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Metazoan parasites in fishes A concern to be acquainted with

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Παράσιτα μετázων στα ψάρια –
Μια ανησυχία που πρέπει να γνωρίζουμε

Περίληψη στο τέλος του άρθρου

Key words: Fish, Helminth, Parasite

Fish have represented an important food source in many areas of the world, playing a considerable economic role in diverse regions; the inadequate preparation and ingestion of raw meat increase the risk of foodborne infection by microorganisms or metazoans.^{1–8}

We read with special interest a recently published article about the finding of *Tetracampas* sp, *Paracamallanus* sp, and *Rhabdochona* sp infecting the catfish *Clarias gariepinus* in a river in West Africa.¹ The research examined 339 specimens of *C. gariepinus* and collected 1,207 nematodes (*Paracamallanus* sp and *Rhabdochona* sp), besides 294 cestodes (*Tetracampas* sp). Although these fish represent an important food source, there was no clear evidence of the parasite's adverse impact on human health; therefore, the authors emphasized the need to investigate a role in population infection.¹ In this context, the following brief comments are presented on recent literature data about the occurrence of metazoan infections involving diverse fishes from Brazilian rivers.^{2–8} In 2020, metazoan parasites were evaluated in sympatric populations of *Triportheus angulatus* and *Triportheus auratus* from the Jari River in

the state of Amapá in Brazil.² All the specimens of these fishes were infected by *Procamallanus* (*Spirocamallanus*) *inopinatus*, *Rhabdochona acuminata*, *Anacanthorus furculus*, *Anacanthorus pithophallus*, *Digenea* gen. sp, *Contracaecum* sp, *Ergasilus* sp, and *Acarina* gen. sp. There was a similar (78%) metazoan parasite community between *T. angulatus* and *T. auratus*, with few differences in the parasite diversity and richness; whereas the host size was a factor with a major influence on the diversity and species richness of parasites.² Metazoan infections (12 by nematodes and 9 by trematodes) were found in 185 fish specimens of 22 species from the Tocantins River, in the state of Maranhão in Brazil.³ *Procamallanus* (*Spirocamallanus*) sp in *Bivibranchianotata*, *Brycon pesu*, *Chalceus macrolepidotus*, *Hemiodus microlepis* and *Hemiodus unimaculatus*; *Procamallanus* (*Spirocamallanus*) *inopinatus* in *Triportheus elongatus*; *Goezia* sp in *Boulengerella cuvieri*; and *Rhabdochona acuminata* in *Brycon pesu*, besides *Triportheus trifurcatus*. The authors stressed the contribution of finding new hosts and localities for parasites to better clear the biodiversity, and understand the evolution of parasites and their hosts.³ From February 2010 to June 2012, metazoan infections in 78 specimens of *Hoplias* aff. *malabaricus* from the Mogi-Guaçu River, in southeastern Brazil, were evaluated.⁴ Nematoda had the higher number of species, and *Contracaecum* sp was most abundant; the sex of the host played a significant role, with parasites more abundant among females. The authors emphasized the finding of *Procamallanus* (S.) *iheringi* and *Rhabdochona acuminata*, which have not previously been described as parasites of *H. aff. malabaricus*.⁴ Metazoan infections caused by camallanid and cucullanid nematodes, or by trematodes were searched among 132 flounder specimens (60 *Paralichthys isosceles*, 36 *Paralichthys patagonicus*, and 36 *Xystreurusrasile*) collected off the coast of the state of Rio de Janeiro in Brazil.⁵ *Procamallanus* (S.) *halitrophus* was detected in *P. isosceles* and *X. rasile*, whereas the *Cucullanus bonaerensis* was detected in *P. isosceles*, *P. patagonicus*, and *X. rasile*. The authors emphasized the first confirmed parasitism occurrence of *X. rasile* by *P. (S.) halitrophus* and of *P. patagonicus* by *C. bonaerensis* in Western South Atlantic

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Ocean.⁵ Metazoan parasitism of fish by *Demidospermus* sp, *Cucullanus pinnai*, *P. (S.) inopinatus*, *Contracaecum* sp, and *Proteocephalidae* gen. sp were detected in 70.4% of 71 specimens of *Pimelodus ornatus* from Amazon River, in the state of Amapá, Brazil. The authors stressed the report of *P. (S.) inopinatus* and *Contracaecum* sp in *P. ornatus*; besides abundance of *P. (S.) inopinatus* and positive correlation with the host length.⁶ Between June 2015 and May 2017, 160 specimens of *Leporinus macrocephalus* were collected in fish farms of the State of Acre (Brazil) to evaluate the metazoan parasites.⁷ The prevalence of the parasites *Urocleidoides paradoxus*, *Urocleidoides eremitus*, *Tereancistrumparvus*, *Jainusleporini*, *P. (S.) inopinatus*, *R. acuminata*, *Dolops discoidalis* and *Ergasilus* sp was 61.9%, while *U. paradoxus* was the dominant agent.⁷ *D. discoidalis*, *P. (S.) inopinatus* and *R. acuminata* occurred only in *L. macrocephalus*, higher levels of infection were caused by *U. paradoxus*, *U. eremitus*, and *P. (S.) inopinatus*; besides a positive correlation between parasite abundance and host length.⁷ Studies performed between 2010 and 2021 on nematodes in fishes of the Brazilian Amazon region added 80 articles containing descriptions of new species and the hosts.⁸ The *Capillariidae* Railliet and *Guyanemidae* Petter families, 35 genera with 48 named and 28 undetermined nematode species belonging to 93 host species were added; *Camallanidae* species were widely presented infecting fish, amphibians, and reptiles.⁸ The authors highlighted the scarcity of studies on the fish parasitic nematodes in the Amazon Biome region, and need to implement taxonomic and ecological assessments.⁸

Concluding, more research involving the helminth fauna of fishes will surely contribute to preventive measures and better management of human zoonotic conditions.

ΠΕΡΙΛΗΨΗ

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Τα ψάρια αποτελούν σημαντική πηγή τροφής σε πολλές περιοχές του κόσμου, και σε διάφορες περιοχές διαδρα-

ματίζουν σημαντικό οικονομικό ρόλο. Η ανεπαρκής προετοιμασία και η κατανάλωσή τους χωρίς μαγείρεμα αυξάνει τον κίνδυνο λοιμώξεων από μικροοργανισμούς ή μετάζωα. Η έρευνα για λοιμώξεις από μετάζωα στα ψάρια είναι περιορισμένη και θα αύξανε τις γνώσεις για τις πιθανές αρνητικές επιπτώσεις στη δημόσια υγεία. Τα ευρήματα από βραζιλιάνικες τέτοιες μελέτες λοιμώξεων από μετάζωα σε ψάρια από αγροκτήματα, ποτάμια, εκτός από τον Ατλαντικό Ωκεανό, τονίζουν τη συμβολή της εύρεσης νέων ξενιστών και τοποθεσιών για τα παράσιτα, για την καλύτερη γνώση της βιοποικιλότητας και την κατανόηση της εξέλιξης των παρασίτων και των ξενιστών τους

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Λέξεις ευρητηρίου: Έλμινθες, Παράσιτα, Ψάρια

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