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Metazoan Parasites of Chum Salmon (*Oncorhynchus keta*) in Korea

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Abstract

We investigated metazoan parasites of 40 *O. keta* (Fork length ranges from 46.0 cm ~ 64.5 cm, Total weight ranges from 3.05 kg ~ 2.64 kg) caught in 2005, and compared with those of 80 *O. keta* caught in 2004. Parasite species found were 1 digenea (*Brachycephallus crenatus*), 3 cestoda (*Eubothrium* sp., *Nybelinia* sp. plerocercoid, 1 cestoda sp.), 4 nematoda (*Anisakis simplex* larva, *Anisakis* sp. larvae, *Contracaecum* sp. larva. *Contracaecum* sp. 2 larvae), and 1 copepoda (*Lepeophtherius salmonis*). When compared with the parasites species found in 2004, the composition of parasite species in 2005 was thought to be similar, although the parasitic species identification was not precisely conducted in 2004.

Results

Geographical origin of salmonid fishes caught in the North Pacific region has been of much interest for certain countries in terms of fish stock management. However, no biological information on chum on chum salmon, *Oncorhynchus keta* migrating to Korea, is available. The present study was undertaken to investigate metazoan parasite fauna of Korean *O. keta*, and comparing these with the data obtained in 2004.

We investigated metazoan parasites of 40 *O. keta* (Fork length ranges from 46.0 cm ~ 64.5 cm, Total weight ranges from 3.05 kg ~ 2.64 kg) caught in 2005, and compared with those of 80 *O. keta* caught in 2004. Frozen fish were transported to the laboratory, and then thawed, measured and dissected to investigate metazoan parasites. All the external and internal metazoan parasites found were fixed with 10% buffered formalin or 70% ethanol, stained when necessary and identified. The prevalence of infection for each parasite were measured and compared with those of 2004.

Parasite species found were 1 digenea (*Brachycephallus crenatus*), 3 cestoda (*Eubothrium* sp., *Nybelinia* sp. plerocercoid, 1 cestoda sp.), 4 nematoda (*Anisakis simplex* larva, *Anisakis* sp. larvae, *Contracaecum* sp. larva. *Contracaecum* sp. 2 larvae), and 1 copepoda (*Lepeophtherius salmonis*). The prevalence of infection for each parasite is summarized in Table 1. The most abundant parasite was *Anisakis simplex* larvae, and more than 1 species of nematodes were found from each individual fish. *Brachycephallus crenatus* was the only digenean species found. Of cestode species, *Eubothrium* sp. (90.0% of fish examined were infected) was the most abundant species. *L. salmonis* were recorded from the skin of fish examined, and the prevalence of infection was higher (22.5% of fish examined were infected) than that of 2004 (6%).

When compared with the parasites species found in 2004, the composition of parasite species in 2005 was thought to be similar, although the parasitic species identification was not precisely conducted in 2004. Unlike the data in 2004, a huge number of Anisakid nematode larvae were found in this study. This is thought to be due to the mistakes during the investigation in 2004, not due to the different prevalence of infection in each year.

The cestode parasites found in this study was not possible to be identified to the species level because all the cestodes were immature. However, *Eubothrium* sp was thought to be the most abundant species for 2 years. All other parasites species were also consecutively found for 2 years.

Together with these results, analyses on parasites composition of *O. keta* from North Pacific Ocean are being undertaken. More large-scaled and long-term studies for parasitic fauna are necessary for clarifying migration routes and other biological information on *O. keta* in Korea.

Parasites species found	Prevalence of infection in 2005
Digenea	
<i>Brachycephallus crenatus</i>	37.5 % (15/40)
Nematoda	
<i>Anisakis</i> sp. larvae	97.5 % (39/40)
<i>Anisakis simplex</i> larvae	95.0 % (38/40)
<i>Contracaecum</i> sp larvae	62.5 % (25/40)
<i>Contracaecum</i> sp. larvae 2	50.0 % (20/40)
Cestoda	
<i>Eubothrium</i> sp.	90.0 % (36/40)
<i>Nybelinia</i> sp. plerocercoid	47.5 % (19/40)
Unidentified Cestoda sp.	NC
Copepoda	
<i>Lepeophtheirus salmonis</i>	22.5 % (9/40)

NC: not counted