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Unidentified Gastro-Intestinal Nematode Parasites from *Pseudotolithus elongatus*, Rivers State, Nigeria

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Abstract

Pseudotolithus elongatus specimens (n=50) purchased from fishers at Nembe waterside, Port Harcourt, Nigeria, in May-June, 2018, were examined for gastro-intestinal parasites using standard procedures. The fish species were identified using taxonomical keys. Nematode parasites isolated were fixed in 70% ethanol. Photomicrographs of the parasites were taken using a Nikon digital camera attached to the objective lens of a compound microscope, after clearing in lactophenol. Nematodes and a didymozoid trematode were isolated from infected specimens. These could not be identified using available taxonomical keys and are hereby presented in this short communication.

Keywords: Marine fish nematode parasites, *Pseudotolithus*, Nembe waterside, Didymozoid trematodes, Bonny Estuary

INTRODUCTION

Pseudotolithus species are important fishery resources of the Gulf of Guinea. They occur in both estuarine and marine waters (Akpan *et al*., 2004). Research has shown that they require the mangrove ecosystem for reproduction (Nwosu *et al*., 2010). Isangedighi and Ambrose (2016) found that the dietary components of *P. elongatus* from Imo River estuary, Nigeria, were composed mainly of shrimps, other fishes (including *Ethmalosa fimbriata, Ilisha africana, Brachydeuterus auritus* etc.), plant materials and polychaete worms.

Some research has been conducted on the parasites of *P. elongatus*. Anyanwu (1983) reported on the nematode *Philometra translucida* from *P. elongatus* off the coast of Lagos, Nigeria. Parasites such as *Capillaria* sp., Acanthocephala and *Diplostomum commutatum* have also been isolated from *P. elongatus* (Abraham *et al*., 2005). Ogbeibu *et al*. (2014) encountered several parasitic helminthes from *P. elongatus* harvested from a tidal creek in the Niger Delta, Nigeria. The parasites included *Capillaria zederi*, *Eustrongylides* sp., *Arthrocephalus* sp., *Amiroides* sp., *Phacochoerostrongylus* sp., *Chapiniella* sp., *Anafilaroides* sp., *Nematodirella* sp., *Allintoshius* sp., *Trichohelix* sp., *Pseudatractis* sp., *Africana* sp., *Spectatus* sp., *Amblyonema* sp., *Aplectana mexicana, Heteroxynema* sp., *Laurotravassoxyuris* sp. etc.

This research paper presents the photomicrographs of unidentified parasites from *P. elongatus* fished from Nembe waterside, Port Harcourt, Nigeria.

Materials and Methods

Sample Location and Handling: Freshly caught fish specimens were purchased from fishers at Nembe waterside (N4º 45' 35.172'', E7º1' 36.726''), located downstream of the Bonny Estuary, Port Harcourt, Nigeria. They were purchased in the early hours of the morning (6:30-8:00am) in May and June, 2018, and transported in ice chests to the Entomology and Parasitology Laboratory, Department of Animal and Environmental Biology, Rivers State University, Port Harcourt, Nigeria, for identification, morphometric measurements and parasitological examination.

Sample identification and Examination: Fish samples were identified as *Pseudotolithus elongatus* using taxonomic keys from FishBase (www.FishBase.org). Fork length and total length were taken using a meter rule to the nearest cm.

The mouth of each specimen was examined for parasites; the gills were excised and shaken vigorously in universal bottles holding 0.92% physiological saline to release attached parasites. The contents of the universal bottle were poured into Petri dishes and examined under the microscope. Afterwards, each fish was dissected using a dissecting scissors inserted through the anal opening to the operculum. This was done to expose the gastro-intestinal tract

which was excised into a Petri dish half-filled with physiological saline for examination. Parasites isolated were examined under 10x and 40x magnification lens of the microscope, and fixed in 70% ethanol. Nematodes were cleared in lactophenol before photomicrographs were taken using a Nikon digital camera attached to the objective lens.

Results

Fifty samples of *Pseudotolithus elongatus* were examined in the course of this research. They were of mean fork length 18.34cm ± 0.46 and mean total length 22.69cm ± 0.62. Six parasite species were isolated from infected hosts and included four nematodes, one didymozoid trematode and an unknown organism (Figures 1-6). The fixed specimens of the photomicrographs hereby presented are available for further analysis and description.

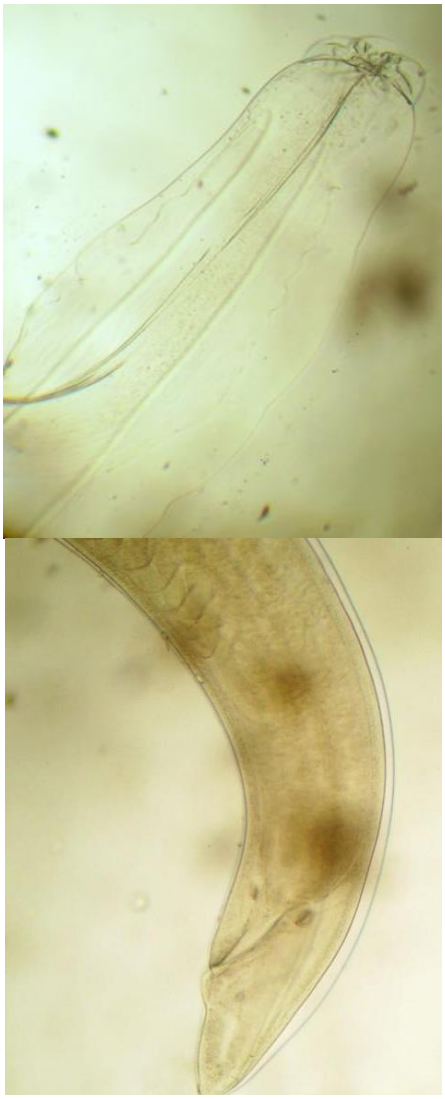

Fig. 1: Unidentified Nematode Type 1 from *Pseudotolithus elongatus*, Nembe waterside, Rivers State, Nigeria.

Discussion

The present report and that of Ogbeibu *et al*. (2014) indicates that *Pseudotolithus* species are hosts to several parasite species. Though researchers have varying resources to aid the identification of hosts and parasites, including the World Register of Marine Species (WoRMS), it can sometimes be difficult to achieve accurate identification of some species. Molecular biology techniques are indispensable at such instances except for cost, especially in developing and under-developed countriessample sizes to confirm the growth pattern. Jisr *et al*. (2018) found that though most of the fish species they examined presented with negative allometric growth, *Liza ramada* exhibited a positive allometric growth only in the winter while *Oblada melaneura* showed a positive allometric growth during the summer, thereby supporting the influence of season on the length-weight relationship of different fisheries. Moslen and Miebaka (2017) examined *Mugil cephalus* and *Oreochromis niloticus* from an estuarine creek in Niger Delta, Nigeria, from January to December, 2015, and reported variations in the growth pattern of *Mugil cephalus*; the species exhibited isometric growth pattern in June but allometric growth pattern during the rest of the research period. *Oreochromis niloticus*, on the other hand, exhibited allometric growth throughout the study period. These reports indicate variability of length-weight relationship both between fish species and between seasons.

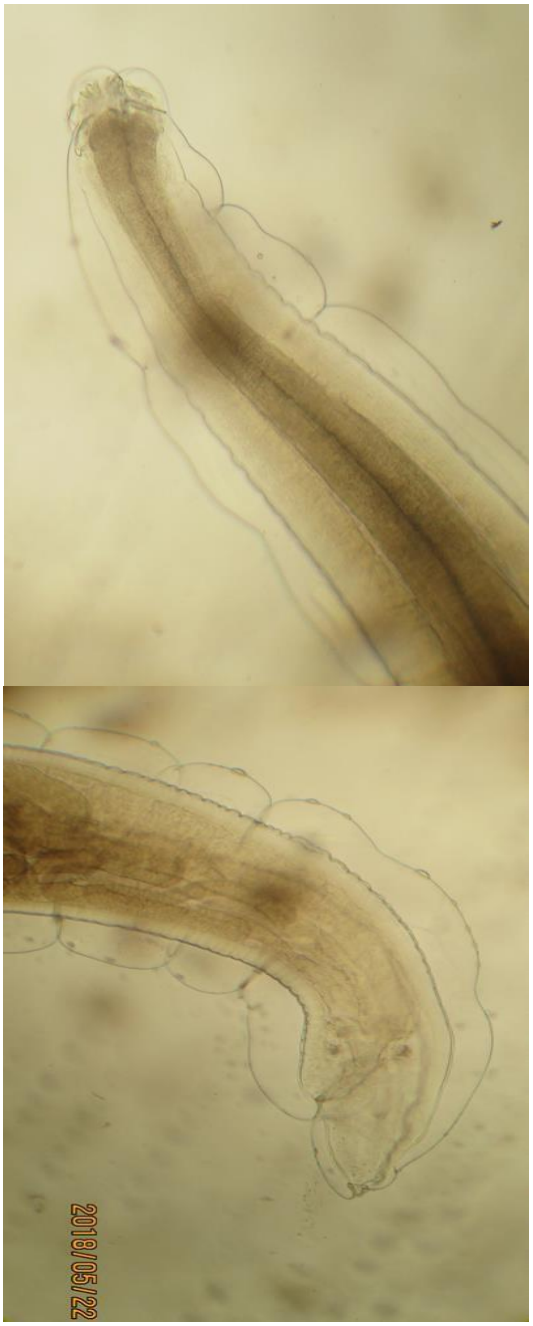

Fig. 2: Unidentified Nematode Type 2 from *Pseudotolithus elongatus*, Nembe waterside, Rivers State, Nigeria. Scale: 0.25mm.

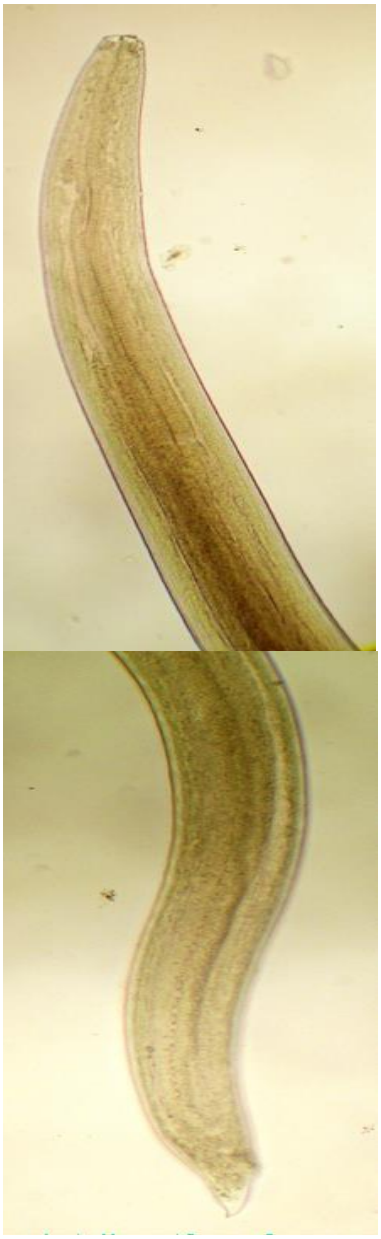

Fig. 3: Unidentified Nematode Type 3 from *Pseudotolithus elongatus*, Nembe waterside, Rivers State, Nigeria.

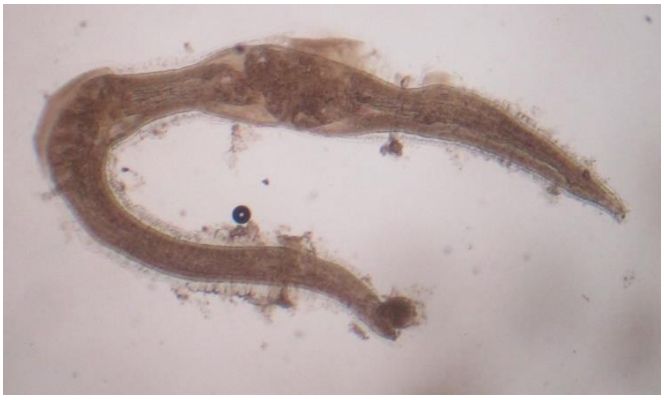

Fig. 4: Unidentified organism from *Pseudotolithus elongatus*, Nembe waterside, Rivers State, Nigeria.

Fig. 5: Unidentified Nematode Type 4 from *Pseudotolithus elongatus*, Nembe waterside, Rivers State, Nigeria.

Fig. 6: Didymozoid trematode from *Pseudotolithus elongatus*, Nembe waterside, Rivers State, Nigeria.

Conclusion

The author hereby declares her desire for collaboration with experienced researchers from elsewhere to strengthen scientific outputs from the still developing parasitology unit of her Institution.

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