

INDIGENOUS USES OF MEDICINAL PLANTS FOR THE TREATMENT OF FARM ANIMALS IN RAFI LOCAL GOVERNMENT AREA, NIGER STATE, NIGERIA

Orimoloye Ipoola Faleyimu

Department of Biological Sciences, Ondo State University of Science and Technology, Okitipupa, Nigeria

ABSTRACT

Sustainable development is about finding better ways of doing things, both for the future and the present. The paper therefore examined the sustainable indigenous uses of medicinal plants for the treatment of farm animals in Rafi Local Government Area of 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 animals, 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 (*Pterocwpesa erinaceus*) was used for treating foot and mouth disease, Kalgo (*Pilliosigma thonningii*) for pneumonia and chronic respiratory disease, Tamiya (*Tamarindu indica*) for Newcastle disease, Zogale (*Moringa oleifera*) for reinder pest of cattle and anthrax, Kuka (*Adansonia digitata*) for tuberculosis and coccidiosis, Madaci (*Khaya senegalensis*) for rabbies, Kurna (*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.

Keywords: Medicinal Plants, Treatment, Modern Drug, Farm Animals, Diseases

INTRODUCTION

The concept of sustainable development can be interpreted in many ways, but at its core is an approach to development that looks to balance different, and often competing, needs against an awareness of the environmental, social and economic limitations faced as a society. Living within the environmental limits is one of the central principles of sustainable development. One implication of not doing so is climate change. Sustainable development is about finding better ways of doing things, both for the future and the present. There may be need to change the way the people work and live now, but this does not mean the quality of life will be reduced.

According to the World Commission on Environment and Development (1987) cited by Harris (2000), there has generally been recognition of three aspects of sustainable development:

Economic: An economically sustainable system must be able to produce goods and services on a continuing basis, to maintain manageable levels of government and external debt, and to avoid extreme sectoral imbalances which damage agricultural or industrial production.

Environmental: An environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems or environmental sink functions, and depleting non-renewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources.

Social: A socially sustainable system must achieve distributional equity, adequate provision of social services including health and education, gender equity, and political accountability and participation. A sustainable development approach has many benefits in the short to long term.

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 chemicals from which over 50% of drug prescription are now derived (<http://zims.isis.org/s5c/blog/lists/posts/postol.aspx?ID=5>). Herbal medicine are finished herbal products that contain part of plants or other plant materials as active ingredients. In many developed countries, 70 – 80 percent of the population has 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 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 phytochemicals 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 state 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 of whole plants or part of the plant to prevent or treat illness. Plant parts used 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_plants-a_powerfulhealth-acid/pg_1)).

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 body of the animals under attack. As a result of this, they impair and hamper the physiological growth and productivity of livestock. The infection caused in livestock may be direct or 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 and its uses for treating farm animals in Rafi Local Government Area of Niger State and hence, its documentation.

METHODOLOGY

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 and 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 predominantly 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 1,250-2,000 mm; the soil types are mostly the loamy and clay soil. It has two seasons, which are wet and dry seasons.

Sampling Technique

A total sampling size of one 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 animals. The questionnaire contained information about socio economic characteristic of the animals farmers (respondents), types of medicinal plants used, and on what kind of diseases were treated with the plants. Questions were also asked on the side effects of the plants used on the farm animals.

Method of Data Analysis

Descriptive statistics such as frequency tables and percentages were used for the analysis.

RESULT AND DISCUSSION

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Table 1: Demographic Characteristics of Respondents

Variables	Frequency	Percentage (%)
Age		
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
<hr/>		
Total	100	100
<hr/>		
Sex		
Male	55	55.00
Female	45	45.00
<hr/>		
Total	100	100
<hr/>		
Marital status		
Single	25	25.00
Married	45	45.00
Divorce	15	15.00
Widow (er)	15	15.00
<hr/>		
Total	100	100
<hr/>		
Occupational status		
Animal rearers	30	30.00
Farmer	20	20.00
Civil servant rearing animals	25	25.00
Others	25	25.00
<hr/>		
Total	100	100
<hr/>		
Educational status		
Primary school	22	22.00
Secondary school	38	38.00
Tertiary institution	23	23.00
No formal education	17	17.00
<hr/>		
Total	100	100
<hr/>		

Source: Field Survey (2011)

The table 1 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 with the descriptive statement of Faleyimu (2008) that older people are actively involved in the provision of medicinal plants for curative purpose. The above table showed

that 55% of the respondents are male while 45% are female. The results simply indicated that males are the majority in the study area and have high level of experience in providing medicinal plants go to the farm, and forest to get these medicinal plants. However, the results are not in line with Faleyimu (2008) that female gender dominated herb trading in Ogun state, Nigeria. The table also showed that most of the respondents in the study area who engage in providing traditional medicine were married (45%) and single (25%), those that are divorce and widows were 15% each. This implies that most of the respondent that use medicinal plants to treat 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 is married which made them to be more responsible. As shown in the table, most of the respondents in Rafi Local Government Area are Animal rearer (30%) while farmers are 20% and civil servant possessing farm animals, 25%. This implies that the majority of the respondents were involves in animal rearing as their primary occupation. All other economic activities are additional source of income. The obtained data recorded that that most of the respondents that is, 38% of them had secondary education, 22% attended primary school while 23% of the respondents have tertiary education while 17% of the respondents were illiterate (no formal education). Education will influence their ability to 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.

SECTION B

The table below is comprised of trees and shrubs that are naturally used to treating farm animal diseases.

Table 2: Plants use for treating farm animals

No	Local name	Botanical name	Family name	Type of Plant (T-Tree, S-Shrub)	Cultivated (C) or Wild (W)	Animal Disease	Use/Method of uses
1	Madobiya	<i>Pterocwpesa erinaceus</i>	Pterocw pesaleae	T	W	Foot and mouth disease (BAURO)	Boiled the bark of the plant and put inside bottle. Give the animal to drink any time.
2	Kalgo	<i>Pillostigma thonningii</i>	Pillostigm aceae	T	W	Pneumonia (CHIWON HUHU)	Grind the leaves and fruits together then dilute with water. It should be taken at any convenient time.
3	Tamiya	<i>Tamarindu indica</i> Linn	Apocyn Aceae	T	W	Newcastle disease	Grinds the fruit. Add hot water to mix it. Give them two times daily.
4	Dondo Zugle	<i>Moringa oleifera</i>	Moringa ceae	T	W	Rinder pest of cattle (chabo)	Grind root and mix with water use small cup. Give them 3 times day
5	Dogon yaro	<i>Eucalyptus camaldulensis</i>		T	W	Ebola disease	Grind the leaves and mix with water. Give the animal daily.
6	Kalgo	<i>Pillostigma thonningii</i>	Legumenosae	T	W	Chronic respiratory disease (muramkaji)	Soak the Leaves in water. Add small potash. Give the animal every day.
7	Kuka	<i>Adansonia digitata</i>	Bombasaceae	T	C	Tuberculosis (muran shanu)	Cook the bark of the tree and add small quantity of salt to it. It is given to the animal twice a day
8	Zogale	<i>Moringa oleifera</i>	Moringa Ceae	T	C	Anthrax (saifa)	Grind the fruit and mix with water. Add small potash. Give them once a day
9	Lemun Tsami Tsadan Gida	<i>Citrus aurantifolia</i>	Rutaceae	T	C	Mastitis (chiwon nono)	Grind the leaves and tsadan gida first and mix with liquid of the lemon tsami. Dilutes it with water and should give the animals once a day.
10	Gwaiba	<i>Psidium guarjava</i> Linn	Myrtaceae	T	C	Fowl pox (kwurajenkaji)	Grind the bark of the trees put small salt, then cook. Give them 3 times a day
11	Madaci	<i>Khaya senegalensis</i>	Mimosa Ceae	T	W	Rabbies (haukan kare)	Soak the bark of the tree in a container, add small salt with water. Give them 2 times a day
12	Shuwaka	<i>Velonia amygdalina</i> del	Compositae	S	C	African swine fever	Boil the leaves and then put it inside bottle. Give the animal to drink any time
13	Madachi	<i>Khaya senegalensis</i>	Mimosaceae	T	W	Ordinary swine fever (kuburin chiki)	The leaves and fruit will be dried and grind to powder, then mix it with grinded maize. Give them every evening.
14	Dogan yaro	<i>Eucalyptus camaldulensis</i>	Lelythidaceae	T	W	Infectious bursal disease (shamal)	Grind the bark and add water to mix it with small salt. Give them 3 times a day

15	Dinya	<i>Vitex doniana</i>	Verbanaceae	T	W	Babesiasis	Cook the root and add small red potash. Give the animal to drink for 2 times in a week
16	Doruwa	<i>Parkia biglobosa</i>	Eupharbiaceae	T	W	Brucellosis (Bokkale)	Cook the bark of the trees with potassium, mix it with grind maize to given them every weeks
17	Chediya	<i>Ficus thoningii</i>	Mimosaceae	T	W	Brucellosis (Bokkale)	Soak the seed of the herbs in water. Give them to drink
18	Madachi	<i>Khaya senegalensis</i>	Mimosaceae	T	W	Rabbies (haukan kare)	Get the leaves of the herbs allow it to dry, then grind it with red potassium, add water to mix. Give them to drink 3 times a day
19	Kade	<i>Butyros permum para doxum</i>	Sapotaceae	T	W	Helminthiasis (tsutsan chiki)	Put the bark of the trees inside small bottle then put water to soak for two days. To be given 2 times in a week
20	Kashin Awaki			T	W	Myxomatosis (sanmori)	Grind the bark and mix with water to be given to them once a day
21	Bagaruwa	<i>Acacia nilotica</i>	Caesalpiniaceae	T	C	Dermatitis (kirchi)	The fruit is cooked and given them with water once in a day
22	Doruwa	<i>Parkia biglobosa</i>	Euphorbiaceae	T	W	Helminthiasis (tsulsan chiki)	Remove the seed or fruit and grind it. Mix with small quantity of salt. Give them regularly.
23	Faru	<i>Lannea humilis</i>	Anacardiaceae	T	W	Texas fever (zazabin jiki)	Cook the roots and red potassium together give them to drink once a day
24	Mongoro	<i>Magnifera indica</i>	Anarcadiaceae	T	C	Brucellosis (bakkale)	Cook the fruit and add small potash inside it. given them 2 times daily
25	Chediya	<i>Ficus thoningii</i>	Moraceae	T	W	Helminthiasis (kirchi)	The fruit is cooked with mango leaves. Give the animals always.
26	Kade	<i>Butyrospermum paradoxum</i>	Sapataceae	T	W	Babesiasis (machijin chiki)	Grind the leaves and fruit together dilute with water. Give them to drink at any convenient time.
27	Bagaruwa	<i>Acacia nilotica</i>	Caesalpi niaceae	T	C	Infectious bursal disease (shamal)	Grind and live it to dry then mix it with grinded maize. Give them every evening
28	Doruwa	<i>Parkia biglobasa</i>	Euphorbiaceae	T	W	pneumonia (chiwon huhu)	Grind the seeds and leaves together then mix them with gari. Give the animals to eat for 3 days
29	Kandare	<i>Terminalia macroptera</i>	Combataceae	T	W	Ordinary swinef ever (kuburin chiki)	The root and leaf will be cooked with water put small salt. Give them for 3 times a day.
30	Gwaiba	<i>Psidium guarjum (Linn)</i>	Myrytaceae	T	C	Fowl pox (Kwurajen kasi)	Get the fruit to grind. Add water. To be given them all the time.
31	Kurna	<i>Ziziphus spina Christi</i>	Rham Naceae	T	W	Anthrax (surfa)	Cooked the leaves and the fruit add small potash shake it. Then give them for 2 times a day
32	Bagaruwa	<i>Acacia nilotica</i>	Legumi Nosae	T	W	Trypanosomiasis (sammore)	Cook the tender leaves. Mix it with small salt, give regularly.

33	Tsamiya	<i>Tamarindus indica</i>	Leguminosae	T	W	Tuberculosis (muban shanu)	Grind the bark of the tree with leaves, soak in water, give them 3 times in a day
34	Tafashiya	<i>Nauclea diderrichii</i>	Rubiaceae	T	W	Fowl pox (kwurajen kaji)	Cook the roots of the tree and the fruit together. Give them 3 times a week
35	Tsada	<i>Ximenia amercana</i>	Oluca Ceae	T	W	Ordinary swine fever (kublun chiki)	Use the fruits and the leaves. Dry it and grind. put it inside water give them every evening
36	Dongoyaro	<i>Eucalyptus camaldulensis</i>	Lelythidaceae	T	W	Trypanomiasis (sammore)	This leaves or herb will be dried, grind it into powdered, mix with small salt. Give the animals regularly.
37	Mangoro	<i>Mangifera indica</i>	Anacardiaceae	T	C	Dermatitis (kirchi)	Cook the root with water and small quantity of potassium, mix together give them 2 times a day.
38	Doruwa	<i>Parkea biglobosa</i>	Euphorbiaceae	T	W	Babesiasis (machijin chiki)	Grind the bark of the tree, mix with groundnut oil, give them every day.
39	Delbesiya	<i>Mormodica balsamina</i>	Cucubitaceae	T	C	Fowl pox (kwurajen kaji)	Grind the fruit into powder. Give them twice a day
40	Tsamiya	<i>Tamarindus indica</i>	Apocynaceae	T	W	Fowl pox (Kwurajen kaji)	Grind the fruit with the leaf and cooked together put it inside grinded maize. Give them 2 times a day.
41	Taura Dusa	<i>Detarium microcarpum</i>	Leguminosae	T	W	Anthrax (saifa)	Grind the fruit with the leaf and cooked together put it inside dussa to be given them 2 times in a day
42	Goriba	<i>Hyphaene thebaica</i>	Pandanaceae	T	C	Foot and mouth disease (bouro)	Grind the bark of the tree with the seed put small quantity of salt. Give them once in a day
43	Tumfafiya	<i>Calotropis procera</i>	Asclepiadaceae	T	W	Bovine mastitis (chiwon nono)	The fruit is soaked in water. Give them every evening
44	Tuna	<i>Pseudoedrela kotschy</i>	Meliaceae	T	W	Foot and mouth disease (BAURO)	This type of herb is cooked with water, mix with salt and Butyrospermum paradoxum oil Give once a day.
45	Kuka Gwaiba	<i>Adonsonia digitata</i>	Bombo Caceae	T	C	pneumonia (CHIWON HUNU)	Grind the 2 leaves together and then cook for 3 days give them regularly
46	Giyinya	<i>Psidium guajava</i>	Myrtaceae	T	C		
46	Giyinya	<i>Barassus aethiopum</i>	Pandanaceae	T	W	Rabbies (hauka kane)	the fruit soaked in water and mixed with potassium. Give them 3 times in a day
47	Goriba	<i>Hyphaene thebiaca</i>	Pandanaceae	T	W	Myomatosis (sanmori)	Get the fruit of the goriba, soak in water, given them 3 times in a day

48	Modobiya	<i>Pterocar puseinaceus</i>	Leguminosae	T	W	Dermatitis (kirchi)	Grind the root and mix with water give them every evening
49	Gawo	<i>Acacia nilotica</i>	Leguminosae	T	W	Trypanosomiasis (sammore)	This fruit is cooked with salt. Give them small quantity in a day
50	Dongoyaro	<i>Eucalyptus camaldulensis</i>	Lelythidaceae	T	W	Texas fever (zazabin jiki)	Cook the leaves and then grind the fruit. Soak it in water, give them once in a day
51	Tawatsa	<i>Entada Africana</i>	Legumin osae	T	W	Helminthiasis (tsutan chiki)	The fruit and leaves will be sun dried and grind it to powder. Put them inside dussa Give them 4 times in a day.
52	Gwandanda gi	<i>Carica papaya</i>	Caricaceae	T	W	Infectious bursal disease (shamal)	Grind the leaves with the fruit then mix together with manshamu (cow oil) give them 3 times a day
53	Wutawuta	<i>Striga hermontheca</i>	Strigaceae	T	W	Chronic respiratory disease (muran kaji)	Dry and grind it. Soak in water. Give it everyday in a week
54	Faranbiri	<i>Lannea schimperi</i>	Anacardiaceae	T	W	Texas fever (zazabin jikin)	Cook it with water add grinded millet. Give them once in a day
55	Karandahi	<i>Sorghum caudatum</i>	Poaceae	S	C	Fowl pox (kwurajenkaji)	Dry it and then grind and mix with manshanu. (Cow oil) Give them 3 times only.
56	Kurna	<i>Ziziphus spina Christi</i>	Rhamnaceae	T	W	Brucellosis (Bakkale)	Grind the fruit and the bark of the tree together, soak in water. Give the animal regularly.
57	Modobiya	<i>Pterocarpus erinaceus</i>	Leguminosae	T	W	Anthrax (saifa)	Dry the leaves and grind it. Mix with potash. Give once a day
58	Kuka	<i>Adonsonia digitata</i>	Bomba Caceae	T	C	Coccidiosis (zawon jirin kaji)	Cook the seed, add little potash to it. Give them 2 times a day
59	Tukurwa	<i>Raphia sp</i>	Palmae	T	W	Bovine mastitis (chiwon nono)	Soak the leaves with the bark of the tree in water, give them once in a week
60	Tanatsa	<i>Entada aficana</i>	Legumin Osae	T	W	Trypanosomiasis (sammore)	Cook the leaves. Give them to drink morning and evening every day.

CONCLUSION AND RECOMMENDATION

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 which should be harvested sustainably. 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 the ancient knowledge and the plants that formed its basis are drastically disappearing probably due to over exploitation and environmental degradation. Any plan of action for enhancing a sustainable identification and traditional uses of medicinal plants in the study area must be tailored to the specific needs of particular situation in the appropriate method. The identification and traditional use of any plant as source of medicine, together with its use for treating a particular ailment in farm animals is not a harphazard task and therefore requires carefulness during preparation to avoid contamination and poisoning of the animals during administration. Furthermore, the efficacy of any plant as medicine cannot be determined through guessing, but by knowing the major active ingredients in such plant and what it is capable of curing. This calls for further research and analysis of the popular medicinal plants and consequent integration of traditional medicinal plants in the nation's veterinary health sector.

It is recommended that there is need to create awareness of environmental conservation and protection of biodiversity and tree Planting Campaign on medicinal plants and its sustainability for veterinary health care by indigenous and local communities.

ACKNOWLEDGEMENTS

The author acknowledged all the animal farmers, herb traders and civil servants possessing farm animals that participated in the administration of the questionnaire and also the reviewers of this paper for their concerted efforts toward making the research work publishable.

REFERENCES

Faleyimu O.I (2008): Efficacy of medicinal forest plants seed in Ogun state, Nigeria. Obeche journal vol. 26 (1) : 63 – 67

Faleyimu O.I Ijeomah H.M and Agbeja, B.O. Energy consumption pattern and its implication on forest ecosystems a case study of orogun community, Ibadan Oyo state. Obeche journal. Vol. 26 (2): 6 – 11.

Harris, Jonathan M. (2000): Basic Principles of Sustainable Development. Tufts University Medford MA 02155, USA. <http://ase.tufts.edu/gdae>

Herbalism – Wikipedia the free encylopedia <http://en.Wikipedia/wiki/herbalism> pg 5, 1/31/2010.

Medicinal plants and animals species conservation discussion.
<http://2ims.8is.org/ssc/blog/lists/postold.aspx?D=5> pg/101/2010

Medicinal plant <http://www.scq.ubc.ca/medinalplant=a> powerful – health – acid/pg1 3/2/2010

New Nigerian news paper (2008) medicinal plant face extinction pg 31, Monday, January 2008 Pp 40

NPC (2006) National Population Census 2006 Rafi Local Government, Niger state

Odedokun (V.O 2007): tropical Agricultural science for senior secondary school and college book 3 published by padmo printing Enterprises PP 68

ABOUT THE AUTHOR:

Orimoloye Ipoola Faleyimu is a member of the Department of Biological Sciences, Ondo State University of Science and Technology, Okitipupa, Nigeria.