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ABSTRACT

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Levels of PCBs were measured in several organs and adipose tissue of 9 freshwater fishes as well as in thorny-headed worm *Acanthocephalus lucii* from the heavily polluted water reservoir Zemplínskašírava (Eastern Slovakia). In May and September 2004 and 2009, a concentration of six PCB congeners (28, 52, 101, 138, 153, 180) was determined. Tissue-specific differences in PCB concentrations were observed: liver > adipose tissue > muscles > hard roe > bones > brain expressed on a lipid weight basis. With respect to individual congeners, PCB 153 dominated being present in highest concentrations in comparison to other congeners in all fish organs as well as adipose tissue. Acanthocephalans, attached in the intestine of fish, absorbed high concentrations of PCBs and thus indirectly contributed to the decrease of PCB load in their fish hosts. Total PCBs broadly correlated with the trophic position of individual fish species within a food chain ($p < 0.01$). The concentrations were particularly high in predatory fish species, perch, pike and pike-perch (108.0, 90.1, 113.0 $mg.kg^{-1}$ lipid wt, respectively), but comparable PCB values were also found in non-predatory detrivorous freshwater bream (128.0 $mg.kg^{-1}$ lipid wt).The lowest PCB values were surprisingly assessed in European eel (17.1 $mg.kg^{-1}$ lipid wt). The study have shown that the kind of fish, its feeding habit and specific conditions of the habitat are mutually interrelated factors that are responsible for significant variations in fish body burdens. For human health, our findings of PCB values detected in muscles of fish were of great importance because the maximum permissible levels of these pollutants estimated for food (fish muscles) were exceeded several tens times.

USE OF MEBENDAZOLE FOR MONOGENEA CONTROL DURING TRANSPORT OF TAMBAQUI (*COLOSSOMA MACROPOMUM*)

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This study evaluated the use of mebendazole during two and four hours transport against monogenean in tambaqui (*Colossoma macropomum*). Fish naturally infected were subjected to transport for two and four hours in solutions containing 0, 10, 50 and 100 mg of mebendazole/L of water. Two duplicates were performed for each transport time, with the determination of initial infestation in each population prior to transport. Immediately and one week after transport, blood
samples were collected for analysis of glucose, after which the animals were sacrificed, their gills removed and fixed in formalin for the monogenean count. The results of the mebendazole application during two hours promoted low efficiency in controlling parasites, 35% in the concentration 100mg/ L, and under other concentrations no difference was observed from the control group. The number of parasites increased in all groups, seven days after treatment in the two hours transport. The concentrations of 10, 50 and 100 mg mebendazole / L for 4 hours of transport showed efficiency of approximately 53, 57 and 62%, respectively, in reducing the number of parasites. In the four hours exposure treatment the product had a toxic effect, causing 100% mortality seven days after treatment. Glucose plasma levels showed a normal increase after transport of two hours, including the control, indicating that the use of mebendazole did not induce stress and that the animals had tolerance to the treatment. However, after four hours of exposure it was observed

hyperglycemia and the animals became lethargic. Therefore, we concluded that the tambaqui is tolerant to mebendazole during transport for short time (2 h) but the product does not show effectiveness in controlling monogenean in the concentrations evaluated.

MORPHOLOGICAL AND MOLECULAR CHARACTERIZATION OF *ANISAKIS* LARVAE (NEMATODA: ANISAKIDAE) IN CUTLASS FISH *TRICHIURUS LEPTURUS* (L.) FROM BRAZILIAN WATERS

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Many adult nematodes of the family Anisakidae are parasites of aquatic mammals and fish-eating birds. Fishes usually act as intermediate hosts and consequently human infections may occur. Studies with the aim of identifying these parasites using molecular methodologies have helped to elucidate aspects of their taxonomy and ecology, their life-history and their hosts' ecology. Such studies have until recently been scarce in the brazilian coast. In this study, we collected anisakid larvae from *Trichiurus lepturus* off the coast of Brazil between August, 2010 and January, 2011. The body length of the larvae was measured directly and subsequently they were cut into three pieces: the anterior and posterior regions of individual larvae were cleared in glycerine for morphological identification and the middle portion was used to characterize the specimen genetically. Genomic DNA was extracted using a Charge Switch gDNA Mini Tissue kit (Invitrogen) according to the manufacturer's instructions. PCR followed by DNA sequencing was carried out using primer NC5/NC2 and *Anisakis* ITSF/ITSR designed to amplify a fragment of internal transcribed spacer ITS1, 5.8S and ITS2 of nuclear ribosomal DNA of anisakids and *Anisakis typica*, respectively. The sequencing was performed using a Big Dye Terminator kit (Invitrogen). From the 63 larvae recovered from 10 fish hosts, 14 were identified as *Anisakis* by morphological analysis of the anterior and posterior regions of parasites. The sequences alignments matched a 100% with *Anisakis typica* sequences deposited in GenBank recovered from adult worms taken from marine mammals in the southwestern Atlantic. The morphological data and genetic sequences alignments are presented.

TESTING ORIGIN OF THE FIRST "DAUGHTER" OF VIVIPAROUS GYRODACTYLIDAE

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