

Isolation and diagnosis ectoparasite from *Gallinula chloropus* in AL-Diwaniyah city- Iraq

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Abstract

The current study aims to revealed the infestation of ectoparasites in Moorhen *Gallinula chloropus* .A total of 31 Moorhen are collected from different areas of Al- Diwaniyah city -Iraq during the period from March 2016 to July 2016 . After examination, the results showed the total infestation of ectoparasites is% 87.09 , five species of Biting lice are isolated . They are :*Incidifrons.fulica* %38.70, *Menacanthus stramineus* %19.35, *M.cornutus* %12.90,*Incidifrons.sp* %12.90,*Geniodes*. and *Gigas* %3.22 .

Key words: Ectoparasite ,*Gallinula chloropus* , Moorhen ,Iraq.

1.Introduction

The Moorhen *G.chloropus* which belongs to the family of Rallidae is considered as one of the aquatic birds in Iraq .It is important food source , Iraq has many types of aquatic birds which are not found in other areas of the world (Mahdi 1982).

The Moorhen spreads widely in the middle and southern Iraq because It has a high ability to withstand rainfall, humidity, temperature and wind power, these birds feed on animals, such as frogs, insects and fish in addition to grasses and plants (Yousif, 1979). Biting lice causes nuisance and discomfort

and lack of sleep .This is because the absorption of blood.Consequently cause anemia (Adang *et al.*,2008)

Beside, ectoparasites cause many irritation in the skin of the bird and thus decrease in egg production and in the rate of body weight (Khan,1976).

Chewing lice are real obligate ectoparasites, mostly parasitic on birds and mammals and they feed on feathers and skin scales , as they have many structural and behavioral mutations that helped it to spend its life correlated with the host (Horak *et al.*,2005),

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in Thi-Qar governorate identifies three different species of chewing lice from aquatic birds with infection rate %22.36 (Awad & Mohammad 2015).

In Turkey 25 lice species were recorded %13.4 on birds (Dik *et al.*, 2015), (Palma&Jensen, 2005) identify 215 species and subspecies of lice were recorded 79.5% for the Faroe Islands on birds and mammal. The aim of current study is to identify the external parasites of Moorhen in Al-Diwaniyah city.

2. Materials and Methods

During the period from March 2016 to July 2016, 31 of Moorhen *G. chloropus* are examined which are hunted from different areas of Al-Diwaniyah city. The researcher isolates ectoparasites, and examines the feathers of each Moorhen carefully. The lice are put in %10 KOH, washed with distilled water and passed in %70 ethanol. Then, they are mounted on slides in Canada balsam and examined by light microscope (Dik *et al.*, 2015)

2.1 Diagnosis

The diagnosis and the taxonomy of the parasites were explained by (Palma& Jensen, 2005; Adam, 2004 and Dik *et al.*, 2011)

The results are analysis statistically by using Chi-square under probability level $P < 0.05$ (Al-Rawi, 1984).

3. Results

In the result there are five species of biting lice on moorhen; *G. chloropus* a *Incidifrons fulicae*, *Menacanthus stramineus*, *Menacanthus cornutus*, *Incidifrons sp.*, and *Geniodes gigas*. Table (1)

It is clear from the Table (2) that the highest incidence of lice was in the binary infections where the rate of infection is %48.14 followed by triple infections in more than one type %29.62, while single infections recorded one type lowest percentage %22.22

According to the statistical comparison there is significant differences in infection models at the level of probability $P < 0.05$.

Table (3) shows the percentage of infestation of moorhen by lice by sex, where the proportion of males infection is % 80 and the proportion of females has reached %93.75. in addition, the statistical comparison shows significant differences between the sexes in susceptibility to lice at the probability level $P < 0.05$.



Fig(1) *Incidifrons fulicae*, male



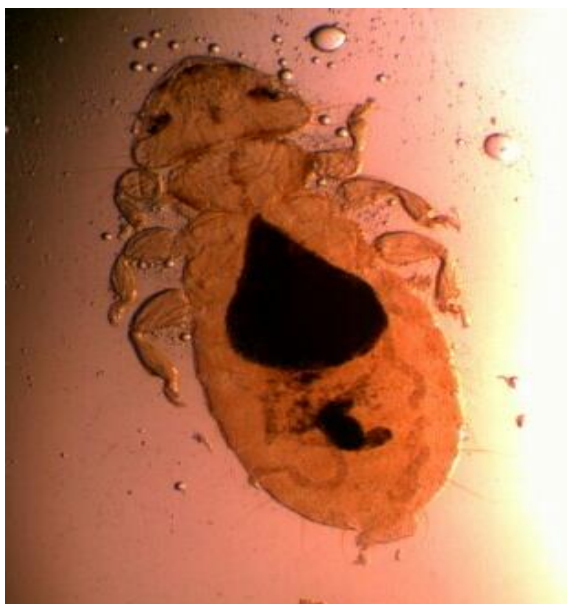
fig(2) *Incidifrons* sp. female



fig(3) *Menacanthus stramineus*, ♂



fig(4) *Menacanthus stramineus* ♀,



Fig(5) *Menacanthus cornutus*, ♀



Fig(7) *Incidifrons*.sp, ♀



Fig(6) (*Geniodes gigas* ♀

Table (1) :The isolated lice species and infection rates of the moorhen *G. chloropus* in AL-Diwaniyah city .

Parasites	Number of Examined Bird	Number of infested Bird	%
<i>Incidifrons fulicae</i>		12	38.70

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<i>Menacanthus straminus</i>	31	6	19.35
<i>Menacanthus cornutus</i>		4	12.90
<i>Incidifrons.sp</i>		4	12.90
<i>Geniodes gigas</i>		1	3.22
Total		27	87.09

Table (2): infection models of Ectoparasites in moorhen *G. chloropus* in AL-Diwaniyah city.

Model infection	Number infested	%
single	6	22.22
Binary	13	48.14
Tri	8	29.62
Total	27	87.09

Table (3): Distribution of infestation of lice according to sex.

Sex	Number Examined	Number infested	%
Male	15	12	80
Female	16	15	93.75
Total	31	27	87.09

4. Discussion

The results show that the total infection rate of lice in moorhen is %87.09 . It is agreed with Hamza *et al.*(2011) on white checked bulbul in Al-Diwaniyah. But the results of this study is higher than those recorded in the study Al-Aredhi,&Al-Mayali(2019) in aquatic birds in Al-Delmaj Marsh %55.80 , Awad& Mohammad(2015) on aquatic birds collected from Thi-Qar South of Iraq Which amounted %22.36.

The difference in recorded rates is due to different areas of study , number of birds

examined, and climatic factors that play a significant role in the disparity infection. *Incidifrons fulica* records highest infection %38.70 . This is similar somehow to the study Dik *et al.*(2011) on wild birds which was %35.48% in Turkey.

Dual infestation is more common, it is %48.14 4. The reason behind this is the weakness of host resistance, this itself is due to first infection by one types of lice infections. This is similar to findings of

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Hamza *et al.* (2011) on white checked bulbul in Al-Diwaniyah.

Menacanthus stramineus is the most common species recorded in this study (%19.35), which is very common in birds. It was isolated by Hanssan *et al.* (1989) in Mosul, %82.35 and Al-Nakshabandy (2002) in Erbil by %72.36. The reason for the high incidence of this species is due to the environment favorable for the living of bird's body lice as it is located in different parts of the body unlike other species and the speed of movement that enables him to escape from the behavior of cleaning the bird to his feathers, this attributed Jeffer *et al.* (2005). The high incidence of this species to short life cycle and the large number of eggs placed by the female, which ranges between 50-300 eggs.

In Iraq, *M. cornutus* was recorded by Anah (2010) in local chickens with an infection rate %14 and Habeeb (2000) in Basra (%26.99), and globally it was recorded by Fabiyi (1980) in Nigeria with %100 infection rate, which is high and indicates the suitability of climatic conditions for this high incidence.

Goniodes gigas is a common species, characterized by its large size, dark gray color and its presence in the back area only. Anah (2010) isolated him from chickens in Diwaniyah province and Hanssan *et al.*, (1989) in Mosul %1.96).

Globally, Fabiyi (1980) recorded in Nigeria both rural and commercial education systems. The results showed that binary infections was the most common %48.14 These results are consistent with Al-Aredhi, & Al-Mayali (2019) in aquatic birds in Al-Delmaj Marsh but differs with what pointed out by Al-Nakshabandy (2002). Moreover Anah (2010) affirming that single infections are more common than the rest of the infections.

The study also shows that the distribution of biting lice according to bird sex has significant differences among male and female birds, Females record the highest rate infection than males %93.75. This is consistent with (13). The reason for this is due to prolonged survival in the nest, concern bosom and cared for their young. This makes female as more vulnerable to infection than males.

The result is differing with Al-Aredhi, & Al-Mayali (2019) who noted no significant differences between aquatic birds sex and infestation of parasites Brown (1972) in excluding the sex effect of ectoparasites in birds and with Permin *et al.*, (2002) in Zimbabwe and Njunga (2002) in Malawi. They indicated that all samples of the birds examined had been infected.

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