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HAEMATOZO`A OF THE AVIAN FAMILY PHASIANIDAE IN IRAQ

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ABSTRACT

A collection of 118 specimens of Iraqi phasianid birds belong to four species was examined for haematozoa. Results show that 21.2% of them were infected with one or more of four species of blood parasites; *Haemoproteus danilewskyi, H. santosdiasi, Plasmodium* sp. and microfilaria. *Haemoproteus danilewskyi* is reported here for the first time in Iraq.

INTRODUCTION

Members of the avian family Phasianidae are widely distributed throughout Iraq. This family includes five wild species, black partridge of two subspecies, *Francolinus francolinus arabistanicus* Zarudny and Harms in the middle and south and *F.f. francolinus* Zarudny and Harms in the north; seesee partridge *Ammoperdix griseogularis* (Brandt) in the north, middle and west; rock partridge *Alectoris graeca* (Meisner) in the north, west and east; quail *Coturnix coturnix* (L.) which is a spring and autumn visitor throughout Iraq; and snowcock *Tetraogallus caspius* (Gmelin, 1784) in the extreme heights of the north east mountains. These species constitute the major game birds and are subject to severe hunting almost during the whole course of the year.

Surprisingly, although their helminths are rather well studied (Sawada and Mohammad, 1989; Mohammad, 1990, 1996; Mahmoud *et al.*, 2000) their haematozoa are poorly studied and fragmented among few works, including only Shamsuddin and Mohammad (1981), Mohammad (1990,1991,1996).

The aim of this work is to investigate the haematozoa among four species of Iraqi Phasianids with regard to their incidence, prevalence and some biological pertinent notes.

MATERIALS AND METHODS

A total of 118 phasianid birds were collected either by shooting or capturing at different localities in the north, middle, and south of Iraq during the period between January 1999 and June 2002. Thin blood films were taken immediately from the brachial vein of the bird or sometimes heart, air-dried, fixed in absolute methanol or ethanol, stained with Giemsa's solution at strength of 1:10 at pH 7-7.2 for one hour. The morphometric parameters of both parasites and host cells were determined following the methods of Bennett and Campbell (1972) as modified by Forrester *et al.* (1977) and Mohammad (1991). Drawings were made with aid of camera lucida.

RESULTS AND DISCUSSION

Table 1 summarizes the results on the incidence of blood parasites among the specimens studies in this work. This would show that 25(21.2%) phasianid birds were infected with one or more species of *Haemoproteus, Plasmodium* and microfilaria. Two species of *Haemoproteus* were found to infect both seesee partridge and rock partridge. These are *H. santosdiasi* Son and *H. danilewskyi* Kruse. Infection with haemoproteids represents 18.6% of

the total sample . This is generally in accordance with Bennet *et al*. (1982) who found that 44out of 185species of Phasianidae examined internationally were infected with *Haemoproteus* spp. Reporting of *H. danilewskyi* (fig.1) constitutes the first record for Iraq while *H. santosdiasi* was reported by Shamsuddin and Mohammad (1981) from the same host, the seesee partridge.

Table 1: Parasite species and infection rates in four Iraqi phasianid hosts.

Bird species	No. exam	Hp. inf.	%	P. inf.	%	mf. inf.	%	Total inf.	%
Ammoperdix griseogularis	42	13	30.9	1	2.4	-	-	14	33.3
Alectoris graeca	47	6	12.8	-	-	-	-	6	12.8
Francolinus francolinus	23	-	-	-	-	4	17.4	4	17.4
Coturnix coturnix	6	-	-	-	-	1	16.7	1	16.7
Total	118	19	16.1	1	0.8	5	4.2	25	21.2

Hp.= *Haemoproteus*, P.=*Plasmodium*, mf.= microfilaria.

Infection rate of *H. santosdiasi* of this study in seesee partridge seems lower than that reported by Shamsuddin and Mohammad (1981) which represents 75%. This may be explained by that their material comes from one site, Badra in the eastern frontiers which contains a wide network of irrigation canals and heavy cultivation that support the vector/s potentiality, while the source of this bird in this study is Western Desert District, the eastern foothills of Diyala province and Attariya about 45 km southeast of Baghdad city. Another reason may be added that the number of their examined birds is only four while it is 42 in this study which may represents more accurate infection rate.

Infection with *Plasmodium* sp. constitutes 0.8% of the total sample. This is not surprising since infection rates with this parasite were the lowest in Shamsuddin and Mohammad (1981) and Mohammad (1991) who studies the haematozoa of Iraqi wild birds. Specific identity of this parasite could not be determined since only one specimen of seesee partridge was infected with a very low parasitemia of immature stages mainly.

Infection with microfilaria seems very low compared with the results of Shamsuddin and Mohammad (1981) and Mohammad (1991). This may reflect the fact that the studied birds prefer more arid terrestrial habitats than those examined by the above-mentioned author. However, identification of microfilariae in the examined birds of this study to the specific level practically impossible in view of absence of adult forms. The blood inhabiting microfilariae represent only larval stages of nematodes.

Absence of *Leucocytozoon* infection is surprising since this parasite ranks third of the total infection in many studies in Iraq and abroad (McClure *et al.,* 1978; Shamsuddin and Mohammad, 1981; Bennett *et al.,* 1982; Mohammad, 1991). Bennitt *et al.,* (1994) in their review of the valid avian species of *Haemoproteus, Leucocytozoon* and *Hepatozoon* considered six species of *Leucocytozoon* in the family Phasianidae. This result is rather hard to explain in view of the present data and needs more investigations.

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طفيليات الدم في طيور العائلة الدجاجية في العراق

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الخلاصة

فحصت مجوعة مؤلفة من ١١٨ نموذجاً من الطيور الدجاجية تعود لأربعة أنواع. أظهرت النتائج بان ٢١,٢% كانت مصابة بواحد او اكثر من طفيليات الدم الأربعة التي شخصت في هذه الدراسة. وقد سجل الطفيلي *Haemoproteus danilewskyi* لأول مرة من العراق.

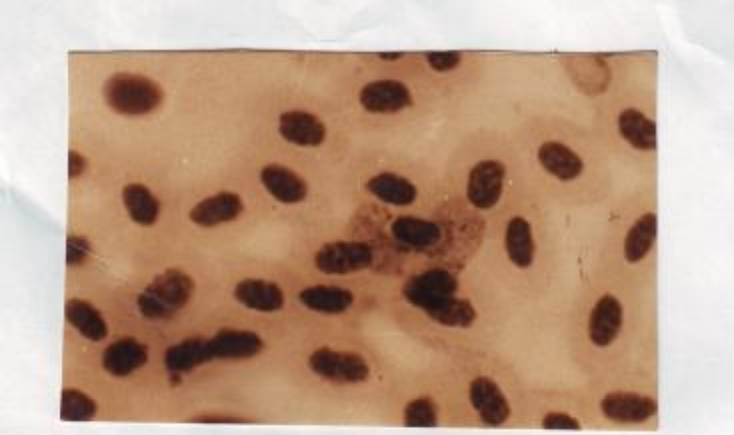

Fig. 1 : *Haemoproteus danilewskyi* Kruse