

Communication abstract – Online SEMINAR, 24 June 2024, University of Relizane, Algeria

Estimation of the evolution of metal pollution (Cu, Pb) on the Ghazaouet coast using a teleost bioindicator, the common sole (*Solea solea*, Linnaeus, 1758)

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Published: 10 April 2024

Abstract

The present study focuses on measuring the concentrations of metallic trace elements (MTEs) in the liver and muscle tissues of the common sole (*Solea solea*, Linnaeus, 1758) from the Ghazaouet coast. This species is a bony fish highly appreciated by the Algerian population. Fish were collected seasonally between April and September 2019. The concentrations of two metallic trace elements, copper (Cu) and lead (Pb), were analysed using atomic absorption spectrophotometry (AAS) in the two organs studied. The average copper concentrations in the liver and muscle were 6.65 ± 0.38 $\mu\text{g/g}$ and 6.04 ± 0.44 $\mu\text{g/g}$, respectively. The average lead concentrations in the liver and muscle were 1.50 ± 0.43 $\mu\text{g/g}$ and 1.31 ± 0.37 $\mu\text{g/g}$, respectively. Our results indicate that metal accumulation follows the order: liver > muscle. Comparative analysis shows an upward trend in the average levels of the two pollutants (Cu and Pb) during the summer period compared to the spring period. The average values found for copper and lead in the muscle of the common sole from Ghazaouet are 6.04 ± 0.44 $\mu\text{g/g}$ and 1.31 ± 0.37 $\mu\text{g/g}$, respectively, which do not seem to pose a real danger to consumers compared to the maximum admissible doses (MAD). However, it is important to remember that these xenobiotics have a cumulative effect throughout the trophic chain and can have harmful long-term effects on health.

Keywords: MTEs, common sole, AAS, MAD, Ghazaouet coast.