

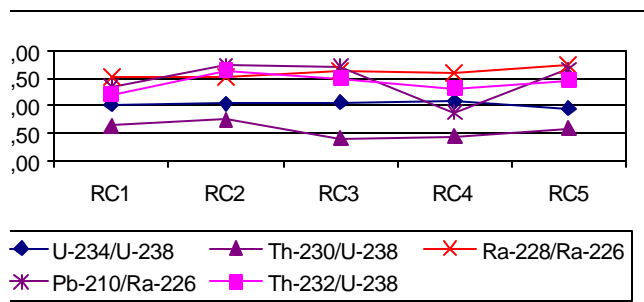
U and Th Series Nuclides in Cubatão River Sediments

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Cubatão River is located in Santos Basin, São Paulo State, Southeast Brazil. This region is characterized by the occurrence of estuaries and mangrove. Due to its location, near the coastal line, it is also an important industrial area, where phosphate fertilizer plants, petrol refinery, chemical and steel industries are present. Such human activities contribute to the enhancement of elemental composition in sediments and, in some cases, give also raise to an increase in radionuclides concentration, the so called technologically enhanced natural occurring radioactive materials (TENORM). The contamination of land and sediments by TENORM is of major concern [1, 2]. Measurement of radionuclides concentration along river-estuary-ocean transects has been used to obtain information on the weathering process, transport mechanism, and geochemistry from land to sea, as well as, identify pollution sources. The activity concentration of U and Th series radionuclides was determined in five sediment samples from Cubatão River; the results are presented in table 1. The activity concentration ratio was also determined, as shown in figure 1. Equilibrium was observed for the ratio $^{234}\text{U}/^{238}\text{U}$. The activity ratios $^{232}\text{Th}/^{238}\text{U}$, $^{228}\text{Ra}/^{226}\text{Ra}$ and $^{210}\text{Pb}/^{226}\text{Ra}$ was higher than one. In the first two cases, the observed values are due to the higher activity of Th in the sediment and in the last case is probably due to the atmospheric deposition of ^{210}Pb . The value obtained for the activity ratio $^{230}\text{Th}/^{238}\text{U}$ was below one.

Table 1: Activity concentration, in Bq kg^{-1} .

	Activity concentration in Bq kg^{-1}				
	U-238	Th-232	Ra-228	Ra-226	Pb-210
RC1	55 ±3	66 ±3	64 ±4	42 ±2	56 ±9
RC2	43 ±3	71 ±3	59 ±3	39 ±2	68 ±9
RC3	53 ±3	80 ±4	68 ±4	42 ±2	72 ±10
RC4	75 ±8	98 ±5	74 ±4	46 ±2	40 ±8
RC5	53 ±4	77 ±4	65 ±4	37 ±2	62 ±9



References

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Figure 1: Activity ratio in the analysed samples.

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Acknowledgments : This work was supported by Fundação de Amparo à Pesquisa do Estado de São Paulo – FAPESP, under fellowship contract 99/06952-4 and by Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq, grant 300835/95-7.

Silva, P.S.C. and Mazzilli, B.P (2004) U and Th Series Nuclides in Cubatão River Sediments. 4th International Symposium Environmental Geochemistry in Tropical Countries. Búzios, Rio de Janeiro, Brasil, 25 a 29 de outubro.