

Analyses of inorganic elements in saliva from *Amblyomma cajennense* specie from Brasil
by NAA

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Neutron Activation Analysis technique (NAA) has been applied to determine some element concentrations in saliva samples of tick *Amblyomma cajennense* specie aiming to identify its elemental composition. The relevance of studying this biological material is related to its medical application. Molecules biological with anticoagulant proprieties from its saliva presents have been designed to target specific coagulation enzymes or steps in the coagulation pathway.

The principle of this technique is the irradiation of the biological material with thermal neutrons followed by the measurement of the γ -ray activities induced in the biological sample where the elements activated can be identified by the nuclear properties of γ -rays. The biological material came from Butantan Institute at São Paulo city, Brazil. For sample preparation, about 0.5 ml of saliva were collect from *Amblyomma cajennense* specie and sealed into an individual polyethylene bag and irradiated in the IEA-R1 nuclear reactor at IPEN/SP (IEA-R1, 2-4MW, pool type), for few minutes. A γ - spectrometer system with a semiconductor detector (HPGe) connected to an ADCAM multichannel analyzer were used to measure the induced gamma-ray activity. Using this procedure it was possible to identify the following radioactive nuclides: ⁸⁰Br ($T_{1/2}$ =9 min, E_{γ} =3084 keV), ⁴⁹Ca ($T_{1/2}$ =9 min, E_{γ} =3084 keV), ³⁸Cl ($T_{1/2}$ =37 min, E_{γ} =1642 keV), ⁴²K ($T_{1/2}$ =12h, E_{γ} =1525 keV), ³¹P ($T_{1/2}$ =2min, E_{γ} =1778 keV), ²⁴Na ($T_{1/2}$ =15h, E_{γ} =1368 keV) and ³⁷S ($T_{1/2}$ =5min, E_{γ} =3104 keV).

The concentration of each element was obtained by using the *ATIVAÇÃO* software. The results were correlated with the indicative interval values for these elements in humans.