

# Elemental Characterization of the Extract of Propolis Produced by *Scaptotrigona Aff postica* Bee from Brazil Using EDXRF and INAA Techniques

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The *Scaptotrigona Aff Postica* bee is an insect stingless belonging to Apidae family and subfamily Meliponinae. This genus occurs throughout in Neotropics. In Brazil, it is found in the northeastern mainly in the Barra do Corda County (Maranhão). Specifically, the extract of propolis produced by this bee have several medical applications. It is used in the healing of wounds with an inflammatory process and in treatment of prostate tumors as well as food supplement [1-3].

Considering its importance in medicinal use and the great variability in relation to botanical origin, its standardization in relation to the dosage of ions and metal is important to meet the different medical applications. The objective of this investigation was to perform a multielemental characterization using Energy Dispersive X-Ray Fluorescence (EDXRF) and Instrumental Neutron Activation Analysis (INAA) techniques. The neutron activation measurement was performed in the nuclear reactor (IEA-R1, 3-4 MW, at IPEN) and XRF data were obtained using a mini - X Ray spectrometer with Ag and Au targets.

These data increase the knowledge of its inorganic components and can introduce improvements in the production these the extracts, mainly as regards to toxicity. Moreover, considering that the demand for natural products has increase (Brazil stands out as world exporter of honey and derivatives), these data also contributes for checking the quality and food safety.

[1] M.C. Marcucci, F. Ferreres, C. Garcia-Viguera, Bankova V.S., De Castro S.L., Dantas A.P., Valente P.H.M., Paulino N. J Ethnopharmacol. 74, 2001, 105-112

[2] T. Urushisaki, T. Takemura, S. Tazawa, M. Fukuoka, J. Hosokawa-Muto, Y. Araki, K. Kuwata, Evid Based Complement Alternat Med. 2011, 2011, 1-7

[3] M.M. Possamai, A.C. Honorio-França, A.P.B. Reinaque, E.L. França, P.C.D. Souto, BioMed Res Int. 2013, 2013, 1-9