OPEN ACCESS

Journal of Pharmacognosy and Phytotherapy

May 2018
ISSN 2141-2502
DOI: 10.5897/JPP
www.academicjournals.org

ACADEMIC JOURNALS
expand your knowledge

ABOUT JPP

The **Journal of Pharmacognosy and Phytotherapy (JPP)** is published monthly (one volume per year) by Academic Journals.

The **Journal of Pharmacognosy and Phytotherapy (JPP)** is an open access journal that provides rapid publication (monthly) of articles in all areas of the subject such as ethnobotany, phytochemistry, ethnopharmacology, zoopharmacognosy, medical anthropology etc.

The Journal welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence. Papers will be published shortly after acceptance. All articles published in JPP are peer-reviewed.

Contact Us

Editorial Office: jpp@academicjournals.org

Help Desk: helpdesk@academicjournals.org

Website: http://www.academicjournals.org/journal/JPP

Submit manuscript online http://ms.academicjournals.me/

Editors

Journal of Pharmacognosy and Phytotherapy

Table of Contents: Volume 10 Number 5 May 2018

ARTICLE

academicJournals

Vol. 10(5), pp. 91-101, May 2018
DOI: 10.5897/JPP2018.0494
Article Number: 9F105F456939
ISSN 2141-2502

http://www.academicjournals.org/JPP

Journal of Pharmacognosy and Phytotherapy

Full Length Research Paper

Ethnopharmacological studies of plants used for the treatment of rheumatic affections in Ouagadougou, Burkina Faso

Estelle Noëla Hoho Youl[1*], Joëlle W. Stephanie Tiendrebeogo[2], Fasteylah Y. Hounlidji[1], Frank Edgard R. Zongo[1], Aminata Nacoulma[1], Innocent Pierre Guissou[1] and Dieu-Donné Ouedraogo[2]

[1]Département des Sciences Pharmaceutiques Appliquées, UFR Sciences de la Santé, Université Ouaga I Pr Joseph Ki-Zerbo, Ouagadougou, Burkina-Faso.
[2]Département de Médecine et Spécialités Médicales, UFR Sciences de la Santé, Université Ouaga I Pr Joseph Ki-Zerbo, Ouagadougou, Burkina-Faso.

Received 16 February, 2018; Accepted 12 March, 2018

Plants are a considerable source of active substances which are exploited in the treatment of several diseases, among which are rheumatic affections. This study aimed to explore the knowledge of traditional practitioners and patients on medicinal plant species of Ouagadougou, Burkina Faso, used for the treatment of rheumatic affections. Direct interviews with open-ended and closed-ended questionnaires were used to collect information on ethnopharmacological uses of plants among 50 traditional practitioners and 125 patients of the Department of Rheumatology, CHU-Yalgado Ouédraogo. Majority of the traditional practitioners were male (70%) and their average age was 56.42 years. 74% of traditional practitioners had non-formal education and their knowledge on rheumatic affections was limited. A total of 73 medicinal plants belonging to 70 genera in 41 families were cited as being important for the treatment of rheumatism by traditional practitioners. Among the families, Caesalpiniaceae, Combretaceae, Meliaceae, Fabaceae, Euphorbiaceae, Rubiaceae and Apocynaceae were the most represented and root dominated by 52% over other plant parts used as herbal remedies. Plants were used alone or in association with other plants or ingredients. The decoctions were more recommended and administered through oral and topical routes. Majority of the interviewed patients were female (73%) and half of the patients used a traditional treatment in rheumatic affection. The oral route was the advantaged mode of administration of remedies (55.7%) and approximately 10% of the patients considered that the side effects or the interactions between conventional medicine and healing plants were absent. Traditional practitioners are widely involved in the care of rheumatic affections in Ouagadougou. This is the first record on traditional practitioners' knowledge on plants used for the treatment of rheumatism in this area. Investigations have to continue to justify the empirical use of these plants and to obtain essays of medicinal formulations.

Key words: Rheumatic affections, medicinal plants, traditional practitioners, Ouagadougou.

INTRODUCTION

Since the origin of human civilization, humans have found remedies within their habitat and have adopted different therapeutic strategies depending on climatic, phyto-geographic, sociocultural, floral, and faunal characteristics

(Eddouks et al., 2012). Traditional medicine is an important and often underestimated part of health care. It is found in almost every country in the world and the demand for its services is increasing. Traditional medicine, with proven quality, safety and efficacy, contributes to the goal of ensuring that everyone has access to care (WHO, 2013). The rich history of African cultures and their innovative utilization of plants as a source of remedies have been passed down through generations largely by oral tradition (Soelberg et al., 2015).

In Burkina Faso, traditional medicine is used in the treatment of many diseases. The national-scale analysis revealed systematic patterns of traditional plants used throughout the country. So, out of the 2067 known plant species of Burkina Faso, 1033 (50%) had a recorded traditional use (Zizka et al., 2015).

Rheumatic diseases are disorders of connective tissue, especially the joints and related structures, characterized by inflammation, degeneration or metabolic disorder. In the community, rheumatic diseases account for a larger loss of working days than accidents, heart disease and infections. The problem of rheumatic disability is even more pronounced in those participating in hard manual labor where the integrity of the musculoskeletal frame is important (Bird et al., 1985). Burkina Faso economy is strongly dominated by agriculture which uses about 80% of the working population. As a result, time lost from work because of rheumatic diseases is a considerable drain on the economy of this country.

The present study aims to gather all the information concerning the knowledge and the practices of the traditional practitioners (TP) of Burkina Faso regarding rheumatic affections and to establish a catalog of healing plants used in the treatment of these affections to improve the traditional in-care of rheumatic affections.

MATERIALS AND METHODS

Study area

Ouagadougou, situated in the central plateau (12° 21'58'' N 1.31'05'' W) is the capital town of Burkina Faso. It has an area of 2,805 km^2 and it has a population of 2.5 million (2015). The climate of Ouagadougou is hot semi-arid under Köppen-Geiger classification, that closely borders with tropical wet and dry. The city is part of the Sudano-Sahelian area, with a rainfall of about 800 mm per year. The rainy season stretches from May to October, it peaks from June to September, with a mean average temperature of 28°C. The cold season runs from December to January, with a minimum average temperature of 16°C. The maximum temperature during the hot season, which runs from March to May, can reach 43°C. The harmattan and the monsoon are the two main factors that determine the climate in Ouagadougou. Even though Ouagadougou is farther from the equator, the temperatures of its hottest months are slightly high. The main languages spoken are French, mooré, dioula and fulfuldé.

Data collection and plants identification

The data were collected with the TP of Ouagadougou appearing on the directory of the TP set up by the Direction of the Traditional Medicine and the Pharmacopeia (DMPT) of Burkina Faso as well as with patients seen at consultation in the service of Rheumatology of the CHU-YO. The objectives of the study were first revealed to the interviewees after informed consent, then an open and closed questionnaire was administered. The answers were directly transcribed on the index cards. The questionnaire was structured in seven sections: i) identification of the TP; ii) organization of the work of management of patients; iii) diagnosis of the rheumatic affections; iv) treatment of the rheumatic affections; v) identification of the patient; vi) use of medicinal plants; vii) information of the rheumatologist on the use of medicinal plants. The identification of the plant was performed using its mooré names given by the TP.

Data analysis

The answers to the open questions were compiled to measure the reserved variables. The closed questions were treated by the software Epi Info3.5.1. and Excel 2010.

RESULTS AND DISCUSSION

Identification of the traditional practitioners

The socio-demographic characteristics of the TP were analyzed using the following variables: gender, age groups, educational status, religion, number of years of practice, major occupation and the mode of acquisition of knowledge in the study area (Table 1).

Fifty TP were interviewed in this study and male respondents dominated this population (70%). This situation is better explained by the hereditary character of the transmission of healing power. As the sons succeed their fathers in the management of the family business, the secrets of the family are thus transmitted to them. The profession of traditional practitioner confers notoriety. The greater respect for men could be due to the fact that they treat more health problems or very often also use spiritual powers for diagnosis or treatment, whereas women more often have mainly herbalistic knowledge. In the African societies, this status suits men most (Gessler et al., 1995) accounting for the male ascendancy found in the current study and many other studies (Ogunkalu et al., 2017; Gessler et al., 1995; Ould, 2009). But this transmission of healing power and ancestral knowledge occurs in adult life, thus, justifying the average age of the TP of this study which was 56.42 years.

*Corresponding author. E-mail: yestella@yahoo.fr.

Table 1. Socio-demographic characteristics of traditional practitioners.

Variable	Frequency (N=50)	Percentage
Gender		
Male	35	70
Female	15	30
Age		
20 - 39	1	2
40 - 54	15	30
55 - 69	27	54
70 - 84	7	14
Educational status		
Non-formal education	37	74
Primary education	8	16
Secondary education	5	10
Religion		
Islam	37	74
Christianity	13	26
Number of years of practice		
00 - 09	8	16
10 - 34	32	64
35 - 59	10	20
Major occupation		
Traditional practitioner	25	50
Others	25	50
Mode of acquisition of knowledge		
Family inheritance	26	52
Acquired	9	18
Inborn	8	16
Inborn and family inheritance	4	8
Acquired and family inheritance	3	6

It was observed that the level of education of the majority of the TP in the study area was relatively low (74% non-formal education). The same observation has been reported by Thiane (2004) and Kroa et al. (2014), respectively in Senegal and Côte d'Ivoire. This can be attributed to the low schooling rate in sub-Saharan Africa in general and in Burkina Faso in particular. In addition, in the current study and that of Ogunkalu et al. (2017), these groups of traditional healers did not feel the need for formal education because they believed that the knowledge of traditional healing is cultural, instinctive, inherited, innate and spiritual and hence requires no education.

Seventy-four percent of the TP were Muslim. This is consistent with the fact that the Islam is the main religion of Burkina Faso (CNLS-IST, 2016). Although, more than half questioned practitioners asserted having another activity, they were solidly established as suppliers of care in numerous communities. The average period of practice of the investigated TP was 23.48 years: they were thus experienced professionals. These might be explained by the fact that most are engaged in this job up to an advanced age and that their expertise was passed on to them during their adulthood by a member of their family.

Knowledge of TP on rheumatic affections

All the TP of the current study had some knowledge on rheumatic affections. Their information based on symptoms and complications is detailed in Table 2.

Regarding the symptoms of rheumatic affections, all the TP only mentioned the joint and osseous pains which can affect the back, hips, knees and other parts of the

Table 2. Information on the rheumatic affections evoked by traditional practitioners.

Variable	Frequency	Percentage
Symptoms		
Swelling of the painful parts	5	10
Sensation of freshness	5	10
Inability to walk	4	8
Sensation of broken bones	4	8
Sensation of tightening of the joints	4	8
Pain in upright position	4	8
Way of sitting down	3	6
Cramps	3	6
Loss of weight	1	2
Others	17	34
Total	50	100
Complications		
Humiliation	24	48
Death	6	12
Immobility	5	10
Limitation of certains movements	4	8
General swelling	3	6
Faint	2	4
Dizziness	2	4
Ageing	1	2
Paralysis	1	2
Convulsions	1	2
Other	1	2
Total	50	100

body. However, the precision of the time of appearance of these pains or the triggering factor helps to classify various rheumatic affections in "mechanical" or "inflammatory" pathology.

Just like the symptoms, the problem of nosology also settled at the complications level of the rheumatic affections. According to the criteria of modern medicine, the complications of the rheumatic affections lead to an involvement of the vital organs (heart, lungs, kidney and liver) (Prescott, 2013). These complications were not mentioned by the TP because this infringement is only detectable by medical examinations that the TP cannot identify.

Botanic characteristics of plants used in the treatment of the rheumatic affections

This study identified 73 medicinal plants belonging to 70 genera in 41 families for treatment of rheumatism. Detail on the number of cited plants from the respective of plant family is presented in Figure 1. Table 3 belows shows the ten most used plants in the treatment of rheumatic affections by the TP and *Saba senegalensis* is the most reported. Figure 2 shows the part of the plants used in the treatment of rheumatic affections.

The best represented families were Caesalpiniaceae, Combretaceae, Meliaceae, Fabaceae, Euphorbiaceae, Rubiaceae and Apocynaceae. In fact, these various families greatly contribute to the flora of Burkina Faso (Zizka et al., 2015).

All parts of the plant are used in the fresh or dry state: roots, leaves, barks of the trunk, fruits, flowers and seeds. Roots were the parts of the plant preferentially used. The use of root or whole plant and the frequent use of seeds or fruit for the preparation of medicines have destructive effects on the growth of plants population in nature (Ghimire et al., 2008).

Ethnopharmacological survey

The most quoted medicinal plants by the TP during the investigation were used alone or in association with the treatment of rheumatic affections. 81 recipes were listed and water was the only solvent of extraction of these remedies. The methods of preparation of the plants are summarized in Figure 3 and decoction was the most

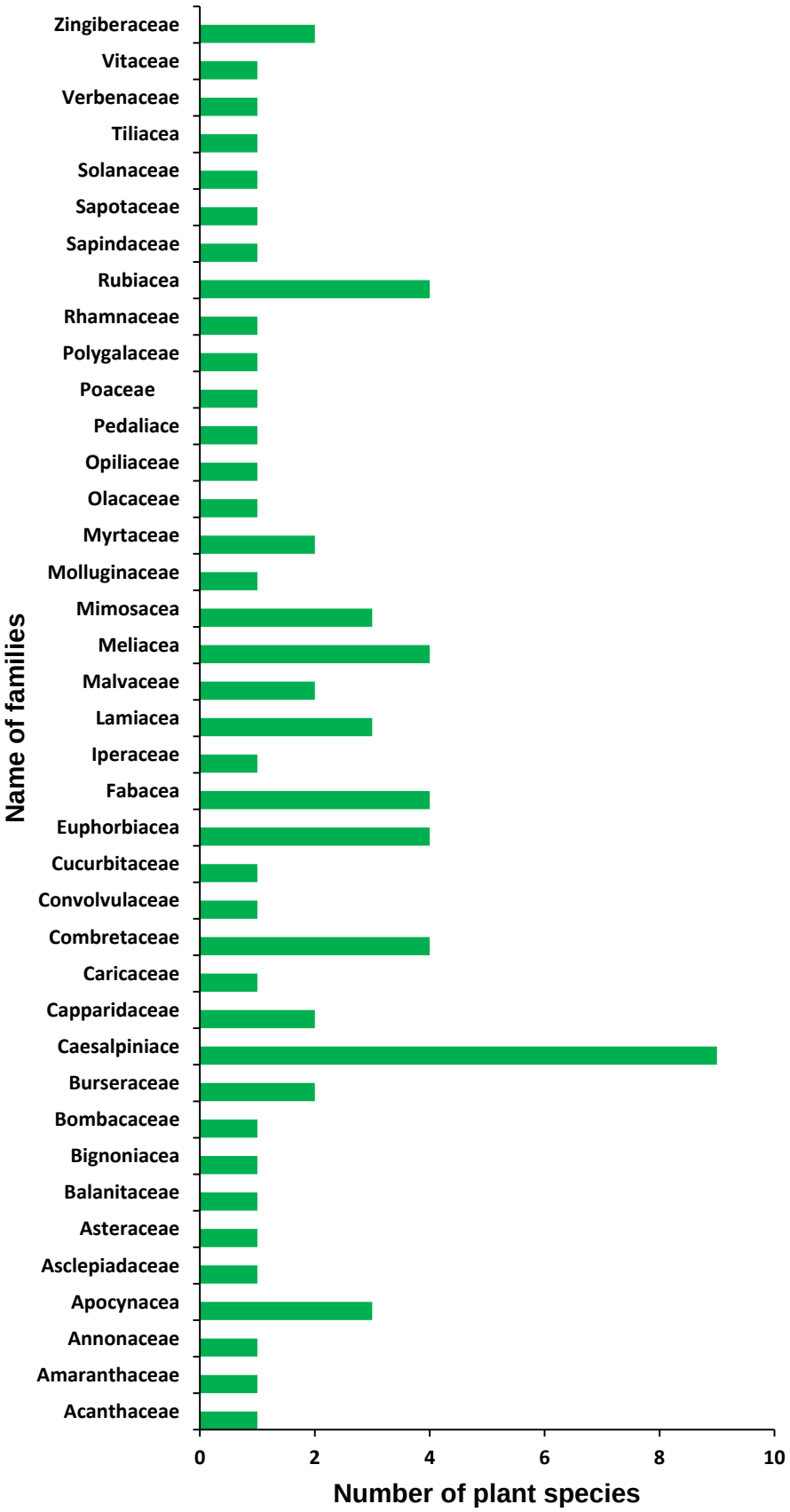

Figure 1. Representation of the families and amount of plant species.

Table 3. Ten plants mostly used in the treatment of the rheumatic affections.

Scientific name	Part used	Frequency (number of TP)	Percentage of TP
Saba senegalensis (A. Dc) Pichon	Leaves	15	30
Parkia biglobosa (Jacq.)	Barks	13	26
Guiera senegalensis J. F. Gmel.	Leaves, roots	13	26
Calotropis procera (Ait) Ait. F.	Leaves, barks	10	20
Anogeissus leiocarpus (DC)	Bark, roots	08	16
Khaya senegalensis (Desr) A. Juss	Barks	06	12
Crescentia cujete L.	Fruits	05	10
Annona senegalensis Pers.	Leaves, roots	05	10
Trichilia emetica Vahl	Roots	04	08
Zizyphus mauritiana Lam.	Barks, roots	03	06

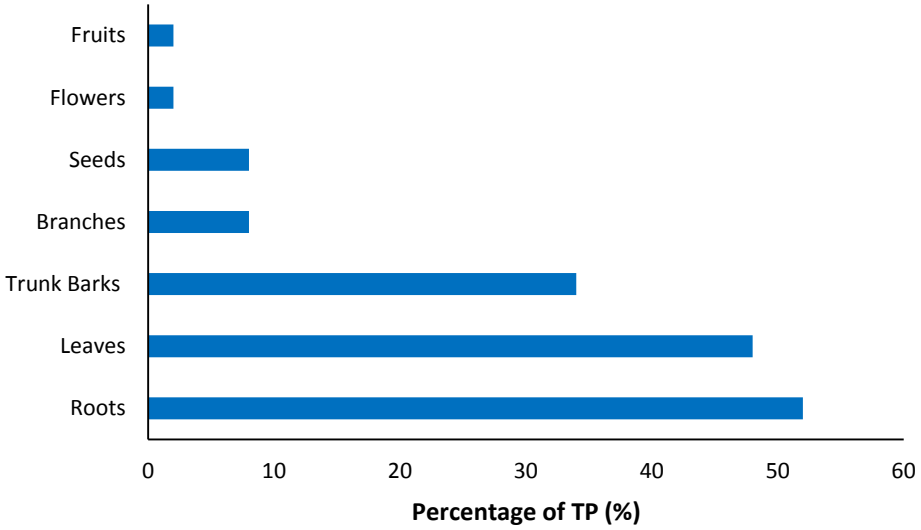

Figure 2. Parts of the plants used in the treatment of rheumatism.

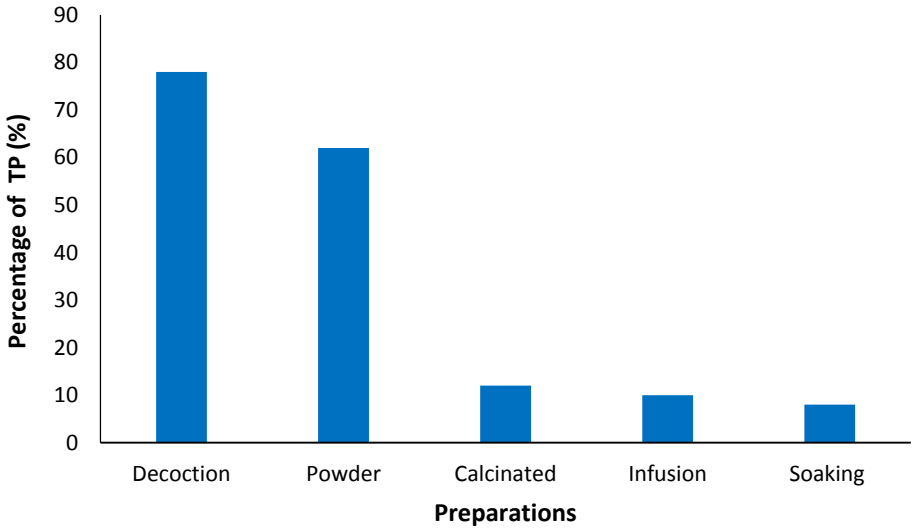

Figure 3. Methods of preparation.

Table 4. Excipients used in recipes.

Excipients	Frequency (number of TP)	Percentage of TP
Shea butter	12	24
Parts of animals	6	12
Potassium hydroxide	2	4
Honey	2	4
Guinea fowl eggshell	2	4
Onions	2	4
Human nails	2	4

used. Shea butter was the most frequently used excipient in the remedies as shown in Table 4. Some recipes are recorded in Table 5.

The TP prepared the recipes themselves in 56% of the cases. This attitude guarantees the quality of remedies, the respect for the quantities of raw materials and the setting-up time. The traditional medication includes medicinal plants, human parts, animal parts and minerals but plants are the most important part of the traditional therapeutic armamentarium.

Decoctions were the most frequently used forms, followed by powders, infusions and macerations. Decoctions have a shorter shelf-life than some powders which stay longer because they are dry forms. The absence of preservative agents in decoctions would limit their shelf life.

In this study, all TP claimed that their remedies had neither side effects nor contraindications for pregnant women and children. This could be explained by the fact that bath and massage were the most frequently used modes of administration, besides the oral form. But these assertions must be checked, because these quoted plants are especially used for their anti-inflammatory properties. However, the main side effect of anti-inflammatory drugs, in particular, non-steroidal anti-inflammatory (NSAI) on peptic ulcers may be fatal complications (Drini, 2017). Moreover patients need to be informed and be aware of potential serious adverse effects (Drini, 2017).

Identification of the patients

The study was performed in the Department of Rheumatology, CHU, Yalgado Ouedraogo involving 125 patients who had come in consultation. Sociodemographic characteristics of patients are summarized in Table 6 below. Attitudes and practices of patients related to medicinal plants have also been investigated and presented in Table 7.

Majority of the patients seen in the Rheumatology Department during the study were females (73%) and the age range is 45 to 60 years and 30 to 45 years were the most represented. Although, the relationship between the occurrence of the rheumatic affections and the gender remains unknown, there is a large consensus that adult women consult more in the service of rheumatology (Carapetis et al., 2005). Half of the interviewees used a traditional treatment in rheumatology affection. This could be due to the efficiency of these plants when the main purpose of their use is to reduce the symptoms and not cure (Rao et al., 1999).

In this study, 77% of the patients were informed about the utility of healing plants by their families or friends. Indeed, in Burkina Faso, there is in every geographical region, a familial self-medication, based on the TP. The danger to the population is that some retailers amplify the therapeutic indications of plants, do not mention the precautions for their use and do not know their side effects and toxicity. The prevalent mode of administration of remedies for patients was drink (55.7%). This is in accordance with the results found for TP of the current study.

All the patients who used medicinal plants did not inform their rheumatologists on the use of medicinal plants. Information on the traditional medicine should be included in routine consultation for a better global coverage of the patient. In a study in USA, almost half of the patients who used medicinal plants in rheumatology affections informed their rheumatologist for fear of the side effects (Rao et al., 1999).

In this study, approximately 10% of the patients considered that there were no side effects or interactions between conventional medicine and healing plants. The same proportion was reported in the study of Hmamouchi et al. (2012) on the traditional use of Moroccan healing plants in rheumatology.

Conclusion

This study among the TP and patients of Rheumatology Department showed that healing plants are widely used by these patients for traditional care of rheumatic affections.

This study revealed that majority of the TP acquired their knowledge through inheritance from their parents, and the symptoms and the complications of the

Table 5. Plants used for rheumatism treatment.

S/N	Scientific name	Part used	Preparation	Administration	Utilization
1	*Saba senegalensis* (A.Dc) Pichonen + *Calotropis procera* (Ait) Ait.F.	Fresh leaves	Decoction	Oral, bath	Oral: 1 glass of tea in the morning and evening for 3 or 7 days. Bath: 1 bath (SQT dilute in a bucket of water) in the morning and evening for 3 or 7 days
2	Saba senegalensis (A.Dc) Pichon + *Gardenia sokotensis* Hutch.	Fresh leaves	Decoction	Oral	Oral: 1 glass of tea in the morning and evening for 14 days.
3	*Saba senegalensis* (A.Dc) Pichon + *Securidaca longepedunculata* Frescen.	Seeds (*S. sengalensis*) and roots + leaves (*S. longepedunculata*)	Decoction	Bath	Bath: 1 bath (SQT dilute in a bucket of water) in the early morning for 7 days
4	*Saba senegalensis* (A.Dc) Pichon + *Crescentia cujete* L.	Fresh leaves	Decoction	Oral, bath	Oral: 1 glass of tea in the early morning and at bedtime for 7 days. Dermal route: 1 bath (SQT dilute in a bucket of water) in the early morning and at bedtime for 7 days
5	*Saba senegalensis*(A.Dc) Pichon + *Anogeissus leiocarpa* (DC) Guill. Et Perr. + *Annona senegalensis* Pers.	Leaves (S. senegalensis (A.Dc) Pichon et d'A. leiocarpa (DC) Guill. Et Perr.) and roots (*A. senegalensis*. Pers.)	Decoction	Oral, bath	Oral: 1 glass of tea in the morning and evening for 7 days. Bath: 1 bath (SQT dilute in a bucket of water) in the morning and evening for 7 days
6	*Parkia biglobosa* (Jacq.) R. Br. Ex G.	Powder dry roots	Infusion, powder	Oral, massage	Oral: 1 teaspoon of powder in ½ glass of hot water once a day Massage: massage the painful parts with 1 pinch of powder mixed with shea butter once a day in the early morning just after the bath.
7	*Parkia biglobosa* (Jacq.) R. Br. Ex G. + *Anogeissus leiocarpus* (DC) Guill. Et Perr.	Powder dry leaves	Decoction	Oral, bath	Oral: 1 glass of tea in the morning, noon and evening for 07 or 14 days. Bath: 1 bath (SQT dilute in a bucket of water) in the early morning and at bedtime for 7 or 14 days
8	*Parkia biglobosa* (Jacq.) R. Br. Ex G. + Maerua angolensis Dc	Fresh bark of the trunk (*Parkia biglobosa* (Jacq.) R. Br. Ex G.) and fresh branches looked like roots (*Maerua angolensis* Dc)	Decoction	Oral	Oral: ½ glass in the morning, and evening for 3 or 7 days.
9	*Parkia biglobosa* (Jacq.) R. Br. Ex G. + *Flueggea virosa* (Roxb Ex Willd.) Voigt. + *Combretum micranthum* G. Don.	The bark of the trunk or roots (*P. biglobosa* (Jacq.) R. Br. Ex G.), Roots (*C. micranthum* G. Don.) and fresh leaves of *F. virosa* (Roxb Ex Willd.) Voigt.	Decoction	Bath, massage	Massage (during the crises): massage the painful parts with impregnated wipe of a decoction Bath (maintenance treatment): 1 bath (SQT dilute in a bucket of water) in the morning and evening for 7 days
10	*Guiera senegalensis* J.F. Gmel.	Fresh roots	Decoction	Oral, massage	Oral: ½ glass in the morning, noon and evening for 7 days. Massage: massage the painful parts with impregnated wipe of a decoction in the morning and evening for 7 days
11	*Guiera senegalensis* J.F. Gmel. + *Combretum glutinosa* Per.	Fresh roots	Decoction	Oral	Oral: 1 glass of tea in the morning and evening for 14 days.
12	*Guiera senegalensis* J.F. Gmel. + *Calotropis procera* (Ait) Ait. F. + *Cassia sieberiana* DC	Fresh roots	Decoction	Oral, bath, massage	Oral: ½ glass in the morning and evening for 7 or 14 days. Bath, massage: 1 bath (SQT dilute in a bucket of water) in the morning and evening for 7 or 14 days and 1 massage of painful parts with impregnated wipe of a decoction in the morning and evening for 7 or 14 days

Table 5. Contd.

13	*Anogeissus leiocarpus* (DC) Guill. Et Perr. + *Combretum micranthum* G. Don.	Fresh leaves	Decoction	Oral, bath	Oral: 1 cup with 1 spoonful of honey in the morning, noon and evening for 7 days. Bath: 1 bath (SQT dilute in a bucket of water) in the morning and at evening for 7 days
14	Khaya senegalensis (Desr) A. Juss + Azadirachta indica A. Juss.	Fresh leaves (*K. senegalensis* (Desr) A. Juss) and dry seeds (*A. indica* A. Juss.)	Decoction	Oral, bath	Oral: 1 glass of tea in the morning and evening for 7 days. Dermal route: 1 bath (SQT dilute in a bucket of water) in the morning and at evening for 7 days
15	*Khaya senegalensis* (Desr) A. Juss + *Zanthoxylum zanthoxyloïdes* Lam	Dry bark of trunk *K. senegalensis* (Desr) A. Juss) and powder dry of leaves + bark trunk (*Z. zanthoxyloïdes* Lam)	Decoction, Powder	Oral, massage	Oral: 1 teaspoon of powder in the porridge in the morning and evening for 7 days. Massage: massage the painful parts with 1 pinch of powder mixed with shea butter in the morning and evening for 7 days.
16	*Khaya senegalensis* (Desr) A. Juss + *Balanites aegyptiaca* (L.) + *Zyziphus mauritiana* Lam.	Dry bark of trunk (*K. senegalensis* (Desr) A. Juss) and dry roots (*B. aegyptiaca* (L.) + *Z. mauritiana* Lam.)	Decoction	Massage, fumigation	Fumigation: 1 fumigation (vapor of powder boiled in shea butter) of painful parts in the morning and evening for 3 or 5 days. Massage: mass the painful parts with the cooled medicine in the morning and evening for 3 or 5 days.
17	*Trichilia emetica* Vahl	Dry roots and dry fruit	Powder	Massage	Massage: massage the painful parts with 1 pinch of powder mixed with shea butter in the morning, noon and evening for 3 days.
18	*Trichilia emetic* Vahl + *Acanthospermum hispidum* DC + *Gardenia sokotensis* Hutch	Dry roots (*T. emetica* Vahl), dry bark of trunk (*A. hispidum* Dc) and dry leaves (*G. sokotensis* Hutch)	Infusion	Oral	Oral: 1 teaspoon of the powder in the tea in the early morning for 5 or 7 days.
19	*Zizyphus mauritiana* Lam.	Fresh roots and leaves	Decoction	Oral, bath, massage	Oral: 1 glass of tea in the early morning, noon and in the evening for 7 or 14 days. Bath, massage: 1 bath (SQT dilute in a bucket of water) in the early morning, noon and at evening for 7 or 14 days. During the bath, mass painful parts with impregnated wipe of the decoction.
20	*Zizyphus mauritiana* Lam. + Tam*arindus indica* L.	Roots (*Z. mauritiana* Lam.) and bark of the trunk (*T. indica* L.)	Decoction	Oral, massage	Oral: 1 teaspoon of powder in the porridge in the morning, noon and evening for 3 weeks or 1 month. Massage: 1 massage of the painful parts with 1 pinch of powder mixed with shea butter in the morning, noon and evening for 3 weeks or 1 month.

SQT : Sufficient Quantity To

rheumatic affections were not very well known by them. It is also observed from this study that TP use mainly the roots of plants to prepare remedies, thus, it is crucial to cultivate and protect these species. An important proportion of people who are going to consult at the hospital have used, besides medical treatment, the traditional medicine. They do not inform their doctor who, otherwise, could have warned them of the few known interactions between the allopathic drugs and traditional medicine. The rheumatologists should thus always consider the possible use of traditional medicine by their patient. Considering the high proportion of patients taking both types of drugs and the poor knowledge on the interactions between plants and allopathic drugs, the mechanisms of action and the possible side-effects of the active substances of these plants

Table 6. Socio-demographic characteristics of patients.

Variables	Frequency (N=125)	Percentage
Gender		
Male	34	27
Female	91	73
Age		
15 - 29	7	5,6
30 - 44	44	35,2
45 - 59	51	40,8
60 - 74	23	18,4

Table 7. Attitudes and practices of patients related to medicinal plants.

Attitudes and practices	Frequency	Percentage
Users		
Yes	52	41.6
No	73	58.4
Total	125	100
Knowledge of the use		
Family	23	44.2
Friends	17	32.7
Traditional practitioner	12	23.1
Total	52	100
Mode of administration		
Oral	29	55.7
Massage	16	30.8
Scarification	7	13.5
Total	52	100
Justification of its use		
Efficacy	24	46.2
Lower cost	19	36.5
Fast cure	4	7.7
Less adverse effects	3	5.8
Diverse reasons	2	3.8
Total	52	100
Justification for the absence of information to the doctor		
Not in the discussion	37	71.1
Useless	8	15.4
Not in conventional medicine	5	9.6
Tradition	2	3.9
Total	52	100
Consequences of association with conventional medicine		
Beneficial effects	30	57.7
Adverse effects	5	9.6
No answer	17	32.7
Total	52	100

should be extensively studied in order to propose safe treatments.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENTS

The authors thank the Directorate General for Pharmacy, Drug and Laboratories (DGPML) of Burkina Faso, for the use of a directory of the TP as well as all the TP and the patients who took part in the study.

REFERENCES

Bird HA, Le Gallez P, Hill J (1985). Combined care of the rheumatic patient. Springer- Verlag berlin Heidelberg. P 2.

Carapetis JR, Steer AC, Mulholland EK, Weber M (2005). The global burder of group A streptococcal diseases. Lancet Infect Dis. 5(11):685-694.

CNLS-IST (2016). Rapport d'activité sur la riposte au sida au Burkina Faso. GARP. P 7.

Drini M (2017). Peptic ulcer disease and non-steroidal anti-inflammatory drugs. Austr. Prescr. 40(3):91-93.

Eddouks M, Chattopadhyay D, De Feo V, Cho WC (2014). Medicinal plants in the prevention and treatment of chronic diseases 2013. Evid. Based Complement Altern. Med. pp. 1-3.

Gessler MC, Msuya DE, Nkunya MHH, Schär A, Heinrich M, Tanner M (1995). Traditional healers in Tanzania: sociocultural profile and three short portraits. J. Ethnopharmacol. 48:145-160.

Hmamouchi I, Mouna R, Ezzahra F, Khazzani H, Bennani L, Bzami F, Mansouri L, Tahiri L (2012). Use of moroccan herbal products among patients of rheumatology. Rev. Mar Rhum. 22:52-56.

Kroa E, Diaby B, Niaré A, Traoré Y, Ahoussou EM, Yao GHA, Coulibaly GS, Kouassi D (2014). Analyse de la collaboration entre médecines traditionnelle et moderne dans la région du Sud Bandama (Côte d'Ivoire). Revue CAMES–Série Pharm. Méd. Trad. Afr. 17(1):21-27.

Ogunkalu OA, Sodimu AI, Suleiman RA, Oni BO, Otiwa GI (2017). Ethno medicinal survey of plants used for the treatment of rheumatism in Kajuru Local Government Area of Kaduna State, Nigeria. World Scientific News 80:43-56.

Ould M (2009). Contribution to study of the medicinal plants of Mauritania. Tome XVII. Série sciences. Université de Lomé (Togo). 27:11.

Prescott SL (2013). Early-life environmental determinants of allergic diseases and the wider pandemic of inflammatory noncommunicable diseases. J. Allergy Clin. Immunol. 131(1):23-30.

Rao JK, Mihaliak K, Kroenke K, Bradley J, Tierney WM, Weinberger M (1999). Use of complementary therapies for arthritis among patients of rheumatologists. Ann. Int. Med. 409:131.

Soelberg J, Asase A, Akwetey G, Jäger AK (2015). Historical versus contemporary medicinal plant uses in Ghana. J. Ethnopharmacol. pp. 160:109-132.

Thiane FM (2004). Connaissance de l'Epilepsie, attitude et pratique des tradipraticiens de Dakar. Thèse de doctorat en Pharmacie. Université Cheikh Anta Diop de Dakar 95:1-43.

World Health Organization (WHO) (2013). WHO traditional medicine strategy: 2014-2023. WHO Library Cataloguing-in-Publication Data. P 7.

Zizka A, Thiombiano A, Dressler S, Nacoulma B, Ouédraogo A, Ouédraogo I, Ouédraogo O, Zizka G, Hahn K, Schmidt M (2015). Traditional plant use in Burkina Faso (West Africa): a national-scale analysis with focus on traditional medicine. J. Ethnobiol. Ethnomed. 11:9.

Related Journals: