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CONTRIBUTION TO THE ZOOGEOGRAPHY OF THE GENUS OCTOMACRUM (MONOGENEA, PLATYHELMINTHES)

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Abstract

According to the latest specialist literature review, there are known six species of the genus Octomacrum, of which only one is European.

This paper presents the geographic distribution map for the octomacrids and also some original photos of Octomacrum europaeum species, recorded in the Romanian fauna.

INTRODUCTION

The primary freshwater categority of monogeneans includes different taxa, some of them having a higher range and occuring strictly in the fresh water, but also some subfamilies strictly freshwater, even some genus of marine predominant families. The primary freshwater suborder *Octomacrinea* Khotenovsky, 1985 contains two families: *Octomacridae*, monotypic with holarctic distribution and *Diplozoidae* with euro-asiatic and afro-tropical distribution. The hole *Octomacrine*a suborder is more ancient in fresh water and hence has a higher significance than subfamilies such as *Dactylogyrinae* or *Ancylodiscoidinae* which are confined to fresh waters too, but are related to marine families [1].

The family *Octomacridae* Yamaguti, 1963 has a single genus, *Octomacrum,* with a range including North America and Central Europe.

This paper contributes to a better understanding the zoogeography of this genus, by introduction of all octomacrids species into a suggestive map.

MATERIAL AND METHODS

In our research we started from the list of monogeneans categories [1].

By consulting a reach specialty literature, we reunite knowledges regarding the way of the octomacrids spreading in the actual ranges, the phylogenetic specificity and the freshwater fish host category, and hence we sketch a distribution map (figure 1).

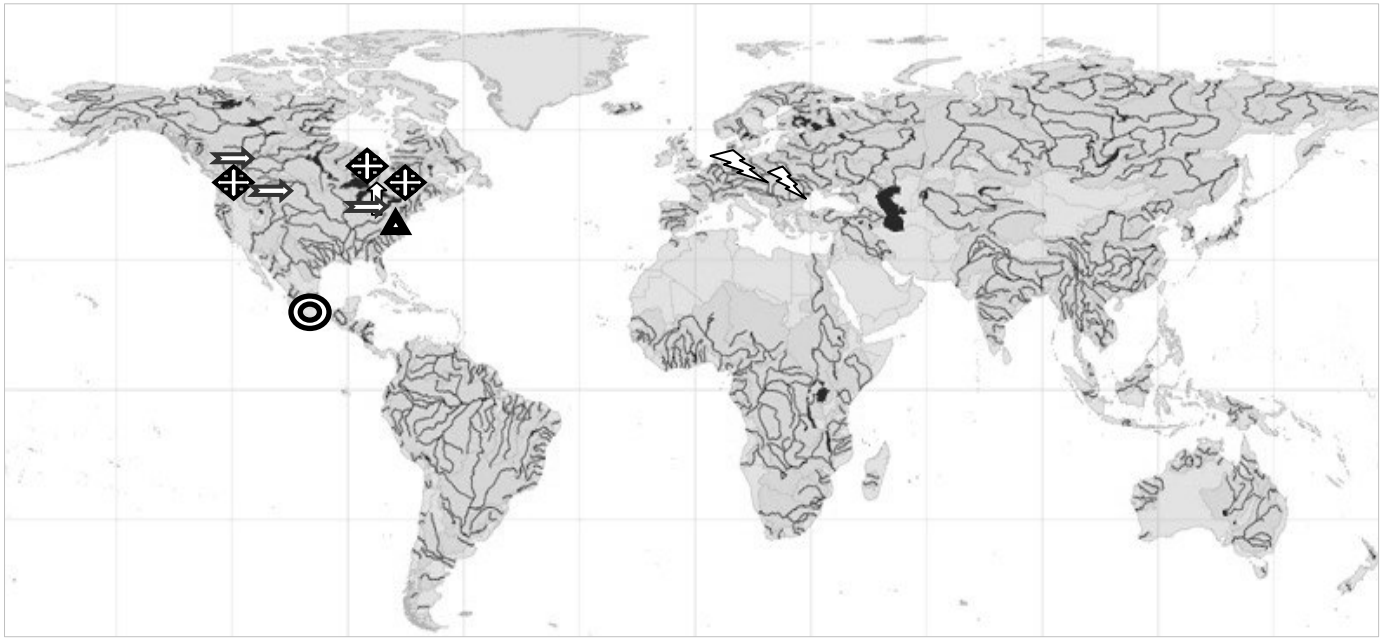
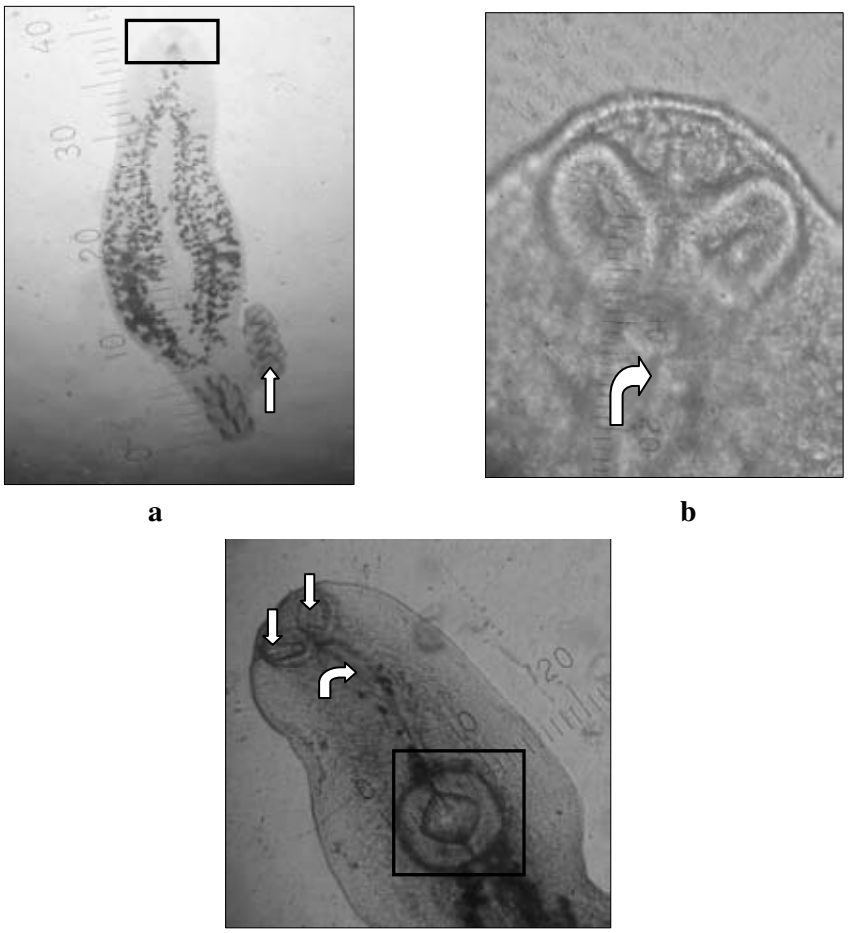


Fig. 1. Distribution map for the octomacrids: ***Octomacrum mexicanum, O. spinum, O. microconfibula, O. lanceatum, O.semotili, O. europaeum***

(the original blank map is taken from [12])

We mentioned previously [11], the presence of the monogenean *Octomacrum europaeum*, find out into a phenomenon of competition manifested by negative interraction with *Paradiplozoon alburni*, in a sample of *Alburnoides bipunctatus* fish host.

Some aspects of this parasite species are captured here in the photos bellow (figure 2), made at trinocular microscope Novex Holland, with the help of the digital camera Panasonic Lumix DMC-LS60, 6 Mpx, 3x optical zoom.



a **b**

c

Fig. 2. *Octomacrum europaeum*: a. general aspect of the body, opisthaptor (arrow) and ventral suckers (frame) (one division = 36 μ); b. the ventral suckers and pharynx (arrow) (one division = 3,6 μ); c. the anterior part of this monogenean, with the two ventral suckers (vertical arrows), the pharynx (orizonthal arrow) and the genital sucker (frame) (one division = 3,6 μ).

The parasite biometry was recorded by the two micrometres proceeding, whith a preliminary calibration of the ocular micrometer for the each optical combination ocular-objective belonging to the microscope [10].

RESULTS AND DISCUSSION

There are known five species of the genus *Octomacrum*, with specificity for the *Catostomidae* and *Cyprinidae* host families [5]. But from the latest literature review, results the existence of six species, out of which only one is European: *Octomacrum mexicanum, O. spinum, O. microconfibula, O. lanceatum, O. semotili* and *O. europaeum.*

The restricted octomacrids range is included inside the *Diplozoidae*, that is a more apomorphic and more warm adapted sister familiy. Prooctomacrids would have appeared on the common ancestor of cyprinids and catostomids in South-Eastern Asia. The octomacrids reached North America together with the catostomids. The second wave of migration was represented by cyprinids, that reached North America by Beringia in the Miocene; this host group did not carry however the diplozoids, more competitive forms. Prooctomacrids migrated from East Asia to Europe and Siberia together with the cyprinids, but here these parasites have been eliminated by diplozoids. Although the cyprinids occured in Africa since the end of the Miocene, the octomacrids did not penetrate here being less warm-adapted forms [1].

Diplozoidae and *Octomacridae* are usually considered as sister families. Nevertheless, in 2002 a group of French researchers stated that the colonisation of primary freshwater teleosts by these two families could be independent. A molecular phylogeny was inferred by comparing newly obtained partial 28S and 18S r DNA gene sequences [9].

Athough *Octomacrum* lives in East and Central Europe only on the cyprinid *Alburnoides bipunctatus*, in nearctic things stay different. In North America were recorded five *Octomacrum* species, on catostomids and cyprinids fish [2].

Octomacrum lanceatum parazites on *Catostomus commersoni* (Canada, Erie Lake) sau *C. catostomus* (Colorado) [4]; *O. spinum*, on *Campostoma anomalum* (Virginia) [4]; *O. mexicanum* was recorded on *Algansea lacustris*, into a mexican river [8]; *O micronfibula* parasites *Notemigonus* and other three cyprinid genus from Canadian lakes, while *O. semotili* was find on *Semotilus* and *Chrosomus* genus [4].

O. europaeum is found in the Black Sea basin and was described for the first time in 1956 [7], on the branchae *Alburnoides bipunctatus*. Sice that moment, the parasite was recorded only the host cited before [2].

In Czech Republic, Lucký (1957) describes *O. europaeum* as *Discocotyle sagittata*, but two years later the author further revised his identification, establishing the

truth identity. The presence of *Discocotyle* monogenean species in cyprinids specimens was doubtful, specially because the salmonids are known within their regular hosts. Matějusova and Koubková rediscovered in 2000 *Octomacrum europaeum*, in the River Dyje from Czech Republic [5]. *Octomacrum europaeum* was cited also in few rivers from Poland [7].

In Romania, the monogenean presence was recorded, after the discovery year by: Aioanei [2], Aioanei and Teodorescu [3], Stavrescu-Bedivan and Aioanei [11].

CONCLUSIONS

1. The present paper synthesizes by a map the zoogeographic data from specialty literature, regarding to *Octomacrum* species.
2. There are known so far in the global fauna, the following octomacrids: *Octomacrum mexicanum, O. spinum, O. microconfibula, O. lanceatum, O. semotili* and *O. europaeum.*
3. *Octomacrum europaeum* was recorded only on the cyprinid *Alburnoides bipunctatus.*

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