

**NSAP****47th Annual Conference**
(JOS 2022)**CONFERENCE PROCEEDINGS**THEME
SECURING ANIMAL
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GLOBAL CHALLENGES**INCIDENCE AND ISOLATION OF CLINICAL DERMATOPHILOSIS IN CATTLE IN SHENDAM LOCAL GOVERNMENT AREA OF PLATEAU STATE, NIGERIA**

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ABSTRACT

Dermatophilosis is a chronic exudative dermatitis with scab formation that may lead to death of animals in severe acute form. This study was to determine the incidence and isolation of clinical dermatophilosis in cattle in Shendam Local government area (LGA) of plateau state. A total of 1305 cattle were observed and 60(4.6%) skin scabs were collected and processed using direct examination and culture for the presence of D. Congolensis. Out of the 60 scabs, 53(88.3%) tested positive for D. Congolensis. No significant difference ($P > 0.05$) was recorded among the districts. Infection in Adults 49(94.2%) was significantly ($P < 0.05$) higher than young 04(66.7%) also infection in females 34(94.4%) and White Fulani breeds 45(90.0%) were higher than infection in males 19(79.2%) and other crosses 08(80.0%) respectively. The study shows high presence of D. Congolensis, therefore routine management and preventive measures should be put in place to prevent its further spread

Key words: Dermatophilosis, Cattle, Skin scab, Isolation and Age

INTRODUCTION

Dermatophilosis is a contagious zoonotic skin disease with wide host range and most commonly affects cattle, sheep and horse, where it is commonly called *cutaneous streptotrichosis*, *mycotic dermatitis* and rain scald although other local names exist including senkobo skin disease in Central Africa, kirchi in Nigeria, and Saria in Malawi. Dermatophilosis is the name common to the disease in all species (Radostits *et al.*, 2007). The disease was first reported by van-soceghem (1915) in cattle in the Belgian Congo (Shoorijeh *et al.*, 2008). The principal aetiology is *Dermatophilus congolensis* which is a member of the aerobic actinomycete. Dermatophilosis has worldwide distribution and the disease is more common in tropical and subtropical areas. The disease is characterized by acute or chronic exudative dermatitis with scab formation that could be localised or extensive (Admassu and Alemu, 2011) and may lead to death of animals in severe acute form, resulting in substantial economic loss to the affected farmers (Ali-Emmanuel *et al.*, 2003). The effect of high relative humidity and devitalizing effect on the skin barriers associated with rainy season enhances the maturation of the infective zoospores, and this has been established to be a major predisposing factor in the spread and epidemiology of Dermatophilosis (Gebresselassie, (2013)) The study aimed to determine the Incidence and isolation of clinical dermatophilosis in Cattle in Shendam LGA of Plateau state, Nigeria

MATERIALS AND METHODS**Study Area**

Shendam LGA is located in the southern part of plateau state which is bounded with Taraba state by the south, Quan pan by the west, Pankshin and Mikang LGA's by the north and Langtang south by east. Shendam LGA consist of four districts namely Du'ut, Dokka, Derteng and Dorrok

Sample collection

Five cattle herds were randomly selected in each of the four districts to serves as examination units. Number of cattle and those with skin scabs were noted in each districts given a total of 1303 cattle observed and a total of 60 cattle were observed with skin scabs. The scabs were aseptically removed and wrap in a sterile



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container and properly labelled and transported to dermatophilosis research laboratory center of National Veterinary Research Institute (NVRI) Vom Plateau State for culture and isolation.

Laboratory examination

Direct examination of skin scabs was performed as described by Quinn et al. (1999). Briefly, impression smears were made from moist, soft materials obtained from the concave surface of the scabs on clean grease-free glass. The slides were air dried, heat fixed and stained with Gram stain. The stained smears were examined using the oil immersion lens of a light microscope (Nikon, ECLIPSEE100, 824592, China). The presence of Gram-positive filamentous, branching organism having both transverse and longitudinal septa was considered positive for *D. congolensis*.

Culture and isolation of *D. congolensis*

All the samples including those that were positive and those that were negative by direct examination were processed for isolation of *D. congolensis* using the modified Haalstra's technique as described by Van Breuseghem et al. (1976) with slight modification by incorporating polymixin B. Briefly, the sample were pulverized and suspended in distilled water in bijoux bottles and incubated at 37°C for 45 minutes under 10% CO₂. A loop – full from each suspension was then inoculated on 10% sheep blood agar containing 1000 IU/ml polymixin B. The plates were incubated at 37°C for 48 – 72 hours under micro aerophilic conditions. Small golden yellow colonies that pits on the media were considered positive for *D. congolensis*.

Statistical analysis

Data obtained were subjected to Chi square analysis using SPSS statistical package (version 16.0) and percentages

RESULTS AND DISCUSSION

Table 1 shows the distribution of dermatophilosis in Shendam Local Government Area (LGA). A total of 1303 cattle were observed of dermatophilosis where 60 were observed with the skin lesions suspected to be dermatophilosis. Of the 60, 53(88.3%) were found positive for *D. congolensis*. Among the districts, Duut had higher percentage 92. 9% (13) of *D. Congolensis* with least in Derteng district 12(85 7%) althou there was no significant difference ($P > 0.05$) among the districts. The high percentage 88.3% (53) of *D. Congolensis* could probably be due to presence of predisposing factors such as prolong wetting during the raining season, biting flies, ticks and thorn scratch on grazing field. This finding agreed with the reports of Siamudaala *et al.* (2005) who reported that spread of the disease occurs by direct contact between animals or through exposure to contaminated surroundings (fomites) or by biting insects (vectors), particularly flies and ticks.

Table 1: Distribution of Dermatophilosis isolates in Cattle in Shendam LGA

Location	No present	Samples(lesions)	+ve	%	Chi Sq	p-value
Du,ut	286	14	13	92.9	0.412	0.938NS
Dorrok	353	15	13	86.7		
Derteng	310	14	12	85.7		
Dokka	354	17	15	88.2		
Total	1303	60	53	88.3		

Table 2 shows Sex distribution of dermatophilosis isolate in cattle. Of the 53 positive samples, females had higher percentage of 34(94 4%) than their males counterparts with 19(79 2%) positive samples. There was no significant difference ($P > 0.05$) between sex which shows both sex are susceptible to *D. Congolensis* even though females had high percentage(94.45%) than their males (79.2%) counterparts. This agrees with the report of Gofwan (2019) who reported higher percentage 92.72% in female to male with 87,50%. The higher percentage in females to males could probably be due to reproductive stress.

**Table 2: Sex distribution of dermatophilosis isolates in cattle**

Sex	No present	Samples	+ve	%	Chi sq	P value
Females	852	36	34	94.4	1.947	0.163NS
Males	451	24	19	79.2		
Total	1303	60	53	88.3		

Table 3 shows Age distribution of dermatophilosis isolates in cattle. Of the 53 positive samples, more adult 49(94.2%) tested positive compared to the young ones with 04(66.7%) positive samples which shows the rate of infection in adult is significantly ($P < 0.05$) higher compared to the young. This implies that *D. Congolensis* is more of ageing disease, this probably could be due to ticks infestation and exposure to harsh environment during grazing (thorny grazing field). This is in agreement with the work of Woldemeskel and Taye (2002) that the exposure of *D. Congolensis* might be explained from the point of predisposing factors as adult cattle are more exposed to the disease by environmental factors like thorny bushes, thorns, ticks, insects, pecker birds and rain.

Table 3: Age distribution of dermatophilosis isolates in cattle

Age	No present	Samples	+ve	%	Chi sq	P-Value
Adult	911	52	49	94.2	5.188	0.023S
Young	392	06	04	66.7		
Total	1303	60	53	91.4		

Table 4 reveals breeds distribution of dermatophilosis isolates in cattle. Of the 53 positive samples, white Fulani breed had 45(90.0%) while other crosses had 08(80.0%). This implied that white Fulani breed are more susceptible to *D. congolensis* than other crosses. The rate of infection in white Fulani breeds of cattle is significantly ($P < 0.05$) higher than other crosses. This susceptibility could be due to genetic make up of the animals. This concurs with the report of Gofwan *et al.*, (2019) who reported higher susceptibility in white fulani than other crosses similarly, Dalis *et al.* (2010) reported that N'dama and muturu breeds are found to be resistant to dermatophilosis and Burd *et al.*, (2007) reported that certain breeds are believed to have some degree of resistance to the disease.

Table 4: Breeds distribution of dermatophilosis isolates in cattle

Breed	No present	Samples	+ve	%	Chi sq	P-value
White Fulani	1208	50	45	90.0	0.032	0.857S
Other crosses	95	10	08	80.0		
Total	1303	60	53	88.3		

CONCLUSION

Dermatophilosis has been revealed in Shendam Local government area (LGA) with 88.3% of infection rate, females were more prone to the disease than male. In this study *D. congolensis* is shown to be more of ageing disease where the rate of infection in adult was higher compared to the young, similarly the rate of infection in white Fulani was higher compared to other crosses. *The study shows high presence of D. Congolensis, therefore routine management and preventive measures should be put in place to prevent its further spread.*



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