

Ethnobotanical Study of Medicinal Plants In Barkin Ladi Local Government Area, Plateau State, Nigeria

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Abstract: It is no longer news that medicinal plants have become integral part of health care delivery system. The Ethnobotanical survey of medicinal plants was carried out in one out of six Local Government Areas spread across the northern senatorial zone in Plateau State, Nigeria. This research was aimed to document the information on the indigenous plants in this locality. The people here are mostly farmers. The information on the plants was gotten through verbal interview from the farmers and traditional healers. Medicinal plants reported to be effective in treatment and management of human diseases was collected using herbarium process. Some of the plants identified were Aloe vera, Tamarindus indica, coffee, avocado, betty, Moringa oleifera, Eucalyptus, Psidium guajava, Hibiscus, Amaranth, Elephant ear, Bitter leaf etc. A total number of forty plants were scientifically identified into 22 families with the family Meliaceae having the highest members followed by Myrtaceae and the least were Brassicaceae, Cayenneae, Sapotaceae, Araceae, Zingaberaceae, Lubiataie, Rosaceae, Mavaceae and Violaceae (Meliaceae>Myrtaceae>Fabaceae, Solanaceae, Cucurbitaceae, Moringaceae>Liliaceae>Caricaceae>Graminae>Brassicaceae, Violaceae). The part of the plants most used is leaf (40.43%) and the least is bark (2.13%). This survey indicates the biodiversity of plant species with their various medicinal values in this study area.

Key words: Ethnobotanical survey, Traditional medicine, Medicinal plants, Meliaceae

I. Introduction

Right from ancient time, man has been relating with plants around his environment as source of food or for curing his ailments [1] and are an integral part of the African healthcare system. According to World Health Organisation (WHO) as reported by Duraipandiyani *et al.* [2], more than 80% of people rely on the usage of medicinal plants for their health care needs. The use of plants of medicinal values in the treatment of diseases has gained renewed desire these days, as certified and uncertified herbal preparations are increasingly being used in both human and animal healthcare systems in urban but especially in rural areas. The attention being given to traditional medicine has been explained by the fact that it is a fundamental part of the tradition of the people who use it and also that it is economical. Again the pharmaceutical drugs are not within the reach of the poor and on the other side, the richness and diversity of the fauna and flora of Africa are inexhaustible sources of therapies for panoply of ailments [3].

The continuous interest in herbal medicine in the African healthcare system could be attributed to these reasons. Firstly inadequate accesses to allopathic medicines and western forms of treatments because medical services are not always provided. Secondly, there is lack of effective modern synthetic drugs for complete eradication of some ailments such as Ebola and/or HIV/AIDS, although they spread worldwide, disproportionately affects Africa more than other areas in the world [4].

In many parts of Nigeria just like in other African countries, medicinal plants are the most readily available health resource available to the community. Additionally because of culture, medicinal plants are most often the preferred option for the patients. Most often traditional healers give information, counseling and treatment to patients and their families in a personal manner with the foreknowledge of their patient's environment [5, 6, 7]. Africa is endowed with rich biodiversity resources and it has been estimated to contain between 40 and 45,000 species of plant with a potential for development and out of which 5,000 species are used medicinally and several of them remained untapped [8].

It had been reported that plant drugs have emerged strongly by reason of scientific analysis of the plant extracts to fractionate and isolate their active constituents. Therefore, plant materials play important role in combating serious diseases in the recent times as important source of health care. The world market for medicinal plants including herbal materials and raw substances has been approximated having a yearly growth rate between 5 to 15%. The total global herbal drug market has been estimated as US \$62 billion and expected increase to be US \$5 trillion by the year 2050 [9]. Currently, the world market for medicinal plants has been put

to be around 62 billion and the demand is growing seriously [9]. Schippman *et al.*[10] also reported that about 12.5% of the total 422,000 plant species documented globally have medicinal values.

Barkin Ladi being a local government area of Plateau State is said to be rich in savannah and forest vegetations due its suitable climate .A lot of collection of plants sustained by tradition because of their medicinal values is done here. However there is inadequate documented data on the medicinal plants being used in treatment of various ailments [11].Thus this research was aimed at investigating the use of indigenous plants as traditional medicines among the Berom people of Barkin Ladi LGA which can serve as a data base.

II. Methodology

The survey was carried out within the different districts of Barkin Ladi which is located in the northern part of Plateau State, Nigeria. The ethnic group here known as Berom is predominantly farmers and has same cultural and traditional ways of life [12]. Berom language is a common medium of communication among the people. A well designed and guided dialogue technique [13] was used to interview the individual farmers and the traditional healers. Information was received on part(s) of the plant used, methods of herbal preparation, mode of administration, dosage estimation and the effectiveness of the herbal remedy. The conversation was built on trust, with the clear understanding of the aim of the research [16]. Plants claimed to be beneficial in the treatment of various infections were collected [15]. The plant specimens collected were pressed, labeled with their local names where available and identified by botanist.

III. Result

During this study, information was collected from 25 people. The respondents comprised of individuals and farmers (others) and traditional healers and having mainly backyard farms made up of heterogeneous species of plants and practicing the semi-intensive management system. All the traditional healers acknowledged the use of traditional medicine (TM). However, 10(40%) of them gave medicinal information on the plants but 5(20%) of them declined to disclose the medicinal use of the plants. Among other category, their response to knowledge of TM was 4 (16%) but 6(24%) of them indicated having no knowledge of TM (Table 1).

Thirty (38) plants were scientifically identified into 22 plant families with the family Meliaceae being the highest having 32% members followed by the families Myrtaceae and Eurphorbiaceae with 27%% members each and these are the most frequent families reported in this study.The least families screened were Brasicaceae ,Cayenneae,Sapotaceae ,Aracaceae, Zingaberaceae,Lubiatae, Rosaceae, Malvaceae, Violacea and Liliaceae with 5% each (Table 2).The survey showed that different parts of the plants were used in treatment of various ailments (Table 3) .The most used part of plants in this locality was leaf 40.43% and part of the plant almost not being used was bark (2.13%),(Fig.1)

Table 1.Knowledge of Traditional Medicine among the People of Barkin Ladi

| Questionnaire | Yes | No |
|---------------------|---------|--------|
| Traditional healers | 10(40%) | 5(20%) |
| Others | 4(16%) | 6(24%) |

Table 2.Percentage Frequency of Plant Families

| | Family | Frequency |
|----|----------------|-----------|
| 1 | Meliaceae | 7(32) |
| 2 | Solanaceae | 4(18) |
| 3 | Fabaceae | 5(23) |
| 4 | Amaranthaceae | 2(9) |
| 5 | Brassicaceae | 1(5) |
| 6 | Cayenneae | 1(5) |
| 7 | Sapotaceae | 1(5) |
| 8 | Rutaceae | 2(9) |
| 9 | Araceae | 1(5) |
| 10 | Cucurbitaceae | 5(23) |
| 11 | Zingaberaceae | 1(5) |
| 12 | Graminae | 4(18) |
| 13 | Myrtaceae | 6(27) |
| 14 | Lubiatae | 1(5) |
| 15 | Eurphorbiaceae | 6(27) |
| 16 | Moringaceae | 5(25) |
| 17 | Musaceae | 2(9) |
| 18 | Cactaceae | 2(9) |
| 19 | Rosaceae | 1(5) |
| 20 | Malvaceae | 1(5) |
| 21 | Violaceae | 1(5) |
| 22 | Liliaceae | 1(5) |

Table 3: The Plants and their Uses

| Common name | Scientific name | Local name | Plants parts | Uses |
|---------------------|---------------------------------------|----------------|----------------|-----------------------|
| Acacia spp | <i>Abelia glossy</i> | Mulga | leaves | Ulcer |
| Flora Zimbabwe | <i>Abuliton mauritanum</i> | Zimbabwe | Leaves | Tuberculosis |
| Onion | <i>Alliumcepa</i> | albasa | Bulb | Throat, Brain |
| Aloe | <i>Aloe vera</i> | Sabila | Leaves | Ulcer, Eczema |
| Amaranth | <i>Amaranthushi- Pochondricus</i> | Amaranta | Leaves | Menstruation |
| Tobacco | <i>Artemisia</i> | Taba | Leaves, seed | Tooth decay |
| Neem | <i>Azadirachta indica</i> | Dogonyaro | Leaves, Bark | Malaria |
| Cabbage | <i>Brassica oleraceae</i> | Kabagi | Leaves | Injuries |
| Cayenne | <i>Capsicum</i> | Shambo | Fruits | Regulate Blood |
| Papaya | <i>Carica papaya</i> | Gwanda | Fruits | Improve digestion |
| Coffee | <i>Coffea urabica</i> | koffi | Fruit, leave | Asthma, cancer |
| Orange | <i>Citrus sinesis</i> | Lemu | Leaves, fruits | Ulcer |
| Cocoyam | <i>Colacasia esculenta</i> | Gwaza | Tuber, Leave | Diabetes |
| Cucumber | <i>Cucumissativus</i> | Kukumba | Fruit | Liver, stomach |
| Spiked | <i>Coscuc spicatus</i> | Cana Agria | Stem | Kidney stone |
| Lemon grass | <i>Cymbopagon citrates</i> | Ganyenti | Leaves | Intestinal worm |
| Coral bean | <i>Erthrina spp</i> | idonzakara | Leaves | HIV/AID |
| Eucalyptus | <i>Eucalyptus globules</i> | Raskata | Fruit, Leaves | Blood flow |
| Ghana akan | <i>Hyptis lancodata</i> | Efiri | Entire Plant | Wound |
| Barbades | <i>Jatropha curcas</i> | Gara | Leaves,stem | Ring worm |
| Betty | <i>Meleagris guilopava</i> | Ogu | Leave | Eye retina |
| Better melon | <i>Momordica charantia</i> | daddagu | Entire plant | Diabetes |
| Moringa | <i>Moringa oleifera</i> | Zogole | Fruit, Leave | Malaria fever |
| Curry leave | <i>Murraya sp</i> | marzen | Leave | Diabetes |
| Bannana | <i>Musa sp</i> | Ayaba | Red flower | Menatuaration |
| Prickly pear cactus | <i>Nopalea cochemilifera</i> | Yeba | Fruit, leave | Hair dandruff |
| Avocado | <i>Persea americana</i> | Piya | Fruit, leave | Ulcer |
| Mahogany | <i>petaurysgraciusmce</i> | mardachi | Entire plant | Diarrhea |
| Guava | <i>Psidium guajava</i> | gwava | Entire plant | Diarrhea |
| Costar bean | <i>Ricinus communis</i> | jojoro | Leave, seed | Mammary gland |
| Rose Hip | <i>Rosa canina</i> | Roase Mosquita | Flower fruit | Eye |
| Amharic | <i>Senna siamea</i> | | Root | Clean bladder |
| Hibiscus | <i>Sinensis sp</i> | Zobo | Flower | Hepatitis |
| Potato | <i>Solanum sp</i> | Dangali | Tuber | Heart burn |
| Guinea worm | <i>Stegonotaenia araliceae</i> | Raken giwa | Stem, root | Pain, itching |
| Tamarind | <i>Tamarindus indica</i> | Samiya | Fruit | Clean intestine track |
| Violet | <i>Viola odorata</i> | Violeta | Entire plant | Gall stone |
| Maize | <i>Zea mays</i> | Masara | Corn seed | Kidney stone |

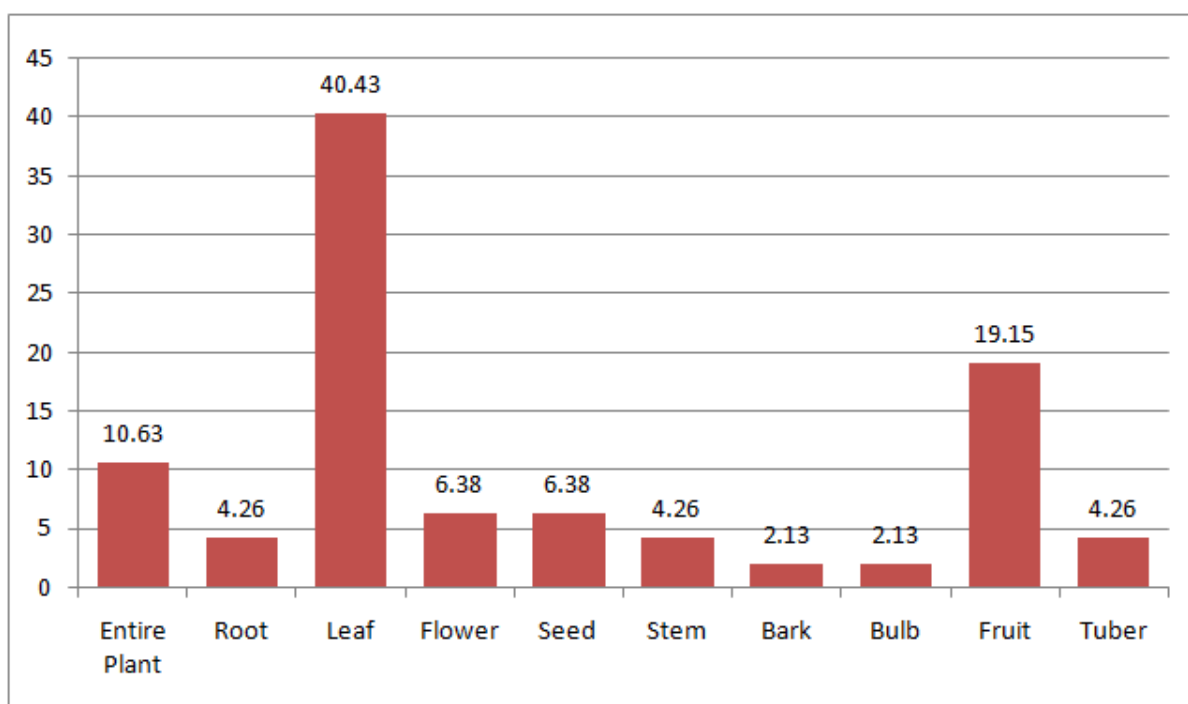


Figure 1. Percentage (%) distribution of plant parts used in disease treatment.

IV. Discussion

It is clear from this survey that traditional healers have more knowledge of traditional medicine than the other category (individual and farmers) likely because that is their sole source of livelihood. Contrary to the observation made by Appidi *et al.*[16]the family Fabaceae was the third family alongside Cucurbitaceae and Moringaceae while Meliaceae was the most frequent in the study area. However this finding is similar to that of Yinegar *et al.*[17] who in an ethnoveterinary plant survey in Ethiopia reported Fabaceae being third. This similarity may be because their survey was not limited to a particular disease alone but on medicinal plants used generally in all animal disease.

The family Meliaceae has been reported to consist of 600 species in 52 genera [18,19].Some uses of Meliaceae include shade and street trees, fruit trees and as sources of biologically active compounds [20].Beside other secondary metabolites, Meliaceae is said to synthesize and accumulate bitter and biologically active nortriterpenoids known as limonoids and meliacins. These and other compounds have constituted antifungal activity [21,22], antibacterial effect [23,24] as well as their tremendous medicinal effects in humans and animals [25, 26, 27].No wonder its frequent use as discovered in this study.

The leaves as part of plants mostly used (40.43%) than others confirm the report of Titi *et al* [28] because leaves are sometimes used in combination with other plants parts. Secondly, indigenous people prefer the use of leaves in the preparations of herbal medicine because it easier to collect leaves than the other plant parts. Leaves are the parts actively involved in photosynthesis in production of bioactive constituents, thus the numerous constituents seen in leaves could explain the efficacy in the treatment of diseases in both man and animals boosting their usage. Herbal preparation is usually considered as being sustainable so long as some leaves remain on the parent plant. The herbal remedies were often prepared by boiling either the flesh or dried parts of the plants followed by either soaking or boiling them in water, the infusion or decoction administered by drenching is the common practice among the Berom people agreeing with the observation of Ermias *et al.*[29].Naturally, the herbal preparation administered varied according to the part of the plant used and without known dosage which sometimes lead to overdose and attended consequences. Most often than not, traditional healers dispense the preparation once or twice a day and sometimes the sick person is asked to bath with the herbal preparation for number of days until the sick person or animal recovers. These practices are in agreement with earlier report that natural substances, usually from native plants or their extracts have been seen to successfully used to treat many infections [30]. The sustained usage of the plants for treatment in this area could be attributed to bioactive agents they contained. For instance a plant may have bitter substances that aid digestion and possess anti-inflammatory compounds that reduce swellings and pain, phenolic compounds as free radical reducers and venotonics and tannins that serve as natural antibiotics against bacteria and fungi .Other plants could have diuretic substances that stimulate the elimination of waste products and toxins and alkaloids that promote mood and give a feeling of being healthy [31, 32, 33,34, 35].

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