

Detection of Anisakidae larvae in Baltic cod's fillets – the comparison of the efficiency of methods

Beata Szostakowska¹, Katarzyna Nadolna-Ałtyn², Joanna Pawlak²,
Anna Bańkowska³, Maciej Kochanowski⁴, Mirosław Różycki⁴,
Magdalena Podolska²

¹ Department of Tropical Parasitology, Medical University of Gdańsk, Powstania Styczniowego 9B str., 81-519 Gdynia, Poland; ² Department of Fisheries Resources, National Marine Fisheries Research Institute, Kołłątaja 1 str., 81-332 Gdynia, Poland; ³ A&A Biotechnology, Aleja Zwycięstwa 96/98, 81-451 Gdynia, Poland; ⁴ Department of Parasitology and Invasive Diseases, National Veterinary Research Institute, Aleja Partyzantów 57, 24-100 Puławy, Poland

Nematodes of the family Anisakidae parasitize marine water's organisms all over the world. Marine mammals (cetaceans and pinnipeds), play the role of definitive host, while wide range of crustaceans, fish and cephalopods serve as intermediate/patarentic hosts. Some anisakid species of the genera *Anisakis*, *Pseudoterranova* and *Contracaecum* pose a threat to human health. Human can become infected after ingestion of raw or semi-raw marine fish or cephalopods containing live third-stage larvae. In addition, in sensitive persons, consumption of even dead larvae may cause allergic reactions.

In fillets of the Baltic cod, larvae of *Anisakis simplex* and *Pseudoterranova decipiens* are found, however, the prevalence of infection differs in particular fishing grounds

According to European Commission regulations, fish intended for human consumption originated from areas when Anisakidae occurs, should be visually inspected for the presence of anisakid larvae before being released to consumption. Fishery products that are obviously contaminated with parasites must not be placed on the market for human consumption.

The aim of the work was to assess whether detection methods recommended by European Food Safety Authority are sufficient to detect all parasites larvae in Baltic cod's fillets.

The research was conducted on more than 500 fish originated from 7 Baltic fishing grounds.

Fish were degutted and fillets were examined according to EC recommendations, that is, non-destructive visual inspection. Next, each fish was digested in HCl-pepsin solution to determine whether some nematodes could remain undetected by the recommended method, and thus, whether eating of these fish can pose a threat to the consumers health.

Visual inspection allowed to detect parasites in 3,3% of degutted fish (range 0–13,4% depending on fishing ground). Digestion showed that in fact the number of infected fish is almost twice as high (5,6%; range 0–15,9%). Obtained results show that cod infected with anisakid larvae, even after visual inspection, still poses a potential threat to consumers.

This research was supported by The National Centre for Research and Development under the Strategic Program Biostrateg (grant no. 296211/4/NCBR/2016).