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Some Studies on Parasitic Infestations in Some Marine Water Fish with Special Reference on Isopoda

Riad H. Khalil*, Talaat T. Saad and Tamer M.Abd El-Hamid

Poultry and Fish diseases Dept., Faculty of Veterinary Medicine, Alexandria University.

*Corresponding Author

ABSTRACT

Parasitic diseases affecting marine fishes are numerous and they cause high economic losses in marine culture sector in Egypt, therefore; this study was conducted for two main goals; Isolation and identification of the parasites affecting cultured marine fishes in Egypt. In our study, a total number of (600) naturally infested fishes of both sea bream and sea bass revealed no pathognomonic clinical abnormalities. Infested fish showed hemorrhagic areas on gill cover, abdomen and on the bases of fins , abrasions and ulcers on the body surface with rubbing the body against objects and sides of aquaria, sluggish movement, abdominal distension and somewhat emaciation. Symptoms of isopoda include gray-white spots that give the fish's skin and fin the appearance of being sprinkled with salt. These granular white spots have a "bumpy" feel to the touch. The results revealed that the all types of parasites isolated in sea bass and sea bream in different seasons. It cleared that monogenetic trematodes was higher in both species) *Dactylogyrus spp.* and *Gyrodactylus spp* (alternatively in winter and summer seasons. Also, from the data he noticed that the highest seasonal prevalence of ecto-parasites of *Cryptocaryon irritants* in examined sea bass and sea bream was isolated only in winter season only by 10 and 24 positive samples respectively.The data revealed that the isopoda not affected by any concentration of all tested chemicals at any concentration at the all different periods except the high concentration (0.150 ppm) after seven days in case of Dipterex and Malathion as well as after six days in the same compounds in the high concentrations. The present study observed that the formalin and copper sulphate have not any effects on the isopoda.

Keywords:

INTRODUCTION

Fish is one of our most valuable sources of protein food. Worldwide, people obtain about 25% of their animal protein from fish and shell fish. Most Parasitic crustacean of freshwater fish can be seen by the naked eyes as they attach to the gills, body and fins of the host and it spent a large part of their life on fish, possessing an adhesive organs and mouth parts adapted for piercing and sucking fish blood (El Moghazy, 2008).Sea bass and Sea bream raised in farms are commonly parasitized by a variety of organisms, among which external protozoa (Sterud, 2002) Monogeneans (Athanassopoulou et al., 2004) isopoda (Athanassopoulou et al., 2003) and some crustacean Eissa et al., 2012) .Most

studies of fish parasitic diseases in Egypt have been conducted on freshwater fishes as Oreochromis niloticus, Catfish, Clarias garipinsous and Mugil cephalus all over the different region of aquaculture farms and lacks (Eissa, 2006) .The present study was directed toward further understanding of parasitic infestation of cultured marine Sea bass and Sea bream cultured in Marriott lake valley region in Borg El-Arab, Alexandria governorates . The objectives were decided to throw the light on the clinical picture, seasonal prevalence of the some external protozoa, monogenean as well as some crustacean parasitic diseases affecting Sea bass and Sea bream .Besides, the relationships of infestation rates of parasites to some water quality were carried out .Finally, focused on the treatment of Isopoda using different chemicals and organophosohorus compounds (Dipterex and Malathion) .

MATERIALS AND METHODS

A. Materials

A.1. Fish samples

A total number of 600 marine fish (300 each of sea bass and sea bream). Marine water fish were collected alive from the privet fish farm in Borg -Arab- Alexandria governorates by the aid of fisher man and then transported alive to the laboratory in the same farm (Table, 3).

Their body weights and lengths were ranged from less than 50 up to 300 gm. and 15 to 35 cm, respectively. The fish were obtained seasonally (each 150 fish) by the aid of fishermen and fishing gears, then transported to the laboratory alive in polyethylene bags containing 1/3 of its volume water where the remaining volume was filled with air.

A.2. Aquaria

Fully prepared glass aquaria (100 x 50 X 50 cm) were used for holding fish. They were supplied with sea water from the digging underground water; continuous aeration was maintained in each aquarium using an air pump Elmassy, Model EM-148). Thermostatic heaters (Type CMI, Germany) were used along the course of the study (Lucky**,** 1977).

B. Methods

Clinical picture: According to Amlacher (1970*).*

Parasitological examination

Parasitological examination was carried out for the detection and identification of the external parasites on the skin and gills of the samples.

Collection and preparation of the detected ecto-parasites

1. **Macroscopic examination:** examined for presence of parasitic crustaceans (Kabata, 1970).
2. **Microscopic examinations:** examined microscopically (Lucky, 1977).
3. **Permanent slides smear preparations and staining:** Crustacean parasites were identified according to (Kabata, 1979).

Protozoa

This method is indispensable technique for staining Trichodina (Ali, 1992). Other positive slides were also air-dried, fixed with absolute methanol and stained with 10% Giemsa stain for 20-30 minutes to detect the other protozoa (Ali, 1992).

Monogeneans

Monogeneans were collected under binocular dissecting microscopic by means of small pipette in small Petri-dish and cleared several times with water to remove the attached mucous and debris . The worms were then left in refrigerator at 4 C till complete relaxation. Then, they were fixed in 5% formalin for permanent preparation, worms were washed carefully in water to get rid of formalin traces and stained with Semichon's acetocarmine stain for about 5-10 minutes till reaching staining, the specimens were passed through ascending grades of ethyl alcohol (30, 50, 70, 90% and absolute) for dehydration. Then, cleared in clove oil, xylene and mounted in Canada balsam (Pritchard and kruse, 1982), while the unstained Monogeneses were mounted in glycerin jelly (Abdel-Hady, 1998).

Crustacean

The detected crustacean parasites were careful collected by a fine brush and special needle, and transferred into Petri-dish for cleaning by using preserved and cleared in lacto phenol then mounting with polyvenylalcohol (Raef et al., 2000). The detected crustaceans from gills were collected in test tube washed and cleaned in distilled water then fixed in 3% formalin and preserved in equal amount of 70% alcohol -5% glycerin in test tube and permanent amount were prepared by passage in descending grades of alcohol 70%, 50%, 30% cleared in glycerin and mounted in glycerin-gelatin, according to (Lucky, 1977) .

Strategy for treatment of Isopoda (Table 1)

Table (1): ***strategy for treatment of isopoda:***

Concentration / chemicals	Formalin	Copper Sulphate	Dipterex	Matalhion
2 ml(2gm) /cubic meter	10	10		
3 ml(3gm) /cubic meter	10	10		
4 ml(4gm) /cubic meter	10	10		
0.125 ppm	10	10		
0.150 ppm	10	10		
Total fish	30	30	20	20

RESULTS

Clinical picture:

The clinical signs in the naturally infested fishes of both sea bream and sea bass revealed no pathognomonic clinical abnormalities. Infested fish showed hemorrhagic areas on gill cover, abdomen and on the bases of fins, abrasions and ulcers on the body surface with rubbing the body against objects and sides of aquaria, sluggish movement, abdominal distension and somewhat emaciation. The examination was performed on the freshly dead fish and it revealed a marbling appearance with excessive mucus secretion. Gill tips were sticking with grayish coloration. Black lines and black spots between the gill filaments were seen.

Symptoms of isopoda include gray-white spots that give the fish's skin and fin the appearance of being sprinkled with salt. These granular white spots have a "bumpy" feel to the touch. In the earlier stages, the fish may

swim horizontally and rapidly rub or "flash" against solid objects in an attempt to free themselves of the parasites. In advanced cases, bloody tins are common, with a thick mucus layer covering the body (plates 1, 2 and 3).

As shown in (Table, 2); from 600 examined Sea bass and sea bream (300 from each) taken in different seasons, the total infected number was 150 in winter season and 267 in summer season, While the rates of infection in the sea bass was (60 in the winter and 130 in the summer) . On the other hand the sea bream was found infested (90 in the winter season and 137 in the summer season).

It worthy to be noted that the rate of infestation was higher in the summer season than the winter season, where the rate of incidence was 89% and 50% in summer and winter seasons respectively (Table ,2).

The data mentioned in Table (3) revealed that all types of parasites isolated in sea bass and sea bream in different seasons .It worthy to be noted that the highest prevalence of infestation was in sea bream by the Isopoda spp. (Table,3). The incidence of infestation reached to 92 cases in summer season from 150 examined sea bream while in sea bass reached to 30 cases from 150 examined sea bass .

It cleared that monogenetic trematodes was higher in both species (Dactylogyrus spp. and Gyrodactylus spp) alternatively in winter and summer seasons. The dactylogyrus spp was 38 and 43 positive sample in winter season in both sea bass and sea bream respectively; on the other hand, the gyrodactylus spp was 69 and 87 positive sample in summer season in both sea bass and sea bream respectively.

Also, from the data he noticed that the highest seasonal prevalence of ecto-parasites of Cryptocaryon irritants in examined sea bass and sea bream was isolated only in winter season only by 10 and 24 positive samples respectively.

The highest seasonal prevalence of Trichodina spp among total examined Sea bass was recorded during summer season only (32 positive samples) then sea bream reached (26 positive samples). On the other hand, the Trichodina spp was no reported in winter season (Table, 3).

With regard to the effect of the seasonal variation on the prevalence of Chilodonella spp in the present study, the highest rate of infection was during winter season in both species sea bass and sea bream where the positive sample is (12 and 23 respectively).

Finally, regarding the seasonal dynamics of external protozoa, Ichthyobodo-necatrix the highest infection rate in both species was in summer season. The infestation rate is 29 positive samples in sea bass and 24 positive samples in sea bream .From the results it observed that the Ichthyobodo-necatrix not reported during winter season.

The clearest observation from the data mentioned in the Table (4): The gills are predilection site for infestation of the Isopoda in both examined sea bream and sea bass. On the other hand, the Isopoda not recorded at all on the skin of both examined type of fish.

Table (2): ***Clear that the total number of examined fish in different seasons .***

Number of examined fish	Winter	Summer	Number of positive samples	
			Winter	Summer
Sea bass	150	150	60	130
Sea bream	150	150	90	137
Total	300	300	150	267

Plate (1): ***Showing attached Isopoda On gill filaments of sea bream.***

Plate (2): ***Showing adhesive Isopoda Attachment to gills of sea bream.***

Plate (3*): Showing sea bream infested by Isopoda after removal of gill cover*

Table (3): ***Clear the prevalence of parasites isolated in each positive fish samples (Sea bass and Sea bream) related to seasonal incidence.***

Types of parasites	Sea bass		Sea bream	
	Winter	Summer	Winter	Summer
Isopoda spp.	_	30	_	92
Dactylogyrus spp.	38	__	43	__
Gyrodactylus spp.	__	69	__	87
Cryptocaryon irritans	10	__	24	_
Trichodina spp.	__	32	__	26
Chilodonella spp.	12	__	23	__
Ichthyobod-necatrix	_	29	__	24
Total	60	160	90	224

Table (4): ***Clear the prevalence of parasites isolated in each positive fish samples (Sea bass and Sea bream) related to locality.***

Types of parasites	Sea bass			Sea bream		
	skin	Gill		Skin	Gill	
Isopoda spp.	_	30	30	_	92	92
Dactylogyrus spp.	33	5	38	35	8	43
Gyrodactylus spp.	21	48	69	27	60	87
Cryptocaryon irritans	7	3	10	17	7	24
Trichodina spp.	28	4	32	19	7	26
Chilodonella spp.	8	4	12	17	6	23
Ichthyobod-necatrix	22	4	29	18	6	24
Total	119	101	220	133	186	319

Table (5): ***clear that the relationship between parasitic number/field in each types of parasites in different seasons in both sea bass and seabream.***

Types of parasites	Sea bass		Sea bream	
	Winter	Summer	Winter	Summer
Isopoda Spp.	-	2/fish	-	2/fish
Dactylogyrus spp.	3/fish	-	4-5/fish	-
Gyrodactylus spp.	-	2-5/fish	-	5-8/fish
Cryptocaryon irritans	35-40/fish	-	35-50/fish	-
Trichodina spp.	-	30-40/fish	-	35-50/fish
Chilodonella spp.	10-15/fish	-	20-30/fish	-
Ichthyobod-necatrix	-	30-50/fish	-	50-60/fish

Clear the prevalence of parasites isolated in each positive fish samples (sea bass and sea bream) related to locality . Dactylogyrus spp in sea bass was higher in skin (33 positive sample) compared to (5 positive) recorded in gills Table (5). On the same manner the dactylogyrus spp in sea bream was higher in skin by (35 positive sample) and (8 positive sample) in gills. On the other hand gyrodactylus spp in sea bass showed the highest infestation rate in gills (48 positive samples) and 21 positive samples recorded in skin. The positive samples reported in gills off sea bream was 60 and 27 positive sample in skin. In contrast, the protozoa Cryptocaryon irritants was reported by (7 and 3 positive samples) in both skin and gills respectively in sea bass, while (17 and 7 positive samples) in both skin and gills respectively in sea bream. The skin was predominant infested by Trichodina spp in both sea bass and sea bream by 28 and 19 positive sample respectively and 4 & 7 positive samples reported in gills of sea bass and sea bream respectively. The Chilodonella spp were peaked in skin by (8 and 17 positive samples) in sea bass and sea bream respectively, while (4 and 6 positive samples) recorded in gill of sea bass and sea bream respectively. Finally Ichthyobodo -necatrix was reported by highest number in skin by (22 and 18 positive samples) in sea bass and sea bream respectively, whereas the 7 and 6 positive samples was reported in gills of both sea bass and sea bream respectively (Table 4).

In the present study, the relationship between the types and the number of parasites per field where the number dactylogyrus spp is (3 and 4-5 in winter season in sea bass and sea bream respectively) Table 5. Meanwhile,

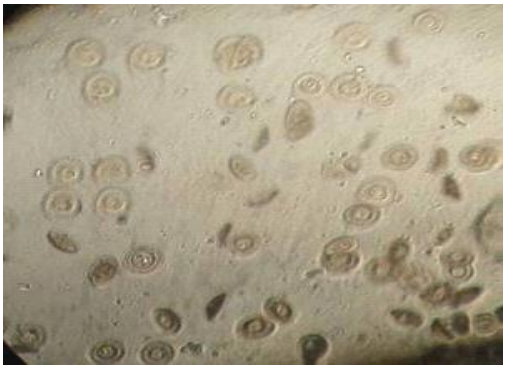
Table (6): ***Results of the effect of different chemicals on the isopoda infested the cultured of sea bream .***

Periods	1st day	2nd day	3rd day	4th day	5th day	6thday	7th day
Formalin							
2 ml / m^3	+	+	+	+	+	+	+
3 ml / m^3	+	+	+	+	+	+	+
4 ml / m^3	+	+	+	+	+	+	+
Copper sulphate							
2 gm / m^3	+	+	+	+	+	+	+
3 gm / m^3	+	+	+	+	+	+	+
4 gm / m^3	+	+	+	+	+	+	+
Dipterex							
0.125 ppm	+	+	+	+	+	+	**(-)**
0.150 ppm	+	+	+	+	+	**(-)**	**(-)**
Malathion							
0.125 ppm	+	+	+	+	+	+	+
0.150 ppm	+	+	+	+	+	**(-)**	**(-)**

Parasites stall a live + **(-) parasites loss the motility**

the result of gyrodactylus spp number per field was (2-5 and 5-8 in sea bass and sea bream in summer season respectively). The Cryptocaryon irritants numbers per field was (30-40 and 35-50 in sea bass and sea bream in winter season respectively). Prevalence of ecto-parasites of Trichodina spp was recorded in summer season was (30-40 and 35-50 per field in sea bass and sea bream respectively). On the other hand, parasitic Protozoans Chilodonella spp was noticed in winter season (10-15 and 20-30 in sea bass and sea bream respectively .(Ichthyobodo-necatrix was recorded in summer season by (30-50 and 50-60 per filed in sea bass and sea bream respectively) Table 5 (plates 4, 5 and 6).

Platte (4) : ***Showing external dorsal description of the segmented body of the Isopoda .***



Platte (5): ***Showing the heavy infestation of the Trichodina .***

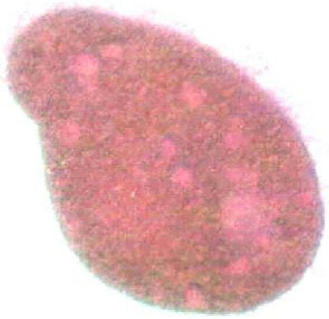


Plate (6) : ***Showing the Ichthyoboda necatrix***

The data illustrated in Table (6) revealed that the isopoda not affected by any concentration of all tested chemicals at any concentration at the all different periods except the high concentration (0.150 ppm) after seven days in case of Dipterex and Malathion as well as after six days in the same compounds in the high concentrations. It worthy to noted that the formalin and copper sulphate have not any effects on the isopoda.

DISCUSSION

The present investigation revealed that the clinical signs appeared in the infested fish only during high infestation numbers of parasites except only in case of Dactylogyrus spp. And Isopoda.

Also, from the all mentioned clinical signs of external parasites on the skin and gills leads to death of fish due to poor respiration and osmoregulatory failure (***Reed et al., 2005***).

Total examined 600 (six hundred) Marine fish namely as ; 300 sea bass and 300 sea bream collected from different farms at different interval times in both summer and winter seasons from Borg – El.Arab, area at Alexandria Governorate.

The Table 3 cleared the both examined sea bass and sea bream was higher incidence in the summer season than winter, where reached to 130 and 137 in sea bass and sea bream respectively . On the other hand, the incidence of infestation reached to 60 and 90 in sea bass and sea bream respectively. These results may be attributed to the reproduction, types, ages, management and stress conditions of the fish, virulence of parasitic infestations and water quality included temperatures which help in the high incidence of parasitism.

The results are agreement with ***Mathews, 2005*** who reported that the most common external parasites affected cultured marine water fish during summer seasons. On contrary the some parasites as *Chilodonella spp*. And *Ichthyophthirius multifiliis* were caused economic losses in cultured fish mainly during winter season as recorded by (***Omji et al., 2011***).

By interesting prevalence of seasonal incidence of infestation by any parasites, the present study was recorded that the summer season was high incidence than winter season (Table,6).

On the other hand, some parasites were reported on separate season, as in summer season the Isopoda, Gyrodactylus, *Trichodina spp. & I.necatrix* were isolated, while in the winter season the researcher recorded that the *Dactylogyrus, Cryptocaryon and Chilodonella spp*. were found.

The same results was parallel to data obtained by (***Reed et al., 2005***) who mentioned that the temperature play role in hatching of eggs of parasites to Dactylogyrus spp. and Gyrodactylus. Also (***Awad, 2007***) reported high infestation rate of *Trichodina spp*. during summer season.

The target organs for parasites are different according to methods of feeding of parasitism. In the present study the data mentioned in (Table,5) found that the Isopoda preferred the gills than skin, while the others isolated parasites found in both skin and gills.

These results were closely related by data obtained by ***Abd-El-Maged*** who found the predilection sites of the most Monogenea are skin and gills. Also, ***Osman, 2011*** found that the gill is the organ for infestation of many protozoa. The numbers of parasites have relationship with the infestation rates in any parasitism, where in some parasites only (1/field) leads to the appearance of clinical signs as in case of Isopoda and Monogenea spp. (***El-Moghazy, 2008***).

The present study show that the number of parasites / field which induced

parasitism are valuable where Isopoda (2 / fish) , Dactylogyrus (3, 4-5 / field) , Gyrodactylus (2-5 , 5-8 / field), *Cryptocaryon irritans* (35-40, 35-50 / field), Trichodina (30-40 , 35-50 / field), *Chilodonella spp*. (10-15 , 220-30 / field) and I.necatrix (30-50, 50-60 / field)In sea bass and sea bream during winter and summer season respectively (Table 8).

The study recorded that the number of parasites / field was higher in sea bream than sea bass in all isolated parasites especially during summer season (Table, 8). These results may be attributed to the lazy movement of sea bream than sea bass which is faster and leads to the high mortality rates in sea bream than sea bass.

Our results are similar to data reported by (***Martins, 2008***) who found that the number of parasites play role in incidence of infestation and appearance of clinical signs. Monogenetic trematodes recorded an incidence of (33.6%) which is nearly similar to those obtained by ***Abd El-Maged (2009)*** among examined O. niloticus was infected on the other hand higher value (80.76) was recorded by ***Abd El-Gawad (2004)*** which may be due to different of sample collection and changes in water quality in different localities. In total examined Clarias gariepinus, our study revealed (42%) prevalence of Monogenetic trematodes which is considered higher than obtained by Ramadan (2000) 36.28%. and lower than recorded by Abd El Maged (2009) (51.7%) Parasitic protozoa recorded an incidence of (55.5%) among total examined *O. niloticus*.

The prevalence of Parasitic crustaceans in this study was (27%) in total examined *O. niloticus*. This result is higher than obtained by ***Abd El-Khalek (1998)*** who recorded that the prevalence was (24.73%), while being lower than that recorded by ***El-Moghazy (2008)*** who mentioned that the prevalence was (80%) While parasitic crustaceans not recorded is among Clarias gariepinus, being coincided with ***Abd El-Hady (1998)***. This is may be due to differences in localities and water quality in these localities. With regard to the effect of the seasonal variation on the prevalence of Monogenetic trematodes in the present study, the highest rate of infection was during autumn. This result agreed with ***Abd El-Gawad (2004)*** Mean while, this result was in contrary with ***Abd El-Maged (2009)*** who recorded the lowest infection rate was obtained during autumn. Regarding the seasonal dynamics of external protozoa, the highest infection rate was in spring. This result was in agreement with ***El-Sayed (1993)*** stated that the seasonal incidence of protozoal infection was high in spring.

REFERENCES

Abd El-Gawad, R.A. (2004) : Studies on ectoparasites of freshwater fish. M.V.Sc. Thesis. Fac. Vet. Med., Zagazig. Univ.

Abd EL-Hady. O. K. (1998) : Comparative studies on some parasitic infection of fishes in fresh and polluted water sources. Ph.D. Thesis (parasitology), Fac. Vet. Med., Cairo Univ.

Abd El-Khalek, H.M. (1998) : Studies on the ectoparasites of some freshwater fishes in Beni-Suif Governorate. M.V.Sc. Thesis. Fac. Vet. Med., Beni-Suif. Univ.

Abd El-Maged, R.R. (2009) : Studies on ecto-parasites of freshwater fishes in Dakahlia governorate. Ph.D. Thesis, Fac. Vet. Med., Kafr El-sheikh Univ.

Ali, M. A. (1992) : Biological and ecological studies on protozoan parasites infecting cultured Tilapia in Sorrow fish farm. M. Sc. Thesis, Fac. Science, Cairo Univ., Egypt.

Amlacker, W. T. (1970) : Exotoix aquarium fishes. 19th Ed. Aquarium in Corported, New Jersy, USA.

Athanassopoulou, F., Bouboulis, D. and Martinsen, B., (2004) : Experimental treatments of sea bass (D. labrax) infected with the isopod Ceratothoa oestroides with diflubenzuron and deltamethrin. J. Appl. Ichthyol., 20, p. 314-317.

Athanassopoulou, F., Karagouni, E., Dotsika, E., Vatsos, J., Tavla, J., Christofilogiannis, P., Lytra, K. and Dourala, N., (2003) : Novel treatments of Myxosporida in Mediterranean fish and immunological response. Abstract submitted for the Proceedings of the EAFP meeting, Malta 2003.

Eissa, I.A.M. (2006) : Parasitic Fish Diseases in Egypt, Dar El-Nahdda El-Arabia Publishing, 32Abd El-Khalek Tharwat St. Cairo, Egypt.

Eissa, L. A.; Nahla, R. H. K. and Riad, E. M. (2012) : Studies on enteric redmouth disease (ERM) among freshwater fish. Vet. Med. J. Giza 4: 549 - 559.

El-Moghazy, D.F. (2008) : Studies on some parasitic diseases caused by harmful crustaceans in fish. Ph.D. Thesis, Fac. Vet. Med. Suez Canal University.

El-Sayed, E. (1993) : Some studies on protozoal infection among cultured fish in Sharkia. M.V.Sc. Thesis, Zagazig University.

Kabata, Z. (1970) : Diseases of Fishes, Book 1: Crustacean as Enemies of Fishes. T.F.H.: Neptune City, NJ. 1970. 171 pp.

Kabata, Z. (1979) : Parasitic Copepoda of British Fishes. The Ray Society. London, England.1979.

Lucky, Z. (1977) : Methods for the diagnosis of fish diseases. Amerind Publishing Co., Pvt. Ltd. New Delhi, Bombay Calcutta and New York.

Martins, M .L. and Ghiraldelli, L. (2008) : Trichodina magna Van As and Basson, 1989 (Ciliophora: Peritrichia) from cultured Nile tilapia in the state of Santa Catarina, Brazil. Braz J Biol. 2008 Feb;68(1):169-72.

Matthews, R.A. (2005) : Ichthyophthirius multifiliis Fouquet and Ichthyophthiriosis in Freshwater Teleosts. Adv Parasitol. 2005; 59: 159-241.

Osman, M. A. H. (2001) : Studies on parasitic gill affections in some cultured freshwater fishes. M. V. Sc. Thesis, Fac. Vet. Med. Suez Canal Univ.

Omji, S.; Solomon, S.G. and Idoga,E.S. (2011) : A comparative study of the common protozoan parasites of Clarias gariepinus from the wild and cultured environments in Benue state, Nigeria. Journal of parasitology Research volume (2011).

Pritchard, M.H. and Kruse, G.O.W. (1982) : The collection and preservation of animal parasites. Univ. Nebraska, Lincolin and London, 141pp.

Raef, A.M.; El-Ashram, A.M. and El-Sayed, N.M. (2000) : Crustacean parasites of some cultured freshwater fish and their control in Sharkia. Egypt. Vet. J., 28(2): 180-191.

Reed ,P. ; Francis- Floyd, R. and Klinger,R. (2005) : Monogenean parasites of fish .University of Florida 1-5 pp.

Sterud, E. (2002) : Parasites of wild sea bass Dicentrarchus labrax from Norway. Dis. Aquat. Org. Vol. 48: 209-212.

الفحص الطفيلي لأسماك المياه المالحة

رياض حسن خليل طلعت طلعت سعد تامر منير عبد الرحيم

قسم أمراض الدواجن والأسماك ـ كلية الطب البيطري ـ جامعة الإسكندرية

تعتبر الأمراض الطفيلية فى أسماك المياه المالحة المستزرعة من أهم الأمراض التى تحدث خسائر اقتصاديه كبيره فى قطاع الاستزراع السمكى لأسماك البحرية .

من هنا تم إجراء هذه الدراسة لتحقق هدفين هما عزل وتصنيف الطفيليات التى تصيب الأسماك البحرية المستزرعة فى مصر وكذلك لإيجاد العلاقة بين هذه الإصابات وجودة المياه المربـاة بها إضافة إلى العلاقة بين الإصابة والفصول المختلفة ، وأخيرا إيجاد العلاجات المناسبة للقضاء على هذه الطفيليات .

ولقد خلصت الدراسة إلى النتائج التالية :

١. تم دراسة ٦٠٠ عينه من كلا من أسماك الدنيس والقاروص المستزرع وكانت العلامات المرضية غير محدده سوى علامات الاحتقانات والأنزفة النقطية على الخياشيم والغطاء الخيشومى ومنطقه البطن ومناطق منابت الزعانف .كما وجد تقرحات على مناطق الجسم الخارجية وهى ناتجة عن حك الأسماك فى جوانب الحوض للتخلص من هذه الطفيليات .
٢. كانت علامات الإصابة بالايزوبودا تشتمل على مناطق باهته اللون على الجلد والزعانف كما لو كان مرشوش ملح على الأسماك مما تعطى إحساس أن هناك مناطق متكلسة.
٣. وجد أن نسبة الإصابة من العينات التى تم فحصها من كلا من القاروص والدنيس ١٥٠ إصابة فى الشتاء بينما كانت نسبة الإصابة ٢٦٧ فى الصيف فى الدنيس بينما كانت الإصابات ٦٠ فى الشتاء و١٣٠ فى الصيف فى حالة القاروص.
٤. عموما فان الإصابة عالية جدا فى الصيف ٨٩% إذا ما قورنت بالشتاء ٥٠% فى كلا من النوعين الذى تم فحصهما.
٥. أظهرت النتائج أن جودة المياه كانت بها نسبة أمونيا ونيتريت بنسبه عاليه إذا ما قورنت بالنسب المسموح بها فى المياه.
٦. أوضحت النتائج أن جودة المياه فى الصيف أعلى من مثيلاتها التى سجلت فى فصل الشتاء فى كلا من الأسماك محل الدراسة .على الجانب الآخر كانت مستويات المواد العضوية والكبريتات أعلى من الحدود المسموح بها فى فصل الصيف عن الشتاء.
٧. سجلت النتائج أن أنواع الطفيليات التى تم عزلها تشمل الآتى : أ - الديدان المفلطحة وحيدة العائل . dactylogyrus & Gyrodactylus تم عزلها فى كلا من الشتاء والصيف وكانت (الداكتيلوجايرس) بنسبة ٤٣.٣٨ عينة فى الشتاء فى كلا من القاروص والدنيس على التوالى على الجانب الآخر كانت نسبة (الجيروداكتيلس) ٨٧.٦٩ عينة فى فصل الصيف فى كلا من القاروص والدنيس على التوالى.

٨. أيضا أوضحت النتائج أن نسب (الكريبتوكاريونز اريتانز) تم عزلها فى فصل الشتاء فقط بنسب ١٠ و ٢٤ عينه فى كلا من القاروص والدنيس على التوالى .

٩. كانت أعلى إصابات (التريكودينا) فى كلا من القاروص والدنيس (٢٦-٣٢) على التوالى فى فصل الصيف.

١٠. على الجانب الآخر كانت الالكيلودينيللا فى أعلى معدلاتها أثناء فصل الشتاء فى كلا من القاروص والدنيس بنسب (١٢-٢٣) على التوالى.

١١. فى النهاية كانت أعلى إصابة بالاكثيوبودا نيكاتركس كانت فى فصل الصيف بنسب (٢٤-٢٩) عينه فى كلا من القاروص والدنيس على التوالى .

١٢. من خلال تحديد أهم الأعضاء سواء الخياشيم أم الجلد أظهرت الدراسة أن (الداكتيلوجيرس) فى حالة القاروص كانت الإصابة ٣٣ عينه بالجلد بينما كانت ٥ فقط بالخياشيم .

على نفس المنوال كانت الإصابة بالجيروداكتيلس تمثل ٣٥ بالجلد و ٨ فقط بالخياشيم وعلى النقيض كانت نسبة الإصابة بالكريبتوكاريون اريتانز ٧ بالجلد و ٣ بالخياشيم فى حالة القاروص بينما كانت ١٧ بالجلد و ٧ بالخياشيم فى حالة الدنيس على التوالى.

كان الجلد هو العضو المفضل فى حالة الإصابة بالتريكودينا فى كلا من القاروص والدنيس بنسبة ١٩-٢٨ على التوالى . بينما كانت هذه النسبة ٤-٧ فى الخياشيم فى كلا من القاروص والدنيس على التوالى .

فى حين أن الإصابة بالكيلودينيللا تمثل ٨-١٧حالة تم عزلها من على الجلد فى كلا من القاروص والدنيس على التوالى .

بينما كانت هذه النسبة ٤-٦ على الخياشيم فى كلا من القاروص والدنيس على التوالى .

وفى النهاية كانت الإصابة فى أعلى معدلاتها بالاكثيوبودا نيكاتركس على الجلد ١٨-٢٢ عينه فى كل من القاروص والدنيس على التوالى بينما كانت هذه النسبة ٦-٧ عينه تم تسجيلها من على الخياشيم فى كلا من القاروص والدنيس على التوالى .

١٣. سجلت هذه الدراسة أن هناك علاقة وطيدة بين الطفيليات وشدة الإصابة بها حيث أظهرت أن حينما كان العدد يتراوح بين ٣ و ٤-٥ فى حالة الإصابة بالداكتيلوجيرس فى فصل الشتاء فى كلا من القاروص والدنيس على التوالى بينما كان العدد يتراوح بين ٢-٥ و ٥-٨ فى حالة الإصابة بالجيروداكتيلس فى كلا من القاروص والدنيس على التوالى فى فصل الصيف.

كان عدد الطفيليات الذى يحدث الإصابة فى كلا من القاروص والدنيس فى فصل الشتاء فى حالة الإصابة بالكريبتوكاريون اريتانز هو ٣٠-٤٠ و ٣٥-٥٠ على التوالى.

سجلت الالتريكودينا أنه حينما كان العدد يتراوح بين ٣٠-٤٠ و ٣٥-٥٠ فى حالة الإصابة فى القاروص والدنيس على التوالى فى فصل الصيف على الجانب الآخر فى فصل الشتاء كانت نسبة الإصابة بالكيلودينيللا تتراوح بين ١٠-١٥ و ٢٠-٣٠ فى القاروص والدنيس على التوالى وكانت الإصابة بالاكثيوبودا نيكاتركس فى فصل الصيف تتراوح بين ٣٠-٥٠ و ٥٠-٦٠ فى القاروص والدنيس على التوالى .

١٤. من خلال هذه الدراسة أوضحت أن الايزوبودا لا تستجيب لأى تركيزات منخفضة لكلا من الداى بتركس والملانيون خلال ٦ أيام من العلاج ماعدا التركيزات العالية وهى ١٥٠ جزء فى المليون بعد ٧ أيام لكلا من المواد المذكورة .

١٥. أوضحت الدراسة أن الايزوبودا لا تستجيب نهائيا لكلا من الفورمالين وكبريتات النحاس حتى فى التركيزات العالية طول فترة البحث .