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Determination of Trace Elements in Samples of *Peperomia pellucida* by Instrumental Neutron Activation Analysis (INAA)

Fábio V. Sussa[1], Paulo S.C.Silva[1], Barbara P. Mazzilli[1], Débora I. T. Favaro[2]

[1]*IPEN - Instituto de Pesquisas Energéticas e Nucleares, Gerência de Metrologia das Radiações (GMR), São Paulo, SP, Brazil,* [2]*Centro do Reator de Pesquisa – Laboratório de Análise por Ativação Neutrônica –IPEN, (CRPQ), São Paulo, SP, Brazil*

Considering the few studies on the inorganic composition of medicinal plants, the concentration of twenty-six elements was determined in samples of *Peperomia pellucida*. The relevance of these analyses is justified by the importance of to evaluate the possible effects of these elements in plant therapy. *Peperomia pellucida* is used as diuretic, analgesic, wound healing, anti-inflammatory and to control cardiac arrhythmia. The samples were collected at the Botanical Garden in Rio de Janeiro, Brazil. The objective of this study is to determine the trace elements concentration in samples of *Peperomia pellucida* and better understand the role played by these micronutrients. This paper presents the results of Instrumental Neutron Activation Analysis (INAA) for the elements As, Ba, Br, Ce, Co, Cr, Cs, Eu, Fe, Hf, K, La, Lu, Na, Nd, Rb, Sb, Sc, Se, Sm, Ta, Tb, Th, U, Yb and Zn. The samples were irradiated at the Nuclear Reactor IEA-R1, IPEN-SP, together with the reference materials Soil-7 and Buffalo River Sediment and the method validation was performed with the reference material Lichen (IAEA-336). The analyzed elements (Co, Cr, Fe and Zn) are essential for various metabolic activities in humans as a synthesis of vitamin B_{12}, control of glucose metabolism and lipids, oxygen transport, and potential healing property respectively. Their crucial roles are assigned to the functions of metallo-enzymes. The elements Zn and Cr are involved in various metabolic processes among them is the potential property of healing, promoting the healing of burns and wounds. Zn deficiency causes frequent infections and delayed healing. Therefore, the healing property of *Peperomia pellucida* may be related to the presence of Zn and Cr in its constitution.

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Biomonitoring from coastal regions of São Paulo State, Brazil, (23°58´-23°39´S, 46°30´-45°25´W) using mussels *Perna perna* (Linnaeus, 1758: Mollusca, Bivalvia).

M. G. M. Catharino[1], M. B. A. Vasconcellos[1], A. A. Kirschbaum[2], M. R. Gasparro[2], C. C. Minei[2], E. C. P. M. de Sousa[2], D. Seo[1], E. G. Moreira[1]

[1] *Instituto de Pesquisas Energéticas e Nucleares, IPEN-CNEN/SP, São Paulo, SP, BRAZIL*
[2] *Instituto Oceanográfico da Universidade de São Paulo, IOUSP, São Paulo, SP, BRAZIL*

The marine environment is constantly affected by anthropic action, with the consequent degradation of its waters and marine biota by several xenobiotics discharge. In the present work, the focus was the study of a region of the marine coast of the State of São Paulo (city of Santos), which is one of the most industrialized parts of Brazil and suffers also strong impact of domestic effluents. The mussels *Perna perna,* very abundant in the coast of the State of São Paulo, Brazil, was selected as the biomonitoring organism for the determination of inorganic elements and was performed a *passive biomonitoring*. The organisms were collected at two sites in São Paulo State coast: Cocanha beach in São Sebastião (reference site) and Santos Bay (Itaipu and Palmas). Seasonally, the *Perna perna* were collected between September/08 and July/09 in each study sites. After removal and sample preparation, the elements As, Co, Cr, Fe, Se and Zn were determined by Instrumental Neutron Activation Analysis (INAA) and Cd, Pb and Hg were determined by Atomic Absorption Spectroscopy (AAS). Statistical tests were applied to study the bioaccumulation of these elements and their seasonal variations and were also compared with results obtained in our previous *active biomonitoring* study conducted in the same coastal region of Santos.