# MONITORING OF $^{226}$Ra, $^{228}$Ra, $^{210}$Pb AND $^{210}$Po IN THE COASTAL REGION OF SÃO PAULO STATE, BRAZIL, USING OYSTER *Crassostrea brasiliana*

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The present study aims to identify and to determine the radionuclides $^{226}$Ra, $^{210}$Pb, $^{210}$Po and $^{228}$Ra in oyster *Crassostrea brasiliana*. This organism is used as bioindicator, since it accumulate in its tissues, chemical contaminants present in its natural habitat. The bivalves samples were seasonally collected in three sites of São Paulo State coast, from September of 2008 to July of 2009, as follows: Cananéia estuary, Bertioga and Canal de Santos – Santos estuary (impacted by industrial and human activities). The samples were digested using a microwave digestion system, after adding concentrated $HNO_3$ and $H_2O_2$. The $^{226}$Ra and $^{228}$Ra concentrations were determined by measuring the gross alpha and beta activity of the precipitate Ba(Ra)$SO_4$ after 21 days and the concentration of $^{210}$Pb was determined through its decay product $^{210}$Bi, by measuring the gross beta activity of the precipitate of $^{210}PbCrO_4$. Both radionuclides were measured in a low background gas flow proportional detector. $^{210}$Po was determined by spontaneous deposition on a silver disc and measurement by alpha spectrometry. The concentration of $^{226}$Ra varied from 5.3 ± 1.0 Bq kg$^{-1}$ to 18.6 ± 3.4 Bq kg$^{-1}$; for $^{210}$Pb from 2.7 ± 0.1 Bq kg$^{-1}$ to 44.9 ± 2.3 Bq kg$^{-1}$; and for $^{210}$Po from 5.1 ± 1.0 Bq kg$^{-1}$ to 20.5 ± 0.4 Bq kg$^{-1}$. For the radionuclide $^{228}$ Ra, the values were below the minimum detectable activity of the methodology (0.04 Bq kg$^{-1}$). No correlation was observed between the concentration of $^{226}$Ra, $^{210}$Pb and $^{210}$Po and the seasons.