

Review

Herbal remedies in animal parasitic diseases

Fajimi, A. K. and Taiwo, A. A.

Institute of Agricultural Research and Training, Obafemi Awolowo University, Moor Plantation, P. M. B. 5029, Ibadan, Nigeria.

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This review of literature elucidates previous and current status of herbal remedies in animal parasitic diseases in Nigeria. It provides background information on the rationale behind ethnoveterinary research in general especially as it relates to the developing nations where cost of drugs majorly limit the full use of modern medicine. It presents in quantifiable terms the degree of efficacy of whole or plant parts and their extracts in percentages of efficacy. Dosages and concentrations were reported in certain instances especially in confirmatory research trials unlike in “surveys” where dosages were not recorded but presented only as “traditional practices among herdsmen” for which scientific validation is necessary. Also, comparative inferences were drawn between the efficacy of tested herb and its counterpart in modern medicine. This review concludes that ethnoveterinary medicine should form a part of modern day animal health delivery system.

Keywords: Herb, efficacy, ethno-veterinary, parasite.

INTRODUCTION

The use of plant and animal parts for medicines has long been in existence and are widely documented in records kept in ancient China, India and Egypt. These ancient indigenous practices were discovered by a series of “trial and error” which then could not be substantiated by proven scientific theories. However, these practices have produced results of proven efficacies compared to conventional modern medicine (Chopra et al., 1956). In recent times, herbal medicines have become indispensable and are forming an integral part of the primary health care system of many nations.

A recent survey (1977) in the United States of America (USA) indicate an expected 20% annual growth in herbal medicine in the next 5 years (Saxena, 2001) with an estimated 80% of the world population living in the developing countries still relying on plants for health care. In the USA, the total number of visits to unconventional healers in 1988 was 425 million compared with 388

million visits to primary health care physicians, accounting for an estimated \$13.7 billion in the unconventional market (Eisenberg et al., 1993).

In view of this large dependence on traditional health practices, the World Health Organisation (WHO) recognized the implicit role of herbal medicine in the Alma Mata declaration of Health for All by the Year 2000 A.D. In 1978, WHO approved the use of these natural products. In 1996, the American Veterinary Medical Association officially recognized veterinary acupuncture and acutherapy, veterinary chiropractic, physical therapy, massage, homeopathic, botanical, nutraceutical and holistic veterinary medicine (Schillhorn, 1997).

In Nigeria, Fulani herdsmen and others who keep animals as a means of livelihood have been involved in the treatment of animal diseases prior to the onset of modern medicine (Nwude, 1986), of which remedies against parasitism account for the highest means of intervention (Ibrahim et al., 1984). The primary aim of this work is to review literature on the current and previous works on ethno-veterinary research and development and enumerate factors to move the discipline forward.

*Corresponding author. E-mail: rocovo4@yahoo.com.

Table 1. Ethnoveterinary practices adopted for lice control.

Common Name	Scientific Name	Yoruba Name	Mode of Application
Sand paper leaves	<i>Ficus exasperate</i>	Eepin	Branches put in resting place. Replaced regularly.
Cassava	<i>Manihot esculenta</i>	Ege	Fermented water from (ii) and (iii) sprinkled in bird shed.
Maize	<i>Zea mays</i>	Ogi	
Palm Tree	<i>Elaeis guinensis</i>	Airan Ope	Male inflorescence of tree burnt in the shed. It gives a pungent odour.
Ash	<i>Carbon</i>	Eeru	Rubbed under the feathers and sprinkled on top.
Lime	<i>Citrus medica</i>	Osan Wewe	

Source: Eruvbetine and Abegunde, 1998.

Table 2. Plants used in the treatment of parasitic and protozoan diseases of poultry in Nigeria.

Botanical name	Vernacular name of plant	Disease treated for	Preparation and administration
<i>Khaya senegalensis</i>	<i>Madaci</i> (H)	a) i. Coccidiosis	i) Mix soap with dried powered mahogany bark and add to drinking water.
	Ghyaghya (G)	ii. helminthiasis	ii) Pound dried stem bark with red potash and give in drinking water.
<i>Terminalia avicennoides</i>	Baushe (H)	b) i. amoebic dysentery	Pound dried stem barks of <i>K. senegalensis</i> , 'bazana' and 'banohi' together, mix with potash and give in drinking water for 2 – 3 days.
	Lemon (E)	ii. diarrhoea	Pound dried stem bark with red potash and give in drinking water or cook the root with red potash and serve for drinking.
<i>Citrus aurantifolia</i>	Lemun sami (H)	Helminthiasis of poultry	Mix juice with drinking water and add small red potash.
	Ararrabi (H)	Worm infestation of poultry	
<i>Boswellia dalzielli</i>	andekahi (F)	Coccidiosis and amoebic dysentery.	Pound dried stem bark and add to drinking water for 2 – 3 days. Boil together. Stem barks of <i>B. dalzielli</i> and 'durmi ganji' and 'Kanmda' and give in drinking water. Pound the fresh leaves and squeeze into drinking water.
	Albasa (H)	Helminthiasis	For duck's lice, drop bulb in the bird's drinking water and for chickens use green leaves (spring onions) to be picked by the birds.
<i>Allium cepa</i>	Ghipa (G)		

Source: Gefu et al. (2000).

Pawpaw leaves when burnt into ashes and used as a topical agent control lice in poultry (Nwude and Ibrahim, 1980). The trypanocidal activity of *Allium sativum* (garlic) in rabbits as well as that of *Morinda lucida* leaf extract in mice against *Trypanosomes brucei* infection have been documented (Asuzu and Chineme, 1990; Ajagbona et al., 2003). Also, the trypanocidal potentials of *Azadirachta indica* as well as the *in vitro* activity of its leaf extract against *Trypanosoma brucei* have been assessed with reasonable success (Nok et al., 1993). Other ethnoveterinary practices adopted in the treatment of lice is highlighted in Table 1 (Eruvbetine and Abegunde, 1998).

Valkosen (2001) established that garlic fruits and bamboo shoots are effective in the treatment of pigs against *Ascaris suum* and that there is no significant difference between the treatment and that of piperazine. The confirmed efficacy of the aqueous extract of the seeds of *Carica papaya* against *Oesophagostomum*, *Trichuris* and *Trichostrongylus* have been validated to be over 90% in efficacy (Fajimi et al., 2001). *C. papaya*

leaves contain papain which is capable of digesting bacteria and parasitic cells hence its use as an anthelmintics and antibiotics (Saka, 2000). The leaves of *Amaranthus spinosus* have been found to elicit over 80% reduction in eggs per gram faeces of trichostrongylids in sheep and goats (Assiak et al., 2002). The ethanolic extract of *Khaya senegalensis*, *Amaranthus spinosus* and *Heliethropium indicum* produced a significant reduction in mean eggs per gram faeces of trichostrongylids comparable to the effect of ivermectin (Okpara et al., 2004).

In vitro efficacy study of *Nauclea latifolia* showed high anthelmintic efficacy against strongyle nematodes of small ruminants by its ability to prevent parasite eggs from hatching. The extract at the concentration of 100 mg/ml was observed to have comparable anthelmintic efficacy with commercial anthelmintic drug, levamisole and albendazole (Onyeyli et al., 2001). Resins, bitter principles, tannins, flavonoids and indolquinolizidine alkaloids have been isolated from *Nauclea Latifolia*

(Hotellier and Delaveau). Ethanol extract of *Amaranthus spinosus* as a vermifuge against *Hyostrongylus rubidus* and *Trichuris trichuria* is pronounced and validated (Assiak et al., 2001). *Khaya senegalensis* and *Vernonia amygdalina* showed moderate to high efficacy against *Haemonchus*, *Cooperia*, *Oesophagostomum* and *Trichostrongylus species* of helminths (Chiezey et al., 2000; Alawa et al., 2000). *In vitro* evaluation of seeds of *Anogeissus leiocarpus* and leaf of *Cassia occidentalis* have shown high anthelmintic efficacy against *Nippostrongylus brasiliensis* in rats (Ibrahim, 1984). Screenings of ethanolic extract of *Pilostigma thonningi* bark against helminths have confirmed its efficacy against *Ascaridia galli* infected chickens. (Asuzu and Onu, 1994). Plants used for the management of helminthosis in ruminants in Sokoto State Nigeria is highlighted by Agaie et al. (2004). The Anthelmintic efficacy of *C arica papaya* latex against *Ascaridia galli* and *cappilaria spp.* was found to be as high as 77.7% reduction in eggs per gram faeces (Adu and Akingboye, 2002). Table 2 shows plants used in the treatment of parasitic and protozoan diseases of poultry in Nigeria.

CONCLUSIONS

Numerous plants indigenous to Nigeria and to Africa in general have been found with amazing medicinal properties. Some are well-evaluated vis- à-vis their content of specific active principles against the target parasites while others are not. It is therefore highly essential that medicinal plants whose properties have not been fully characterized should form a top agenda of top management in developing nations whose citizens are sometimes unable to afford expensive orthodox medicine. This policy if pursued will not only preserve the scarce foreign exchange but also promote the spirit of plant conservation. This can be accelerated by including ethno-veterinary medicine as part of curriculum in veterinary school and as an integral part in veterinary delivery systems.

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