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Parasitology

PARASITES OF THE FLOUNDER - *PLATICHTHYS FLESUS* (L.)
FROM THE BRACKISH WATER OF KAMIEŃSKI BAY

PASOŻYTY STORNI - *PLATICHTHYS FLESUS* (L.)
Z WÓD SŁONAWYCH ZALEWU KAMIEŃSKIEGO

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A number of 116 specimens of *Platichthys flesus* (L.), of the total body length 14.5 - 28.5 cm, was examined for parasites. The fishes were caught during the spring of 1968 in Szczecin Lagoon in the vicinity of Kamień Pomorski.

Thirteen species of parasites were found, including 4 species of digenetic trematodes, 1 species of cestode, 3 species of nematodes and 5 species of acanthocephalans. A total number of 75 fishes, i.e. 65.64%, was infested.

There were found 4 species of parasites of marine origin.

In connection with great tolerance of flounders to the changes in salinity and with their migrations to the lakes near the sea-coast and up stream in the rivers, the specific and quantitative composition of their parasite fauna changes depending on actual habitat of the fishes.

Up to now the data concerning the parasites of the flounder have only referred to the fishes caught in the open sea (Markowski, 1933, Janiszewska, 1938, Stryjecka-Trembaczowska, 1953). But there was a lack of information on the parasite fauna of the flounder from brackish- and fresh-waters. In the aim of partial filling of this gap the present author investigated the flounders from brackish water of the Kamieński Bay. This bay belongs to the water complex of the mouth part of Odra river (Szczecin Lagoon) and communicates with the Baltic Sea through a short segment of Dziwna river. In this environment the flounders occurred frequently.

A total number of 116 specimens of flounders, caught during the period from 4th April to 14th June 1968, was examined. Their weight was 20 to 280 g

and the body length (longitudo corporis/longitudo totalis) 12.0-23.5/14.5-28.5 cm. Most of them were young specimens, up to three years of age. Only two fishes were older. The parasites were found in the eyes, digestive tract and liver. The number of 75 fishes (65.64%) was infested with 13 species of parasites representing Digenea - 4 species, Cestoda - 1 species, Nematoda - 3 species, and Acanthocephala - 5 species.

DIGENEA

Family Diplostomatidae P o i r i e r, 1886

Diplostomum spathaceum (R u d o l p h i, 1819), larva.

In the examined fishes high infestation of the eye lenses with the metacercariae of D. spathaceum (Rud.) was found. The incidence of this parasite reached up 50.86%, and the intensity of infestation was 1-29 specimens per fish.

The parasite occurs in the whole territory of Poland in various species of fresh water fishes, in flounder in Poland has not been recorded.

Family Opecoelidae O z a k i, 1925

Sphaerostomum globiporum (R u d o l p h i, 1904).

Single specimens of this parasite were found in the intestine of two flounders. The species is of fresh-water origin, hitherto not found in flounder.

Family Lecithochiriidae L ü h e, 1901

Brachyphallus crenatus (R u d o l p h i, 1802).

Only one specimen of this parasite was found. The species is of marine origin, occurs in the Baltic Sea (M a r k o w s k i, 1933; Ś l u s a r s k i, 1958; J a n i s z e w s k a, 1938). It was noted in *Salmo salar* L., *Salmo trutta* L. and *Hyperoplus lanceolatus* (Le Sauv.). J a n i s z e w s k a (1938) found high infestation (12%) of flounders from the Puck Bay by *Hemiusurus ocreatus* (Molin, 1868). Ś l u s a r s k i (1958) was in doubt about the correct identification of this species, and, basing on the description given by Janiszewska, supposed it to be rather *Brachyphallus crenatus* (Rud.). This species is distinguished by its great tolerance to the changes in salinity. Ś l u s a r s k i (1958) had found it in Wisła up to Dunajec river in trout going up stream to spawn.

Family Azygiidae L ü h e, 1909Azygia lucii (M ü l l e r, 1776).

Two specimens of the trematode Azygia lucii (Müll.) were found in one flounder. This fresh-water species is a common parasite of the predatory fishes, especially of pike. In flounder not has been found yet.

CESTODA

Family Proteocephalidae L a R u e, 1911Proteocephalus torulosus (B a t s c h, 1786).

One to two specimens of the cestode were found in the fore part of the intestine of 3 fishes (2.58%). This fresh-water species was found in the Puck Bay (M a r k o w s k i, 1939). In flounder recorded for the first time.

NEMATODA

Family Cucullanidae C o b b o l d, 1864Cucullanellus minutus (R u d o l p h i, 1819).

This species was found in the intestine of 7 flounders (6.03%), the intensity of infestation was 1-8 specimens. It is a marine species, recorded from Baltic by J a n i s z e w s k a (1938) and M a r k o w s k i (1939). For the first time it was found in flounder by J a n i s z e w s k a (1938).

Family Camallanidae R a i l l i e t e t H e n r y, 1915Camallanus truncatus (R u d o l p h i, 1814).

One to three specimens were found in the intestine of 3 flounders (2.58%). This species occurs in Poland in many fresh-water fishes, especially in predatory ones. In flounder recorded for the first time.

Family Anisakidae S k r j a b i n e t K a r o k h i n, 1945Contraecum aduncum (R u d o l p h i, 1802).

Only one larva was found in the liver of a flounder. This nematode is common in Baltic in many species of fishes (M a r k o w s k i, 1938). For the first time it was found in flounder by J a n i s z e w s k a (1938).

ACANTHOCEPHALA

Family Neoechinorhynchidae W a r d, 1917Neoechinorhynchus rutili (M ü l l e r, 1780).

One to nine specimens of this parasite were found in the middle part of the intestine in 17.24% of examined fishes. This fresh-water species is common in Poland in various fish species. In the Baltic Sea it was noted by M a r k o w s k i (1933) and J a n i s z e w s k a (1938).

Family Echinorhynchidae C o b b o l d, 1879Acanthocephalus anguillae (M ü l l e r, 1780).

Single specimen of this acanthocephalan was found in the intestine of a flounder. The parasite is common in Poland in many fresh-water fishes. In flounder in Poland has not been recorded.

Acanthocephalus lucii (M ü l l e r, 1776).

One to five specimens were found in the intestine of 18.1% of fishes examined. The species is of fresh-water origin, very common in Poland. In flounder in Poland has not been recorded.

Echinorhynchus gadi M ü l l e r, 1776.

Two and five specimens were found in the middle part of the intestine of two fishes. It is marine species, common in many fish species in the Baltic Sea (M a r k o w s k i, 1933; J a n i s z e w s k a, 1938).

Family Pomphorhynchidae Y a m a g u t i, 1939Pomphorhynchus laevis (M ü l l e r, 1776).

One to two specimens were found in the intestine of 6.34% of examined flounders. The parasite is common in the coastal waters of the Baltic Sea (M a r k o w s k i, 1933; J a n i s z e w s k a, 1938; K o t e r, 1962). It occurs also in inland waters.

In flounders examined from the Kamieński Bay 13 species of parasites were found. Four of them are typical marine species. They are: Brachyphallus crenatus (Rud.), Cucullanellus minutus (Rud.), Contracaecum aduncum (Rud.), and Echinorhynchus gadi Müll. They were introduced from the Baltic Sea by migrating flounders. The remaining 9 species are fresh-water parasites. The flounders may be infected with them in the Kamieński Bay. However, some of these species, as Diplostomum spathaceum (R u d.), Neoechinorhynchus rutili (M ü l l.) and Pomphorhynchus laevis (M ü l l.), tolerate well low salinity and they have been noted in the coastal zone of the Baltic Sea (Puck Bay) (M a r k o w s k i, 1933; J a n i s z e w s k a, 1938; C i c h o w l a s, 1961; K o t e r, 1962).

The following species: *Diplostomum spathaceum* (R u d.), *Cucullanel-lus minutus* (R u d.), *Neoechinorhynchus rutili* (M ü l l.), *Acanthocephalus lucii* (M ü l l.), and *Pomphorhynchus laevis* (M ü l l.) were found to be the most frequent and numerous in the Kamieński Bay.

As the results of the present investigation point out the parasite fauna of the flounder in the Kamieński Bay is of mixed character with great predominance of fresh-water species. Similar data were obtained by E n g e l - b r e c h t (1958) in flounders from brackish water of Greifswalder Bodden and Kleine Haff.

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PASOŻYTY STORNI - PLATICHTHYS FLESUS (L.) Z WÓD SŁONAWYCH ZALEWU KAMIEŃSKIEGO

S t r e s z c z e n i e

U badanych storni z Zalewu Kamieńskiego stwierdzono występowanie 13 gatunków pasożytów, z których 4 gatunki są typowymi formami morskimi. Są

to: Brachyphallus crenatus (Rud.), Cucullanellus minutus (Rud.), Contra-caecum aduncum (Rud.) i Echinorhynchus gadi Müll. Zostały one zawleczone z Bałtyku przez wędrujące stornie. Pozostałe 9 gatunków to formy słodkowodne, którymi stornie mogły się zarazić już w Zalewie Kamieńskim, chociaż niektóre z tych gatunków jak Diplostomum spathaceum (Rud.), Neoechinorhynchus rutili (Müll.) i Pomphorhynchus laevis (Müll.) znoszą dobrze niewielki stopień zasolenia i były notowane w strefie przybrzeżnej Bałtyku (Zatoka Pucka) (Markowski, 1933; Janiszewska, 1938; Koter, 1962; Cichowlas, 1961).

Najczęściej i najliczniej w Zalewie występowały: Diplostomum spathaceum (Rud.), Cucullanellus minutus (Rud.), Neoechinorhynchus rutili (Müll.), Acanthocephalus lucii (Müll.) i Pomphorhynchus laevis (Müll.).

Jak wynika z przedstawionych badań parazytofauna storni w Zalewie Kamieńskim ma charakter mieszany z dużą przewagą gatunków słodkowodnych. Podobne wyniki uzyskał Engelbrecht (1958) u storni z wód słonych Greifswalder Bodden i Kleine Haff.

ПАРАЗИТЫ КАМБАЛЫ - PLATICHTHYS FLESUS (L.)
ИЗ СОЛОНОВАТЫХ ВОД КАМЕНЬСКОГО ЗАЛИВА

Резюме

У исследуемой камбалы из Каменского залива установлено наличие 13 видов паразитов, из которых 4 вида являются типичными морскими формами. Это Brachyphallus crenatus (Rud.), Cucullanellus minutus (Rud.), Contra-caecum aduncum (Rud.) и Echinorhynchus gadi Müll. Принесены они из Балтийского моря мигрирующей камбалой. Остальные 9 видов - это формы пресноводные, которыми камбала могла заразиться уже в Каменском заливе, хотя некоторые из этих видов, как например Diplostomum spathaceum (Rud.), Neoechinorhynchus rutili (Müll.) и Pomphorhynchus laevis (Müll.) хорошо переносят небольшую степень засоленности и были констатированы в прибрежной зоне Балтийского моря (Пущкая бухта) (Марковски, 1933; Янишевска, 1938; Котер 1962; Циховляс 1961).

Чаще всего и в наибольшем количестве в заливе встречались: Diplostomum spathaceum (Rud.), Cucullanellus minutus (Rud.), Neoechinorhynchus rutili (Müll.), Acanthocephalus lucii (Müll.) и Pomphorhynchus laevis (Müll.).

Из проведенных исследований вытекает, что паразитофауна камбалы в Каменском заливе носит смешанный характер с большим преимуществом пресноводных видов. Подобные результаты получил Энгельбрехт (1958), исследуя камбалу из солоноватых вод Грейфсвальдер - Бодден и Кляйне Хафф.

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