

PRELIMINARY ASSESSMENT OF ORGANIC POLLUTANTS IN SEDIMENTS FROM GUARATUBA BAY, BRAZIL

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This study focuses on the analysis of persistent organic pollutants in sediment core samples collected in the Guaratuba Bay, an estuarine environment located in the south part of Brazil (25°51.80'S, 48°38.20'W), consisting of an area of 48.57 km² and within the municipality of Guaratuba, which has a population of 33,058 inhabitants (IBGE, 2006).

The main economic activities in the surrounding area are the banana and rice agricultures, the first being one of the largest of the south region of Brazil, and artisanal fishery. Besides that, the increasing tourism and rapid urban growth experienced due to the attractive scenic landscape of the region are of considerable concern, regarding the preservation and maintenance of its yet relative pristine environment.

In order to assess the historical input of organic pollutants to the estuary, two dated sediment cores were collected on opposite sides of it, one at its end and the other close to its mouth to the sea. Given the ²¹⁰Pb and ¹³⁷Cs geochronologies for that area, the sedimentation rates are estimated to be 6.1 mm/year and 5.2 mm/year, respectively (Sanders *et al.*, 2006). Each sediment core was collected using a 60 cm in length and 10 cm in diameter acrylic cylinder, until reaching roughly 40 cm below the surface. Then, the cores were cut into individual samples, one centimetre at time until the first 10 centimetres. Thereafter, they were cut each two centimetres, until reaching 30 cm, when they were cut each 5 cm until the end.

The samples were kept frozen until they were analysed. The analyses were performed for detection of the following selected compounds, among organochlorine pesticides, PCBs and PAHs: HCB, Heptachlor, Aldrin, op-DDE, Heptachlor epoxide, pp-DDE, gama-HCH, Endosulfan, Dieldrin, Endrin, pp-DDD, op-DDT and pp-DDT, for organochlorine pesticides; PCBs 28, 52, 101, 118, 138, 153, 180 and 209; and naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, crysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, dibenzo[ah]anthracene, benzo[ghi]perylene and indene[1,2,3-cd]pyrene, for the polycyclic aromatic hydrocarbons.

So far, the preliminary results indicate the region has been exposed to some contamination of both groups of pollutants, specially the inner part of the bay, what could be due to the lower circulation of water at this point, if compared to the mouth of the estuary (Marone *et al.*, 2004).

REFERENCES

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