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## 9<sup>th</sup> International Conference

# Nuclear Analytical Methods in the Life Sciences

Instituto Tecnológico e Nuclear  
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## Programme

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Best Poster Presentation

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**MINERAL AND TOTAL MERCURY CONTENT ASSESSMENT IN DIFFERENT  
FISH SPECIES FROM CANANÉIA ESTUARY, SÃO PAULO STATE, BRAZIL**

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The Cananéia-Iguape Estuary is one of the world's most important coastal areas. In 1999 it received the UNESCO recognition of Natural Patrimony of Humanity. However, part of this region suffered intense mining activity up to 1996. This area is part of a larger study where sediment, water, fish and children hair samples were evaluated for metal contamination. Fishes can be used as pollution indicators in aquatic systems for toxic and trace elements. They also provide proteins, omega-3 (n-3) fatty acids and also reduce the incidence of heart disease, stroke, and pre-mature births in human beings. This study assessed the nutritional status of four fish species most commonly consumed by the Cananéia city population by means of determining the content of some mineral elements (Ca, Fe, K, Na, Se and Zn) and their proximate composition. Regarding metal contamination, the content of total mercury was evaluated. The four fish species studied were: *Micropogonias furnieri*, *Macrodon ancylodon*, *Centropomus undecimalis* and *Mugil Platanusa*, purchased in the local fisheries. Mineral elements composition in the muscles was determined by Instrumental Neutron Activation Analysis and total Hg by Cold Vapor Atomic Absorption Technique (CV AAS). Both analytical methodologies were validated according to precision and accuracy by means of certified reference materials. Proximate composition of these samples was also determined according to AOAC methodologies. The total Hg averages and ranges for *Micropogonias*, *Macrodon*, *Centropomus* and *Mugil* were: 1071  $\mu\text{g kg}^{-1}$  (516 - 2008); 191  $\mu\text{g kg}^{-1}$  (56 - 456); 193  $\mu\text{g kg}^{-1}$  (61 - 712) and 33  $\mu\text{g kg}^{-1}$  (< 10 - 98), respectively. The results for mineral content, total Hg and proximate composition for the four fish species analyzed were treated i) considering the individuals of the same specie and ii) considering the four species groups. An attempt was made to establish a correlation between the nutritional status and total Hg muscle levels with the consumption frequency for each fish species by the local community.

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