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Indigenous uses of medicinal plants for the treatment of farm animals in Rafi Local Government Area of Niger State, Nigeria

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ABSTRACT: This paper examined the indigenous uses of medicinal plants for the treatment of farm animal infected with diseases in Rafi local government area in Niger state, Nigeria. One hundred (100) respondents were purposively selected by using well structured questionnaires. Three groups of respondents viz: animal farmers, herb traders and civil servants possessing farm animal, were interviewed on the use of medicinal plants for the treatment of farm animals. Descriptive statistics such as frequency tables and percentages were used for the analysis. The result showed that Madobiya (*Pterocarpus erinaceus*) is used for treating foot and mouth disease, Kalgo (*Pilliosigma thonningii*) for pneumonia and chronic respiratory disease, Tamiya (*Tamarindu indica*) for New castle disease, Zogale (*Moringa oleifera*) for reinder pest of cattle and anthrax, Kuka (*Adansonia digitata*) for tuberculosis and coccidiosis, Madaci (*Khaya senegalensis*) for rabbis, Kuma (*Ziziphus spina christi*) for brucellosis. The significance of the medicinal plants for the treatment of animal's diseases in the study area cannot be over emphasized. Most of the farmer cannot afford the prize of modern drugs and to prevent them from losing their farm animals to easily preventable and curable disease resorted to the use medicinal plants.

Key words: Medicinal plants, treatment, modern drug, farm animals, diseases

Introduction

Herbal and other natural remedies have preventive and therapeutic value and the additional benefits of their low cost, wide accessibility and cultural relevance remain strong among many traditional indigenous and local communities. Wild plants, including those already known through traditional medicine, have yielded chemicals from which over 50% of prescription drugs are now derived (<http://zims:isis.org/s5c/blog/lists/posts/postol.aspx?ID=5>). Herbal medicines such as herbs, herbals materials, herbal preparation are finished herbal products that contain part plants or other plants materials as active ingredients.

In many developed countries, 70 – 80 percent of the population have used some form of alternative or complete medicine. It is said that five billion of people still rely on traditional plant – based medicines as their primary form of health care (New Nigeria 2008). The use of, and search for drug, and dietary supplements derived from plants for farm animals have accelerated in recent years. Pharmacologists, botanists, and natural products chemists and veterinary scientists are combining different medicinal plants and phyto chemicals that could be developed for treatment of various diseases. In fact, according to the world health organization, approximately 25% of modern drugs used in the United States for farm animals have been derived from plants (<http://en.wikipedia.org/wiki/herbalism>). Herbal medicine is called botanical medicine or phyto medicine, and is

defined as the use whole plants or part to prevent or treat illness. Plant parts used include seeds, berries, roots, leaves, bark, or flowers. Although a renaissance is occurring in herbal medicine all over the world, national control agencies such as the American food and drug administration (FDA) still classify herbs as food supplements and forbid manufactures from claiming that their products are able to treat or prevent specific disease. As a result, these agencies do not exert any control over the manufacture of herbal medicine. (Medicinal plants [http://www.seq.ucb.ca/medinal plants-a powerfulhealth-acid/pg 1](http://www.seq.ucb.ca/medinal%20plants-a%20powerfulhealth-acid/pg%201)).

Animal diseases are classified based on the organisms that causes disease with the exception of nutritional deficiency which also causes certain diseases. Most diseases are caused by living organisms which inhabit the inside or outside part of the body of the animals under attack. As a result of this, they impair and hamper the normal physiological growth and productivity of livestock. The infection caused in livestock may be direct if disease is induced in the animal and it may be indirect if they serve as vectors of diseases when creating avenue for the intermediate hosts in livestock (Odedokum, 2007). For a livestock farmer to have maximum performance of his livestock there is need to care for them adequately. Poor health of animals could lead to low productivity, death and hence a colossal loss of income (Odedokum, 2007). The objective of this paper is to identify medicinal plants for treating farm animals in Rafi Local Government Area of Niger State.

Materials and Methods

Study Area

The study was conducted in Rafi local government area of Niger State. It lies along latitudes 13.50⁰ North and longitude 12.75⁰ East. It is bounded by Birnin Gwari local government of Kaduna State to the North, Mariga local government to the West, Shiroro local government to the East, Wushishi local government to the South. The local government has area of about 676 square kilometers with a population of 18,929 (NPC, 2006). The population density of the area could therefore be estimated at 893 person per square kilometers. The local government area falls within southern savannah agro-ecological zone that is characterized by tall trees. The area is blessed with very vast agriculture land and people of the area are predominatly farmers, which include crop production, animal production or fishing. The main crops cultivated are maize, yams, guinea corn, and groundnut. The major tribes in the area are Kamuku, pangu, Ingwai and Hausa Fulani. Rafi local government area comprise of the following districts, Kuseriki, Kongoma, Tegini, Uregi and Gunna district respectively with the headquarter at Kagara. The annual rainfall of the area is 1,250-2,000mm; the soil types are mostly the loamy and clay soil. It has two seasons, which are wet and dry seasons.

Sampling Techniques

A total sampling size of hundred (100) respondents was purposively selected in the study area, by using well structured questionnaires. The respondents were Animal farmers, herb traders and civil servants possessing farm animal. The questionnaire contained information about socio economic characteristic of the animals farmers (respondents), types of medicinal plants used, and on what kind of diseases treated with the plants. Questions were also asked on the side effects of the plants used on the farm animals.

Statistical Analysis

Descriptive statistics such as frequency table and percentage were used for the analysis.

Results and Discussion

Table 1: Age distribution of respondents

Age	Frequency	Percentage (%)
10 – 20	10	10.00
21 – 30	15	15.00
31 – 40	13	13.00
41 – 50	26	26.00
51 – 60	11	11.00
> 60	25	25.00
Total	100	100

Source:- Field survey 2010

The above table showed that 26.00% of the respondents in Rafi local Government fall under the age 41 – 50, followed by ages above 60 years which corresponds with 25%. This implies that the most active and physically capable people that involved in providing traditional medicinal in the study area are the older categories and are in the majority. They were also known to be very active in administering herbs to the affected farm animals. This is in support of Faleyimu (2008) that older people are actively involved in the provision of medicinal plants for curative purpose.

Table 2: Distribution of sex of the respondents

Sex	Frequency	Percentage (%)
Male	55	55.00
Female	45	45.00
Total	100	100

Source: Field survey 2010

The above table showed that 55.00% of the respondents are male while 45.00% are female. The results simply indicated these males are the majority in the study area and have high level of experience in providing medicinal plants because it is the males that go to the farm, and forest to get these medicinal plants. However, this result is not in line with Faleyimu (2008) that female gender dominated herb trading in Ogun state, Nigeria.

Table 3: Distribution of marital status of the respondent

Marital status	Frequency	Percentage (%)
Single	25	25.00
Married	45	45.00
Divorce	15	15.00
Widow (er)	15	15.00
Total	100	100

Source: Field survey 2010

The table showed that most of the respondents in the study area who engage in providing traditional medicine were married i.e 45.00% while those that were single are 25.00%, those that are divorce and widows were 15.00 each. This implies that most of the respondent that use medicinal plants to treat of farm animal diseases were married, this justifies the high premium that Nigeria society places on marriage. This support Faleyimu *et al* (2008) that the majority of Orogun community in Ibadan, Oyo state are married which made them to be more responsible.

As shown in Table 4, most of the respondents in Rafi Local Government Area are Animal rearer (30.00%) while farmers are 20.00% and civil servant possessing farm animals, 25%. This implies that the majority of the respondents were involves in animal fearing as their primary occupation. All other economic activities are additional source of income.

Table 4: Distribution of occupational status of the respondents

Occupational status	Frequency	Percentage (%)
Animal rearer	30	30.00
Farmer	20	20.00
Civil servant rearing animals	25	25.00
Others	15	15.00
Total	100	100

Source: Field survey 2010

Table 5 showed that most of the respondents that is, 38% of them had secondary education, 22.00% attended primary school while 23.00% of the respondents have tertiary education while 17.00% of the respondents were illiterate (no formal education). Education will influence their use of medicinal plants better. The fact that a greater percentage of the respondents are educated even up to tertiary level showed that they can critically analyze issues and give fair judgment (Faleyimu et al, 2008).

Table 5: Distribution educational status of the respondents

Educational status	Frequency	Percentage (%)
Primary school	22	22.00
Secondary school	38	38.00
Tertiary institution	23	23.00
No formal education	17	17.00
Total	100	100

Source: field survey 2010

The traditional method of using forest plants to treat farm animal diseases is almost universal. As a result, more people now rely on plants as components of their veterinary health care. Table 6 below shows a list of trees and shrubs that are naturally used to treating farm animal diseases.

Table 6: Trees and shrubs that are of medicinal values in the treatment of farm animal diseases

S/No	Local Name	Botanical Name	Family Name	Type of plant	Cultivated or Wild	Animal Disease	Method of use
1.	Madobiya	<i>Pterocwpesa erinaceus</i>	Pterocwpesaleae	T	W	Foot and mouth disease (Bauro)	The bark of the plant is boiled and put inside a bottle. It is then given to the animal to drink at any time.
2.	Kalgo	<i>Pillostigma thonningii</i>	Pillostigmaceae	T	W	Pneumonia (Chiwon huhu)	The leaves and fruits are ground together, then diluted with water and given to the animal at any time.
3.	Tramiya	<i>Tamarindu indica</i> Linn	Apocynaceae	T	W	Newcastle disease	The fruits are ground and hot water added to obtain a mixture. It is given to the animal twice daily.
4.	Dondo Zugle	<i>Moringa oleifera</i>	Moringaceae	T	W	Rinderpest of cattle (Chabo)	The roots are ground and mixed with water using a small cup. It is given to the animal three times a day.
5.	Dogonyaro	<i>Eucalyptus camaldulensis</i>		T	W	Ebola disease	The leaves are ground and mixed with water. This is given to the animal everyday.
6.	Kalgo	<i>Pillostigma thonningii</i>	Legumes Saceue	T	W	Chronic respiratory disease (Muran shanu)	The leaves are ground with a little quantity of potash. This is given to the animal everyday.

S/No	Local Name	Botanical Name	Family Name	Type of plant	Cultivated or Wild	Animal Disease	Method of use
7.	Kuka	<i>Adansonia digitata</i>	Bombo sacene	T	C	Tuberculosis (Muran shanu)	The bark is cooked and a little quantity of water added to it. This is given to the animal twice a day.
8.	Zogale	<i>Moringa oleifera</i>	Moringaceae	T	C	Anthrax (Saifa)	The fruits are ground and mixed with water. A small amount of potash is added. This is given to the animal once a day.
9.	Lemun Tsami Tsadan gida	<i>Citrus aurantifolia</i>	Rutaceae	T	C	Mastitis (Chiwon nono)	The leaves are ground with tsadan gida and them mixed with the liquid of lemon tsami. This is diluted with water and given to the animal once a day,
10.	Gwaiba	<i>Psidium guarjava</i> Linn	Myrtaceae	T	C	Fowl pox (Kwurajen kaji)	The bark of the tree is ground and cooked with a little quantity of table salt. This is given to the animal three times a day.
11.	Madaci	<i>Khaya senegalensis</i>	Mimaceae	T	W	Rabbies (Haukan kare)	The bark of the tree is put in a container and a small amount of table salt is added with some water. This is given to the animal twice a day.
12.	Shuwaka	<i>Velonia amygdalina</i> Del	Compositae	S	C	African swine fever	The leaves are boiled and put in a bottle. This is given to the animal to drink at any time.
13.	Madafci	<i>Khaya senegalensis</i>	Mimosaceae	T	W	Ordinary swine fever (Kuburin chiki)	The leaves and fruits are dried and ground to powder, then mixed with ground maize. This is given to the animal every evening.
14.	Dogonyaro	<i>Eucalyptus camaldulensis</i>	Lelythidaceae	T	W	Infectious bursal disease (Shamal)	The bark is ground with water and a little quantity of table salt. This is given to the animal thrice a day.
15.	Dinya	<i>Vitex doniana</i>	Verbanaceae	T	W	Babesiasis	The root is cooked and a small amount of red potash added. This is given to the animal to drink twice a week.
16.	Doruwa	<i>Parkia biglobosa</i>	Eupharbiaceae	T	W	Brucellosis (Bokkale)	The bark of the tree is cooked with potassium and mixed with ground maize. This is given to the animal once a week.
17.	Chediya	<i>Ficus thonongii</i>	Mimosaceae	T	W	Brucellosis (Bokkale)	The seed is soaked in water and given to the animal to drink.

S/No	Local Name	Botanical Name	Family Name	Type of plant	Cultivated or Wild	Animal Disease	Method of use
18.	Madachi	<i>Khaya senegalensis</i>	Mimosaceae	T	W	Rabbies (Haukankare)	The leaves of the herb are allowed to dry. They are then ground with red potash and water is added to the mixture. This is given to the animal three times a day.
19.	Kade	<i>Butyrospermum paradoxum</i>	Sapotaceae	T	W	Helminthiasis (Tsutsanchiki)	The bark of the tree is put in a small bottle. Water is added to soak for 2 days. This is given to the animal twice a week.
20.	Kashin awaki			T	W	Myxomatosis (Sanmori)	The bark is ground and mixed with water to be administered to the animal once a day.
21.	Bagaruwa	<i>Acacia nilotica</i>	Caesalpiniaceae	T	C	Dermatitis (Kirchi)	The fruit is cooked and given to the animal once a day.
22.	Doruwa	<i>Parkia biglobosa</i>	Euphorbiaceae	T	W	Helminthiasis (Tsulsanchiki)	The seed or fruit is removed and ground. This is mixed with a small quantity of table salt and given to the animal.
23.	Faru	<i>Lannea humilis</i>	Anacardiaceae	T	W	Texas fever (Zazabinjiki)	The roots are cooked together with red potassium and given to the animal to drink once a day.
24.	Mongoru	<i>Mangifera indica</i>	Anacardiaceae	T	C	Brucellosis (Bakkale)	The fruits are cooked with a small amount of potash and given to the animal twice daily.
25.	Chediya	<i>Ficus thoningii</i>	Moraceae	T	W	Helminthiasis (Kirchi)	The fruits are cooked with mongoru leaves and given to the animal.
26.	Kade	<i>Butyrospermum paradoxum</i>	Sapotaceae	T	W	Babesiosis (Machijin chiki)	The leaves are ground together with the fruit and mixed with water.
27.	Bagaruwa	<i>Acacia nilotica</i>	Caesalpiniaceae	T	C	Infectious bursal disease (Sharmal)	This is ground, dried and mixed with ground maize. It is administered to the animal every evening.
28.	Doruwa	<i>Parkia biglobosa</i>	Euphorbiaceae	T	W	Pneumonia (Chiwon huhu)	The seeds and leaves are ground together, then mixed with gari. It is administered to the animal for three days.
29.	Kandare	<i>Terminalia macroptera</i>	Combataceae	T	W	Ordinary swine fever (Kuburin chiki)	The roots and leaves are cooked with water and a small amount of table salt. It is administered to the animal 3 times a day.
30.	Gwaiba	<i>Psidium guajava</i> (Linn)	Myrtaceae	T	C	Fowl pox (Kwurajenksi)	The fruits are ground with water and administered to the animal.

S/No	Local Name	Botanical Name	Family Name	Type of plant	Cultivated or Wild	Animal Disease	Method of use
31.	Kurna	<i>Ziziphus Spina-christi</i>	Rhamnaceae	T	W	Anthrax (Surfa)	The leaves and fruits are cooked with a small amount of potash. The mixture is shaken and administered to the animal twice a day.
32.	Bagaruwa	<i>Acacia nilotica</i>	Leguminosae	T	W	Trypanosomiasis (Sammore)	The young leaves are cooked with a small amount of table salt and administered to the animal continuously.
33.	Tsamiya	<i>Tamarindus indica</i>	Leguminosae	T	W	Tuberculosis (Mubanshanu)	The bark of the tree is ground with the leaves, soaked in water and given to the animal thrice a day.
34.	Tafashiya	<i>Nauclea diderrichii</i>	Rubiaceae	T	W	Fowl pox (Kwurajenkaji)	The roots are cooked together with the fruits and given to the animal thrice a week.
35.	Tsada	<i>Ximenia americana</i>	Olucaceae	T	W	Ordinary swine fever (Kubluinchiki)	The fruits and leaves are dried and ground, soaked in water and given to the animal every evening.
36.	Dogonyaro	<i>Eucalyptus camaldulensis</i>	Lelythidaceae	T	W	Trypanosomiasis (Sammore)	The leaves or herbs are dried and ground into powder, mixed with a small amount of table salt and given to the animal.
37.	Mangoro	<i>Mangifera indica</i>	Anacardiaceae	T	C	Dermatitis (Kirchi)	The roots are cooked with water and a small quantity of potassium. The mixture is given to the animal twice a day.
38.	Doruwa	<i>Parkia biglobosa</i>	Euphorbiaceae	T	W	Babesiasis (Machijinchiki)	The bark of the tree is ground and mixed with groundnut oil. It is administered to the animal everyday.
39.	Delbesiya	<i>Mormodica balsamina</i>	Cucubitaceae	T	C	Fowl pox (Kwurajenkaji)	The fruits are ground into powder and administered to the animal twice a day.
40.	Tsamiya	<i>Tamarindus indica</i>	Apocynac	T	W	Fowl pox (Kwurajenkaji)	The fruits are ground with the leaves and cooked together with ground maize. It is administered to the animal twice a day.
41.	Taura Dusa	<i>Detarium microcarpum</i>	Leguminosae	T	W	Anthrax (Saifa)	The fruits are ground with the leaves and cooked together inside dussa. This is administered to the animal twice a day.

S/No	Local Name	Botanical Name	Family Name	Type of plant	Cultivated or Wild	Animal Disease	Method of use
42.	Goriba	<i>Hyphaene thebaica</i>	Pandanaceae	T	C	Foot and mouth disease (Bauro)	The bark of the tree is ground with the seed and a small quantity of table salt. This is administered to the animal one a day.
43.	Tumfafiya	<i>Calotropy procera</i>		T	W	Bovine mastitis (Chiwon nono)	The fruits are soaked in water and administered to the animal every evening.
44.	Tuna	<i>Pseudocedrela kotschyi</i>	Meliaceae	T	W	Foot and mouth disease (Bauro)	The herb is cooked with table salt and <i>Butyrospermum paradoxum</i> oil. This is administered once a day.
45.	Kuka	<i>Adonsonia digitata</i>	Bombocaceae	T	C	Pneumonia (Chiwon hunu)	The leaves of the two plants are ground together and cooked for 3 days. This is then administered to the animal regularly.
	Gwaiba	<i>Psidium guajava</i>	Myrtaceae	T	C		
46.	Giyinya	<i>Barassus aethiopum</i>	Pandanaceae	T	W	Rabbies (Hauka kane)	The fruit of the goriba is mixed with potassium. It is given to the animal 3 times a day.
47.	Goriba	<i>Hyphaene thebaica</i>	Pandanaceae	T	W	Myomatosis (Sanmori)	The fruit of the goriba is soaked in water and given to the animal 3 times a day.
48.	Modobiya	<i>Pterocarpus niger</i>	Leguminosae	T	W	Dermatitis (Kirchi)	The root is ground and mixed with water. It is given to the animal every evening.
49.	Gawo	<i>Acacia nilotica</i>	Leguminosae	T	W	Trypanosomiasis (Sammore)	The fruit is cooked with table salt and a small quantity is given to the animal once a day.
50.	Dogonyaro	<i>Eucalyptus camaldulensis</i>	Lelythidaceae	T	W	Texas fever (Zazabin jiki)	The leaves are cooked and ground with the fruit. These are soaked in water and administered to the animal once a day.
51.	Tawatsa	<i>Entada africana</i>	Leguminosae	T	W	Helminthiasis (Tsutan chiki)	The fruits and leaves are sun dried and ground to powder. They are then put inside dussa and given to the animal four times a day.
52.	Gwandandagi	<i>Carica papaya</i>	Caricaceae	T	W	Infectious bursal disease (Shamal)	The leaves are ground with the fruits and mixed with manshamu (cow oil). It is given to the animal 3 times a day.

S/No	Local Name	Botanical Name	Family Name	Type of plant	Cultivated or Wild	Animal Disease	Method of use
53.	Wutawuta	<i>Striga hermonthecia</i>	Strigaceae	T	W	Chronic respiratory disease (Muran kaji)	The whole plant is dried, ground and soaked in water. It is given to the animal everyday within a week
54.	Faranbiri	<i>Lannea schimperii</i>	Anacardiaceae	T	W	Texas fever (Zazabin jikin)	This is cooked with water and ground millet is added. It is given to the animal once a day.
55.	Karandahi	<i>Sorghum caudatum</i>	Poaceae	S	C	Fowl pox (Kwurajen kaji)	The plant is dried, ground and mixed with manshanu (cow oil). It is given to the animal in 3 doses only.
56.	Kurna	<i>Ziziphus spina-christi</i>	Rhamnaceae	T	W	Brucellosis (Bakkale)	The fruit and the tree bark are ground and soaked in water. It is given to the animal continuously.
57.	Modobiya	<i>Pterocarpus erinaceus</i>	Leguminosae	T	W	Anthrax (Saifa)	The leaves are dried and ground, then mixed with potash. It is given to the animal once a day.
58.	Kuka	<i>Adonsonia digitata</i>	Bombacaceae	T	C	Coccidiosis (Zawon jirin kaji)	The seeds are cooked with a small amount of potash. This is administered to the animal twice a day.
59.	Tukurwa	<i>Raphia</i> sp.	Palmae	T	W	Bovine mastitis (Chiwon nono)	The leaves and the bark of the tree are soaked in water. It is given to the animal once a week.
60.	Tanatsa	<i>Entada africana</i>	Leguminosae	T	W	Trypanosomiasis (Sammore)	The leaves are cooked very well with plenty of water and administered as a drink to the animal every morning and evening.

Conclusion and Recommendations

Medicinal plants constitute an important natural wealth of a country, they play significant role in providing veterinary health care services to rural people. They serve as therapeutic agents as well as important raw materials for the manufacture of traditional and modern medicine. It could be noted that this ancient knowledge and the plants that formed its basis are drastically disappearing probably due to over exploitation and environmental degradation. It is recommended that there is need to create awareness of environmental conservation and protection of biodiversity and tree Planting Campaign on medicinal plants for veterinary health care by indigenous and local communities should be encouraged as majority of the village communities will benefit from this programme.

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