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A NEW SPECIES OF DACTYLOGYRUS FROM THE GILLS OF AMUREAN

HYPOPHthalmichthys molitrix (VAL.)

by

A. Kh. Achmerow

Edited

by

William J. Hargis, Jr.

Translated

by

Pierre C. Oustinoff

TRANSLATION SERIES NO. 2

VIRGINIA INSTITUTE OF MARINE SCIENCE
Gloucester Point, Virginia
1964

Preface
to Translation¹

Translation of this paper was undertaken as part of a long-term research project on the systematics, host-specificity and zoogeography of monogenetic trematodes.² Translation and editing were accomplished in the following manner:

1. Oustinoff³ read translation on tape.
2. Mrs. Morales transcribed translation from tape to first typescript.
3. Hargis edited typescript.
4. Typescript retyped by Mrs. Morales.
5. Hargis again edited typescript for final corrections.

A conscious effort has been made to keep this translation as near the original as possible. It is probably inevitable, however, that some of the nuances of meaning in the original have been distorted or lost. For this we apologize to Dr. Achmerow and the reader.

Certain passages were difficult to translate. Where a different English phrase seems to fit Dr. Achmerow's meaning better or serves to clarify the text, it has been inserted in parentheses with the Latin notation nobis-- by us. Certain obvious errors or misspellings in the original text were changed, less obvious ones are noted with (sic).

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²Translation and editing supported by funds from Grant No. E-2389 of the National Institutes of Health.

³Chairman, Department of Modern Languages, College of William and Mary, Williamsburg.

For convenience in referring to the Russian text the original pagination is given in the margin of the translation opposite the place where the new page begins. Occasionally figures or tables are somewhat displaced from their original page location; however, since they, themselves, are numbered sequentially, no confusion should result.

The citation of numbers for measurements and numbered structures are generally given in the translation as they were in Dr. Achmerow's paper. This should further facilitate checking with the Russian.

Thanks are due to Mrs. Patricia C. Morales of the Virginia Institute of Marine Science who transcribed, typed, and assembled the manuscript.

William J. Hargis, Jr.
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PARASITOLOGY

A. Kh. Achmerow

A NEW SPECIES OF DACTYLOGYRUS FROM THE GILLS OF AMUREAN
HYPOPHTHALMICHTHYS MOLITRIX (VAL.)

(Presented by Academician K. I. Skrjabin , 3 May 1954)

The growth and development of the fish industry in the SSSR involves the problem of acclimatization of certain species of fishes from the Amur River Basin to a number of reservoirs (bodies of water) of the European and Asian parts of the Soviet Union. At the same time it is necessary to eliminate the possibility of transferring certain pathogenic parasites to other waters, together with the spawners from Amur River.

As a result of parasitological studies of fishes from the Amur River Basin, a number of articles were published on parasites of Amur River fishes, including monogenetic trematodes (1-3), having epizootic significance in the production of fish. However, even now we do not possess the necessary data, not only about pathogenic peculiarities of parasites of Amurean fishes, but even concerning the species composition of their parasite fauna because parasitological research has covered only 70% of the species of fish of the Amur River Basin.

As the result of our previous researches on Hypophthalmichthys molitrix (Vallenc.) /sic/ we found 19 species of parasites, of which two (2)

are monogenetic trematodes described by us in 1952 (2). During recent research on Hypophthalmichthys we found six (6) additional new parasites of which three (3) are monogenetic trematodes. One of them, Dactylogyrus skrjabini Achmerow n. sp., is described in this article. The species is named in honor of Academician K. I. Skrjabin.

The worms of this species parasitize the gills, /living/ as a rule, between the spongy plates formed by the joining of the bases of gill stamens /rakers/. These dactylogyrids are often found also on the gill filaments. We found D. skrjabini on 25% of Hypophthalmichthys less than one year old and 70% infection on two-year old fishes. The number of worms on fishes less than one year old did not exceed 3, whereas on two year olds it reached 20. The worms are large and have very small hooks /anchors/ in comparison with the body itself. The length of the body is 2 - 2.4 mm; the width 0.25 - 0.3 mm. The attaching disc is noticeably delineated from the body by a constriction. The chitinous armature of the attaching disc is the usual one for the genus Dactylogyrus. It consists of one pair of middle hooks /anchors/, one connecting plate and 7 pairs of lateral supplementary hooks. The anchors are of peculiar shape. Their overall length is 0.072 - 0.84 mm. They consist of a long exterior outgrowth oriented straight forward in the direction of the anterior end of the body, and represents, as it were, the extension of the basal part of the body of the hook. The exterior outgrowth slightly thickens near its base of the hook. The length of the exterior outgrowth is 0.04 - 0.055 mm, the width is 0.007 - 0.01 mm. The interior outgrowth is 0.012 - 0.018 mm in length. It has thickenings along the edges and in its middle section, is oriented toward the body of the hook at

an angle of approximately 65-70° and overhangs like a visor. The hooked portion is slightly demarcated from the basal part. The point measures 0.012-0.015 mm. The basal part measures 0.026 - 0.03 mm from the place of demarcation of the exterior outgrowth to the lowest point of the curvature of the point. Between the middle hooks there is a very thin, scarcely visible chitinous plate measuring 0.005 - 0.03 mm long. p168

There are six pairs of lateral hooks of varying length--from 0.03 to 0.06 mm located above the level of the anchors. The last pair, the seventh (7th) is the largest, measuring from 0.065 to 0.08 mm, it has a wide base and is located below, or posterior to, the level of the anchors and is pointed toward them.

The chitinous armature of the male copulatory apparatus has a total length of 0.13 - 0.16 mm and is represented by a copulatory pipe /cirrus/ and a supporting plate /accessory piece/ located parallel to each other. The accessory piece measures 0.12 - 0.16 mm in length and consists of a long, trough-shaped plate forked at its distal end. The cirrus is simple. Its length is 0.08 - 0.085 mm. It is located with its widened base at the level of the middle part of the accessory piece and terminates in a slightly curved point at the level of the end of the supporting plate. It should be noted that the eye spots are weakly developed in this species of Dactylogyrus being represented by two pairs which is customary for this genus.

In conclusion we must mention that D. skrjabini is the largest of the known species of genus Dactylogyrus and possesses high resistance against the action of 5% solution of sodium chloride. In this connection

D. skrjabini is closer to D. solidus, which has been carried with the Amurean carp to many fish ponds and acquired wide noteriety as a dangerous parasite of young Amurean carp and other carps.

Thus, considering its close relationship to D. solidus and its resistance to anti-parasitical baths, D. skrjabini should be considered as one of the potentially dangerous parasites. This must be taken into account in transferring Hypophthalmichthys from the Amur into other Basins.

All Union Scientific Research Institute
of the Fish Industry of Lakes and Rivers

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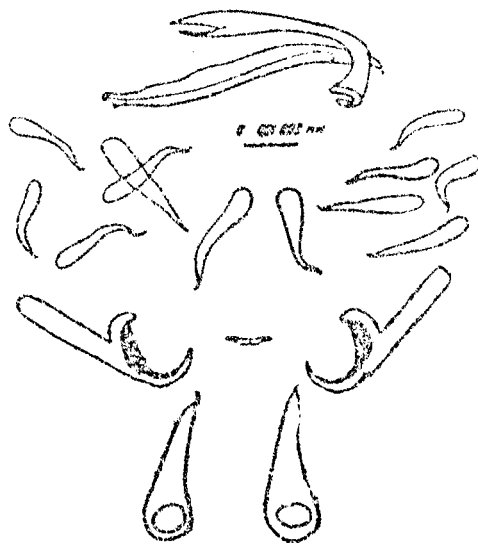


FIG. 1