

Floristic and ethnobotanical studies of medicinal plants used in the treatment of childhood illnesses commercialized in the markets of Daloa (Côte d'Ivoire)

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Abstract

Medicinal plants, since antiquities are used in the treatment of many diseases, especially childhish. The present study aims to know the medicinal plants used in the treatment of childhood illnesses commercialized in Daloa markets and to document the traditional knowledge of the populations. Semi-structured interviews based on an elaborate questionnaire were used with 48 herbalists and traditional healers in 4 markets. A total, 43 species divided into 40 genera and 28 botanical families, have been identified. The most diverse families are the Euphorbiaceae (9.30%), the Fabaceae the Malvaceae and the Mimosaceae with each (6.97%). Forty-seven diseases, grouped into 16 major categories, were formed. Infectious diseases (9 conditions) were mostly cited. Diarrhea (42.55%), fever (29.79%), malaria (23.40%), stomach aches (19.15 %) and stomach wounds (17.02%) are more cited. Decoction (76.74%) and infusion (51.16%) are the preparation modes used. The *Medicinal Use Value (med.UVs)* of the plants used in child care and the *Informant Agreement Ratio (med.IARs)* of the interviewees were determined. Medicinal plants play a very important part in the care of childhood illnesses and the results obtained which can lead to a phytochemical study.

Keywords: Medicinal plants; traditional medicine; childhood illnesses; Daloa; Côte d'Ivoire; West Africa

Introduction

Childhood illnesses are all sickness contacted during childhood. Indeed, childhood illnesses are conditions that mainly affect children, and more particularly infants, where their immune defenses are not yet very strong. They are caused by microorganisms (viruses, bacteria). Some of them can be fatal or leave neurological consequences. According to the UN report [23], despite progress in child survival, an estimated 6.6 million children, or 18,000 a day, die for the most part from preventable diseases worldwide.

In Côte d'Ivoire in particular, 11 children in 100 die before reaching the age of 1 year, and 4 children die between the first and the fifth birthday [9]. Malaria (38%), pneumonia (15%) and diarrhea (12 %) are the main causes of death [19]. The conduct of these diseases is often difficult for economically deprived populations. Added to this is the inadequacy of health infrastructure [25].

In these conditions, many people and in particular those living in Daloa who often use medicinal plants for the health care of their children. In Côte d'Ivoire, studies on the knowledge of medicinal plants have certainly been carried out [16, 24, 11], however, this work in terms of information on the plants used in the care of childhood illnesses are inconsiderable.

In addition, in the Daloa health district, the study by Adjete *et al.* [2], focused only on traditional therapeutic practices. In the context of this study, the work concerns the floristic

diversity of medicinal plants commercialized on the markets, used to struggle less known childhood illnesses and their unbeknown therapeutic virtues.

The objective of this study is to identify the medicinal plants sold in the markets in Daloa, used for childhood illnesses, to identify the therapeutic virtues and to document their relative importance. Specifically, it will involve investigating these medicinal plants, identifying the species commercialized and noting their therapeutic virtues and the uses that are made of them.

Material and Methods

Study sites

The city of Daloa is located in the Haut-Sassandra region, in the Central-West of Côte d'Ivoire, 383 km from Abidjan. Geographical coordinates 6°27'00" latitudes North and 5°56'00" longitude West, this locality is limited in the North by those of Vavoua, in the South Issia and Bouaflé in the East and in the West by that of Zoukougbeu (Fig. 1).

The population of Daloa is made up of indigenous Beté and Niaboua, Baoulé, Senufo and Malinké non-indigenous people, and a Lebanese community. The climate is equatorial with two rainy seasons and two dry seasons. Average annual rainfall is 1500 mm. The vegetation is composed of semi-deciduous forest, forest mosaics and guinean savannahs [1].

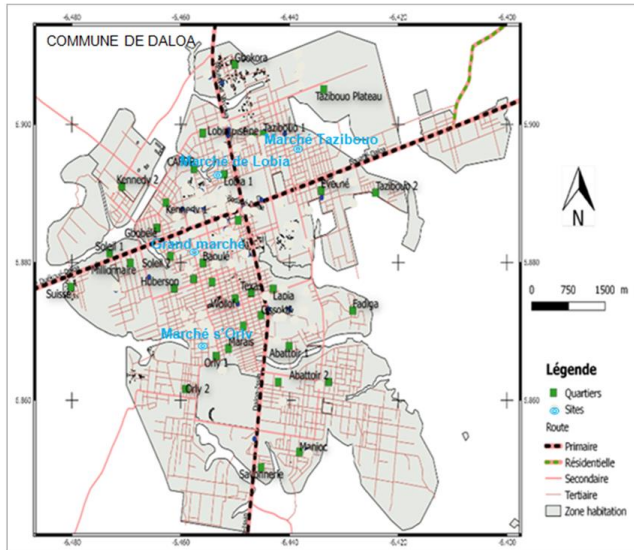


Fig 1: Location of the study sites

Material

They consisted of biological material composed of the medicinal species sold in the markets of Daloa. Technical material included a geographic positioning device (GPS), a digital camera, survey cards and a computer.

Methods

Ethnobotanical surveys

The ethnobotanical surveys were conducted in 4 markets in the town of Daloa (Figs. 2a and 2b). These markets were selected on the basis of the important number of sellers of medicinal plants (traditional healers) and their availability. These are: Orly market (06°52.228'N and 006°27.332'W), large market (06°52.899'N and 006°52.459'W), Lobia market (06°53.891'N and 006°27.180'W) and small market of Tazibouo (06°53.588'N and 006°26.274'W). The procedure adopted was semi-structured interview based on a questionnaire [22, 6]. The survey was conducted with 48 people aged 31 to 83 divided into 35 women and 13 men.



Fig 2: Medicinal plants commercialized in the markets of the city of Daloa: big market (a) and Lobia market (b)

They all had at least 20 years of herbal experience. The questionnaire developed included questions on the informant (age, gender, school level, ethnic group), plants used to treat diseases affecting children, vernacular names of medicinal species, parts of plants used, methods of preparation of recipes and modes of administration. The scientific identification of the species was carried out at the National Floristic Center (CNF) in Abidjan.

Data analysis

The analysis was carried out using data collected from the survey sheets. In ethnobotany, various analytical tools exist and can be used to establish a quantitative estimate of the local importance of a given species or plant [5, 18, 7]. For this study, the *Medicinal Use Value* of each species of medicinal plant was calculated according to the following formula [20]:

$$Med.UVs = \frac{\sum Uis}{ns}$$

where *Uis* - total number of citations of medicinal uses where the species (plant) s mentioned by interviewees i, and *ns* - number of interviewees who mentioned the species. Since the *Medicinal Use Value* (*med.UVs*) does not really reflect the consensus of the interviewees, the *Medicinal Informant Agreement Ratio* (*Med.IARs*) was calculated [18]:

$$Med.IARs = \frac{nr - ns}{nr - 1}$$

where *nr* - total number of citations recorded for the species and *ns* - number of diseases treated with this species. The *Med.IARs* of a species (plant) varies from 0 to 1. The value of *Med.IARs* is 0 when the number of diseases treated is equal to the number of citations recorded and equal to 1 when all respondents agree on the exclusive use of the species for a given disease. A low *Med.IARs* value indicates that interviewees disagree on the use of the species in the given disease.

Result

Socio-demographic characteristics of the respondents

Nine (9) herbalists and 39 traditional healers were interviewed on medicinal plants used in the treatment of childhood illnesses in Daloa, in the Central-West of the Côte d'Ivoire. Interviewees are made up of 13 men (27.08%) and 35 women (72.92%). Their age varied from 31 to 83 years, with a majority at 40 years (43.75%). The majority ethnic groups are those of the Malinké (43.75%) and Baoulé (20.83%). 81.25% admit having acquired their knowledge of medicinal plants from their ancestors contra 18.75% empirically. 52.08% are illiterate compared to 20.84% for the high school (Table 1).

Table 1: Socio-demographic parameters of interviewees (n = 48)

Parameters		interviewees	Frequencies (%)
Gender	Man	13	27.08
	Femrale	35	72.92
Age	≤ 35 years	4	8.33
	36 - 45 years	21	43.75

	46 - 55 years	9	18.75
	> 55 years	14	29.17
School level	Illiterate	25	52.08
	Primary school	13	27.08
	High school	10	20.84
Ethnic groups	Abron	2	4.17
	Agni	4	8.33
	Baoulé	10	20.83
	Malinké	21	43.75
	Maliene	8	16.67
	Senoufo	3	6.25
Respondents groups	Herbalists	13	27.08
	Traditherapists	35	72.92
Acquirement of knowledge	Hereditary (ancestors)	39	81.25
	Empiric	9	18.75

Medicinal species used in pediatrics

Surveys of herbalists and traditional healers in four markets in Daloa have identified 43 medicinal species used in the

treatment of diseases childish with their *med.UVs* and *med.IARs* values (Table), fig. 3.

Table 2: Medicinal species commercialized on Daloa markets and used in the treatment of childhood illnesses

Genus & Species	Family	Biol. tps	Nb ctns	Parts used	Diseases	Nb Dise	Mode prep	Admn	Med.UVs	Med.IARs
<i>Acacia albida</i> Del.	Mimosaceae	Sh	11	bk, fr, le	ot, cgh, whp cgh, nsa, vom, drhe	6	dec	bvg	0.22	0.5
<i>Acacia nilotica</i> (L) Willd. ex Delile - Persée	Mimosaceae	Sh	8	br, lf, le, fr	mal, bel wnd, drhe	3	dec	bvg	0.17	0.71
<i>Adansonia digitaria</i> L.	Bombacaceae	T	7	fr, le, bk	astm, mal, fvr	3	dec	bvg	0.14	0.67
<i>Ageratum conyzoides</i> L.	Asteradeae	H	21	br, le	bel wnd, drhe	2	brg+ chi pep	bvg, pge	0.43	0.95
<i>Alchornea cordifolia</i> (Schumach. & Thonn.)	Euphorbiaceae	Sh	15	br, lf, le	bel wnd, drhe	2	dec	pge	0.31	0.92
<i>Allium sativum</i> L.	Amaryllidaceae	H	4	fr	int wms, drhe	2	dec	bvg	0.04	0.67
<i>Alstonia boonei</i> De Wild.	Apocynaceae	T	6	bk	mal, fvr	2	mac+bandji	bvg	0.12	0.8
<i>Anacardium occidentale</i> L.	Anacardiaceae	Sh	5	le, bk, fr	drhe, sth ah	2	dec	bvg	0.06	0.75
<i>Bombax costatum</i> Pellegr. & Vuillet	Malvaceae	Sh	9	le, fw, bk	rcks, lact, ftg, fvr, conv, edm, msls	7	dec, infs	bvg, bath	0.18	0.25
<i>Calotropis procera</i> (Aiton) R. Br	Lamiaceae	Sh	15	st, bk, rt, le, fw	drhe, sth ah, col, cgh, migr, vom, asth, tgn, vers, fvr, lact	11	dec, infs f	bvg, bath	0.31	0.29
<i>Carica papaya</i> L.	Caricaceae	Sh	15	le, fr, bk,	mal, bltg, bel wnd, drhe, worms, boil	6	infs	bvg	0.31	0.64
<i>Cassia sieberiana</i> DC.	Fabaceae	T	7	le, br, lf, st, bk, rt	sth ah, col, mal, fvr, drhe	5	infs, dec	bvg pge	0.14	0.33
<i>Ceiba pentandra</i> (L.) Gaertn.	Bombacaceae	T	9	bk	chkpx, btn, drhe, sth ah, inf tet	5	dec	bvg	0.18	0.62
<i>Citrus aurantifolia</i> (Cheistm.) Swingle	Rutaceae	Sh	18	le, fr	cgh, cold	2	dec	bath, bvg	0.37	0.94
<i>Citrus limon</i> (L.) Burm. F.	Rutaceae	Sh	16	le, fr	msls, cgh	2	dec	bath, bvg	0.33	0.93
<i>Cnestis ferruginea</i> Vahl ex DC	Connaraceae	Sh	9	le, bk, rt	fvr, scabies, col, cgh, conj	5	dec, mac	bvg	0.18	0.5
<i>Cola nitida</i> (Vent) Schott Endl	Sterculiaceae	T	21	fr	boil, vom	2	broy	pge	0.43	0.95
<i>Combretum micranthum</i> G Don	Combretaceae	Sh	8	le, rt	drhe, fvr, flu, pnia, worms, sk irtn	6	dec, infs	bvg	0.16	0.29
<i>Cymbopogon citratus</i> (DC.) Stapf	Poaceae	H	9	le	fvr, agina	2	dec	bath	0.18	0.87
<i>Desmodium adscendens</i> (Swartz) D.C.	Fabaceae	H	4	le, st	conj, mps, ot	3	infs, dec	bvg	0.08	0.33
<i>Detarium microcarpum</i> Guill. & Perr.	Caesalpiniaceae	Sh	7	le, bk, rt	scabies, rigm, drhe	3	dec, crpd	bvg	0.14	0.67
<i>Dispyros mepiliformis</i> Hochst. Ex A.DC.	Ebenaceae	T	3	le	conj, ot	2	dec+salt	bvg	0.06	0.5
<i>Euphorbia hirta</i> L.	Euphorbiaceae	H	39	le	asth, drhe, worms, bel wnd,	4	infs, dec	pge, bvg	0.81	0.92

Table 2: (continued)

Genus & Species	Family	Biol. tps	Nb ctns	Parts used	Diseases	Nb Dise	Mode prep	Admn	Med.UVs	Med.IARs
<i>Euphorbia prostrata</i> Aiton	Euphorbiaceae	H	11	le	drhe, sth ah, cic- msls, conj	4	dec, infs, crpd	bvg, eye drops	0.22	0.70
<i>Garcinia cola</i> Heckel	Clusiaceae	T	27	le	mal, drhe	2	grinding+bandji	bvg	0.56	0.96
<i>Gossypium arboreum</i> L.	Malvaceae	Sh	5	le	vom, vtg	2	mac	bvg	0.10	0.75
<i>Gossypium barbadense</i> L.	Malvaceae	Sh	4	le	drhe	2	mac, dec	bvg	0.08	0.67
<i>Guiera senegalensis</i> J. f. Gmel.	Combretaceae	Shr	18	le	drhe, gnl fg, chest pain, cgh	4	infs, dec	bvg	0.37	0.82
<i>Jatropha curcas</i> L.	Euphorbiaceae	Sh	17	le	cgh, vom, sth ah	3	sftg, mac	mou dr	0.35	0.87
<i>Kalanchoe crenata</i> (Lam.) Pers.	Crassulaceae	H	22	br, lf	fvr, vom, sth ah	3	dec	bvg, pge	0.45	0.90
<i>Mitracarpus scaber</i> Zucc.	Rubiaceae	H	16	le	sth ah, drhe, rigm, dem, hdch, bel wnd	6	dec, grinding	bvg, pge	0.33	0.67
<i>Moringa oleifera</i> Lam.	Moringaceae	Sh	4	le	mal, lice	2	dec	bvg, rin	0.08	0.67
<i>Ocimum gratissimum</i> L.	Lamiaceae	H	16	br, lf	mal, bel wnd, drhe	3	dec, infs	bvg, pge	0.33	0.87
<i>Paciflora foetida</i> L.	Pacifliraceae	H	18	le	asth, wng, hdch, vtg	4	dec	bvg	0.37	0.82
<i>Parkia biglobosa</i> (Jacq.) R. Br ex G. Don	Mimosaceae	T	13	fr, bk, rt	inf, btn, fvr	3	dec	bath, bvg	0.27	0.83
<i>Paullinia pinnata</i> L.	Sapindaceae	Shr	8	le, rt	ot, sth ah, mal, fvr	4	ash, dec, mal, infs	bvg, pge	0.16	0.57
<i>Phyllanthus amarus</i> (Schum et Thonn)	Phyllanthaceae	H	28	le	mal, fvr, drhe	3	dec, infs	bvg	0.58	0.92
<i>Psidium guajava</i> L.	Myrtaceae	Sh	28	le	mal, fvr, sth ah	3	dec, infs	bvg	0.54	0.93
<i>Sanna occidentalis</i> (L.) Link	Fabaceae	H	14	le	anem, mal, fvr	3	infs	bvg	0.29	0.84
<i>Spondias mombin</i> L.	Anacardiaceae	T	13	le, fw	fvr, drhe, bel wnd, edm	4	infs	bvg	0.27	0.69
<i>Tamarindus indica</i> L.	Caesalpiniaceae	T	28	fr, rt	ang, bltg, btn, nsa, const, resp inf, fvr, drhe, tetng	9	pnd+water+1/2 spf slt	bvg	0.58	0.70
<i>Tapinanthus bangwensis</i> (Engl. & Krause) Danser	Loranthaceae	Bh	18	br, lf, le, fw	mal, sth ah, col	3	dec, mac, infs,	bvg	0.37	0.88
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	H	17	rhz	vom, nsa, col, drhe, edm	5	infs, dec	bvg	0,35	0,75

Meaning of abbreviations Biol tps. - Biological types; Dise - Diseases; prep - preparation; Admn - Administration; T - tree; Sh - Shrub; Bh - Bush; H - Herb; Shr - Shribs; bk- bark; fw - flower; lf - leafy; rt - root; le - leaf; br - branch; st - stem; fr -fruit; rhz - rhizome; anem - anemia; asth - asthma; bltg - bloating; btn -button; drhe - d; iarrhea; edm - edema; col - colic; nsa - nausea; vom - vomiting; sth ah - stomach ache; mal - malaria; tetng - teething; fvr - fever; resp inf -respiratory infection; const - constipation; bel wnd - belly wound; ot - otitis; vtg - vertigo; inf - infection; mx hdch - headache. rigm - ringworm; wng - weaning; cgh - cough; dem - itching; gnl fg - general fatigue; conj - conjunctivitis; whp cgh - whooping cough; scar ric - measles scar; mps - mumps; sk irtn - skin irritation; fntle - fontanelle; pnia - pneumonia; msls - measles; inf tet - infant tetanus; chkpx - chickenpox; lact - lactation; rcks - rickets; int wms - intestinal worms; conv - convulsions; dec - decoction; infs - infusion; bvg - beverage; pnd - pound; chi pep - chilli pepper; spf slt - spoonful of salt; pge - purge; rin - rinse; - mou dr - mouth drop; sftg - softening; crpd - crumpled.



Fig 3: Some medicinal plants commercialized in Daloa markets, used for the treatment of childhood illnesses: *Euphorbia hirta* (a), *Phyllanthus amarus* (b), *Paciflora foetida* (c), *Guiera senegalensis* (d), bark of *Parkia biglobosa* (e), *Cymbopogon citratus* (f), bark of *Ceiba pentandra* (g), *Psidium guajava* (h), *Alchornea cordifolia* (i), *Kalanchoe crenata* (k), *Ocimum gratissimum* (l)

The 43 listed species are divided into 40 genera and 28 families (Table 2). In terms of species, Euphorbiaceae with 4 species (9.30%), is the most important family. Next come the Fabaceae, Malvaceae and Mimosaceae, each with 3 species each (6.98%).

Values of Medicinal UVs and IARs of the medicinal species used cited

The *med.UVs* values of the species listed with traditional healers and herbalists in the four markets in the town of Daloa change from 0.06 to 0.81 (Table 2). *Euphorbia hirta* (0.81) is the species with the highest *med.UVs* value. It is followed by *Tamarindus indica* (0.58), *Phyllanthus amarus* (0.58), *Garcinia cola* (0.56), *Psidium guajava* (0.54), *Kalanchoe crenata* (0.45) and *Cola nitida* (0.43). Also, 10 medicinal species cited presented a *med.IARs* > 0.91. These are : *Garcinia cola* (0.96), *Ageratum conyzoides* (0.95), *Cola nitida* (0.95), *Citrus aurantifolia* (0.94), *P. guajava* (0.93), *Citrus limon* (0.93), *Phyllanthus amarus* (0.92) and *Euphorbia hirta* (0.92) and *Alchornea cordifolia* (0.92). The lowest values of *med.IARs* are registered at the level of 3 species *Combretum micranthum* (0.29), *Calotropis procera* (0.29), *Bombax costatum* (0.25).

Morphological types and plant organs used

The listed species are composed of 10 trees, 17 shrubs, 3 bushes and 13 herbs (Fig. 4). In terms of number of species cited by interviewees, shrubs with 40% of all morphological types are the most important.

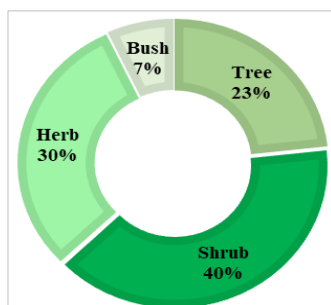


Fig 4: Biological types of the medicinal species cited and used by the interviewees

The organs of the most used medicinal plants (Fig. 5) are the leaves (408 citations), either (39.84% citations), followed by the fruits (214 citations), or 20.90%, roots (114 citations), either 11, 13% and bark (113 citations) either 11.04 %.

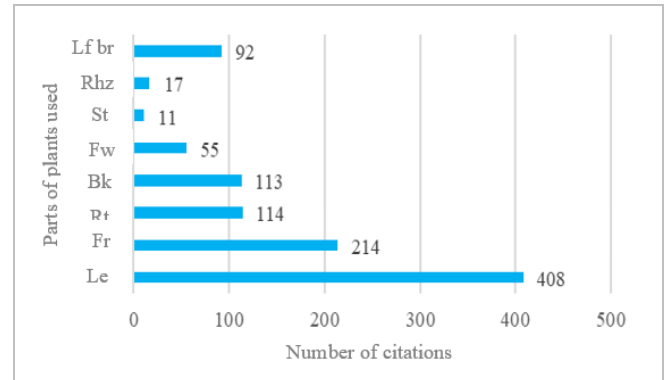


Fig 5: Parts of plants used
 Meanings: Bk - Bark; Br - Branch; Fw - Flower; Lf - Leafy; Fr - Fruit; Le - leaf; Rhz - Rhizome; Rt - Root; St - Sstem

Childhood illnesses cited and mode of use of medicinal plants in the treatment

In this survey, 47 diseases affecting children are cited by herbalists and traditional healers, treated with 43 medicinal species (Table 2). These pathologies change from 2 to 11 per listed species. *Calotropis procera* (11 diseases), *Tamarindus indica* (9 diseases), *Bombax costatum* (7 diseases), *Carica papaya* L. (6 diseases), *Combretum micranthum* G Don (6 diseases) and *Mitracarpus scaber* (6 diseases) are the most cited.

Regarding the techniques for using plants, decoction (76.74%) and infusion (51.16%) are the preparation modes mainly used and cited by the respondents (Table 2). Drinking, bathing and purging are the most recommended modes of administration by the herbalists and traditional healers surveyed.

Diarrhea (42.55% of pathologies), fever (29.79%), malaria (23.40%), stomach aches (19.15%) and stomach wounds (17.02%) are the main diseases affecting children treated out of 47 diseases cited by the interviewees (Table 2). Twenty (20), 14 and 12 species out of the 43 listed belonging respectively to 15, 14 and 12 families are used to treat diarrhea, fever and malaria in children.

The 47 diseases cited by herbalists and traditional healers surveyed in the 4 markets treated by the 43 medicinal species were grouped into 16 major categories (Fig. 6). These are: asthenic diseases (masthn), dermatological diseases (mderm), digestive and stomach diseases (mdig & stom), cephalic diseases (mcepha), inflammatory diseases (minflam), hematous diseases (mhém), infant neurological diseases (mnero infle), infectious diseases (minf), respiratory diseases (mresp), odontology (odonto), ORL, skeletal diseases (msqlte), ophthalmological diseases (mophtamo), intestinal diseases (mintest), rheumatism (rheumatism) and childhood (infa). In terms of number of citations, the disease category is the most cited. It is followed by digestive and stomach diseases, dermatological and ORL diseases.

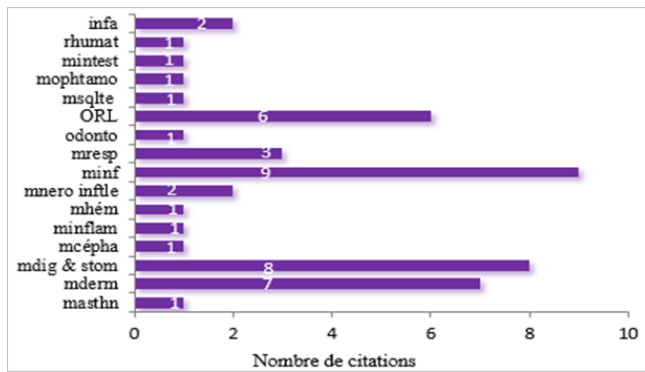


Fig 6: Categories of diseases cited affecting children and treated with herbal remedies

Discussion

The results of surveys on medicinal plants used in the treatment of diseases affecting children have shown that the marketing of plants in the markets of Daloa is carried out by men and women whose ages oscillate from 31 to 83 years, with a majority at 40 years (43.75%). It appears that 72.92% of the interviewees who are interested in this medicinal activity are women. Investigations conducted in Côte d'Ivoire by N'Guessan *et al.*, Ambé *et al.* and N'Guessan^[14, 4, 13] confirmed the predominance of female herbalists in respective rate of 62.50%, 96% and 58.14% of the interviewees.

The ethnobotanical study of commercial plants has identified 43 species divided into 40 genera and 28 botanical families. In terms of the number of species listed, this number is less important than those recorded in numerous surveys carried out on medicinal plants marketed in other markets in Côte d'Ivoire and elsewhere in Africa. Indeed, in Côte d'Ivoire, Tra Bi *et al.*^[22] and Ambe *et al.*^[4] respectively identified 58 species (56 genera and 33 families) in the markets of 3 municipalities in the city of Abidjan, 63 species (58 genera and 34 families) in twelve (12) markets in four municipalities in Abidjan. In Cameroon Ladoh-Yemeda *et al.*^[12] identified 84 species (78 genera and 50 families) in five (5) markets in the city of Douala. This difference in number of species would be linked to the number of markets surveyed.

The Euphorbiaceae (4 species) represent the family mainly cited, that is 9.30% of the listed species. This representativeness of Euphorbiaceae has also been observed during ethnobotanical surveys carried out in other cities in Côte d'Ivoire by Ouattara^[16] in Divo, Tra Bi *et al.*^[22] and Ambé^[4] in the Abidjan markets where these authors recorded 8.8%, 10.34% and 6.35% respectively. This can be explained by the fact that in the Ivorian flora, the Euphorbiaceae are the most represented numerically^[3].

The leaves (408 citations), either (39.84%), the fruits (214), either 20.90%, the roots (114), 11.13% and bark (113), either 11.04% are the most cited parts of the medicinal species used in the preparation of therapeutic recipes by herbalists and traditional therapists. Previous ethnobotanical studies already carried out in Côte d'Ivoire by Tra bi, Ouattara and N'Guessan^[21, 16, 13] and in Burkina Faso by Zerbo *et al.*^[17] show respectively (1997) 70%, 44.26%, 51.22 % and 31% the predominance of the use of the leaves in therapeutic preparations.

The results of the surveys have shown that the most cited preparation method is decoction (76.74%). This result is corroborated by the work of Adjanohoun *et al.*, Zerbo *et al.*

and Béné *et al.*^[1, 17, 8] who registered respectively 32.94%, 58% and 36% for the decocted in terms of the most requested pharmaceutical form.

The ethnobotanical study of the plants marketed made it possible to identify 47 pathologies contra 139 for Ladoh-Yemeda *et al.*^[12]. Regarding these childhood illnesses, infectious pathologies (9 illnesses cited) are the most frequent. These results are in agreement with those of^[17, 12]. It also appears that malaria, fever, cough, stomach wounds and diarrhea are the most cited childhood illnesses. A comparison of the results obtained from this study with those of the work of Zerbo^[17] confirms the predominance of two of these identified childhood illnesses, namely malaria and diarrhea.

Conclusion

Overall, the study made it possible to inventory 43 species in 4 markets in the city of Daloa, constituting an important database for the promotion of medicinal plants used in the treatment of childhood illnesses. Forty-seven (47) pathologies affecting children and treated with medicinal plants were cited by the traditional therapists and herbalists surveyed. The use of these plants could lead to additional studies on the extraction of active ingredients and the more efficient use in conventional medicine to struggle diseases. Until applied research is completed to promote this aspect, medicinal plants are undoubtedly a proven richness and a palliative for the majority of rural populations in resolving primary health problems.

Conflict of interest

The authors declare that they have no conflict interest.

Acknowledgements

Authors express their thanks to herbalists and traditherapists for their valuable partnership.

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