

ORIGINAL ARTICLE

The Parasitic Fauna of the Wigeon *Anas penelope* L. 1758 Collected in central Iraq

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ABSTRACT

A small collection of the Eurasian wigeon *Anas penelope* collected from two sites in central Iraq was examined for their parasites. The recovered parasites include *Plasmodium relictum*, *Isospora* sp. (Protozoa: *Isospora*), *Amidostomum acutum* (Nematoda) and *Diploposthe laevis* (Cestoda). The results were discussed in view of the pertinent literature.

Key words: Eurasian wigeon, *Anas penelope*, *Plasmodium relictum*, *Isospora* sp., *Amidostomoides acutum*, *Diploposthe laevis*.

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INTRODUCTION

The Eurasian Wigeon *Anas Penelope* L., 1758 is one of the Anseriform birds which comprise a substantial group of Iraqi birds with 29 species and this put it in the second rank in regard to number of species after Passeriformes [1,2]. It is a wintering migratory duck coming into Iraq in autumn from their breeding areas [3,4,5] and leaves at spring. It could be found in freshwater lakes and salty marshes in the middle and south of Iraq feeding mainly on plant material like leaves, seeds, stems and root bulbs but animal material could be taken incidentally. Thousands of birds are hunted by net throughout Iraq for their meat every winter and sold at local markets for commercial purpose. On global level, it is with an extremely wide range of distribution exposing it to potential infections with different kinds of parasites and put it in close touch with vectors in various habitats.

Although some works deal with certain species of ducks in Iraq like that of [6-15] but none on the present species. The aim of the present work is to determine the parasitic species infect the Eurasian wigeon in central Iraq.



Fig.1: Thousands of the Eurasian wigeon were hunted every winter by net and sold at local markets for their meat.

MATERIAL AND METHODS

Specimens of the bird were purchased directly in the field from the net hunters (fig.1) in Bahr Al-Najaf, Al-Najaf Province (14 birds, 9 [5 ♂, 4♀] in January to April 2014, 5 [3♂, 2♀] in NSeptember to December, 2014) and Al-Dalmaj lake, Al-Qadisiya Province (21, 8 [4♂, 4♀] in February to April, 2014, 13 [6♂, 7♀] in October to December 2014). A piece of fresh feces of each bird was kept in 2.5% Potassium Dichromate solution (K₂Cr₂O₇) for a week at room temperature to allow sporulation of coccidial parasites. Thin blood smears were prepared for each bird through getting a drop of blood from the brachial vein. Smears air dried, fixed with absolute methanol for 3 minutes and then stained with Giemsa's stain. The birds then were dissected and their coelae were grossly inspected for helminths with the aid of a glass lens. The digestive tract then separated and put in normal saline and examined under dissecting microscope.

RESULTS

Table 1 summarizes the results on inspecting host specimens for parasites. It would show that 14 (37.8%) out of 35 specimens were found infected with or two species of either *Plasmodium relictum*, *Isoospora* sp. (Apicomplexa:Sporozoa), *Amidostomoides acutum* (Nematode: Amidostomatiidae) and *Diploposthe laevis* (Cestoda: Hymenolepididae). It shows also that 8 (57.1%) of Bahr Al-Najaf acquired the parasitic infection, while 6 (28.6%) of Al-Dalmaj lake specimens were infected. In regard to the mode of infection, 12 (85.7%) of single infection while 2 (14.3%) of double infection. *Plasmodium relictum* appeared in 3 hosts representing 8.6% of the total infection rate. The coccidian *Isoospora* sp. appeared in one female host in Bahr Al-Najaf comprising only 2.9%. Oocyst subspherical with mean measurements of 22-25X20-22um. The nematode *A. acutum* represents 11.4%. The cyclophyllidean cestode *D. laevis* was the most common parasite among other parasite species recorded in this study with 22.9% of the total infection.

Table 1: collection place, bird sex, and parasites species of the Eurasian wigeon *Anas penelope* collected in the middle of Iraq.

Locality	Bird sex	<i>Plasmodium relictum</i>	<i>Isoospora</i> sp.	<i>Amidostomoides acutum</i>	<i>Diploposthe laevis</i>
Bahr Al-Najaf (Al-Najaf Ashraf Province)	♂	+			
	♂			+	+
	♂				+
	♂			+	
	♂				+
	♀		+		
	♀	+			
	♀				+
Al-Dalmaj lake (Al-Diwaniya Province)	♂	+			
	♂			+	+
	♂				+
	♀				+
	♀			+	
	♀				+

DISCUSSION

Due to smaller sample size of the host examined it is not clear whether the difference in infection rates between the two collection sites could be explained properly since its short presence in Iraq did not allow to retrieve any solid conclusion especially without sufficient data on the bird food utilized during this short period. This is true for the effect of bird gender on the same matter as well as the infection in regard to parasite species.

In one occasion, a light infection with oocysts of *Isoospora* sp. was detected in the stool of a female specimen. Mandal [16] examined two species of ducks and found *Eimeria anatis* and *Isoospora* sp. but he commented that the occurrence of an *Isoospora* species is likely to be contaminative. Also, Pellerdy [17,18] could not get any species of *Isoospora* from the birds belonging to order Anseriformes. In Iraq, [19] examined 30 anatid birds belong to 5 species other than present species and found two *Eimeria* spp. For this, more investigations seem necessary to verify this finding. *Plasmodium relictum* was recorded in a wide range of anatid species and genera [20]. Mohammad [14] reported it in the middle of Iraq from the

marbled teal *Marmaronetta angustirostris*. This is the first report on presence of *P. relictum* in this species of duck.

The gizzard nematode *A. acutum* is a common parasite of ducks in Europe and reported from *Anas crecca*, *A. clypeata*, *A. discors*, *A. penelope*, *A. platyrhynchos*, *A. querquedula*, *Eider molissimus*, *Fuligula fuligula*, *Melanitta fusca*, *Nettion crecca*, *Oidemia nigra* and also from the Eurasian coot *Fulica atra* (Gruiformes, Rallidae) [21, 22, 23, 24, 25, 26,27, 28]. It was reported in Egypt from *Anser albifrons* [29].

In Iraq, [10] found it in the common teal *Anas crecca* in Al-Diwaniya Province. Mohammad and Al-Moussawi [12] reported it in the middle of Iraq from the mallard *Anas platyrhynchos*. Al-Taei *et al.* [30] found *Amidostomum* sp. eggs in the feces of domesticated *Anas platyrhynchos* and *Anser anser*. [14,15] isolated it from the shoveler *Anas clypeata* and the marbled teal *Marmaronetta angustirostris* respectively collected in Baghdad, central Iraq.

The cestode *D. laevis* was the most common parasite among other species of parasites in this study. It was reported by [10] from the red-crested pochard *Netta rufina* and he stated that it is the most common parasite recovered in his study. This is in agreement with the results of this study. This species is of cosmopolitan distribution. It was recorded in the African countries Egypt, Kenya, Zaire from *Anas erythrorhyncha*, *Netta erythrophthalma*, and *Aythya fuligula* [29] in Europe [22, 31,32] in North America [33,34] and in South America [35].

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