

**RECORDS OF CHEWING LICE (PHTHIRAPTERA: INSECTA) OF FOWLS
(GALLIFORMES: PHASIANIDAE) OF FAMILY MENOPONIDAE (AMBLYCERA)
AND PHILOPTERIDAE (ISCHNOCERA) FROM HYDERABAD, SINDH, PAKISTAN**

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Abstract

The chewing lice (Insecta: Phthiraptera) are the communal parasitic insects of different types of avian fauna of family Phasianidae (Galliformes) and are wide spread on gallinaceous birds. They are the ectparasites of both domestic and wild birds. The order Phthiraptera has been divided mainly into two groups according to their feeding habits, the chewing lice (Mallophaga) and the sucking lice (Anoplura). Chewing lice with their huge head and mandibles include the major group with more than 3000 species. The chewing lice order (Phthiraptera: Insecta) cover of three suborders, Amblycera, Ischnocera and Rhynchophthirina. This captivating group of parasitic insects has rich veterinary importance. During present investigation 150 birds of large sized fowls belonging to family Phasianidae were observed for the collection and identification of chewing lice population, amongst which 121 birds were infested with chewing lice. These birds included *Pavo cristatus* L. (Peafowls), *Meleagris gallopavo* L. (Turkey fowls), *Numida melagris* L. (Guinea fowls) and different breeds of *Gallus gallus* L. (Domestic fowls). Presently 09 species were reported during the year of 2014-2017 from Hyderabad, Sindh, Pakistan. A total of 1264 specimens of parasites were collected and classified into 07 genera during the reporting period.

Keyword: Menoponidae, Philopteridae, Amblycera, Ischnocera, Fowls, Hyderabad.

INTRODUCTION

Family Phasianidae (Aves: Galliformes) is a large family of the avian order Galliformes includes pheasants, domestic fowls, partridges, quails (Batairs), red jungle fowls, turkey fowls, peafowls and guinea fowls (Roberts, 1991 and Grimmett *et al.*, 2012). Phasianidae is the largest family of the order Galliformes, includes more than 150 birds species (Kimball *et al.*, 1999). A variety of fowls of this family are terrestrial, sedentary, resident, colorful, attractive versatile and beautiful birds their habitat and life style is different from other birds (Gowan, 1994). Members of the insect order Phthiraptera are commonly called lice that include both sucking lice and chewing lice. These are parasitic insects found on most orders of birds and mammals. Chewing lice are divided into three suborders, Amblycera, Ischnocera and Rhynchophthirina of which the suborder Amblycera are considered the most primitive (Clay, 1970; Loyal, 1985). The chewing lice species of suborder Amblycera are active and fast runners and are classified in seven families, Ricinidae, Menoponidae, Laemobothriidae, Trimenoponidae, Abrocomophagidae, Boopiidae and Gyropidae, in which first three families are only found on birds. The chewing lice species of suborder Ischnocera are slow moving or usually attached with feathers of hosts birds, comprises of families, the Philopteridae, Heptapsogasteridae and Trichodectidae in which first two families parasitize all orders of birds, excepting one genus of Philopteridae, *Trichophilopterus* that parasitizes Primates (Mammalia) only. Whereas a family Trichodectidae, is completely infesting mammals (Lakshminarayana, 1979; Palma and Barker, 1996; Price *et al.*, 2003). Since Pakistan, only few species of galliform birds from northern areas of Punjab have been collected and studied in order to identify their chewing lice fauna. About 150 species of chewing lice have been recovered and reported from Punjab (only Faisalabad) (Ansari, 1947). There is no significant work done in Sindh region or other parts of Pakistan, except one of few chewing lice species (Naz *et al.*, 2011). These fowls or Poultry birds have great economic importance by covering the nutritional requirements of man. The millions of fertilized eggs of Phasianid fowls are using every year to produce vaccine of annual flu requirements, and the bird guinea fowl keeps in the vegetable garden for clearing of pest by eating the ticks that carry Lyme disease (Jacob *et al.*, 2014). These birds have great diversity in their behaviors and feeding habits. Poultry and chickens are house trained birds which are reared by humans for production of eggs, meat and their feathers. These game birds are easy to rear and handle by householders usually all over the world (Buckland and Guy, 2014). The domestic fowls and their breeds anchorage numerous ectoparasites, like ticks, mites, fleas, flies, bugs and chewing lice. The chewing lice of fowls create extra complications to birds when they are in enormous number and through poor health. They become a main reason of annoyance, irritation, insomnia, flagging, agitation, and decrease in weight, disruption in feeding and propagation habits, shortage in egg and meat production, simple anemia and skin scratches and abrasions may also be a source of secondary infections in these ground birds. Chewing lice (Phthiraptera) are wingless, parasitic insects, have mouthparts with strong mandibles and vary in length from 0.1 to 11mm; coloration

of lice differs from yellow and brown to black. These lice have a high capability to develop host specificity with their hosts. This attractive group of chewing lice or parasitic insects has a pronounced importance in the study of taxonomy, economy and veterinary science in Pakistan as well as the world around.

MATERIALS AND METHODS

The chewing lice have been collected, identified and preserved on microscopic slides through standard method of mounting. The identification of hosts has been followed by (Howard and Moore, 1991). All collected specimens have been deposited in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan.

RESULTS AND DISCUSSION

A total of 09 chewing lice species have been recovered and identified from fowls (Galliformes: Phasianidae). There are 05 species of lice belongs to family Menoponidae (Amblycera: Phthiraptera) and 04 species belong to Philopteridae (Ischnocera: Phthiraptera) from Hyderabad, district, Sindh, Pakistan.

Order: Phthiraptera Haeckel, 1896
 Suborder: Ischnocera Kellogg, 1896
 Family: Philopteridae Burmeister, 1838
 Genus: *Chelopistes* Keler, 1939

***Chelopistes meleagridis* (Linnaeus, 1758)**

Philopterus stylifer Nitzsch, 1818: 294.

08 ♂♂, 13 ♀♀; present study host, *Meleagris gallopavo* (Linnaeus, 1758) (Turkey fowl); 25- ii- 2013, 07- iv- 2014; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan; new host and new locality record.

Genus: *Colpocephalum* Nitzsch, 1818

***Colpocephalum tausi* (Ansari, 1951)**

Galliferrisia tausi Ansari, 1951: 151.

18 ♂♂, 32 ♀♀; present study host, *Pavo cristatus* (Linnaeus, 1578) (Indian Peafowl); 28- ii- 2013, 27- iv- 2014; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan; new locality record.

Genus: *Goniocotes* Burmeister, 1838

***Goniocotes gallinae* (De Geer, 1778)**

Philopterus hologaster Nitzsch, 1818: 294.

83 ♂♂, 112 ♀♀; present study host, *Gallus gallus domesticus* (Domestic fowl and its breeds including Aseel and Misri chicken) and *Numida meleagris* Linnaeus, 1758 (Guinea fowl); 15- iv- 2014, 09- iii- 2015; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan; new host and new locality record.

Genus: *Goniodes* Nitzsch, 1818

***Goniodes dissimilis* Denny, 1842**

Goniodes dissimilis Denny, 1842: 57; Piaget, 1880: 269.

109 ♂♂, 139 ♀♀; present study host; *Gallus gallus domesticus* Linnaeus, 1758 (Domestic fowl, breeds, Aseel chicken, Misri chicken, Sonali chicken, which is a cross breed) *Meleagris gallopavo* Linnaeus, 1758 (Turkey fowl) and *Pavo cristatus* Linnaeus, 1758 (Peafowl); 20- v- 2014, 09- vi- 2015; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan; new host and new locality record.

Genus: *Lipeurus* Nitzsch, 1818

***Lipeurus tropicalis* Peters, 1931**

Lipeurus tropicalis, Peters, 1931: 195.

23 ♂♂, 32 ♀♀; present study host, *Meleagris gallopavo* (Linnaeus, 1758) (Turkey fowl) and *Pavo cristatus* Linnaeus, 1758 (Peafowl); 18- iii- 2015, 09- iv- 2016; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan; new host and new locality record.

Suborder: Amblycera Kellogg, 1896

Family: Menoponidae Mjöberg, 1910

Genus: *Menacanthus* Neumann, 1912

***Menacanthus abdominalis* (Piaget, 1880)**

Uchida abdominalis Ansari, 1951: 135.

08 ♀♀; present study host, *Numida melegris* (Linnaeus, 1758) (Guinea fowl); 17- viii- 2015, 10- v- 2016; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan; new host and new locality record.

***Menacanthus pallidulus* (Neumann, 1912)**

Menacanthus pallidulus Neumann, 1912: 361.

68 ♂♂, 86 ♀♀; present study host, *Gallus gallus domesticus* Linnaeus, 1758 (Domestic fowl its breeds Aseel chicken and Sonali chicken) *Meleagris gallopavo* Linnaeus, 1758 (Turkey fowl) and *Pavo cristatus* Linnaeus, 1758 (Peafowl); 14- ii- 2014, 20- xii- 2015; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan, new host record and new locality record.

***Menacanthus stramineus* (Nitzsch, 1818)**

Zemiods zumpti Eichler, 1944: 172.

121 ♂♂, 138 ♀♀; present study host, *Gallus gallus domesticus* Linnaeus, 1758 (Domestic fowl its breeds Aseel chicken, Misri chicken, Sonali chicken) *Pavo cristatus* Linnaeus, 1758 (Peafowl), *Numida melegris* Linnaeus, 1758 (Guinea fowl) and *Meleagris gallopavo* Linnaeus, 1758 (Turkey fowl); 18- ix- 2016, 22- xii- 2017; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan; new host and new locality record.

Genus: *Menopon* Nitzsch, 1818

***Menopon gallinae* (Linnaeus, 1758)**

Pediculus gallinae Linnaeus, 1758: 613.

124 ♂♂, 150 ♀♀; present study host, *Gallus gallus domesticus* Linnaeus, 1758 (Domestic fowl its breeds Misri chicken and Sonali chicken) *Numida melegris* Linnaeus, 1758 (Guinea fowl); 22- xi- 2017, 28- xii- 2017; leg. Shaikh, F. and Naz, S.; kept in the Museum of Parasitology, APRL, Department of Zoology, University of Sindh, Jamshoro Sindh, Pakistan; new host and new locality recorded.

Fowls belonging to the family Phasianidae (Galliformes) are important group of game birds, used as main source of food, sports, recreation, ecotourism and an ecological bio-factor. Family Phasianidae includes partridges, fowls, quails and pheasants (Sychra *et al.*, 2008). Ever since, the parasites are an integral part of life of animals therefore making the study interesting. They form significant, however generally overlooked, constituent of the biodiversity of ecosystems. There are more species of parasites than free living organism and it is not common for birds and related with aquatic and terrestrial habitats, to be infested with variety of species of parasites (Carriker, 1967; Emerson, 1972). Family Menoponidae Mjöberg, 1910 (Suborder: Amblycera) comprised of nine genera and family Philopteridae Burmeister, 1838 (Schnocera: Schnocera) comprised of eleven genera. During present investigation, 05 species of family Menoponidae were recovered which are *Menacanthus stramineus* (Nitzsch, 1818), *Menacanthus pallidulus* (Neumann, 1912), *Menacanthus abdominalis* (Piaget, 1880) *Menopon gallinae* (Linnaeus, 1758) and *Colpocephalum*

tausi (Ansari, 1951); 04 species of family Philopteridae were recovered which including *Lipeurus tropicalis* (Peters, 1931), *Chelopistes meleagridis* (Linnaeus, 1758), *Goniodes dissimilis* (Denny, 1842), and *Goniocotes gallinae* (De Geer, 1778). The purpose of the present study is to find out the chewing lice infestation among the fowls variety, which are being palatably eaten by most people of Sindh province.

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(Received in November 2021 and accepted for publication in December 2021)