Ethnobotanical Leaflets 13: 40-46. 2009.

Medicobotanical Studies in Relation to Veterinary Medicine in Ekiti State, Nigeria: (1) Checklist of Botanicals used for the Treatment of Poultry Diseases

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Issued 04 January 2009

ABSTRACT

A semi-structured questionnaire matrix and direct field observation were used to identify botanicals used for veterinary health care in the rural areas of Ekiti State, Nigeria. A total of 38 plants belonging to 27 families were valued for the treatments of poultry pests and diseases in the study area and the parts mostly utilized were the leaves. Features that enhanced the continuous utilization of these botanical species were identified and strategies that could further enhance their sustainability were also proposed.

INTRODUCTION

Ekiti State ($7^0$25'- $8^0$20', $5^0$00'- $6^0$00') is located in the southwestern part of Nigeria. The state has a contiguous land mass of about 7000 sq. kilometers and over 75% of the 1.6million inhabitants of this area are farmers, most of whom are situated in rural areas (Kayode 1999). There are two climatic seasons, a dry season, which lasts from November to February and a rainy season, which lasts from March to October with an annual rainfall of about 1150mm (Kayode and Faluyi 1994).

In Nigeria, ethnoveterinary practices still play important roles in many rural areas (Kudi and Myint 1999). Veterinary treatment by conventional means has continued to be out of reach for ordinary farmers due to cost and quite often the non-availability of drugs (Chiezey *et al.* 2000). Unfortunately a gross dearth of documentations on ethnoveterinary botanicals still abounds in Ekiti State where the current rate of deforestation is unprecedented (Kayode 2004). In fact, previous assertion by Keengwe and Benalo (1996) had revealed that in Nigeria, ethnobotanical knowledge and methods have not been fully documented, studied and popularized for use together with modern veterinary medicine as has been done in Kenya, another African country.

The study being here reported is a part of on-going studies on the medicobotanicals used in veterinary medicine being conducted at the Department of Plant Science, University of Ado-Ekiti, Ado-Ekiti, Nigeria. It is expected that the study will document the plant based animal care practices used by the rural communities of Ekiti State, Nigeria.

MATERIALS AND METHODS

Ekiti state was divided into three zones, Ekiti North, Ekiti Central and Ekiti South, based on the existing political delineation. In each zone, ten communities that were still relatively far from urban influence were chosen. In each of these communities, ten respondents who had maintained domicile for a period of not less than 20 years were chosen and interviewed with the aid of semi-structured questionnaire matrix (after Kayode 2002, 2005, Kayode and Omotoyinbo 2008). The interviews were conducted with a fairly open framework that allowed for focused, conversational, two-way communication.

Botanical species used for veterinary treatments, in each community, were identified and documented. Information on the part(s) of such plant used was documented. Voucher specimens of the species were collected and later scientifically identified at the herbarium of the Department of Plant Science, University of Ado-Ekiti, Ado-Ekiti, Nigeria. The specimens were later kept in the herbarium.

Secondary information was obtained from records at the State Veterinary Hospital located in Ado-Ekiti, the Ekiti State capital, and key informants consisting of officials of the State Ministries of Agriculture, Environment and Health as well as Veterinary Doctors were also interviewed. The services of the veterinary doctors were utilized in the diagnosis of the livestock diseases.

RESULTS AND DISCUSSION

Field observation revealed that poultry constituted the bulk of livestock kept in the study area where livestock was recognized as occupying a prominent place in the rural economy. The birds were mostly managed using the free range system. There were no traditional veterinary healers in any of the communities sampled in this study. Elsewhere in Nigeria, Nwude (1997) had asserted that traditional medicinal healers were only available for the treatments of human diseases in the study area. Sanyasi-Rao *et al.* (2008) made similar observation in the Chittor and Ananthapur districts of India. In Ekiti State Nigeria, the treatments of poultry diseases in the rural area were skewed to the use of botanicals which were perceived as cheap, usually at low cost, locally and easily available and do not have side effects on their livestock. This observation confirms the previous assertion of Sarr and Abdu (1999) that dependency on the maintenance of livestock health in Nigeria is based on traditional remedies. Most of the residents in the study area were quite familiar with the appearance of some symptoms which they used in recognizing the various diseases affecting their poultry livestock (Table 1) and many considered pests as being an integral part of the diseases that hindered poultry productivity in the

study area. Some of the poultry diseases were known to be caused by nutritional deficiencies while some were recognized as being caused by micro-organisms. A total of 38 plants belonging to 27 families (Table 2) were valued for the treatments of poultry pests and diseases (Tables 1 and 3), the part mostly utilized was the leaves (Table 2). Elsewhere in India, the leaves also formed the bulk of the parts of ethnobotanical used (Ramana 2008).

The indigenous knowledge on the efficacies of these botanical species is passed from one generation to another. Respondents were of the opinion that the various governments in the country had demonstrated inadequate concerns for livestock health thus confirming the assertion of Sarr and Abdul (1999) that apart from the successful control of rinderpest, little or no efforts had been demonstrated by the government on the control of veterinary diseases. Field observation also revealed that respondents were aware of the successful control of bird flu that was also carried out by the Federal Government of Nigeria in the year 2004-2006. However, the financial commitments by governments, as previously observed by Abdu *et al.* (2000) were poor when compared to the number and diverse breeds and species of livestock in the country. This has further fueled the dependence of the rural and the urban resource-poor farmers on the use of botanicals for the livestock.

In conclusion, residents in the rural areas were confronted with multiple problems that hindered poultry productivity. These include the lack of functional veterinary hospital, inadequate financial resources, non-availability of modern veterinary drugs, even when diverse sources were utilized to source for fund to purchase them, poor extension services and increased environmental degradation that has deleterious effects on the health of the livestock. With the increasing rates at which indigenous knowledge are being lost, the documentation of the ehtnobotanicals cannot be over-emphasized. According to Raul *et* al. (1990), considerable wealth of knowledge is inherent in most cultures of the world. Thus the use of etnoverterinary medicine is widely considered as sustainable (Gueye 1995) as it is perceived as economical, culturally acceptable and economically sound. Consequent on the above, the previous suggestion of Chiezey *et al.* (2000) that empirical trials must be carried out to ascertain their efficacies, safety and relative health and economic risks before they are widely promoted, is still relevant. The abundance of the botanicals, in the study area, must be determined with the aim of establishing sustainable strategies that would conserve the rare species among them. Standard dosages must be established for the species as this might be necessary in integrating the botanicals with modern orthodox veterinary medicine.

ACKNOWLEDGEMENTS

The assistance of ANTHRA, India and Professor J. O. Gefu of the National Animal Production Research Institute, Ahmadu Bello University, Zaria, Nigeria, in the supply of literature were highly appreciated.

REFERENCES

Abdu, P. A., Jagun, A. G., Gefu, J. O. Mohammed, A. K., Alawa, C. B. I. and Omokanye, A.T. (2000). A survey of ethnoveterinary practices of agropastorialist in Nigeria, Pp. 25-31, In Gefu J. O. *et al. (Eds.). Ethnovertirinary practices, Research and Development,* National Animal Production Institute, Ahmadu Bello University, Zaria, Nigeria.

Chiezey, N. P., Gefu, J. O., Jagun, A. G., Abdu, P. A., Alawa, C. B. I., Magaji, S. O., Adeyinka, J. A. and Eduvie, L. O. (2000). Evaluation of some Nigerian plants for anthelmintic activity in young cattle. Pp. 38-48. In Gafu, J, O, *et al.* (Eds.). *Ethnoveterinary practices, Research and Development,* National Animal Production Research Institute, Ahmadu Bello University, Zaria, Nigeria.

Guaeye, E. F. (1995). Ethnoveterinary medicine against poultry diseases in African villages. *World's Poultry Science Journal* 9.55(2), 187-198.

Kayode, J**.** and Faluyi, M. A. (1994). Studies on self and cross-compatibility in soybean (*Glycine max L.*) in a tropical rainforest environment. *Nigeria Journal of Botany* 7, 55-61.

Kayode, J. (1999). Phytosociological investigation of compositae weeds in abandoned farmlands in Ekiti State, Nigeria. Compositae Newsletter 34, 62-68.

Kayode, J. (2002). Conservation and ethnobotanical exploration of compositae in Ekiti State, Nigeria. Compositae Newsletter 37, 79 – 83.

Kayode, J. (2004). Conservation Perception of Endangered Tree Species by Rural Dwellers of Ekiti State, Nigeria. Journal of Sustainable Forestry 19(4), 1-9.

Kayode, J. and Omotoyinbo, M. A. (2008). Conservation of Botanicals Used for Dental and Oral Healthcare in Ekiti State, Nigeria. *Ehnobotanical Leaflets* 12, 7-18.

Keengwe, M. and Benalo, I. (1996). Ethnoveterinary medicine in Kenya: A field manual of traditional animal health care practices. Intermediate Technology Development Group and International Institute of Rural Reconstruction, Nairobi, Kenya.

Kudi, A. C. and Myint, S. H. (1999). Antiviral activity of some Nigerian medicinal plant extracts, *Journal of Ethnopharmacacology* 68, 289-294.

Nwude, N. (1977). Nigerian plants that may cause poisoning in livestock. *Vet. Bull.* 47(11), 811-817.

Ramana, M. V. (2008). Ethnomedicinal and Ethnoveterinary Plants from Boath, Adilabad district, Andhra Pradesh, India. *Ethnobotanical Leaflets 12: 391-400. 2008.*

Raul, P., Pedrazo, M. and Manuela, P. (1990). Animal health care in India. *ILEIA Newsletter* 8 (3), 22-23.

Sanyasi Rao, M. C., Varma, Y. N. R. and Vijaykumar, R. (2008). Ethno veterinary medical plants of the catchment area of the River Papogni in the Chittor and Ananthapur districts of Andra-Pradesh, India, *Ethnobotanical Leaflets* 12, 217-226.

Sarr, J. and Abdu, P. A. (1999). Study of the needs in veterinary vaccines in ECOWAS member states. Study Report, The Department of Industry, Agriculture and Natural Resources, ECOWAS Secretariat, Abuja, Nigeria.

Table 1. Respondents' indigenous technical knowledge on poultry pests and diseases.

Indigenous Technical Knowledge	Pests/ Diseases	
	English/Scientific Name	Vernacular Name
(a) Pests		
1. - Small insects that are transmitted by body contact, whose life-cycle is completed in relative short time, - Cause restlessness, - Often results in sores on the birds that may serve as entry points for microbes, - May also transfer diseases from one bird to another	Lice	Yooo
2. - Worms present in the stool - Lack of appetite - General weakness	Worms/Helminthes	Aran
(b) Nutritional Diseases		
1. - Weak and staggering - Inability to walk properly - Partial paralysis	Rickets/Osteomalacia	Aro/Roparose
2. - Weakness of the body - Pale look - Inadequate blood	Anaemia	Gbigbe
(c) Microbial Diseases		
1. - Paralysis of bird(s), - Loss of birds weight - Difficulties in the breathing of bird(s) - Depressions of the bird(s)	Fowl plague/Newcastle disease	
2. - Excessive diarrhea - Persistence stooling	Coccidiosis	

3. - Swellings, filled watering substances, on the surface of the comb, wattles, beak and eyes	Fowl pox
4. - Discharge of watery substance from the nose of the bird(s) - Swollen of bird(s) face - Sneezing and coughing	Respiratory disease

Table 2. List of identified botanicals used for the treatment of poultry diseases in Ekiti State, Nigeria.

S/N	Botanical Species	Family	Vernacular Name	Part(s) Used
1.	*Acacia arabica*	Mimosaceae	Ewon egun	Leaves
2.	*Adansonia digitata*	Bombacaeae	Ose	Leaves, fruits
3.	*Aframomum melagueta*	Zingiberaceae	Atare	Fruits, Seeds
4.	*Allium cepa*	Alliaceae	Alubosa	Leaves, bulbs
5.	*Allium sativum*	Alliaceae	Alubosa-Elewe	Leaves, bulbs
6.	*Amarantus spinosus*	Amaranthaceae	Tete-Elegun	Leaves, Seeds
7.	*Azadirachta indica*	Meliaceae	Dongoyaro	Leaves, Fruits
8.	*Boerhavia diffusa*	Nyctaginaceae	Etipe-elila	Leaves
9.	*Bridelia ferruginea*	Euphorbiaceae	Ira	Leaves, Stem bark
10.	*Capsicum frutescens*	Solanaceae	Ata wewe	Fruits
11.	*Carica papaya*	Caricaceae	Ibepe	Leaves, Seeds
12.	*Chromoleana odorata*	Asteraceae	Akintola	Leaves
13.	*Cissampelos owariensis*	Menispermaceae	Jokojee	Leaves
14.	*Citrus aurantifolia* juice	Rutaceae	Osan wewe	Leaves, Fruits
15.	*Datura stramonium*	Solanaceae	Adodo-mode	Leaves
16.	*Elaeis guineensis*	Arecaceae	Ope	Leaves, Fruits
17.	*Ficus exasperate*	Moraceae	Eepinpin	Leaves, latex
18.	*Jatropha gossypifolia*	Euphorbiaceae	Lapalapa	Leaves, Latex
19.	*Lagenaria siceraria*	Cucurbitaceae	Igba	Leaves
20.	*Lantana camera*	Verbenaceae	Ewon adele	Leaves
21.	*Momordica charantia*	Cucurbitaceae	Ejinrin	Leaves
22.	*Musa paradisiaca*	Musaceae	Ogede agbagba	Leaves, Stem
23.	*Nicotiana tobacum*	Solanaceae	Taba	Leaves
24.	*Ocimum bascilicum*	Lamiaceae	Efirin wewe	Leaves

25. *Parkia biglobosa*	Mimosaceae	Iru (igba)	Leaves, Stem bark, seeds
26. *Pergularia daemia*	Asclepiadaceae	Atufa	Leaves
27. *Perquetina nigrescens*	Asclepiadaceae	Ogbo	Leaves
28. *Saccharum officinarum*	Poaceae	Ireke	Leaves, Stem extract
29. *Senna alata*	Caesalpiniaceae	Asunrin oyinbo	Leaves
30. *Senna occidentalis*	Caesalpiniaceae	Papala-omode	Leaves
31. *Solanum americanum*	Solanaceae	Odu	Leaves, fruits
32. *Talinium trangulare*	Portulaceae	Gbure	Leaves
33. *Tephrosia vogelii*	Papilionaceae	Orobeja	Leaves
34. *Terminalia schimperiana*	Combretaceae	Idi	Leaves
35. *Vernonia amygdalina*	Asteraceae	Ewuro	Leaves
36. *Vitex doniana*	Verbenaceae	Oriri	Leaves
37. *Vitellaria paradoxa*	Sapotaceae	Emi	Leaves
38. *Zea mays*	Poaceae	Agbado	Seeds

Table 3. Folk medicinal value of the identified botanical species used for the treatment of poultry diseases in Ekiti State, Nigeria.

S/N	Botanical Species	Folk medicinal value
1.	*Acacia arabica*	Healing of wound and cure of fowl pox
2.	*Adansonia digitata*	Healing of wound, cure of fowl pox, and diarrhea
3.	*Aframomum melagueta*	Cure of gastrointestinal diseases
4.	*Allium cepa*	Curing cold, helminthiasis and respiratory diseases
5.	*Allium sativum*	Curing cold, helminthiasis, respiratory and gastrointestinal diseases
6.	*Amarantus spinosus*	Curing pile
7.	*Azadirachta indica*	Prevention of worm infestation, control of lice
8.	*Boerhavia diffusa*	Cure of worms and gastrointestinal diseases
9.	*Bridelia ferruginea*	Cure of cold, fever and cough
10.	*Capsicum frutescens*	Cure of cold and fever
11.	*Carica papaya*	Control of lice, curing pile and other gastrointestinal disorders
12.	*Chromoleana odorata*	Curing diarrhea
13.	*Cissampelos owariensis*	Cure of worm and diarrhea
14.	*Citrus aurantifolia*	Control of lice and worms, curing of cold, nervous diseases, fowl pox and diarrhea
15.	*Datura stramonium*	Healing of wounds and cure of fowl pox
16.	*Elaeis guineensis*	Healing of wound and cure of fowl pox

17. *Ficus exasperate*	Cure of diarrhea
18. *Jatropha gossypifolia*	Cure of worms and fowl pox
19. *Lagenaria siceraria*	Cure of Newcastle disease and coccidiosis
20. *Lantana camera*	Healing of wounds and cure of fowl pox
21. *Momordica charantia*	Cure for fowl pox, helminthiasis and coccidiosis
22. *Musa paradisiaca*	For cure of respiratory diseases
23. *Nicotiana tobacum*	Control of lice
24. *Ocimum bascilicum*	Cure of diarrhea
25. *Parkia biglobosa*	Cure of Newcastle disease
26. *Pergularia daemia*	Curing Newcastle diseases
27. *Perquetina nigrescens*	For cure of diarrhea, coccidiosis
28. *Saccharum officinarum*	Cure of worms
29. *Senna alata*	Curing piles, helminthiasis
30. *Senna occidentalis*	Helminthiasis
31. *Solanum americanum*	Cure for helminthiasis ,coccidiosis and gastrointestinal diseases
32. *Talinium trangulare*	Cure of fever
33. *Tephrosia vogelii*	Cure of coccidiosis
34. *Terminalia schimperiana*	Curing of coccidiosis, Antihelminthic
35. *Vernonia amygdalina*	Cure of diarrhea, helminthiasis
36. *Vitex doniana*	Cure of coccidiosis
37. *Vitellaria paradoxa*	Cure of coccidiosis and fowl pox
38. *Zea mays*	Cure of cold and fever