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Survey of Plants used in Ethno-Veterinary Medicine among the Fulani People of Jalingo Metropolis, Taraba State.

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Abstract
Ethno-veterinary of plants that are used in treating livestock such as cattle, goats, sheep, donkeys and fowls is as old as the history and discovery of the use of plants for food. Plants not only play important role in oxygen circulation of man's breathing, but it possesses medicinal properties in it which can be a source of curing ailments, diseases in livestock and also on human health care. The study aimed at identifying plants that are used in treating livestock diseases among the Fulani people of Jalingo, Taraba State. Twenty-six (26) Plants were identified as plants used in treating livestock diseases which cut across (16) Families including the indigenous and exotic plant species. The study also showed that Meliaceae (25%) and Fabaceae (25%) were the most used botanical plant families followed by Caesalpiniaceae (12.5%) and Aliaceae (12.5%). The part of plants used most by the livestock herders was leaves (61.29%), followed by bark (25.80%), roots (6.45%) and fruits (6.45%). It may be concluded from the results of this finding that the Fulani people of Jalingo, Taraba State use plants in treating livestock diseases.

Keywords:Ethno-veterinary, Fulani, Plants, Survey, Medicine

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Introduction

Ethno is from Greek word known as culture of "*people*", "*race*" or "*origin*" and veterinary is the study of caring for animals and being familiar with their diseases and methods of diagnosing. Therefore, an ethno-veterinary study entails the study of indigenous knowledge of associated skills, practices, faith and understanding of the social structures pertaining to the health of livestock. The investigation of plants and their uses is one of the most primary human concerns and has been practiced by all cultures for tens, if not hundreds, of thousands of years, though it wasn't called 'Ethnomedicine' (Krisppner, 2003). Perhaps, as early as Neanderthal humans, plants were believed to have healing powers (Lowe *et al.,* 2000). Ethno-veterinary of plants used in treating livestock such as cattle, goats, sheep, donkeys and fowls is as old as the history and discovery of the use plants for food (Ibrar, 2002). Plants not only play an important role in oxygen circulation for man's breathing but also posses' medicinal properties in it, which can be a source of cure for ailments/diseases of livestock and also for human health care (Kayode and Ogunleye, 2008).

Plants differ in adaptation and also in growth habit. Some are found in the wild while others may be exotic. The growth of each plant depends on the adaptability factors of the area such as climate, topography of the soil, nutrient availability etc. Notwithstanding the fact that plants are

found in all places and different geographical zones or locations in the world, they have many ethno usage based on the people, the area and how they are explored (Setzer*et al.,* 2006).

In a rich biodiversity, particularly in a country like Nigeria, where people understand the usage of plants, its economic importance, the value of plants and its herbal usage will be helpful, if we are able to explore them and use them to cure ailments, in livestock and human health care systems (Krisppner, 2003).

In developing countries where veterinary health services are still poor or are obtainable in urban centers only, the threat exists as high cost or scarcity of drug may grow beyond the reach of rural livestock rearers(Samuel *et al.,* 2010). Many researchers in developed countries like China, India and Soviet Union have reported successful use of plants in curing animal disease (Lowe *et al.,* 2000). However little or no work have been carried out among the plants used as ethno-veterinary among the Fulani of Jalingo, Taraba State. This gave the researcher the urge to carry out this study on the plants used as ethno-veterinary by the Fulani people of Jalingo in Taraba State, Nigeria**.**

Materials and Methods

The Study Location

The location of the survey of plants used in ethnoveterinary among Fulani people of Jalingo, Taraba State was based in Iware cattle market situated in ArdoKola Local Government Area of Taraba State, Nigeria. Reconnaissance visit to the selected area was based on Tuesdays (cattle market days).

Livestock Concerned

The concerned livestock for this survey were mainly three ruminants (Cattle, Sheep and Goat) and one monogastric animal (Fowl) to know which plants can be used to treat certain diseases conditions associated with them.

Sampling

The study used fifty (50) structured questionnaires, the interview wasadministered in Fulfulde language and the Fulani community leaders called the "Ardos" and other members of the community were also interviewed because of their experience in herd and livestock management. After the interview had been done, Focus Group Discussion (FGD) between the researchers and the Fulani community leaders was conducted to ensure broad observation of the study.

Field Work

The questionnaires were administered by the researcher through oral interviews with individual participants in the study area and this was done after obtaining the formal consent of the village head called the "Jauro" or the "Jemila" of the Fulani community. The researcher visited the cattle market on a weekly basis (Tuesdays) until the required tool was completed.

Data Collection

The tool that was used for data collection was a structured questionnaire designed for oral interviews and was administered by the researcher to each participant. The questionnaires were designed to collect data on certain indicators such as plants used in treating livestock, method of preparation of plants and mode of administering the plants, Fulani names of plants and parts of plants used were also noted.

Collection and Identification of the Plant Samples

The available plant samples were collected from the field and environment after the ethnoveterinary survey had been carried out with the Fulani livestock rearer. The Fulani names of plants and their corresponding disease conditions they cure were obtained from the respondents. The scientific names of plants were identified using a field key by Stand field and Hopkins (1996).

Data Presentation and Analysis

The data was sorted and presented in tables, bar charts and percentages using Microsoft Excel (2010). Data was entered into Microsoft Excel (2010) and represented in descriptive statistic showing the tables, bar charts and percentages of distribution.

Results and Discussion

The ethnoveterinary of plants used in treating livestock by Fulani of Jalingo Local Government Area of Taraba State (Table 1) showed that twenty-six (26) plants species belonging to 16 botanical families were used in treating some certain disease conditions by the Fulani. This result has agreed with Akinyemi *et al* (2005) who reported that almost all species of plants are used in the treatment of one disease or the other.

The most frequent family of plants used (Table 2) were Meliaceae family (25%) and Fabaceae botanical family (25%) followed by Caesalpinaceae (12.5%), Alliaceae (12.5%) and (6.25%) representing other families which also agreed with Saifa (2004) who reported that Meliaceae and Fabaceae constitute active substances used in treating livestock.

The survey also showed the percentages of parts of the plants used as ethnoveterinary (Table 3) in which leaf had the highest percentage (61.29 %), Bark (25.80 %), Root (6.45%) and Fruits (6.45 %) had the lowest percentage which agreed with the findings of Sinha *et al*. (2002), who reported that all plant parts are used as traditional medicine which includes leaves, bark, seed, fruits, roots, latex and nuts. *Ficus platyphilla* reported by El-Mahmood (2007) is used to treat pain and dullness in livestock which may have anti-psychotic and anti-depression properties that could make the animal active.

The leaves of *Adansonia digitata* have hypotensive and anti-histaminic properties and are considered as an emollient and diuretic as they could be burned to allay insects bite in livestock (Anthony *et al*, 1996). Okello. 2007) Reported that leaves, were the most commonly harvested part of medicinal plants used for herbal medicine preparation, a plant part is used to cure more than one ailment depending on the part used and mode of preparation. *Khaya senegalensis* is the most used plant across the Fulani as its range of biological activity includes anti-diarrhea properties and also possesses anti-fungal, anti-viral and anti-bacterial properties which also agreed with Kubmarawa *et al*. (2008).

Moringa oleifera leaves are also reported by Martins *et al*. (2006) to heal sores or drink as it has a high level of volatile oils which can be used to cure, it can also be pounded into powder and used to rub on the infected parts of the livestock. *Annona senegalensis* also, could be used as anti-fungal activity because of the presence of saponins and other secondary metabolites which also agreed with (Dabur *et al*., 2004).

The use of oil palm *Elaeis guienensis* products among Fulani could be as a result its magical ability for treatment of poison when eaten by livestocks or poison from infested crops or eaten through deliberate human application of poison. Some say they move around with a bottle of oil in their bag during grazing for emergencies. *Waltheria indica* has diverse use as it is used among Fulanis in Jalingo to heal wounds and for other magical purposes as also agreed by Adjanohou *et al*. (1991).

Conclusion

The study showed that the Fulani people of Jalingo in Taraba State use plants for curing their livestock diseases and the parts of plants used most were Leaf and Bark, Fruit and Root were also used. The plant species used most were *Adansonia digitata, Khaya senegalensis, Moringa oleifera* and *Annona senegalensis*. The name of plants in Fulfulde was also documented.

Table 1: Identified Plants, the Disease Conditions, Plant Parts Used, the Livestock Affected, the Fulani Name and the Mode of Preparations of the Identified Plants.

S/N	Scientific name	Family name	Fulani names	Livestock treated	Parts plants used	Disease conditions	Mode of preparation
1.	*Allium sativum* Linn.	Alliaceae	Kagalmu (Wasalde)	Cattle	Leaf	Strepthricosiss	Pound the leaves and mix with feed
2.	*Khaya senegalensis* (Desr) A. Juss	Meliaceae	Talihaci	Cattle, Goat, Sheep	Bark	Diarrhea	Soak the bark in water and give to animal to drink and add potash salt
3.	*Butyrospermum paradoxum (*Gaertn. F)	Sapotaceae	Kareyhii	Sheep	Bark	PEG Complex	Soak in water for 3 days and give the animal
4.	*Moringa oleifera*	Moringaceae	Bishii Konamarade	Cattle, sheep, Goat	Leaf	Diarrhea	Rubbed leaf with feed or soaked in water for the animal to drink
5.	*Tamarindus indica* Linn.	Caesalpinaceae	Jabbehi	Cattle,Goat, Sheep	Leaf	Stomach disorder	Mix with feed or soak in water for the animal to drink
6.	*Adansonia digitata*	Bombacaceae	Nyande	Cattle, Goat, sheep	Leaf, Fruits	Flies,	Burned fruits pulp to prevent insects. Leaves are eaten also.
7.	*Allium cepa* Linn.	Alliaceae	Sandoji/ Tingyere	Cattle, Goat, Sheep	Leaf	Gastro intestinal parasites	Soak leaf in water and give to animals to drink
8	*Waltheria indica* L.	Solanaceae	Yankufa	Cattle, Sheep, Goat	Leaf	Wounds,	Ground and mix with feed
9	*Carica papaya* Linn.	Caricaceae	Dukkuje/ Kabusee	Cattle, Goat, Sheep	Leaf	PEG Complex	Pound the leaves and mix with animal feed
10	*Ficus platyphylla*	Moraceae	Dundehi	Cattle goat, sheep	Bark	Dullness	Burn in charcoal and give the animal to inhaled
11	*Parkia biglobosa* (Jacq)	Fabaceae	Sareyhii	Cattle, Goat, Sheep	Shell of fruit	Snake bite	The shell fruit is dried and soak in water and applied to affected plant
12	*Elaeis gunenesis*	Arecaceae	Monja	Goat, Sheep	Fruit	Poison	Give palm oil in excess to the animal mouth.
13	*Bombax costatum*	Bombacaceae	Kuriha	Fowl, Goat, Sheep, Cattle	Bark		Soak in water and give Animal to drink

14	*Cucumis melo*	Cucurbitaceaee	Cikilre	Sheep, goat	Root	Snake bite	Apply to the bit area of animal
15	*Nicotiana tabacum* L	Solanaceae	Tabal	Cattle	Leaf	Black quarter	Pound the leaves and mix with feed.
16	*Aloe vera*	Liliaceae		Fowl	Leaf	Lousiness, Red diarrhea	Mix ashes with salt and use it to rub on the animal
17	*Psidium guajava*	Myrtaceae	Gueva	Sheep, Goat	Leaf	Diarrhea	Soak in water and cook before given to animal
18	*Azadirachta indica*	Meliaceae	Gadina	Goat	Leaf	Wound	Applied on affected plant
19	*Citrus aurantifolia*	Rutaceae	Lemuje	Cattle	Leaf	Tick fever/infestation	Burn very close to the animal camp when dried
20	*Ocimum gratissimum*	Lamiaceae	Hako	Fowls	Leaf	Constipation	Pound and mix with water, add 2-3 drops into the fowl mouth.
21	*Tephrosia vogelii*	Fabaceae		Cattle, Fowls	Leaf	Flies	Dried and burns around the fowls and cattle
22	*Mucuna puriens*	Fabaceae	Nyanace gaduru	Cattles, fowl	Leaf	Snake bites	Dried and burn around the fowls and cattle.
23	*Senna alata*	Fabaceae		Cattles, Goat, Sheep	Leaf	Skin infection	Mix the leaf and burn around the fowls
24	*Vernonia amygdalina*	Asteraceae	Katko	Cattle, Goat, Sheep	Leaf	Wound	Rub the juice to affected part
25	*Sesame indica* (Linn) Roxb.	Meliaceae	Gubudu	Cattle, sheep, Goat	Leaf	Wound	Soak the in water and mix with animal feed
26	*Anona senegalensis* Pers.	Annonaceae	Dukuhii	Cattle, Goat, Sheep	Root, Bark	Snake Bite Wound	The roots/bark are soak and applied to the snake bite

Table 2: Number of Plant Families Frequently Used in Ethno-veterinary Among Fulani Livestock Rearers in Jalingo, Taraba State

Plant Family names	No of Ethno-veterinary used	Proportion (%)
Alliaceae	2	12.45
Meliaceae	4	25.00
Fabaceae	4	25.00
Caesalpinaceae	1	12.45
Sapotaceae	1	6.25
Moringaceae	1	6.25
Bombacaceae	2	12.25
Caricaceae	1	6.25
Moraceae	1	6.25
Arecaceae	2	6.25
Solanaceae	1	6.25
Cucurbitaceae	1	6.25
Myrtaceae	2	6.25
Solanaceae	1	6.25
Annonaceae	1	6.25
Liliaceae	1	6.25
Total	**26**	**100**

Table 3: The Percentage of Parts of Plant Used in Treating Livestock

Parts Used	Ethno Usage	Percentage (%)
Bark	7	22.58
Leaf	19	61.29
Root	2	6.45
Fruit	3	9.67
Total	**31**	**100**

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