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*Research Article*

# **Ethnobotanical Survey of Medicinal Plants Used for The Treatment of Childhood Infections in the Central Region of Togo**

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## **ABSTRACT**

This study was aimed at identifying and documenting medicinal plants used as medicines in the traditional treatment of infections of the digestive tract (diarrhea, oral thrush and anitis) by traditional healers in the central region of Togo. The data were collected by semi-structured interviews method from 45 traditional practitioners. This study identified 61 plants species, from 54 genera and 26 botanical families. The most represented families were Fabaceae (9 genera / 9 species), Asteraceae (5/5), Combretaceae (4/5), Moraceae (2/5) and Euphorbiaceae (4/4). The most cited species are: *Parkia biglobosa* (Frequency of Citation = Frequency of citation = 12.92%), *Pteleopsis suberosa* (Frequency of Citation = 8.31%), *Maytenus senegalensis* (Frequency of Citation = 8.31%), *Anchomanes difformis* (Frequency of Citation = 7.38%) and *Hymenocardia acida* (Frequency of Citation = 4.37%). Sixty-seven percent (67%) of the identified plants are used in the treatment of childhood diarrhea. The leaves (30%) are the most used plant parts followed by stem barks. The decoction (59%) is the most used mode of preparation. The oral route (66%) remains the main route of administration of the phytomedicines. The medicinal plants are important in the traditional treatment of childhood infections in the central region of Togo. It is therefore necessary to investigate the effectiveness and toxicity of these plants for a better traditional use.

**Keywords:** *medicinal plants, anitis, oral thrush, infantile diarrhea, Togo.*

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## **INTRODUCTION**

Most childhood infections are caused by bacteria, parasites, viruses and fungus. Anal and oral infections are mild in children and affect 5-7% of infants but their vital prognosis is not at stake. However, diarrhea is a major public health problem because the vital prognosis of children is at risk. Diarrhea is a pathology manifested by the elimination of an abnormal amount of stool and especially water (> 300g / d). It is a transit disorder characterized by loose, or even liquid, stools in abnormally high amounts or with an increased frequency of occurrence; several times a day Bryce *et al.*, (2005), Rendremanana, (2012).

Infectious agents that cause diarrhea are usually spread through the fecal-oral route, mainly through ingestion of water or stool-contaminated food or through direct contact with infected stools (WHO, 2006). Diarrheal diseases cause an estimated 1.8 million deaths each year worldwide, of which

90% are children under five, most of whom live in developing countries (Cazaban *et al.*, 2005). They are the third leading cause of death for infectious diseases at all ages (WHO, 2011, Assogba *et al.*, 2012) and the fifth leading cause of premature death worldwide (WHO, 2014). In Togo and particularly in the central region, diarrhea is common, but medical care is limited by the inaccessibility of care services and the high cost of conventional medicines. The Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 aim to ensure good health and promote well-being for all children. In this context, WHO helps Member States strengthen their health services and provides them with appropriate technical assistance. Indeed, since 2000, WHO's "Health for All" initiative has recognized that programs adopted in any of the Sub-Saharan Countries would have no impact if they do not take into account the development and integration of traditional medicine into their primary health care programs. It is therefore essential to make research on medicinal plants.

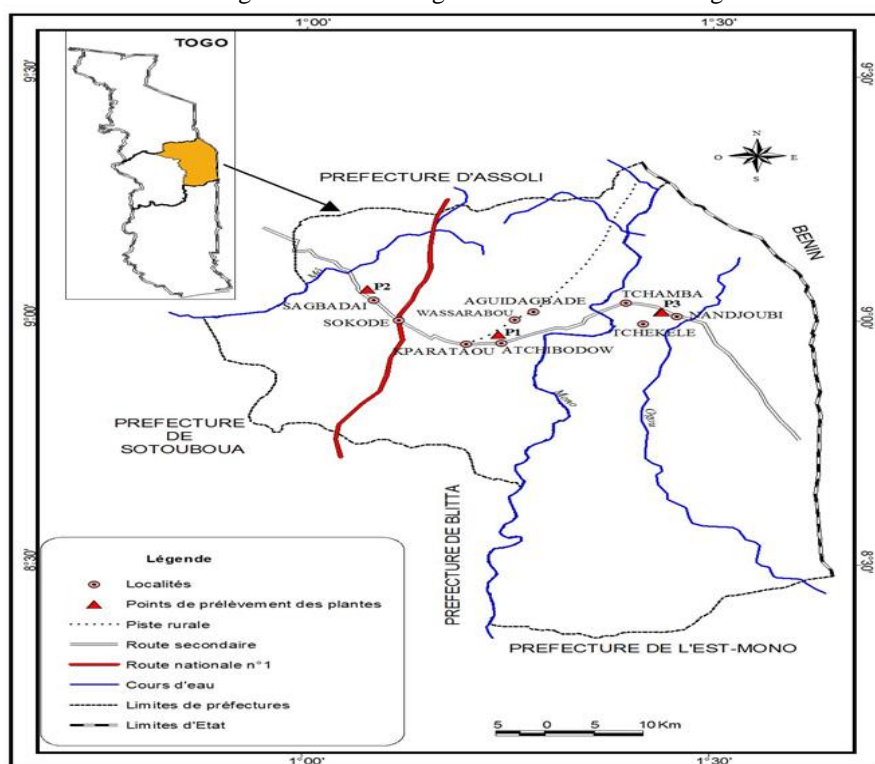
In Togo, various studies have been carried out for this purpose Gbeassor *et al.*, (1996), De souza *et al.*, (1993), Karou *et al.*, (2011c), Tchacondo *et al.*, (2011), Agban *et al.*, (2011), Hoekou, Pissang *et al.*, (2017), but very little attention has been given to antidiarrhoeal herbs and other digestive tract infections, particularly affecting children. In the central region of Togo, children are very quickly taken care of thanks to infusions of local plants. The present study is aimed at making an inventory of medicinal plants used in the treatment of the digestive tract diseases such as digestive, anal and oral infections in children under 5 years in the central region of Togo.

## MATERIALS AND METHODS

**Study area:** The study was conducted in the central region of Togo (Figure 1). Togo is a country of 56,600 sq. km, located on the West African Coast. It is bounded by Benin in the East, Ghana in the West, Burkina Faso in the North and the Atlantic Ocean in the south. The part concerned by our study is situated between the parallel 8° and 9° 15' of the north latitude and the meridians 0° 15' and 1° 35' of the east longitude. Togo is administratively divided from north to south into five economic regions: the Savannah region, the Kara region, the central region, the plateau region and the Maritime region. After the plateau region with its 17. 930 sq. km, the central region is the second largest region in Togo. It consists of four prefectures namely: Tchaoudjo, Tchamba, Sotouboua, Blitta and Mo. It covers an area of 13.470 sq. km or 23.8% of the national territory. This study was conducted in the prefectures of Tchaoudjo and Tchamba. This region (Sokodé, Tchamba) extends between 1° 20' west longitude and 1° 50' east longitude and between 6° 10' south latitude and 6° 60' north latitude, over an area of 6100 sq.km, or about 10.78% of the total surface area of Togo. The central region is bordered in

the North by the Kara region, in the West by the Republic of Ghana, in the East by the Republic of Benin and in the South by the Plateau region. In terms of climate, the region enjoys a warm and humid tropical climate that is directly influenced by the atmospheric circulation prevailing in the West African sub-region. Temperatures generally vary between 20 and 30 ° C with minima during the harmattan and maxima between February and March. The rains last for six months (May to October). The months of August and September are the rainiest ones. Rainfall totals are between 1200 and 1500 mm per year. The vegetation is mainly related to the type of relief. The plains are dominated by savannas while the mountainous areas are covered with forests, deeply disturbed by the different human activities. There are also denser, linear woodlands along the rivers that pass through savannas and forests: these are riparian forests. The population of the central region of Togo (494 000 hts) is made up of several ethnic groups. Almost all ethnic groups in the country, about forty are there. Majority ethnicities by order include Kotokoli (tem), Tchamba, Kabiyè, Losso and Bassar. The economy of the region is essentially based on agriculture. Trade and fishing are less represented, while the industrial sector is almost non-existent (DGSCN, 2011, Tchacondo *et al.*, 2011).

**Data collection:** The survey was conducted from February 1 to March 30, 2015 among 45 traditional healers in Sokodé, Tchamba and surrounding villages. It was conducted with traditional healers and herbalists. To facilitate and make credible our study, we first approached the Study and Research in Applied Traditional Medicine Centre of the Central Region in Togo (CERMETRA) to explain the reason for our work and to have their advice and support. This meeting led to convocation of local healers specialized in childhood infections, registered in the nongovernmental organization database, for an interview.



**Figure 1:** Study area showing the puncture sites (sampling points) of plant species

The questionnaire focused on the following main points: i) identity of the surveyed: name, first names, age and sex; ii) the mode of acquisition of knowledge: inheritance, experience or training, dream, gift; iii) the status of the healer: healer practicing full-time or part-time, iv) the academic level: primary, secondary, university, illiterate; v) the plant: vernacular names, treated disease: anal wounds (anitis), mouth sores (oral thrush), intestinal wounds (diarrhea), vi) plant organs used: leaves, bulb, seed, fruit, trunk bark and root; vii) the method of preparation of the recipes: decoction, torification, maceration, infusion; viii) the mode of administration: oral, anal bath, oral bath, local application; ix) conservation of plant recipes and organs: away from light, presence of light, optional; x) the time of plant collection: morning, noon, evening, night, dry season, rainy season, optional. This second stage of the survey made it possible to identify by vernacular names fifty-eight distinct plant species. With regard to herbalists, we have been in traditional markets or fetish markets to carry out our survey. This category of practitioners has knowledge about the use of plants, the names of plants and are almost all women. They only sell plant organs. But, they do not know all the plants in their entirety because the organs are sold to them by the Fulani communities and the traditional healers of the locality. The last part of the survey included village farmers, who participated in the collection of plant species samples.

**Plant identification:** Plant identification was carried out at the Laboratory of Botany and Plant Ecology (LBEV) of the Faculty of Sciences of the University of Lomé in comparison with the specimens available in the herbarium of the said faculty and the national herbarium. The taxonomy has been confirmed based on data available on the International Plant Names Index (IPNI) website: <http://www.ipni.org/>.

**Data analysis:** The raw data collected as a result of surveys and identification of species were processed using Excel 2007 spreadsheet software, which allowed to make tables, figures and establish the frequency of citation (FC) of each plant using the formula (Fah *et al.*, 2013):  

$$FC (\%) = (\text{Number of citations of the plant} / \text{Total number of citations for all plants}) \times 100.$$

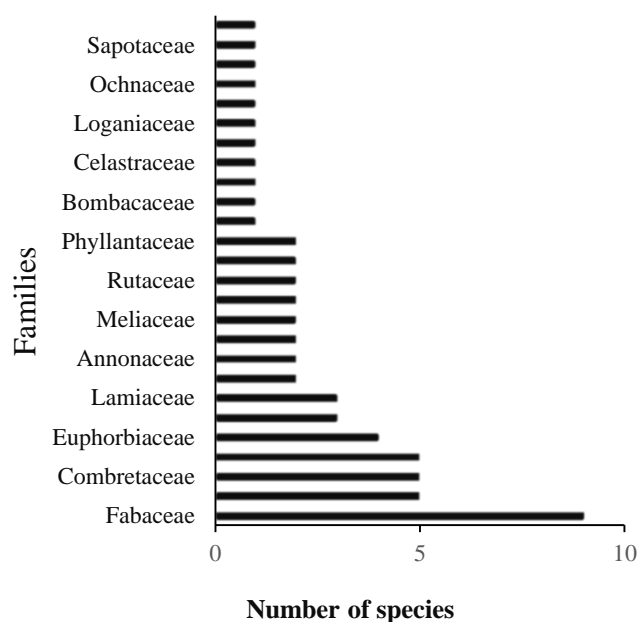
## RESULTS AND DISCUSSION

**Socioprofessional data:** The profile of the surveyed is presented in the following table (Table 1). Concerning the knowledge of the plant according to the genre, the study has shown that in that region, traditional pediatrics was a concern for both men and women. However, women know more about medicinal species related to infantile infections than men (57.77 %) against (42.22 %), the sex ratio is 1.37 (Table 1). This is justified by two reasons: the woman knows better the diseases related to the childhood and the remedies too, moreover, the commercial activity is much more reserved for the women in this locality. A similar study carried out on the Dakar markets by Dasylyva, (2001) rather showed that it is men who are more numerous in the plant trade. This difference would be related to socio-cultural traits between the Dakar

populations and those of Sokodé and Tchamba. The study has revealed that people of more than 50 years have a plant using frequency equivalent to 53.33%. That of the age group from 26 to 49 is 40% and the one under 25 years is 6.66%. The average age is 27. The lowest age is 21 and the highest one is 75 (Table 1).

**Table 1:** Socioprofessional data of traditional healers involved in the treatment of the digestive tract infections.

Characteristics	Number	Percentage (%)	
Sex	Male	19	42.23
	Female	26	57.77
Age group	≤ 25	3	6.67
	]25 – 50[	18	40.00
	≥ 50	24	53.33
	Illiterate	31	68.88
Education level	Primary	4	8.88
	Secondary	9	20.00
	University	1	2.22
Knowledge acquisition mode	Family inheritance	22	48.88
	Training/experience	19	46.66
	Gift/dreams	3	6.66
	Others	1	2.22
Status of the healer	Full time	29	64.44
	Part-time	16	35.55
Marital Status	Married	44	97.77
	Single	1	1.23
Occupation of the surveyed	Traditional healers	24	53.33
	Herbalists	13	28.88
	Farmers	8	17.77
Ethnic groups	Tem	27	60.00
	Tchamba	10	22.22
	Kabiyè	3	6.66
	Lamba	3	6.66
	Bassar	1	2.22
	Haoussa	1	2.22

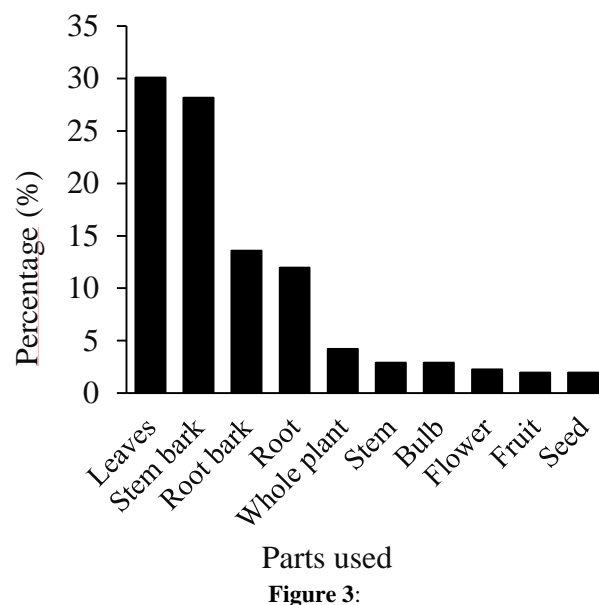


**Figure 2:** Families of the plant species collected

Practitioners over the 40 of age are the most represented. In fact, knowledge of the uses of medicinal plants and their properties is generally acquired after a long experience accumulated and transmitted from one generation to another (Klotoé *et al.*, 2013, Benlamdini *et al.*, 2014) to mature people. A great number of medicinal plant users is illiterate (68.88%). This relatively high rate is directly related to the education level of the local population using the plants. However, people with a secondary education level have a remarkable rate of medicinal plant use (20 %) (Table 1). The same study shows that most of the traditional medicine practitioners of the locally acquired their knowledge by family inheritance (48.88%). The said knowledge jealously kept for many generations becomes a family pride. Others acquired knowledge by experience or after a training by another practitioner (46.66%) (Table 1). Concerning the marital status, most of the surveyed were married (97.77%). In this area of knowledge, we trust only to responsible people (Tchacondo *et al.*, 2011). As occupation, most of the surveyed were traditional healers (53.33%). the information received is reliable because the survey was conducted among resource persons.

**Medicinal species used in the locality:** Sixty-one (61) species belonging to 26 families are used by the Tem and Tchamba communities to treat diarrhea infections, anitis and oral thrush among children (Figure 2). The most represented families in the region are: *Fabaceae* (9genera / 9 species), the *Combretaceae* (4/5), the *Celastraceae* (2/5), the *Moraceae* (5/5) and the *Euphorbiaceae* (4/4). This diversity was also observed in Scan area, Burkina Faso (Zerbo *et al.*, 2007) with 22 species distributed among 12 families, in Abidjan, Côte d'Ivoire (Ambe *et al.*, 2015), where there are 63 distributed species in 58 genera and 34 families, in Benin (Hermans *et al.*, 2004, Nouhoum, 2010, Fah *et al.*, 2013) with 85 species of antidiarrheal plants. Another study conducted in Côte d'Ivoire found 58 species (Tria Bi *et al.*, 2008). The present study shows that the diversity and floristic richness of plants can be related to the degree of knowledge of medicinal species, to the diversity of existence and provenance of plants and to the experience of traditional medicine practitioners. The time available for inventory and the willingness of practitioners to cooperate are also important factors in collecting data. Among the families surveyed, the most represented family is that of the *Fabaceae* (9 species), followed by *Combretaceae* (5), the *Celastraceae* (5), the *Euphorbiaceae* (4) and the *Moraceae* (3). Ambe *et al.*, (2015) in Côte d'Ivoire found that the most represented family is that of Caesalpiniaceae (6 species) followed by the *Combretaceae* (5), the *Anacardiaceae* (4), the *Annonaceae* (4), the *Euphorbiaceae* (4), the *Fabaceae* (4), and the *Rubiaceae* (3). This is explained by the fact that the *Caesalpiniaceae* and *Fabaceae* are among the most frequently identified botanical families in the markets and among traditional healers, they are also among the richest in medicinal plant species (Adomou *et al.*, 2012). These results are different from those presented by Bitsindou and Lejoly (1996). Indeed, these authors have demonstrated that it is the *Euphorbiaceae* family that is more represented. This situation can be explained by the difference between the geographical areas of study. The analysis of the frequency of citation shows

that *Parkia biglobosa* (FC= 12.92%), *Pteleopsis suberosa*(FC= 8.31%), *Maytenus senegalensis* (FC= 8.31%), *Anchomanes difformis* (FC= 7.38%) and *Hymenocardia acida* (FC= 4.37%) are the best known in the treatment of diarrhea, anal and oral infections by traditional healers. The effectiveness of some of these species has been demonstrated by other studies. In West Africa, studies have shown that *Euphorbia hirta*, *Khaya senegalensis*, *Parkia biglobosa*, *Pteleopsis suberosa*, *Parquetina nigrescens*, *Psidium guajava* and *Vitellaria paradoxa* are used by traditional healers against diarrhea (Zerbo *et al.*, 2007, Sérémé *et al.*, 2008, Tra Bi *et al.*, 2008 and Nikiema *et al.*, 2010) and in Central Africa (Polygenis-Bigendako and Lejoly, 1989, Lumbu *et al.*, 2005).



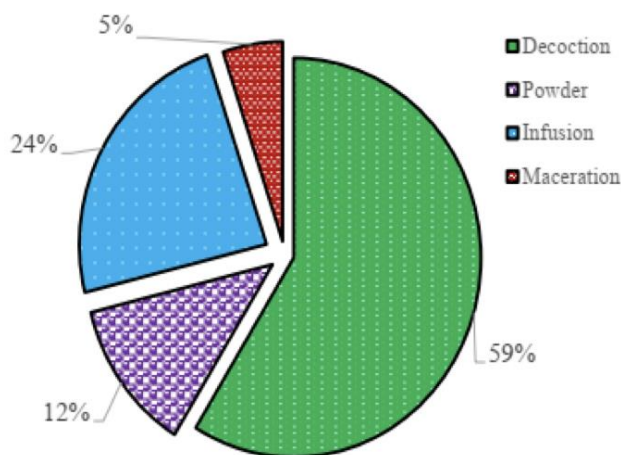
Parts of plants used

**Plants parts used, preparation and modes of administration:** The plant parts commonly used by traditional healers are presented in Fig. 4. The most commonly used plant organs were mainly leaves (30,1 %), stem bark (28,16 %), root bark (13,59 %) and root (11,97 %) (Figure 3). Regarding the plant organs used, it is noted that the leaves are the most used followed by stem barks. The predominance of leaves use is indicated by other authors in the treatment of diarrhea (Bitsindou and Lejoly, 1996; Lumbu *et al.*, 2005, Tra Bi *et al.*, 2008). Authors like Zirih, (1991), Zerbo *et al.*, (2007), Gueye *et al.*, (2012) and Diatta *et al.*, (2013) are also showed that leaves are the most used plant organs in traditional medicine in the treatment of various infections. The frequent use of leaves is justified by the abundance of the chemical groups they contain, because they are known to be the place of plant secondary metabolites synthesis (Mangambu *et al.*, 2014; Hoekou *et al.*, 2016).

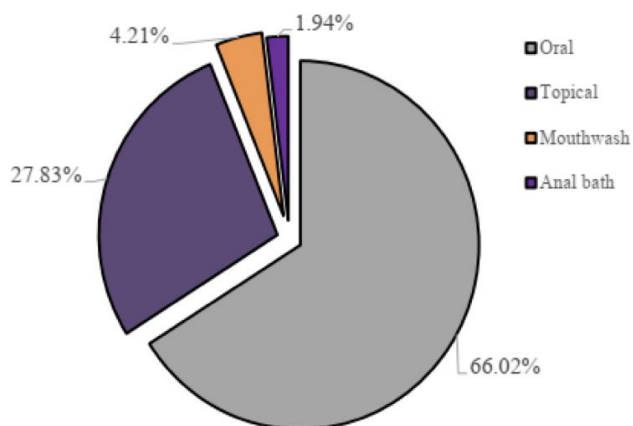
Figure 4 shows the galenic forms commonly used by the traditional healers. All these organs are prepared mainly in the form of decoction (59%). Other forms of preparation are powder (29%), infusion (9%) and maceration (5%). Indeed, the decoction makes it possible to collect most of the active ingredients and to attenuate or cancel the toxic effect of certain recipes (Salhi *et al.*, 2010).

Administration mode of recipes are presented in figure 5. The recipes are generally prescribed as a drink by the oral route. This is because infections are related to bacteria, fungi and parasites located in inner organs. To reach them, any decoction must pass through the digestive system to facilitate assimilation and action (Tra Bi *et al.*, 2008).

**Scientific basis of the use of the collected plants:** The bibliographic research on the chemical groups of collected antidiarrheal plants gave the results presented in table 3. The medicinal plants used by practitioners in the treatment of diarrhea, oral anitis and oral thrush have been validated by researching in the literature, the presence or absence of secondary metabolites that would explain their antidiarrheal effects.



**Figure 4:**  
Mode of preparation of phytomedicine



**Figure 5:**  
Recipes administration

Phytochemical tests carried out on some plants indicate the presence of tannins, flavonoïds, polyphenols, polyterpenes alkaloids and saponins. However, it has been reported in the literature that these different compounds are responsible for the antidiarrheal properties of some plants (Ojewole *et al.*, 2009; Meité *et al.*, 2009; Dosso *et al.*, 2012;).

Indeed, the convergences of our results with those of other authors do not necessarily justify the effectiveness of plants, but represent an element of reliability for our data. However, they can guide phytochemists and pharmacologists in choosing plants to support traditional uses.

**Table 3:**  
Metabolites isolated from some anti diarrhea plants from surveys and used in the sub-region

Espèces	Saponosids	Flavonoïds	Terpenes/ Sterols	Polyphenols	Alkaloïds	Tannins	Authors
<i>Psidium guyava</i>	+	+	+	+	+	+	Biswas <i>et al.</i> , 2013
<i>Pteleopsis suberosa</i>	+	-	+	+	-	+	Gbogbo <i>et al.</i> , 2013
<i>Ocimum gratissimum</i>	+	+	-	-	+	+	N'guessan <i>et al.</i> , 2009
<i>Vitellaria paradoxa</i>	+	+	-	+	+	+	Deleke <i>et al.</i> , 2011
<i>Paulina pinnata</i>	+	+	+	+	+	+	N'guessan <i>et al.</i> , 2009
<i>Sida acuta</i>	+	-	+	+	+	+	Mangambu <i>et al.</i> , 2014
<i>Parkia biglobosa</i>	+	+	-	-	+	+	Millogo-koné <i>et al.</i> , 2008
<i>Khaya senegalensis</i>	+	+	nd	nd	+	+	Obafémi <i>et al.</i> , 2015
<i>Hymenocardia acida</i>	+	+	+	+	+	+	Igoli <i>et al.</i> , 2008
<i>Euphorbia hirta</i>	+	+	+	nd	+	+	Ayena <i>et al.</i> , 2017
<i>Anchomanes difformis</i>	+	+	+	nd	+	+	Mamyrbekova-Bekro <i>et al.</i> , 2012
<i>Cassia alata</i>	+	+	nd	nd	-	+	Pissang <i>et al.</i> , 2017

Nd = not determined

**Table 2:**

List of medicinal plants investigated with their related information

Families	Species	Local name (Ethnic groups)	Traditional uses	Plant parts	Mode of preparation	Citation (n)	Frequency of citation (%)
Anacardiaceae	<i>Lannea acida</i> A.Rich.	Kizan (Lamba)	Diarrheas	Stem bark Leaves	Decoction	1	0.31
	<i>Lannea kerstingii</i> Engl.&K.Kreuse	Kélo (Tém)	Diarrheas, Oral thrush	Stem bark Root	Decoction	3	0.92
	<i>Mangifera indica</i> L.	Mangoutou (Kabiyè)	Diarrheas, oral thrush	Stem bark	Decoction	2	0.61
Annonaceae	<i>Annona senegalensis</i> Pers.	Anissina (Lamba)	Diarrheas	Stem bark, Flower, Fruit	Decoction	3	0.92
	<i>Xylopia aethiopica</i> A. Rich	Souzi (Tém)	Diarrheas	Leaves, Root, Fruit	Decoction	6	1.84
Araceae	<i>Cyrtosperma senegalense</i> (Schott) Engl.	Kpalou (Tém)	Diarrheas, oral thrush	Leaves, Stem bark	Infusion	1	0.31
	<i>Anchomanes difformis</i> Engl.	Onna (Tchamba)	Diarrheas	Leaves, Stem, bulb	Decoction, infusion	24	7.38
Asteraceae	<i>Achantospermum hispidum</i> DC.	Koussoussonga koubongui (Tém)	Diarrheas, oral thrush, anites	Leaves, Stem bark, Root	Decoction	6	1.84
	<i>Ageratum conyzoides</i> L.	Kégbéléwiya (Tém)	Diarrheas	Leaves, Stem	Decoction, infusion	2	0.61
	<i>Chrysanthellum americanum</i> (L.)Vatke	Tchakpala (Tém)	Diarrheas	Leaves, Fruit, Flower	Decoction, infusion	3	0.92
	<i>Conyza sumatrensis</i> (Retz) E.Walker	Bolo (Tém)	Diarrheas, anites, oral thrush	Leaves	Maceration	1	0.31
	<i>Vernonia amygdalina</i> Del.	Souwaka (Tém)	Diarrheas	Leaves, Root, stem bark	Decoction, infusion	3	0.92
Bignoniaceae	<i>Kigellia africana</i> (Lam.)Benth	Abilou (Tém)	Diarrheas	Leaves, Root, Stem bark	Decoction	1	0.31
Bombacaceae	<i>Adansonia digitata</i> L.	Télou (Kabyè)	Diarrheas	Leaves, Fruit, Stem bark	Decoction, Powder Maceration,	4	1.23
Brassicaceae	<i>Brassica oleraceae</i> L.	Tchou (Kabyè)	Diarrheas	Whole plant	Decoction	1	0.31
Celastraceae	<i>Maytenus senegalensis</i> (Lam)Exell.	Folémou (Tém)	Diarrheas	Leaves, Stem bark	Decoction, infusion	27	8.31
Combretaceae	<i>Combretum micranthum</i> G.Don	Boboyi (Tém)	Diarrheas	Leaves, Root	Decoction, infusion	2	0.61
	<i>Combretum molle</i> R.Br.exG.Don	Kisikou (Tém)	Diarrheas, oral thrush, anites	Leaves, Root, Stem bark	Decoction, Powder, infusion	2	0.61
	<i>Pteleopsis suberosa</i> Engl.&Diels	Sisino (Tém)	Diarrheas, oral thrush	Leaves, Root	Decoction, Powder	27	8.31
	<i>Terminalia avicennioides</i> Guill.&Perr.	Souwo (Tém)	Diarrheas, oral thrush, anites	Root	Decoction Maceration	3	0.92
	<i>Terminalia laxiflora</i> Engl.	Sotou (Kabyè)	Diarrheas	Root	Decoction	5	1.54
Euphorbiaceae	<i>Euphorbia hirta</i> L.	Kouvouyoyilim (Tém)	Diarrheas, oral thrush, anites	Whole plant	Decoction	3	0.92
	<i>Jatropha curcas</i> L.	Kadjala (Tém)	Diarrheas	Leaves, Root, Fruit	Decoction	6	1.84
	<i>Ricinus communis</i> L.	Dindèlè (Tém)	Diarrheas	Seed	Decoction	5	1.54
	<i>Securinega virosa</i> (Roxb.exWilld) Bail.	Tchakatchaka (Tém)	Diarrheas	Root	Decoction, Infusion	5	1.54
Fabaceae	<i>Acacia nilotica</i> (L.)Willd.ex Delile	Filisikou (Tém)	Diarrheas	Root bark, Fruit, Stem bark	Decoction, Maceration, Powder	3	0.92
	<i>Cajanus cajan</i> (L.)Millsp	Pouyoninka (Lamba)	Diarrheas, oral thrush	Leaves	Decoction, Powder	2	0.61
	<i>Cassia alata</i> (Linn) Roxb	Caw (Kabyè)	Diarrheas, oral thrush	Leaves	Decoction	2	0.61
	<i>Colopogonium mucunoides</i> Desv.	Sisikou (Tém)	Diarrheas	Whole plant	Decoction	9	2.76
	<i>Daniellia oliveri</i> (Rolfe)Hutch &Daziell	Djalou (Lamba)	Diarrheas	Leaves, Root, Stem bark	Decoction	2	0.61
	<i>Milletia thonningii</i> (Schum.&Thonn.) Back	Kodoliya (Tém)	Diarrheas	Root, Stem bark	Decoction	6	1.84

Table 2: Continued

Families	Species	Local name (Ethnic groups)	Traditional uses	Plant parts	Mode of preparation	Number of citation	Frequency of citation (%)
	<i>Pericopsis laxiflora</i> (Benth.exbaker)	Tchamani (Lamba)	Diarrheas	Root	Decoction	4	1.23
	<i>Pilliosigma thonningii</i> (Schumach.) Milne-Redh.	Baco (Tém)	Diarrheas	Root	Decoction	7	2.15
	<i>Pterocarpus erinaceus</i> Poir	Tim (Kabyè)	Diarrheas	Root, Stem bark	Decoction, infusion	2	0.61
Lamiaceae	<i>Hyptis suaveolens</i> (L.) Poir	Akparakpara (Tém)	Diarrheas	Leaves Flower	Decoction, infusion	2	0.61
	<i>Ocimum americanum</i> L.	Kousonssonga koumouka (Tém)	Diarrheas	Leaves	Decoction, infusion	1	0.31
	<i>Ocimum gratissimum</i> L.	Kouozorou (Tém)	Diarrheas, oral thrush	Leaves, Flower	Decoction, infusion	7	2.15
Liliaceae	<i>Alium sativum</i> L.	Doukoubié (Kabyè)	Diarrheas, oral thrush, anites	Leaves	Decoction, Powder	1	0.31
Loganiaceae	<i>Anthocleista djalonensis</i> A.Chev.	Assoubobissaou (Tchamba)	Diarrheas, oral thrush	Leaves, stem bark, root bark	Decoction, Powder	6	1.84
Malvaceae	<i>Hibiscus sabdarifa</i> L.	Gnaatou (Kabyè)	Diarrheas	Leaves	Decoction	1	0.31
	<i>Sida rhombifolia</i> L.	Afokan (Lamba)	Diarrheas	Leaves, stem bark, root	Decoction, Powder, Infusion	3	0.92
Meliaceae	<i>Khaya senegalensis</i> (Desv.) A.Juss	Frimou/Hermou (Tém)	Diarrheas	Stem bark	Decoction	13	4.00
	<i>Pseudoceudrella kotchyi</i> (Schweinf.)Harms	Ditoré (Tém)	Diarrheas	Leaves, stem bark, root	Decoction, infusion	1	0.31
Mimosaceae	<i>Parkia biglobosa</i> (Jacq) R.Br.exG.Don	Soulou (Kabyè)	Diarrheas, oral thrush	Leaves, stem bark, root bark	Decoction, Powder	42	12.92
	<i>Trichilia emitica</i> Vahl.	Adjendjèkpézou (Tém)	Diarrheas	Stem bark	Decoction, infusion	1	0.31
Moraceae	<i>Dorstenia psilurus</i> Var. Scabra	N'doulou (Tém)	Diarrheas	Stem bark	Infusion	2	0.61
	<i>Ficus carica</i> L.	Frisèmou (Tém)	Diarrheas	Leaves, root	Decoction, infusion	1	0.31
	<i>Ficus exasperata</i> Vahl.	Kédo (Tchamba)	Diarrheas, oral thrush	Leaves	Decoction, infusion	4	1.23
	<i>Ficus sur</i> Forsk	Bindounozo (Tém)	Diarrheas	Stem bark Root bark	Decoction, Maceration	8	2.46
	<i>Ficus thonningii</i> Blume	Sinsisona (Tém)	Diarrheas	Leaves	Decoction	2	0.61
Moringaceae	<i>Moringa oleifera</i> Lam.	Zougala (Tém)	Diarrheas, oral thrush	Leaves, root, seed	Decoction, powder	3	0.92
Ochnaceae	<i>Lophira lanceolata</i> Van tieghex	Akparakpara (Tém)	Diarrheas, Oral thrush	Stem bark Leaves, root bark	Decoction, infusion, powder	9	2.77
Phyllantaceae	<i>Hymenocardia acida</i> (Tul).	Kanthcila (Lamba)	Diarrheas	Stem bark	Decoction	4	1.23
	<i>Phyllantus amarus</i> Schum et Thonn	Lewisra (Lamba)	Diarrheas	Whole plant	Maceration	1	0.31
Rubiaceae	<i>Nauclea latifolia</i> Sm.	Kplii (Lamba)	Diarrheas	Leaves, root	Decoction	3	0.92
Rutaceae	<i>Citrus limon</i> (L.) Burm.	Lamitou (kabyè)	Diarrheas, oral thrush, anites	Fruit	Decoction, Maceration	1	0.31
	<i>Citrus sinensis</i> (L.) Osbeck.	Lémoutou (Kabyè)	Diarrheas	Leaves, Stem bark, Flower	Decoction, infusion	1	0.31
Sapendaceae	<i>Bligia sapida</i> K.D. Koenig	Kpizou (Kabyè)	Diarrheas	Stem bark	Decoction	3	0.92
	<i>Paulina pinnata</i> L.	Fatimagoro (Tém)	Diarrheas	Leaves, root	Decoction, infusion	6	1.84
Sapotaceae	<i>Vitellaria paradoxa</i> Gaertn C.F	Somou (Tém)	Diarrheas, oral thrush, anites	Root bark	Decoction	3	0.92
Tiliaceae	<i>Grewia carpinifolia</i> Juss.	Koungo (Tchamba)	Diarrheas, oral thrush	Stem bark Leaves, root bark	Decoction, infusion, powder	3	0.92

In conclusion, this study helped identify 58 species of medicinal plants used in the treatment of anitis, oral thrush and infantile diarrhea in the central region of Togo. These species are classified in 26 different botanical families and in 54 genera. Data from the literature have shown the presence of tanins, flavonoïds, polyphenols, polyterpenes alkaloids and saponins, which are generally active on microorganisms. This study is a source of information that contributes to knowledge of the medicinal flora and a safeguard of local popular knowledge. It can also constitute a database for the valorization of medicinal plants in order to discover new active compounds that can be used in the treatment of infantile diarrhea, anitis and oral thrush.

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