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SURVEY OF EXTERNAL PROTOZOA PARASITES OF TWO FISH SPECIES OF (OREOCHROMIS NILOTICUS AND CLARIAS LAZERA) IN KHARTOUM STATE-SUDAN

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ABSTRACT: The aim of this study to survey the external protozoa parasites in Oreochromis niloticus and Clarias lazera in Khartoum state –Sudan. Seventy samples of fish were examined (40 samples of Oreochromis niloticus and 30 samples of Clarias lazera) were collected from three different sites in Khartoum state include: Jable Awlia Reservoir pond- College of Vet Medicine and Animal Production culture pond- Alsaham Alzahabie pond. The study conducted from March to August 2010 . The study revealed different type of protozoa in Oreochromis niloticus and Clarias lazera. Chilodonella and Icthyopthirius were recovered in and Clarias lazera (95%) in Jable Awlia Reservoir pond. Trichodinia was found in Oreochromis niloticus (80%) in Alsaham alzahabie pond and also found in Oreochromis niloticus in College of Vet. Medicine culture pond with density more than Clarias lazera. Oreochromis niloticus had high prevalence rate of protozoa parasites than Clarias lazera. There is no any relationship between number of parasite and health status of fish.

KEYWARD: parasites, protozoan, fish, Oreochromis niloticus, Clarias lazera.

INTRODUCTION:

In Sudan fish are distributed over an area that amount to 10.000 km^2 fresh water and 760 km^2 of marine water. Fish meat demand as human food is increasing especially in the developing countries where people income is low. World fish production has grown tremendously in the second half of the 20th century. From a little over 20 million tones (mt) at the beginning of the 1950s, the production came close to 100 mt at the end of the 1980 (Brian, 1996). Tilapia is fresh water fish belonging to the family Cichlidae. They are native to Africa but were introduced into many tropical and temperate region of the world during the second half of the 20th century (Pillay, 1990).

Fish is important to human populace in trade and economy; it is of importance in the diet of different countries especially in the tropics and subtropics where malnutrition is a major problem (Alune and Andrew, 1996; Osuigwe and Obiekezie, 2007). As the human population inevitably increases, the demand for fish as source of protein will grow (Abolarin, 1996). In recent times, there has been tremendous increase in the development of fish farming and culture attributable to the increased need for affordable animal protein especially in the tropics(Davies *et al*., 2006) therefore, catfishes of the family clariidae are increasingly being used for freshwater aquaculture in Africa owing to several favourable cultural characteristics (Obiekezie and Ekanem, 1995). Parasitic infection and diseases are some of the factors hindering high productivity in fish farming (Doglel *et al*., 1961; Kayis *et al*., 2009). Parasites are the most diverse and common pathogens the aqua-culturist may likely encounter and parasitic diseases are very common in fish all over the world and are of particular importance in the tropics (Roberts and Janovy, 2000) and Protozoan among other parasites cause immeasurable damage to the fishing industry (Doglel *et al*., 1961). Fish parasites are numerous and many phyla in the animal kingdom have representative that are parasitic to fish. There are by far more parasite species that infect fish than any other group of infectious disease (Blazer, 1996). Fish parasites result in huge economic losses as they increase mortality; increase farm inputs via increased treatment expenses and cause reduction in growth rate and possibly weight loss during and after the period of parasitic disease outbreak. All these militate against expansion of aquaculture. (Kayis *et al*., 2009).

The most commonly encountered fish parasites are protozoa (Klinger and Francis-Floyd, 2000) and Protozoan parasites cause serious losses in fishpond and wild in Nigeria; their lesions could render the fish unmarketable. In addition, fish carrying protozoan parasites are capable of passing on the infective disease to man after its consumption. Protozoan parasites, typically, do not required intermediate hosts to reproduce (direct life cycle) and are thus capable of building up to very high numbers when fish are crowded causing loss, debilitation and mortality (Klinger and Francis-Floyd, 2000). Most fish in the wild are likely to be infested with parasites, but in the great majority of cases, no significant harm to the host may be ensued or identified, thus, there are only few reports of parasites causing mortality or serious damage to the fish populations, but this may be largely because such effects go unnoticed (Roberts, 2001). Fishermen or consumers often observe parasites in wild fish only when they are so obvious as to lead to rejection of fish (Roberts, 1995). In culture fish population on the other hand, parasites often cause serious outbreak of diseases (Kayis *et al*., 2009). The presence of dense populations of fish kept in particular environmental conditions may favour certain parasites so that the parasite population increases to a very high level (Rintamaki and Valtonen, 1997). The study aimed to survey the external protozoan parasites on *Oreochromis niloticus* and *Clarias lazera.*

Martial and Methods:

A total of 70 freshwater fishes obtained from natural waters (Twenty samples of Garmout and ten samples of Tilapia collected from Jabal Awalia Dam- ten samples of Tilapia were collected from Alsaham Alzhabie, twenty samples of Tilapia and ten samples of Garmout were collected from fish pond in College of Veterinary Medicine and Animal Production in Khartoum North) examined smears were taken for external protozoa parasites.. The smears were taken from skin and gill fixed by methanol, stained with Giemsa stain and examined microscopically for external protozoa parasites.

Results:

Both fish species examined did not show any significant external lesions or abnormality. The result obtained in this study revealed Trichodinia, Ichthyophirius and Chilodonella from the two species *Oreochromis niloticus* and *Clarias lazera* in mucus of gill and skin.

Locality	*Oreochromis niloticus*		*Clarais lazeria*		Mean	SD
	Skin	Gills	Skin	Gill		
College	170	150	100	125	136.25	± 30.37
Alsaham	120	95	100	100	103.75	±11.08
Jabel Awlia	550	157	105	2000	703.00	± 887.19

SD= Standard Deviation

Table (1): Parasites density collected from *Oreochromis niloticus* and *Clarias Lazera* fish from three locations:

Locality	*Oreochromis niloticus*		*Clarais lazeria*		Mean	SD
	Skin	Gills	Skin	Gill		
College	75%	50%	40%	40%	51.25	± 16.52
Alsaham	82%	68%	80%	70%	75.00	±7.02
Jabel Awlia	80%	70%	95%	90%	83.75	± 11.08

SD= Standard Deviation

Table (1): Parasites Prevalence collected from *Oreochromis niloticus* and *Clarias Lazera* fish from three locations:

Disscution:

In artificial culture and natural field area a few infection of fish by the internal protozoan appear normally. The external fish protozoan parasites such as Costia, *Ichthyophthirus multifillius* and *Trichodina* are common in both cultured as specific phenomena which may external infect fish and strong enough to cause miss-shape and sometime be responsible for mortalities in fish population following the epidermal tissue damage caused by the protozoan, bacterial and fungal infection may recognized (Anderson,1974). Two types of fishes *Oreochromis niloticus* (40 samples) and *Clarias lazera* (30 samples) collected from different locations in Khartoum state were studied for external protozoa parasites. The study revealed that only Trichodinia was isolated from *Oreochromis niloticus* from Alsaham Alzahabie culture pond. and in *Oreochromis niloticus* from college of Vet. Medicine. These results agree with Schaperclaus (1991) who said that Trichodinia are mobile ciliates often found on gills, fins and skin of many fish species. These parasites are usually found in numerous species of fish, amphibians and even crustacean, mollusks and coelenterates inhibiting both seawater and freshwater. According to Hoffman (1999) said that in North America, they are frequently reported from perch, pike, sunfishes. Lom (1995) and Hoffman (1999) reported that Trichodinia have low host specificity and are therefore, widely most families of fresh water fish harbor *Trichodina spp.* Lom (1995) reported that Trichodinas do not occur in large healthy fish and hence irritation caused by attachment of their adhesive disc is negligible. Heavily infected fish manifest areas of the gill filaments with epithelial hyperplasia, because Trichodina feed on newly produced cells and cell debris. Marzouk (2002) reported that external protozoal infection of cultured fishes either as a single infection or with other external parasites the disease is characterized by signs of irritation and the high irregular mortalities along period of time. Van As and Basson (1987) mentions that Trichodinia and sessile species found on aquatic vertebrate comprise different species from those infection fish. Basson *et al* ., (1983) mentioned that there are however, a few documented exceptions (*T. pediculus*) being reported from both hydra and fish, and *T. diaptomi* a parasite of acalanoed copepod with temporarily invaded hatchery grown fry of *Claries garipinus*. Paperna (1996) said that there are several degrees of adaptation of Trichodinia to their piscine host´ ubiquitous species

of and opportunistic nature which are always found on the skin but never on the gill (*T. pediculus* and *T. acute*). Other ubiquitous species occur both on gill and skin (*T. heterodentata*), additional seeming ubiquitous species appear to have a variable degree of predilection for one fish family or other (Cichlids or Cyprinids). Also childonella was recovered in this study and this agree with Hoole (2001) said that this parasite is a highly pathogenic parasite that occur on the skin and gills of fish it is entirely large pear-shaped protozoan. The cilia are mostly situated at the pointed end of the organism although there are short cilia on one side of the parasite. Paperna (1984) mentioned that heavy infection by skin and gill protozoan predominantly of *Chilodonella spp,* are of frequent occurrence in over wintering stocks of cultured tilapia hybrid *Oreochromis aureus* and *O. niloticus* in Israel and *O. mossambicus* in pond and dam reservoirs in South Africa. Sarig (1971) said that heavy infection by *Chilodonella spp* seems to have an excluding effect on other integument protozoan. Otherwise, skin and gill ectoparasites coexist, and are even synergistic with metazoan ectoparasites (*Gyrodactylus* and *Argulus*) and skin lesions (epithelioma). Paperna (1985) said that mortalities of farmed *Clarias gariepinus* (in the Central Africa Republic) were associated with mass infestation by *Chilodonella hexasticha*. Also *Ichthyophtirius multifillis* (white spot disease) was encountered in the study which disagree with (Hoole, 2001) who reported that the wide spread occurrence of this disease, along with the Cleary visible and characteristic symptoms its white spot in skin. Marzouk (2002) mentioned that acute and chronic, fatal disease of cultured fish aquarium fishes and wild ranging fishes, characterized clinically by presence of white spots on fish skin, fins, eyes and gills. Most species of fresh water fish are susceptible although some may be more so than others. The worldwide distribution of *I. multifilliis* Hoffman (1970) has apparently been facilitated by the wide spread translocation of culture and ornamental fish (Paperna, 1985). Lightner *et al.,* (1988) said that infection of Tilapia with *I. multifiliis* has been widely reported in the America. Larval fish stage appear more susceptible than fingerling and adult stages Subasing and Sommerville (1989) also found that the effect of *I. multifiliis* on larval *O. mossambicus* was more severe than fingerlings similar results have been reported with Nile Tilapia. Where the incidence of infection decreased with increasing fish size (Lue *et al*., 1999) the parasites were found in large numbers in the nares, pharynx, gills and skin of Tilapia fry causing severe mortality (Robert and Sommerville, 1982).

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