



## Chewing lice parasitic on little egret *Egretta garzetta* birds collected from Al-Diwaniyah Province, Iraq

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### Abstract

This study was carried out to determine chewing lice species of Little egret (*Egretta garzetta*) birds for the period from April until July 2019 for this aim a total of 89 specimens were collected from different parts in Al-Diwaniyah province /Iraq. Five species of chewing lice recorded in this study were: *Ciconiphilus decimfasciatus*, *Pseudomenopon pilosum*, *Ardeicola expallidus*, *Menopon galline* and *Austromenopon transversum*. Results of this study showed no significant differences were recorded at ( $P \geq 0.05$ ) between both genders of birds in infestation rate with chewing lice while a significant differences was recorded at ( $P \leq 0.05$ ) in infestation type, the double infestation was the highest (47.05%) followed by single and triple infestation rate (35.29) and (17.64) respectively.

**Keywords:** chewing lice, little egret, Al-Diwaniyah province, Iraq

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### INTRODUCTION

There are about 8600 species of birds distributed over 20 orders, and they are one of the important sources of animal protein that humans adopt in the world (Permin and Hansen, 1998), also contributes to biological control by feeding on insects harmful to humans, animals and plants, as well as use of wastes to fertilize crops and orchards (Frantovo, 2000), birds were infested with many external parasites, the most important of which chewing lice, which are a permanent obligate parasites, parasitize on birds and mammals, have many behavioral and structural modification that helped them to spend their life with host (Horak *et al.*, 2005, Ghasemina, *et al.*, 2016).

Chewing lice cause severe irritation in the skin of birds as a result of feeding on parts of feathers, scales, skin secretions, skin tissue debris and dry coagulated blood at the site of infestation (Ford *et al.*, 2004), Moreover, its movement on the skin by the claws of the legs causes severe nervous tension of the infested birds, which prevents them from falling asleep, causing loss of appetite, a decrease in the body weight and lack of egg production, which makes them weak and vulnerable to infection with many diseases (Whiteman and Parker, 2004), In addition, lice may act as reservoir and vectors host for pathogens such as those that cause avian cholera and typhoid (Saxena *et al.*, 1985).

Bird chewing lice have been studied in many parts of the world, Dik *et al.* (2017) recorded 35 species of chewing lice on birds in Turkey, including *Menacanthus camelinus*, *Menacanthus curuccae*, *Philoapterus*

*desertus*, *Brueelia cruciate*, *Ardeicola celeris*, *Lipeurus caponis*.

In Iraq, Hatem *et al.* (2017) who reported seven species of chewing lice were: *Fulicoffula gallinula*, *Anaticola crassicornis*, *Pseudomenopon pilosum*, *Trinoton querquedulae*, *Fulicoffula lurida*, *Anatoecus icterodes* and *Ciconiphilus decimfasciatus* parasitic on *Calidris alpine*, *Fulica atra*, *Anas platyrhynchos* and *Anas domesticus* in Basrah province, Al-Aredhi and Al-Mayali (2019) who found migratory aquatic birds that were collected from Al-Delmaj marsh infested with nine species of chewing lice were: *Menacanthus corntus*, *Saemundssonina lari*, *Columbicola columbae*, *Trinoton querquedulae*, *Anaticola crassicornis*, *Menacanthus stramineus*, *Fulicoffula gallinule* *Menacanthus eurysternus* and *Menopon gallinae*, The aim of current study to isolate and identify chewing lice fauna of little egret in Al-Diwaniyah province.

### MATERIALS AND METHODS

#### Collect Samples

A total of 89 little egret birds (41 males and 48 females) were collected by hunting rifles from different areas in Al-Diwaniyah province/ Iraq, for period from April until July 2019, The birds were transported by refrigerated cork to the laboratory of parasite in the

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**Table 1.** Chewing lice species isolated from little egret birds in Al-Diwaniyah city

Lice species	No. infested	Percentage
<i>Ciconiphilus decimfasciatus</i> ,	51	57.30
<i>Pseudomenopon pilosum</i>	44	49.43
<i>Ardeicola expallidus</i>	31	34.83
<i>Menopon galline</i>	28	31.46
<i>Austromenopon transversum</i>	17	19.10



**Fig. 1.** *Ciconiphilus decimfasciatus*



**Fig. 2.** *Pseudomenopon pilosum*



**Fig. 3.** *Ardeicola expallidus*

biology department, faculty of education, Al-Qadisiyah university and classify according to (Allouse 1960).



**Fig. 4.** *Menopon galline*



**Fig. 5.** *Austromenopon transversum*

### Samples Examination

Examination of the birds feathers with naked eye and magnifying glass and preserved isolated chewing lice in ethanol70%, cleared in KOH 10% and washed with distilled water, then mounted on slides by using Canada balsam and examined by light microscope (Dik and Uslu, 2011), identification of chewing lice species done according to Price *et al.* (2003).

### Statistical Analysis

Results were analyzed by using chi-square test at ( $P < 0.05$ ) (Al-Rawi, 1984).

### RESULTS

The current study revealed that chewing lice were found on 51 of the 89 specimens of birds with infestation rate 57.30% and five species of chewing lice were identified from little egret birds: *Ciconiphilus decimfasciatus*, *Pseudomenopon pilosum*, *Ardeicola expallidus*, *Menopon galline* and *Austromenopon transversum* as **Table 1** and **Figs. 1-5**.

No significant differences were recorded at ( $P \geq 0.05$ ) between both gender of birds in chewing lice infestation as **Table 2**.

A significant difference was recorded at ( $P \leq 0.05$ ) in infestation type, the double infestation was the highest (47.05%) followed by single and triple infestation rate (35.29) and (17.64) respectively as **Table 3**.

**Table 2.** Infestation percentages of chewing lice species according to gender

Gender	No. examined	No. infested	percentage
Male	41	23	56.09
Female	48	28	58.33
Total	89	51	57.30

**Table 3.** Infestation type of chewing lice in examined birds

Infestation type	No. infested	percentage
Single	18	35.29
Double	24	*47.05
Triple	9	17.64
Total	51	

\*indicate a significant difference using Chi square test at (P <0.05)

## DISCUSSION

There are about 4000 lice species have been reported in the birds of worldwide (Price *et al.*, 2003), (Khalaf, 1959) was the first record chewing lice in Iraq and make a list of isolated lice from mammals and birds, (Abul-hab 1975) collected ten species of chewing lice from chickens and pigeons in Baghdad province and gave an accurate description of these

Species, then studies continued on chewing lice infested wild birds but studies for chewing lice of aquatic birds in Iraq are few and limited to the studies of (Mohammed, 2014) who study chewing lice on aquatic birds in Thi-Qar Province, Hatem *et al.* (2017) in Basrah province and Al-Aredhi and Al-Mayali (2019) in Al-Diwaniyah province.

The infestation rate of chewing lice in this study 57.30%, This is lower than 76% recorded by Hatem *et al.*, (2017) and higher than the 22.90% recorded by Mohammad (2014), difference in recorded rates due to different types and numbers of birds examined, geographical location and climatic conditions that may play important role in the high or low rate of infestation

(Al-Barwari and Saeed, 2012), in addition Felso and Rose (2006) revealed ecology and behavior of birds play an important role in infestation and noted birds which dove underwater had a fewer genera of chewing lice compared than non-diving.

In this study five species of chewing lice reported were: *Ciconiphilus decimfasciatus*, *Pseudomenopon pilosu*, *Ardeicola expallidus*, *Menopon galline* and *Austromenopon transversum* these result agreement with both Dik and Halajian (2013) who recorded eleven species of chewing lice in six species birds including little egret in Iran, nine species of them reported for the first time were: *Aquanirmus podicipis*, *Pseudomenapan dolium*, *Ardeicola sp.*, *Menacanthus sp.*, *Ciconiphilus decimfasciatus*, *Austromenopon ransversum*, *Hohorstiella lata*, *Pectinopyrgus gyricornis*, *Colpocephalu turbinatum* and Temimi *et al.* (2017) in Algeria who isolated *Ardeicola expallidus* and *Ciconiphilus decimfasciatus* from little egret.

There was no significant differences at (P ≥ 0.05) between both gender of birds in the infestation rate with chewing lice, this agrees with Permin *et al.* (2002) in Zimbabwe who revealed that similar rate of infestation in male and female chickens because of living them in the same place and meet during mating.

Results of this study showed double infestation was the highest (47.05%), These results are consistent with the study of Dovic *et al.* (2004) who revealed that double infestations with two species of chewing lice are more distributed than other infestation, also Hamza *et al.* (2011) explained the high infestation with two species of chewing lice in *Pycnonotus leucotis* may be due to severe infestation with one species of lice may encourage infestation with other species of lice due to the weakening of the immune system of birds.

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