

# Presence of Antibodies to Infectious Bursal Disease Virus in Semi-intensively Reared Pearl Guinea Fowls in Nigeria

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## Summary

*The prevalence of infectious bursal disease (IBD) in pearl guinea fowls was studied. Serum samples from 135 healthy adult guinea fowls reared semi-intensively were assayed for the presence of IBD virus (IBDV) using an agar gel precipitation test. The survey was carried out between November 1994 and January 1995. Of the 135 sera examined, 16 were positive to IBDV antibodies representing a prevalence rate of 11.85%. Although the prevalence rate was low, it represents a risk in areas where different species of poultry live together (especially under the rural small holder system) as they could serve as reservoirs for the IBDV.*

## Résumé

*La prédominance de la maladie de Gumboro aux pintades perles et leur rôle dans l'épidémiologie de la maladie ont été étudiés. Les échantillons de sérum de 135 pintades adultes, saines, élevées d'une manière semi-intensive ont été examinés pour la présence des anticorps au virus infectieux de la maladie de Gumboro. Le test de précipitation de «agar gel» a été utilisé pour cette analyse. L'étude a été menée entre novembre 1994 et janvier 1995. De ces 135 cas examinés, 16 ont été trouvés positifs (aux anticorps du virus de la maladie de Gumboro), soit 11,85% du taux de prévalence. Bien que ce taux soit bas, cela représente un risque aux endroits où des espèces différentes de volaille se trouvent ensemble, (les milieux ruraux surtout) où elles peuvent servir de réservoirs pour le virus en question. Le rôle des autres oiseaux domestiques dans l'épidémiologie mériterait aussi une étude.*

## Introduction

Infectious bursal disease (Gumboro disease) (IBD) is an acute, highly contagious viral disease of young chickens which was first reported (5) in the Gumboro district of Delaware, U.S.A. Ever since, the disease have been reported in other parts of the world (7). The occurrence of infectious bursal disease (IBD) in chickens in Nigeria was first reported by (9, 10, 12). There are reports of Turkeys and Guinea fowls responding serologically to IBD virus (IBDV) infection without showing clinical signs of the disease (2, 3, 13, 14). The disease is known to occur in chicks of 3 to 7 weeks old, but reports of infection in chicks up to 15 weeks of age have been recorded (9). Infectious bursal disease in chickens is characterized by tremors, ruffled feathers, oedema and swelling of coecal bursa, necrosis of lymphoid tissues, diarrhoea, low productivity, high morbidity and varying degrees of mortality. Postmortem findings include massive haemorrhage of the skeletal muscles particularly those of the upper limbs and breast and enlarged oedematous bursae of fabricius. The disease is transmitted by fomites with the acute form having a short incubation period of about 2 days. Affected birds often have high temperatures which later become subnormal prior to death (10). Reports on the incidence of IBD in guinea fowls in Nigerian is scanty. This paper presents the results of serological survey on guinea fowls for the presence of IBDV antibodies in the Dutsin-Ma area of Katsina State.

## Material and methods

One hundred and thirty five adult guinea fowls used were purchased from semi-intensively reared stocks in Dutsin-Ma area of Katsina State. These guinea fowls form part of a randomly mating population maintained at the National Animal Production Research Institute (NAPRI) Shika from which the foundation stock of indigenous guinea fowls for egg and broiler lines will be developed. Serum samples were collected from all 135 adult guinean fowls between the months of November 1994 and January 1995. Three to four millilitres (3-4 ml) of blood was collected from each bird by wing vein pruncture. The blood collected was stored at 4°C for 3 hours followed by centrifugation at 2,000 rpm for 10 minutes to produce the sera. The resulting sera were frozen until assayed. Sera analysis was carried out at microbiology laboratory of the Veterinary Teaching Hospital Ahmadu bello University, Zaria. The sera samples were analysed using the agar gel precipitation test on individual sera as described by (4, 6). One percent agar was prepared in barbitone acetate buffer and incubated at 25°C in a humid chamber. The plates were observed for precipitation lines after 15 to 24 hours. The viral antigen was obtained from the bursa of fabricius of an infected bird. The bursa of fabricius was diluted 1:1 (w/v) with phosphate buffered Saline (PBS) and homogenised using a tissue homogeniser. The resulting homogenate was frozen and thawed thrice. Clarification was done by centrifugation.

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gation at 2000 rpm for 10 minutes, the supernatant was stored at -2°C until used as antigen. Positive control serum was obtained from guinea fowls which had received three successive doses of IBD vaccine subcutaneously over a period of 17 days. Blood was collected from the guinea fowls seven days following the last inoculation and the sera tested for precipitating antibody. The negative control sera were obtained from unimmunised guinea fowl which were earlier tested and found negative.

## Results and discussion

Sixteen out of the 135 serum samples tested were positive for IBDV antibodies. All the positive control sera gave precipitation lines within 36 hours while the negative controls were negative. The detection of precipitation lines indicated the presence of antibodies against infectious bursal disease in pearl guinea fowls. The result of this study suggest that previously unvaccinated, free ranging guinea fowls have been exposed to IBD virus with a prevalence rate of 11.85%. Sera which are negative with agar gel precipitation assay

may be positive with more modern, sensitive and specific, assay techniques like ELISA possibly giving higher prevalence rates. However, the finding of this study agrees with the presence of IBD precipitating bodies of 9.00% (3) and 44.3% (2). Earlier reports (8, 11) using agar gel precipitation test did not record serological evidence of IBDV in wild and domestic birds in Nigeria. However, the area from which the sample for this study was drawn has a high concentration of guinea fowl population in Nigeria. The sample area is in a different ecological zone from that covered by 8 and 11. Although some of the guinea fowls used in this study showed evidence of the presence of IBD precipitating antibodies, the birds did not present clinical signs. Under the small holder production systems guinea fowls are reared together with other poultry species. This implies that they could serve as reservoirs of infection for the more susceptible species. Since there is no treatment presently and IBDV is known to be persistent and resistant to hostile environment, routine vaccination programmes should be carried out to protect rural poultry from IBD virus infection (1).

## Literature

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