

PARASITIC INFECTIONS OF THE GREY-BREASTED HELMET GUINEA-FOWL (*NUMIDA MELEAGRIS GALEATA*) IN NIGERIA

J.S.O. AYENI*, O.O. DIPEOLU** and A.N. OKAEME*

*Kainji Lake Research Institute, New Bussa (Nigeria)

**Department of Veterinary Microbiology and Parasitology, University of Ibadan, Ibadan (Nigeria)

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ABSTRACT

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The major helminth parasites found in wild, semi-wild and golden Sovereign stock guinea fowl were *Heterakis gallinarum*, *Ascaridia galli*, *Capillaria caudinflata*, *Raillietina tetragona* and *R. echinobothrida*, while *Eimeria* species was the most important gastrointestinal protozoan parasite. The incidence of the latter was higher in the semi-wild stock than in the wild stock. Necropsy of dead guinea-fowl indicated that *A. galli*, *H. gallinarum* and *Eimeria* species were indeed responsible for their deaths, especially in the young birds. Parasites found in blood smears were *Leucocytozoon* sp., *Plasmodium* sp. and *Aegyptianella pullorum*. The only tick found, *Argas persicus*, was on a few semi-wild stock, while lice of genus *Damalinea* were found only on wild birds.

INTRODUCTION

Unlike African giant rats and bushfowl whose common parasites have been investigated in Nigeria (Dipeolu and Ajayi, 1975; Akande and Dipeolu, 1981; Dipeolu et al., 1981), there is no record of parasitic infections of the grey-breasted guinea-fowl, which are abundant in Nigeria. This study was therefore initiated as part of a general programme of domestication in this species.

MATERIALS AND METHODS

Study area

The bulk of the studies took place in the Research Institute situated within the Kainji Lake basin of Nigeria. Most of the wild guinea-fowl were caught

in the Borgu section of the Kainji Lake National Park which is located in the Northern Savanna vegetation zone.

Guinea-fowl

The wild stock were caught in their natural habitat at the park through trapping operations using traditional snares (Ayeni, 1980) and were transported in standard Dizengorf poultry carriage cases from the field during the cooler periods of the mornings and evenings to the Kainji Lake Research Institute Aviary (KLRIA). The semi-wild stock were adult birds and eggs purchased from the local keepers of the grey-breasted helmet guinea-fowl in the Kainji Lake basin. These birds were originally caught wild and the eggs were collected from the Park by the local keepers. The golden Sovereign stock were originally imported from Pollastral Pulham Ltd., Suffolk, England by the National Veterinary Research Institute in Nigeria. They were kept upon arrival at KLRIA under free-range management.

Parasite collection and processing

Initially, 149 specimens, consisting of intestines of 74 grey-breasted helmet guinea-fowl and 75 local fowl, were bought at a local market in Kaduna, which is a town situated about 550 km from Kainji. The intestines were dissected and the worms found were stored in 5% formalin until identified.

Faecal droppings were obtained from each guinea-fowl hourly between 0600 and 1200 h right from their arrival at KLRIA. These were examined in the laboratory using the egg concentration and/or saline floatation method (Adam et al., 1979). All guinea-fowl were also examined for the presence of ectoparasites; the wild birds as soon as they were trapped and the semi-wild and golden Sovereign stocks regularly. Giemsa-stained thick and thin blood smears were made from drops of blood obtained through puncture of any prominent wing vein of each guinea-fowl. These were made from the blood of each of the wild guinea-fowl immediately on arrival at KLRIA while the procedure was repeated regularly for the other stock. Captive guinea-fowl which died during these studies were necropsied and any parasitic worms discovered in the intestine, lungs and trachea were identified. Treatment was given to some of the guinea-fowl found to be infected with *Eimeria* and helminths.

RESULTS

Table I shows the endo- and ectoparasites found in the various stocks of guinea-fowl and local fowl bought at a local market. A larger number of parasites was found in the wild and semi-wild stocks than in the golden Sovereign stock. *Ascaridia*, *Heterakis* and *Capillaria* species appear to be the commonest helminth infections while *Leucocytozoon* and *Plasmodium*

TABLE I

Parasites of grey-breasted helmet guinea-fowl at Kainji Lake, Nigeria

Parasites	Incidence in stocks of grey-breasted helmet guinea-fowl				Incidence in local fowl
	Kaduna local market (74) ^a	Golden Sovereign (96) ^a	Semi-wild (43) ^a	Wild (41) ^a	Kaduna local market (75) ^a
	No. infected	No. infected	No. infected	No. infected	No. infected
<i>Raillitiena tetragona</i>	39 ^b				41 ^b
<i>Raillitiena echinobothrida</i>	19 ^b				23 ^b
<i>Ascaridia galli</i>	38 ^b	24	13	16	45 ^b
<i>Heterakis gallinarum</i>	68 ^b	20	11	9	18 ^b
<i>Subulura suctorica</i>		3	1	3	25 ^b
<i>Capillaria caudinflata</i>		14	16	12	
<i>Strongyloides</i> species		2	4	9	
<i>Eimeria</i> species		41	31	25	
<i>Leucocytozoon</i> species			42 ^c	2 ^d	
<i>Plasmodium</i> species			16 ^c	16 ^d	
<i>Aegyptianella pullorum</i>			18 ^c	20 ^d	
<i>Argas persicus</i>			3 ^e	—	
<i>Damalinia</i> species			—	3 ^e	

^aFigure indicates the number of birds examined.^bParasites obtained through dissection of intestine of birds.^cNumber of birds examined is 52.^dNumber of birds examined is 30.^eNumber of birds examined is 100.

species as well as *Aegyptianella pullorum* are the common blood parasites of the guinea-fowl.

Necropsies of the dead guinea-fowl showed that death in the young ones resulted mainly from infection with *A. galli* and *H. gallinarum*. Among the adults, death was adduced to coccidia infection in 6 semi-wild and 3 wild guinea-fowl. Apart from unclotted blood observed in their intestines, histopathology of the villi showed many schizont stages of *Eimeria*. *Syngamus trachea* were isolated from a few tracheae and these were accompanied by catarrhal tracheitis with heavy mucus secretions and abundant nodules in the trachea. Drug trials showed that the *Eimeria* species was susceptible to the coccidial drug Davisol while the helminths, except *C. caudinflata*, were susceptible to piperazine.

DISCUSSION

The results of this investigation indicate that, in terms of domestication

and production of grey-breasted helmet guinea-fowl in Nigeria, the most important intestinal parasites to contend with are *Eimeria* sp., *A. galli*, *H. gallinarum* and *C. caudinflata*. These parasites were causes of death of the young and adult wild and semi-wild guinea-fowl as evidenced by the necropsy. It is apparent therefore that a surveillance of these parasites should be a priority in any domestication programme of guinea-fowl in Nigeria.

The results also show that some helminths observed in guinea-fowl were present in the domestic chicken and investigation indicated that both bird species were kept by their owners on free range. Fabiyi (1972a,b) found similar situations in the Vomarea in Northern Nigeria. These findings emphasize the potential of guinea-fowl as the source of some parasitic infections for chickens and other birds as previously hinted by Chute and Lund (1972, 1974) and Lund and Chute (1973). Furthermore, since guinea-fowl and chickens are at present raised together by the free-ranging method of husbandry in some rural areas of Nigeria, regular surveillance of infection among such flocks and treatment of infected birds are indispensable. Such surveillance and treatment had been recommended in other countries (Madsen, 1951). The blood parasites found in guinea-fowl had been found in chickens in Ibadan (Adene and Dipeolu, 1975) while the tick, *A. persicus* had also been recorded on poultry (Caswell, 1959; Shoyinka and Libby, 1967; Adene and Dipeolu, 1975). *Damalinia* sp. have, however, never been recorded on any bird in Nigeria.

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