

Synopsis of the Parasites in Iranian Freshwater Fishes

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Abstract

Two hundred forty seven species of parasites from Iranian freshwater fishes are presented in this synopsis. The parasites were recorded from infestations in fish from different parts of the country and summarized according to host species, organs where the parasite infestations occurred, province, faunal region and reference numbers. The following aspects of parasite infestations were also discussed: records of the most predominant parasites, the richest regions of parasite fauna, records of parasites according to province and the most severely infected fish species and finally host specificity in terms of exotic or endemic fish.

Keywords: Parasites, , Freshwater, fish, Iran

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Introduction

Iranian freshwater fish habitats can be categorized according to three different faunal regions: the Ponto-Caspian Territory of northern Iran, as a part of the Palaearctic zone; southeastern Iran that is greatly influenced by the Indian faunal region, and southwestern Iran that falls within the Mesopotamian intermediate faunal region (Fig. 1). Composition of the fish fauna distribution in Iran reflects these territorial differences. While the waters of Iran's Ponto-Caspian region are populated by fish species most commonly found in Europe; fish fauna of the Mesopotamian region supports endemic species including several barbells (Coad, 1970; Berg, 1940 in Jalali, 1999). There is little research available on the parasite fauna of these fish populations. More is known about the Caspian Sea faunal sub-region. Research on parasites of Iranian freshwater fishes began with the work of Bychovsky (1949) who recorded 4 species of *Dactylogyrus* and *Ancyrocephalus*. Subsequent research has pioneered surveys on the parasites associated with the various fish species in different parts of the country, Mokhayer (1974, 1981, 1982, 1983, 1990), Mokhayer and Anwar (1973), Eslami and Anwar (1971), Eslami et al. (1972), Eslami and Kohneshahri (1978); Jalali (1987, 1992, 1994, 1999). After the 1990s, more records became available on species of fish parasites and in particular on monogeneans, nematodes and myxozoans. Aquaculture in Iran has been developing quickly in recent years and includes the introduction of various new species such as Chinese carp (*Ctenopharyngodon idella*, *Hypophthalmichthys molitrix*, and *Hypophthalmichthys nobilis*), rainbow trout (*Oncorhynchus mykiss*) and new stocks of common carp (*Cyprinus carpio*). Together with this introduction of new species and their associated parasites to Iranian aquaculture there has been translocation of species in the different faunal regions whereby the parasites are also transferred to different parts of the country. In this study, the parasites that have been recorded from different parts of Iran were summarized according to the following; the host species, the organs in which the parasite infestation occurred, the province, the faunal

region and acknowledgement of the original habitat of the infected host fish.

Materials and methods

The study was done from 2003 to 2011 and to begin with all reported publications about Iranian freshwater fish parasites were collected. The reported publications were classified into four types of document; final reports of research projects, theses, proceedings of congress meetings and seminars and journal publications. For preparing the checklist, if the data were published in a journal, references in other publications were not mentioned. Altogether, 1270 cases of infections were analyzed and 139 of them that were recorded to the species level are summarized in Table 1.

Results

During this study, according to the available data, 247 species of parasites were recorded from 102 fish species (12 families), from different faunal regions. Monogeneans had the most parasites (102 species) followed by myxozoans and nematodes with 40 and 26 different species of parasites, respectively. These parasites, along with details of their host's infected organs, province, faunal region and reference number were summarized in Table 1. The northern part of the country (Ponto-Caspian territory) had the richest parasite fauna with 70 % infections, the southwestern (Mesopotamian) territory followed with 24.5 % and the southeast territory (Indian faunal region) had the lowest with 5.5% of the recorded infections. The most parasites were recorded from Guilan Province (106), and then Mazandaran Province in the Ponto-Caspian territory (87). The most common species of infected fish were *Cyprinus carpio* (29 cases) and different species of *Barbus* spp. (17 cases). Results for other species were as follow; *Capoeta capoeta*, *Capoeta damascina*. (12 cases) and *Hypophthalmichthys molitrix*, *H. nobilis* (12, 9 cases) (Table 1, Fig. 1).

Discussion

Among the large number of parasites recorded from different parts of the world, research on parasites in Iranian freshwater fish is very new. Many fish parasites from different parts of the country were expected, but only 247

species have been reported so far. The parasites, recorded from the Ponto-Caspian and Indian faunal regions, were similar to those in other countries but some new hosts were reported. Among those recorded from the Mesopotamian part of Iran, some new hosts were reported as well as some endemic and introduced species (Jalali, 1992; Jalali and Molnar 1990, 1996; Jalali et al., 1995, 2000; Masoumian et al., 1994, 1996 a, b, Molnar and Pazooki, 1995; Molnar et al., 1996, Baska and Masoumian, 1996;; Pazooki and Molnar, 1998). The identified new species were: monogeneans (25 species), nematodes (2 species) and myxozoans (10 species). The reported parasites can be classified according to the following different categories: parasites with high host specificity such as *Diplostomum spathaceum* (from 36 fish species in 8 provinces), *Ichthyophthirius multifiliis* (from 25 fish species in 9 provinces), *Hysterothylacium excicus* (from 15 fish species in 4 provinces) *Camallanus sphaerocephalus*, *Psuedocapillaria tomentosa* (from 10 and 7 fish species), *Lernaea cyprinicea* (from 15 fish species in 4 provinces), *Allocreadium pseduspii* (from 11 fish species in 3 provinces) and *Bothrocethallus gowkingensis* (from 9 fish species in 5 provinces) were recorded from different fish of the Caspian Sea and Mesopotamian faunal regions. The host specific species such as *Dactylogyrus extensus* and *Gyrodactylus elegans* (from 9 and 10

Cyprinids fish specimens), *Hexamita salmonis* and *Pleistophora salmoni* were found in the same host (*Salmo gairdneri*) from different faunal regions. Acipenseridae family are endemic in the Caspian Sea area and their parasites were as follows: *Haemogregarina acipenseris*, *Cryptobia acipenseris*, *Diclobothrium armatum*, *Nitzschia sturionis*, *Skrjabinopsolus* spp., *Leptorhynchoides plagicephaly* and, *Pseudotracheliastes stellatus*. The most important host specific parasites were, myxozoans and monogeneans; they were reported from the areas inhabited by their host fish species. Examples of these host specific parasites are as follows: the endemic Barboid fish (*Barbus grypus*, *B. luteus* and *B. sharpeyi*) and their host-specific parasites in the Mesopotamian region. These fish inhabit freshwater in the Mesopotamian intermediate faunal regions of Iran, Iraq, Syria and Turkey. In the Mesopotamian part of Iran, some new parasites were recorded for the first time from the study area. These parasites mainly belong to the genera of *Dactylogyrus*, *Dogielius*, *Philometra* and *Myxobolus* and had probably been introduced to these regions of Iran through the translocation of their hosts. The freshwater habitats in Iran are very unique and they serve as locations for the interaction between fish and their parasites within these three distinct faunal regions. It is expected that species of parasite will vary according to the different regions of the country.

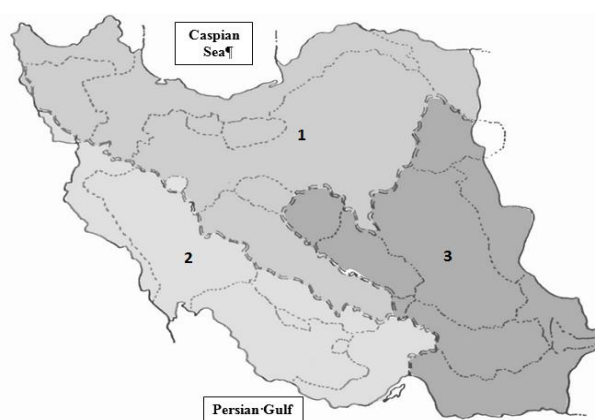


Figure 1: Iranian freshwater fishes' fauna regions; 1: Ponto-Caspian Territory, 2: Mesopotamian Intermediate Fauna Region, 3: Indian Fauna Region

Table 1: Parasites from different part of Iranian freshwater fishes. C.S.: Caspian Sea, I.F.R: Indian Fauna Region, M.: Mesopotamian. A. C.: Abdominal cavity

No	Parasites	Fishes	Infected organs	Provinces	Fauna region	Ref.
	Ciliophora					
1	<i>Balantidium ctenopharyngodoni</i>	<i>Ctenopharyngodon idella</i>	Intestine	Sistan	I.F.R	118
2	<i>Chilodonella cyprini</i>	<i>Salmo gairdneri</i>	Body surface	Chaharmahal Bakhtiari	C.S.	62
3	<i>Chilodonella hexasitica</i>	<i>Oncorhynchus mykiss</i> , <i>Leuciscus cephalus</i>	Skin	Mazandaran	C. S.	72
4	<i>Ichthyophthirius multifiliis</i>	<i>Acipenser</i> spp., <i>Abramis brama</i> , <i>Alburnoides bipunctatus</i> , <i>Barbus brachycephalus</i> , <i>B. grypus</i> , <i>B. sharpeyi</i> , <i>B. esocinus</i> , <i>B. capito</i> , <i>B. lacerta</i> , <i>B. mursa</i> , <i>Capoeta aculeaa</i> , <i>C. capoeta</i> , <i>C. damascina</i> , <i>Carassius auratus</i> , <i>C. carassius</i> , <i>Chalcalburnus sp.</i> , <i>Chondrostoma orientalis</i> , <i>Ch. regium</i> , <i>Ctenopharyngodon idella</i> , <i>Cyprinus carpio</i> , <i>Hypophthalmichthys molitrix</i> , <i>H. nobilis</i> , <i>L. leuciscus</i> , <i>Mastacembelus mastacembelus</i> , <i>Oncorhynchus mykiss</i> , <i>Tinca tinca</i> ,	Body surface, gills	Chaharmahal-Bakhtiari, Esfahan, Fars, Guilan, Khouzesan, Kordestan, Mazandran, Tehran, West Azarbaijan,	C.S., M.,	2, 10, 11, 15, 17, 29, 44, 49, 50, 56, 58, 71, 72, 74, 78, 109, 110, 111, 129, 114, 132, 135
5	<i>Tetrahymena pyriformis</i>	<i>Capoeta capoeta</i>	Skin	West Azerbaijan	C.S.	58
6	<i>Trichodina domerguei</i>	<i>Abramis brama</i> , <i>Alburnoides bipunctatus</i> , <i>Barbus capito</i> , <i>B. lacerta</i> , <i>Capoeta capoeta</i> , <i>Cyprinus carpio</i>	Skin, gills	Guilan	C.S.	78
7	<i>Trichodina perforata</i> ,	<i>Sander lucioperca</i> ,		West Azerbaijan	C.S.	58, 99
8	<i>Trichodina polycolpus</i>	<i>Capoeta capoeta</i>	Fins	West Azerbaijan	C.S.	3
9	<i>Trichodina pediculus</i>	<i>Cyprinus carpio</i> , <i>Capoeta damascina</i> , <i>Mastacembelus mastacembelus</i>	Gills	Chaharmahal-Bakhtiari	C.S.	49
10	<i>Trichodina trutta</i>	<i>Oncorhynchus mykiss</i>	Skin, Fins	Mazandaran	C. S.	72
11	<i>Trichodina reticulata</i>	<i>Acipenser persicus</i>	Skin, Fins	Guilan	C. S.	135
12	<i>Trichodinella subtilis</i>	<i>Capoeta capoeta</i>	Skin	West Azerbaijan	C.S.	71
13	<i>Tripartiella lata</i>	<i>Salmo gairdneri</i>	Skin	West Azerbaijan	C.S.	71
	Mastigophora					
1	<i>Cryptobia acipenseris</i>	<i>Acipenser guldenstaedti</i> , <i>A. persicus</i>	Blood	Guilan	C.S.	93
2	<i>Cryptobia borelli</i>	<i>Salmo gairdneri</i>	Blood	Chaharmahal-Bakhtiari	M.	56
3	<i>Cryptobia branchialis</i>	<i>Hypophthalmichthys molitrix</i>	Blood	Khuzestan	M.	43
4	<i>Cryptobia linchi</i>	<i>Salmo gairdneri</i>	Blood	Chaharmahal-Bakhtiari	C.S.	56
5	<i>Ichthyobodo necator</i>	<i>Carassius auratus</i>	Skin	Guilan	C.S.	5
6	<i>Hexamita salmonis</i>	<i>Salmo gairdneri</i>	Intestine	Chaharmahal-Bakhtiari, Azarbaijan	East C.S.	56, 71
7	<i>Trypanosoma percae</i>	<i>Perca fluviatilis</i> ,	Blood	Guilan	C.S.	43
	Microsporea					
1	<i>Dermocystidium salmonis</i>	<i>Salmo gairdneri</i>	Gills	Chaharmahal-Bakhtiari	C.S.	95
2	<i>Pleistophora salmoni</i>	<i>Salmo gairdneri</i>	Chondrostome Gills, intestine	Chaharmahal-Bakhtiari, Azarbaijan	West C.S.	56, 71
	Apicomplexa					
1	<i>Haemogregarina acipenseris</i>	<i>Acipenser guldenstaedti</i> , <i>A. persicus</i>	blood	Guilan	C.S.	93
2	<i>Goussia carpelli</i>	<i>Cyprinus carpio</i>	Intestine	Guilan	C.S.	43, 72
3	<i>Goussia sinensis</i>	<i>Hypophthalmichthys molitrix</i>	Intestine	Guilan	C.S.	43
	Myxozoa					
1	<i>Myxidium rhodei</i>	<i>Barbus esocinus</i> , <i>B. grypus</i> , <i>B. pectoralis</i> , <i>B. sharpeyi</i> ,	Kidney	Khuzestan	M	63, 129
2	<i>Myxidium pfeifferi</i>	<i>Barbus esocinus</i> , <i>B. grypus</i> , <i>B. pectoralis</i> , <i>B. sharpeyi</i> , <i>Scardinius erythrophthalmus</i>	Gall bladder	Guilan, Khuzestan	C.S.M.	63, 129
3	<i>Myxobolus azerbaijanicus</i>	<i>Barbus mursa</i>	Gills	Mazandaran	C.S.	65
4	<i>Myxobolus bramae</i>	<i>Rutilus frisii kutum</i>	Gills	Mazandaran	C.S.	63
5	<i>Myxobolus buckei</i>	<i>Capoeta damascina</i>	Sinal cord	Kerman	I.F.R	90

6	<i>Myxobolus bulbocordis</i>	<i>Barbus sharpeyi</i>	Heart	Khuzestan	M.	60
7	<i>Myxobolus capito</i>	<i>Barbus capito</i>		Mazandaran	C.S.	65
8	<i>M. karelicus</i>	<i>Capoeta damascina</i>	Intestine	Kerman	M.	90
9	<i>Myxobolus cerebrealis</i>	<i>Salmo gairdneri</i>	Chondrostome	Chaharmahal-Bakhtiari	C.S.	62
10	<i>Myxobolus cristatus</i>	<i>Capoeta capoeta, C.damascina, C. aculeata</i>	Gills	Esfahan, Kerman, West Azarbaijan, Zanjan,	C.S., I.F.R	67, 90, 99, 102
11	<i>Myxobolus dispar</i>	<i>Aspius aspius taeniatus</i>	Gills	Mazandaran	C.S.	66
12	<i>Myxobolus ellipsoides</i>	<i>Alburnoides bipunctatus</i>		Mazandaran	C.S.	63
13	<i>Myxobolus iranicus</i>	<i>Barbus grypus, B. luteus, B. sharpeyi</i>	Spleen	Khuzestan	M.	85
14	<i>Myxobolus karuni</i>	<i>Barbus esocinus, B. barbulus B. grypus, B. luteus, B. sharpeyi, B. pectoralis,</i>	Gills	Khuzestan	M.	60, 64, 68, 129
15	<i>Myxobolus kovali</i>	<i>Barbus lacerta, B. mursa</i>	Gills	Mazandaran	C.S.	60, 64
16	<i>Myxobolus lobatus</i>	<i>Barbus brachycephalus, Cyprinus carpio</i>	Skin, Gills,	Guilan	C.S.	78
17	<i>Myxobolus mesopotamiae</i>	<i>Barbus grypus, B. luteus, B. rajanorum, B. pectoralis</i>	Fins	Khuzestan	M.	64, 85, 129
18	<i>Myxobolus minutus</i>	<i>Barbus capito, Leuciscus cephalus</i>	Muscle, Gills	Mazandaran	C.S.	63
19	<i>Myxobolus mokhayeri</i>	<i>Capoeta trutta</i>	Fins	Khuzestan	M.	12, 64
20	<i>Myxobolus molnari</i>	<i>Capoeta trutta, Chalcalburnus sp.</i>	Gills	Chaharmahal-Bakhtiari, Khuzestan	C.S.M.	12, 64, 49
21	<i>Myxobolus muelleri</i>	<i>Leuciscus cephalus</i>	Muscle	Mazandaran	C.S.	63
22	<i>Myxobolus musayevi</i>	<i>Capoeta capoeta, C.damascina, C. aculeata</i>	Gills	Chaharmahal-Bakhtiari, Esfahan Kerman, West-.Azarbaijan, Zanjan	C.S, I.F.R	50, 62, 67, 90, 99, 102, 110, 111
23	<i>Myxobolus musculi</i>	<i>Barbus capito</i>	Muscle	Mazandaran	C.S.	65
24	<i>Myxobolus nodulointestinalis</i>	<i>Barbus luteus, B. sharpeyi, B. pectoralis</i>	Intestine	Khuzestan	M.	64, 129
25	<i>Myxobolus osmaniae</i>	<i>Barbus mursa</i>	Intestine	Mazandaran	C.S.	65
26	<i>Myxobolus pavlovskiy</i>	<i>Hypophthalmichthys molitrix</i>	Gills	Mazandaran	C.S.	63
27	<i>Myxobolus persicus</i>	<i>Barbus esocinus, B. barbulus B. grypus, B. luteus, B. sharpeyi, Barbus pectoralis,</i>	Gills	Khuzestan	M.	68, 64, 60, 129
29	<i>Myxobolus pseudodispar</i>	<i>Chalcalburnus chalcoides</i>	Gills	Guilan	C.S.	63
30	<i>Myxobolus rutili</i>	<i>Barbus mursa</i>	Gills	Mazandaran	C.S.	65
31	<i>Myxobolus saidovi</i>	<i>Capoeta capoeta, Alburnus sp.,</i>	Gills	Esfahan, Mazandaran	C. S.	67, 72
32	<i>Myxobolus samgoricus</i>	<i>Capoeta capoeta, C.damascina</i>	Fins	Esfahan, Kerman, Mazandaran	C.S, I.F.R	50, 64, 67, 90
33	<i>Myxobolus schulmani</i>	<i>Tinca tinca</i>	Fins	Guilan	C.S.	18
34	<i>Myxobolus shadgani</i>	<i>Barbus rajanorum</i>	Gills	Khuzestan	M.	85
35	<i>Myxobolus sharpeyi</i>	<i>Barbus sharpeyi</i>	Gills arch	Khuzestan	M.	85
36	<i>Myxobolus squamae</i>	<i>Barbus mursa</i>	Skin	Mazandaran	C.S.	65
37	<i>M. suturalis</i>	<i>Capoeta damascina</i>	Heart	Kerman	I.F.R	90
38	<i>Myxobolus tauricus</i>	<i>Barbus mursa</i>	Fins	Mazandaran	C.S.	65
39	<i>Myxobolus valdogeli</i>	<i>Barbus lacerta</i>	Gills	Mazandaran	C.S.	65
40	<i>M. varicorhini</i>	<i>Capoeta damascina</i>	Skin,	Esfahan, Kerman	C.S, I.F.R	50, 67, 90
	Monogenea					
1	<i>Ancyrocephalus paradoxus</i>	<i>Sander lucioperca</i>	Gills	Guilan	C.S.	24, 46
2	<i>Ancyrodiscoides fluviatilis</i>	<i>Mugil abzarudni</i>	Gills	Khuzestan	M.	43
3	<i>Aphanurus stossichi</i>	<i>Parasilurus triostegus</i>	Gills	Guilan	C.S.	43
4	<i>Dactylogyrus holciki</i>	<i>Chalcalburnus chalcoides</i>	Gills	Khuzestan	M.	84
5	<i>Dactylogyrus langicopula</i>	<i>Schizocypris zarudnyi</i>	Gills	Sistan	I.F.R	47
6	<i>Dactylogyrus achmerowi</i>	<i>Cyprinus carpio</i>	Gills	Guilan	C.S.	2
7	<i>Dactylogyrus acinacus</i>	<i>Garra rufa</i>	Gills	Sistan	I.F.R	37
8	<i>Dactylogyrus affinis</i>	<i>Barbus brachycephalus</i>	Gills	Guilan	C.S.	84
9	<i>Dactylogyrus alatus</i>	<i>Alburnoides bipunctatus, Alburnus charusini, A. maculates, C. mossulensis, Chalcalburnus</i>	Gills	Chaharmahal- Bakhtiari, Esfahan,	I.F.R C.S. M.	45, 44, 49, 70, 84 ,

		<i>chalcoides</i> , <i>Chalcalburnus</i> sp.		Guilan, Kordestan		108
10	<i>Dactylogyrus anchoratus</i>	<i>Barbus sharpeyi</i> , <i>Carassius auratus</i> , <i>C. carassius</i> , <i>Cyprinus carpio</i>	Gills	Fars, Guilan, Khouzestan, Tehran	C.S. M.	2, 5, 7, 10, 42, 45, 137
11	<i>Dactylogyrus aristichthys</i>	<i>Hypophthalmichthys nobilis</i>	Gills	Guilan, Kordestan	C.S.	2, 44, 46
12	<i>Dactylogyrus barboides</i>	<i>Barbus grypus</i> , <i>B. sharpeyi</i>	Gills	Khouzestan	M.	137
13	<i>Dactylogyrus barbuli</i>	<i>Barbus barbuli</i>	Gills	Khouzestan	M.	43
14	<i>Dactylogyrus baueri</i>	<i>Alburnoides bipunctatus</i> , <i>Carassius auratus</i> , <i>C. carassius</i>	Gills	Esfahan, Guilan, Mazandaran, Tehran	C.S.	2, 5, 7, 45, 70, 133
15	<i>Dactylogyrus bychowskyi</i>	<i>Barbus brachycephalus</i>	Gills	Guilan	C.S.	84
16	<i>Dactylogyrus capoeta</i>	<i>Capoeta damascina</i>	Gills	Khouzestan	M.	47
17	<i>Dactylogyrus carassobarbi</i>	<i>Barbus sharpeyi</i> , <i>Capoeta damascina</i>	Gills	Chaharmahal- Bakhtiari, Khouzestan	C.S. M.	49, 137
18	<i>Dactylogyrus carpathicus</i>	<i>Barbus plebejus</i>	Gills	Guilan	C.S.	84
19	<i>Dactylogyrus chalcalburni</i>	<i>Alburnoides</i> , <i>bipunctatus</i> , <i>Alburnus alburnus</i> , <i>A. charusini</i> , <i>Chalcalburnus chalcoides</i>	Gills	Esfahan, Guilan	C.S.	2, 7, 46, 70, 84
20	<i>Dactylogyrus chramulii</i>	<i>Abramis brama</i> , <i>Capoeta capoeta</i> , <i>Cyprinus carpio</i> , <i>Rutilus rutilus</i>	Gills	Esfahan, Guilan, Mazandaran, West Azarbaijan	C.S.	30, 70, 84, 103
21	<i>Dactylogyrus cornoides</i>	<i>Vimba vimba persa</i>	Gills	Guilan	C.S.	46
22	<i>Dactylogyrus ctenopharyngodonis</i>	<i>Ctenopharyngodon idella</i>	Gills	Guilan	C.S.	2
23	<i>Dactylogyrus cyprinioni</i>	<i>Cyprinion macrostomum</i>	Gills	Khouzestan	M.	42
24	<i>Dactylogyrus deziensoides</i>	<i>Barbus kersin</i>	Gills	Khouzestan	M.	36
25	<i>Dactylogyrus deziensis</i>	<i>Barbus kersin</i>	Gills	Khouzestan	M.	36
26	<i>Dactylogyrus djomansajensis</i>	<i>Barbus capito</i>	Gills	Guilan	M.	2
27	<i>Dactylogyrus dulkeiti</i>	<i>Carassius auratus</i> , <i>C. arassius</i> , <i>Cyprinus carpio</i>	Gills	Guilan, Tehran	C.S.	5, 7, 42, 44
28	<i>Dactylogyrus eslamii</i>	<i>Crossocheilus latius</i>	Gills	Sistan	I.F.R	20
29	<i>Dactylogyrus extensus</i>	<i>Alburnus alburnus</i> , <i>Abramis brama</i> , <i>Albornoides bipunctatus</i> , <i>Carassius auratus</i> , <i>Capoeta aculeate</i> , <i>C. capoeta</i> , <i>Chondrostoma regium</i> , <i>Cyprinus carpio</i> , <i>Rutilus rutilus</i>	Gills	Chaharmahal- Bakhtiari, Esfahan, Fars, Guilan, Kordestan, Tehran	C.S., M.	7, 10, 29, 44, 46, 49, 53, 56, 70, 108, 109, 111
30	<i>Dactylogyrus faridpaki</i>	<i>Crossocheilus latius</i>	Gills	Sistan	I.F.R	22
31	<i>Dactylogyrus formosus</i>	<i>Barbus mursa</i> , <i>Carassius auratus</i> , <i>C. carassius</i>	Gills	Guilan, Mazandaran, Tehran	C.S	5, 7, 46, 133
32	<i>Dactylogyrus frisii</i>	<i>Rutilus frisii kutum</i>	Gills	Guilan, Mazandaran	C.S.	45, 89
33	<i>Dactylogyrus goktschaicus</i>	<i>Barbus lacerta</i> , <i>Barbus cyclolepis</i>	Gills	Chaharmahal- Bakhtiari, Mazandaran	C.S.	29, 49
34	<i>Dactylogyrus gracilis</i>	<i>Capoeta aculeate</i> , <i>C. capoeta</i>	Gills	Esfahan, Guilan, Zanjan	C.S.	29, 70, 84
35	<i>Dactylogyrus haplogonus</i>	<i>Rutilus frisii kutum</i> , <i>Vimba vimba</i>	Gills	Guilan	C.S.	2, 41, 45, 89
36	<i>Dactylogyrus hypophthalmichthys</i>	<i>Hypophthalmichthys molitrix</i> , <i>H. nobilis</i>	Gills	Chaharmahal- Bakhtiari, Guilan, Kordestan, Mazandaran, Tehran	C.S. M.	2, 7, 42, 44, 45, 49
37	<i>Dactylogyrus intermedius</i>	<i>Carassius auratus</i>	Gills	Tehran	C.S	36, 84
38	<i>Dactylogyrus inutilis</i>	<i>Barbus xanthopterus</i>	Gills	Khouzestan	M.	43
39	<i>Dactylogyrus jamansajensis</i>	<i>Barbus lacerta</i>	Gills	Guilan	C.S.	43
40	<i>Dactylogyrus kersini</i>	<i>Barbus kersin</i> , <i>Capoeta trutta</i>	Gills	Khouzestan, Kordestan	M.	37, 44
41	<i>Dactylogyrus lamellatus</i>	<i>Ctenopharyngodon idella</i>	Gills	Chaharmahal- Bakhtiari, Esfahan, Fars, Guilan, Kordestan, Tehran, Zanjan	C.S. M,	2, 7, 10, 29, 31, 42, 44, 49, 50, 108, 109
42	<i>Dactylogyrus lenkorani</i>	<i>Abramis brama</i> , <i>Albornoides bipunctatus</i> , <i>Capoeta aculeata</i> , <i>C. capoeta</i> , <i>C. damascina</i> , <i>C. trutta</i> , <i>Carassius carassius</i> , <i>Cyprinus carpio</i> ,	Gills	Chaharmahal- Bakhtiari, Esfahan, Fars, Guilan, Kordestan, Tehran, West Azarbaijan	C.S. M.	2, 10, 29, 31, 42, 44, 49, 70, 84, 103, 110, 111
43	<i>Dactylogyrus linstowi</i>	<i>Barbus capito</i> , <i>B. cyclolepis</i> , <i>B. mursa</i> , <i>B. plebejus</i> , <i>Capoeta damascina</i>	Gills	Guilan, Kordestan, Mazandaran	C.S., M.	44, 74, 84, 133.
44	<i>Dactylogyrus macrostomi</i>	<i>Cyprinion macrostomum</i>	Gills	Khouzestan	M.	43
45	<i>Dactylogyrus microcanthus</i>	<i>Leusciscus cephalus</i>	Gills	Guilan, Mazandaran	C.S.	43
46	<i>Dactylogyrus microcirrus</i>	<i>Capoeta trutta</i>	Gills	Khouzestan	M.	36
47	<i>Dactylogyrus minor</i>	<i>Alburnus filippi</i> , <i>Chalcalburnus chalcoides</i> , <i>Leusciscus lepidus</i>	Gills	Kordestan, Esfahan	C.S. M.	50, 84

48	<i>Dactylogyrus mobedii</i>	<i>Aspidoparia morar</i>	Gills	Sistan	IFR	48
49	<i>Dactylogyrus nobilis</i>	<i>Hypophthalmichthys nobilis</i>	Gills	Guilan, Mazandaran	C.S.	2 45
50	<i>Dactylogyrus nybelini</i>	<i>Rutilus frisii kutum</i>	Gills	Guilan	C.S.	84
51	<i>Dactylogyrus orbis</i>	<i>Bertinius subquincanciatus</i>	Gills	Khouzestan	M.	43
52	<i>Dactylogyrus pallierrus</i>	<i>Cyprinion watsoni</i> , <i>C. macrostomum</i>	Gills	Khouzestan	M.	47
53	<i>Dactylogyrus parvus</i>	<i>Alburnus charusini</i>	Gills	Guilan	C.S.	84
54	<i>Dactylogyrus persicus</i>	<i>Barbus grypus</i> , <i>B. luteus</i>	Gills	Khouzestan	M.	43, 137
55	<i>Dactylogyrus pavlowskyi</i>	<i>Barbus grypus</i> , <i>B. sharpeyi</i>	Gills	Khouzestan	M.	37, 137
56	<i>Dactylogyrus prostaе</i>	<i>Leusiscus cephalus</i>	Gills	Mazandarn	C.S.	45
57	<i>Dactylogyrus pulcher</i>	<i>Alburnoides bipunctatus</i> , <i>Aspius vorax</i> , <i>Capoeta capoeta</i> , <i>C. damascina</i> , <i>C. trutta</i>	Gills	Chaharmahal- Bakhtiari, Esfahan, Guilan, Kordestan, Mazandarn, Tehran	C.S. M.	26, 29, 37, 42, 44, 70, 84, 110
58	<i>Dactylogyrus rarissimus</i>	<i>Rutilus frisii kutum</i>	Gills	Guilan, Mazandarn	C.S.	45
59	<i>Dactylogyrus rectotrabus</i>	<i>Garra rufa</i>	Gills	Khouzestan	M.	37
60	<i>Dactylogyrus rohdeianus</i>	<i>Capoeta damascina</i>	Gills	Khouzestan	M.	47
61	<i>Dactylogyrus sahuensis</i>	<i>Cyprinus carpio</i>	Gills	Guilan	C.S.	45
62	<i>Dactylogyrus schizocypris</i>	<i>Schizocypris brucei</i>	Gills	Sistan		47
63	<i>Dactylogyrus spiralis</i>	<i>Cyprinus carpio</i>	Gills	Chaharmahal- Bakhtiari	C.S.	108, 109
64	<i>Dactylogyrus sphyrnae</i>	<i>Alburnus alburnus</i> , <i>Leusiscus persidis</i>	Gills	East Azarbaijan, Fars	C.S.	10, 31
65	<i>Dactylogyrus suecicus</i>	<i>Rutilus frisii kutum</i>	Gills	Guilan	C.S.	84, 89
66	<i>Dactylogyrus suchengtaii</i>	<i>Hypophthalmichthys molitrix</i>	Gills	Chaharmahal-Bakhtiari	C.S.	49
67	<i>Dactylogyrus tuba</i>	<i>Aspius aspius</i>	Gills	Guilan	C.S.	84
68	<i>Dactylogyrus turaliensis</i>	<i>Rutilus frisii kutum</i> , <i>R. rutilus</i>	Gills	Guilan, Mazandaran	C.S.	36, 66, 84, 89
69	<i>Dactylogyrus vastator</i>	<i>Barbus brachycephalus</i> , <i>Capoeta capoeta</i> , <i>Carassius auratus</i> , <i>C. carassius</i> , <i>Cyprinus carpio</i> , <i>Vimba vimba persa</i>	Gills	Guilan, Esfahan, Khouzestan Mazandaran, Tehran	C.S.	15, 76, 99, 107, 118
70	<i>Dactylogyrus vistulae</i>	<i>Alburnoides bipunctatus</i> , <i>Alburnus filippi</i> , <i>Capoeta capoeta</i> , <i>Chalcalburnus chalcoides</i> , <i>Leusiscus cephalus</i>	Gills	Esfahan, Guilan, Mazandaran	C.S.	29, 31, 78, 133
71	<i>Dactylogyrus wegneri</i>	<i>Carassius auratus</i>	Gills	Guilan, Tehran	C.S.	5
72	<i>Dactylogyrus wunderi</i>	<i>Abramis brama</i>	Gills	Guilan	C.S.	2
73	<i>Dactylogyrus yousefpouri</i>	<i>Aspidoparia morar</i>	Gills	Sistan	IFR	48
74	<i>Dactylogyrus zandii</i>	<i>Abramis brama</i>	Gills	Guilan	C.S.	2, 36
75	<i>Diclobothrium armatum</i>	<i>Acipenser persicus</i> , <i>A. guldenstaedti</i> , <i>A. nudiventris</i> , <i>A. stellatus</i> , <i>A. stellatus</i> , <i>Huso huso</i>	Gills	Guilan, Mazandaran	C.S.	38, 107, 135
76	<i>Diplozoon paradoxum</i>	<i>Aspius vorax</i> , <i>Carassius auratus</i> , <i>Cyprinus carpio</i> , <i>Rutilus frisii kutum</i>	Gills	Guilan, Khouzestan, Mazandaran, West Azarbaijan	M. C.S.	5, 19, 74, 120
77	<i>Dogielius mokhayeri</i>	<i>Aspius vorax</i>	Gills	Khouzestan	M.	45
78	<i>Dogielius molnari</i>	<i>Cyprinion macrostomum</i> , <i>Capoeta damascina</i>	Gills	Chaharmahal-Bakhtiari, Khouzestan, Kordestan	M. C.S.	42, 49
79	<i>Dogielius persicus</i>	<i>Barbus sharpeyi</i>	Gills	Khouzestan	M.	136
80	<i>Gyrodactylus fossilis</i>	<i>Heteropneus fossilis</i>	Gills	Khouzestan	M.	47
81	<i>Gyrodactylus cyprini</i>	<i>Cyprinus carpio</i>	Gills	Guilan	C.S.	47
82	<i>Gyrodactylus derjavini</i>	<i>Oncorhynchus mykiss</i>	Gills	Mazandaran	C.S.	47, 72
83	<i>Gyrodactylus elegans</i>	<i>Abramis brama</i> , <i>Capoeta gracilis</i> , <i>Carassius carassius</i> , <i>Chalcalburnus chalcoides</i> , <i>Ctenopharyngodon idella</i> , <i>Cyprinus carpio</i> , <i>Esox lucius</i> , <i>Hypophthalmichthys molitrix</i> , <i>Perca fluviatilis</i> , <i>Tinca tinca</i>	Gills	Guilan	C.S.	47, 77, 87, 98
84	<i>Gyrodactylus kobayashii</i>	<i>Carassius auratus</i>	Gills	Guilan, Tehran	C.S.	5
85	<i>Gyrodactylus mutabilis</i>	<i>Capoeta capoeta</i>	Gills	Esfahan	C.S.	50
86	<i>Gyrodactylus prostaе</i>	<i>Carassius auratus</i> , <i>Rutilus frisii kutum</i>	Gills	Guilan	C.S.	47, 89
87	<i>Gyrodactylus shulmani</i>	<i>Cyprinus carpio</i>	Gills	Guilan	C.S.	47
88	<i>Gyrodactylus sprostonae</i>	<i>Cyprinus carpio</i> , <i>Hypophthalmichthys molitrix</i> , <i>H. nobilis</i>	Gills	Guilan	C.S.	47

89	<i>Gyrodactylus stankovici</i>	<i>Cyprinus carpio</i>	Gills	Chaharmahal-Bakhtiari, Guilan	C.S.	47, 49
90	<i>Mastacembelocleidus heteranchorus</i>	<i>Mastacembelus mastacembelus</i>	Gills	Chaharmahal-Bakhtiari	C.S.	49
91	<i>Mazocraes alosae</i>	<i>Chalcalburnus tarishi</i>	Gills	Guilan	C.S.	8
92	<i>Microcotyle mugilis</i>	<i>Liza abu</i>	Gills	Khouzestan	M.	43
93	<i>Nitzschia sturionis</i>	<i>Acipenser persicus</i> . <i>A. guldenstaedti</i> . <i>A. nudiiventris</i> . <i>A. stellatus</i> . <i>Huso huso</i>	Gills. A.C.	Guilan, Mazandaran	C.S.	38, 28, 78, 107, 135
94	<i>Octomacrum europaeum</i>	<i>Alburnoides bipunctatus</i>	Gills	Mazandaran	C.S.	133
95	<i>Paradiplozoon chazarikum</i>	<i>Rutilus frisii kutum</i>	Gills	Mazandaran	C.S.	43
96	<i>Paradiplozoon homion</i>	<i>Barbus lacerta</i> . <i>B. mursa</i>	Gills	Mazandaran	C.S.	98
97	<i>Paradiplozoon tadjikistanicum</i>	<i>Barbus lacerta</i> . <i>Capoeta capoeta</i>	Gills	West Azarbaijan	C.S.	73
98	<i>Paradiplozoon chazarikum</i>	<i>Rutilus frisii kutum</i>	Gills	Guilan	C.S.	55
99	<i>Saccocoelium obesum</i>	<i>Mugil auratus</i> . <i>Mugilidae</i> sp.	Gills	East Azarbaijan, Mazandaran	C.S.	88, 119
100	<i>Silurodiscoides siluri</i>	<i>Silurus glanis</i>	Gills	Guilan	C.S.	43
101	<i>Silurodiscoides vistulensis</i>	<i>Silurus glanis</i>	Gills	Guilan	C.S.	43
102	<i>Tetraonchus monteron</i>	<i>Cyprinus carpio</i> . <i>Esox lucius</i>	Gills	Guilan, Mazandaran	C.S.	72, 82, 125
	Digenea					
1	<i>Allocreadium laymani</i>	<i>Capoeta capoeta</i> . <i>C. damascina</i>	Intestine	Chaharmahal-Bakhtiari, Esfahan	C.S.	50, 110
2	<i>Allocreadium isoporum</i>	<i>Alburnoides bipunctatus</i> . <i>Alburnus filippi</i> . <i>Aphanius vladykovi</i> . <i>Barbus lacerta</i> . <i>Capoeta aculeata</i> . <i>C. capoeta</i> . <i>C. damascina</i> . <i>Cobitis taenia</i> . <i>Leusiscus lepidus</i>	Intestine	Chaharmahal-Bakhtiari, Esfahan, Mazandaran, West Azarbaijan	C.S.	1, 29, 98, 50, 110, 102, 112, 133, 138
3	<i>Allocreadium polymorphum</i>	<i>Barbus capito</i>	Intestine	Guilan	C.S.	78
4	<i>Allocreadium pseudaspai</i>	<i>Alburnoides bipunctatus</i> . <i>Aphanius vladykovi</i> . <i>Barbus capito</i> . <i>B. lacerta</i> . <i>B. mursa</i> . <i>B. plebejus</i> . <i>Capoeta capoeta</i> . <i>C. damascina</i> . <i>Leusiscus cephalus</i> . <i>Cobitis taenia</i> . <i>Nemacheilus malapterurus</i>	Intestine	Chaharmahal-Bakhtiari, Mazandaran, West Azarbaijan	C.S.	101, 112, 133
5	<i>Allocreadium transversale</i>	<i>Cobitis taenia</i>	Intestine	Mazandaran	C.S.	133
6	<i>Aphanurus stossichi</i>	<i>Silurus glanis</i>	intestine	Guilan		133
7	<i>Asymphyiodora demeli</i>	<i>Barbus capito</i> . <i>B. lacerta</i> . <i>B. mursa</i> . <i>Capoeta capoeta</i>	intestine	West Azarbaijan	C.S.	132
8	<i>Asymphyiodora kubanicum</i>	<i>Rutilus frisii kutum</i> . <i>Vimba vimba</i>	Digestiv e tract	Guilan, Mazandaran	C.S.	24, 55, 96
9	<i>Asymphyiodora macracetabulum</i>	<i>Barbus capito</i> . <i>B. mursa</i> . <i>Rutilus frisii kutum</i> . <i>Tinca tinca</i> .	Intestine. Digestiv e tract	West Azarbaijan, Mazandaran, Guilan	C.S.	26, 81, 101, 120
10	<i>Asymphyiodora tincae</i>	<i>Barbus capito</i> . <i>B. mursa</i> . <i>Chalcalburnus tarishi</i> . <i>Esox lucius</i> . <i>Rutilus rutilus</i> . <i>Tinca tinca</i> .	Intestine. Digestiv e tract	West Azarbaijan, Guilan	C.S.	24, 41, 44, 89, 93
11	<i>Asymphyiodora workewitsdi</i>	<i>Barbus capito</i> . <i>B. mursa</i>	intestine	West Azarbaijan	C.S.	101
12	<i>Bunocotyle cingulata</i>	<i>Clupeonella cultriventris</i> . <i>C. grimmi</i> . <i>Capoeta capoeta</i> . <i>Silurus glanis</i>	Intestine	Guilan, Mazandaran	C.S.	132, 133
13	<i>Clinostomum complanatum</i>	<i>Alburnoides bipunctatus</i> . <i>Capoeta capoeta</i> . <i>C. c. gracilis</i> . <i>Chalcalburnus chalcoides</i> . <i>Leusiscus cephalus</i> . <i>Neogobius luviatilis</i> . <i>Cobitis taenia</i>	Skin. Muscles . gills	Mazandaran, Teharn, West Azarbaijan	C.S.	57, 81, 116, 130, 133
14	<i>Diplostomum spathaceum</i>	<i>Acipenser guldenstaedti</i> . <i>A. nudiiventris</i> . <i>A. persicus</i> . <i>A. stellatus</i> . <i>Abramis brama</i> . <i>A. charusini</i> . <i>Alburnoides bipunctatus</i> . <i>Alburnus alburnus</i> . <i>Alosa caspia persica</i> . <i>Aphanius vladykovi</i> . <i>Barbus lacerta</i> . <i>B. mursa</i> . <i>Barbus capito</i> . <i>Blicca Bjuerkna</i> . <i>Capoeta aculeate</i> . <i>C. capoeta</i> . <i>C. damascina</i> . <i>Carassius auratus</i> . <i>C. carassius</i> . <i>Ctenopharyngodon idella</i> . <i>Chondrostoma orientalis</i> . <i>Chondrostoma regium</i> . <i>Cyprinus carpio</i> . <i>Esox lucius</i> . <i>Hypophthalmichthys molitrix</i> . <i>H. nobilis</i> . <i>Leuciscus cephalus</i> . <i>L. lepidus</i> . <i>Lucioperca lucioperca</i> . <i>Mastacembelus mastacembelus</i> . <i>Neogobius fluviatilis</i> . <i>Oncorhynchus mykiss</i> . <i>Rutilus frisii kutum</i> . <i>R. rutilus</i> . <i>Scardinius erythrophthalmus</i> . <i>Tinca tinca</i>	Eyes	Chaharmahal-Bakhtiari, Esfahan, Fars, Gilan, Khouzestan, Kordestan, Mazandaran, West Azarbaijan	C.S. M.	7, 10, 11, 13, 14, 15, 16, 18, 29, 32, 38, 49, 50, 52, 53, 54, 55, 66, 73, 81, 87, 91, 101, 102, 106, 108, 111, 112, 114, 117, 126, 122, 133
15	<i>Tylodelphys clavata</i>	<i>Alburnus alburnus</i> . <i>Carassius auratus</i> . <i>Capoeta aculeate</i> . <i>Chondrostoma regium</i> . <i>Ctenopharyngodon idella</i> . <i>Cyprinus carpio</i> . <i>Hypophthalmichthys molitrix</i> .	Eyes	Chaharmahal-Bakhtiari	C.S.	11, 108, 111
16	<i>Posthodiplostomum cuticola</i>	<i>Barbus brachycephalus</i>	Skin	Guilan	C.S.	78
17	<i>Skrjabinopsolus acipenseris</i>	<i>Huso huso</i>	Digestiv e tract	Guilan, Mazandaran	C.S.	77, 82

18	<i>Skrjabinopsolus semiarmatus</i>	<i>Acipenser guldenstaedtii</i> . <i>A. nudiventris</i> . <i>A. persicus</i> <i>A. stellatus</i> . <i>Huso huso</i>	Intestine, Digestive tract	Guilan, Mazandaran	C.S.	14, 33, 34, 69, 77, 82, 120, 123
19	<i>Skrjabinopsolus skrjabini</i>	<i>Huso huso</i>	Digestive tract	Guilan, Mazandaran	C.S.	32, 34
Cestoda						
1	<i>Bothrimonus fallax</i>	<i>Acipenser stellatus</i> . <i>Huso huso</i>	Digestive tract	Guilan, Mazandaran	C.S.	34, 77
2	<i>Bothriocephalus acheilognathi</i>	<i>Alburnus filippi</i> . <i>Cyprinus carpio</i>	Intestine	East Azarbaijan	C.S.	88, 105
3	<i>Bothriocephalus gowkongensis</i>	<i>Barbus brachycephalus</i> . <i>B. capito</i> . <i>B. lacerta</i> . <i>B. mursa</i> . <i>Capoeta damascina</i> . <i>Chalcalburnus chalchoides</i> <i>Chondrostoma regium</i> , <i>Ctenopharyngodon idella</i> . <i>Cypinus carpio</i> . <i>Rutilus rutilus</i>	Digestive tract	Chaharmahal-Bakhtirari, Guilan, Khouzestan, Mazandaran, West Azarbaijan	C.S. M.	5, 6, 9, 66, 76, 78, 108, 119
4	<i>Bothriocephalus opsariichthydis</i>	<i>Barbus luteus</i> <i>Ctenopharyngodon idella</i> . <i>Cyprinus carpio</i> . <i>Nemacheilus</i> sp.	Digestive tract	Khouzestan, West Azarbaijan	C.S. M.	73, 136
5	<i>Caryophyllaeus brachycollis</i>	<i>Cyprinus carpio</i>	Digestive tract	Mazandaran, Guilan		119, 120
6	<i>Caryophyllaeus fimbriceps</i>	<i>Abramis brama</i> . <i>Cyprinus carpio</i> . <i>Mugilidae</i> sp.. <i>Rutilus rutilus</i> . <i>Tinca tinca</i> .	Intestine	Guilan, Mazandaran	C.S.	25, 53, 78, 120
7	<i>Caryophyllaeus laticeps</i>	<i>Abramis brama</i> . <i>Cyprinus carpio</i>	A. C.	West Azarbaijan, Mazandaran, Guilan	C.S.	1, 119, 120, 102
8	<i>Diphyllobothrium latum</i>	<i>Barbus brachycephalus</i> . <i>Barbus</i> sp.	A. C.	Guilan, Esfahan	C.S.	78
9	<i>Eubothrium acipenserinum</i>	<i>Acipenser guldenstaedtii</i> . <i>A. nudiventris</i> . <i>A. persicus</i> . <i>A. stellatus</i> . <i>Huso huso</i>	Digestive tract	Mazandaran, Guilan	C.S.	77, 124, 14, 120, 69, 34
10	<i>Khawia armenica</i>	<i>Capoeta buhsei</i> . <i>Capoeta capoeta</i>	Digestive tract	Esfahan	C.S.	50, 138
11	<i>Ligula intestinalis</i>	<i>Abramis brama</i> . <i>Alburnoides bipunctatus</i> . <i>Alburnus atropatanea</i> . <i>A. charusini</i> . <i>A. filippi</i> . <i>Barbus</i> sp.. <i>Capoeta capoeta</i> . <i>Carassius auratus</i> . <i>Chalcalburnus</i> sp. <i>Cyprinus carpio</i>	A. C.	Chaharmahal-Bakhtirari, East Azarbaijan, Khorasan, Mazandaran, West Azarbaijan	C.S. M.	1, 3, 49, 73, 88, 102, 115
12	<i>Schistocephalus solidus</i>	<i>Barbus</i> sp.	A. C.	Esfahan	C.S.	115
13	<i>Triaenophorus crassus</i>	<i>Esox lucius</i>	Digestive tract	Guilan, Mazandaran	C.S.	53, 82, 119
Nematoda						
1	<i>Anguicicola crassus</i>	<i>Anguilla anguilla</i>	Swim-bladder	Fars	M.	4
2	<i>Anisakis schupakovi</i>	<i>Silurus glanis</i> . <i>Acipenser guldenstaedtii</i>	Intestine, liver	Guilan	C.S.	98
3	<i>Ascarophis ovotrichuria</i>	<i>Acipenser guldenstaedtii</i>	Intestine	Guilan	C.S.	98
4	<i>Camallanus lucustris</i>	<i>Barbus luteus</i> . <i>B. sharpeyi</i> . <i>Capoeta capoeta</i> . <i>Esox lucius</i> <i>Tinca tinca</i>	Digestive tract	Guilan, Khouzestan, West Azarbaijan.	C.S. M.	53, 74, 101
5	<i>Contracecum osculatum</i>	<i>Esox lucius</i>	A. C.	Mazandaran	C.S.	24
6	<i>Contracecum spiculigerum</i>	<i>Mugilidae</i> sp.		Mazandaran	C.S.	119
7	<i>Contracecum squallii</i>	<i>Acipenser guldenstaedtii</i>	Liver	Guilan, Mazandaran	C.S.	98, 82
8	<i>Cucullanus criatus</i>	<i>Barbus grypus</i>	Intestine	Khouzestan	M.	74
9	<i>Cucullanus mulleri</i>	<i>Carassius auratus</i>	Intestine	Mazandaran	C.S.	97
10	<i>Cucullanus sphaerocephalus</i>	<i>Acipenser guldenstaedtii</i> . <i>A. nudiventris</i> <i>A. persicus</i> . <i>A. stellatus</i> . <i>Huso huso</i> . <i>Neogobius bathybius</i> . <i>N. fluviatilis pallasi</i> . <i>N. kessleri gorlap</i> . <i>N. melanostomus</i> . <i>Silurus glanis</i>	Intestine	Guilan, Mazandaran, Gorgan	C.S.	14, 32, 69, 82, 98, 104, 120, 124, 132
11	<i>Cyclozoon acipenserina</i>	<i>Acipenser guldenstaedtii</i> . <i>A. stellatus</i>	Intestine	Guilan, Mazandaran	C.S.	98, 82, 38
12	<i>Cystoopsis acipenseris</i>	<i>Acipenser guldenstaedtii</i> . <i>A. persicus</i>	A. C.	Mazandaran	C.S.	38
13	<i>Dichelyne minutus</i>	<i>Neogobius fluviatilis</i> . <i>N. kessleri</i>	Intestine	Mazandaran, Gorgan	C.S.	95, 104
14	<i>Eustrongilides excisus</i>	<i>Aspius aspius</i> . <i>Acipenser persicus</i> . <i>A. stellatus</i> . <i>A. nudiventris</i> . <i>A. guldenstaedtii</i> . <i>Barbus capito</i> . <i>Carassius carassius</i> . <i>Clupeonella grimmi</i> . <i>Esox lucius</i> . <i>Huso huso</i> . <i>Neogobius bathybius</i> . <i>N. fluviatilis</i> . <i>N. caspius</i> . <i>N. kessleri gorlap</i> . <i>Perca fluviatilis</i> .	Abdominal cavity, ovary, testis, muscles	Gorgan, Guilan, Mazandaran, West Azarbaijan	C.S.	53, 98, 102, 104, 120, 123, 124, 126, 133
15	<i>Hysterothylacium adunacum</i>	<i>Neogobius fluviatilis pallasi</i> . <i>N. kessleri gorlap</i> . <i>N. melanostomus</i>	Intestine	Gorgan	C.S.	104
16	<i>Philometra karunensis</i>	<i>Barbus grypus</i> . <i>B. sharpeyi</i>	Swimbla	Khouzestan	M.	92, 100, 128

			dder			
17	<i>Philometra ovata</i>	<i>Barbus sharpeyi</i>	A.C.	Khuzestan	M.	74
18	<i>Philometra rishta</i>	<i>Blicca bjoerkna</i>	A.C. Gill	Guilan	C.S.	134
19	<i>Pseudocapillaria tomentosa</i>	<i>Barbus grypus. B. lacerta. B. capito. B. mursa. Capoeta capoeta. Cyprinus carpio</i>	Intestine. Digestive tract	Chaharmahal-Bakhtirari, Khuzestan, Mazandaran, West Azarbaijan.	C.S. M	20, 49, 74, 92, 97, 105
20	<i>Pseudopentagramma symmetrica</i>	<i>Chalcalburnus tarishi. Clupeonella cultriventris. Cl. engrauliformis. Cl. grimmi</i>	Digestive tract	Guilan, Mazandaran	C.S.	32, 133
21	<i>Raphidascaris acus</i>	<i>Abramis brama. C. carassius. Carassius auratus. Esox lucius. N. fluviatilis pallasii. N. kessleri gorlap. N. melanostomus. Neogobius bathybius. Perca fluviatilis. Rutilus frisii kutum. Scardinius erythrophthalmus. Tinca tinca</i>	Digestive tract. Intestine	Gorgan, Guilan, Mazandaran	C.S.	24, 53, 55, 72, 97, 104, 120, 122, 127
22	<i>Rhabdochona acuminata</i>	<i>Capoeta capoeta C. c. gracilis. Barbus brachycephalus</i>	Digestive tract	Guilan	C.S.	78
23	<i>Rhabdochona fortunatowi</i>	<i>Alburnus filippi. Barbus grypus. B. luteus. B. lacerta B. capito. B. pectoralis. Capoeta capoeta Carassius auratus. Cyprinus macrostomum. Nemacheilus bergianus. Neogobius fluviatilis. Silurus triostegus.</i>	Intestine	West Azarbaijan, Mazandaran, Khuzestan	C.S. M.	87, 101, 128
24	<i>Rhabdochona denudata</i>	<i>Barbus grypus. B. luteus. B. sharpeyi. B. pectoralis. Cyprinus macrostomum. Cyprinus carpio. Silurus triostegus.</i>	Intestine	Khuzestan	M.	128
25	<i>Rhabdochona hellichi</i>	<i>Barbus capito B. lacerta B. mursa. Capoeta capoeta Chalcalburnus chalcoides. Esox lucius</i>	Intestine	Mazandaran, West Azarbaijan, Guilan	C.S.	1, 97, 98, 101, 102
26	<i>Rhabdocuna filamentosa</i>	<i>Barbus brachycephalus. Varicorhinus capoeta gracilis</i>	Digestive tract	Guilan	C.S.	78
Acanthocephala						
1	<i>Acanthocephalorhynchoides cholodkowskyi</i>	<i>Aphanius vladkovi. Capoeta buhsei. C. c. gracilis. C. damascina. Cyprinus carpio. Rutilus rutilus caspicus.</i>	Intestine	Esfahan, West Azarbaijan, Chaharmahal-Bakhtiari	C.S.	29, 50, 112, 137
2	<i>Corynosoma caspicum</i>	<i>Acipenser guldenstadti. A. stellatus. A. stellatus. Huso huso</i>	Intestine	Guilan, Mazandaran	C.S.	8, 35, 123
3	<i>Corynosoma strumosum</i>	<i>Acipenser guldenstadti. A. stellatus. Huso huso. Clupeonella engrauliformis. C. cultriventris. C. grimmi Neogobius bathybius. N. fluviatilis pallasii. N. kessleri gorlap</i>	Intestine. Abdominal cavity	Guilan, Mazandaran, Gorgan	C.S.	32, 123, 104, 133
4	<i>Eubothrium acipenserinum</i>	<i>Huso huso</i>		Guilan		123
5	<i>Leptorhynchoides plagicephalus</i>	<i>Acipenser persicus. A. guldenstadti. A. nudiventris. A. stellatus</i>	Intestine	Guilan, Mazandaran,	C.S.	28, 32, 98, 120, 123
6	<i>Neoechinorhynchus rutili</i>	<i>Barbus capito. Capoeta capoeta gracilis</i>	Intestine. A.C	Mazandaran, West Azarbaijan	C.S.	1, 73, 97, 102
7	<i>Neoechinorhynchus tylosuri</i>	<i>Aspinus vorax. Liza abu</i>	Intestine	Khuzestan		136
8	<i>Pomphorhynchus perforator</i>	<i>Barbus capito. B. lacerta. Capoeta capoeta gracilis</i>	Intestine	West Azarbaijan		101
9	<i>Pomphorhynchus leavis</i>	<i>Acipenser stellatus. Barbus capito. B. lacerta. B. mursa</i>	Intestine	Guilan, West Azarbaijan	C.S.	82, 98, 101
10	<i>Pseudocapillariatomentosa</i>	<i>Barbus grypus</i>	Intestine	Khuzestan	M.	128
Crustacea						
1	<i>Argulus foliaceus</i>	<i>Abramis brama. Aspius aspius. Alburnoides bipunctatus. Capoeta capoeta gracilis. Carassius auratus gibelio. Chalcalburnus chalcoides. Cyprinus carpio. Esox lucius. Hypophthalmichthys molitrix. Luciopeca luciopeca. Perca fluviatilis</i>	Body surface. Fins	Guilan, West Azarbaijan. Chaharmahal-Bakhtiari. Mazandaran	C.S.	72, 73, 87, 111, 102
2	<i>Ergasilus peregrinus</i>	<i>Acanthalburnus urmianus. Capoeta capoeta gracilis. Ctenopharyngodon idella. Cyprinus carpio. Leuciscus cephalus</i>	Gills. fins	West Azarbaijan, Zanjan	C.S.	40, 99, 73, 87
3	<i>Lamproglena chinensis</i>	<i>Capoeta damascina.</i>	Gills	Chaharmahal-Bakhtirari	C.S.	110
4	<i>Lamproglena compacta</i>	<i>Capoeta capoeta gracilis. Leuciscus cephalus</i>	Gills	Mazandaran, Zanjan, W. Azarbaijan	C.S.	40, 102
5	<i>Lernaea cyprinacea</i>	<i>Alburnus alburnus. Barbus lacerta. Capoeta aculeate. C. c. gracilis. C. damascina. Carassius carassius. Chalcalburnus chalcoides. C. mossulensis. Chondrostoma orientalis. Ctenopharyngodon idella. Cyprinus carpio. Hypophthalmichthys molitrix. Leuciscus cephalus. Mastacembelus mastacembelus. Pseudorasbora parva</i>	Fins. Operculum. Gills	Chaharmahal-Bakhtiari. Fars, Mazandaran, West Azarbaijan	C.S. M.	10, 49, 73, 111, 113, 114
6	<i>Lernaea elegans</i>	<i>Ctenopharyngodon idella. Cyprinus carpio</i>	Body surface	Mazandaran, Khuzestan, Esfahan	C.S. M.	31
7	<i>Lernaea ctenopharyngodoni</i>	<i>Acanthalburnus urmianus</i>	Fins	West Azarbaijan	C.S.	73
8	<i>Pseudotracheliaestes stellatus</i>	<i>Acipenser guldenstadti. A. nudiventris. A. stellatus. A. persicus. Huso huso</i>	Fins.	Mazandaran	C.S.	38, 98, 107

			skin			
9	<i>Tracheliastes longicollis</i>	<i>Capoeta capoeta gracilis</i>	Fins	Zanjan, West, East Azarbaijan.	C.S.	40, 73, 139
10	<i>Tracheliastes polycolpus</i>	<i>Capoeta capoeta gracilis</i>	Fins	West Azarbaijan.	C.S.	73
	Aspidogasterea					
1	<i>Aspidogaster limacoides</i>	<i>Barbus brachycephalus. Rutilus frisii kutum. R. rutilus</i>	Digestive tract	Guilan. Mazandaran	C.S.	55, 66, 77
	Amphilina					
1	<i>Amphilina foliacea</i>	<i>Acipenser guldenstadti. A. persicus. A. stellatus</i>	Sexual glands	Guilan. Mazandaran	C.S.	69, 77, 82, 98, 120
	Annelida					
1	<i>Piscicola geometra</i>	<i>Tinca tinca</i>	skin	Guilan	C.S.	18

References

1. **Abbasi-Chahar-Aiin, J., 2003.** Survey on metazoan internal parasites in the endemic in north of West Azerbaijan. D.V.M. thesis, Faculty of Veterinary Medicine. Azad University. Uremia. 520. (In Persian).
2. **Abolghasemi, S., 2001.** Survey on the gills parasites of fishes of the west branch of Sefid-rood River in the Gyilan Province, with emphasize on monogenean parasites and describe the new species. D.V.M. thesis, Azad University. Uremia. 374. (In Persian).
3. **Ahmadi, A. and Hasan-Pour Siahgi, S., 2005.** *Ligula intestinalis* from *Carassius auratus* from Aji-Gool Lagoon in the Gyilan Province. 2nd Symposium of fish Health and Disease, Tehran, Iran. (In Persian).
4. **Akhlahgi, M., 2002.** *Anguillicola crassus* infection of eel in the Parishan Lake, Journal of Pajouhesh and Sazandegi, 50. (In Persian).
5. **Alwari, G., 1994.** Identification of agents of diseases in the skin and gills of Carras and gold fish in the Anzali Lagoon. Fisheries B.Sc. thesis. Tehran University. (In Persian).
6. **Asadzadeh Manjili, A., 1995.** Survey on health and external parasites diseases in the common carp pen-culture in the Anzali Lagoon with emphasize on *Dactylugyrus spp.* D.V.M. thesis. Veterinary. Medicine Faculty, Tehran University. NO. 2332. (In Persian).
7. **Asadzadeh Manjili, A. and Ghorbanzadeh, A., 1999.** Cultured trout infections to *Diplostomum spathaceum Rudolphi*, 1819 in the farms of West Azerbaijan. Journal of Iranian Fisheries Sciences. (7)4. (In Persian).
8. **Ataii, E., 1995.** Survey on parasitic helminthes in the fishes of Anzali Lagoon. Fisheries B.Sc. thesis. Azad University. (in Persian).
9. **Azarwandi, A., Dalimi, A., Ghamari, Z. and Ghebleh, F., 2000.** Survey on helminthes infection in the digestive tract in the pond culture of common carp, grass carp and trout in the West Azerbaijan Province, Journal of Pajouhesh and Sazandegi, 43. (In Persian).
10. **Barzegar, M. and Jalali, B., 2001.** Parasites of fishes of Kaftar Lake, distribution and economically importance of them. Scientific Journal of Veterinary Medicine Faculty, Chamran University, (3)5. . (In Persian).
11. **Barzegar, M., Raiisi, M., Bozorgnia, A. and Jalali, B., 2008.** Parasites of the eyes of fresh and brackish water fishes in Iran. Iranian Journal of Veterinary Research, Shiraz University. 9(3), 256-261.
12. **Baska, F. and Masoumian, M., 1996.** *Myxobolus molnari* sp. n. and *M. Mokhayeri* sp. n. (*Myxosporea Myxozoa*) Infecting a Mesopotamian fish, *Capoeta trutta* Heckel. Acta Protozoologia, 35,151-156.
13. **Bazari Moghaddam, S., Mokhayer, B., Masoumian, M., Shenavar Masouleh, A., Jalilpour, J., Masoumzadeh, M. and Alizadeh, M., 2010.** Parasitic infection among larvae and fingerlings of the Persian sturgeon (*Acipenser persicus*) in Vniro tanks and earthen ponds. Scientific Fisheries Journal. 9(3), 342-351. (in Persian).
14. **Bazari-Mohgadam, S., Satari, M., Masoumian, M., Shenawar-Masoleh, A., Masoum-Zadeh, M. and Jalilpour, J., 2005.** Parasitic survey on digestive tract of *Acipenser persicus* brood stock in Shahid-Beheshty hatchery. 2nd Symposium of fish Health and Disease, Tehran, Iran. (In Persian).

15. **Behrouzi, S., Jalali, B. and Soltani, M., 2005.** Survey and identification of parasitic infections in Cultured *Hypophthalmichthys nobilis* in Mazandaran Province. 2nd Symposium of fish Health and Disease, Tehran, Iran. (In Persian).
16. **Behrouzi, S., Jalali, B. and Soltani, M., 2005.** Survey and identification of parasitic infections in Cultured *Ctenopharyngodon idella* in Mazandaran Province. 2nd Symposium of fish Health and Disease, Tehran, Iran. (In Persian).
17. **Behrouzi, S., Jalali, B. and Soltani, M., 2005.** Survey on parasites form cultured freshwater fishes in Mazandaran Province. 2nd Symposium of fish Health and Disease. Tehran, Iran. (In Persian).
18. **Daghigh-Roohi, J. and Mokhayer, B., 2003.** Infection of *Tinca tinca* from Anzali Lagoon to the *Asymphylogora tinca* (Modeer, 1796). Journal of Iranian Fisheries Sciences. (11)1. (In Persian).
19. **Dollfus, R. P., 1970.** Infection of ptychobothrien cestode parasite in the cyprinidae fishes in Iran. Bull. Mus. Natn. His. Nat. Paris. 41, 1517-1521. (in French).
20. **Ebahimzadeh, A. and Nabawi, L., 1977.** Investigation on digestive tract and muscles of fishes of Khuzestan Province (in Persian).
21. **Ebrahimian, A. and Kilany-Damavandi, R., 1977.** Parasitic infection in the fish of karoon river in province (Khuzestan south west Iran) summ.1st Medit. Conf. Parasit. Izmir Turkey (5-10 oct.1977).
22. **Eilizian, M., Amjadi, R., Ahooraii, P. and Tamjidi, Y., 1974.** *Posthodiplostomose* in fishes. Journal of Veterinary. Iran. 10. (in Persian).
23. **Ergens, R. and Gussev, A.V., 1965.** *Dactylogyrus prostaе* Molnar 1964, (Monogeneidae) aus den kiemen vom *Leuciscus cephalus* (L.) and *Leuciscus cephalus orientalis* Nordmann. Cslka. Parasit. 12, 323-325.
24. **Eslami, A. and Anwar, M., 1971.** Occurrence and intensity of the infestation by *Caryophyllaeus fimbriceps* in carp and mullet (new host) In Iran. Riv. It.Piscic.Ittiop.1, 21-23.
25. **Eslami, A., Anwar, M. and Khatibi, SH., 1972.** Incidence and intensity of helminthiasis in pike (*Esox lucius*) of Caspian Sea. (northern Iran) Riv. It.Piscio. Ittiop.1, 11-14. 133.
26. **Eslami, A. and Kohnehshahri, M., 1978.** Study on the helminthiasis of *Rutilus frisii katum* from south Caspian sea. Act. Zool. Path. Antverpiensia, 70, 153-155.
27. **Eslami, A. and Mokhayer, B., 1977.** Nematode larvae of medical importance found in market fish in Iran. Pahlavi Med. J. 8, 345-348.
28. **Esmaili, F. and Abbasi, S., 1997.** Influence of *Botherucephalus* some of blood factors grass carp. J. Iranian Fisheries Sciences (5)3. (in Persian).
29. **Fadaii-Fard, F., Mokhayer, B. and Ghorbani, H., 2002.** Survey and identification of parasites from fishes of Choghakhor Lagoon in Chaharmahal-Bakhtiari, Journal of Faculty of Veterinary Medicine, Tehran University. (56)3. (in Persian).
30. **Ghobadian, M., 2005.** Survey on parasites of freshwater fishes of Zanjan Province. B.Sc. thesis. Faculty of Biological Sciences, Shahid-Beheshty, University. (in Persian).
31. **Ghorbanzadeh, A., 1996.** Survey on monogean parasites of gills from fishes of Zarineh-Rood River. D.V.M. thesis, Faculty of Veterinary Medicine. Azad University. Uremia. 117.
32. **Ghoroghi, A., 1992.** Survey on Diplostomiasis in fingerling Acipenseridae in the Shahid-Beheshty hatchery. Iranian Fisheries Research Organization. (in Persian).

33. **Ghoroghi, A., 1995.** Identification of parasitic helminthes in the digestive tract of *Acipenser persicus*. Iranian Fisheries Research Organization. (in Persian).
34. **Ghoroghi, A. and Pougholam, R., 1996.** Identification the parasitic diseases of *Huso huso*. Journal of Pajouhesh & Sazandegi. 28. (in Persian).
35. **Golvin, J. V. and Mokhayer B., 1973.** Acanthocephales des esturgeons de la mer caspienne. Annls. Parasit. Hum. Comp. 4, 597-602.
36. **Gussev, A. V., Jalali, B. and Molnar, K., 1993.** New and Known species of *Dactylogyrus* Diesing 1850 (Monogenea, Dactylogyridae) from Iranian freshwater fishes. Systematic Parasitology. 25, 221-228.
37. **Gussev, A. V., Jalali, B. and Molnar, K., 1993.** Six new species of the genus *Dactylogyrus* (Monogenea, Dactylogyridae) from Iranian freshwater fishes. Zool. Inst. St. Petersburg. 29-35.
38. **Hajimoradloo, A. M., 2001.** Survey on metazoan parasites infections in Acipenseridae fishes in South-Eastern part of the Caspian Sea. Vet. Ph.D. thesis, Tehran University. (in Persian).
39. **Hosseini, M.R., Pyighan, R. and Nabawi, L., 2001.** Survey on intensity and infection to the *Neoechinorincus* in the intestine of *Capoeta capoeta*, from the rivers of Khorm-Abad. 1st Symposium of Fish Health and Diseases. Iran, Ahwaz. (in Persian).
40. **Jalali, B. 1987.** Lernaeciasis in cyprinid cultured fish in Iran. University of Godolo Hungary.
41. **Jalali, B., 1992.** Description of *Dogielius molnari* N. sp. (Monogenea, Dactylogyridae) from the gills of on Iranian freshwater fish, *Cyprinion macrostomum* (Heckel). Acta Veterinaria Hungarica. 40 (4), 239-242.
42. **Jalali, B., 1994.** Monogenean parasites of freshwater fish in Iran, veterinary medicine Research institute, Hungarian Academy of Sciences, Budapest Hungary P.P.1-32.
43. **Jalali, B., 1999.** Parasites and parasitic Diseases in the freshwater fishes of Iran, Iranian Fisheries Company, Aquaculture Department. 652pp. (in Persian).
44. **Jalali, B. and Barzegar, M., 2005.** Parasites of endemic and exotic fishes of Vahdat Lake, Kordestan Province. Journal Veterinary Sciences, Iran. No, (1)3. (in Persian).
45. **Jalali, B. and Molnar, K., 1990.** Occurrence of monogeneans on freshwater in Iranian *Dactylogyrus* spp. on cultured Iranian fishes. Act. Veterinaria Hungarica, 4, 239-242.
46. **Jalali, B. and Molnar, K 1996.** Occurrence of monogeneas on freshwater fishes of Iran, Dactylogyridae from fish of natural water and description of *Dogelius mokhayeri* sp. n. Parasitologia, Hungarica. 23, 27-31.
47. **Jalali, B., Papp, E. and Molnar, K., 1995.** Four new *Dactylogyrus* species (monogenea, Dactylogyridae) from Iranian fishes. Folia Parasitologia. 42.97-101.
48. **Jalali, B., Shamsi, Sh. and Molnar, K., 2000.** New *Dactylogyrus* species (Monogenea, *Dactylogyrus*) from cyprinid fishes of the Bahu-Kalat River in southeast Iran. Acta. Parasitologia. 45(4).
49. **Jalali B. and Barzegar M., 2006.** Fish Parasites in Zarivar Lake J. Agric. Sci. Technol., 2006 Vol. 8, 47-58,
50. **Jalali, B., Barzegar, M., Asadolah, S., Mehdipour, M., Maghsoudloo, E., Gheslghi, P., Abdolahi, F., Mansouri, F. and Fakhri, Z. 2007.** Identification of the parasites from some fishes of Zayandeh-Rud River and first record of *Allocreadium*

- laymani* Bychowsky, 1962 from Iran. Veterinary Research Bulliten 4(1), 63-70. (in Persian).
51. **Jazebizadeh, K., 1983.** Study on parasitic diseases in lake of Zarivar fishes Environmental Protection Organization of Iran.
 52. **Khancheh, S., 2001.** Diplostomiasis in the freshwater fishes in water recourses in Sanandaj. D.V.M. thesis, Faculty of Veterinary Medicine. Azad University. Uremia. 394.
 53. **Khara, H., Satari, M., Nezami, Sh. A., Mosawi, S. A. and Jaafarzadeh, E., 2005.** Survey on prevalence and intensity parasitic infection *Esox lucius* from Amir-Kolateh, Lahijan. Journal of Faculty Veterinary Medicine, Tehran University, (59)4. (in Persian).
 54. **Khara, H., Nezami, Sh.A., Sattari M., Mirhasheminasab S.F. and Mousavi S.A., 2008.** An investigation on fish infection with *Diplostimum spathaceum* (Rudolphi, 1891) in Boojagh Wetland. Journal Biology of Iran., 20(4), 418-429. (in Persian).
 55. **Khara, H., Nezami, Sh., Saiidi, A.S., Mohamadi, Z., Abdollahi, N., Alinia, M.R. and Ahmad Nejad, M., 2010.** Parasites of *Rutilus frisii kutum*, kamensky, 1910 immigrated to the Shir-Rud nin Mazandaran Province. Journal of Biological Sciences of Azad university of Lahijan. 3(3), 29-35. (in Persian).
 56. **Khojasateh-Khah, M., 1999.** Survey on protozoan parasites infections of cultured trout in Chaharmahal-Bakhtiari Province. D.V.M. thesis. Tehran University.
 57. **Malek, M., 1994.** Survey on life cycle of *Clinostomum complanatum* infection in the *Capoeta capoeta*. Journal of Iranian Fisheries Sciences. 3. (in Persian).
 58. **Masoumian, M., Pazooki, J., Yahyazadeh, M. and Teymornezhad 2005.** Protozoan from freshwater fishes from North west of Iran- Iranian. Journal of Iranian Fisheries Sciences. 4(2), 31-42.
 59. **Masoumian, M., Baska, F. and Molnar, K., 1994.** Description of *Myxobolus karuni* sp. n. and *Myxobolus persicus* sp. n. (Myxosporea, Myxozoa) from *Barbus grypus* of the River Karun, Iran. Parasitlogia Hungarica. 27, 21-26.
 60. **Masoumian, M., Baska, F. and Molnar, K., 1996.** *Myxobolus nodulointestinalis* sp. n. (Myxosporea, Myxobolidae) a parasite of the intestine of *Barbus sharpeyi*. Diseases Aquatic Organisms. 24, 35-39.
 61. **Masoumian, M., Baska, F. and Molnar, K., 1996.** Description of *Myxobolus bulbocordis* sp. nov. (Myxosporea, Myxobolidae) from the heart of *Barbus Sharpeyi* (Gunther) and histopathological changes produced by the parasite. *Journal of Fish Diseases.*, 19, 15-21.
 62. **Masoumian, M., Mehdizadeh, A. and Yahyazadeh, M. Y., 2003.** Infections of Myxozoa and Coccidia parasites from some fishes of Aras and Mahabad Dams. Journal of Iranian Fisheries Sciences. (11)10. (in Persian).
 63. **Masoumian, M. and Pazooki, J., 1999.** Myxosporean parasites from some fishes of Mazandarn and Gyilan Provinces. Journal of Iranian Fisheries Sciences. (7)3. (in Persian).
 64. **Masoumian, M. and Pazooki, J., 1999.** Myxoporean Parasites from Mesopotamian part of Iran. Journal of Iranian Fisheries Sciences. 1(1).
 65. **Masoumian, M., Pazooki, J. and Ghasemi, R., 2004.** *Myxobolus* spp. from three barbus fishes of Southern part of Caspian Sea. Journal Faculty Veterinary Medicine. Tehran University. (58)4. (in Persian).
 66. **Masoumian, M., Setareh, J. and Mokhayer, B., 2002.** Survey on

- parasitic infection of *Rutilus rutilus caspicus* from Southern part of Caspian Sea. Journal of Iranian Fisheries Sciences. (10)4. (in Persian).
67. **Masoumian, M., Barzegar M., Jalali B., Medipour M. and Asadollah S., 2007.** Myxobolus spp. (Myxosporea, Myxobolidae) from fishes of the Zayandeh-Rud River (Esfehan, Iran); new hosts and locality record. Iranian Journal of Fisheries Sciences. 7(1), 89-100.
 68. **Masoumian, M., Chobchian, M., Pazooki, J., Sharfpour, E. and Jalali, B., 2008.** Histozoic developmental stages of *Myxobolus karuni* and *M. persicus* and introduce three new hosts. Journal of Veterinary Research. 63(3), 117-122. (in Persian).
 69. **Masoumzadeh, M., Sayari, M., Shenawar-Masouleh, A.R. and Jalilpour, J., 2005.** Survey on parasitic infection in the digestive tract of Acipenseridae brood stock from Southern part of Caspian Sea. 2nd Symposium on fish health and diseases, Tehran, Iran. (in Persian).
 70. **Mehdipour, M., Barzegar, M. and Jalali, B., 2005.** Survey on monogenean parasites in the gills of fishes of Zayandeh-Rood River. Journal Faculty Veterinary Medicine. Iran. (1)2. (in Persian).
 71. **Mehdizadeh, A., 1999.** Survey on protozoan parasites cultured trout in the coldwater ponds in the West Azarbaijan Province. D.V.M. thesis, Faculty Veterinary Medicine, Azad Univ. of Uremia. 246.
 72. **Miar, A., Bozorgnia, A., Pazooki, J., Barzegar, M., Masoumian, M. and Jalali, B., 2008.** Fish parasites in Valasht Lake and Chalus River. Journal of Iranian Fisheries Sciences. (17)1, 133-138. (in Persian).
 73. **Mirhashemi-Nasab, M. F. and Pazooki, J., 2004.** Survey on crustacean infections in the fishes of Mahabad Dam. Journal of Iranian Fisheries Sciences. 4. (in Persian).
 74. **Moghainemi, S. R., 1996.** Survey on parasitic infections in the endemic fishes of Hoor-Alazim Lagoon. Iranian Fisheries Research Organization. (in Persian).
 75. **Moghainemi, S. R., 1997.** Survey on external and blood parasites from fish pond cultured of Karoon River. . Iranian Fisheries Research Organization. (in Persian).
 76. **Moiini, A. A., 1995.** Botriocephalus infection in the cultured warm water fishes from Khouzestan Province. D.V.M. thesis, Faculty of Veterinary Medicine. Tehran University. 2197. (in Persian).
 77. **Mokhayer, B., 1974.** Checklist parasites of Acipenseridae of Iran. Journal Faculty Veterinary Medicine. Tehran University. No, (29)1. (in Persian).
 78. **Mokhayer, B., 1981.** Survey on parasites of fishes from Sefid-Rood River. Journal Faculty Veterinary Medicine. Tehran University. No, (36)4. (in Persian).
 79. **Mokhayer, B. 1982.** Introduce of *Astatcus aculatus* and helminthes infection in it. Journal Faculty Veterinary Medicine, Tehran University. No, (47)3. (in Persian).
 80. **Mokhayer, B., 1983.** Parasites and parasitic diseases of fish. I International Symposium of Ichthyoparasitology, Ceske Budejovice, 8-13 Aug.
 81. **Mokhayer, B., 1990.** Diplostomiasis in Iranian fishes. Journal Faculty Veterinary Medicine Tehran University. 44. (in Persian).
 82. **Mokhayer, B. and Anwar, M., 1973.** Pathological effects of the Sturgeons parasites in the natural and artificial climate. Riv. It. Piscic. Ittiop.4.111-115. (in French).
 83. **Molnar, K., 1971.** Studies on gill parasitoids of grass crap

- (*Ctenopharyngodon idella*) caused by *D. lamellatus* Achmerov, 1952. II Epizootiology. Acta Veterinary Academy of Sciences. Hungary. 21 (4)361-375.
84. **Molnar, K. and Jalali, B., 1992.** Further monogeneans from Iranian freshwater fishes. Acta Veterinary, Hungarica. 40(1), 55-61.
 85. **Molnar, K., Masoumian, M. and Abasi, S., 1996.** Four new *Myxobolus* spp. (Myxosporae, Myxobolidae) From Iranian Barboid fishes. Archive fur Protiskude. 147. 115-123.
 86. **Molnar, K. and Pazooki, J., 1995.** Occurrence of philometrid nematodes in barboid fishes of river Karun, Iran. Parasitologia Hungarica. 28, 57-62.
 87. **Moradi, Y., 1994.** Survey on parasites of freshwater fishes in the pen-culture in Anzali Lagoon. Fisheries Ms. C. thesis. Faculty of Natural Resources, Tehran University. (in Persian).
 88. **Mortazawi, L., Pazooki, J. and Jawanmard, A., 2005.** Infection of *Bothriocephalus acheilognathi* and *Ligula intestinalis* in two fish species from Satar-Khan, Dam. Journal of Iranian Fisheries Sciences (13)4.
 89. **Nakhsaz, T. and Watandost, F., 2003.** Monogean parasites in *Rutilus frisii kutum* in the freshwater and Caspian Sea. B.Sc. thesis, Mirza-Kochiko-Khan Training Center, Rasht.
 90. **Nazari Chamak, F., Pazooki, J., Ebrahimi, M., and Masoumian, M., 2009.** *Capoeta damascina* of Halil-Rud River, a new host for myxozoan parasites. Journal of Veterinary Research 64, 4, 323-327.(in Persian).
 91. **Nekooi-Fard, A. and Dini-Talaieh, H., 2001.** Survey on *Diplostomum spataceum* and white spot diseases in trout pond culture in West Azerbaijan Province. 1st Symposium of Fish Health and Diseases. Iran, Ahwaz. (in Persian).
 92. **Pazooki, J., 1996.** A fanatical survey and histopathological studies on freshwater fish nematodes in Iran and Hungary. Ph.D. Thesis. Veterinary Medicine Research Institute, Hungarian Academy of Sciences.
 93. **Pazooki, J. and Masoumian 2004.** *Cryptobia acipenser* and *Haemogregarina acipenseris* infections in *Acipenser guldenstaedti* and *A.persicus* in the Southern part of the Caspian Sea. Journal of Agricultural Sciences and Technology. 6, 95-101.
 94. **Pazooki, J. and Aghlmandi, F., 1999.** Infections in two species of *Neogobius floyatilis* and *Neogobius kessleri* to the *Dichelyne minutus Rudulphi*, 1819. Journal of Iranian Fisheries Sciences. (7)2. (in Persian).
 95. **Pazooki, J. and Aghlmandi, F., 2000.** Infection of *Alburnus charousini* from the *Ligula intestinalis* Shahid Modares Dam in Kashmar. Journal of Pajouhesh and Sazandegi, No, 51. (In Persian).
 96. **Pazooki, J. and Aghlmandi, F., 2002.** Infection of *Vimba vimba* from the northern part of Caspian Sea, to the *Asymphylogora kubanicum Isaichikov*, 1923. of Iranian Fisheries Sciences. (11)2. (in Persian).
 97. **Pazooki, J. and Masoumian, M. (2002)** Nematode Parasites from some freshwater fishes of Gylan Mazandaran Provinces. Journal of Pajouhesh and Sazandegi, 51. (in Persian).
 98. Pazooki, J., Masoumian, M. and Ghamemi, R. 2004). Infections of three *Barbus* species from Tajan, Zarem-rood in the Mazandaran Province to the helminthes parasites. Journal of Pajouhesh and Sazandegi, 51. (in Persian).
 99. **Pazooki, J., Masoumian, M. and Ghobadian M., 2006.** Identification parasites from some fishes of Zanjan

- Province water resources. Iranian Fisheries Sciences. 1 (in Persian).
100. **Pazooki, J. and Molnar, K., 1998.** *Philometra karunensis* Sp. n. (Nematode, philometridae) from *Barbus sharpeyi* (Pisces) in freshwaters of southwest Iran. Acta Veterinaria Hungarica. 46(4).
 101. **Pazooki, J. and Sayar, B., 2000.** Survey on helminthes parasites infections in the digestive tract of Barboidea fishes in the Aras River and it drainage. Iranian Fisheries Research Organization. (in Persian).
 102. **Pazooki, J., Masoumian, M., Yahyazadeh, M. and Abbasi, J., 2007.** Metazoan Parasites from Freshwater Fishes of Northwest Iran. Journal of Agricultural Sciences and Technology. 9, 25-33
 103. **Pazook, i J., Masoumian, M. Yahyazadeh, M. and Sadri G., 2008.** Monogenean parasites from fresh water fishes of Northwest Iran. Pajouhesh & Sazandegi.77, 17-25. (in Persian).
 104. **Pazooki, J., Mansouri-Habibabadi, Z., Masoumian, M. and Aghaee-Moghdam A., 2011.** Survey on the metazoan parasites in *Neogobius* fishes from Southeastern part of the Caspian Sea. Iranian Journal of Fisheries Sciences 10(1) 95-104.
 105. **Pourzargham, M. R., 1996.** Survey on metazoan parasites from digestive tract of fishes of Zarineh-Rood River. D.V.M. thesis, Azad University, Uremia. 119. (in Persian).
 106. **Poustchi, H. and Haramipour, M., 1987.** Survey on parasitic infections in the eyes of fishes. B.Sc. thesis, Faculty of Natural Resources., Tehran University.
 107. **Pyighambari, S. Y., 1991.** Survey on macroscopic parasites in the gills of Acipenseridae fishes in the Kgyi-Rood Station, B.Sc. thesis, , Faculty of Natural Resources., Tehran University.
 108. **Raiisy, M., Barzegar, M., Manouchehri, K., Rahimi, E. and Jalali, B., 2008.** Helminths parasites of Choghakhor Lagoon and introduce *Tylodelphys clavata*. Veterinary Research Bulliten 4(4), 251-258. (in Persian).
 109. **Raiisy, M., Barzegar, M., Alimardani, K. and Jalali, B., 2007.** Survey on the parasites of eight fishes of Choghakhor Lagoon and introduce *Dactylogyrus spiralis*. Veterinary Research Bulliten 3(1), 411-418. (in Persian).
 110. **Raissy, M., Ansari, M. and Jalali, B., 2009.** Identification of the parasites of Capoeta spp. from Kiar and Behesht-Abad rivers of Chaharmahal-Bakhtiari and first record of *Lamprolegna chinensis* from Iran. Veterinary Pathobiology . 1, 18-22. (in Persian).
 111. **Raissy, M. Ansari, M. and Jalali, B., 2010.** Occurrence of parasites in selected fish species in Gandoman Lagoon, Iran. Iranian Journal of Fisheries Sciences 9(3) 464-471.
 112. **Raissy, M., Ansari, M. and Moumeni. M., 2011.** Parasite Fauna of the Zagros Tooth-Carp, *Aphanius vladkovi* Coad, 1988 (Osteichthyes, Cyprinodontidae), in Gandoman Lagoon. Comparative Parasitology. 78(1), 104-106.
 113. **Raissy, M., Ansari, m., Yousefpuor, S. and Fadaii-Fard, F., 2011.** Investigation of outbreak of *Lernaea cyprinacea* Linnaeus, 1758 (Crustacea, Copepoda) in fish from Choghakhor Lagoon. Veterinary Research Bulliten. 6(2), 129-132. (in Persian).
 114. **Ranjbar Bahadori, Sh., Jafari Cherati A., Mehdipour M. and Jalali B., 2010.** A survey on ectoparasit in freshwater and warm water culture fishes in Mazandaran province. Veterinary Journal

- (Pajouhesh & Sazandegi). 84, 18-22. (in Persian).
115. **Razmi, Gh. R. and Naghibi, A., 2001.** Comparative study on the biology and morphology of *Pleroserooides* in the abdominal cavity of fishes. 1st Symposium of fish Health and Diseases, Iran, Ahwaz. (in Persian).
 116. **Reza-Ali, M. and Zaiimzadeh, H., 1997.** Survey on the parasitic infection in the eyes of fishes in the Southern part of Tehran. Fisheries B.Sc. thesis. Faculty of Natural Resources., Tehran University. (in Persian).
 117. **Rostamzad, H., Kyivan, A., Khara, H., Shenawar-Masooleh, A.R., Masoumizadeh, M. and Jalilpour J., 2008.** Parasitic infections of propagated fingerlings of *Acipenser persicus*. Journal of Biological Sciences of Azad university of Lahijan. 2(2), 43-51. (in Persian).
 118. **Saiidi, A. A., 1994.** Parasites from digestive tract and gills of Mugilidea fishes from Caspian Sea (Noshahr). Iranian Fisheries Research Organization. (in Persian).
 119. **Satari, M., 2000.** Survey on metazoan parasites infections in Acipenseridae fishes in South-Western part of the Caspian Sea. Veterinary Ph.D. thesis, Tehran University.
 120. **Satari, M. and Faramarzi, N., 1997.** Survey on parasitic infection in the pick of Anzali Lagoon. Journal of Pajouhesh and Sazandegi, 30. (in Persian).
 121. **Satari, M. and Faramarzi, N., 1997.** Survey on some fishes of Anzali Lagoon to the *Caryophyllaeus*. Journal of Iranian Fisheries Sciences. (5)4. (in Persian).
 122. **Satari, M., Mokhayer, B. and Mihasheminasab, M., 2001.** Survey on intensity parasitic helminthes from *Acipenser stellatus* fishes of Southeastern part of the Caspian Sea. 1st Sym. fish health and diseases in Iran, Ahwaz. (in Persian).
 123. **Satari, M., Mokhayer, B. and Mihasheminasab, M., 2002.** Survey on intensity parasitic helminthes from *Acipenser stellatus* fishes of Southeastern part of the Caspian Sea. Journal of Veterinary Faculty. (57)4.
 124. **Satari, M., Roustaii-Alimehr, M. and Shafii, Sh., 2002.** Survey on intensity to the Raphiascarid in some fishes of Anzali Lagoon. Journal of Pajouhesh and Sazandegi,. 52. (in Persian).
 125. **Satari, M. and Shafii, Sh., 1997.** Survey on Diplostomiasis in the fishes of Anzali Lagoon. Journal of Pajouhesh and Sazandegi, 31. (in Persian).
 126. **Satari, M. Shafii, Sh., Daghigh-Rouhi, J., Bourbiria, H. and Najest, N., 2003.** Survey on Eustorogilides larvae in some fishes of Caspian Sea. Journal of Veterinary Medicine Faculty. (57)1.
 127. **Sayedi-Ghomi, M. K., 1996.** Distribution of parasitic infection Tehran. M. Sc. Fishery's thesis. Faculty Natural Resources, Tehran University. (in Persian).
 128. **Syed Mortezaei, S.R., Pazooki, J. and Masoumian, M. 2007.** Nematodes from fresh water fishes of Khouzestan province. Pajouhesh & Sazandegi. 77, 2-10. (in Prsian).
 129. **Syed Mortezaei, S.R., Pazooki, J., Masoumian, M. and Kor, N.M., 2008.** Identification of Myxozoa and Protozoan parasites of Barboid fishes of water resources in Khouzestan Perovine. Iranian Scientific Fisheries Journal. 17(1), 63-78. (in Peresian).
 130. **Syed-Mortezaii, S.R., Mobedi, E. and Farahnak, A., 2001.** Infection in some freshwater fishes to the helminthes. Journal of Iranian Fisheries Sciences. (9)1. (in Persian).
 131. **Sefidkar-Langaroudi, Y., 1966.** Parasites of digestive tract of *Silurus*

- glanis*. D.V.M. thesis, Faculty of Veterinary Medicine. Tehran University. (in Persian).
132. **Shamsi, Sh. and Dalimi-Asl, A. H., 1997.** Identification of *Pseudopentagramma symmetrica*. Journal of Pajouhesh and Sazandegi, 32. (in Persian).
133. **Shamsi, Sh., Pourgholam, R. and Dalimi-Asl, A.H., 1998.** Survey on *Clinostomum complanatum* in the fishes of Shir-rood River. Journal of Iranian Fisheries Sciences. (6)2. (in Persian).
134. **Tajbakhsh, F., Pazooki, J., Masoumian, M. and Daghigh Rouhi, J., 2010.** The first record of *Philometra rischta* (Nematoda, Philometridae) in *Blicca bjoerkna* of Anzali wetland, Iran. Iranian Journal of Fisheries Sciences. 9(3), 485-488.
135. **Tavakol, S., Motalebi, A.A., Bahmani, M., Halajian A. and Jalali, B., 2009.** Survey on the parasites of Acipenseridae fishes from Caspian Sea and Freshwaters. Comparative Bio-Pathology of Iran. (3), 77-84. (in Persian).
136. **Walinejad, A., Hoghoghi-Rad, N. and Papahn, F., 2001.** Survey on monogean parasites in the *Barbus grypus* and *Barbus sharpeyi* in the Karoon River. 1st Symposium of Fish Health and Diseases. in Iran, Ahwaz. (in Persian).
137. **Williams, J. S., Gibson, D. L. and Sadighian, A., 1980.** Some helminthes parasites of Iranian freshwater fishes. Journal of Natural History. 14, 685-699.
138. **Yakhchali, L. and Mahmoudi-Hesar, R., 2003.** Survey on *Ichthyophthirius mulitrix* in trout pond culture in West Azerbaijan Province. Journal of Pajouhesh & Sazandegi. 55 (in Persian).
139. **Zakikhani, N., 1996.** Survey on the Crustacean and Leech in the fishes of Zarineh-Rood. River. D.V.M. thesis, Faculty of Veterinary Medicine, Azad University. Uremia. 120. (in Persian).