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FOOD AND PASTURE PLANT DIVERSITY FROM PARI DISTRICT OF KAURU LOCAL GOVERNMENT AREA OF KADUNA STATE, NIGERIA

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ABSTRACT

An ethno-botanical survey was carried out in October, 2017 on the food and fodder plants of the Chawai people of Pari, Kauru Local Government Area of Kaduna State. A 10m x 10m quadrat size was used to sample 8plots, 200metres apart. Oral interviews were conducted with Elders, Alternative Medicine Practitioners, Hunters and women. 49 plants species were recorded as plant species used for food/culinary and fodder/veterinary purposes, by the inhabitants. The results of the study revealed that 31 (62.27%) of the 49 plants are used as food, condiment and/or spice. Out of the 31plant species collected, fruits are consumed more as food than any other part of the plant (74.19%).The Family Mimosoideae accounted for 6(12.12%) out of the 49 used for food and fodder purposes. Anacardiaceae, Sapotaceae, Euphobiaceae, Moraceae, and Apocynaceae had 3 species each. The remaining families had 1 and 2 species each.The study revealed that the plant part mostly used are the fruit 24 (42.11%)this was followed by the leaves14 (24.56%), seed and bark with 5each (8.5%), flower 4 (7.02%), roots 3 (5.26%) and stem 1 (1.8%). There is the urgent need for more documentation of the traditional ethno-botanical knowledge.

Key Words: *Ethno-botanical Survey, Fodder plants, common names, Chawai people,*

INTRODUCTION

The understanding and collection of the knowledge of valuable plants by the use of anthropological methods (Ram, 2014), for their use as medicines, food, shelter, clothing, ornament, fuel, fodder and other household purposes (Ejaz, 2013), deals with the interaction of indigenous plants and the local inhabitants of the area. People depend upon plants to satisfy their basic human needs such as food, clothing, shelter, and medicine. To date, these basic human needs are growing rapidly because of a growing world population, increasing incomes, and urbanization. Some recent studies have shown that people living in rural areas still hold a valuable knowledge on food; fodder and medicinal plants and that some of these plants can act as crucial factors in livelihood strategies of indigenous communities (Urso *et al.,* 2016). Consequently, there is a compelling need to collect information concerning, how plants are used to maintain good health, as food, fodder and maintaining livestock health and welfare before it is lost.

Man has been dependent through ages on nature for meeting the basic needs- Food, Shelter and Medicine (Suleyman *et al.,* 2015). These events are also accompanied by gradual complexity of interactions of man with nature, in order to meet his ever-increasing requirements viz. food, fodder, housing, clothing, medicines, etc. Preservation and enhancement of indigenous plant knowledge is actually rescuing a global heritage (Lambert *et al.,* 1997). Since the advancement in the field of ethno-botany, importance of traditional ethno-botanical knowledge in the traditions and culture of rural populations have fully been realized and documented in most parts of the world. But in developing countries where populations are more dependent upon traditional ethno-botanical knowledge, the understanding of this fact needs to be studied further (Ejaz, 2013).

Most medicinal, fodder and few plants used as food are traditionally obtained from the wild, where they grow naturally (Singh, *et al.,* 2010). This is further compounded by the fact that many of the plants used for food, medicinal purposes and fodder are also useful as raw materials for some industries, such as timber, cosmetics, textile, biomass and confectionaries; thus, the pressure on the diversity of such plants is extremely high.

Among the most important economic trees are the Kunyong (*Parkia biglobosa*), Kunchwangzi (*Vitex doniana*), Kunraghat (*Butrospermum parkii*), Kungwara (*Borassus aepithium*), Kunkarkan (*Balamite aegyptiaca*). Other important trees in the wild are: Kungwana (*Ficus platyphlla*), Kunrwam (*Paradonullia oliveri*), Gabaruwa (*Acacia arabica*), Loko (*Chorophora exelse*), Kungwata (*Khaya senegalensis*), Malmo (*Eugenia awariensis*), Kunya (*Diospyros mospiliformis*), Tsada (*Ximenia americana*). Other varieties of large plants, which grow in colonies, are the Kungwab, Gwangwala.

The fruits, roots, leaves, barks, stems and fibers of the different trees and shrubs have been important sources of food, medicine and other uses. The fruits of Kunrayan for instance, have been very useful in the preparation of food, especially porridge, as well as for medicinal purposes and as a source of refreshing drinks (Nengel, 2002).

This study is aimed at creating a checklist of useful plants in the wild that are for food and fodder values to human beings and livestock by the Chawai people of Pari district, Kauru Local Government Area of Kaduna State.

MATERIALS AND METHODS

This study was carried out in Pari District of Kauru Local Government Area of Kaduna State (10° 34' 30" N 8° 09'01").

Ethno-botanical data were obtained using oral interview method. The target groups for this study were traditional medical practitioners, hunters, housewives, farmers and other people of old age who are very much familiar with the use of plants for medicinal purposes, food, fodder and other uses. During the conversation, the potential respondents were informed how rapidly the knowledge and plants used for traditional medicine and other purposes are diminishing and were thus told that the purpose of the study was to protect this wealth from being lost. Each respondent was interviewed alone to ensure confidentiality.

Quadrats were used for the survey. 8 sites were used to make sample collection. Quadrats of 10m x 10m sizes were randomly laid with each being at least 200m apart. Identification of the plants was achieved with the aid of herbarium specimens and literatures.

RESULTS AND DISCUSSION

49 different plant species with at least one food, fodder or other economic value to man and livestock were recorded and these were distributed across 25 families. Most of the plant species recorded belonged to the family *Mimosoideae*, which accounted for 8 species (12.31%) of the total plants species recorded. It is closely followed by the family *Anacardiaceae* which has 7 species (9.23%); *Caesalpinioideae* with 5 species (7.69%), while the family *Euphobiaceae* has 4 species (6.15%). The families *Apocynaceae,*

Fabaceae, Moraceae and *Rubiaceae* each had 3 species which cumulatively accounted for 18.46% of the total species recorded. Six families had 2 species representative while the remaining families have one species as shown in Figure 1.

The results of the study revealed that 31(62.27%) of the 49 plants are used as food, condiment and/or spice. Fruits are consumed more as food than any other part of the plant (74.19%). The fruits and leaves are basically used as food whereas other parts such as the ash of *Piliostigma thonningii* fruitis used as potash, a form of local salt. The seeds of *Lophiralance olata* and *Vitellaria paradoxa* are used in making oil and the roots of *Bredeliamicrantha* are considered a rich source of starch (Table 1, Figure 1).

During the survey, it was found out that all the parts of *Parkia biglobosa* are useful either as medicine, fodder, food, and/or other economic uses such as timber, firewood and the leaves can be used to prevent or reduce excessive water leaching. According to the locals, the seeds of *Parkia biglobosa* are used in making a spice popularly known as 'dawadawa' which make soup tasty. The powder from dry fruit of *Parkia biglobosa* is used in feeding ruminants (fodder) during the dry season when grasses are in short supply. The powder itself is consumed by humans in the form of custard or is eaten directly from the fruits and, is a rich source of starch.

Table 1: List of Plants Used as Food

S/N	Chawai Name	English Name	Botanical Name	Family	Part of Plant	Uses
1	Ruruapx	Finger root	*Uvariachamae*	*Annonaceae*	Fruit	Edible
2	Wieent	African Locust bean	*Parkiabiglobosa*	*Mimosoideae*	Seed	Edible
3	Peet	Raisin fruit Keetia	*Keetiavenosa*	*Rubiaceae*	Fruit	edible
4	Huwarak	Blood plum	*Haematostaphisbarteri*	*Anacardiaceae*	*Fruit*	*edible*
5	Chuanzii	Black plum	*Vitex doniana*	*Verbenaceae*	fruit	Edible
6	Chuanzii sang	Shea-butter tree	*Vitellaria paradoxa*	*Sapotaceae*	Fruit	Edible
8	Gborong		*Bredeliamicrantha*	*Euphorbiaceae*	Seed	Edible
9	Kunvu	Monkey ball tree	*Strychnos spinosa*	*Loganiaceae*	Root	Edible
10	Kunvuam		*Harunganamadagascanriensis*	*Guttiferae*	Fruit	Edible
11	Buaba		*Jasminiumdichotonum*	*Oleaceae*	Fruit	Edible
12	TsoriNwu		*Brideliamicrantha*	Euphorbiaceae	Fruit	Edible
13	Kanyupi		*Tremaorientalis*	*Ulmaceae*	Fruit	Edible
14	Kunguya		*Stereospermumkunthianum*	*Bignoniaceae*	Fruit	Edible
15	Naskoki		*Saba senegalensis*	*Apocynaceae*	Fruit	Edible
16	Huent	Carisse	*Carissa edulis*	*Apocynaceae*	Fruit	Edible
17	Kanyupi		*Tremaorientalis*	*Ulmaceae*	Fruit	Edible
18	Bindiga		*Grewia bicolor*	*Tiliaceae*	Fruit	Edible
19	Funrua		*Ziziphusmucronata*	*Rhamnaceae*	Leaf	Edible
20	Nashobi		*Leucaena leucocephala*	*Mimosoideae*	Fruit	Edible
21	Nyu		*Cordia sinensis*	*Boraginaceae*	Flower	Edible
22	Targween		*Ficusingsens*	*Moraceae*	Fruit	Edible
23	Deli		*Phoenix reclinata*	*Arecaceae*	Fruit	Edible
24	Kungwara		*Borassusaethiopum*	*Arecaceae*	Fruit	Edible
25	Buum	Yellow Gardenia	*Gardenia erubescens*	*Rubiaceae*	Fruit	Condiment
26	Zongree	Violet tree	*SecuridacaLongependunculata*	*Polygalaceae*	Leaf	Condiment
27	Kritkan	GrewiamollisJuss	*Grewiavenusta*	*Tiliaceae*	Flower	Condiment
28	Tsanlek	Red kapok tree	*Bombax costatum*	*Bombacaceae*	Flower	Edible
					Flower	Condiment
29	Perigozi		*Lonchocarpuscyanescens*	*Fabaceae*	fruit	Condiment
30	Koki		*Piliostigmathonningii*	*Caesalpinioideae*	Bark	Condiment
31	Rigit	Red oak	*Lophiralanceolata*	*Ochnaceae*	Fruit	Oil

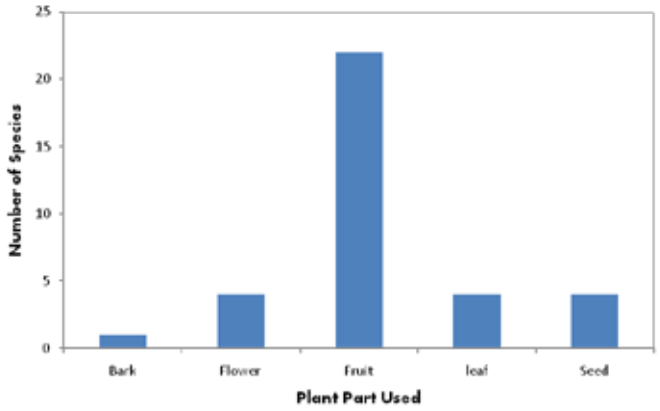

Figure 1: Plant Parts Used for Food and Culinary Purposes

Pastural/Fodder and Veterinary

18(36.73%)out of the 49plant species collected during the survey are used for veterinary and fodder purposes.18 of the 31 plants are used as fodder while the remaining are used for other veterinary and feeding purposes. The Family Mimosoideae had 4 (22.22%) of the 18plant species that are usedfor this purpose. The family *Anacardiaceae* and *Moraceaehad* 2(11.11%)species each. The remaining families, *Ochnaceae,Sapotaceae*, *Fabaceae, Euphobiaceae,Rhamnaceae, Apocynaceae, Caesalpinoidae, Bombaceae, Polgonaceae* and *Combretaceae* had one species each that is used as fodder and other veterinary purpose (Table 2). Plant leaves account for 66% of the plant parts used for the veterinary and fodder purposes. This is followed by the bark(22.22%), stem (5.56%),root (11.11%) and seed (5.56%)Figure 2.The members of the family *Moraceae* (*Ficus sur and Ficusingens*) are used to promote and increase milk production in ruminants in the region. *Ficus sur* and *Acacia nilotica* have been reported to be very important during birth in ruminants, as the roots and leaves are used to hastened the expulsion of the placenta in a case where the placenta is retained in the womb.

Table 2: Plant species used for Veterinary and Fodder Purposes

S/N	Chawai Name	English Name	Botanical Name	Family	Part of Plant	Uses
1	Wieent	African Locust bean	Parkiabiglobosa	Mimosoideae	Seed	Anorexia
2	Rigit	Red oak	Lophiralanceolata	Ochnaceae	Leaf	Fodder
3	Gamu	Wild grape	Lannea humilis	Anacardiaceae	Leaf	Fodder
					Stem	Fodder
4	Chuanzii sang	Shea-butter tree	Vitellaria paradoxa	Sapotaceae	Leaf	Fodder
5	Kanbizi		Entadaabyssinica	Mimosoideae	Leaf	Browsing
6	Gwain		Lanneabarteri	Anacardiaceae	Leaf	Fodder
7	Fain barka	Coral tree	Erythrina senegalensis	Fabaceae	Leaf	Browsing
8	TsoriNwu		Brideliamicrantha	Euphorbiaceae	Bark	Diarrhoea
9	Funrua		Ziziphusmucronata	Rhamnaceae	Leaf	Fodder
10	Huent	Carisse	Carissa edulis	Apocynaceae	Leaf	Browsed by goats
11	Wieent	African Locust bean	Parkiabiglobosa	Mimosoideae	Fruit	Fodder
12	Guaras		Cassia sieberiana	Caesalpinioideae	Bark	Avian influenza
13	Targween		Ficusingens	Moraceae	Bark	Promoting milk Production
14	Goshi	Bush fig	Ficus sur	Moraceae	Root	Expulsion of Placenta
					Bark	Promoting milk Production
15	Gedabarka		Acacia nilotica	Mimosoideae	Leaf	Wound
					Leaf	Expulsion of Placenta
16	Tsanlek	Red kapok tree	Bombax costatum	Bombacaceae	Leaf	Wound
17	Zongree	Violet tree	SecuridacaLongependunculata	Polygalaceae	Root	Wound
18	Tsorii		Terminalia glaucescens	Combretaceae	Leaf	Sedative

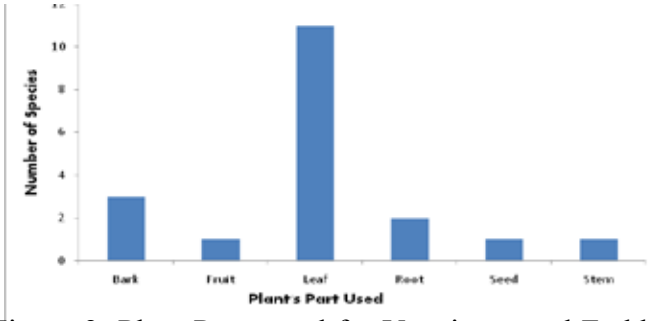

Figure 2: Plant Parts used for Veterinary and Fodder Purposes

DISCUSSION

Plants have been the basis for human diet throughout human history. Pari wild flora constitutes an invaluable reservoir of economically important species, harboring traditional varieties and wild relatives of many crops for the Chawai peoples. Ram, (2004) has observed that the wide range of plant species help to provide for people's needs including food, shelter and also for medicines. This study reveals that, a considerable number of the plants in the study area are

used directly by man for food, and as condiments and/ or spice to add taste and flavor to food. The locals are particularly familiar with *Vitellaria paradoxa, Vitex doniana* and *Bombax costatum* because of their fruits, leaves and flower respectively. *Vitellaria paradoxa* produce delicious fruits which are considered to be very rich in nutrients and is also medicinal. The seed of *Vitellaria paradoxa* is also used in producing rare oil that is used in cooking and also in treating fresh wound. The oil from this tree is very expensive. *Vitex doniana* is another interesting species with so many economical functions with the greatest being its leaves that is use as food. The leaves of *Vitex donianais* used in cooking soup and the boiled leaves can also be eaten as vegetable with ground peanuts. Okoye, (2015) has also reported the use of the leaves as vegetable in the eastern part of Nigeria. The leaves are also taken as remedy for stomach upset or the water from the boiled leaves can be taken to treat stomach disorder among the people of Pari District. Marles and Farnsworth (1995), Nara and Cerval (1997), Maritim *et al.,* (2003) and Nwachukwu *et al.,* (2014), have reported the importance of vegetables in nutrition and health because of the high content of minerals, vitamins, antioxidants, dietary fibres and essential oils. The flowers of *Bombax costatum* is a very important product in the region as it is used in preparing soup. The seed of Bombax are also edible when fried and can also be used as thickener in vegetable soup. *Parkia biglobosa* are useful either as medicine, fodder, food, and/or other economic uses such as timber, firewood and the leaves can be used to prevent or reduce excessive water leaching.Soladoye *et al.,*(2010) have reported *Parkia biglobosa* as an economic tree that is most widely distributed and used in Nigeria.

Conclusion

The wild flora of Pari District constitutes an invaluable reservoir of economically important species, harboring traditional varieties and wild relatives of many crops for the Chawai. This study revealsthat a considerable number of the plants in the study area are used directly by the locals for food/ culinary and fodder/veterinary uses.

RECOMMENDATIONS

Considering the results of this study, there is the need for further ethnobotanical and ethnopharmacological studies for incorporation of this indigenous knowledge in orthodox pharmacological utilization for prospective formulation of potential new drugs and the discovery of potential new foods.

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