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PARASITE FAUNA OF RAY AND STINGRAYS (PISCES: ELASMOBRANCHII) FROM THE COASTAL WATER OF VIETNAM

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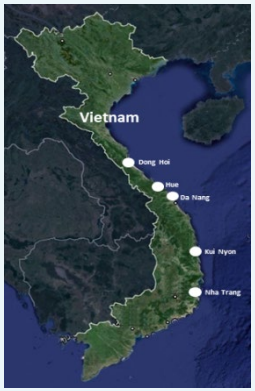
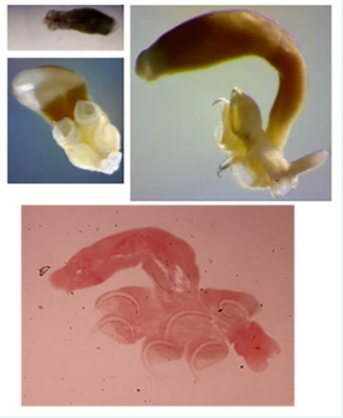
About 105 species of the elasmobranches, namely 54 species of ray and stingrays from 25 genera and 51 species of sharks from 28 genera, permanently or temporarily occur in the East Sea. Parasites have been previously studied only for 40% of the elasmobranch fauna in this sea and only off the coast of Malaysia (Borneo) and China (Gulf of Tonkin). Until our research started in 2019, the fauna of parasites of the elasmobranches off the coast of Vietnam had not been studied.



In total 109 specimens of 11 batoids (rays, stingray) species from the families Rajidae (1 species / 33 specimens), Dasyatidae (7/16), Gymnuridae (2/2) and Glaucostegidae (1/6) caught off the coast of central Vietnam (Nha Trang, Kui Nyon, Da Nang, Hue and Quang Binh) were studied in 2019 and 2021.

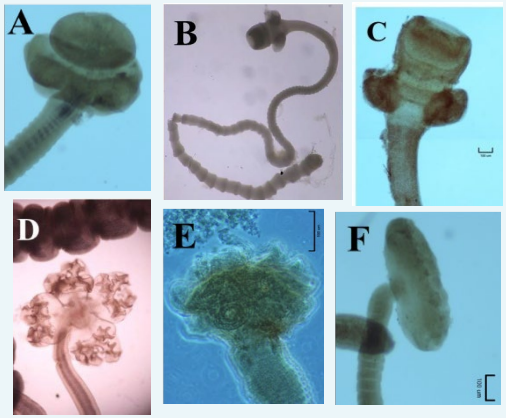
The batoids were identified using molecular genetic data. About 33 species of parasites from 9 orders and 4 higher taxa (Monogenea, Cestoda, Nematoda and Crustacea) were found in 7 species of rays.



***Hypanocotyle* sp. n. (Hexabothriidae) from gills of *Hemitrygon bennettii*.**

The monogeneans of the genus *Calicotyle* Diesing, 1850 in *Okamejei hollandi* as well as *Monocotyle tritestis* Young, 1967 and *Heterocotyle chinensis* Timofeeva, 1983 (Monocotylidae) and new species of the genus *Hypanocotyle* in *Hemitrygon bennettii* were recorded for the first time in these fish not only in the East Sea, but in all area of their distribution. Moreover, the representative of the new genus of monogeneans of the family Hexabothriidae was identified in *Maculabatis gerrardi*.

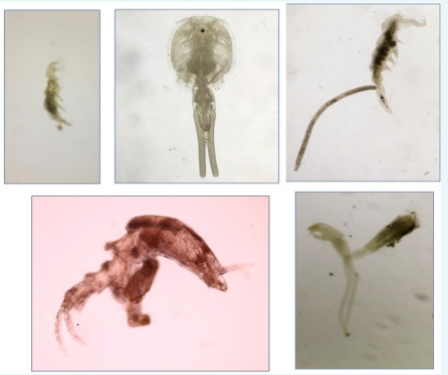
Larvae of two species of Nematoda were found in the studied rays. The larva of *Raphidascaroides nipponensis* Yamaguti, 1941 (Raphidascarididae) was recorded in *Okamejei hollandi* for the first time, adult specimens of this nematode was previously found in the East Sea in the teleost fish *Halieutaea stellata* (Vahl, 1797). The other nematode larva found in *Glaucostegus typus*, *Gymnura japonica* (Temminck & Schlegel, 1850) and *Neotrygon* sp. was not identified.



New species of cestodes from the batoides of the East Sea:
A, B, C – *Cephalobothrium* spp., D – *Anthocephalum* sp., E, F – *Lecanicephalum* spp.

The most species was recorded among cestodes. In total, 16 cestode species from 5 orders were found for the first time in the East Sea in *Maculabatis gerrardi* (Gray, 1851), *Okamejei hollandi* (Jordan & Richardson,1909), *Hemitrygon bennettii* (Müller & Henle, 1841), *Glaucostegus typus* (Anonymous [Bennett], 1830), *Neotrygon* spp. and *Pateobatis* spp. These species are from the following orders: Lecanicephalidea – 4 species/3 genera, Trypanorhyncha – 6/4, Rhinebothriidea – 4/2, Diphyllidea – 1/1, Onchoproteocephalidea – 1/1. Eight of these cestode species was identified as new species for science. The representatives of the order Lecanicephalidea and the genus *Rhinebothrium* Linton, 1890 (Rhinebothriidea) were found in the East Sea for the first time.

The fauna of parasitic crustaceans was very diverse and represented by 5 species of Copepoda, 1 species of the genus *Caligus* Müller O.F., 1785 and larvae of Gnathiidae (Isopoda).



Parasitic crustaceans from gills of *Hemitrygon bennettii*

The rich fauna of cestodes, monogeneans and crustaceans was revealed as a result of the investigation of the ray and stingrays off the coast of Vietnam started in 2019. All found parasites were recorded in this region of the East Sea for the first time. Half of the batoids species have been examined for the presence of parasites for the first time throughout their entire range. Representatives of at least two new genera of monogeneans and cestodes have been found.

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