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Hadjelia truncata Creplin , 1825 (Spirurida : Habronematodae) in the Red-backed shrike *Lanius collurio* Linnaeus, 1758 (Passeriformes: Laniidae) collected in Baghdad city, central Iraq

Azhar A. Al-Moussawi

Iraq Natural History Museum, University of Baghdad, Bab Al-Muadham, Baghdad, Iraq

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Abstract

Examination of the gizzards of ten *Lanius collurio* Linnaeus, 1758 collected from Baghdad city for the period from September to December, 2013 showed that one male infected with six *Hadjelia truncata* Creplin, 1825 . Description for males and females of the nematode is provided and compared with the pertinent literature. The presence of the adults and larval stages of insects, which are the probable intermediate hosts for *H. truncata*, in the food of *L. collurio* revealed that this bird is insectivorous. Reporting *H. truncata* from *L. collurio* in the present study constitutes the first record for this parasite from this bird in Iraq.

***Corresponding Author:** Azhar A. Al-Moussawi ✉ azhar.nhm@gmail.com

Introduction

The passerine Shrikes (Laniidae) are a group of small or medium-sized birds. They are distributed in Asia, Africa, Europe and North America (Zhang *et al*., 2007, Keynan and Yosef, 2010), they are autumn and spring visitors in Iraq (Allouse, 1962 and Salim *et al.,* 2006).

H .truncata is a widespread parasitic nematode, it was found in the gizzards of different avian orders: Caprimulgiformes , Coraciiformes ,Cuculiformes, Galliformes and Passeriformes (Hromada *et al*., 2000 and Nabavi *et al*., 2013) including shrikes, *Lanius* spp. (Baer, 1954, Appleby *et al*., 1995 and Anderson, 2000) from Asian, African and European countries(Naem *et al*., 2013) causing lesions in the gizzard of infected birds in Cyprus and severe ventriculitis (Sentíes-Cué *et al*., 2011).

In Iraq, the existence of the parasite has been reported from *Columba livia* , *C. palumbis* and *Streptopelia decaocto* (Columbiformes), *Merops superciliosus persicus* (Coraciiformes) (Al-Attar and Abdul-Aziz, 1985; Al-Moussawi, 2008; Al-Saffar, 2009 and Shubber, 2010). It is relevant to indicate here that little attention by parasitologists had been given to the helminths of shrikes in Iraq. Isolating the gizzard nematode *Viguiera euryoptera* from three shrikes by Al-Moussawi (2014)is the only work in this field.

This paper deals with recording the spirurid nematode *Hadjelia truncata* from *Lanius collurio* for the first time in Iraq with notes on some intermediate hosts for the nematode.

Materials and methods

Ten (two males and eight females) of *L. collurio* were collected at the period from September to December, 2013 from a garden in Baghdad city, identified according to (Allouse, 1962 and Salim *et al*., 2006). The gizzards were separated and examined for the parasites with the aid of the dissecting microscope (Kruss) and the compound microscope (Olympus BH). Six *Hadjelia truncata* were isolated from the lining of the gizzards, washed and cleaned with normal saline, killed and preserved in 70% ethanol, immersed in lactophenol for clearing, identified according to Cram (1927);Yamaguti (1961) and Yorke and Maplestone (1962). Measurements are in millimeters given as means followed by the range in parentheses, calculated using ocular and stage micrometers. Photos were taken with a digital camera Infinity lite-K100 attached with the compound microscope.

Results and discussion

One male of ten (2 Males and 8 females) of *L. collurio* was found to harbor six (2 males and 4 females) of *H. truncata* beneath the lining of the gizzard.

Hadjelia truncata Creplin , 1825(Fig.1)

Synonyms: *Spiroptera upupae* Rudolphi, 1819, *Spiroptera truncata* Creplin, 1825 and *Bispharagus truncatus* (Creplin,1825) Dujardin, 1845 (Cram, 1927).

Body straight with moderate uniform thickness in both males and females, cylindrical attenuated at extremities. Cuticle transversely striated. Mouth with two large well developed trilobed lips each with two wings on external surface. Head separated from body by a slight constriction. Mouth leads to a cylindrical vestibule. Oesophagus consists of two parts an anterior short, narrow and muscular and posterior longer, wider and glandular. The posterior end of the males curved ventrally, with large caudal alae supported by Six pairs of stalked caudal papillae(4 preanal and 2 postanal). Spicules were unequal and dissimilar. Tail coiled and short. The vulva of the female located at the anterior end of the body with lips protruded above the body surface. Tail short and rounded , the thick -shelled eggs are oval.These

characteristics are in accordance with the generic diagnosis of the Genus *Hadjelia* provided by Yamaguti (1961) and those of *H.truncata* presented by Cram (1927), Baer (1954) and Junker and Boomker (2007).

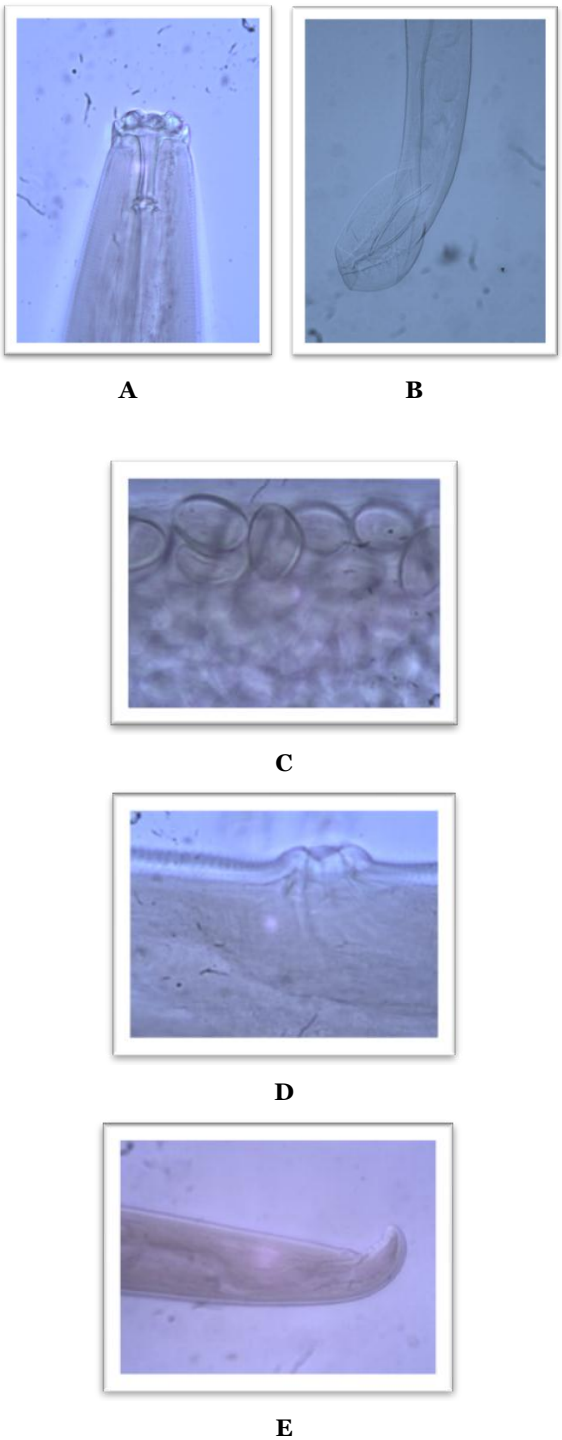

Fig. 1. Photomicrographs of *Hadjelia truncata*.
A- Anterior end of the mail.
B- Posterior end of the mail.
C- Posterior end of the femail.
D-Vulva region.
E- Eggs.

Table.1 shows a comparison between features of two males and four females of *H. truncata* in the present study with such species described earlier by (Cram, 1927, Baer, 1954 and Junker and Boomker, 2007). The differences in some measurements may refer to the length variability in nematodes of the family Habronematidae which had been mentioned by Junker and Boomker (2007), in addition to host difference.

Although the measurements of *H.truncata* in the present study come close to those of Junker and Boomker (2007) who isolated the nematode from the crested guineafowls *Guttera edouardi* from South Africa , but it is closer to those of Baer (1954) who reported it from *L. collurio* and *Columba* sp. from Egypt.

Shrikes are mostly insectivorous (Anderson,2000, Nikolov *et al.*, 2004, Zhang *et al.*, 2007 and Okulewicz, 2013). In the present study insect (adults and larvae) remains were found in the gizzard contents of *L. collurio* (crickets and beetles) such as *Alphitobius* spp. (Coleoptera: Tenebrionidae) which recorded in Iraq by Derwesh (1965). Beetles belong to this genus act as intermediate hosts for the larval stages of *H.truncata* (Alborzi1 and Rahbar, 2012 and Nabavi *et al.*, 2013),this explains the infection of *L. collurio* with this nematode. Microscopic examination showed the distortion of some infected gizzards, this corresponds with the same notice of Appleby *et al.* (1995), Razmi *et al.* (2007) and Senties-Cue *et al.* (2011).

Reporting *H. truncata* from *L. collurio* in the present study considered to be the first time for the parasite to be reported from this host, therefore *L. collurio* constitutes a new host record for it in Iraq. The short period for sampling, and small sample size of birds unable the author to give the infection rate for this nematode . Further local studies could be

advantageous to do to recognize the parasitic fauna of *Lanius* spp. and the hosts of *H.truncata* around the country.

Table 1. Features for males and females of *Hadjelia truncata* Creplin , 1825 in the present study and other studies.

Source	Cram, 1927		Baer, 1954		Junker and Boomker, 2007		Present study	
	M	F	M mm.	F mm.	M	F	M Mean no. (range) mm.	F Mean no. (range) mm.
Features								
Body length	5-7 mm	10 - 16 mm.	8	8-16	7-8 mm.	10-11 mm.	7. 5 (7-8)	12 (8-17)
Body width	—	300 µm	0.285	0.143 - 0.285	145-160 µm	140 - 217 µm	0.231 (0.204- 0.258)	0.224 (0.147-0.270)
Depth of buccal capsule	—	—	0.033	—	42-44 µm	39-41 µm	0.037 (0.030-0.044)	0.043 (0.041-0.045)
Width of buccal capsule (inner)	—	—	—	—	5-7 µm	5-7µm	0.048 (0.043 - 0.054)	
Length of muscular oesophagus	—	—	—	—	369- 397 µm	346- 495 µm	0.380 (0.374 - 0.386)	3.379 (2.750-3.648)
Length of Glandular oesophagus	—	—	—	—	1 750- 1 927 µm	1948 - 2076 - µm	1.650 (1.620 - 1.680)	2.215 (2.002- 2. 835)
Distance anterior end of the body to nerve ring	—	—	—	—	208- 212 µm	159- 185 µm	0.204 (0.198 - 0.211)	0.192 (0.178- 0.206)
Length of Tail	—	—	—	—		121-138 µm	0.132 (0.127 - 0.138)	0.196 (0.145- 0.230)
Length of left spicule	1.6 mm	—	1.320 - 1.600	—	1 346- 1 434 µm	—	1.566 (1.512 - 1.620)	—
Length of right spicule	220 µm	—	0. 225 - 0.300	—	254-271 µm	—	0.255 (0.240 - 0.270)	—
Spicules ratio	7.27	—	—	—	4.966 -5.645	—	6.141 (6.00 - 6.30)	—
Distance anterior end of the body to vulva	—	2.6 mm of a 16 mm. long	—	1.640 - 3.000	—	1691 - 2238 µm	—	2.108 (1.501-3.022)
Eggs length	—	27µm	—	—	—	50 -53 µm	—	0.047 (0.046-0.048)
Eggs width	—	—	—	—	—	32- 35	—	0.034 (0.024-0.0408)

M= male , F= female.

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