

Trace elements accumulation in anadromous sea lamprey spawners

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Running headline

Trace elements in sea lamprey

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Abstract

The sea lamprey, *Petromyzon marinus*, is an anadromous cyclostome that occurs in the main Western Europe river basins draining to the Atlantic Ocean, and considered a gastronomic delicacy in Portugal, Spain and France. The contamination profile of this species is fairly unknown as far as trace metals are concerned, with only a few studies dedicated to the subject. Trace elements concentration was analyzed in muscle and liver samples of adult specimens from eight Portuguese river basins. This study aimed: 1) to assess the profile of essential and non-essential elements accumulation in the muscle and liver of sea lampreys spawners; 2) to investigate possible differences in the trace elements accumulation in adult sea lampreys entering Portuguese river basins ; and 3) to determine the safety of sea lamprey for human consumption regarding elements content. Females accumulated higher levels of elements than males, but only differences in the liver were significant. In a general overview, the accumulation of most elements analyzed was low, except for Hg in the muscle, which exceeded the statutory limits for fish concentration. The muscle accumulation profile based on non-essential elements (As, Cd and Hg) evidenced a segregation of the samples into two groups, mostly based on Hg concentration. Distinct trophic levels and contamination of preys and differential duration of the parasitic period may be in the origin of this separation.