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Full Length Research Paper

Ethnomedicines used for treatment of prostatic disease in Foumban, Cameroon

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The medicinal plants used for the treatment of prostate diseases and related efficiency in Foumban were reviewed based on the ethnobotanic, some chemical and biochemical reports. A total of 40 plants species belonging to 29 families have been used to prepare 27 remedies, for treatment of specific prostate ailments such as prostatitis, prostatic adenoma (benign tumour hypertrophy) and cancer of prostate. Two plant species (*Raphia mambillensis* and *Vernonia guineensis*) are those widely used, the more valued being *V. guineensis*, called "*Guinea ginseng*" by traditional healers. Some of the plant species, including *Allium cepa*, *Allium sativum*, *Arachis hypogaea*, *Carica papaya*, *Cucurbita pepo*, *Elaeis guineensis*, *Ipomoea batatas*, *Ocimum basilicum* and *Prunus africana* are known to yield constituents treating prostate diseases.

Key words: Medicinal plants, prostatic diseases, Foumban, Cameroon.

INTRODUCTION

The prostate, gland situated rightly under the bladder in the junction of the urinary and the genital ways, is part of the masculine genital apparatus (Figure 2). Three diseases develop in that gland: prostatitis (inflammation of the gland), prostatic adenoma (benign tumour leading to adenofibromyoma hypertrophy), and cancer of prostate (malign tumor) (De la Taille, 1998; Navratil, 1998). The prostatic diseases are known by the Bamoun people. They are called "Keken schienke" (hard urine translating the difficulty to the micturition or dysuria). The diagnosis is based on the symptoms of trouble of urine emission: hindrance to urinate in the morning, sometimes haematuria (adenoma); painful prostate, trouble of micturition and haematuria (cancer); painful prostate and sometimes presence of an abscess; dysuria, slow, laborious micturition, small and retarded urine jet (prostatitis) . These different symptoms correspond to the criterias of the clinical signs mentioned by Zeyon et al. (1967) , Le Garnier Delamare (1995), De la Taille (1998), Lebret and Botto (1999).

The traditional treatment of the prostatic diseases can be found in the Cameroonian ethnobotanical literature, with *Ziziphus spina-christi* (L.) Derf. (Adjanohoun et al., 1996) and *Prunus africana* (Hook. f.) K. Schum. (Cunningham and Mbenkum, 1993; Schippman, 2001), as well as in the African related literature, with *Euphorbia laterifolia* in Mali (Adjanohoun et al., 1978). But this documentation seems to be poor for a plurality of pathology in which only prostate cancer ranks second worldwide in terms of mortality, after the cancer of the lung (Lopez and Perrin, 1999). The diseases of prostate, very frequent in men of more than 50 years, certainly exist in the population of the Foumban subdivision, West Cameroon. Around the world many works have been focused on herbal remedies to treat cancer or urinary diseases (Roja and Rao, 2000; Alakbarov, 2001; Guy et al., 2000) . The traditional healers of the study area have therefore developed local phytotherapy to overcome prostate diseases. The objectives of the study are to document information on plants species used in the treatment of prostatic ailments as practised in Foumban, and to appreciate the possible efficiency of the therapeutic preparations on the testimony of the patients treated, or due to the chemical and biochemical data on those plants, obtained from the literature.

STUDY AREA

The Foumban subdivision (5°43'-5°43' North latitude and

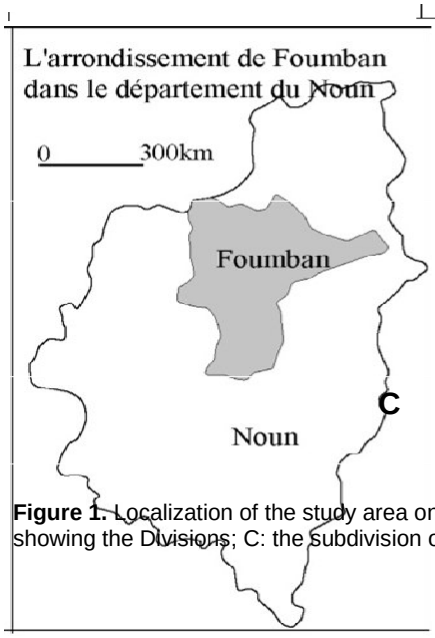

Figure 1. Localization of the study area on the map of Cameroon (A: map of Cameroon; B: The region of West showing the Divisions; C: the subdivision of Noun showing the subdivision.

10°53'- 10°55' Est longitude) (Figure 1) spreads on 7000 ha, on an average of 900-1200 m of altitude (Suchel, 1972). Vegetation belongs to the dense deciduous forest, in the Guinea Congolese area, Guineo-sudanian sector, sometimes sub-mountain (1200-1600 m) with shrubby savannas with *Terminalia glaucescens* (Letouzey, 1985). The climate is of the Cameroonian equatorial type, which is that of the higher lands of the West and the North-West. Two seasons share the year: a dry season (mid-November at mid-March) and a rainy season of 8 months. The annual rainfall and temperature averages are 1800 mL and 21.3°C, respectively.

The population of the subdivision was about 167000 in 2001-2002 (Now Departmental Delegation of the Ministry of the Plan and Territorial Management), with 110000 in the Foumban town and 5700 in the rural zones. The inhabitants are mostly autochthonous Bamoun, Haoussa, Bororo, and Bamiléké. Greater part of them is Muslims, but there are also Christians and animists (Kpwang, 2001). The Bamoun society is managed on a strongly hierarchical organisation, based on the Muslim tradition. The head of the community is a Sultan. The daily means of existence comes from agriculture, the craft industry and rearing. Coffee (*Coffea arabica* L., Rubiaceae) is one

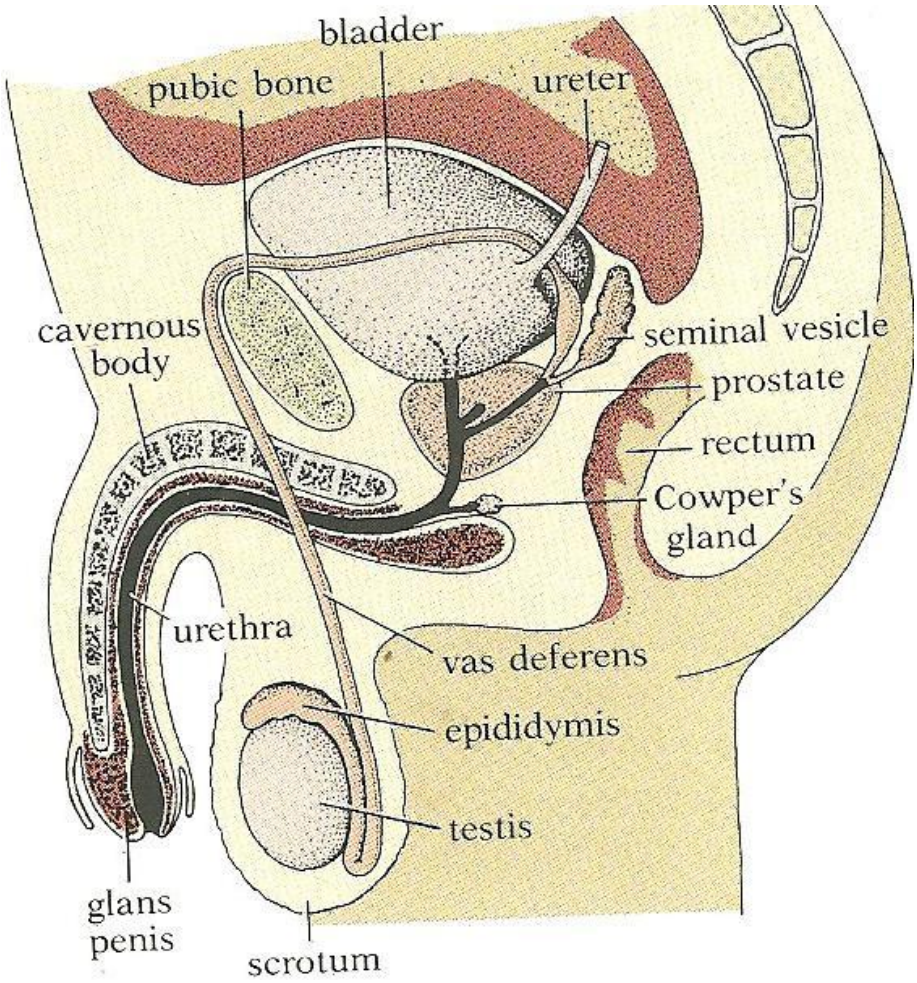

Figure 2. Localization of prostate in the male genital apparatus (Source: Keeton and Gould, 1993A).

of the basic income-generating agricultural products.

RESEARCH METHODS

The field works were done in 2007-2008 through interviews based on two questionnaires having semi-open questions addressed to the traditional healers of Foumban town and those of the Nkoussam and Nkoundja villages, as well to the patients (old or under treatment) living in the subdivision. At every moment, the interviewees were informed of the objectives of the survey as well as of the indications on the content of the questionnaire that were being administered. To the patients aged 30 to 70 years, the questions were relative to their domestic statute, their knowledge of the illnesses, the length of the illness and the recipe being used. To traditional healers, the questions dealt with their knowledge of the types of prostatic illnesses, the plants and recipes used, the number of cases already treated.

After some explanations, the anonymous questionnaire was given to be filled to those who could either have it filled by an author through a non- oriented conversation (made at random); no direct questions were asked in order to prevent biased answers and avoid compromising spontaneity. Every information that came out during the conversation was transferred to a structured form in the questionnaire.

The method being adopted followed the criteria outlined by Johns et al. (1990), Hedberg (1993), Waller (1993) and Bruni et al. (1997) in conducting interviews. The traditional healers who had cooperated to this work, showed the plants used to treat the prostatic illnesses and indicated the various recipes and some patients treated or under treatment. A numeric camera permitted to fix the pictures of the plants whose parts had been harvested like voucher specimen. Plant classification and nomenclature follow those of Aubréville et al. (1963- 1998), Vivien and Faure (1985), Biholong (1986) and Lebrun and Stork (1991-1997). The chemical and biochemical data of plants are searched in the scientific literature. The goal is to determine the effectiveness of their extracts on the treatment of prostate diseases.

Based on the work of Bruni et al. (1997), where the Exploitation Index (EI) concerns all the ethnopharmacological plants and therapeutic preparations of a region, the Usage Index (UI) is deducted relative to the ethnopharmacological data of an ailment in a given site. So, the evaluation of the number of medical preparations and the determination of the percentage of plants found in the Foumban subdivision, that are actualized for medicinal treatment of prostatic ailments, may provide a good indication of the degree of phytotherapeutic usage. Hence, the Usage Index (UI)

was calculated using the formula:

UI = %Pm x AMP,

Where %Pm is the percentage of plants used for prostatic diseases and AMP the average number of medicinal preparation per plant.

This method makes it possible to readily compare the information gathered on the same site or on different sites, in a mathematical manner, about the same or different diseases. Moreover, by applying this approach, it would be possible to make an objective comparison of ethnopharmacological data obtained from various sites worldwide. In the present study, voucher herbarium specimens were prepared and deposited in the Department of Biological Science of the Higher Teachers' Training College of the University of Yaoundé I. A complete record of the interviews is also on file at the Higher Teachers' Training College of the University of Yaoundé I. The results of the investigations were computerised to organize better the final document.

RESULTS

The prevalence rate of prostatic illnesses is not available in Foumban hospitals. It is reported that hospitals only rely on surgical treatments, which are very costly in respect to the low incomes of the population. The patients therefore prefer local traditional medicine. The population interviewed was made of 15 traditional healers (4 of whom were women) and 10 male patients, distributed as followed: a) 3 individuals of 35-45 years old, sick of prostatitis; b) 4 individuals of 45-60, sick of prostate adenoma; c) 2 individuals of more than 60, sick of prostate cancer. The adenoma and cancer of the prostate are more frequent to people of more than 60 years old. Some preparations present some efficiency for up to 70% of the patients.

The informants agreed to publish the investigation results as their contribution to the survey of the Bamoun pharmacopoeia. The plants collected are presented in Table 1, column 2. They are grouped in respect to the type of prostatic ailment treated and the number of plants used in the therapeutic preparation. The plant is presented in botanical name/family/local name (with the number of the voucher specimen of the author). Forty species belonging to 35 genera and 29 families have been listed. The important families are: Asteraceae (10% of species), followed by Liliaceae (7.5%). The species more cited by informants in Table 1 are: *P. africana* (Figure 3), 21.6% of total quotations; *Vernonia guineensis* (Figure 4), 35.2%; *Aloe barteri* (Figure 5), *Citrus aurantiifolia* and *E. laterifolia* (Figure 6).

In Table 1 the phytotherapy recipes are classified according to the type of prostatic illnesses treated, the alphabetical order of botanical names and the number of species used in a preparation. Non-botanical ingredients are also presented. Twenty-seven recipes are used in the treatment of prostate diseases. The number of species, by preparation, goes from 1 to 8, the maximal associations being for cancer treatment. The Table 1 summarizes the quantitative data in the first line. The result presents an exploitation discriminating the plant resources according to the average of plants by preparation (2.48). The Usage Index of flora (UI) on this topic studied in FOUMBAN is extrapolated from the perspective of Bruni et al. (1997). There are 8000 vascular plant species in Cameroon (Letouzey, 1979). The UI of flora by the traditional healers of Foumban for the treatment of the prostate is: UI = (40/8000 x 100) x 1.67 = 0.83 (the percentage of the 40 plant species out of 8000, multiplied by 1.67, which is the therapeutic preparation average by plant) (Table 1, first line, 3th column).

The data collected from the 15 traditional healers are presented in Table 2; Column 1 includes the codes of the traditional healers. Then in the other columns: the type of prostatic illness treated the number of cases treated, the length of treatment and the recipe used. With the help of those traditional healers, we met 10 old and new patients in the Foumban subdivision. Only 3 patients could recognise the preparations used. Five patients (adenoma and cancer) had the improvement of micturition for 1-2 years after the treatment and 1 case of cancer was still resisting to the treatment.

DISCUSSION

As a result of effort to document the traditional medicine uses of plants to treat prostatic ailments in the Foumban subdivision, 40 species are reported. The information reported in this communication, particularly for Garcinia afzelii (Figure 7), is found to be new to the literature of Cameroonian Medicinal Plants (Cousteix, 1961; Esso et al., 1987; Kingue et al., 1994; Noumi and Yomi, 2001; Noumi and Fozi, 2004). Likewise, uses of plant species like *P. africanus*, *Z. spina-christi* and *E. laterifolia* are found to be similar to the uses by other tribes in Cameroon (Cunningham and Mbenkum, 1993; Adjanohoun et al., 1996), and in Mali Republic (Adjanohoun et al., 1978) indicating authenticity of their usefulness in the treatment of the prostate ailments.

Plants species used are generally obtained from their wild sources. However some species are observed to be grown by many people in their fields or homestead gardens, viz, the following species as food (*Arachis hypogaea*, *Cucurbita pepo*, *Ipomoea batatas*, *Musa* sp.), as spices or condiments (*Capsicum frutescens*, *Ocimum basilicum*, *Tetrapleura tetraptera*), as fruits (*Carica papaya* , *C. aurantiifolia*) and for medicinal purpose (*A. barteri*, *Cissus quandrangularis*). This indicates authenticity of their usefulness in treating prostate ailments. Nowadays, in the submountain forest where they grow, the individuals of *P. africana* are destroyed by people who collect the stem bark for the market. The domestication of the plant species is deserved by many traditional healers. Most therapeutic preparations are

Table 1. Recipes used in the treatment of prostate illnesses.

Recipes number and (% of quotation)	Plant species/Family/Local name/Voucher specimen number: Plant part used	Mode of use
Total recipes = 27 Total informants = 25 Total quotations = 125 Total quotations/informants = 5 (125/25)	Total plant species = 40 Total quotations of plant species in all recipes = 67 Total quotations/recipes = 2.48 (67/27) Not plant ingredients : honey, local rum or hâ, rock salt	Total of medicinal preparations = 27 Average of medicinal quotations per plant (AMP) = 67/40 = 1.67 Qs = quantum satis (Latin), qsp = quantité suffisante pour (Français)
Recipes of prostatitis		
1. (2.4)	*Alchornea cordifolia* (Schum. & Thonn.) Müll. Arg./ Euphorbiaceae/ Dibobonji (Noumi 73)	2 handfuls of dried leaves boiled in 1 L of water for 10 min, the mixture infused during 24 H and the solution drunk: 1 glassful 3 times a day.
2. (4)	*Aloe barteri* Baker/ Liliaceae/ Toukoushep nsèn (Noumi 87): 3 big leaves of about 3 years cleared of spines. + Miel : 1 L + Local Rhum or Odontol or Hâ : 125 mL	The past of leaves is mixed to the honey and the local rum and the mixture eaten : 2 spoonfuls 30 min before meal 3 times a day. Nota bene. Always shake the mixture before using.
3. (2.4)	*Cissus quandrangularis* L./ Vitaceae/ Ndi nkàka (Noumi 75): a stem of 30 cm in length, cutted	The cuted stem is introduced in a bottle of 1.5 L, the volume is completed with water (qs for 1.5 L) for 2 days of maceration and the solution drunk: 125 mL 4 times a day. Nota bene. The recipes 3 and 7 are used together.
4. (1.6)	*Euphorbia lateriflora* Schum. & Thonn./ Euphorbiaceae/ Pon là nschùm (Yumdin 06): A stem of 30 cm in length	The cuted stem is macerated in 1.5 L of water for 3 days and the solution drunk : 1 soup spoonfuls 3 times a day. Nota bene. The recipes 4 and 10 are used together.
5. (1.6)	*Euphorbia lateriflora* : A stem of 20 cm in length, cuted + Rock salt: a half of 1 teaspoonful	The ingredients are macerated in 1,5 L of water for 2 days and the solution drunk : 1|4 of a glassful three times a day.
6. (2.4)	*Ipomoea batatas* (L.) Lam./ Convolvulaceae/ Babelè (Noumi 09): 4 handfuls of leafy stems	The plant elements cuted and macerated in 3 L of water, the mixture placed on the sun for 12 H and the maceration drunk : 1 glassful twice a day.
7. (1.6)	*Tetrapleura tetraptera* (Schum. & Thonn.) Taub./ Mimosaceae/ Pâsi (Noumi 01): 2 handfuls of stembark	The pounded stem bark boiled in 5 L of water for 15 min and the cooled whitish decoction is drunk : 1 glassful before meal 3 times a day. Nota bene. The preparation can make 2 months.
8. (4.3.2)	*Vernonia guineensis* Benth./ Asteraceae/ Mgbu kwet (Noumi 86): 20 fresh tubers	The pounded tubers boiled in 2.5 L of water for 15 min and the cool decoction drunk: 1 glassful 3 times a day.

Table 1. Contd.

9. (3)	- *Citrus aurantiifolia* Swingle/ Rutaceae/ Lemu me shùe shùe (Noumi 44): 2 fruits - *Mimosa pudica* L./ Mimosaceae/ Poumshe bèmou (Noumi 85): 1 handful of leaves	The cuted ingredients boiled in 2 L of water for 15 min and the cooled decoction drunk: 1 glassful 3 times a day. Nota bene. The preparation is renewed after 3 weeks.
10. (2.4)	- *Garcinia afzelii* Engl./ Clusiaceae/ Ngèn (Noumi 78): 4 spoonfuls of powdered stembark - *Musa* sp./ Musaceae/ Ngwom (Noumi 75): 1 spoonful of precipited salt from filtrate of ashes evaporated	The 2 ingredients are mixed and 1 teaspoonful added in a cupful of corn paff thrice a day, before eaten.
11. (5.6)	- *Vernonia calvoana* (Hooh. f.) Hook. f./ Asteraceae/ Vu plume lume (Noumi 04): 6 roots - *Vernonia guineensis* : 10 tubers	The plant elements are ground, 1 teaspoonful of powder infused in a cupful of hot water before swallowing, thrice a day.
12. (3.2)	- *Acmella caulirhiza* Delile/ Asteraceae/ Tso guip (Noumi 72: 2 handfuls of dried leaves - *Cola acuminata* (P. Beauv.) Schott & Endl./ Sterculiaceae/ Nshen pèh (Noumi 33): 1 cola nut - *Oldenlandia lancifolia* (Schum.) DC./ Rubiaceae/ Ewuda mbanja (Noumi 80): 2 handfuls of dried leaves	The ingredients ground in paste (a small quantity of water added) is divided in 9 balls, and 1 ball swallowed per day.
13. (3.2)	- *Allium cepa* L./ Liliaceae/ Oignon (Noumi 03): 4 bulbs crushed - *Citrus aurantiifolia*: 5 fruit juice - *Daucus carota* L./ Apiaceae/ Carotte (Noumi 76): 1000 g of ground tubers + Honey : 250 mL	The mixture of *Allium cepa* and *Daucus carota* is introduced in 1.5 L of water and passed throughout a clean tissue. The obtained liquid is added with the juice of *Citrus aurantiifolia* and the honey and the solution drunk: 2 glassfuls before meal 3 times a day. Nota bene. The preparation is daily, due to rapid fermentation of onion.
14. (5.6)	- *Carica papaya* L./ caricaceae/ Ndobu pare (Noumi 02): 4 roots - *Raphia manbillensis* Otedoh/ Areceae/ Nkare (Y Noumi 74): 2 L of palm wine - *Vernonia guineensis* : 4 tubers	Roots and tubers boiled in the raphia-wine for 10 min and the cool solution drunk: 1 glassful before meal 3 times a day. Nota bene. The preparation can be conserved for 2 day.
15. (4)	- *Allium cepa* L.: 2 big onion bulbs - *Allium sativum* L./ Liliaceae/ Ail (Noumi 11): 10 cloves of Garlic - *Aloe barteri* : Gel of a big leaf - *Ocimum basilicum* L./ Lamiaceae/ Basilic (Noumi 05): 30 leaves	To the juice obtained by press from the 3 first ingredients, add the gel of *Aloe barteri* , and the mixture drunk : 1 soup spoonful before meal 3 times a day.

Table 1. Contd.

Recipes of prostatic adenoma		
16. (7.2)	- *Prunus africana* (Hook. f.) Kalkm/ Rosaceae/ Lumty (Noumi 83): 2 handfuls of stembark	The pounded stem bark boiled in 3 L of water for 15 min; the mixture infused for 24 H is through a sieve and the solution drunk: 1 glassful thrice a day.
17. (6.4)	- *Prunus africana* : Powdered stem bark - *Prunus africana* : 250 g of dried stembark	A teaspoonful of stem bark powder is added in a cupful of corn paff and the mixture eaten: 3 times a day.
18. (8)	- *Pteleopsis hylodendron* Mildbr./ Combretaceae/ Sikon (Noumi 93): 250 g of dried stembark - *Vernonia guineensis* : 500 g of dried tubers	The powdered plant elements boiled in 5 L of water for 15 min and the cool decoction drunk : 1 glassful 3 times a day.
19. (3.2)	- *Coccinea barteri* (Hook. f.) Kea y/ Cucurbitaceae/ Là nkwet (Noumi 77): 50 g of leaves - *Eryngium foetidum* Schum. & Thonn./ Apiaceae/ Fu nue (Noumi 10): 50 g of leaves - *Euphorbia lateriflora* : 2 stems of 30 cm in length - *Raphia manbillensis* : 2 L of Raphia wine	All ingredients are boiled for 10 min and the cool solution drunk: 1 glassful 3 times a day. Nota bene. The solution can be conserved for 2 days.
Recipes of cancer of prostate		
20. (4.6)	*Cucurbita pepo* L., or *C. maxima* Duchesne ex Lamarck / Cucurbitaceae/ Shùem (Noumi 89) or *Cumeropsis mannii* Naud. (Egussi) (Cucurbitaceae) : Seeds	The regularly eating of seed almond in soup, meal or in rough form has a prophylactic or curative action on cancer of prostate.
21. (4)	- *Acanthus montanus* (Nees) T. Anders./ Acanthaceae/ Fonzem (Noumi 91): 3 leaves cleared of spines and cutted - *Arachis hypogaea* L./ Fabaceae/ Pirien (Noumi 45): Half a glassful of peanut crushed.	The ingredients mixed and prepared as a meal eaten 4 times a day.
22. (3.2)	- *Aloe barteri* : 4 leaves - *Phragmanthera capitata* ‘Sprengel) S. Balle/ Loranthaceae/ Gui (Noumi 35: 4 leaves parasite of bush plants (*Dracaena arborea, pennisetum purpureum*) - *Vernonia guineensis* : 2 dried tubers + local rum or Hâ: 1,5 L	The plant elements are ground in paste mixed with local rum for 2 weeks and the solution drunk: 1 soup spoonful in half a glassful of water thrice a day.
23. (2.4)	- *Capsicum frutescens* L./ Solanaceae/ Yiwuoh messi (Noumi 07): 18 fruits - *Coccinea barteri*, 18 leaves - *Ipomoea batatas* : Liquid from fermentation of 5 big tubers	Liquid from alcoholic fermentation of cuted tubers of *Ipomoea batatas* , in 2 L of water for 1 week, is mixed with the paste of fruits and leaves and the filtrate drunk: Half a glassful 3 times a day.

Table 1. Contd.

24. (3.2)	- *Citrus aurantiifolia* : 7 leaves and 3 fruits - *Gossypium barbadense* L./ Malvaceae/ Dap fufu (Noumi 08): 5 roots and 4 green fruits - *Musa* sp. : 1 spoonful of precipited salt from filtrat of ashes evaporated - *Vernonia guineensis* : 10 tubers	The salt of *Musa* sp. mixed with the cuted plant elements, the mixture boiled in 3.5 L of water for 10 min and infused for 24 H and the solution drunk: a glassful 3 times a day.
25. (4)	- *Annickia chlorantha* (Oliv.) Selten Maas.P.S.M./ Annonaceae/ Mfol (Noumi 07): 50 g of stembark - *Guibourtia tessmannii* (Harms) J. Leonard/ Ceasalpiniaceae/ Bubinga (Noumi 94): 80 g of stembark - *Hallea stipulosa* (DC.) O. Ktze/ Rubiaceae/ Elolom (Noumi 98): 50 g of stembark - *Petersianthus macrocarpus* (P. Beauv.) liben/ Lecytidaceae/ Sikon (Noumi 90): 50 g of stembark - *Vernonia guineensis* : 80 g of tubers	The ingredients ground and infused in 5 L of water and the infusion drunk: A glassful 30 min before meal 2 times a day.
26. (3.2)	- *Cissus aralioides* (Welw. ex Bak.) Planch./ Vitaceae/ Ndi pon (Noumi 17): a stem of 30 cm in length - *Coccinea barteri*: 2 or 3 leafy stem - *Eryngium foetidum* : 1 handful of leaves - *Euphorbia lateriflora* : 2 stems of 20 cm in length - *Raphia manbillensis* : 3 L of Raphia wine	The plant elements mixed, boiled for 15 and the cool solution drunk : 1 glassful 3 times a day.
27. (2.4)	- *Anchomanes difformis* Engl./ Araceae/ Nku' sùen (Noumi 88): 1 tuber - *Cissus quadrangularis* : 1 stem of 30 cm in length - *Euphorbia lateriflora* : 1 stem of 20 cm in length - *Ficus* sp./ Moraceae/(Yumdin 37: A half a hanfull of stembark - *Khaya grandifoliola* C.DC./ Meliaceae/ Fà (Noumi 70): 1 handful of stembark - *Tetrapleura tetraptera* : 1 handful of stembark - *Vernonia conferta* Benth./ Asteraceae/ Ndàpa meshe (Noumi 71): 2 leaves - *Vernonia guineensis* : 12 tubers	All ingredients dried, powdered and 1 teaspoonful in hot cupful of paff or hot water 3 times a day.

Figure 3. *Prunus africana* (Hook. f.) Kalkm. Vegetatif apparatus (Noumi Picture, 2007).

Figure 4. *Vernonia guineensis* Benth. Leafy stems with tubers (Noumi Picture, 2007).

Figure 5. *Aloe barteri* Baker. Leafy stem (Noumi Picture, 2007).

Figure 6. *Euphorbia lateriflora*. Schum. & Thonn. Vegetatif apparatus (Noumi Picture, 2007).

Figure 7. *Garcinia afzelii* Engl. Vegetatif apparatus (Noumi picture, 2007).

utilised in the fresh state, as decoction, infusion, maceration. The methods and periods of administration are also widely different. In many cases, after preparation, the products are stored and used. In some cases, former studies have identified the chemical constituents and investigated their pharmacological effects according to the type of the prostate illness.

Cancer

The treatment is especially carried out by means of oestrogen therapy and anti-cancerous substances.

Table 2. Distribution of the number of prostate illnesses types treated, in respect with traditional healers.

Traditional healers (age in years)	Prostatic diseases treated	Number of treated patients	Duration of treatment	N° Recipes used
Phyto A (48)	Prostatitis	3	Until healing	2, 13
Phyto B (53)	Cancer of prostate	7	1 - 3 months	22, 27
Phyto C (67)	Cancer of prostate (Prostatitis)	5	Until healing	16, 23, 25
Phyto D (65)	Cancer of prostate, Prostatitis	4	1 - 3 months	8, 21, 24, 26
Phyto E (45)	Adenoma of prostate	2	Until healing	18
Phyto F (57)	Prostatitis	3	Until healing	3,4,5,7
Phyto G (54)	Adenoma of prostate	3	1 - 3 months	16
Phyto H (67)	Adenoma of prostate, Prostatitis	7	1 - 3 months	9, 11, 19
Phyto I (40)	Prostatitis	2	1 - 3 months	14
Phyto J (45)	Prostatitis	2	1- 3 months	1
Phyto K (48)	Adenoma of prostate	3	1 - 3 months	17
Phyto L (52)	Adenoma of prostate	2	Until healing	19
Phyto M (51)	Prostatitis	3	1 - 3 months	12
Phyto N (49)	Prostatitis	3	1 - 3 months	6
Phyto O (56)	Prostatitis	6	Until healing	5

Oestrogen therapy

Among some female hormones, estrogens have an extraordinary activity on the cancer of the prostate. The results of the oestrogen therapy are really stupendous. They actually make the metastases regress considerably (Zeyon et al., 1967). This is due to the action of *A. hypogaea*, an œstrogen factor that is soluble in oil (Adrian and Jacquot, 1968). Dishes saturated in raw palm oil are traditional meals in the North-West, South-West and West Regions of Cameroon: the "Hehro ", a sauce made of the leaves of *Gnetum africanum* L. (Gymnosperme); the "Kondscha ", maize and bean boiled; the "Ashu", tubers of taro crushed, beaten with yellow sauce or "Nahpoh ", which is a raw palm oil emulsion (Noumi and Valet, 1987). It was reported that in these Regions, prostate illnesses are not frequent, and when they exist, they are often reduced to cases of prostatitis. In fact, the palm oil that is mostly used in these regions is rich in sterol: ergosterol (or provitamine A) and in oestrogen (oestrogen or folliculine) (Kerarho and Adam, 1974).

Figure 8. *Cucurbita pepo* L. Leafy stem and fruit (Noumi Picture, 2007).

Uses of anti-cancerous substances

C. pepo (Figure 8) and *C. maxima* (like all other Cucurbitaceae) are characterised by the presence of the bitter principles of cucurbitacines (Watt and Breyer-Brandwijk, 1962). At the experimental level, these cucurbitacines reveal some anti-tumorous properties on the cancerous tumours. The cucurbitacines D, E and I of *C pepo*, *Lagenaria siceraria* provoke an inhibition of sarcoma 180, black sarcoma and carcinomas of Erlich ascites, sarcoma 180 being the most sensitive (Gitter et al., 1961).

Adenoma

Some adenomas of weak volume are not very complicated and embarrassing to the patient and can be treated medically, notably by means of anti-spastic, male and female hormones, tranquillisers, diets avoiding stimulants and spices. *P. africana* (Figure 3) is used to manufacture drugs against the adenoma of prostate (Cunningham and Mbekum, 1993). The medicine called the TADENAN owes its efficiency to a *P. africana* extract, which has beta-sitosterol principle that decreases the intensity of the disorders through an increase in the urinary flux and a reduction of urine residues (Wilt, 1999).

Prostatitis

The treatment of prostatitis is done using antibiotics, and even antivirals.

Antibiotics

Prostatitis is an infection of the prostate caused by urinary germs (bacterial prostatitis), especially *staphylococci*, *Escherichia coli, gonorrhoea*, *Enterobacter* and *Pseudomonas*. The treatment requires antibiotics, to sufficient doses and for long intake, and to which the germ responsible is not resistant.

Allium cepa

Once it is cooked, this raw onion is reputed diuretic, hypoglycaemic. The juice of onion is bacteriostatic (Paris and Moyse, 1971).

Allium sativum

The juice of garlic possesses some bacteriostatic properties. The active principle, allicine, is active *in vitro* on the rate of 1/100000 against different positive and negative Gram bacteria (Staphylococci Streptococci, intestinal Bacteria) (Kerarho and Adam, 1974).

Carica papaya

The roots and leaves of are prescribed for chronic gonorrhoea with urethral shrinkage and painful micturitions. The seeds are active against *E. coli* and *S. aureus* (Georges and Pandalai, 1949).

Ipomoea batatas (Figure 9). The aqueous and methanolic extract of the whole plant, leaves, tubers would be active against the Gram+ and Gram- bacilli (Nickel, 1959).

Ocimum basilicum

The leaf essence is also a good remedy against catarrhs, especially genitourinary. Its seeds extract has antimicrobial activity against positive Gram bacilli and mycobacterium (Nickel, 1959).

Antiviral

Annickia (Enantia) chloranta

The stem bark contains protoberberins that have preventive and curative effects on hepatic illnesses and some forms of ulcer; they also show some anti-VIH activity (Wafo et al., 1999).

Figure 9. *Ipomoea babatas* (L.) Lam. Big tuber on leafy climbing stems (Noumi Picture, 2007).

Alchornea cordifolia

Good results are obtained in the treatment of the jaundice in using preparations of roots, leaves or stems (Guadel, 1955).

Pteleopsis hylodendron

For a woman suffering from herpes (Edip in Beti language), she has transparent bladders on the genital mucous membranes and successive abortions (genital herpes). Sometime it causes successive deaths of infants (herpes of the breasts) . Those symptoms disappear with the treatment using the decoction of *Pteleopsis hylodendron*. Then the woman can procreate, delivering children in good health. We had the opportunity to observe 14 patients after their treatment, for 10 years (1997-2007) . They did not show signs of illness anymore. The Usage Index (UI) of the plant species for the treatment of prostate in the Foumban area is estimated at 0.83. It is also important than the UI found in Foumban (0.82) relative to kwashiorkor phytotherapy (Noumi and Mpemboura, 2007), more important than the one for the treatment of sinusitis in the Babimbi region (UI = 0.18) (Noumi and Ngo Babang, 2006), the one concerning abortions in the Buea area (UI = 0.33) (Noumi and Njeumen, 2007), and the one relating to the treatment of erectile impotence in Okola (UI = 0.62) (Noumi, 2004). Several plant species are used in a great number of preparations for the treatment of prostate illnesses, with a coefficient of 2.48 plant species by recipe. Another high value of coefficient (2.27) is reached concerning kwashiorkor treatment in the same area (Noumi and

Mpemboura, 2007). This result indicates a good use of the phytotherapy resources to reduce those illnesses. Seven to over 10 patients (70%) have got well (Table 2, column 4) while using the preparations or combination of preparations from 15 traditional healers. Among them, the patient n° 3 was treated by the R16 recipe from the traditional healer "Phyto G". So, the potential efficiency of some local recipes using medicinal plants is put in evidence. The R25 recipe, made of 5 plants (with *V. guineensis*), did not relieve prostate cancer of patient 8. This may be because the aged man began the treatment after 3 years, in a very advanced state of illness.

Conclusion

The present study indicates the medicinal use in the Foumban subdivision of 40 plant species (representing 35 genera and 29 families) for treatment of prostate problems and related afflictions. The information was gathered by reviewing the ethnobotanic investigations. Our observations suggest that the long-standing uses of these medicinal plants testify to the medicinal efficacy and safety. From the discussion, further systematic investigations into the chemical constituents, pharmacological actions, and toxicity of the plant materials will be needed, however, to prove medicinal worth.

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