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مباحث پیشرفته یادگیری عمیق؛
شبکه های توجه گرافی
(Graph Attention Networks)



کارگاه آنلاین آموزش استفاده از
وب آو ساینس



کارگاه آنلاین مقاله روزمره انگلیسی

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 gazetta*, *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*, *Echinochasmus coaxatus*, *Paramonostomum alveatum*, *Uvitellina pseudocotylea*, *Cyclocoelum mutabile*, *Apharyngostrigea cornu*, *Cardiocephalus brandesi*, *Cotylurus cornutus*, *Pseudostrigea buteonis*) and nematodes (*Amidostomum fuligulae*, *Cosmocephalus diesingii*, *Microtetrameres accipiter*, *Strongyloides minimus*) and cestodes (*Gyrocoelia perversa*, *Infula burhini*, *Dirorchis tringae*, *Echinocotyle nitida*, *Spiniglans 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 gazetta*, *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. lateus*, *Cyprinus carpio* and *Liza abu* are common in the lagoons of the region and infected with heterophyid metacercariae (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 *Contracaecum* 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 gazetta*, 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 para-

sites 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 coaxatus*, *Paramonostomum alveatum*, *Uvitellina pseudocotylea*, *Cyclocoelum mutabile*, *Apharyngostrigea cornu*, *Cardiocephallus brandesi*, *Cotylurus cornutus*, *Pseudostrigea buteonis*), 4 nematodes (*Amidostomum fuligulae*, *Cosmocephalus diesingii*, *Microtetrameres accipiter*, *Strongyloides minimus*) and 5 cestodes (*Gyrocœlia perversa*, *Infula burhini*, *Dirorchis tringae*, *Echinocotyle nitida*, *Spiniglans microsoma*). These helminths are reported for the first time in this region.

The most abundant helminths with highest intensity was *Dirorchis 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.

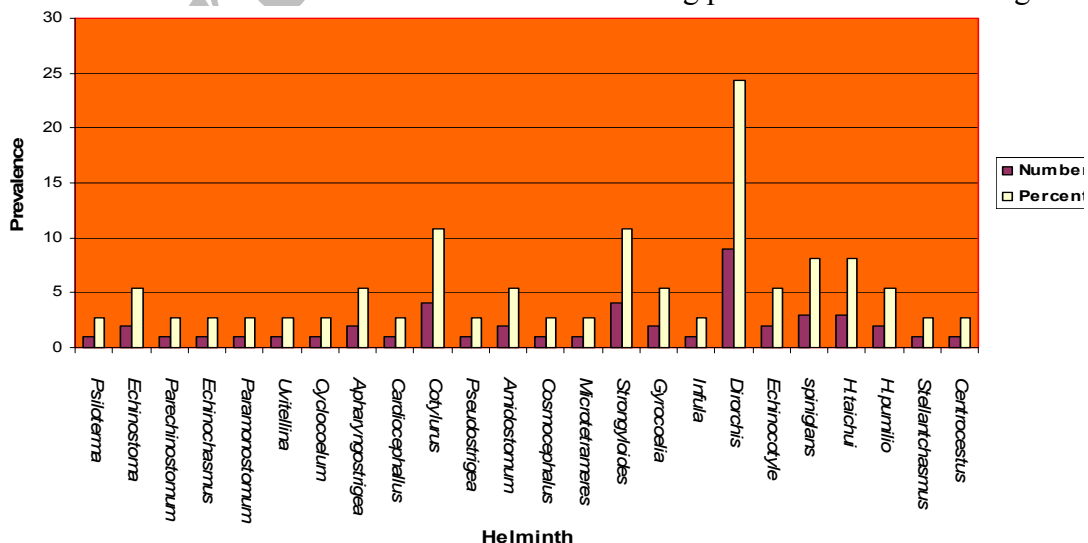


Fig. 1: Prevalence of helminth parasites of 37 examined birds in Khuzestan province, south western Iran

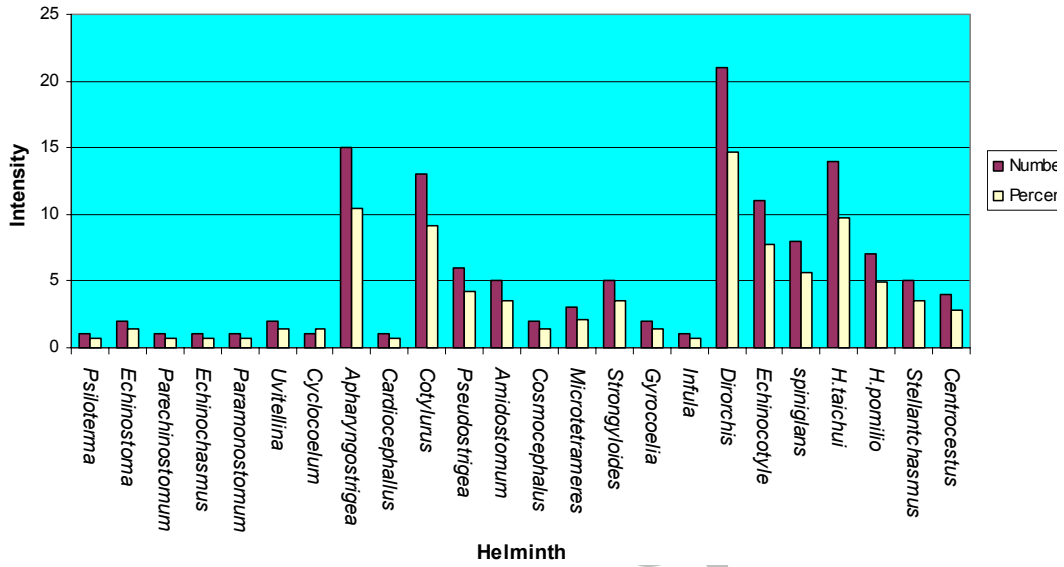


Fig. 2: Intensity of helminth parasites of 37 examined birds in Khuzestan province, south western Iran

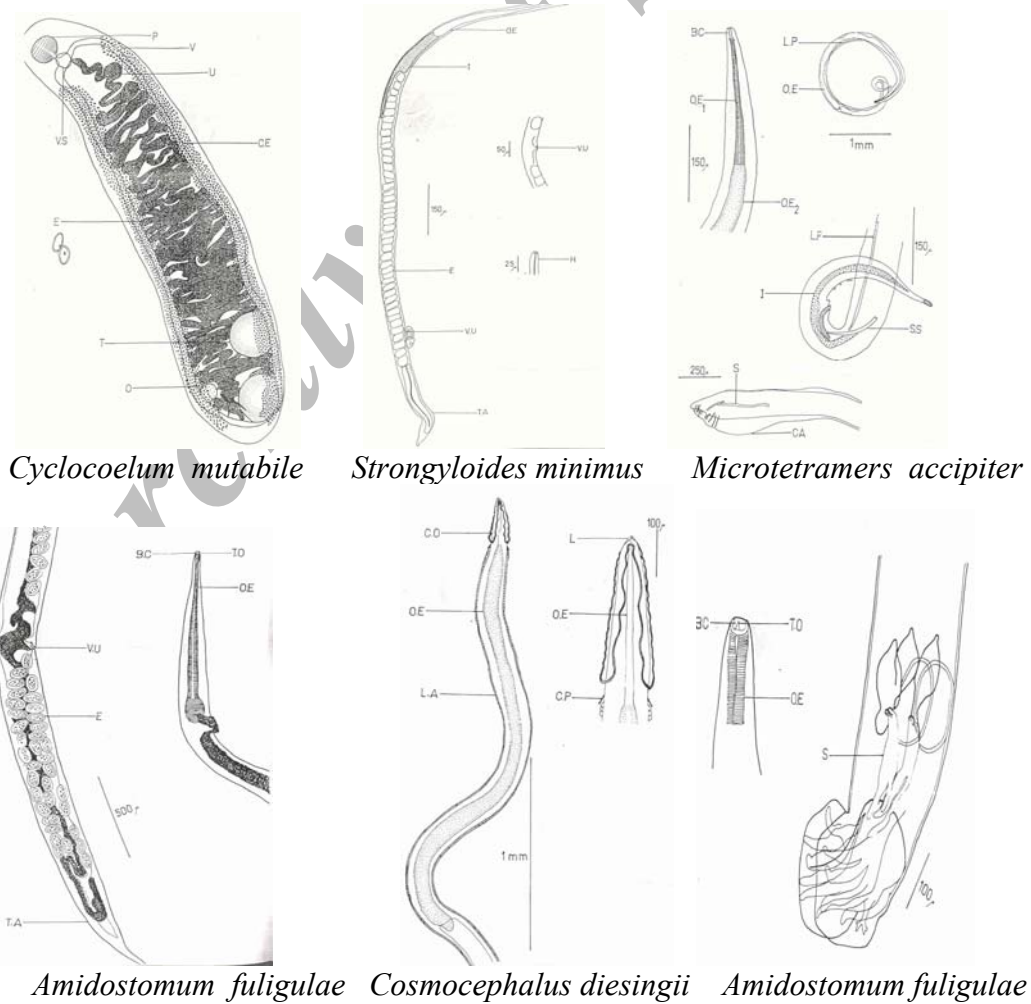
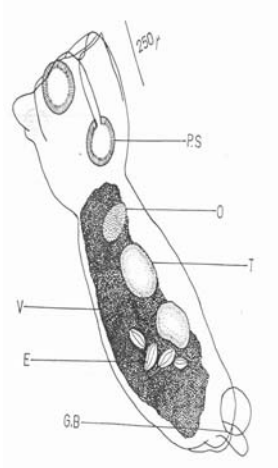
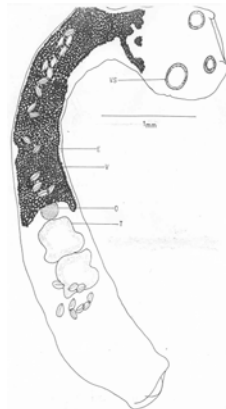


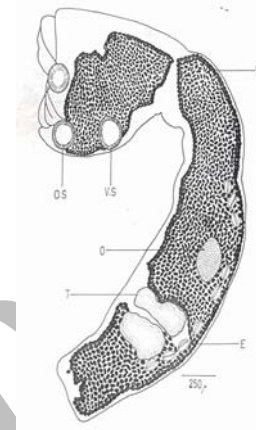
Fig. 3: Drawing pictures of parasitic helminthes from the birds of Khuzestan province, south western Iran



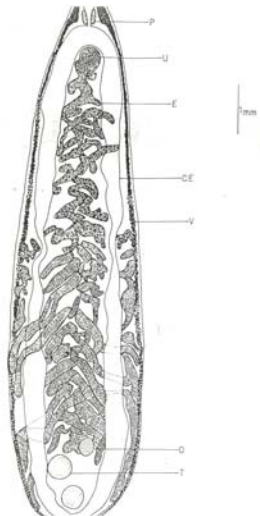
Cotylurus cornutus



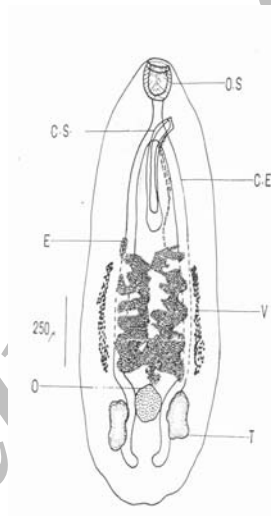
Cardiocephalus brandesi



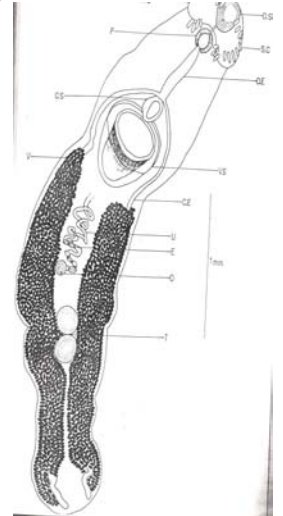
Apharyngostrigea cornu



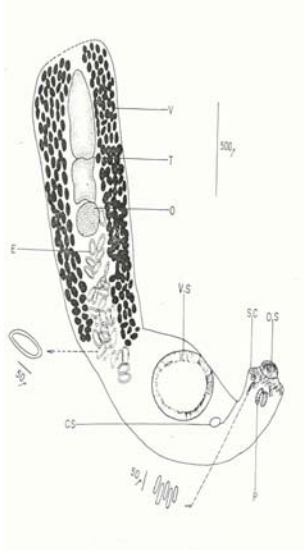
Uvitellina pseudocotylea



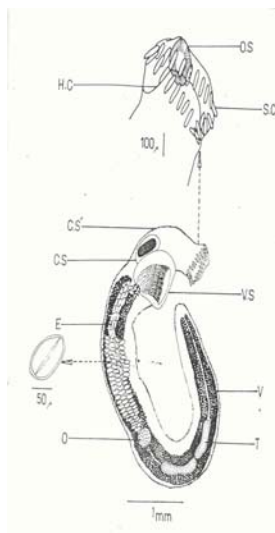
Paramonostomum alveatum



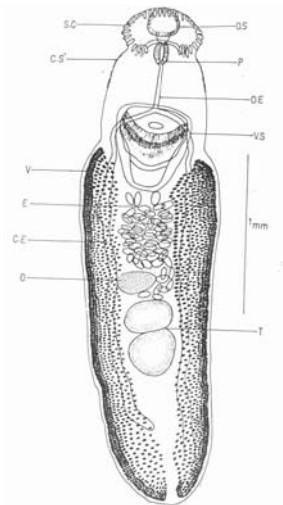
Echinochasmus coaxatus



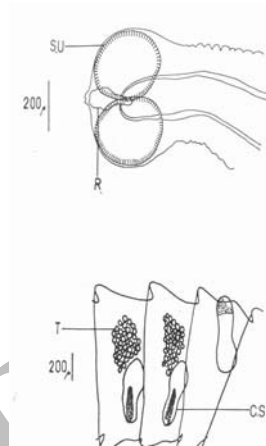
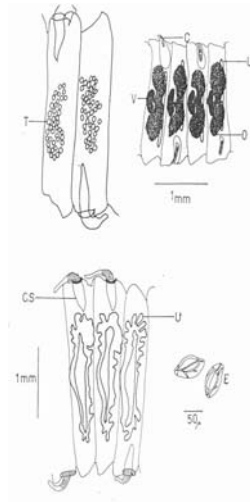
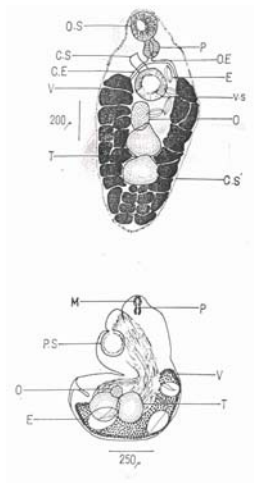
Parechinostomum cinctum



Echinostoma sp.



Echinostoma revolutum



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