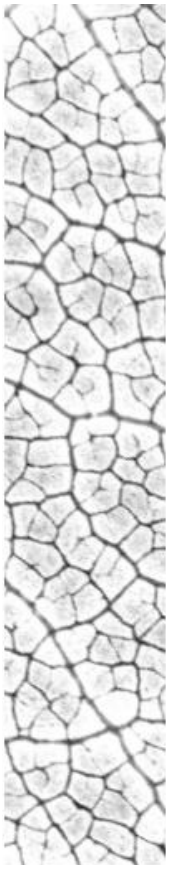

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Pathological study of *Ascaridia galli* in poultry

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Abstract
The current study included examination of 181 birds (vobra strain), the total infection rate was 30.55 % (55 bird), the infection rate according to months Feb. marc. Apr. and jun. were (40 %, 32.5%, 29.16%, 21.27% Respectively). The higher infection rate was 40% for age less than (10 week) while the lower infection rate was 20% for age (>20 week). The infection intensity divided to three group (light, medium, heavy), and the results shows that 65.45% was light infection and 7.27%, 27. 27 % were medium and heavy infection Respectively. The infected birds showed symptoms of wasting, lethargy, tachycardia and intestinal inflammation.

Keywords: Ascaridia galli, roundworm, infection

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INTRODUCTION

Ascaridia galli is a roundworm belongs to the Nematoda phylum (Tarbiat, 2018). Nematodes of the Ascaridia genus are primarily intestinal parasite that infect birds (Garedaghi, 2011). *A. galli*, is the most common and pathogenic species, particularly in domestic fowl (*Gallus domesticus*), which causes ascaridiasis, a poultry disease due to severe worm infection, especially in the chickens and turkeys. It live in the small intestine, and sometimes can be visible in mercantile eggs (Lalchhandama,2010; Bharat et al., 2017). Life cycle of this parasite is simple and straightforward. Contagious eggs hatch in either the established triculus or in the duodenum of the apt hosts. After hatching, the young larvae lives free in the lumen of the duodenum (posterior protion) for the first nine days, then permeate in the mucosa and lead to hemorrhages. The young worms get in the duodenum lumen by (17 or 18) days and stick around yonder until maturity, in about 28-30 days after ingestion of embryonic eggs. Larvae can get in the tissues as early as the first day and stay there as long as 26 days following infection. The majority spend about (8-17) days in the mucosa of intestinal (Fioretti et al., 2005). some larvae permeate deeply into the tissue, whilst the majority undergo a brief and shoaly association with the intestinal mucosa over the “tissue phase”. The eggs *of A. galli* ingested by grasshoppers or earthworms are hatch and infective to chicken, Although there was no development in the larvae (Kajerova *et al*.,2004). To avoid or at least minimize ascaridiasis infections, it is recommended that the bedding of birds be kept as dry as possible and changed regularly, as the survival of the eggs of worms requires humidity. It is advisable for birds kept outdoors in endemic regions to limit their exposure to dark and humid habitats, where intermediate hosts are typically more abundant. Such measures are particularly essential for young birds, which are more frequent to suffer from this infections (Jacobs *et al*., 2003). The employ of insecticides to destroy the intermediate hosts isn’t advisable. Eliminating all potentially intermediate hosts with insecticides is practically impossible. This would be quite detrimental for the ecosystem, since it would murder not only the intermediate hosts, but also many beneficial insects as well as other invertebrates (Ossum *et al.,* 2009; Yeshiwas, et al, 2018). There are several classical broad spectrum anthelmintics that are effective against *A. galli* worms, such as some benzimidazole (which include: albendazole, fenbendazole, flubendazole, mebendazole, oxfendazole, etc.), levamisole, in addition to macrocyclic lactones like ivermectin. Many compounds with a narrower spectrum are also efficient against such worms, like derivatives of piperazine and pyrantel. These active ingredients are typically available as feed or drinking water additives for use on poultry, scarcely as tablets or injectables (Lalchhandama, 2010). Medicinal plants appearing anthelmintic activity in vitro include: *Allium sativum*, *Aloe secundiflora*,*Anacardium occidentale*, *Bassialati folia*,*Cassia occidentalis L*.,

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Table 1. Infection rate of *Ascaridiagalli* according to months of the study

Months	Birds Ex. No.	Infected birds	%
March	45	18	*40
April	41	12	29.16
June	48	14	29.16
July	47	10	*21.27
Total	181	54	29.83

*significant difference under the level of 0.01%

Table 2. Infection rate of *A. galli* according to age of the birds

Age	Birds Ex. No.	Infected birds	%
less than 10 week	75	30	*40
10-20	51	13	25.49
more than 20 week	55	11	*20
Total	181	54	29.83

*significant difference under the level of 0.01%

Table 3. The severity injury according to age group of birds

Severity of injury	No. infection bird	%	1st age group	%	2nd age group	%	3rd age group	%
(1-10) light injury	35	*65.45	26	74.28	*10	27.77	0	0
(11-20) moderate injury	15	27.27	4	26.66	3	20	8	53.33
(≥20) heavy injury	4	7.27	0	0	1	25	3	*75
total	54	0	30	54.54	14	25.45	11	20

*significant difference under the level of 0.01%

Morindacitri folia L.I, *Piper betle* and *Tribulus terrestris*. Medicinal plants showing in vitro anthelmintic activity include: *Anacardiumoccidentale, Allium sativum, Tribulusterrestris, Bassialatifolia, Piper betle, Morindacitrifolia L.I, Cassia occidentalis L.* and *Aloe secundiflora*, while in vivo, medicinal plant include: *Anacardium occidentale, Caesalpinia crista, Ocimumgratissimum, Piper betle*, *Pilostigma thonningi* and *Psoreliacoryli foliathese.* Medicinal plants seem to have a high anthelmintic activities in poultry and may subrogate conventionally utilized synthetic drugs, and their employment can moderate the resistance to drug in the populations of endemic pathogen and Reducing the residues of drug in poultry meat (Raza et al., 2016).

MATERIALS AND METHODS

1- A total of 181 birds (vobra strain) were examined from March to July for the detection of Ascaris infection.

2- The chicken abdomen was cut, to isolate the intestines, and macroscopically examination was performed, and by a magnifying glass to look for cylindrical worms.

3- Diagnosis of cylindrical worms according to macroscopically examination for all birds according to (Permin,1998).

Statistical Assessment

Statistical interpretation of the findings has been done by employing Chi- square, $p<0.05$ as the lowest limit significance (SPSS).

RESULTS AND DISCUSSION

Examining 181 birds the total infection rate was29.83 % (55 infection bird), and the infection rate according to months was higher for march 40% and the lower infection rate was for July21.27% (**Table 1**). and a significant statistical difference by month of the year at level of 0.01%.

These results similar to the results of permin *et al*. (1998) for poultry raised in private rooms 25%, and also for Nithiuthai *et al*. (2003) 23.5%, It may be due to the deterioration of the halls from the health side.

Table 2 show infection rate according to age of birds, the higher infection rate 40% was for age less than 10 weeks, while the lower infection rate was 20% for age more than 20 week, with a statistical significant difference at level of 0.01%.It may be due to the immunity against infections for this parasite, because of IgG secretion increased when the infection rate elevate for bird,as well as the age of bird have no relation with infection rate reverse the immunity of the birds (Marcos –Atxuutegi *et al*., 2009, Gauly *et al*., 2005).

During the diagnosis of infection, the number of worms was calculated in infected birds. It was found that %65.5 of the birds were mildly infected (1-10 worm), %27.27 were moderately infected (11-20worm) and %7.27 were severely infected (more than 20 worm) at **Table 3**, The incidence of mild injury in the first age group increased by 74.28%, while the moderate and heavy injury was concentrated in the third age group (53.33 % and 75%) respectively.

The study has been showed a significant differences between the age groups and severity of injury with a probability of 0.01%.

The increase in the incidence of mild-type infection compared to the heavy injury may be due to the fact that these birds are injured for the first time, especially since most of them belong to the first age group, which do not bear these worms compared to other ages, and this is confirmed by the researcher Gaulye*t al*.(2005), who observed in his study increased the severity of the injury as the age of birds especially after the age of 24 weeks.

The researcher Permin *et al.* (1997),explained that there are no differences in the severity of infection by age may be due to their examination of 20 birds only in his study. He also explained that age has a relative effect on the severity of infection. And the injury could occur again in birds that have been infected with the same parasite and less severely. The finding from other study has been revealed that age of chickens only partially affected the resistance to the infection with *A. galli* (Idi *et al*., 2004). It was noted that it is necessary to emphasize the removal of the bedding of the halls after the completion of each meal for ventilation as well as the effect of sunlight in many pathological factors, including worms Askars, as well as mixing dry brush with wet, which is located near so the infections not to focus in wet areas and help In dry brush.

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