A Faunistic Survey on the Bird Helminth Parasites and Their Medically Importance

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Abstract
Khuzestan province in the south west of Iran having several seasonal and permanent lagoons which are shelter for domestic and migratory birds including, fish-eating birds. This research study was carried out to find the intestinal helminth parasites of birds in this ecosystem and evaluation of their medically importance with emphasis on heterophyid trematodes. For these reasons, the total of 37 birds including; Himantopus himantopus, Fulica atra, Egretta græzetta, Bubulcus ibis, Ceryle rudis, Vanellus indicus, Vanellus vanellus, Charadrius sp., Calidris sp. and Saher (Local name) were hunted and transported to Ahwaz Health Research Center as alive or freshly dead after having been shot. Helminthes collected as alive or dead and fixed in ethanol or formaldehyde. Parasites were identified using morphometric measurements and morphological descriptions. 24 species of intestinal helminth parasites were found as follow: trematodes (Haplorchis taichui, Haplorchis pumilio, Stellantchasmus falcatus, Centrocestus formosanus, Psiloterma marki, Echinostoma revolutum, Parechinostomum cinctum, Echinocotyle nitida, Spiniglans microsoma, Gyrocoelia infula, Infula burhini, Dirorchis tringae, Echinocotyle nitida, Spinglamis microsoma). These results have suggested that, the birds are reservoir for helminth parasitic diseases such as heterophyiasis for man and animals in the areas. These helminthes are reported for the first time in the region.

Keywords: Bird helminth, Parasites, Iran

Introduction
Khuzestan province in the south west of Iran has many seasonal lagoons including; Mazreeh, Shadegan, Hofel, and Sobhanieh, and a large permanent lagoon Horolazim as well. Many birds such as fish eating-birds make nests in the lagoons. These birds are Himantopus himantopus, Fulica atra, Egretta græzetta, Bubulcus ibis, Ceryle rudis, Vanellus indicus, Vanellus vanellus, Charadrius sp., Calidris sp. and Saher (Local name). Snail species as Melanoides tuberculata and Melanopsis spp. are frequent and infected with heterophyidae cercariae (1). Furthermore, fish species such as Barbus grypus, B. lates, Cyprinus carpio and Liza abu are common in the lagoons of the region and infected with heterophyid metacercaiae (2). The lagoons, which are the most important rural fisheries resources, have very important ecological effects on man and animal parasites. Previous studies have shown heterophyiasis (fish- born disease) and cercarial dermatitis in man and animals in Khuzestan province (3-6). Also the author has reported anisakidae helminth parasites including Anisakis sp. and Contraeacumin sp. from fish in this region (7). Despite being a common birds in the lagoons of province, no available information on the helminth fauna in the region. Following two previous project of the author regarding, “Cercariae fauna of fresh water snails” and “Helminth fauna of fish” in Mazreeh lagoon from Khuzestan province, the present study was carried out to find the helminth fauna of the birds especially heterophyidae parasites in this
ecosystem and evaluation of their public health hazard.

**Materials and Methods**

Thirty seven birds including: 11 *Himantopus himantopus*, 4 *Fulica atra*, 4 *Egretta grazetta*, 2 *Bubulcus ibis*, 4 *Ceryle rudis*, 3 *Vanellus indicus*, 2 *Charadrius sp.*., 2 *Calidris sp.*., 4 *Vanellus vanellus* and 1 Saher (Local name) were hunted and collected from Mazreeh lagoon, near the Mazreeh village (heterophyiasis diseases site) and transported to Ahwaz Health Research Center as alive or freshly dead after having been shot. The birds were autopsied and their digestive tracts were removed, dissected, washed, scratched and searched carefully for parasites. Helminths were collected as alive or dead and fixed in 70% ethanol or 10% formaldehyde and cleared in lactophenol or stained with azocarmin. Drawings were made with aid of a leica microscope drawing attachment (camera lucida) and parasites were identified using morphometric measurements and morphological descriptions from previously published studies (8-11). In this paper, “prevalence” is defined as the percentage of hosts infected with one or more individuals of a particular parasite species out of the total number of hosts examined for that parasite species. Intensity is defined as the total number of parasites of a particular species found in a sample. All measurements are presented in microns.

**Results**

From the total of examined birds in this survey, 37 (100%) contained nematodes, cestodes or trematodes parasites. The study of birds of the lagoon has shown a high rate of infection (100%) with helminth parasites as follows: 15 trematodes (*Haplorchis taichui*, *Haplorchis pumilio*, *Stellantchasmus falcatus*, *Centrocestus formosanus*, *Psiloterma marki*, *Echinostoma revolutum*, *Parechinostomum cinctum*, *Echinochasmus coxatus*, *Paramonostomum alveatum*, *Uvitellina pseudocotylea*, *Cyclocoelum mutabile*, *Apharyngostrigea cornu*, *Cardiocephallus brandesi*, *Cotylurus cornutus*, *Pseudostrigea buteonis*), 4 nematodes (*Amidostomum fuligulae*, *Cosmoccephalus diesingii*, *Microtetrameres accipiter*, *Strongyloides minimus*) and 5 cestodes (*Gyrocoelia perversa*, *Infula burhini*, *Diorchis tringae*, *Echinocotyle nitida*, *Spiniglans microsoma*). These helminths are reported for the first time in this region. The most abundant helminths with highest intensity was *Diorchis tringae* followed by heterophyid species. The results of prevalence and intensity of helminth infections in the examined birds are given in Figures 1-2 and parasites drawing pictures are shown in Fig. 3.
Fig. 2: Intensity of helminth parasites of 37 examined birds in Khuzestan province, south western Iran

Fig. 3: Drawing pictures of parasitic helminthes from the birds of Khuzestan province, south western Iran
Cotylurus cornutus  Cardiocephalus brandesi  Apharyngostrigea cornu

Uvitellina pseudocotylea  Paramonostomum alveatum  Echinochasmus coaxatus

Parechinostomum cinctum  Echinostoma sp  Echinostoma revolutum