



OCCURRENCE OF *CLINOSTOMUM* SP. METACERCARIAL INFECTION IN TILAPIAS FISHES COLLECTED FROM THE LOCAL MARKETS

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ABSTRACT

Fifty specimens of tilapias fishes were examined for helminthes parasites. Fishes were collected from the local markets. Of the collected samples ten (20 %) had metacercarial infection in the branchial cavity. The recorded metacercariae were identified as metacercaria belonging genus *Clinostomum*. The measurements and the morphological features of the recorded parasite are very close to those of the previous studies. However, the full identification of the recorded parasites required further studies to complete the life cycle or using the molecular technique. In conclusion, the preset study documented the existence of *Clinostomum* sp. infection in tilapias and more studies are need to be undertaken on other fishes and other existing parasites to provide for more information about the current status of parasitic infection among fishes of the local markets.

Keywords: Parasite, helminthes, metacercaria, *Clinostomum*, tilapia, branchial cavity

INTRODUCTION

It is well known that freshwater and brackish water fish are not only a major protein source for humans but also common intermediate hosts of many kinds of parasitic helminthes¹. Metacercariae of digenetic trematodes were considered as one of the most common parasites infecting fish causing low weight gain, high mortality, immarketability and some of these parasites may have zoonotic importance^{2,3}. *Clinostomum* sp. is a trematode, a parasitic worm, of which the larvae infest a number of species of wild fish. It is occur in a number of fish hosts and possess a complex life cycles involving a number of hosts with several successive larval generations³. In general, the life cycle involves a snail first intermediate host, a fish second intermediate host and a final vertebrate host⁴. The present study is concerned with documentation of the presence of *Clinostomum* sp. metacercaria in tilapias fish in the local markets.

MATERIALS AND METHODS

A total of 50 tilapia fresh fish specimens were purchased from the local markets. Fish specimen was grossly examined by the naked eyes with the aid of a magnifying hand lens for the detection of any encysted metacercariae. Microscopic examination was carried out by taking small pieces of the muscles from different body regions then each piece was compressed between two glass slides and examined under a binocular dissecting microscope³. The encysted metacercariae was ex-cysted by dissecting needles under a binocular dissecting microscope. The metacercaria were stained by carmine-Alum, washed in acid alcohol, dehydrated in an alcohol series, cleared in xylol and mounted in Canada balsam according to Kruse and Pritchard⁵.

RESULTS

Out of the 50 specimens examined, 20 (10/50) had parasitic infection. The parasite collected from the branchial cavity of the infested fish. The recorded parasite was identified as metacercaria of *Clinostomum* sp. (Figure 1) and described as follows: The metacercariae cysts were subspherical in shape and yellowish in color with diameter of 8-12 mm. The ex-cysted metacercariae were elongated and measured 8-20 mm long and 2-4 wide. The oral

sucker was sub-terminal, nearly circular and measured 0.6-0.8 mm long and 0.7-0.9 mm wide. The ventral sucker was circular, larger than the oral sucker and measured 1.0-1.7 mm in length and 1.0-1.6 mm in width. The mouth cavity opened into a short prepharynx which dilates into the pharyngeal bulb that measured 0.5-0.8 mm in length and 0.6-1.0 mm in width. The paryngeal bulb led to the long paired caece which extended to the posterior end of the body with 6-18 mm long. The ovary was small, located between the two testes and measuring 0.2-0.5 mm in length and 0.2-0.3 mm in width. The two testes were located in the anterior portion of the posterior half of the body. The anterior testis measurements were 0.3-1.4 mm in length and 0.3-1.4 mm in width while the posterior one measured 0.3-1.3 in length and 0.5-1.0 mm in width. The cirrus pouch was oval – shaped and situated between the testes on in contact with the right caecum. The ootype appeared as a large complicated structure situated between the two testes. The uterus extended around the left margin of the anterior testis to open into the uterine sac. The uterine sac with no eggs contracted into a narrow tube that extends forward to the space between right edge of testis and right caecum to open in the genital atrium. The genital pore located at the level of the right posterior margin of the anterior testis. The vitelline follicles were indiscernible.



Figure 1: Metacercaria of *Clinostomum* sp. stained by acid carmine collected from the branchial cavity of tilapia. Scale-bar = 3 mm

DISCUSSION

The features of the observed metacercariae are consistent with those of *Clinostomum* sp. belonging family Clinostomidae. The members of this family, at the adult stage, live in the oral cavity, pharynx or oesophagus of fish-eating birds, reptiles and occasionally mammals, including man while metacercariae are usually encysted in tissues of fishes and frogs⁶. A comparison of our description with other previous work indicates a high similarity in terms of both measurements and the morphology with those of Al-Bassel⁷. As well as *Clinostomum* sp. metacercariae recorded here showed close resemblance to most of the morphological characters of *Clinostomum* reported by Paperna⁸ and Amer *et al.*⁹. The incidence in the present work was 20 % in which much lower than that of Al-Bassel⁷ and Ochieng *et al.*¹⁰ as they reported 92 % and 75.7 % respectively. This difference may be due to some ecological parameters as: temperature leading which affects the reproduction of aquatic snail (intermediate host) and the availability of the fish-eating birds (Final host) where adult worms in habit their pharynx¹¹. Also, this difference was associated with the different human activities existing among the studied areas, causing water quality differences¹⁰. It is well known that *Clinostomum* taxonomic history and species composition are unstable¹². The confusing taxonomic history of the genus was reviewed by Gustinelli *et al.*⁶ and they reported between 13 and 27 valid species. Therefore, study of *Clinostomum* parasites should be coupled with molecular biology to enable a more accurate description of their diversity and occurrences¹⁰. In conclusion, the present study documented the existence of *Clinostomum* sp. infection in tilapias and more studies are need to be undertaken on other fishes and other existing parasites to provide for more information about the current status of parasitic infection among fishes of the local markets.

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