

ATTENUATION OF *Bothrops jararaca* VENOM BY THE IONIZING RADIATION*

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ABSTRACT

The ionizing radiation is able to alter the structure of the proteins changing its biological activity. Lauhitirananda. Et. al. (IAEA - PL - 334/10, 1970), observed that several functions of a protein have different radiosensitivity and that its antigenic properties are the most radioresistant. The present paper studies the biochemical modification produced by gamma radiation in the jararaca venom. A pool of a crude venom of *Bothrops jararaca* was dissolved in 0.15 M NaCl to a 2 mg/ml solution and irradiated in a gamma source of Co-60. The irradiation doses were 500; 1,000; 2,000 and 5,000 Gy at a dose rate of 900 Gy/h. A non treated venom solution was also prepared as control. The protein concentration after the gamma irradiation was maintained with the increase of the dose and no free SH groups was detected by the Ellman method. The UV spectrum showed a increase of the optical density in the range of 230 to 350 nm as the doses were increased. The electrophoretic profile presented discreet alteration and the comparison of the chromatographic profiles suggest the formation of proteic aggregates. The immunodiffusion method showed identity between irradiated and non irradiated sample. The analysis by immunoprecipitation method showed that doses until 2,000 Gy did not change the antigenicity of the venom. However the dose of 2,000 Gy promote a discreet alteration while at the dose of 5,000 Gy the complex antigen-antibody was substantially altered. On the other hand higher radiation doses produced proportional detoxification as can be seen by LD 50 in mice. Based on these results irradiation technique could be a good alternative to attenuate *Bothrops jararaca* venom.