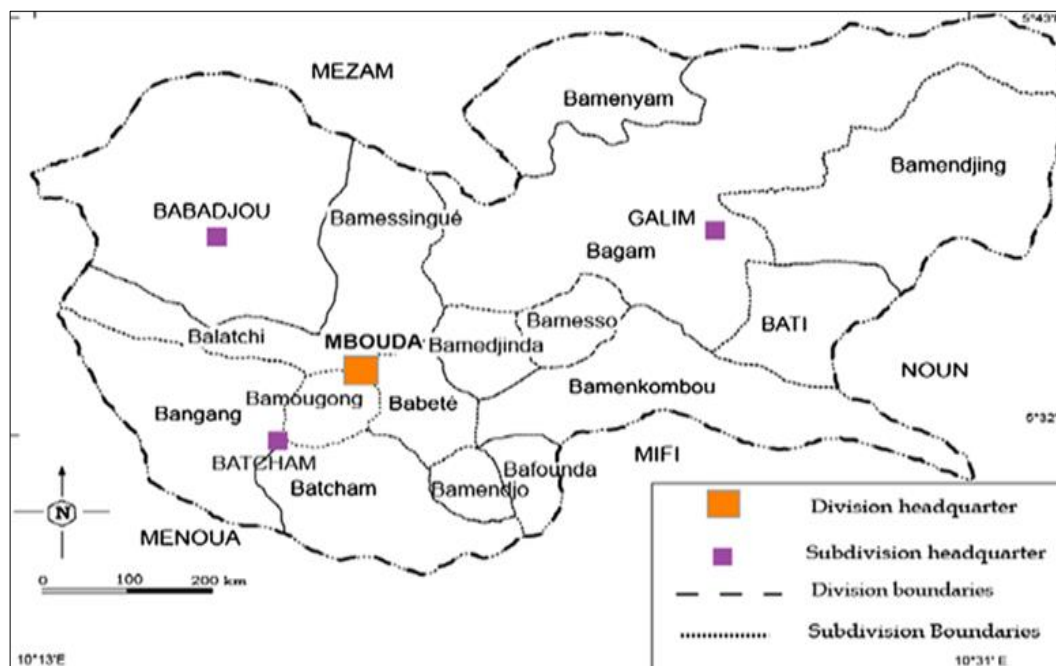


Fig 1: Map of the study sites

2. Methodology

The ethnobotanical survey was conducted among traditional healers in different localities of the Bamboutos Division. The questionnaire was administered upon informed consent and availability of the traditional healers. Once in the field, the photographs of the plants were made before their collections. Leaves, bark, roots, fruits and whole plant were the main plant materials. These materials were kept either inside clean paper or in press for identification at the Cameroon National Herbarium. The data analysis began with the entry of the different recipes and their characteristics by site and respondent in an Excel spreadsheet version 3.0.; the statistical analysis of the different data was then done accordingly.

3. Results

3.1 Sociodemographic profile of the traditional healers

Of the 50 traditional healers (TPs) who participated in the

survey, 76% were males against 24% females. Their average age was 57 ± 5 years ranging from 27 to 87 years. Most of them (28%) were between 35 and 55 years old. Results in Table 1 reveal that 94% of the traditional practitioners (TPs) were from the West, 4% from the Far North and 2% from the North West regions. In addition, 84% of them were literate, with 36%, 28% and 20% who reach a primary, secondary and university levels of education, respectively. From religion point of view, 42% of the TPs were Catholic followed by the Protestants (38%), animist (12%) and lastly the Muslim (8%). Concerning the origin of knowledge of traditional medicine, 36% of TPs reported having received it as a family legacy, 32% by divine revelation, and 20% by traditional initiation. Moreover, 22% of the respondents practised traditional medicine full time and the rest had a secondary activity (Table 1)

Table 1: Sociodemographic profile of traditional healers

Gender	Female		Male			
	24		76			
Age range	[25-35]	[35-45]	[45-55]	[55-65]	[65-75]	≥ 75
%	8	28	28	16	16	4
Level of study	None		Primary school	Secondary school	University	
%	16		36	28	20	
Religion	Catholic		Protestant	Muslim	Animist	
%	42		38	8	12	
Ethnic	Bamenda		Bamiléké	Toupouri		
%	2		94	4		
Origin of knowledge	Exclusive family legacy		Divine revelation	Traditional initiation	Others	
%	36		32	20	16	
Healer's status	Full-time		Breeder/Farmer	Business	Others	
%	22		38	24	16	

3.2 Aetiology of haemorrhoids in traditional medicine

Among the causes of hemorrhoidal disease, the most cited were: consumption of hard foods, and constipation, pepper, amoebae, yeasts, alcoholic beverages, poor personal hygiene, homosexuality. These causes were cited in association.

3.3 Diagnosis of haemorrhoids in traditional medicine

The diagnosis of hemorrhoidal disease by traditional healers in the Bamboutos Division was based on the symptoms and the most cited ones were anal prolapse, anal pains, presence of blood in the faeces, and anal pruritus. Most of these symptoms were cited in combination.

3.4 Non-pharmacological management of haemorrhoids in traditional medicine

Table 2 presents the hygieno-dietary measures listed with traditional healers in the Bamboutos Division. It appears that 40% of traditional practitioners recommended avoiding risky foods (hard foods, spices, etc.).

Table 2: Hygieno-dietary measures cited by traditional healers

Hygieno-dietary measures	Percentages (%)
Avoiding consumption of risky food	40
Other	16

3.5 Pharmacological management of haemorrhoids in traditional medicine

3.5.1 Anti-haemorrhoidal plant recipes and ecological data

3.5.2 Organs of plants used for the preparation of recipes and routes of administration

The plant parts used for the preparation of the recipes and the routes of administration of these recipes are shown in Table 3. The use of the leaves, whole plant, fruits and bark were the most cited by 36%, 26%, 16% and 16% of traditional healers, respectively. According to the traditional healers (82%), traditional medicine was mostly administered orally.

Table 3: Plant parts used for the preparation of anti-haemorrhoid recipes and routes of administration

Variables	Percentages (%)
Plant parts	
Leaves	36
Bark	16
Roots	10
Fruit	16
Flowers	8
Other	22
The whole plant	26
Routes of administration	
Oral	82
Topical	18

3.5.3 Mode of Recipe Preparation

Data analysis upon ethnobotanical survey among traditional healers in the Bamboutos Division on how to prepare traditional recipes is shown in Table 4. The majority of modes of preparation were others followed by decoction (30%).

Table 4: Method of preparation of traditional recipes

Variables	Percentages (%)
Plant preparation	
Maceration	18
Decoction	30
Infusion	4
Other	48

4. Harvest period, harvesters, origins and conservation of plants

The results of the ethnobotanical survey on the harvest period, the harvesters, the origin and the storage of plant materials used as anti-haemorrhoidal are described in Table 5. It appears that anti-hemorrhoidal plants were mostly harvested at all seasons (80%) and by the healer (92%). In addition, these plants were mainly of natural origin (62%) and were not stored before use (50%).

Table 5: Harvest period, harvesters, origins and conservation of plants

Variables	Percentages (%)
Harvest period	
At all seasons	80
Early in the morning	10
Other	10
Origin of plants	
Grown	38
Natural	62
Plant conservation	
Fresh	50
stored in water	10
Moisture-free drying	34
Other	6

5. Some facts about plants, drug preparation and treatment

Almost all (98%) the traditional healers claimed that their preparations were not toxic. In addition, 36% and 20% traditional healers added palm oil water to their preparations, respectively. The majority of these preparations (94%) were not taken concomitantly with another medicine or ritual. Most traditional healers (54%) felt that their preparations had no contraindications. Twenty per cent (20%) did not recommend it during pregnancy and 8% during breastfeeding. In addition, 94% of traditional healers claimed that their medications had no side effects. The most noticeable signs of healing were the disappearance of pain and absence of anal itching cited successively by 50% and 26% of traditional healers. (Table 6)

Table 6: Drug Preparation and Treatment

Variables	Percentages (%)
Toxicity of the plant	
Not Toxic	98
Toxic	2
Additive to the preparation	
Water	20
Palm kernel oil	10
Palm oil	36
Other additives	16
Drugs/rituals added to the treatment	
No	94
Tradition / ritual	6
Contraindications	
Any	54
Pregnancy	20
Breastfeeding	8
Others	32
Side effects	
Constipation	4
Colic	2
No adverse effects	94
Signs of healing	
Disappearance of anal pain	50
Disappearance of anal itching	26
Absence of anal prolapse	18
Others	6

6. Botanical characteristics and plant diversity with anti-hemorrhoidal properties

Table 7 presents the anti-hemorrhoidal plant species, their common names and other uses cited by the respondents. All these species were documented in the National Herbarium of

Cameroon (HNC). Seventy-two (72) recipes were collected, prepared from 48 plant species (from 32 families), including 42 from one species and 30 from an association of several species. The number of associations for these recipes ranged from 2 to 5 species.

Table 7: Plants identified and common names for the treatment of haemorrhoids

Families	Scientific names	Common names	Harvest location	ID number	Other traditional uses
Acanthaceae	<i>Eremomastax speciosa</i>	Rouge d'un coté	Batometsa	43497/HNC	Rash Infant buttock, Typhoid fever, Yeast infections
	<i>Acanthus montanus</i>	Monah menan	Bagam	50046/HNC	Chriptorchydia, childbirth problem (in combination)
	<i>Dischoriste perrottetii</i>	Kiet	Mbouda	48711/HNC	Infections of the genital and respiratory tracts
Anacardiaceae	<i>Mangifera indica</i>	Manguier	Bafemga	18646/HNC	Against mystical poisoning at night
Anthericaceae	<i>Aloes buettneri</i>	Aloes vera	Bagam	49090/HNC	Dermatological problems, diabetes
	<i>Allium sativum</i>	Ail	Motchou 3 (Babete)	44810/HNC	Food, cough
Araceae	<i>Colocasia esculenta</i>	Taro	Batan	42352/HNC	Food, insect sting
Arecaceae	<i>Elaeis guineensis</i>	Palmier	Batometsa	34163/HNC	Dysentery (in combination)
	<i>Raphia farinifera</i>	Raphia	Batcham	40964/HNC	Hypertrophy of the spleen; painful menses (in combination), kidney pain
Asteraceae	<i>Laggera alata</i>	ndapah npheusi	Bagam	60481/HNC	eye problems (in combination)
	<i>Ageratum conyzoides</i>	Roi des herbes	Bamendjida	23645/HNC	Amoebic dysentery (in combination)
Bignoniaceae	<i>Markhamia lutea</i>	Gwéré	Bamougong	33212/HNC	Abdominal pain
Bombacaceae	<i>Adansonia digitata</i>	Baobab	Motchou 3 (Babete)	42417/HNC	Woman's glass
Brassicaceae	<i>Brassica oleracea</i>	Choux blanche	Bafemga	25686/HNC	burns
Bursaceae	<i>Canarium schweinfurthii</i>	Fruits noirs	Batometsa	54834/HNC	Food, cough, breast pain
Caricaceae	<i>Carica Papaya</i>	Papayer	Bafemga	18647/HNC	Food, typhoid, malaria (in combination)
Cesalpiniaceae	<i>Piliostigma thonningii</i>	Tanchin	Motchou 3 (Babete)	39848/HNC	NTR
Cupressaceae	<i>Cupressus Sempervirens</i>	Cyprès	Bagam		Prostate and respiratory problems
Dennstaetiaceae	<i>Pteridium aquilinum</i>	Chichin cuop	Motchou 3 (Babete)	35854/HNC	Urinary tract infections
Euphorbiaceae	<i>Ephorbia prostata</i>	Guilé hié	Batometsa	49612/HNC	Abdominal pain
Fabaceae	<i>Crotalaria pallida</i>	Melilo	Bamendjida	50121/HNC	NTR
	<i>Vitex doniana</i>	Mvo'	Batometsa	40175/HNC	NTR
Lamiaceae	<i>Ocimum gratissimum</i>	Massep	Bagam	29880/HNC	Witchcraft problem (in combination), incurable wounds, breast pain
	<i>Sida spp</i>	Sising	Lafi 2		
Malvaceae	<i>Cola anomala</i>	Colatier	Batcham	61266/HNC	Food, rituals
	<i>Hibiscus noldae</i>	Cohrn goupe	Bamboue 1	49144/HNC	Difficulties of conception
	<i>Gossipium barbadense</i>	Coton	Bamougong	25771/HNC	NTR
	<i>Sida rhomifolia L.</i>	Ntanchin	Batuétio	9982/HNC	NTR
	<i>Ficus thonningii</i>	Arbre des jumeaux	Bafemga	35454/HNC	Rituals
Moraceae	<i>Dorstenia psitomus</i>	Condiment du nkui	Batan	57892/HNC	Food, abdominal pain
Musaceae	<i>Musa acuminata</i>	Bananier	Batcham	17063/HNC	Food
Myrsinaceae	<i>Maesa lanceolata</i>	Chichin	Batometsa	44069/HNC	NTR
Myrtaceae	<i>Psidium guajava</i>	Goyavier	Batcham	48149/HNC	Anti amoebae and enlarged spleen (in combination)
Oxalidaceae	<i>Biophytum sensitivum</i>	Mambi muo	Batometsa	34149/HNC	rash on the infant' buttocks
	<i>Biophytum petersianum</i>	Makamte puo	Batometsa	60779/HNC	Abdominal pain
Piperaceae	<i>Piper umbellatum</i>	Mbipi	Batometsa	34190/HNC	Painful menses (in combination), abdominal pain
Poaceae	<i>Pennisetum purpureum</i>	Sissongho	Batuétio	50008/HNC	Food
	<i>Zea mays</i>	Maïs	Bagam	18625/HNC	Food, abdominal pain
Polygonaceae	<i>Polygonum salicifolium</i>	Poivre d'eau	Bamendjida	61231/HNC	NTR
Proteaceae	<i>Protea elliotii</i>	So'nefet	Mbekong	22522/HNC	NTR
Sapindaceae	<i>Paullinia pinnata</i>	Lemvop	Batometsa	44257/HNC	Dysentery
Sapotaceae	<i>Afrosersalisia cerasifera</i>	Nkemenan	Batuétio	35656/HNC	Food
Solanaceae	<i>Solanum aculeastrum</i>	Aubergine sauvage	Batuétio	34758/HNC	Abdominal pain, rites, malaria in association
	<i>Solanum tuberosum</i>	Patate	Bafemga	25881/HNC	Food
	<i>Capsicum frutescens</i>	Piment capsique	Motchou 3 (Babete)	43071/HNC	Rheumatoid arthritis
Zingiberaceae	<i>Zingiber officinale</i>	Djindja	Bagombong(Babete)	43143/HNC	Food, cough
	<i>Curcuma longa</i>	Curcuma	Lafi 2	42173/HNC	Jaundice
	<i>Aframomum sp</i>	Jujube	Batuétio		Rituals

NTR= Nothing to report

7. Classification of species by number of citations

The importance of a plant was expressed by its quotation frequency by traditional healers. Twelve species were most quoted (at least 3 times): *Paullinia pinnata* cited 11 times, *Piper umbellatum* and *Raphia farinifera* cited 9 times each,

Canarium schweinfurthii cited 7 times, *Psidium guajava* and *Musa acuminata*, cited 6 times each, *Cola anomala* 4 times, *Hibiscus noldae*, *Elaeis guineensis*, *Eremomastax speciosa*, *Ocimum gratissimum* and *Mangifera indica*, cited 3 times each (Figure 2).

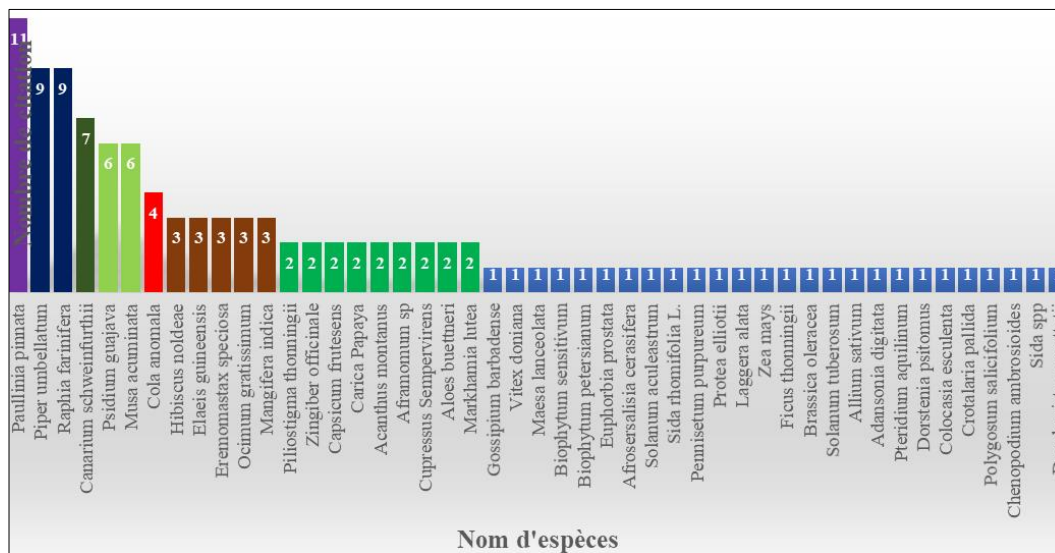


Fig 2: Frequency of citation of anti-haemorrhoidal plant species in the Bamboutos Division.

Results in Figure 3 show the frequency of the occurrence of plant families cited by traditional healers in the Bamboutos Division. The most represented family was *Malvaceae*.

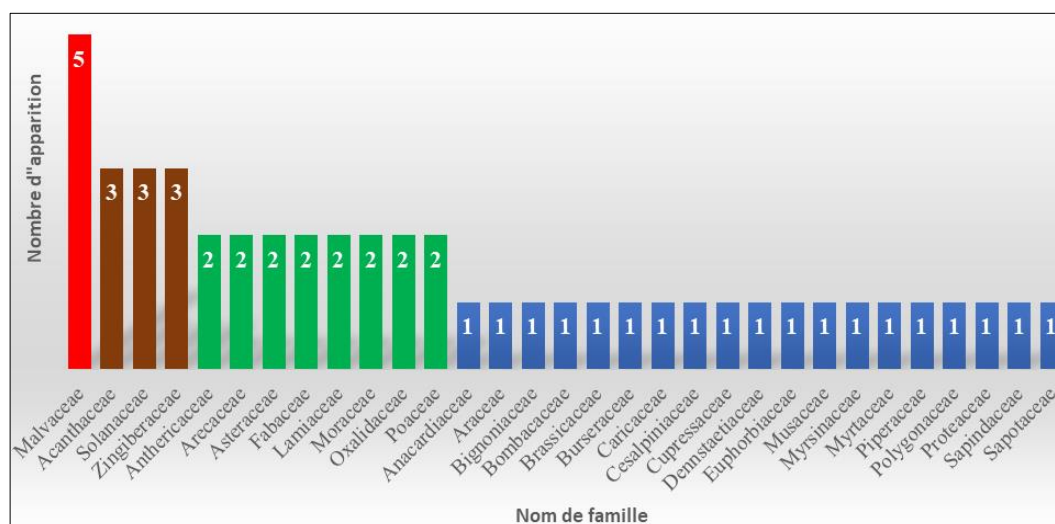


Fig 3: Frequency of occurrence of anti-haemorrhoidal plant families cited by traditional healers in the Bamboutos Division.

8. Discussion

The present study focused on the ethnobotanical investigation related to the management of hemorrhoidal disease by traditional healers in the Bamboutos Division, West region of Cameroon. The ethnobotanical survey was conducted among 50 traditional healers, including 47 from West region, 2 from Far North region and 1 from the North-West region. The participants were predominantly males (76%) having received their knowledge of traditional medicine through family inheritance. This profile of traditional healers is similar to those observed by Yakubu and colleagues, Wawrezinieck and teammates [16, 17] who found in their work that traditional medicine was practised in most cases by men whose average age was around 50 years old.

For the traditional healers in the Bamboutos Division, the diagnosis of hemorrhoidal disease was based solely on the presence of certain pathological symptoms (anal prolapse, anal pain, presence of blood in the stool and anal pruritus). This could be attributed to the fact that majority of traditional healers in this locality did not have a high level of education and/or in-depth knowledge of the pathology. In contrast, in modern/conventional medicine there are several

ways/methods to diagnose hemorrhoidal disease (anatomopathological and/or associated with blood tests) [17]. The management of the hemorrhoidal disease in traditional medicine relies mostly on lifestyle modifications associated with treatment using medicinal plants. The ethnopharmacological approach has helped in the documentation of 72 recipes prepared from 48 plant species alone or used in association with other plants belonging to 32 families. These results differ from those obtained by Dibong and others [15] who identified 42 recipes prepared from 60 plant species belonging to 41 families in the markets and villages of the Centre and Littoral regions of Cameroon. The most represented family was Malvaceae. Similarly, Dibong and teammates, Ilumbe and colleagues [15, 16] identified more species in the family of Fabaceae in Cameroon and DRC. Therapeutic recipes are cultural legacies, varying based on the geographical locations.

The most represented plant species in the present study were also the most cited in other regions of Cameroon [15], suggesting that identical species may be located in other geographical regions, although the environmental milieu does not provide the same climatic conditions.

Leaves and bark are the most widely used (36% and 16% respectively) in the treatment of haemorrhoids (internal or external). These results are similar to those presented by Dibong and colleagues ^[15] in a survey of anti-haemorrhoidal plants on the markets in the Centre and Littoral regions. The special interest in the leaves and bark could be explained by the fact that they constitute the place of choice for the biosynthesis and storage of secondary metabolites responsible for the biological properties of many plants ^[14].

It was observed that the therapeutic preparations could be obtained from one or more parts of the same plant or from a mixture of different plants. The number of associated plants ranged from 2 to 5. Thus, one species or species association gives rise to several recipes. This could reflect the synergistic action of the metabolites of the different parts of the plant thereby increasing the effectiveness of the plant recipe. On the other hand, each individual plant has a specific role in the management of the haemorrhoidal symptoms ^[18]; this is the case for *Mangifera indica* and *Piper umbellatum*, which act as anti-inflammatory to soften hemorrhoidal pain. In the case of rectorrhagia, *Canarium schweinfurthii* would be used to manage anaemia. Pruritus, which is usually caused by the accumulation of wastes and germs in the body, can be treated using *Dischoriste perrottetii* known to exhibit antimicrobial properties ^[17].

The decoction of plants was the most used modes of preparation in the treatment of haemorrhoids ^[16]. In traditional medicine, the predominant use of the decoction may be due to its undeniable efficacy over many years and accumulated local knowledge on such preparations.

Most traditional medications were administered orally, although certain administrations were done locally and most often according to the preparation. These modes of employment corroborate those obtained by Dibong and his colleagues ^[15].

9. Conclusion

The haemorrhoidal disease is a significant public health problem. The ethnobotanical survey carried out among the traditional healers of the Bamboutos Division reveals the importance of the Bamboutos Division flora in plant species with ant haemorrhoidal properties. This work has helped to highlight the expertise of traditional healers in Cameroon in general and those of Bamboutos in particular. The results of this study will serve as a basis for new natural molecules in the treatment of haemorrhoids.

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