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Author: Roberto Lava, Laszlo I. Majoros, Ioannis Dosis, Marina Ricci

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A practical example of the challenges of biota monitoring under the Water Framework Directive

Roberto Lava [a, †], Laszlo I. Majoros [b, †], Ioannis Dosis [a], Marina Ricci [a, *]

[a] *European Commission, Directorate General-Joint Research Centre, Institute for Reference Materials and Measurements (IRMM), Retieseweg 111, 2440 Geel, Belgium*
[b] *European Chemicals Agency, Annankatu 18, 00121 Helsinki, Finland*

HIGHLIGHTS

- Hexachlorobenzene and hexachlorobutadiene were measured in Wels catfish from Spain
- Data discussed as examples of biota monitoring under the Water Framework Directive
- The measurement results show high variability, despite similar sampling conditions
- The results were assessed for compliance with environmental quality standards
- Biota monitoring needs further harmonization at the European Union level

ABSTRACT

Twenty-nine Wels catfish were caught from the Ebro River (Spain) and analyzed for the mass fractions of hexachlorobenzene (HCB) and hexachlorobutadiene (HCBD), two priority substances for which environmental quality standards (EQSs) have been established in biota since 2008. These fish are the starting material for a candidate certified reference material. The results obtained show high variability in the mass-fraction level. Considering the same specimen, tails always have higher contamination levels than heads, the highest results being of about 1000 ng g^{-1} for both analytes. EQSs were exceeded 17 times for HCB and once for HCBD in tail samples.

We discuss the results with regard to representativeness and data evaluation with regard to EQS compliance.

We present observations and open questions for the on-going discussion about implementing biota monitoring, in the view of the requirements imposed to Member States by the recently adopted Directive 2013/39/EU.

Keywords:
Biota
Certified reference material (CRM)
Environmental quality standard (EQS)
Fish (*Silurus glanis*)
Harmonization
Hexachlorobenzene (HCB)
Hexachlorobutadiene (HCBD)
Monitoring
Priority substance (PS)
Water Framework Directive (WFD)

Corresponding author. Tel.: +32-14-571-962; Fax: +32-14-571-548.
E-mail address: marina.ricci@ec.europa.eu (M. Ricci)

[†] These authors contributed equally to this work.