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# MONOGENEAN INFECTION IN FISH FROM AN ARTIFICIAL POND IN SOUTHEASTERN NIGERIA

By
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**Abstract**

*Citharinus citharus* (Geoffroy Saint-Hilaire, 1809) or the moon fish collected from an artificial pond in southeastern Nigeria were found to be infected with *Citharodatylus gagei* (Přikrylová *et al,* 2017). This represents a new geographical record for the parasite and is its first report in the fish host from Nigeria.

**Key words:** Nigeria, *Citharinus citharus*, Monogenean parasite

## Introduction

*Citharinus citharus* or moon fish (phylum: Chordata, class: Actinopterygii, order: Characiformes, family: Citharinidae) is one of the Nile fishes (Boulemger, 1907). It is an economic important fish species with high culture potentials (Adeyemi *et al*, 2020). Seasonal and artificial ponds occur in several ecosystem types (Hofmeister *et al*, 2022), and was exploited for fish production in rural villages and serve the important function of conservation of fisheries resources (Chen *et al*, 2012). Commercially, the relative *C. citharus* abundance was 47.49%, compared to *Lates niloticus* 27.74%, and *Distichondus rostratus* 24.77% (Oladipo *et al,* 2022).

In Nigeria, *Citharinus citharus* (Geoffroy Saint-Hilaire, 1809) are fresh water fish examined toxicologically (Ogamba *et al*, 2015), length-weight relationship and ecological factors (Adeyemi *et al,* 2020), and for their reproductive biology (Olele and Obi, 2006).

Saoud and Mageed (1969) in the Sudan reported monogenean *Macrogyrodactylus polypteri* on some fishes, *Polypterus* bichir. Khalil (1970) reported *M. polypteri* Malmberg, a viviparous monogenean on the skin and fins of the African freshwater fish *Polypterus senegalus* Cuvier. Prikrylová *et al.* (2009) in Senegal, described *Diplogyrodactylus martini*, a viviparous monogenean as n. gen. & n. sp., in gills of gray bichir *P. senegalus* Cuvier, 1829. Přikrylová *et al.* (2017) in Lake Turkana in Kenya reported *Citharodactylus gagei* n. gen. & n. sp. (Plathyhelminthes, Monogenea) from the gills of *Citharinus citharus* (Geoffroy Saint-Hilaire). Arafa *et al.* (2014) in Egypt studied the ultrastructure reproductive system of monogenean parasite from *Clarias gariepinus* in the Egyptian River Nile. Also, Aly *et al.* (2024) in Egypt reported that monogenean trematodes are significant metazoan parasites with substantial implications for aquaculture expansion. But, few or rare reports were on the monogenea infecting Nigerian fresh water fish.

This article aimed to study the helminthic parasite(s) infecting *Citharinus citharus* or moon fish collected from the artificial pond in southeastern Nigeria.

## Materials and Methods

Study location: Fish samples were harvested from a seasonal artificial pond located at Osummanu Fish Estate and Resort Ossomala (N 05 51’40.3” & E 006 41’21.5”), Ogbaru, Anambra State in southeastern Nigeria.

Sample collection: The ponds were emptied from water to enable fish harvest between March to May, 2023. Some fishes were collected by hand-picked while others were caught by using a standard fishnet. The fishes were immediately transported in 70% ethanol to the Entomology and Parasitology Laboratory, Department of Animal and Env-

ironmental Biology for examination.

Laboratory examination: The morphometric measurements of wet weight and total length were done using a portable kitchen scale and a meter rule, respectively. The gill and gastrointestinal tract samples of each fish were carefully removed at the point of harvest and were carefully examined microscopically. Intestinal tract was dissected out with a longitudinal cut to liberate any enclosed parasite. Prevalence of infection was computed (Bush *et al*, 1997) and the parasites were identified after Yamaguti (1903).

Ethical approval: This research was approved by the Academic Board of Department of Animal and Environmental Biology, Rivers State University, Port Harcourt, Nigeria, which went with the Helsinki's declarations (2016).

## Results

Three *Citharinus citharus* (Geoffroy Saint-Hilaire, 1809) were among fish harvested from the seasonal, artificial pond as a new geographical parasitic range.

Examination of gills and entire gut showed three *Citharodactylus gagei* in gills (33.3%) of only one, but intestinal tract was free.

Morphometric measurements showed the wet weight ranged from 73.3g to 197.7g and total length ranged from 12.3cm to 26.5cm.

The detailed results were given in table (1) and figure (1).

Table 1: Wet weight and total length of *Citharinus citharus*

| Specimen No. | Wet weight (g) | Length (cm) |
|---|---|---|
| 1 | 121.6 | 15.7 |
| 2 | 73.3 | 12.3 |
| 3 | 197.7 | 26.5 |

## Discussion

*Citharodactylus gagei*, a monogenean parasite was described the moon fish examined in Kenya (Přikrylová *et al*., 2017). It belongs to the Gyrodactylidae family of monogeneans. Description of this species and other gyrodactylids from Africa were given by the mentioned authors and perhaps others.

In the present study, the isolation of *C. gagei* from the moon fish specimens from southeastern Nigeria represents a new record. It also added to the parasites infecting fishes of this country as *Procamallanus laevionchus* (Wedl, 1862), and *Chariniella citharini* (Uneke, 2015), *Clinostomum complanatum* (Rudolphi, 1819) after Solomon *et al.* (2016) as well as *Eustrongylides* sp. (Jägerskiöld, 1909), and *Diphyllobothrium latum* (Linnaeus, 1758) after Obande *et al*. (2022). Members of the Gyrodactyllidae are known to cause severe damage on their hosts, including the spleen heaviness (Rahn *et al*, 2015), hyperplasia of gill filaments and massive mortality (Grano-Maldonado *et al*, 2018).

## Conclusion

Undoubtedly, parasitic worms affect the fresh water fishes particularly in Africa.

More studies should focus on parasite(s) infecting fishes and impact on the economy. Studies on fish diversity and parasites seasonality are indicated in the artificial po-nds to suggest feasible control measures.

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*Authors' Contributions:* All the authors equally contributed in the field and laboratory each on their specialization, but all reviewed the manuscript and approved its publication.


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**Explanation of figure**

Fig. 1: Moonfish, *Citharinus citharus* (Geoffroy Saint-Hilaire, 1809) from Osummanu Fish Estate and Resort Ossomala, Anambra State, Nigeria

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