

Communication

The response of the Nigerian indigenous chicken (*Gallus domesticus*) to trypanosomes

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La réponse du poulet nigérian local aux souches de *Trypanosoma brucei* 8/18 et *T. vivax* Y58 a été recherchée. Le poulet local utilisé dans cette étude était sensible à *T. brucei* mais réfractaire à *T. vivax* (Y58) (une souche adaptée aux rongeurs). L'infection par *T. brucei* était non clinique dans les conditions naturelles. *Mots clés* : Poulet - Trypanosome - Résistance aux maladies - Nigeria.

There are reports that several species of birds are susceptible to trypanosomes. Only the infection in the domestic chicken (1, 7), the domestic duck (13) and the chicken embryo (1, 2, 3, 4) have received much attention.

The infectivity of trypanosomes in domestic birds is labile in character. The domestic duck, for example, is susceptible to *T. equiperdum* (13) but refractory to *T. brucei*. JOSHUA *et al.* (9) also observed a regular chronic infection in some ducks, and in others a non-persistent infection with three stocks of *T. brucei*. Little is known in literature about the response of birds to *T. vivax*.

In the laboratory, the response of the Nigerian indigenous domestic chicken (*Gallus domesticus*) to *T. brucei* 8/18 and *T. vivax* Y58 was investigated in twelve apparently healthy birds (aged between 8 and 10 weeks). The birds were divided into three groups of four birds per group. Birds in group I were inoculated with *T. brucei* 8/18 while those in group II received *T. vivax* Y58. The third group served as uninfected controls. Both parasites, *T. brucei* 8/18 and *T. vivax* Y58 have been previously described (6, 10). Inoculation was done using the wing veins. The blood of birds in groups I and II was examined every other day for the presence of parasites using the light microscope (at a magnification of x 400). Two weeks after trypanosomal inoculation, blood of infected birds was taken and inoculated into clean, healthy albino mice, to test for infectivity. The result of the study showed that trypano-

somes were not seen in the blood of infected birds throughout the periods of study (4 weeks). There was also no death of birds in any of the three groups. However, all the mice which received the blood of *T. brucei*-infected birds died from heavy parasitaemia while those which received the blood of *T. vivax*-infected birds were aparasitaemic and showed no mortality. There was also an increase in the weights of both infected and control birds.

This study has shown that the Nigerian local chicken is susceptible to *T. brucei* 8/18 but refractory to *T. vivax* Y58. The *T. brucei* infection in this study is non-clinical in nature, and is consistent with the results of previous studies. JOSHUA (8) associated the persistent non-clinical nature of *T. brucei* infection in the domestic chicken and the ability to control parasitaemia to its immune response. The high total white blood cell and eosinophil counts in the Nigerian chicken when compared to the exotic fowl reared in a tropical environment (11) may influence the response of the Nigerian fowl to trypanosomal infection.

T. vivax for many years could not be readily established in laboratory animals (2, 5, 6, 14). In these hosts the trypanosomes behaved differently with each subsequent passage or were not infective to the animals used. However, three mouse-adapted strains of *T. vivax* (Y58, Y486 and V953) which were established by LEEFLANG *et al.* (10) were found to be pathogenic to ruminants and were also transmissible by tsetse flies. In this study, the local chicken used appears not to be susceptible to one of these three mouse-adapted strains (*T. vivax* Y58). Further studies using tsetse-borne or natural strains of *T. vivax* are necessary to conclusively show that chickens are in fact unsusceptible to *T. vivax* infection.

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The response of the Nigerian indigenous chicken to *Trypanosoma brucei* 8/18 and *T. vivax* Y58 was investigated. The local chicken used in this study was susceptible to *T. brucei* infection but refractory to *T. vivax* (Y58) (a rodent-adapted strain). The *T. brucei* infection was non-clinical in nature. *Key words* : Chicken - Trypanosome - Disease resistance - Nigeria.

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