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COMPARATIVE STUDY OF Cl DETERMINATION IN ANTILONOMIC SERUM FOR CATERPILLARS *LONOMIA OBLIQUA WALKER* USING EDXRF

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The caterpillars *Lonomia obliqua Walker* (*L. obliqua*) species is very poisonous and has the ability to cause serious and fatal hemorrhagic effects in humans after contact [1]. The Butantan Institute (Research Center, São Paulo city) produces antilonomic serum (antidote), to reverse such effects, using caterpillars mainly from Paraná (PR) where the prevalence of incidents is high. However, in the last year, this species has present in various regions (Santa Catarina, São Paulo and Rio Grande do Sul) from Brazil and there is no data of its elemental composition to ensure that the antivenom produced (considering the different origins) may be used to manufacture serum unchanged in the final product. Recent measurements identified mainly Cl was majority [2]. In this investigation, we intend to check the Cl range of the antigen obtained from Parana (standardize the antigen) using EDXRF. The XRF measurements were performed using MINI X-ray spectrometer (PXRFS) from Amptek (Bedford, MA, USA) model X-123 SDD with Ag X-ray tube. The characteristics X-ray fluorescent intensity of Cl was measured with a Si detector (Si Drift 25 mm^2 x 500 μm/ 0.5 mil. The excitation was performed using 30 kV and 5 μA excitation for a counting time of 100s. The quantitative analysis was performed using WinQxas software program (IAEA, version 1.3). A comparison using data from Neutron Activation Analysis emphasizes a good agreement, suggesting the viability of using the compact spectrometer to monitor the antigens from different origins in fast and efficient way. These data can be used to standardize a specific antilonomic serum for caterpillars (*L. obliqua*) coming from different regions of Brazil, based in Cl range, which reduce cost in the serum production process, meeting the standards of good manufacturing practices and good laboratory practice.

References

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