Naturally occurring radionuclides in a fish reference material

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Introduction

Certified reference materials, CRM, are used for quality assurance of analytical results. Biological reference materials prepared from animal tissues such as mussels and fish are useful in environmental and nutritional studies. This presentation describes the naturally occurring activity concentrations of ^{226}Ra, ^{228}Ra, ^{210}Po and ^{40}K in a fish tissue reference material produced in Brazil, determined in different laboratories.

Experimental

Corvina (*Micropogonias furnieri*)

Alpha spectrometry

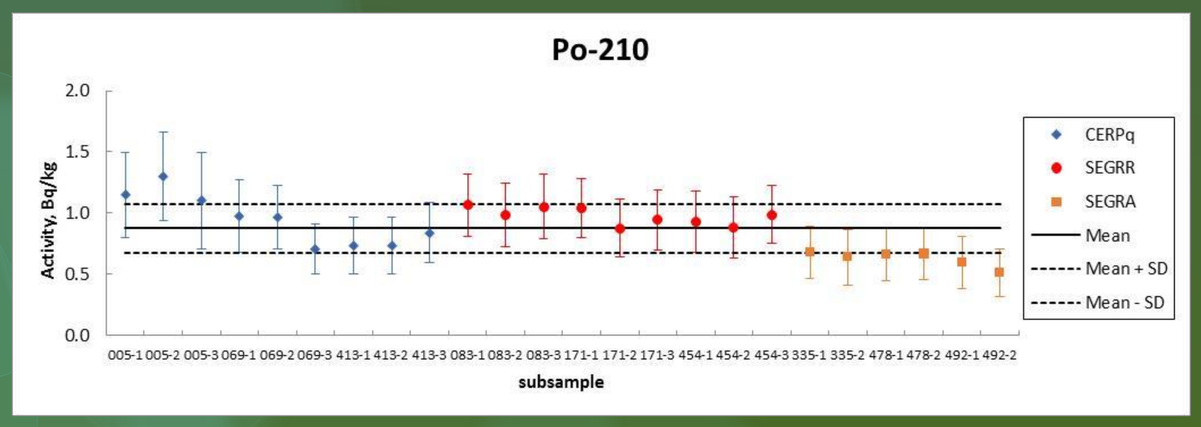
- ✓ 0.5-g test sample – HNO_3 dissolution; hidroxilamine and sodium citrate addition; ^{210}Po
- ✓ deposited on silver plate (4h);
- ✓ Sr-Spec Eichron Resin;
- ✓ Alpha Analyst with 12 PIPS;
- ✓ 200,000 s measurement;
- ✓ 5.304 MeV for ^{210}Po.

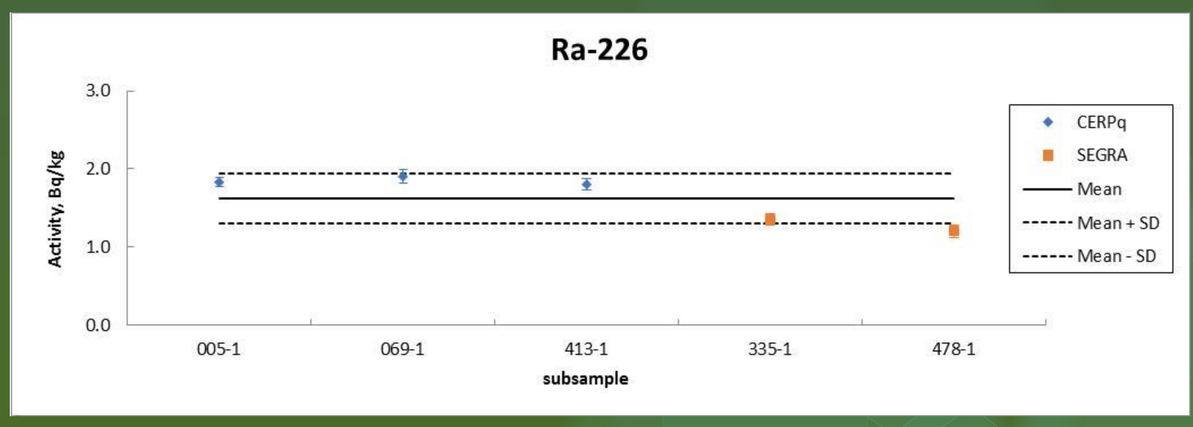
Gamma ray spectrometry

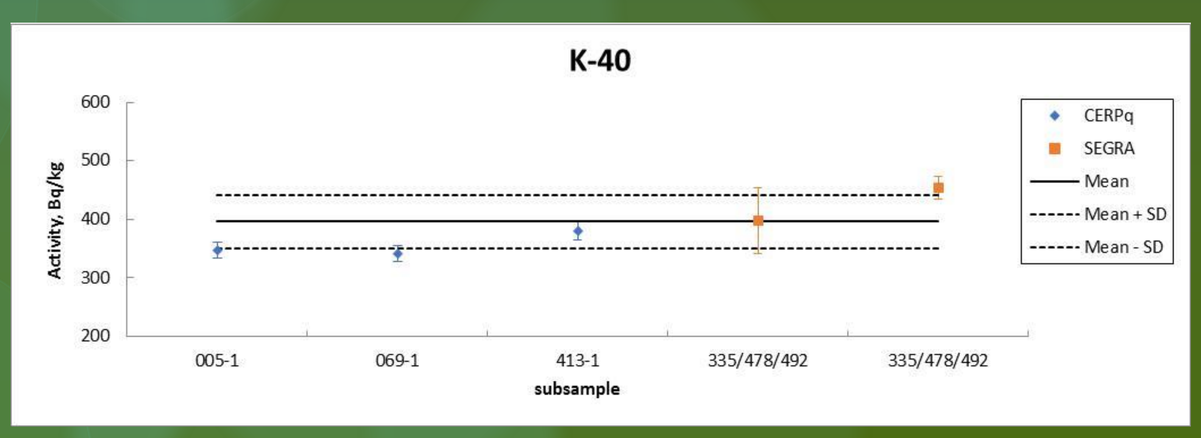
- ✓ 25 g test sample;
- ✓ GX4510 HPGe detector;
- ✓ 250,000 s measurement;
- ✓ 609 and 1020 keV (^{214}Bi) for ^{226}Ra;
- ✓ 911 keV (^{228}Ac) for ^{228}Ra;
- ✓ 1461 keV for ^{40}K;
- ✓ 46.5 keV for ^{210}Pb.

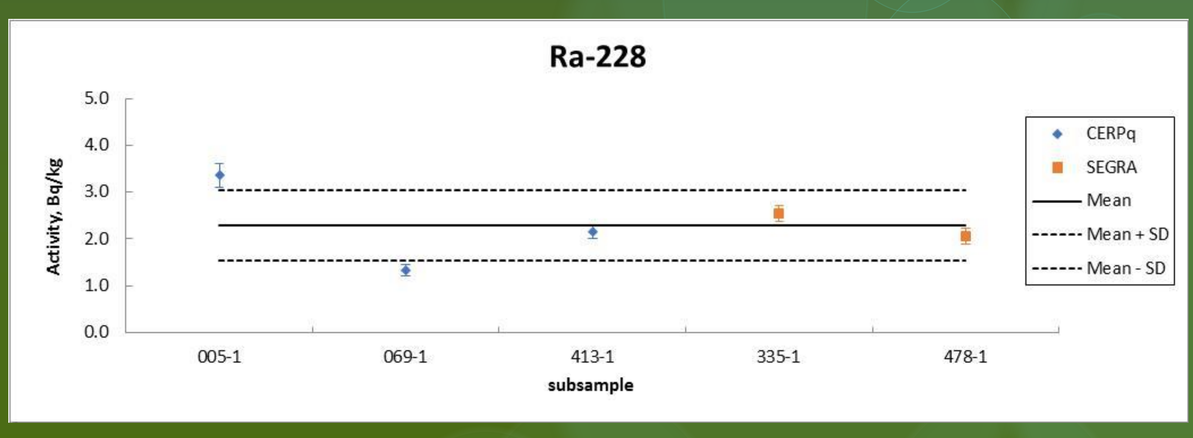
Results

Graphics present activity concentrations obtained for different bottles of the fish tissue reference material in a dry mass basis. These preliminary results were reported by three laboratories and are consistent with each other. ^{210}Pb results were bellow the detection limit (<4.8 Bq/kg).









Acknowledgments

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