



## The Parasitic Fauna of Collared dove *Streptopelia decaocto* (Frivaldszky, 1838) in Baghdad City

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### Abstract

A total of 20 birds of Collared dove *Streptopelia decaocto* collected from Baghdad province in central Iraq, number of infected birds was (10) infected with three species of cestodes: *Raillietina echinobothrida*, *R. tetragona* and *Raillietina* spp. with infection rate (50%). So were three of the birds infected with one species of blood parasites *Leucocytozoon marchouxi* where the infection rate of (15%).

**Keywords:** blood parasites, Eurasian collared dove, *Raillietina echinobothrida*, *Raillietina tetragona*, *Leucocytozoon marchouxi*.

### Introduction

The Eurasian Collared Dove *Streptopelia decaocto* Frivaldszky (1838) (*Columbiformes: Columbidae*) is a common resident bird throughout Iraq mostly in villages and towns Allouse (1961) and Salim *et al.* (2006). This dove is considered a crop pest since it feeds, usually in large flocks, on grains and fruits and may spoil them. It also feeds on beetles and butterflies Campbell (2000), which may play as intermediate hosts for certain helminth parasites. Surprisingly, in spite of its wide distribution in Iraq, only few relatively recent papers had been published regarding its parasites. Al-Bakry (2009) reported the protozoan *Trichomonas gallinae*. Al-saffar (2009) isolated the cestodes: *Aporina delafondi*; *Cotugnia digonopora*; *Raillietina echinobothrida*; *Retinometra serrata* and *Raillietina tetragona*. Shubber (2010) recorded the nematode *Hadjelia truncata*. Shubber *et al.* (2010) reported the cestodes: *Aporina delafondi*; *Choanotaenia infundibulum* and *Raillietina tetragona* and the two nematodes *Amidostomum anseris* and *Epomidiostomum uncinatum*. Al-Biatee (2011)

isolated the protozoa *Haemoproteus columbae*; *Haemoproteus turtur*; *Leucocytozoon marchouxi* and *Plasmodium relictum* and the ectoparasites *Campanulotes bidentatus*; *Columbicola columbae* and *Pseudolynchia canariensis*. Al-Rammahi *et al.* (2013) reported the protozoa *Trichomonas* sp. and the three cestodes: *Aporina* sp.; *Cotugnia* sp. and *Raillietina* sp. Mohammad and Al-Moussawi (2013) isolated the protozoan *Leucocytozoon marchouxi*. The present study aims to investigate the presence of parasites in blood and gut of the Eurasian Collared Dove *Streptopelia decaocto* In Baghdad area, central Iraq.

### Materials and Methods

A total of 20 birds of collared dove were collected by capturing by Bird Hunting nets at Baghdad city during the period from April 2015 to March 2016, Blood was taken from the brachial vein or heart of the bird. Blood smears were air dried, fixed in absolute methanol, stained with Giemsa stain (at strength of 1:10 at pH 7-

7.2) for 1 hour. The parasites were diagnosed according to Bennett and Campbell (1972). The birds were immediately dissected and their gut were removed and thoroughly searched for the parasites. The recovered cestodes were stained with acetocarmine and pressed gently between two glasses overnight, then passed in a series of alcohol concentrations (70%,80%,90% and absolute), cleared in xylene and mounted in Canada balsam **Garcia & Ash (1979)**. Pictures were taken with digital camera (Infinity lite-K 100) attached to compound microscope (Micros MCX 100). Cestodes were identified following the keys of **Wardle and Mcleod (1952)**, **Yamaguti (1959)** and **Sawada (1965)**.

## Results

Results showed that 10 specimens (50%) of the total samples of collared doves 20 were infected with three species of *Raillietina* Cestodes: *R. echinobothrida* (Méglin, 1880), *R. tetragona* (Molin, 1858) and *Raillietina* spp.

The intensity of the cestodes is (3.7) from total parasites (37) with Range of intensity (3-10).

## Description:

*Raillietina. echinobothrida*; (no. of specimens examined=6); mean length:13.5 (12-15)cm, scolex 0.189 $\mu$  (0.128-0.250) in diameter and has four rounded suckers, rostellum diameter 0.075 (0,019-0.132)  $\mu$ , sucker diameter 0.105 (0.049-0.160) $\mu$  ,testes number (20-25), number of egg in one capsule (3-6).**Fig. 1 (a, b).**



Fig. 1 (a) Scolex  
*Raillietina echinobothrida*

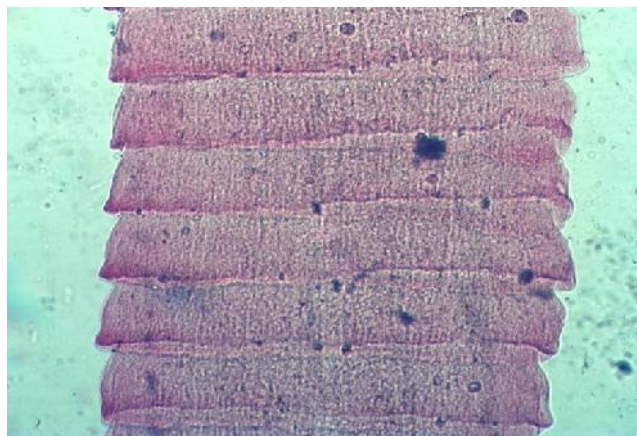


Fig. 1 (b) Mature segments  
*Raillietina echinobothrida*

*Raillietina tetragona*; (no. of specimens examined=4); mean length: 16cm(15-17cm), white in colour, scolex has ( 4) suckers which are lined with 5-6 rows of spines Large. The scolex is oval in shape, the

rostellum armed with double rows of T- shaped hooks. The suckers are oval in shape also armed with 8-10 rows of hammer – shaped hooks of different size. The scolex is followed by long neck. **Fig. 2(a, b, c)**



Fig. 2(a) Scolex  
*Raillietina tetragona*

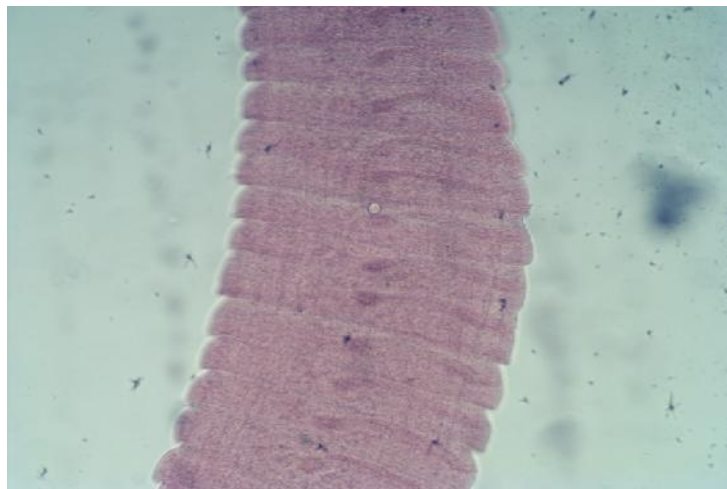


Fig. 2 (b) Mature segments  
*Raillietina tetragona*

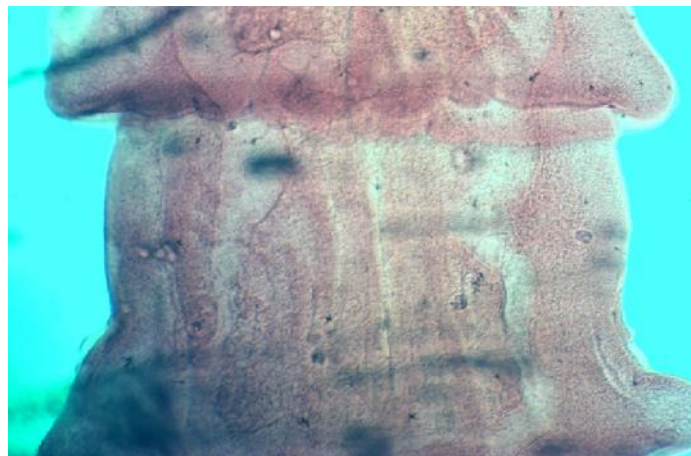


Fig. 2 (c) Gravid segments  
*Raillietina tetragona*



*Raillietina*.sp. ; (no. of specimens examined=2); mean length: 13.5 cm (13-14)cm, The scolex is armed with

numerous hooks, it has 4 suckers, eggs are inside capsules in the gravid segments. **Fig. 3.**

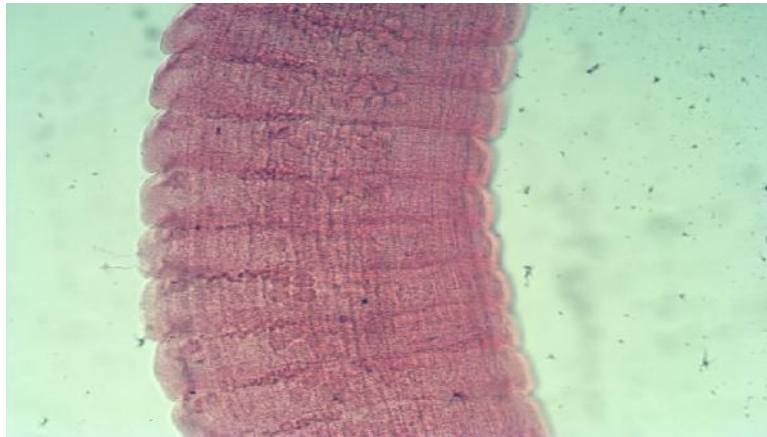


Fig.3 *Raillietina* spp.

The results also showed that (3) out of (20) (15%) were infected with one species of blood parasites

*Leucocytozoon marchouxi* with relatively moderate intensity **Fig 4(a, b)** .

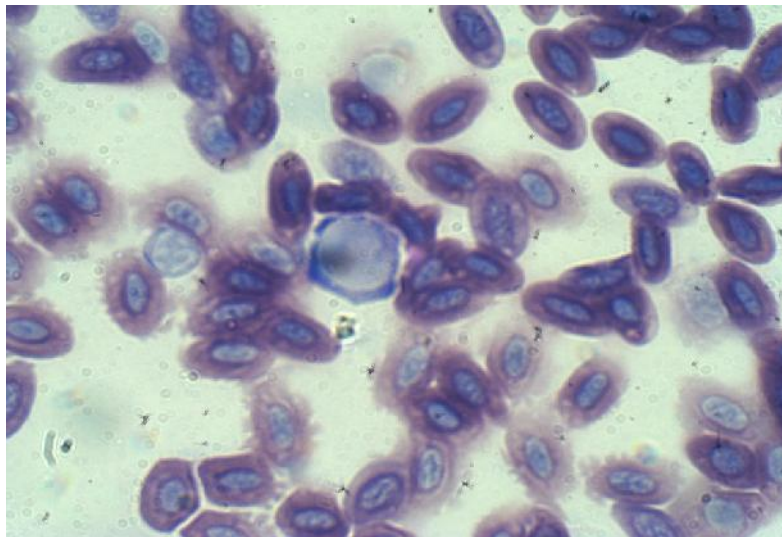


Fig.4 (a) *Leucocytozoon marchouxi*

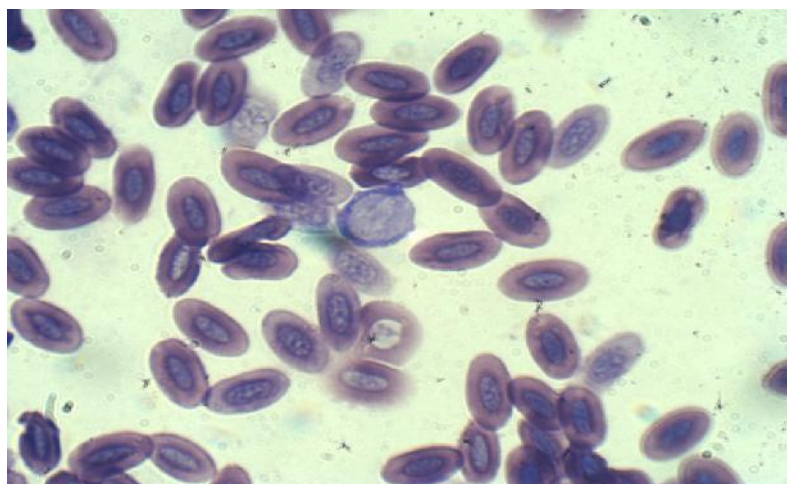


Fig. 4(b) *Leucocytozoon marchouxi*

## Discussion

Regarding Infection rate & intensity of worms and blood parasite, results showed in this work that total infection rate of cestodes is (50%) with intensity of (3.7) worm/bird. These percentages Approach to what was found in **Al-Saffar (2009)** where the ratio of infection of the same cestodes in collared dove is ( 63%) and intensity (5.71), **Yasin, (2009)** reported the infection rate of *Raillietina*. spp. of collared dove is (55.3%), as well as **Al-Rammahi et al. (2013)** mentioned that the ratio of infection of cestodes was (40% ) of (12) infected doves of total (30), while **Omer et al. (2015)** recorded (22%) of *R.tetragona* infection, This last percentage is considered Low compared with the others , The difference in the rate and intensity infections maybe due to the nature of the food items as well as the difference in times and places of bird collection **Olsen and Braun (1980)**. Also it is of worthy to note that the increase in the infection rate of cestodes in doves associated with climate changes and the availability of intermediate hosts **Shubber, (2006)**. Where mention **Allouse (1961)** that the infection rate increases in warm areas. As for the blood parasites, one species had been diagnosed as *Leucocytozoon marchouxi* with an infection rate of 15%, **Mohammad and Al-Moussawi (2013)** recorded infection rate 4.5%in *Columbalivia*, Also **Al-Biatee, (2011)** diagnosed *Leucocytozoon marchouxi* with (1.66%) of (180) birds of pigeons, These results are much less than what recorded in present study which may be related to difference in the time of collecting samples which affects directly the availability of suitable Dipteran intermediate hosts. In general, this could be due to differences in the number of examined birds, climatic conditions and its impact on the carrier host (**Fallis et al., 1973**).

With regard to genera and species diagnosed in other studies, **Yasin (2009)** recorded *Raillietina* sp. and *Cotugina* sp in collared dove, **Al-Saffar (2009)** recorded the same species recorded in the current study, plus *Cotugnia digonopora*, *Raillietina serrata*, *Aporina delafondi*, not only in collared dove but also in some kinds of *Columbidae*. **Al-Rammahi et al ., (2013)** reported the protozoan *Trichomonas* sp. and three cestodes: *Aporina* sp.; *Cotugnia* sp. and *Raillietina*. **Al- Biatee (2011)** recorded two genus of blood parasites *Haemoproteus* and *Leucocytozoon* in some species of *Columbidae*, **Omer et al. (2014)** recorded *Raillietina tetragona* in wild pigeons.

## Acknowledgments

I would like to extend sincere thanks and gratitude to my father and the great professorial /**Prof. Dr. Mohammad K. Mohammad** /Iraq Natural History Research Center and Museum, University of Baghdad to diagnose parasitic samples and all the assistance Presented by the completion of this research, I would also like to thank my dear colleague, Assistant professor, **Azhar A. AL-Moussawi**, As special thanks to my dear friend and colleague close-up **Khalidalbrahim** for her great assistance in the practical part of the search.

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**How to cite this article:**

Suhad Y. Jassim. (2016). The Parasitic Fauna of Collared dove *Streptopelia decaocto* (Frisvaldszky, 1838) in Baghdad City. Int. J. Adv. Res. Biol. Sci. 3(8): 67-72.