

Effect of Topical Applications of Scabicur[®] Lotion and Neem Azal[®] Shampoo on Ectoparasites of Dogs in Jos South Local Government Area of Plateau State, Nigeria

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Abstract: The effect of topical application of Scabicur[®] and Neem azal[®] as shampoo on dogs that were naturally infested with ectoparasites were examined for acaricidal and repellent activities. The common ectoparasites collected on the dog hosts were *Rhipicephalus sanguineus*, *Ctenocephalides canis*, and *Heterodoxus* spp. A total of 49 dogs were treated; 28 (57.14%) dogs were treated with Scabicur lotion[®] while 21 (41.85%) were treated with Neem azal[®] shampoo products. Results showed that both Scabicur Lotion (65.31%) and Neem azal[®] (34.69%) were excellent as shampoo. There was comparatively significant difference ($P < 0.05$) in the distribution of ectoparasites on the body of the dogs while majority of the dog owners adopted free range rearing system, local breeds 35 (71.43%) were the species of choice in the region. The products of Scabicur[®] (65.31%) and Neem azal[®] (34.69%) indicated that they had no side effects while activity of the products seemed not to be concentration dependent. The shampoo appeared to have potential as a repellent against the tick species and could provide an inexpensive integrated pest management resource for farmers. However, further studies are recommended to determine fractions of the active principal against insecticides and their modes of actions.

Keywords: Acaricidal, Scabicur[®], Neem azal[®], Ectoparasites, Dogs, Nigeria.

I. Introduction

Dogs are domestic animals that are of special concern because they can be vectors of diseases that are zoonotic (Gracia, 2008). These domestic animals are found throughout the World, apart from their nutritional values, they are also kept for economic, religious, social, sports, security and research purposes (Mc-Gram-Hills, 1974). Ectoparasites such as lice, ticks and fleas are known to cause anaemia, pruritis and transmission of blood protozoa and cestodes. Such infestations may lead the animals to emaciation and subsequent susceptibility to various illnesses such as bacterial and viral infections and, heavy infestation with ectoparasites can cause blood loss. Various topical applicable drugs have been tried against these parasites with variable responses (Makeri et al., 2007). Some of these chemical applications are toxic and misapplication may cause fatalities to the livestock within hours of application (Makeri et al., 2007; CAB International, 1989). There are many insecticides in Nigeria that are effective against dog ectoparasites. However, most of these chemicals are expensive, destructive to the environment and toxic to humans, animals and non-target organisms (Kilonzo, 2001). It is therefore, desirable to search for alternative ectoparasite control methods that are economically effective, socially acceptable and environmentally safe. Hence the need to research into alternative range products which are inexpensive, formidable and easily available products that are potentially and ecologically safe causing less environmental leach residues. Losses due to ticks alone have been estimated to be in the range of US\$7billion annually (Mc Coster, 1979; Makeri et al., 2007). Common chemo-therapeutics in use against mites and ectoparasites include coumaphos, asuntol, lindane, toxaphane, chlorodane, benzene hexachloride (BHC), amitraz, alugan, chlorinated hydrocarbons and ivermectins (Dogo et al., 2010). Severity of infection on dogs, caused by ectoparasites has affected the productivity and the economic value of these animals, hence the need to control the activities of ectoparasites that may serve as potential agents of disease transmission. Scabicur[®] is a range of products of Parasitology Division, National Veterinary Research Institute (NVRI) Vom, produced for topical application on both domestic animals and human treatments against parasitic, some bacterial and fungal infections while the Neem azal[®] is a product of Triofolio M. of Germany, used for treatment against ectoparasites of Veterinary, Medical and Agricultural importance. Documented information on the therapeutic action of Scabicur lotion[®] and Neem azal[®] on dogs in Nigeria is scanty and not easily available. The purpose of this study was therefore, to determine the effectiveness of Scabicur[®] and Neem azal[®] products

made in shampoo forms for trial on skin of animals for the control of ectoparasites of domestic animals, particularly dogs.

II. Materials And Methods

Study Localities.

The survey was conducted over a six month period (February-July, 2013) in seven study localities in Jos South Local Government area of Plateau State including: Tusel-Lah, Dakunyam, Dahol Bob, K/Vom, Chaha, Kuru and Vet. Clinic (N.V.R.I. Vom).

III. Methodology

A total of 49 naturally infested dogs of both sexes ranging from severe to mild infestation with ticks (*Rhipicephalus sanguineus*), fleas (*Ctenocephalides canis*), and lice (*Heterodoxus* spp) were treated with both Scabicur® and Neem Azal® shampoo lotions in Jos-South Local Government Area of Plateau State. Topical applications were administered by bathing the dogs once in a week, with 10ml of lotion diluted in 2 litres of water, cotton wool and soft (Camel hair brush) were used for the applications on the dog. The dogs were bathed with either Scabicur lotion® or Neem azal® preparations as shampoo once a week with contact time of 20-30minutes. The therapeutic response was evaluated at weekly intervals as excellent (100 percent relief after one week), good (50% percent relief after 1 week) and poor (<50% or no improvement). The treated dogs were subsequently observed for side effects locally and systematically.

IV. Results And Discussion

The results of this study are presented in Tables 1-5. In this survey 49 domestic dogs, from seven localities in Jos South Local Government Area of Plateau State were used to explore the associations between the abundance of ticks, fleas and lice species, host-dependent factors (sex and age) and various ectoparasites predilection sites on the hosts were investigated. Three different ectoparasites of various species namely ticks, fleas, and lice were found parasitizing the dogs. Scabicur lotion® and Neem azal® products were used against the hosts parasites. About twenty eight (28) dogs were exposed and treated with Scabicur® product, over all, only *Rhipicephalus* species were found on the head of the host which were 34(29.5%). The head of the host recorded the highest infestation followed by the neck 28(24.3%), the body 25(21.74%) and the least predilection site was the anal region 3(2.6%). Exploring the data, 20(71.42%) of the questionnaires answered that Scabicur® effectiveness on the dogs was excellent. The animals observed after one week showed that the shampoo repelled the parasites and killed most of them. The treatment with Neem azal® on heads were prevalent with 18(27.27%) while the trunk had the least infestation 2(3.0%). Lice were not found on the host where as *Ctenocephalis felis* noted were on the body 16(39.0%) and udder 24(58.54%) only. The neck region recorded the least with fleas 01(2.44%) (Table2). The responses from the questionnaires indicated that there were no side effects on the host treated with Scabicur shampoo 32(65.31%) and that the products were excellent 20(71.42%), good 8(28.57%) where as Neem azal® revealed no side effects on the hosts 17 (34.69%) but showed significant excellence 11 (52.38%) and were good 10(47.6%). In Jos –South Local Government Area, most dogs were found to be local breeds 48(97.96%). The host dependent factors (sex and ages) were considered which revealed that females harbored more parasites than the males 36(73.46%) (Tables 3).This agrees with the work of Ighodalo et al. (2008). The cost of the two shampoo indicates that Scabicur lotion® were cheaper, effective and requires little or no expert handling in the application which agrees with the previous work of Ogunsan et al. (2008). In vivo effects of Scabicur® and Neem azal® extracts on parasites did show much acaricidal property when used liberally on dogs. Dogs with mild to severe infections of fleas and lice were relieved completely after 1-2 baths with disappearance of symptoms like pruritis, in appetite and itching. Dogs with mild infection were relieved within 1 bath. However, severely infected dogs were relieved to the extent of 60-95% after 2-4 baths. It was interesting to note that severely infected dogs with ticks that were resistant to chemicals responded well to Scabicur and Neem azal shampoo in baths.

Table 1: Distribution of ectoparasites at different attachment sites on dogs.

SCABICUR LOTION®

Attachment site									
Host	Parasite	Head	Body	Tail/Anal	Udder	Neck	Trunk	Limbs	Total
Dogs	Ticks	34(29.6%)	25(21.74%)	3(2.6)	-	28(24.3%)	04(3.48%)	21(18.3%)	115
28(57.14%)	Lice	-	-	-	1(100%)	-	-	-	01
	Fleas	-	38(55.0%)	-	31(44.92)	-	-	-	69

No. with no side effect 32(65.31%).

**Table 2 : Distribution of ectoparasites according to predilection sites on the host (dog).
NEEM AZAL®.**

Attachment site		Head	Body	tail	Udder	Neck	Trunk	Limbs	Total
No&typeof host	Parasit e type								
Dog	Tick	18(27.27%)	12(18.18%)	3(45%)	-	17(25.75)	2(3.0)	14(21.2)	66
21(42.85)	Lice	-	-	-	-	-	-	-	-
	Fleas	-	16(39.0)	-	24(58.54%)	1(2.44%)	-	-	41

Response: Excellent 11(52.38%) Good 10(47.6%) poor No side effect: 17(34.69%).

Table 3: Abundance of ectoparasites according to host-dependent factors (sex and ages)

No of host	Age			Sex		Breed		Parasite
	Puppy	Young	Adult	Total female	Total male	Local	Foreign	Tick Lice.
Dog	9(18.37%)	32(65.31%)	08(16.33%)	36 (73.46%)	13(26.53%)	48(97.96%)	01(2.04%)	Fleas

Table 4: Age-Related Distribution of ectoparasites in dogs.

Specie	Type of host	No. +ve (%)	Parasite
Dog	Puppy	9(18.36%)	Lice, Ticks
	Young	32(65.30)	Fleas
	Adult	08(16.32)	
Total		49(99.98%)	

Table 5: Distribution of Dogs according to Rearing system.

Restrained (%)	Free (%)	Both (%)
05(10.20%)	35(71.43)	09(18.36)

V. Conclusion

The result of this study though preliminary; shows that the named range products of (Scabicur Lotion® and Neem azal®) could provide an inexpensive integrated pest management resource for dog owners. As the products are common in the area and therefore suggested to be effective and farmers may implore the use of these on the control of ectoparasites.

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