



Ethnobotanical survey of medicinal plants used as anthelmintic remedies in Gabon



Idensi Bajin ba Ndob^a, Line Edwige Mengome^{a,*}, Henri-Paul Bourobou Bourobou^a, Yvon Lossangoye Banfora^a, Francis Bivigou^{a,b}

^a Institut de Pharmacopée et Médecines Traditionnelles (IPHAMETRA), Centre National de la Recherche Scientifique et Technique (CENAREST), BP: 12 141 Libreville, Gabon

^b Gabon-Oregon Center (GOC), BP:23906 Libreville, Gabon

ARTICLE INFO

Article history:

Received 24 February 2016

Received in revised form

4 June 2016

Accepted 8 June 2016

Available online 11 June 2016

Keywords:

Ethnobotanical survey

Medicinal plants

Anthelmintic

Gabon

ABSTRACT

Ethnopharmacological relevance: In this article, we report on an ethnobotanical survey realized at the Peyrie market in Libreville on Gabonese medicinal plants used to treat helminthiasis. While several alerts about cases of resistance to conventional anthelmintic treatments are causing to fear a public and animal health issue, the search for new sources of active compounds becomes an urgent issue. In Gabon like in many developing countries, people regularly turn to traditional medicine in case of physical ailments and/or spiritual healing therapies.

Materials and methods: To determine which medicinal plants are traditionally used by the populations of Libreville to fight against nematodes, medicinal plant traders were interviewed with standardized questionnaires. The surveys were conducted in the main market of Libreville. Ethnobotanical data such as frequency and percentage of families, species, administrations pathways, modes of preparations and parts of plants used were analyzed and summarized.

Results: Thirty-four (34) traders were interviewed belonging to five (5) different ethnic groups. Twenty-four 24 plants used to treat intestinal, cutaneous and ocular helminthiasis were listed. The healers mainly turned towards to ligneous species. The parts of the plant used are mostly leaves and trunk bark. Most of the traditional remedies are prepared directly in water and four (4) principal routes were used for administration namely, oral, rectal, ocular and dermal.

Conclusion: This study allowed us to list anthelmintic species which will be subjected to a series of chemical and pharmacological assays.

© 2016 Elsevier Ireland Ltd. All rights reserved.

1. Introduction



* Corresponding author.

E-mail addresses: idsensib@gmail.com (I. Bajin ba Ndob),

linemengome@gmail.com (L.E. Mengome),

henribourobou@yahoo.fr (H.-P. Bourobou Bourobou),

lossangoyebanfora@yahoo.fr (Y. Lossangoye Banfora),

francis.bivigou@gabon-oregon.com (F. Bivigou).

<http://dx.doi.org/10.1016/j.jep.2016.06.026>

0378-8741/© 2016 Elsevier Ireland Ltd. All rights reserved.

Neglected tropical diseases (NTDs) occur mainly among the rural population in Sub-Saharan Africa, Asia and the Americas (Feasey et al., 2010; Lustigman et al., 2012). These diseases are considered as endemic as more than 1 billion people are affected in 149 countries worldwide (WHO, 2015). The WHO in its reports has listed 17 pathologies classified as NTDs (WHO, 2015). Helminthiasis are among the most common in Africa where 85% of the NTDs results from helminths infections (Hotez and Kamath, 2009). Helminths group two types of worms: nematodes (roundworms) and platyhelminths (flatworms). First ones are subdivided in intestinal worms (that causes soil-transmitted helminthiasis STHs) and filarial worms (that causes lymphatic filariasis and onchocerciasis). The second ones are subdivided in flukes, schistosomiasis and tapeworms. According to the World Health Organization, in 2015 there were approximately 1.5 billion persons suffering from soil-transmitted helminthiasis (STHs) (WHO, 2015). STHs infections cause chronic debilitating diseases

affecting human (ankylostomoses, blindness, schistosomes, filarial worms, malnourishment, anemia, retard growth, mental incapacity) and animals (canine ankylostomoses, helminthes of the cattle) (Hotez and Kamath, 2009; Koné et al., 2012).

Intestinal helminthiasis are most commonly caused by roundworms (*Ascaris lumbricoides*), whipworms (*Trichuris trichiura*) and hookworms (*Ancylostoma duodenale* and *Nector americanus*) (WHO, 2015; Agyare et al., 2014). Although the infection is not lethal, helminthiasis infections can induce symptoms such as abdominal pain, diarrhea, anemia and cognitive delays in children because of blood loss (WHO, 2015; Agyare et al., 2014).

The main part of the current treatments base on six (6) essential drugs: albendazole, oxamniquine, praziquantel, ivermectin, diethylcarbamazine and mebendazole. The strategy adopted by the WHO to reduce helminthiasis in developing countries consists of Mass Drug Administration (MDA) of these anthelmintic drugs (Hotez, 2008; WHO, 2015). The approach is to administer medicine to the largest number low income people thanks to public-private partnerships. However in spite of the success of the MDA, the disease is not still eradicated and the risk of appearance of resistance could be an important obstacle for this program. Indeed several cases of resistance were indicated for human and cattles (Geerts and Gryseels, 2001; Wolstenholme et al., 2004; Vercurysse et al., 2011), causing to fear a public and animal health issue.

Medicinal plants are a common medication for human diseases all over the world and approximately 80% of the people in Africa depend entirely on medicinal plants for their primary health care needs (Kasilo et al., 2010). In Gabon like in many developing countries (Van Andel and Carvalheiro, 2013), people regularly turns to traditional medicine for several reasons (economics, familiarity with plants, maintain of traditions) in case of physical ailments and/or spiritual healing therapies. This article report ethnobotanical survey realized at the Peyrie market in Libreville about the Gabonese medicinal plants used to treat helminthiasis.

2. Methods

2.1. Study area

Located in Atlantic Central Africa, Gabon is a country of Guinea Gulf horseback on the Equator, between 2° and 3° north latitude and south of 14° and 9°30" of longitude. Its area is 267,667 km². It extends over 800 km of coastline and has a tropical climate balance, with an annual temperature rise and high rainfall reaching over 2 m. Its forest is mentioned as the most rich in all Africa (Breteler, 1990) and covers 235,000 km² or 82% of the land area. The population were estimated 1 534,300 inhabitants in 2010 (WHO, 2010). Gabon is divided nine provinces that are Estuaire (ES), Haut-Ogooué(HO), Moyen-Ogooué(MO), Ngounié(NG), Nyanga (NY), Ogooué-Ivindo (OI), Ogooué-Lolo (OL), Ogooué-Maritime (OM) and Woleu-Ntem (WN). Our study was conducted in the town of Libreville, administrative center of the Estuaire district, located in the north-west area. Libreville (Fig. 1) is located at 0°23'24"North and 9°27'15" East. Its population was estimated 850,000 inhabitants in 2014 (Populations du monde, *populationsdumonde.com*). It is the most populated city in the country. All the ethnic groups of the country are represented and mixed up. We conducted our study at the "Peyrie" market of which is the principal medicinal plant market in town.

2.2. Market

The Peyrie market is a continuation of the principal market of Libreville named "marché Mont-Bouët". The naming "marché de la

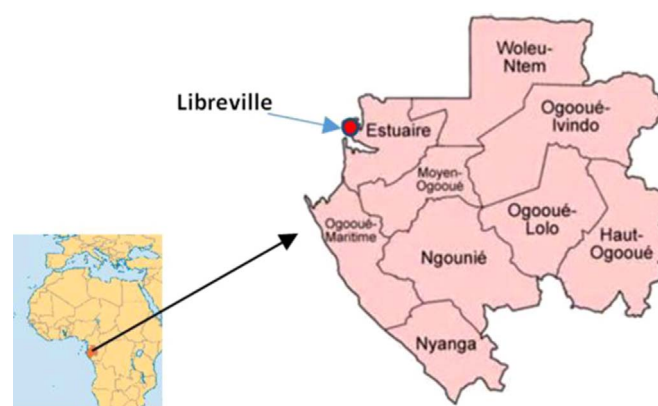


Fig. 1. Map and localization of the study area. (Source: <http://www.operationworld.org> and www.wikimedia.org)

Peyrie" was attributed because of the closeness with an old zoological garden of Libreville known as «Les jardins de la Peyrie¹» (The park was built in 1969 and demolished in 2008, only the name continued so far). This part of the market is dedicated to Traditional Medicine. A wide choice of healing plants, remedies and traditional liturgical objects are found there. It is a place where people can talk to and consult Traditional Medicine practitioners. Certain sellers met in the market were also practitioners of traditional medicine.

2.3. Ethnobotanical survey

The present study focused on medicinal plants used to treat helminthiasis. The survey was carried out from December 2014 to August 2015. As starting point was a health problem, the investigations were based on direct questions concerning plants used traditionally by the populations to fight against nematodes infections. In Gabon, the parasitic diseases caused by helminths are grouped under the term of "worms" and used treatments are indicated "against worms". Conversations with the informants were held to build the confidence of the interviewee and in respect to local tradition. A questionnaire was filled by the investigators after obtaining oral consent from the person. The questionnaire included three parts. First part concerning "civility" in order to obtain the address and coordinates of the interviewee with his agreement in the aim of constituting a database for IPHAMETRA. The second part concerned all informations about the use of plants: vernacular name, part of the plant used, method of preparation and way of administration. The third part was reserved for the investigator to note observations and the difficulties met during the interview or during the survey. We bought a sample of every quoted plant that was available at the time of the survey. The plants were identified by botanists of the National Herbarium in Gabon (HNG). Bibliographical support "Checklist of Gabonese vascular plants, (2006)" and web sources as "theplantlist" were used to complete plants identification. The scientific names and corresponding voucher number were attributed. Bibliographical research was also made on the plants.

2.4. Data analysis

Descriptive statistical methods were applied to analyze and summarize the ethnobotanical data such as frequency and percentage of families, species, administrations pathways, modes of preparations and parts of plants used.

¹ The gardens of Peyrie.

Download English Version:

<https://daneshyari.com/en/article/2544598>

Download Persian Version:

<https://daneshyari.com/article/2544598>

[Daneshyari.com](https://daneshyari.com)