

## STUDIES ON SOME PARASITIC FAUNA OF CATTLE EGRET (BUBULCUS IBIS) IN KAFR EL-SHEIKH GOVERNORATE

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### ABSTRACT

*The present study was carried out to determine the prevalence and description of parasites infecting cattle egret (B. ibis) in Kafr El-Sheikh governorate. The obtained results showed that the overall prevalence of the parasitic fauna among cattle egret was 87.3% and the most prevalent species was Nematodes followed by Digenetic trematodes and finally the ectoparasitic one (lice) with their infection rates of 74.64%, 67.60% and 42.25%, respectively. Also seven species of parasites (3 species of digenetic trematodes, 3 species of nematodes and one species of lice) were recovered from this study. The recorded digenetic trematodes were *Apharyngostrigea ibis* (35.2%), *Nephrostomum ramosum* (18.3%) and *Apatemon gracilis* (14.1%), while the recovered nematodes were *Synhimantus invaginatus* (53.5%), *Porrocaecum wui* (12.7%) and *Heterocheilus* sp. (8.5%). The latter species was recorded for the first time in cattle egret, while the detected ectoparasitic one was *Menacanthus stramineus*. The morphological description of the detected parasites was completely studied and discussed.*

### INTRODUCTION

Free living birds especially the wild ones are known to live everywhere and they play an important role in the process of biological control of the most agricultural and domestic life enemies as rodents, reptiles, amphibian, mollusca, earthworms and arthropods. In addition to their major roles in the transmission of many dangerous parasitic diseases to other domesticated birds, mammals and man either by direct or indirect means, there are many records of human infection with trematodes which are parasites of birds (*Watson, 1960*).

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Cattle egret (*Bubulcus ibis*), as one of the feral birds is commonly found in Egypt. It had adopted the habit of feeding at road sides, verged and even on the urban lawns, and will roost readily in both country and urban surroundings. It is taken as a farmer friend since it eagerly follows ploughing and feeds on harmful worms and insects.

Cattle egret like other birds suffering from various parasitic diseases as mentioned previously by many authors as *Ukoli (1967); Whittaker et. al. (1971); Stuart et. al. (1972); Fischthal and Whittaker (1977); Hegazi (1978); Rajvanshi and Gupta (1983); El-Sheikh and Hegazi (1984); Ahmed (1994); Yaochi et. al. (2000) and Desoukey (2003).*

Due to wide range of wild birds and the little information about the parasitic fauna of the cattle egret in our locality so, the aim of the present study is to make a spot light on the parasitic fauna of the cattle egret (*B. ibis*) regarding to their Prevalence, Morphology as well as the Pathological lesions.

## MATERIAL AND METHODS

### I- Birds

A total number of 71 Cattle egret (*B. ibis*) were collected by hunting from some localities in Kafr El-Sheikh Governorate (Faculty of Agriculture, Mehalet El-Kasb village and El-Hamraa village) during a period extending from June 2003 to January 2004.

The collected birds were transported to the laboratory for parasitological examinations.

### II- Parasitological examination

#### II- 1- Ectoparasites

The feathers and unfeathered parts of each bird were examined thoroughly by naked eye and by the aid of the hand lens and bright light for any Ectoparasites.

The positive samples were collected either by brushing of the up-down birds or by extraction of the parasites from the feathers, then the external parasites were received in clean Petri dishes containing water.

The collected parasites were placed in 70% alcohol containing 5% glycerin, then cleared in Lactophenol, mounted in glycerin gelatin and then identified according to *Manuel (1981)*.

## **II-2- Helminthes:**

The alimentary tract (crop, proventriculus, gizzard and intestine) of each bird was examined for the presence of any enteric parasites either macroscopically by naked eye or microscopically via examination of the tract scraping.

The collected trematodes were washed several times with physiological saline, then pressed, fixed, stained, dehydrated and mounted in Canada balsam according to the technique described by *Kruse and Pritchard (1982)*, while nematodes had been killed and stretched in a hot solution of 70% alcohol containing 5% glycerin, then cleared in lactophenol solution and mounted in glycerin gelatin according to the technique described by *Belding (1965) & Abd El- Rhaman et. al. (1982)*.

The collected helminthes were identified according to *Yamaguti (1958)*.

## **RESULTS**

### **I- Prevalence of the detected parasites:**

The obtained results showed that the over all prevalence of the parasitic infestation among cattle egret was 87.3%. Also the present results found that the total prevalence of the detected ectoparasites (lice), digenetic trematodes and nematodes was 42.25%, 67.60% and 74.64% respectively. Seven species of parasites (3 species of digenetic trematodes, 3 species of nematodes and one species of lice) were recorded from this

study. The detected ectoparasitic one was *Menacanthus stramineus* and The recorded digenetic trematodes were *Apharyngostrigea ibis*, *Nephrostomum ramosum* and *Apatemon gracilis* with their infection rates of 35.2%, 18.3% and 14.1% respectively, while the recovered nematodes were *Synhimantus invaginatus*, *Porrocaecum wui* and *Heterocheilus sp.* with their infection rates of 53.5%, 12.7% and 8.5% respectively. The *Heterocheilus sp.* was recorded for the first time in cattle egret in Egypt. On other hand the detected lice species was identified as *Menacanthus stramineus*.

From the fore-mentioned results, it is concluded that the most prevalent parasitic fauna of cattle egret was nematodes followed by trematodes and finally the ectoparasitic ones. Concerning species, the most prevalent nematodes species was *Synhimantus invaginatus*, while for trematodes was *Apharyngostrigea ibis*.

## II- Morphology of the detected parasites:

### 1- Lice

*Menacanthus stramineus* (Nitzsch, 1818) Fig. (1)

**Site:** less feathered parts of the body as shaft of the wings, breast.

Small in size, measuring 2-3mm. The head is much larger occupying the width of the body. The legs have two claws and Characterized by their abdominal segment have two dorsal rows of bristles.

### 2- Digenetic trematodes

2- a- *Apharyngostrigea ibis* (Azim, 1935) Fig. (2)

**Site:** intestine

The fluke measures 2.8-4.5mm in length. Its body divided into pear shaped fore body and cylindrical hind body. The oral sucker is rounded in shape. The pharynx is absent. The tribocytic organ is divided by a

vertical cleft into 2 halves. The hind body is larger than the fore ones and contains the genital organs. The testes are lobulated in shape and tandem in position. The ovary is small, ovoid in shape. The vitelline gland fills the lateral field of the body from the posterior of the tribocytic organ to the posterior end of the hind body. The eggs are oval in shape, measuring 0.09-0.1mm.

**2-b- *Nephrostomum ramosum* (Sonsino, 1895) Fig. (3)**

**Site:** intestine

The fluke is elongated in shape, measuring 11-17 x 1.4-2.6mm. The head collar is reniform and carries a single dorsally uninterrupted row of strong spines (46-50). The oral sucker is rounded in shape while the ventral one is funnel in shape and lies at the fourth quarter of the body. The pharynx is absent while the esophagus is short and bifurcated anterior to the ventral sucker into 2 simple intestinal caeca which terminate near the posterior end of the body. The testes are elongated and tandem in position. The ovary is rounded in shape and lies anterior to the testes. The vitelline glands occupy the entire lateral field from level of the ventral sucker to the posterior end of the body. The eggs are oval in shape, operculated and measures 0.09-0.11mm.

**2-c- *Apatemon gracilis* (Szidat, 1928) Fig. (4)**

**Site:** intestine

The fluke measures 2.2-4.3mm in length. Its body divided into cup-shaped fore body and cylindrical or saccular hind body. The tribocytic organ is divided by a vertical cleft into 2 halves. The hind body is more or less arched without neck portion. No pseudosucker. The vitelline gland is confined to the hind body. The bursa is terminal without muscular ring.

### **3- Nematodes:**

#### **3-a- *Synhimantus invaginatus* (Linstow, 1901) Fig. (5)**

**Site:** Gizzard

It is medium sized, white colored nematodes with cylindrical body tapering at both ends. The cuticle is thin and transversely striated. The cordons are recurrent and anastomosing. The lips are conical in shape and the buccal capsule is funnel in shape at the base of the lips. The esophagus is cylindrical in shape and the tricuspid cervical papillae and the excretory pore posterior to the cordons. Male worm is shorter than female one, measuring 7.6-12.1 length x 0.21-0.35mm width. Its caudal alae are supported by 4 pairs of pre-cloacal and 5pairs of post-cloacal pedunculated papillae. The spicules are subequall and dissimilar. Female measures 12-15 long x 0.43-0.6 mm. wide, its vagina is surrounded by the prominent muscle fibers and the vulva is immediately anterior to the anus on a central prominence which is the real posterior extremity of the body as a small conical tail. The eggs are oval in shape, measuring 0.029x 0.012mm.

#### **3-b- *Porrocaecum wui* (Hsu, 1933) Fig. (6)**

**Site:** intestine

The worm is large in size, measuring 10-12cm long x 0.7mm width. The cuticle is transversely striated. The mouth is surrounded by large 3lips; the dorsal lip has a distinct median cleft at its anterior extremity, while the two lateral ones have rounded borders. The anterior part of esophagus is long while the posterior part is oblong. The female vulva is flushed with body and present near to the middle of the body, while the male spicules are equal. The eggs are rounded in shape.

#### **3-c- *Heterocheilus sp.*(Diesing,1839) Fig. (7)**

It is medium sized, brownish in color nematodes, measuring 2-3cm long and 0.5mm wide. The mouth is surrounded by 3 prominent complex lips. The esophagus is cylindrical, slightly enlarged posteriorly. Male is

shorter than female, its tail almost straight, conical and sharp pointed. The spicules are long, equal and alate. It has 3 pairs of preanal and 5 pairs of postanal papillae, while the female tail is tapering and its vulva present near the anus.

## DISCUSSION

The obtained results concluded that the overall prevalence of parasitic infestation among cattle egret was 87.3%. This high prevalence might be attributed to the fact that the wild birds have usually fed a diet containing a high proportion of arthropods, earthworm, mollusca, fish, reptiles and rodents, many of them are intermediate hosts for helminthes, means that these birds carry a high parasitic burden.

The present study revealed that the total prevalence of digenetic trematodes and nematodes was 67.60% and 74.64% respectively and the detected digenetic trematodes were *Apharyngostrigea ibis*, *Nephrostomum ramosum* and *Apatemon gracilis* with their infection rates of 35.2%, 18.3% and 14.1% respectively. These results were similar to those obtained by *Azim (1934&1935)* who found that *Nephrostomum ramosum* and *Apharyngostrigea ibis* recovered from *Ardeola ibis ibis* in Egypt, *Bisseru (1957)* reported *Apharyngostrigea ibis* from the intestine of buff backed heron; *Fischthal and Whittaker (1977)* who recovered *Nephrostomum ramosum* from the intestine of cattle egret; *El-Naffar and Khalifa (1975)* recovered *Apharyngostrigea ibis*, *Nephrostomum ramosum* and *Apatemon gracilis* from cattle egret.

Concerning the prevalence of the above mentioned trematodes, the obtained results were nearly similar to that recorded by *Hegazi (1978)* and *El-Sheikh and Hegazi (1984)* who reported that the prevalence of trematodes among *Ardeola ibis ibis* was 50%. *Apharyngostrigea ibis*, the present results disagreed with those obtained by *Ukoli (1967)*, *Hegazi (1978)*, *El-Sheikh and Hegazi (1984)* and *Ahmed (1994)* who recorded a

high prevalence of this species as 85% in Ghana, 47.05% in Egypt and 61.9% respectively, while for *Nephrostomum ramosum* the obtained results were nearly similar to that recorded by **Rajvanshi and Gupta (1983)** who reported the prevalence of *Nephrostomum ramosum* was 22.9% and disagreed with those of **Stuart et.al.(1972)**, **El-Sheikh and Hegazi (1984)** and **Ahmed (1994)** who recorded a high prevalence of this species 40%, 82.3% and 38.09% respectively. This variation might be attributed to the difference in the climatic condition and nature of pasture.

While the recovered nematodes were *Synhimantus invaginatus*, *Porrocaecum wui* and *Heterocheilus sp.* with their infection rates of 53.5%, 12.7% and 8.5% respectively. These results were nearly similar to that reported by **Kumar and Gupta (1979)**; **Wong and Anderson (1986)** and **Conti et.al.(1986)** where they recorded the same species from the gizzards of the cattle egret. *Synhimantus invaginatus*, the present results were nearly similar to that obtained by **Stuart et. al. (1972)** who mentioned the prevalence of this species was 47% and disagreed with that of **Whittaker et. al. (1971)** who stated that its prevalence was 5% in cattle egret. *Porrocaecum wui* the present results disagreed with that obtained by **Ahmed (1994)** who recorded the prevalence of it was 4.7%. *Heterocheilus sp.* This species was recorded for the first time in cattle egret in Egypt and this result agreed with that of **Yaochi et.al.(2000)** who recovered this worm from Ardeidae birds in Taiwan.

Regarding to the morphological description of the detected parasites, the results in this work was similar to those mentioned before by many authors as **Ali (1968)**; **El-Naffar and Khalifa (1975)**; **Hegazi (1978)**; **Kumar and Gupta (1979)**; **Ahmed (1994)**; **Yaochi et. al. (2000)** and **Desoukey (2003)**.

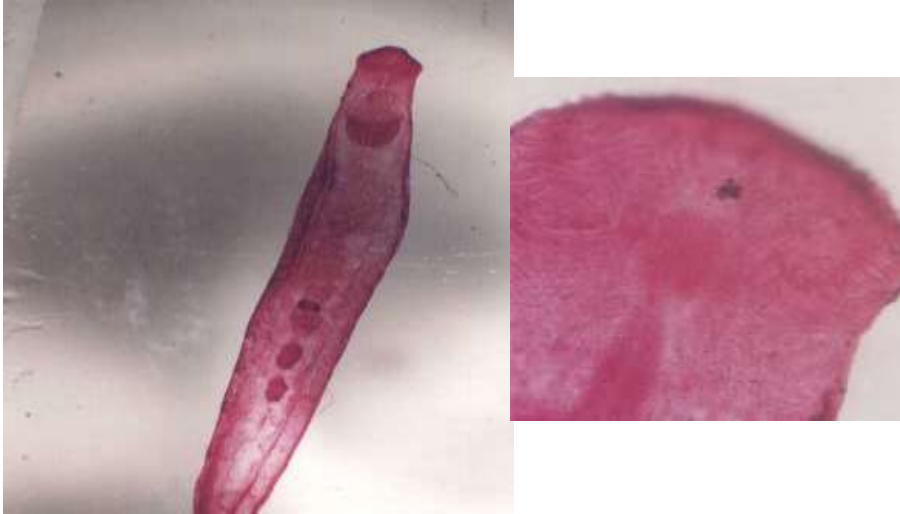




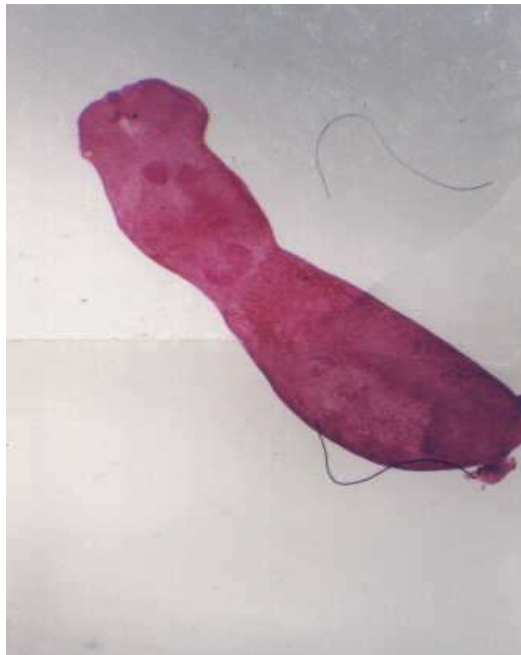
**Fig. (1):** *Menacanthus stramineus* (X 16 x12.5)



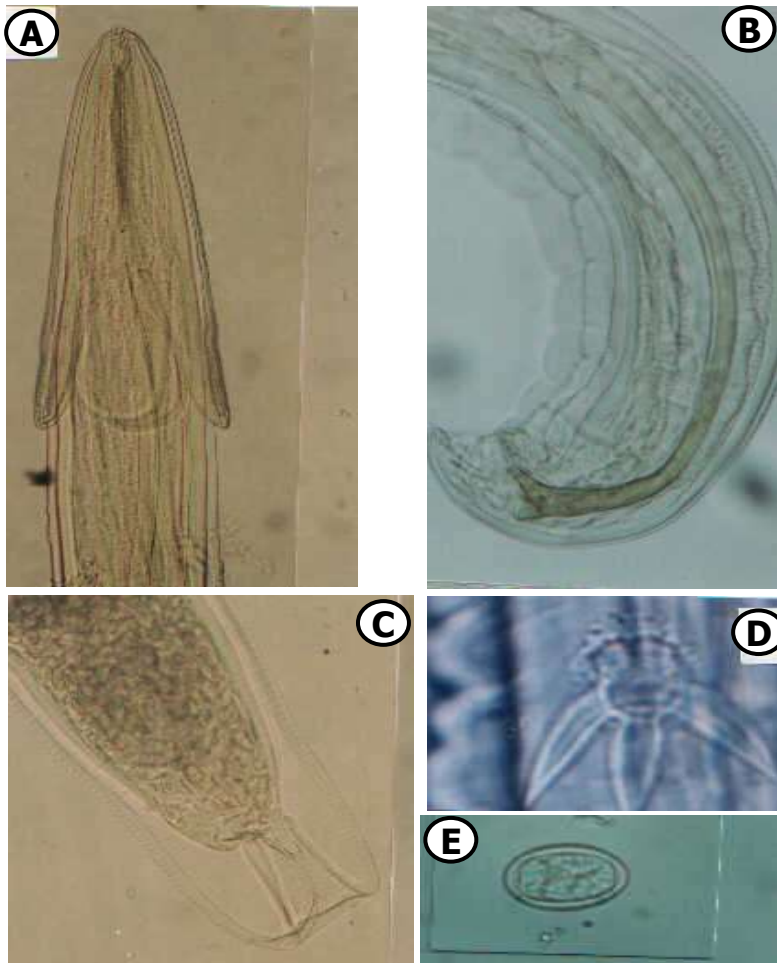
**Fig. (2):** *Apharyngostrigea ibis* (X 16 x12.5)



**Fig. (3):** *Nephrostomum ramosum* (X 16 x12.5)  
(B) Head (40x12.5)

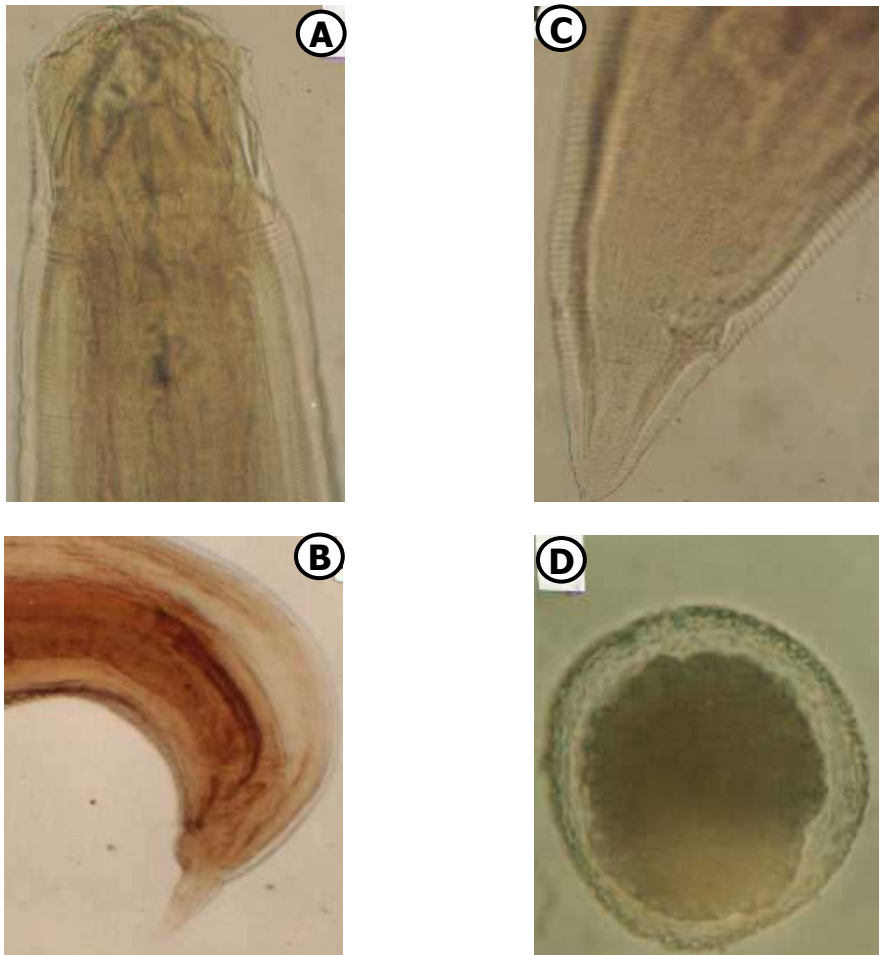


**Fig. (4):** *Apatemon gracilis* (X 16 x12.5)



**Fig. (5):** *Synhimantus invaginatus*

- (A) Anterior end (X 10x12.5)
- (B) Male posterior end (X 10x12.5)
- (C) Female posterior end (X 10x12.5)
- (D) Cervical papillae (40x12.5)
- (E) Eggs (X 10x12.5)



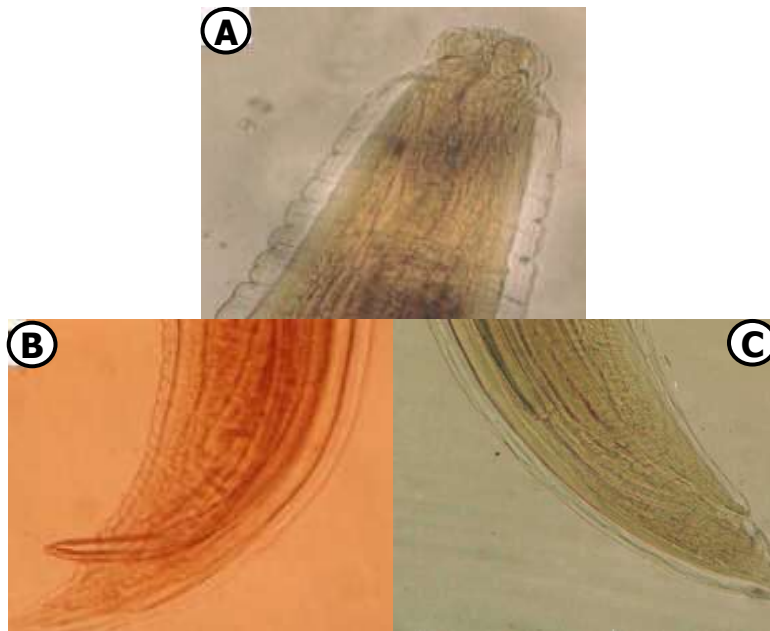
**Fig. (6):** *Porrocaecum wui*

(A) Anterior end (X 10x12.5)

(B) Male posterior end (X 10x12.5)

(C) Female posterior end (X 10x12.5)

(D) Eggs (40x12.5)



**Fig. (7):** *Heterocheilus sp.*

(A) Anterior end (X 10x12.5)

(B) Male posterior end (X 10x12.5)

(C) Female posterior end (X 10x12.5)

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دراسات عن بعض الطفيليات في أبو قردان في محافظة كفر الشيخ

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معهد بحوث صحة الحيوان بكفر الشيخ.

أجريت هذه الدراسة لإلقاء بعض الضوء علي بعض الطفيليات التي تصيب أبو قردان في محافظة كفر الشيخ. أوضحت الدراسة أن نسبة الإصابة العامة بالطفيليات كانت 3 و87%. كما أوضحت الدراسة أيضا أن نسبة الإصابة بالديدان الأسطوانية 64 و74%، بينما نسبة الإصابة بالديدان ثنائية العائل 6 و67% وكانت نسبة الإصابة بالطفيليات الخارجية 25 و42%. سبعة أنواع من الطفيليات تم تسجيلها من خلال هذه الدراسة منها 3 أنواع من الديدان الأسطوانية، 3 أنواع من الديدان ثنائية العائل ونوع واحد من القمل. تم دراسة هذه الطفيليات مورفولوجيا.



