

Revision of Gizzard and Intestinal Helminthes of Some Birds in Iraq

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ABSTRACT

A revision of 47 references for the last ten years, from 2010 to 2020, concerning gizzard and intestinal helminthic parasites of some birds in Iraq, showed infections with trematodes, cestodes, nematodes and one acanthocephalan. Helminthic infections of birds were arranged in three tables according to bird order, in each table, bird orders arranged according to the number of infected bird species descending. Among the class Trematoda, the bird order with more infected members found each of Anseriformes and Charadriiformes found that 5 bird species infected with trematodes, followed by Gruiformes 2 bird species, then Passeriformes with 2 species and one bird species for each of Pelecaniformes and Phoenicopteriformes. In the class Cestoda, the bird order with more infected members found each of Anseriformes and Galliformes found that 5 bird species, followed by Passeriformes with 4 bird species, then Columbiformes with 3 species, each of Charadriiformes and Gruiformes with 2 species and one bird species for each of Phoenicopteriformes and Podicipediformes. Among the class Nematoda, the bird order with more infected members the Anseriformes found that 9 bird species infected, followed by Pelecaniformes with 7 infected birds, 4 bird species for each of Galliformes, Columbiformes and Passeriformes, then Charadriiformes only 3 bird species. In each of Accipitriformes, Coraciiformes and Gruiformes only 2 species. Only one bird species found infected with nematodes in each of Phoenicopteriformes, Podicipediformes, Pteroclidiformes and Suliformes. At last, 2 bird species were found infected with 2 parasitic acanthocephalans, one recorded from one Anseriform bird, while the other Acanthocephala not determined to species level was recorded from one Passeriform bird.

INTRODUCTION

Helminth parasites appear in many birds (Clapham, 1957), in case of heavy intestinal infections they were the probable cause of death of birds (Okulewicz and Sitko, 2012).

The survey literature of helminthic infections of Iraqi birds is mostly little, especially those concerns with gizzard and intestinal helminths of birds of Iraq for the period (2010-2020), they are scattered, there are those of Mezhir (2009), Abid Alabas (2010), Al-Awadi *et al.* (2010), Al-Salim and Ali (2010), Gali *et al.* (2010), Shubber (2010), Shubber *et al.* (2010), Al- Bayati (2011), Al-Moussawi and Mohammad (2011) , Al-Barwari and Saeed (2012), Mohammad and Al-Moussawi (2012), Abdullah(2013) , Al-Labban *et al.* (2013), Khoshnaw and Abdullah (2013), Abdullah and Jebur (2014), Abdulrahman *et al.* (2014), Abed *et al.* (2014), Awad *et al.* (2014), Al-Moussawi (2014, 2015, 2016a, 2016b and 2017), Al-Moussawi and Al-Hamdany (2015), Al-Zubaidei (2015), Mohammad (2015), Omer *et al.* (2015), Al-Marsomy and Al-Hamadaani (2016), Hussein (2016), Jameel *et al.* (2016), Mohammad and Al-Moussawi (2016), Al-Ibrahimi *et al.* (2017), Al-Moussawi and Jassim (2017), Alrikaby and Abdullah (2017), Mohammad and Al-Moussawi (2017), Hasan *et al.* (2018), Yaseen and Abdullah (2018), Al-Mahmoudi *et al.* (2019), Al-Aredhi (2020) and Mizhir *et al.* (2020).

The aim of this revision is to collect the scattered literature about gizzard and intestinal helminthes of some birds in Iraq for the years 2010-2020, with a special concern to helminthes of aquatic birds of Iraq.

MATERIALS AND METHODS

Data concern the helminthes of gizzards and intestines of Iraqi birds for the period (2010-2020) in local literature were collected, gathered and presented in this revision in three separate tables each for one class (Trematoda, Cestoda and Nematoda), birds in these tables were arranged according to bird order, in addition to only one acanthocephalan parasite. The main electronic sites concerning with the classification (GBIF, 2020, ITIS 2020, WoRMS, 2020) were followed for check the scientific names of birds and their helminthes and their synonyms.

As no previous revision concerning the helminthes of gizzards and intestines of Iraqi birds, this revision present essential information on this subject.

RESULTS AND DISCUSSION

This revision included references on helminthes of gizzards and intestines of Iraqi birds for the period (2010-2020) which gathered and demonstrated in three tables, each one was carried out for one class of parasites.

Table (1) demonstrated the trematodes with a total number of twenty species in addition to one species of the genus *Plagiorchis*, they belong to fourteen genera, ten families isolated from sixteen bird species of thirteen genera, nine families and six

orders, they were recorded by Al-Awadi *et al.* (2010), Gali *et al.* (2010), Abdullah and Jebur (2014), Awad *et al.* (2014), Yaseen and Abdullah (2018) and Mizhir *et al.* (2020). From these the trematodes that infected aquatic birds *Apharyngostrigea cornu*, *Apophallus crami*, *Australapatemon minor*, *Diplostomum pseudospathaceum*, *Diplostomum spathaceum*, *Echinostoma chloropodis*, *Echinostoma revolutum*, *Echinoparyphium recurvatum*, *Heterotestphyes sobolevi*, *Notocotylus gibbus*, *Notocotylus urbanensis*, *Patagifer parvispinosus*, *Plagiorchis elegans*, *Plagiorchis nanus*, *Podocotyle reflexa*, *Psilochasmus longicirratu*, *Psilochasmus oxyurus*, *Spatula clypeata* and *Stephanopropora denticulata*. Of the genera *Apharyngostrigea*, *Apophallus*, *Australapatemon*, *Diplostomum*, *Echinostoma*, *Echinoparyphium*, *Heterotestphyes*, *Notocotylus*, *Patagifer*, *Plagiorchis*, *Podocotyle*, *Psilochasmus*, *Spatula* and *Stephanopropora*. Diplostomidae, Echinostomatidae, Heterophyidae, Notocotylidae, Opecoelidae, Plagiorchiidae, Psilostomidae and Strigeidae from the aquatic birds *Anas acuta*, *Anas platyrhynchos*, *Ardea purpurea*, *Aythya fuligula*, *Chettusia leucura*, *Fulica atra*, *Gallinula chloropus*, *Himantopus himantopus*, *Phoenicopterus roseus*, *Larus argentatus*, *Larus cachinnans*, *Larus genei*, *Mareca strepera*, *Spatula clypeata*, *Spatula clypeata* and *Tachybaptus ruficollis* belong to the families Anatidae, Ardeidae, Charadriidae, Laridae, Phoenicopteridae, Podicipitidae, Psilostomidae, Rallidae and Recurvirostridae of the orders Anseriformes, Charadriiformes, Gruiformes, Pelecaniformes, Phoenicopteriformes and Podicipediformes these trematodes were recorded by Al-Awadi *et al.* (2010), Awad *et al.* (2014), Yaseen and Abdullah (2018) and Mizhir *et al.* (2020).

Here we have notes to mention about some of these papers: the genus of the trematode *Stephanoprora denticulata* was mistakenly mentioned in more than one place in the paper of Yaseen and Abdullah (2018), as it was recorded as *Stephanopropora denticulata*. The bird *Mareca strepera* (Linnaeus, 1758) of Mizhir *et al.* (2020) found as a synonym for *Anas strepera* Linnaeus, 1758 in GBIF (2020).

In Iraq, twenty trematode species, for the last ten years, belong to fifteen genera, and seven families, were recorded from gizzards and intestines of fourteen aquatic birds belonging to eleven genera and seven families, which belong to six bird orders by Al-Awadi *et al.* (2010), Awad *et al.* (2014), Alrikaby and Abdullah (2017), Yaseen and Abdullah (2018) and Mizhir *et al.* (2020).

Cestodes that found infected gizzards and intestines of Iraqi birds for the period (2010-2020) were demonstrated in Table 2. We have notes about many papers concerned with cestodes: Mezhir (2009) recorded the infection of *Columba domestica* and *C. livia* with the cestode *Coutugonia cuneata*; neither the genus

Coutugonia, nor *C. cuneata* were found in databases of GBIF (2020), ITIS (2020) and WoRMS; only the cestode genus *Cotugnia* Diamare, 1893 found in GBIF (2020) and ITIS (2020). Gali *et al.* (2010) reported the two cestodes *Paradicranotinae anormalis* and *Raillietina tetragona* in addition to two species belong to the genera *Allohymenolepis* and *Haploparaxis*, they were isolated from *Pycnonotus leucotis mesopotamiae* (we think there is a mistake in the species name of the bird) which did not found in GBIF, but *Pycnonotus leucotis* (Gould, 1836) appeared as an accepted name for the bird; in ITIS (2020) appeared *Pycnonotus leucotis mesopotamia* Ticehurst, 1918 as a valid name, the cestode *Allohymenolepis* isolated from the small intestine of *P. leucotis mesopotamia* seems doubtful name in GBIF (2020). *Aporina delofound* which reported from the digestive tract of *Streptopelia decaocto* by Shubber *et al.* (2010) and *Aporina delafondi* of Al-Bayati (2011) could not find in the main databases of GBIF (2020), ITIS (2020) and WoRMS (2020), we found only the genus *Aporina* Fuhrmann, 1902 which appeared as a doubtful genus in GBIF (2020). Al-Bayati (2011) recorded the genus name mistakenly as *Raillientina* instead of *Raillietina*. Al-Barwari and Saeed (2012) reported eight cestodes from the intestine of *Columba livia*, four of them found in the ileal part of the small intestine, they belong to the genus *Raillietina* (= *Skrjabinia*): *Raillietina* (= *Skrjabinia*) *tetragona*, *R. carpohagi*, *R. bonini* (= *Hymenolepiscolumbae*) and *R. fuhrmanni*. *Hymenolepis columbae* did not appear as a synonym of *Skrjabinia bonini* (Megnin, 1899) on GBIF (2020). The domestic chicken, *Gallus domesticus* of Abdullah (2013) appeared as a synonym on GBIF (2020), and the cestode *Hymenolepis carioca* not found in GBIF (2020), ITIS (2020) and WoRMS (2020), only the genus *Hymenolepis* Weinland, 1858 appeared as a valid genus in these three databases. Omer *et al.* (2015) did not determine the scientific name of the pigeon's species. The site of bird infections with cestodes not found in Al-Moussawi and Al-Hamdany (2015), Al-Zubaidei (2015), and Al-Marsomy and Al-Hamadaani (2016). Hasan *et al.* (2018) reported two *Raillietina* species, in addition to two nematodes from the pigeon *Columbi livia* we think there is mistake in genus name, in GBIF (2020) we found only *Columba livia* J.F.Gmelin, 1789 as accepted name. *Marecastrepera* of Mizhir *et al.* (2020) found as a synonym in GBIF (2020). Some authors did not determine bird species (Al-Zubaidei, 2015, Omer, 2015 and Al-Mahmoudi *et al.*, 2019).

Among the cestode of gizzards and intestines of aquatic birds for the period (2010-2020) in Iraq, one species of the genus *Cotugina* and fourteen cestodes were found. These cestodes belong to five families, they were found in eleven bird species, ten genera of eight families and seven orders, they were recorded by Abid Alabas (2010), Al-Awadi *et al.* (2010), Mohammad (2015), Al-Ibrahimi *et al.* (2017), Al-Aredhi (2020) and Mizhir *et al.* (2020). Al-Awadi *et al.* (2010) found eight cestode

species of five genera and four families found in the aquatic birds *Fulica atra* L., 1758, *Gallinula chloropus* (L., 1758), *Himantopus himantopus* (L., 1758), *Larus argentatus* Pontoppidan, 1763 and *Tachybaptus ruficollis* (Pallas, 1764) , they belong to the genera *Fulica*, *Gallinula*, *Himantopus*, *Larus*, *Tachybaptus* and the families *Laridae*, *Podicipitidae*, *Rallidae* and *Recurvirostridae* in Bahr Al-Najaf depression, mid-Iraq; in GBIF (2020) we did not find *Dicranotaenia tsengi* which recorded from the intestine of *Himantopus himantopus* (L., 1758), but we found the genus *Dicranotaenia* Railliet, 1892 only; as well, we found the cestode *Tatria decacantha* (Pallas, 1764), which isolated from the intestine of *Tachybaptus ruficollis* as a synonym of *Joyeuxilepis decacantha* (Fuhrmann, 1913) Gulyaev, 1989 in the database of WoRMS (2020).

In table (3) there are unidentified nematode species of the genera *Ascaridia*, *Baruscapillaria*, *Baruscapillarinae*, *Capillaria*, *Contracaecum*, and *Tetrameres*, in addition to twenty three nematode species of nineteen genera, fourteen families were found infect forty-three bird species of thirty-one genera, and two unspecified species name: local ducks of Al-Labban *et al.* (2013) and Native chickens of Al-Zubaidei (2015). These nematodes were reported by Al-Awadi *et al.* (2010), Al-Salim and Ali (2010), Shubber (2010), Shubber *et al.* (2010), Al-Moussawi and Mohammad (2011) , Al-Barwari and Saeed (2012) , Mohammad and Al-Moussawi (2012), Abdullah (2013) , Al-Labban *et al.* (2013), Khoshnaw and Abdullah (2013) , Abed *et al.* (2014) , Al-Moussawi (2014), Awad *et al.* (2014), Al-Moussawi (2015), Al-Moussawi and Al-Hamdany (2015), Al-Zubaidei (2015) , Mohammad (2015), Al-Moussawi (2016a), Al-Moussawi (2016b), Mohammad and Al-Moussawi (2016), Hussein (2016) , Jameel *et al.* (2016) , Al-Ibrahimi *et al.* (2017), Al-Moussawi (2017) , Al-Moussawi and Jassim (2017), Alrikaby and Abdullah (2017), Mohammad and Al-Moussawi (2017), Hasan *et al.* (2018), Al-Aredhi (2020) and Mizhir *et al.* (2020).

Of these nematodes, thirteen species were found infecting aquatic birds in Iraq belong to thirteen genera and unidentified species of the genera *Ascardia*, *Baruscapillaria*, *Capillaria*, *Contracaecum* and *Tetrameres*; and one species belong to the genus *Baruscapillarinae* which isolated from little egret *Egretta gazetta* by Al-Salim and Ali (2010). These nematodes belong to thirteen families. They were isolated from thirty- one bird species of twenty-two genera; eleven families and ten bird orders. These nematodes were reported by Al-Awadi *et al.* (2010), Al-Salim and Ali (2010), Al-Moussawi and Mohammad (2011) , Al-Labban *et al.* (2013), Al-Moussawi (2014), Awad *et al.* (2014), Mohammad (2015), Mohammad and Al-Moussawi (2016), Hussein (2016), Al-Ibrahimi *et al.* (2017), Al-Moussawi and Jassim (2017), Alrikaby and Abdullah (2017) , Mohammad and Al-Moussawi (2017), Al-Aredhi (2020) and Mizhir *et al.* (2020).

We have to mention here some notes about some papers: Al-Salim and Ali (2010) described *Baruscapillarinae* gen. sp. from *Egretta grazetta* depending on single specimen (male), we didn't find any other information about it in GBIF (2020). Al-Labban *et al.* (2013) did not mention the scientific name of ducks, in addition to that the nematode *Hystrichis tricolour* found as *Hystrichis tricolor* Dujardin, 1845 which seems accepted in GBIF (2020). Al-Ibrahimi *et al.* (2017) have mentioned *Ascardia* sp. as endoparasite of *Gallinula chloropus*, we think that they may had been meant *Ascaridia* instead of *Ascardia*. Mizhir *et al.* (2020) isolated six species of trematodes (Tab.1), three species of cestodes (Tab. 2), two nematodes (Tab.3) and the acanthocephala *Polymorphus boschadis* from 14 aquatic birds from Bahr Al-Najaf depression, *Mareca strepera* (Linnaeus, 1758) one of them, this bird found as a synonym for *Anas strepera* Linnaeus, 1758 in GBIF (2020). Finally, we would like to mention here that only two infections with parasitic acanthocephalan were reported in the period (2010-2020): the acanthocephalan spp. (not determined to species level) which isolated by Abdulrahman *et al.* (2014) from the intestinal tract of *Sturnus vulgaris* in Sulaimania Province, and *Polymorphus boschadis* (Schrunk, 1788) Railliet, 1919 which recorded from the small intestine of the aquatic bird *Mareca Strepera* in Bahr Al-Najaf Depression by Mizhir *et al.* (2020).

Table 1: List of trematodes and their bird hosts arranged by bird order.

Bird order	Bird family	Bird genus and species	Trematod family	Trematod genus and species	site of infection	Reference
Anseriformes	Anatidae	<i>Mareca strepera</i> (Linnaeus, 1758)	Notocotylidae	<i>Notocotylus urbanensis</i> Cort, 1914	intestinal caeca	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Spatula clypeata</i> (Linnaeus, 1758)	Strigeidae	<i>Australapatemon minor</i> (Yamaguti, 1933)	small intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Aythya fuligula</i> (Linnaeus, 1758)	Echinostomatidae	<i>Echinoparyphium recurvatum</i> (Linstow, 1873) Dietz, 1909	small intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Anas platyrhynchos</i> Linnaeus, 1758	Echinostomatidae	<i>Echinostoma revolutum</i> (Fröhlich, 1802) Rudolphi, 1809	small intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Spatula clypeata</i> (Linnaeus, 1758)	Echinostomatidae	<i>Echinostoma revolutum</i> (Fröhlich, 1802)	small intestine	Mizhir <i>et al.</i> (2020)

		1758)		Rudolphi, 1809		
Anseriformes	Anatidae	<i>Anas acuta</i> Linnaeus, 1758	Notocotylidae	<i>Notocotylus urbanensis</i> Cort, 1914	intestinal caeca	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Anas platyrhynchos</i> Linnaeus, 1758	Notocotylidae	<i>Notocotylus urbanensis</i> Cort, 1914	intestinal caeca	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Spatula clypeata</i> (Linnaeus, 1758)	Notocotylidae	<i>Notocotylus urbanensis</i> Cort, 1914	intestinal caeca	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Spatula clypeata</i> (Linnaeus, 1758)	Opecoelidae	<i>Podocotyle reflexa</i> (Creplin, 1825) Odhner, 1905	small intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Aythya fuligula</i> (Linnaeus, 1758)	Psilostomidae	<i>Psilochasmus longicirratu</i> Skrjabin, 1913	small intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Mareca strepera</i> (Linnaeus, 1758)	Psilostomidae	<i>Psilochasmus longicirratu</i> Skrjabin, 1913	small intestine	Mizhir <i>et al.</i> (2020)
Charadriiformes	Laridae	<i>Larus argentatus</i> Pontoppidan, 1763	Diplostomidae	<i>Diplostomum spathaceum</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Charadriiformes	Charadriidae	<i>Chettusia leucura</i>	Plagiorchiidae	<i>Plagiorchis nanus</i> (Rud, 1802)	Small intestine	Awad <i>et al.</i> (2014)
Charadriiformes	Recurvirostridae	<i>Himantopus himantopus</i>	Plagiorchiidae	<i>Plagiorchis nanus</i> (Rud, 1802)	Small intestine	Awad <i>et al.</i> (2014)
Charadriiformes	Laridae	<i>Larus genei</i>	Plagiorchiidae	<i>Plagiorchis elegans</i> (Rud, 1802)	Small intestine	Awad <i>et al.</i> (2014)
Charadriiformes	Laridae	<i>Larus cachinnans</i> Pallas , 1811	Heterophyidae	<i>Apophallus crami</i> Price , 1931	large and small intestine	Yaseen and Abdullah (2018)
Charadriiformes	Laridae	<i>Larus cachinnans</i> Pallas , 1811	Diplostomidae	<i>Diplostomum pseudospathaceum</i> (Niewiadomska, 1984)	large and small intestine	Yaseen and Abdullah (2018)
Charadriiformes	Laridae	<i>Larus cachinnans</i> Pallas , 1811	Diplostomidae	<i>Diplostomum spathaceum</i> (Rudolphi, 1819)	large and small intestine	Yaseen and Abdullah (2018)
Charadriiformes	Laridae	<i>Larus cachinnans</i> Pallas , 1811	Heterophyidae	<i>Heterotestphyes sobolevi</i> Leonov, 1957	duodenum	Yaseen and Abdullah (2018)
Charadriiformes	Laridae	<i>Larus cachinnans</i> Pallas , 1811	Echinochasmidae	<i>Stephanopropora denticulata</i> (Rudolphi , 1802)	large and small intestine	Yaseen and Abdullah (2018)
Gruiformes	Rallidae	<i>Fulica atra</i> L., 1758	Notocotylidae	<i>Notocotylus gibbus</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Gallinula chloropus</i> (L., 1758)	Notocotylidae	<i>Notocotylus gibbus</i>	intestine	Al-Awadi <i>et al.</i> (2010)

Gruiformes	Rallidae	<i>Fulica atra</i> L., 1758	Echinostomatidae	<i>Echinostoma chloropodis</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Gallinula chloropus</i> (L., 1758)	Echinostomatidae	<i>Echinostoma chloropodis</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Fulica atra</i> L., 1758	Psilostomidae	<i>Psilochasmus oxyurus</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Fulica atra</i> Linnaeus, 1758	Notocotylidae	<i>Notocotylus urbanensis</i> Cort, 1914	intestinal caeca	Mizhir <i>et al.</i> (2020)
Passeriformes	Pycnonotidae	<i>Pycnonotus lecuotis mesoptamiae</i>	Plagiorchiidae	<i>Plagiorchis</i> sp.	intestine	Gali <i>et al.</i> (2010)
Passeriformes	Pycnonotidae	<i>Pycnonotus lecuotis mesoptamiae</i>	Phaneropsolidae	<i>Mosesia chordeilesia</i>	intestine	Gali <i>et al.</i> (2010)
Passeriformes	Passeridae	<i>Passer domesticus</i> (L.)	Plagiorchiidae	<i>Plagiorchis bulbulii</i> Mehra, 1937	Small intestine	Abdullah and Jebur (2014)
Pelecaniformes	Ardeidae	<i>Ardea purpurea</i> L., 1766	Strigidae	<i>Apharyngostrigea cornu</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Phoenicopteriformes	Phoenicopteridae	<i>Phoenicopus roseus</i> Pallas, 1811	Notocotylidae	<i>Notocotylus urbanensis</i> Cort, 1914	intestinal caeca	Mizhir <i>et al.</i> (2020)

Table 2: List of cestodes and their bird hosts arranged by bird order.

Bird order	Bird family	Bird genus and species	Parasite family	Parasite genus and species	site of infection	Reference
Anseriformes	Anatidae	<i>Anas crecca</i> Linnaeus, 1758	Hymenolepididae	<i>Sobolevicanthus gracilis</i> (Zeder, 1803) Spassky & Spasskaja, 1954	intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Aythya nyroc</i> (Güldenstädt, 1770)	Hymenolepididae	<i>Diploposthe laevis</i> (Bloch, 1782)	digestive tract	Mohammad (2015)
Anseriformes	Anatidae	<i>Tadorna tadorna</i> (Linnaeus, 1758)	Hymenolepididae	<i>Fimbriaria fasciolaris</i> (Pallas, 1781) Frölich, 1802	small intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Aythya fuligula</i> (Linnaeus, 1758)	Hymenolepididae	<i>Sobolevicanthus gracilis</i> (Zeder, 1803) Spassky & Spasskaja, 1954	intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Mareca strepera</i> (Linnaeus, 1758)	Hymenolepididae	<i>Fimbriaria fasciolaris</i> (Pallas, 1781) Frölich, 1802	small intestine	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Mareca strepera</i>	Hymenolepididae	<i>Sobolevicanthus gracilis</i> (Zeder,	intestine	Mizhir <i>et al.</i> (2020)

		(Linnaeus, 1758)		1803) Spassky & Spasskaja, 1954		
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Dilepididae	<i>Amoebotaenia sphenoides</i>	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Dilepididae	<i>Choanotaenia infundibulum</i>	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Davaineidae	<i>Davaniea proglottina</i>	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Hymenolepididae للجنس فقط	<i>Hymenolepis carioca</i>	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Davaineidae	<i>Raillietina</i> spp.	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Alectoris chukar</i>	Davaineidae	<i>Cotugnia latiproglottina</i> Sawada, Molan <i>et</i> Saeed, 1989	Small intestine	Khoshnaw and Abdullah (2013)
Galliformes	Phasianidae	<i>Alectoris chukar</i>	Davaineidae	<i>Raillietina alectoris</i> Schmidt, Greenberg <i>et</i> Wertheim, 1986	Small intestine	Khoshnaw and Abdullah (2013)
Galliformes	Phasianidae	native chickens	Davaineidae	<i>Cotugnia</i> spp.	--	Al-Zubaidei (2015)
Galliformes	Phasianidae	<i>Gallus gallus domesticus</i> Linnaeus, 1758	Davaineidae	<i>Raillietina echinobothrida</i> (Megnin, 1881)	intestine	Al-Moussawi <i>et al.</i> (2018)
Galliformes	Phasianidae	<i>Francolinus francolinus</i>	Davaineidae	<i>Raillietina tetragona</i>	Small intestine	Al-Aredhi (2020)
Galliformes	Phasianidae	<i>Francolinus francolinus</i>	Davaineida	<i>Cotugnia</i> sp.	Small intestine	Al-Aredhi (2020)
Passeriformes	Corvidae	<i>Corvus corone</i>	Davaineidae	<i>Cotugnia intermedia</i>	intestine	Abid Alabas (2010)
Passeriformes	Corvidae	<i>Corvus corone</i>	Davaineidae	<i>Raillietina micracantha</i>	intestine	Abid Alabas (2010)
Passeriformes	Pycnonotidae	<i>Pycnonotus lecuotis mesoptamiae</i>	Hymenolepididae	<i>Allohyemenolepis</i> sp.	Small intestine	Gali <i>et al.</i> (2010)
Passeriformes	Pycnonotidae	<i>Pycnonotus lecuotis mesoptamiae</i>	Hymenolepididae	<i>Haploparaxis</i> sp.	Small intestine	Gali <i>et al.</i> (2010)
Passeriformes	Pycnonotidae	<i>Pycnonotus lecuotis mesoptamiae</i>		<i>Paradicranotinae anormalis</i>	Small intestine	Gali <i>et al.</i> (2010)
Passeriformes	Pycnonotidae	<i>Pycnonotus lecuotis mesoptamiae</i>	Davaineidae	<i>Raillietina tetragona</i>	Small intestine	Gali <i>et al.</i> (2010)
Passeriformes	Passeridae	<i>Passer domesticus biblicus</i> Hartret, 1881	Davaineidae	<i>Raillietina echinobothrida</i> (Megnin, 1881)	intestine	Mohammad and Al-Moussawi (2013)

Passeriformes	Sturnidae	<i>Sturnus vulgaris</i>	Dilepididae	<i>Choanotaenia masculosa</i>	alimentary canal	Abdulrahman <i>et al.</i> (2014)
Passeriformes	Sturnidae	<i>Sturnus vulgaris</i> (Gray, 1835)	Hymenolepididae	<i>Passerilepis crenata</i> (Goeze, 1782)	-	Al-Moussawi and Al-Hamdany (2015)
Passeriformes	Passeridae	<i>Passer domesticus</i>)L.(	Paruterinidae	<i>Anonchotaenia globate</i>	intestine	Jenzeel <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>)L.(	Dilepididae	<i>Choanotaenia infundibulum</i>	intestine	Jenzeel <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>)L.(	Dilepididae	<i>Choanotaenia passerine</i>	intestine	Jenzeel <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>)L.(	Davaineidae	<i>Raillietina cesticillus</i> (Molin, 1858)	intestine	Jenzeel <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>)L.(	Davaineidae	<i>Raillietina echinobothrida</i> (Megnin 1880)	intestine	Jenzeel <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>)L.(	Davaineidae	<i>Raillietina ransomi</i>	intestine	Jenzeel <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>)L.(	Davaineidae	<i>Raillietina Tetragona</i> (Molin, 1858)	intestine	Jenzeel <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>	Paruterinidae	<i>Anonchotaenia Globate</i>	Intestine	Al-saadi <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>	Davaineidae	<i>Raillietina cesticellus</i>	intestine	Al-saadi <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>	Davaineidae	<i>Raillietina echinobothrida</i>	intestine	Al-saadi <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>	Davaineidae	<i>Raillietina ransomi</i>	intestine	Al-saadi <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>	Davaineidae	<i>Raillietina tetragona</i>	intestine	Al-saadi <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>	Dilepididae	<i>Choanotaenia infundibulum</i>	intestine	Al-saadi <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus</i>	Dilepididae	<i>Choanotaenia passerine</i>	intestine	Al-saadi <i>et al.</i> (2017)
Passeriformes	Passeridae	<i>Passer domesticus biblicus</i> Hartert, 1904	Paruterinidae	<i>Anonchotaenia Globata</i>)von Linstow, 1879(	small intestine	Hadi and Taher (2020)
Passeriformes	Passeridae	<i>Passer domesticus biblicus</i> Hartert, 1904	Davaineidae	<i>Raillietina tetragona</i>)Molin, 1858(	small intestine	Hadi and Taher (2020)
Columbiformes	Columbidae	<i>Columba domestica</i>	Davaineidae	<i>Coutugonia cuneata</i>	intestine	Mezhir (2009)
Columbiformes	Columbidae	<i>Columba domestica</i>	Davaineidae	<i>Raillietina micracantha</i>	intestine	Mezhir (2009)
Columbiformes	Columbidae	<i>Columba livia</i>	Anoplocephalidae	<i>Aporina delafondi</i>	intestine	Mezhir

						(2009)
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Cotugonia cuneata</i>	intestine	Mezhir (2009)
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Raillietina micracantha</i>	intestine	Mezhir (2009)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Davaineidae	<i>Raillietina micracantha</i>	intestine	Mezhir (2009)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Anoplocephalidae	<i>Aporina delofovi</i>	digestive tract	Shubber <i>et al.</i> (2010)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Dilepididae	<i>Choanotania infundibulum</i>	digestive tract	Shubber <i>et al.</i> (2010)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Davaineidae	<i>Raillietina tetragona</i>	digestive tract	Shubber <i>et al.</i> (2010)
Columbiformes	Columbidae	<i>Columba livia</i>	Anoplocephalidae	<i>Aporina delafondi</i>		Al- Bayati (2011)
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Cotugnia intermedia</i>	intestine	Al- Bayati ((2011
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Raillietina microcantha</i>		Al- Bayati (2011)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Cotugnia columbae</i>	Small intestine	Al-Barwari and Saeed (2012),
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>C. digonopora</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>C. polyacantha</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>C. satpuliensis</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Raillietina</i> (=Skrjabinia) <i>bonini</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Raillietina</i> (=Skrjabinia) <i>carphagi</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Raillietina</i> (=Skrjabinia) <i>fuhrmanni</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>R. (=Skrjabinia) tetragona</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Cotugnia columbae</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Cotugnia digonopora</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Cotugnia polyacantha</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Cotugnia satpuliensis</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Raillietina bonini</i> (=Hymenolepis	Small intestine	Al-Barwari and Saeed (2012)

				<i>columbae</i>)		
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Raillietina carpohagi</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Raillietina fuhrmanni</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Davaineidae	<i>Raillietina</i> (=Skrjabinia) <i>tetragona</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia domestica</i>	Davaineidae	<i>Cotugina</i> spp.	Small intestine	Abed <i>et al.</i> (2014)
Columbiformes	Columbidae	<i>Columba livia domestica</i>	Davaineidae	<i>Raillietina</i> spp.	Small intestine	Abed <i>et al.</i> (2014)
columbiformes	columbidae	pigeons	Davaineidae	<i>Raillietina tetragona</i>	small intestine	Omer <i>et al.</i> (2015)
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Raillietina echinobothrida</i>	-----	Al-Marsomy and Al-Hamadaani (2016)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Davaineidae	<i>Raillietina echinobothrida</i>	intestine	Afrasiab <i>et al.</i> (2017)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Davaineidae	<i>Idiogenes</i> sp.	intestine	Afrasiab <i>et al.</i> (2017)
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Raillietina echinobothrida</i>	Small intestine	Hasan <i>et al.</i> (2018)
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Raillietina tetragona</i>	Small intestine	Hasan <i>et al.</i> (2018)
Columbiformes	Columbidae	<i>Columba livia</i>	Davaineidae	<i>Raillietina echinobothrida</i>	small intestine	Jasim <i>et al.</i> (2019)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Davaineidae	<i>Raillietina echinobothrida</i>	small intestine	Jasim <i>et al.</i> (2019)
Columbiformes	Columbidae	Pigeons	Davaineidae	<i>Raillietina</i> spp.	intestine	Al-Mahmoudi <i>et al.</i> (2019)
Charadriiformes	Recurvirostridae	<i>Himantopus himantopus</i> (L., 1758)	Hymenolepididae	<i>Dicranotaenia tsengi</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Charadriiformes	Recurvirostridae	<i>Himantopus himantopus</i> (L., 1758)	Acoleidae	<i>Diplophallus polymorphus</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Charadriiformes	Laridae	<i>Larus argentatus</i> Pontoppidan, 1763	Dilepididae	<i>Paricterotaenia porosa</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Fulica atra</i> L., 1758	Hymenolepididae	<i>Diorchis brevis</i>	Intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Gallinula chloropus</i> (L., 1758)	Hymenolepididae	<i>Diorchis brevis</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Fulica atra</i> L., 1758	Hymenolepididae	<i>Diorchis inflatus</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Gallinula chloropus</i>	Dilepididae	<i>Choanotania infundibulum</i>	Gastro-intestinal tract	Al-Ibrahimi <i>et al.</i> (2017)
Gruiformes	Rallidae	<i>Gallinula</i>	Hymenolepididae	<i>Hymenolepis</i>	Gastro-	Al-Ibrahimi <i>et al.</i>

		<i>chloropus</i>		<i>carioca</i>	intestinal tract	(2017)
Gruiformes	Rallidae	<i>Gallinula chloropus</i>	Davaineidae	<i>Railletina cesticillus</i>	Gastro-intestinal tract	Al-Ibrahimi <i>et al.</i> (2017)
Gruiformes	Rallidae	<i>Fulica atra</i> Linnaeus, 1758	Hymenolepididae	<i>Diorchis americanus</i> Ransom, 1909	small intestine	Mizhir <i>et al.</i> (2020)
Phoenicopteriformes	Phoenicopteridae	<i>Phoenicopus roseus</i> Pallas, 1811	Hymenolepididae	<i>Sobolevicanthus gracilis</i> (Zeder, 1803) Spassky & Spasskaja, 1954	intestine	Mizhir <i>et al.</i> (2020)
Podicipediformes	Podicipitidae	<i>Tachybaptus ruficollis</i> (Pallas, 1764)	Amabiliidae	<i>Tatria acanthorhyncha</i>	intestine	Al-Awadi <i>et al.</i> (2010)
Podicipediformes	Podicipitidae	<i>Tachybaptus ruficollis</i> (Pallas, 1764)	Amabiliidae	<i>Tatria decacantha</i>	intestine	Al-Awadi <i>et al.</i> (2010)

Table 3: List of nematodes and their bird hosts arranged by bird order.

Bird order	Bird family	Bird Genus and species	nematode family	Nematode genus and species	site of infection	Ref.
Anseriformes	Anatidae	local ducks	Diectophymidae	<i>Hystrichis tricolor</i> Dujardin, 1845	proventriculus	Al-Labban <i>et al.</i> (2013)
Anseriformes	Anatidae	<i>Anas clypeata</i> Linnaeus, 1758	Amidostomatidae	<i>Amidostomoides acutum</i> (Lundahl, 1848) Seurat, 1918	gizzard	Al-Moussawi, (2014)
Anseriformes	Anatidae	<i>Anas clypeata</i> Linnaeus, 1758	Amidostomatidae	<i>Epomidiostomum uncinatum</i> (Lundahl, 1848) Seurat, 1918	gizzard	Al-Moussawi, (2014)
Anseriformes	Anatidae	<i>Anas clypeata</i> Linnaeus, 1758	Tetrameridae	<i>Tetrameres</i> sp. Creplin, 1846	proventriculus	Al-Moussawi, (2014)
Anseriformes	Anatidae	<i>Anas platyrhynchos</i> L., 1758	Amidostomatidae	<i>Amidostomum acutum</i>	gizzard	Mohammad and Al-Moussawi (2016)
Anseriformes	Anatidae	<i>Anas platyrhynchos</i> L., 1758	Amidostomatidae	<i>Epomidiostomum uncinatum</i> (Lundahl, 1848) Seurat	gizzard	Mohammad and Al-Moussawi (2016)
Anseriformes	Anatidae	<i>Anas platyrhynchos</i> L., 1758	Habronematidae	<i>Hadjelia truncata</i>	gizzard	Mohammad and Al-Moussawi (2016)
Anseriformes	Anatidae	<i>Aythya nyroca</i> (Güldenstädt, 1770)	Amidostomatidae	<i>Amidostomoides acutum</i> (Lundahl, 1848)	digestive tract	Mohammad (2015)

Anseriformes	Anatidae	<i>Aythya nyroca</i> (Güldenstädt, 1770)	Amidostomatidae	<i>Epomidiostomum uncinatum</i> (Lundahl, 1848)	digestive tract	Mohammad (2015)
Anseriformes	Anatidae	<i>Mareca strepera</i> (Linnaeus, 1758)	Amidostomatidae	<i>Amidostomum acutum</i> Seurat, 1918	duodenum	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Anas acuta</i> Linnaeus, 1758	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Anas crecca</i> Linnaeus, 1758	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Anas platyrhynchos</i> Linnaeus, 1758	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Aythya ferina</i> (Linnaeus, 1758)	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Aythya fuligula</i>)Linnaeus, 1758(	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Mareca penelope</i>)Linnaeus, 1758(	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Mareca strepera</i>)Linnaeus, 1758(	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Anseriformes	Anatidae	<i>Spatula clypeata</i> (Linnaeus, 1758)	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Pelecaniformes	Ardeidae	<i>Ardea purpurea</i> L., 1766	Anisakidae	<i>Contracaecum</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Pelecaniformes	Ardeidae	<i>Ardeola ralloides</i> (Scopoli, 1769)	Anisakidae	<i>Contracaecum</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Pelecaniformes	Ardeidae	<i>Botaurus stellaris</i> (L., 1758)	Anisakidae	<i>Contracaecum</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Pelecaniformes	Ardeidae	<i>Egretta alba</i> (L., 1758)	Anisakidae	<i>Contracaecum</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Pelecaniformes	Ardeidae	<i>Egretta garzetta</i> (L., 1766)	Anisakidae	<i>Contracaecum</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Pelecaniformes	Ardeidae	<i>Ardea cinerea</i>	Capillariidae	<i>Baruscapillaria</i> sp.	Mid intestine	Al-Salim and Ali (2010)
Pelecaniformes	Ardeidae	<i>Egretta garzetta</i> (L., 1766)	Superfamily: Trichinellida	<i>Baruscapillarinae</i> gen. sp.	Cloaca	Al-Salim and Ali (2010)
Pelecaniformes	Ardeidae	<i>Bubulcus ibis</i>	Tetrameridae	<i>Microtetrameres spiralis</i> (Seurat, 1915)	proventriculus	Awad <i>et al.</i> (2014)
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Heterakidae	<i>Heterakis gallinarum</i>	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Ascaridiidae	<i>Ascaridia galli</i>	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Gallus</i>	Trichuridae	<i>Capillaria</i> spp.	gastro-	Abdullah

		<i>domesticus</i>			intestinal tract	(2013)
Galliformes	Phasianidae	<i>Gallus domesticus</i>	Acuariidae	<i>Cheilosporira hamulosa</i>	gastro-intestinal tract	Abdullah (2013)
Galliformes	Phasianidae	<i>Alectoris chukar</i>	Ascaridiidae	<i>Ascarida numidae</i> (Leiper, 1908; Travassos 1913)	Small intestine	Khoshnaw and Abdullah (2013)
Galliformes	Phasianidae	<i>Alectoris chukar</i>	Hartertiidae	<i>Hartertia gallinarum</i> (Thieler 1919)	Intestinal caecum	Khoshnaw and Abdullah (2013)
Galliformes	Phasianidae	Native chickens	Heterakidae	<i>Heterakis gallinarum</i>	–	Al-Zubaidei, (2015)
Galliformes	Phasianidae	<i>Meleagris gallopavo</i>	Hartertiidae	<i>Heterakis Gallinarum</i>)Shrank, 1788(	Intestinal caecum	Al-Moussawi (2016b)
Galliformes	Phasianidae	<i>Francolinus francolinus</i>	Heterakidae	<i>Heterakis gallinarum</i>	Cecum	Al-Aredhi (2020)
Galliformes	Phasianidae	<i>Francolinus francolinus</i>	Heterakidae	<i>Heterakis isolanche</i>	Cecum	Al-Aredhi (2020)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Ascaridiidae	<i>Ascaridia columbae</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Ascaridiidae	<i>Ascaridia galli</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Capillariidae	<i>Capillaria obsignata</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Capillariidae	<i>Capillaria</i> sp.	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia</i> Gmelin, 1789	Acuariidae	<i>Synhimantus spiralis</i>	Small intestine	Al-Barwari and Saeed (2012)
Columbiformes	Columbidae	<i>Columba livia domestica</i>	Ascaridiidae	<i>Ascaridia</i> spp.	–	Abed <i>et al.</i> (2014)
Columbiformes	Columbidae	<i>Columbi livia</i>	Ascaridiidae	<i>Ascaridia columbae</i>	Small intestine	Hasan <i>et al.</i> (2018)
Columbiformes	Columbidae	<i>Columbi livia</i>	Heterakidae	<i>Heterakis gallinarum</i>	Small intestine	Hasan <i>et al.</i> (2018)
Columbiformes	Columbidae	<i>Columba livia domestica</i>	Habronematidae	<i>Hadjelia truncata</i>	gizzard	Jameel <i>et al.</i> (2016)
Columbiformes	Columbidae	<i>Columba livia</i>	Habronematidae	<i>Hadjelia truncata</i> Creplin, 1825	–	Shubber (2010)
Columbiformes	Columbidae	<i>Columba palumbus</i>	Habronematidae	<i>Hadjelia truncata</i> Creplin, 1825	–	Shubber (2010)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Habronematidae	<i>Hadjelia truncata</i> Creplin, 1825	–	Shubber (2010)
Columbiformes	Columbidae	<i>Streptopelia turtur</i>	Habronematidae	<i>Hadjelia truncata</i> Creplin, 1825	–	Shubber (2010)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Amidostomatidae	<i>Amidostomoides anseris</i>	digestive tract	Shubber <i>et al.</i> (2010)
Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Amidostomatidae	<i>Epomidiostomum uncinatum</i>	digestive tract	Shubber <i>et al.</i> (2010)
Passeriformes	Laniidae	<i>Lanius collurio</i> Linnaeus, 1758	Habronematidae	<i>Hadjelia truncata</i> Creplin, 1825	Gizzard	Al-Moussawi (2015)

Passeriformes	Sturnidae	<i>Sturnus vulgaris</i> (Gray, 1835)	Acuariidae	<i>Dispharynx nasuta</i> (Rudolphi, 1819)	–	Al-Moussawi and Al-Hamdany (2015)
Passeriformes	Pycnonotidae	<i>Pycnonotus leucogenys</i> (Gray, 1835)	Acuariidae	<i>Dispharynx nasuta</i> (Rudolphi, 1819)	Gizzard	Al-Moussawi (2016a)
Passeriformes	Passeridae	<i>Passer domesticus biblicus</i> Hartret	Acuariidae	<i>Acuaria skrjabini</i> Ozerskaya, 1926	Gizzard	Mohammad and Al-Moussawi (2012)
Passeriformes	Passeridae	<i>Passer domesticus biblicus</i> Hartret	Acuariidae	<i>Dispharynx nasuta</i> (Rudolphi, 1819) Stiles and Hassall, 1920	Gizzard	Mohammad and Al-Moussawi (2012)
Charadriiformes	Laridae	<i>Larus argentatus</i> Pontoppidan, 1763	Capillariidae	<i>Capillaria</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Charadriiformes	Laridae	<i>Larus genei</i>	Tetrameridae	<i>Tetrameres</i> spp.	Proventriculus	Awad <i>et al.</i> (2014)
Charadriiformes	Recurvirostridae	<i>Himantopus himantopus</i> L.(	Tetrameridae	<i>Tetrameres nouveli</i>	Proventriculus	Alrikaby and Abdullah (2017)
Accipitriformes	Accipitridae	<i>Circus cyaneus cyaneus</i>	Raphidascarididae	<i>Contracaecum</i> sp.	Gizzard	Hussein (2016)
Accipitriformes	Accipitridae	<i>Circus cyaneus cyaneus</i>	Acuariidae	<i>Desportesius invaginatus</i>	Gizzard	Hussein (2016)
Accipitriformes	Accipitridae	<i>Circus cyaneus cyaneus</i>	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Hussein (2016)
Accipitriformes	Accipitridae	<i>Milvus m.milvus</i> L.	Raphidascarididae	<i>Contracaecum</i> sp.	intestine	Hussein (2016)
Accipitriformes	Accipitridae	<i>Circus cyaneus cyaneus</i>	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Hussein (2016)
Coraciiformes	Alcedinidae	<i>Ceryle rudis</i> (L., 1758)	Anisakidae	<i>Contracaecum</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Coraciiformes	Alcedinidae	<i>Halcyon Smyrnensis</i> (Linnaeus, 1758)	Habronematidae	<i>Hadjelia truncata</i> (Creplin, 1825)	Gizzard	Al-Moussawi and Jassim (2017)
Gruiformes	Rallidae	<i>Fulica atra</i> L., 1758	Capillariidae	<i>Capillaria</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Fulica atra</i> L., 1758	Habronematidae	<i>Tetrameres</i> sp.	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Gruiformes	Rallidae	<i>Gallinula chloropus</i>	Ascaridiidae	<i>Ascardia</i> sp.	Gastro-intestinal tract	Al-Ibrahimi <i>et al.</i> (2017)
Gruiformes	Rallidae	<i>Fulica atra</i> Linnaeus, 1758	Amidostomatidae	<i>Amidostomum acutum</i> Seurat,	duodenum	Mizhir <i>et al.</i> (2020)

				1918		
Gruiformes	Rallidae	<i>Gallinula chloropus</i> (Linnaeus, 1758)	Amidostomatidae	<i>Amidostomum acutum</i> Seurat, 1918	duodenum	Mizhir <i>et al.</i> (2020)
Gruiformes	Rallidae	<i>Fulica atra</i> Linnaeus, 1758	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Gruiformes	Rallidae	<i>Gallinula chloropus</i> (Linnaeus, 1758)	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Phoenicopteriformes	Phoenicopteridae	<i>Phoenicopus roseus</i> Pallas, 1811	Tetrameridae	<i>Tetrameres</i> sp.	proventriculus	Mizhir <i>et al.</i> (2020)
Podicipediformes	Podicipitidae	<i>Tachybaptus ruficollis</i> (Pallas, 1764)	Diectophymidae	<i>Eustrongylides tubifex</i>	Proventriculus	Al-Awadi <i>et al.</i> (2010)
Pteroclidiformes	Pteroclididae	<i>Pterocles senegallus</i> (Linnaeus, 1771)	Hartertiidae	<i>Hartertia gallinarum</i> (Theiler, 1919)	intestine	Mohammad, and Al-Moussawi (2017)
Suliformes	Phalacrocoracidae	<i>Phalacrocorax carbo</i> (Linnaeus, 1758)	Anisakidae	<i>Contracaecum rudolphii</i> Hartwich, 1964	proventriculus and ventriculus	Al-Moussawi and Mohammad (2011)
Suliformes	Phalacrocoracidae	<i>Phalacrocorax carbo</i> (Linnaeus, 1758)	Anisakidae	<i>Contracaecum rudolphii</i> Hartwich, 1964	Proventriculus and ventriculus	Al-Moussawi (2017)

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