

Communications

Prevalence of bovine trypanosomosis in Gongola State of Northern Nigeria

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DANIEL (A.D.), DADAH (A.J.), KALEJAIYE (J.O.), DALHATU (A.D.). Prévalence de la trypanosomose bovine dans l'État de Gongola (Nord Nigeria). *Revue Elev. Méd. vét. Pays trop.*, 1993, **46** (4) : 571-574

Une étude sur la trypanosomose bovine a été réalisée d'avril à juillet 1990 dans l'État de Gongola (Nord Nigeria), région supposée dépourvue de glossines. Les échantillons de sang ont été prélevés chez 1 065 bovins et examinés par les méthodes de la couche leucocytaire et du frottis coloré. L'hématocrite a été déterminée simultanément. Au total, 42 (3,9 p. 100) des animaux examinés étaient infestés par des trypanosomes ; *T. vivax* était l'espèce la plus souvent rencontrée. Le taux d'infestation était élevé chez les glossines, puisque 27 (22,7 p. 100) des *Glossina tachinoides* capturées, disséquées et examinées étaient positives à *T. vivax* et *T. congolense*. Il apparaît donc souhaitable d'effectuer d'autres études dans les zones dites "exemptes de glossines" au Nigeria.

Mots clés : Bovin - Trypanosomose - *Trypanosoma congolense* - *Trypanosoma vivax* - *Glossina tachinoides* - Diagnostic de laboratoire - Sérologie - Prévalence - Nigeria.

Introduction

In Nigeria, no large-scale surveillance and control programme to curtail the menace of trypanosomosis has been carried out in the last three decades. The result is the alarming increase nationwide in the incidence rate of bovine trypanosomosis (3, 4, 5).

The aim of this work was to assess the prevalence of bovine trypanosomosis in Karim Lamido and Numan local government areas of Gongola State. Attempts were also made to establish the presence of tsetse flies in these supposedly tsetse-free regions and also to determine the infection rate, fly species and density, and their ecological distribution.

Materials and Methods

Survey area and environment

Karim Lamido and Numan local government areas of Gongola State lie between longitude 11°10" east, latitude

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9°20" north ; and longitude 12°5" east, latitude 9°30" north, respectively, within the supposedly tsetse-free region of the Guinea savanna of Northern Nigeria (map 1). The survey covered a total of twelve villages during the months of April-July, 1990. The animals screened were White Fulani Zebu cattle and their crosses. Majority of the herdsmen are sedentary with a few semi-nomadic settlements.

Trypanosome detection

A total of 1,065 cattle were screened using standard trypanosome detection methods (STDM) and concentration methods (7, 13). Two to 3 ml of blood were collected from each animal by jugular venipuncture into Bijou bottles containing EDTA as anticoagulant. Identification of trypanosome species was done using morphological differentiation of parasites on Giemsa-stained thin films and biological transmission in mice (8). PCV was estimated using a haematocrit centrifuge and reader (7, 13).

Four biconical traps (8) were used in the study area, each one was placed 100 m from the adjacent one in a square formation. The species and infection rates of each fly were determined by dissection.

Results

Out of the 1,065 animals examined, 42 (3.9 %) were found to be infected with trypanosomes in the two local government areas (table I).

In Karim Lamido, 640 cattle were screened, with 30 (4.7 %) positive, while in Numan 425 were examined, with 12 (2.8 %) positive (table I). Out of 42 positive cases, 27 (64.3 %) were due to *T. vivax*, 13 (31 %) to *T. congolense* and 2 (4.8 %) to *T. brucei* (table II).

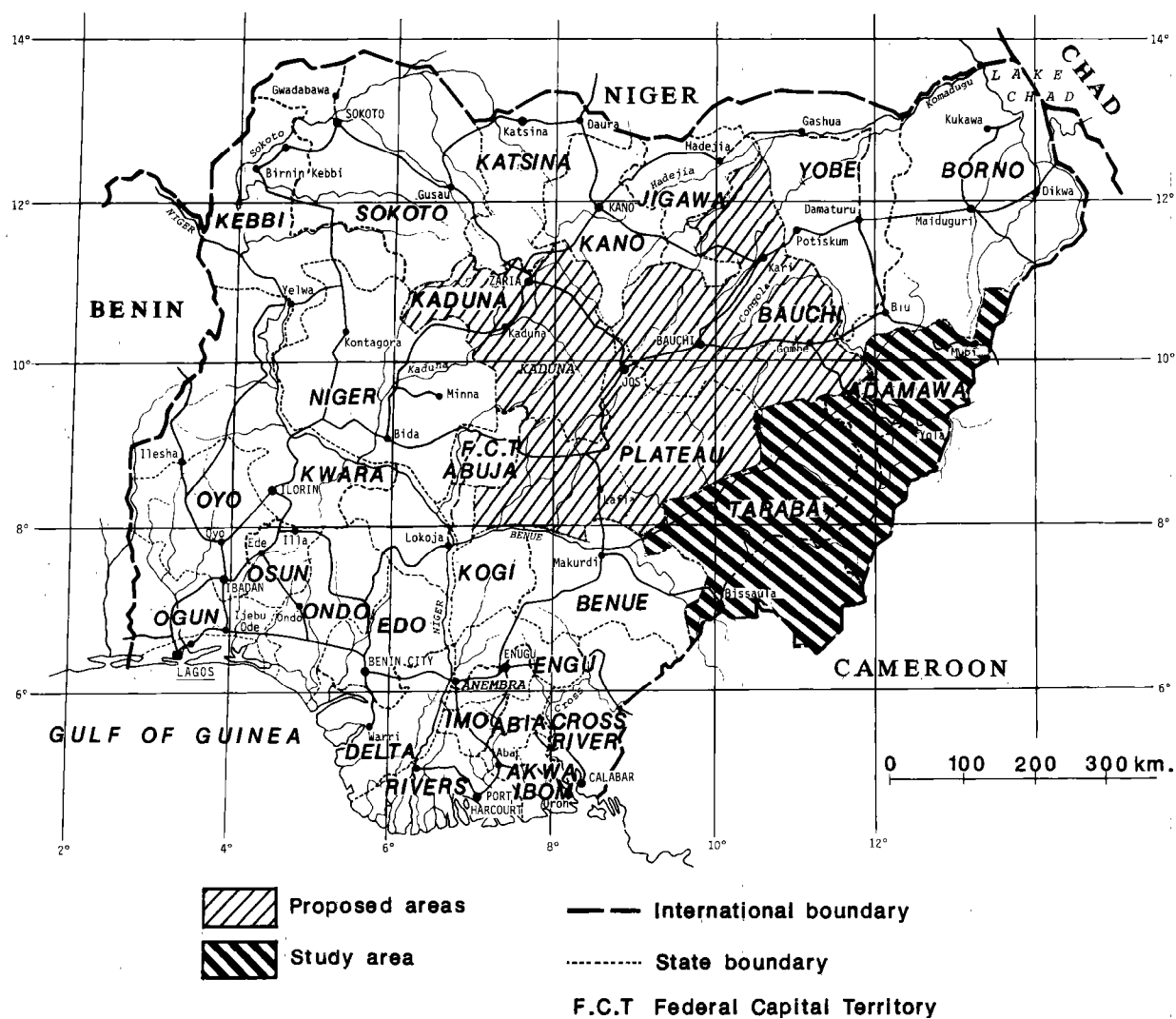
A total of 119 *Glossina tachinoides* were caught in Karim Lamido, with 27 (22.7 %) positive for *T. vivax* and *T. congolense* infections (table III). No tsetse fly was caught in Numan, but a few Tabanids and Stomoxys flies were caught in the two regions.

Discussion

Since the animals were bled only once, some infections have certainly been missed. Furthermore, with more sensitive diagnostic methods the observed prevalence rate could have been higher.

AGU (1) examined 210 White Fulani cattle and found a prevalence rate of 7.6 %. *T. vivax* was the predominant parasite. This finding agrees with the present study and others carried out in Nigeria 10-20 years ago (4, 6, 11, 12). The low PCV of infected animals compared with that of the uninfected ones indicated that trypanosomosis was associated with anaemia (2, 10).

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Map 1 : Map of Nigeria showing the 30 States and study area.

TABLE I Prevalence of bovine trypanosomosis in Karim Lamido and Numan local government areas (LGA) of Gongola State.

LGA	Number sampled	Number positive (%)
Karim Lamido	640	30 (4.7 %)
Numan	425	12 (2.8 %)
Total	1,065	42 (3.9 %)

TABLE III Tsetse dissection studies and distribution in Karim Lamido local government area.

Villages	<i>G. tachinoides</i>	<i>G. palpalis</i>	Number positive for trypanosomes
Karim	31	—	7
Didango	15	—	5
G/usmano	14	—	—
Zailani	25	—	9
Bambur	8	—	—
Andoni	10	—	4
Muri	16	—	2
Total	119	—	27 (22.7 %)

TABLE II Distribution of species of trypanosomes in both Karim Lamido and Numan local government areas (LGA).

Villages	Number sampled	Number positive (%)	<i>T. vivax</i>	<i>T. congolense</i>	<i>T. brucei</i>
K/Lamido LGA					
Karim	106	5 (4.7)	4	1	—
Didango	100	6 (6.0)	4	1	1
G/usmano	103	4 (3.9)	3	1	—
Zailani	95	6 (6.3)	4	2	—
Bambur	70	3 (4.3)	1	2	—
Muri	166	2 (1.8)	1	1	—
Total	640	30 (4.7)	21	8	1
Numan LGA					
Numan	100	3 (3.0)	1	2	—
Yanga	69	2 (2.9)	1	1	—
Lamurde	116	5 (4.3)	3	1	1
Sabo Layi	47	2 (4.3)	1	1	—
Farai	93	—	—	—	—
Total	425	12 (2.8)	6	5	1
Grand total	1,065	42 (3.9)	27	13	2

The results indicate that the supposedly tsetse-free areas in Nigeria need to be remapped. Traditional bush-burning, drying-up of streams and changes in the riverine vegetation during the dry season might have forced *Glossina palpalis* into recession (9). It is not surprising that only *G. tachinoides* was caught among the two riverine species because the study was carried out during the dry season.

Conclusion

It appears that the picture of bovine trypanosomiasis in Nigeria has changed considerably over the years. Several social, economic and demographic factors, since the 1960s, appear to have affected the distribution of tsetse flies and fly-cattle interaction in Nigeria and probably elsewhere (9, 12). Therefore, the need for more detailed studies on the epidemiology and prevalence of bovine trypanosomiasis appears imperative and very urgent, especially in view of intense competition for grazing land.

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DANIEL (A.D.), DADAH (A.J.), KALEJAIYE (J.O.), DALHATU (A.D.). Prevalence of bovine trypanosomiasis in Gongola State of Northern Nigeria. *Revue Élev. Méd. vét. Pays trop.*, 1993, **46** (4) : 571-574

A study of bovine trypanosomiasis was carried out in Gongola State (Northern Nigeria), a supposedly tsetse-free region during the months of April-July, 1990. Blood samples were collected from 1,065 cattle and examined by buffy coat and stained smear methods. Packed red cell volume (PCV) was determined simultaneously. Forty-two (3.9 %) of the animals examined were infected with trypanosomes. *T. vivax* was more frequently encountered than other species. Infection rate was high in the tsetse flies as 27 (22.7 %) of *Glossina tachinoides* caught, dissected and examined were positive for *T. vivax* and *T. congolense* infections. Further studies are desirable in areas claimed tsetse-free in Nigeria.

Key words : Cattle - Trypanosomiasis - *Trypanosoma congolense* - *Trypanosoma vivax* - *Glossina tachinoides* - Laboratory diagnosis - Serology - Prevalence - Nigeria.

La trypanosomose à *Trypanosoma evansi* (Steel 1885), Balbiani 1888 chez les petits ruminants de Mauritanie : Résultats d'inoculation expérimentale et d'enquêtes sur le terrain

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JACQUET (P.), CHEIKH (D.), THIAM (A.), DIA (M.L.). La trypanosomose à *Trypanosoma evansi* (Steel 1885), Balbiani 1888 chez les petits ruminants de Mauritanie : Résultats d'inoculation expérimentale et d'enquêtes sur le terrain. *Revue Élev. Méd. vét. Pays trop.*, 1993, **46** (4) : 574-578

Afin de préciser le rôle éventuel des petits ruminants dans l'épidémiologie de la trypanosomose à *Trypanosoma evansi* dans le Sud mauritanien, on a procédé à l'inoculation expérimentale d'une brebis et d'une chèvre par une souche locale de *T. evansi* isolée d'une chamelle laitière, et à des enquêtes dans des troupeaux de petits ruminants du Sud Trarza qui cotoient au pâturage des troupeaux de dromadaires souvent très contaminés. L'inoculation expérimentale a permis de confirmer que la brebis et la chèvre (races locales) sont réceptives. Seule la brebis a manifesté une sensibilité (amaigrissement et avortement). Pendant 220 jours après inoculation, le sang de la chèvre est resté infectant pour la souris. Chez la brebis, en revanche, on a pu constater l'alternance de phases infectantes et de phases "silencieuses". Sur le terrain, 207 frottis sanguins de caprins et 174 frottis d'ovins sont négatifs ainsi que 109 sérums de caprins et 78 d'ovins. Il semble donc que les petits ruminants ne jouent aucun rôle dans l'épidémiologie de la trypanosomose à *T. evansi* et ce, en dépit de leur réceptivité à l'inoculation expérimentale.

Mots clés : Ovin - Caprin - Trypanosomose - *Trypanosoma evansi* - Enquête pathologique - Inoculation - Sérologie - Immunofluorescence indirecte - Épidémiologie - Mauritanie.

Introduction

La trypanosomose cameline à *Trypanosoma evansi* est une contrainte majeure de l'élevage camelin dans le Sud Mauritanien. Dans le Sud Trarza (région du fleuve Sénégal) les taux d'infection globaux atteignent 15 p. 100 par frottis sanguins et 40 p. 100 en sérologie par immunofluorescence indirecte (1). Or, dans cette zone il est fréquent de voir des troupeaux de petits ruminants mixtes (ovins et caprins) pâturer avec les dromadaires.

Divers auteurs (2, 3, 4, 5, 8) signalent la réceptivité des ovins et des caprins à *T. evansi* après inoculation expérimentale mais le rôle des petits ruminants dans l'épidémiologie de la trypanosomose à *T. evansi* a été très peu étudié sur le terrain. Ce travail a eu pour buts :

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