WVJ
World's
Veterinary Journal

World's Vet. J. 2(3): 33-35, 2012

Original Article

Survey of External Protozoa Parasite of *Siganus Rivulatus* in Red Sea State of Sudan

S.H. Ahmed Hamid*, F.A. Mohammed Ahmed, N.D. Bashier, M.A. Hassan

Department of Fisheries and Wildlife Science Collage of Animal Production For Science and Technology, Sudan University of Science and Technology, P.O.BOX 204,KhartoumNorth,Sudan

*Corresponding author's email: samiahamid113@yahoo.com

ABSTRACT

The aim of this study is to survey the external protozoa parasites in S*iganus rivulatus* in the Red sea state. 51 samples of fish were examined. The fish was selected from two different area in the port sudan, 21 samples collected from Dongnab and 30 samples collected from Alsegala from February to march 2010. This study was conducted in Sudan University of Science and Technology, College of Science and Technology of Animal Production, Department Fishers Science and Wildlife in the laporatory of fishes. The study revealed of different types of protozoa these include Trichodinia, chilodonella, Ichthyophirius and Ichthyobodo recovered in *Siganus rivulatus.*The protozoa parasites had high prevalence in Alsegala (90% in skin, 56.6% in gill) than Dongnab (57.1% in gill and skin), and the density of protozoa parasites (1.5 in Alsegala and 1 in Dongnab) it is high in skin than gill. Trichodinia recorded highest infection in *Siganus rivulatus* in this study more than other ectoprotozoa. There is no any relationship between number of parasites and health state of fish.

KEY WORDS: Survey, Parasites, Internal Protozoa, Siganus Sp**.**

INTRODUCTION

The Sudanese Red sea coast with length of 450 miles is rich with many different resources of high economic value and blessed by a diversity in marine products based on a variety of marine species belonging to different groups (Final report, 2000), beside the great number of different family of fin fishes there are 23 species of shark representing seven families, three species of batoids representing three Penaedae families (El Hassan, 2002) and there are already six family of shrimp and prawn (Elnaiem, 2002; El hag, 1978). Also there was nine species of sea cucumber in addition of Koukian (trouchus), oyster and fish ornamental besides turtles, dugong and sea grass(Ibrahim, 2001). Five siganus species are recorded in Jeddah region of the Red sea. The most common is *Siganus rivulatus*, while *S.stellatus*, *S.oramin* (Schneider) and *S.luridus* (Ruppel) are less common and *S.oramin* (Gunther) is rarely found. *siganus rivalatus* grows to alength of 35-40 cm (Smith, 1965 and Wray, 1979) although most of the catch on the market are about 20 cm. In spite of such small marketable sizs, the species is considered as favourable food fish in many parts of the world. Moreover, they are herbivores, feeding on seagrass (*Halophylla sp*) and epiphytic algae. For this reason they have recently been suggested as possible subjects for mariculture (Popper and Gundermann, 1975). Fishes are hosts for many protozoan parasites some of the parasites cause disease affecting fish health and reproduction, making them fall easy prey to predators. In fish farming parasites may lead to epidemics and mortalities resulting in economic losses (Khalil and Polling, 1997). It is usually known that external parasites constitute the largest group of pathogenic organisms in warm water fish (Snieszko and Axelrod, 1971).

External protozoa infection of cultured fishes occurs either as a single infection or with other external parasites. The disease is characterized by signs of irritation and high irregular mortalities along period of time (Marzouk, 2002). Despite the importance of signed in the Red sea, little is known about its biological information and parasitic infection (Ben – tuvia; wray et al., 1979). To provide a better understanding of "sign" in the Red sea, the present work was undertaken in order to gain more information necessary for the evaluation of such signed fish as a possible item for mariculture in the Red sea.

MATERIAL AND METHODS

Study area

The Red Sea is a part of the vast Indo-pacific ocean region and the majority of the common fishes found in it also occur in other tropical water throughout this region. Most fishes prefer a particular habitat to which they are

To cite this paper: Ahmed Hamid S.H., Mohammed Ahmed F.A., Bashier N.D., Hassan M.A. 2012. Survey of External Protozoa Parasite of *Siganus Rivulatus* in Red Sea State of Sudan. *World's Vet. J.* 2(3): 33-35.
Journal homepage: http://wvj.science-line.com/

invariably well adapted (Reed, 1964). It represents a complex and unique tropical marine ecosystem with extraordinary biological diversity and remarkably high degree of endemism (Abu Gideiri, 1999), available data indicate that at least 450 species are now recognized in the Red sea (Abu Gideiri, 1997). Sources of fish: A total of 51 marine water Fishes were investigated for external parasites. Fishes were collected from two different sites**.**

Dongnab: 21 samples of *Siganus rivulatus* were collected from Dongnab in the center of this area is Mohamed Gool, this area is lying North to Dongnab bay and Dongnab bay has a wide entrance which is almost blocked by reefs with few navigable passages for small vessels only. One the eastern side the coral reef gives way to a sloping sandy beach and on the Western side there are flat, rocky grounds covered with silt or sea weeds (Farah, 2007) the population in it 21 % from total population, the product at these area is (206.527 ton) that is to say 35% from total product (marine fisheries depart mint), fish is being sold fresh, iced and dried, the iced product is transporting to port Sudan, put these area also productive shells in Dongnab bay and Halaib.

ALsegala: 31 samples of *Siganus rivulatus* were collected from Alsegala in port sudan.

Samples collection: The samples were collected by different method of catch.

Methods

Skin: Adrop or two of saline were added with a pipette onto the center of the glass slide. After that some mucus was scraped off and upper layered skin was removed by clean slide and then placed in two drop of saline on the slide and let to dry.

Gill: Operculum was open and some mucus was scraped off by moving clean slide over the gill and then that was dried.

Fixation: After all the smears dried, methanol was added for 10 minutes.

Staining: One ml of Giemsa stain was mixed with 9 ml of distilled water after that one drop of the stain was added on the surface of smear for 10 minutes and then washed by water and slowly left to dry by the air.

Microscopic examination: A research light microscope (Olympus) with bright field optics was used for the examination and identification of smear. A fitted camera, Olympus 0,1 on the Olympus research microscope was used for photographic, in Khartoum University, Faculty of sciences Department of Zoology, Electron Microscope Unite.

RESUTS AND DISSCUION

The *Siganus rivulatus* do not show any significant external lesion or abnormality.The result obtained in this study revealed Trichodinia, Chilodonella, Ichthyophirius, Ichthyobodo from *Siganus rivulatus* in mucus of gill and skin. Also found stage from Nematode in some slides of gill and skin. Prevalence rate of parasites in Dongnab bay is less than in Alsegala. And skin has high prevalence than gill in Alsegala collected area.

The Trichodinia recorded highest infection in *Siganus rivulatus* in this study more than other ectoprotozoa. The preverence rate of the parasite is 56.6% in gill, 90% in skin, and density of parasite equal in gill and skin 1.5 in Alsegala, while the preverence rate and density of parasite in Dongnab bay is 57.1% and 1.3 respectively the same in the gill and skin.

Table 1. Parasites density and prevalence collected from *Siganus rivulatus* in dongonab and Alsegalah

Locality	*Siganus rivulatus*				Mean	SD
	Density Skin	Gills	Prevalence skin	Gill		
Dongonab	57.1	57.1	1	1	57.10	0.000
Alsegalah	90	56.6	1.5	1.5	73.30	23.61

SD= Standard Deviation.

The results of this study shed a light on *Siganus rivulatus* in view of high preference by consumer and its avalilability in dry and wet seasons. The results of investigation indicated the total number of external parasite count for marine fish *Siganus rivulatus* show variation between the samples which collected from different area. The results also revealed the *Tricchodinia spp* as most common parasites obtained in this study, *Chilodanella spp*., *Ichthyophthirius spp*, and *Ichthyobodo spp*, from *Siganus rivulatus* in mucus of gill and skin. This results agree with Nagasawa et al (1997, 1989) who said that protozoans causing disease conditionin wild and cultured fishes.

Also this results agreement with Lom (1995) who reported that Trichodinas do not occur in large healthy fish and hence irritation caused by attached of their adhesive is negligivle , heavily infected fish manifest area of the gill filaments and epithelial hyperplasia because Trichodinia feed on newly produced cells and cell debris. Chillodonella also recoverd in this study and this result agree with Alvarez- pellitero (1988) who mentioned that *Chillodonella spp*, are free living but some of them are serious pathogen of fish. This parasite also found on the gills of wild fishes such as masu salmon, pond smelt and dace (Nagasawa et al 1989). The investigation in this study revealed of *Ichthyophirius multifiliis* from two locations and the same result obtained by Dickerson and Clark (1996) who reported that C.irritant is obligate ectoparasite of fish. Also Wright and Colorni (2000) mentian that *I. multifiliis* has similar life cycle and signs as *C.irritant* , they have been found to be only distantly related. This cosmopolitan species is well known as the agent of white spot diseases in various fresh water fishes. The results obtained in this study agree with Kabata (1985) who said that *Ichthyobodo necator* infects both wild and cultured fish, as well as tadpoles and young salamanders. Epizootics are usually due to high density of cultured fish population. The finding of this study showed prevalence rate of parasites in

To cite this paper: Ahmed Hamid S.H., Mohammed Ahmed F.A., Bashier N.D., Hassan M.A. 2012. Survey of External Protozoa Parasite of *Siganus Rivulatus* in Red Sea State of Sudan. *World's Vet. J.* 2(3): 33-35.
Journal homepage: http://wvj.science-line.com/

Dongonab bay is less than in Alsegala. And skin has high prevalence than gill in Alsegala collected area. This might be due to high load of pollutant affected the fish immune system make the fish more sucessubtible to infection by parasites.

REFERENCES

Alvarez – Pellitero, P. 1988. Enfermedades producidas por parasites enpeces. In Patologia en Acuicultura, Espinosa de los Monteros, J. and Labart, U. (eds). Pp. 215 – 326.

Colorni, A. and Peter, B. 1997. "Cryptocaryon irritants Brown 1952, the cause of white spot disease in marine fish: an update Aquarium Sciences and Conservation, 1: 217 -238.

Dickerson , H.W. and Clark, T.G. 1996. Immune response of fishes to ciliates. Annual Review of Fish Diseases, 6: 107 – 120.

El hag, A.E. 1978. M.Sc. Thesis. Ecloogy and some biological an aspect of Sudanese estuarine prawn (penaeidae). Department of Zoology, University of Khartoum.

El Hassan , S.I. 2002. Aspects of Shark Biological Studies and fisheries in Sudanese Red Sea coast M. Sc thesis Collage of Natural Resources and environmental studies University of Juba ,Sudan.

El Naiem, A.G. 2002. Aspects of Shrimp fisheries on Sudanese Red Sea Coast. These Ph.D. Department of Zoology. Faculty of Science University of Khartoum.

Elnaiem ,G.A. and EL awad ,N.A. 2008. Sudan Marine Fish Production and Export, Abstracts of the First Scientific Conference, Sudan Ministry of Science and Technology friendship Hall-Khartoum.

Ibrahim , M.Y. 2011. Studies on some holothurians species on the Sudanese Red Sea coast. Department of Zoology, faculty of Science, University of Khartoum.

Kabata, Z. 1985. Parasites and diseases of fish cultured in the tropics, Pacific Biological Station Nanaimo, Britsh Columbia, Canda.

Khalil, L. and Polling F. 1997. Check list of the helminthes parasites of the African fresh water fishes University of Narth, Department of zoology , Repuplic of South Africa, Pp. 184.

Lom, J. 1995. Protozoan and metazoan infection, in Fish diseases and disorders. P.T.K Woo, International , Cambridge, 1: 229 – 262.

Marzouk, M. S., 2002. Selected notes on fish diseases and management, Cairo, University Faculty of Vet. Medicine.

Nagasawa, K., AWK akura, T., and Urawa , S. 1989. Achecklist and bibliography of parasites of fresh water fishes of Hokkaido. Scientific report of the Hokkaido Fish Hatchery, 44: 1 – 49.

Popper, D, and Gundermann, N. 1475. Some ecological and behavioural aspects of siganid populations in the Red Sea and Mediterranean coast of Israel in relation to their suitahility for aquaculture. Aquaculture, 6: 127-141.

Smith, J .L.B. 1965. The Sea fishes of Southern Africa. Central News Agency Ltd. South Africa, (32R).

Snieszko, S.F. and Axelrod, R. 1971. Diseases of Fishes. T. F. H. Publications, Inc., Ltd.

Wray, T. et al. 1479. Commercial Fishes of Saudi Arabia. Min. Agr. & Water Res.; Saudi Arabia & White Fish Auth. United K

To cite this paper: Ahmed Hamid S.H., Mohammed Ahmed F.A., Bashier N.D., Hassan M.A. 2012. Survey of External Protozoa Parasite of *Siganus Rivulatus* in Red Sea State of Sudan. *World's Vet. J.* 2(3): 33-35.

Journal homepage: http://wvj.science-line.com/