GAMMA IRRADIATION REDUCES THE TOXIC ACTIVITIES OF *Crotalus durissus terrificus* VENOM BUT DOES NOT AFFECT THEIR IMMUNOGENIC ACTIVITIES*

Yoko MURATA, Amélia K. NISHIKAWA**, Nanci do NASCIMENTO, Hissako G. HIGASHI**, Wilmar Dias da SILVA** and José Roberto ROGERO

COMISSÃO NACIONAL DE ENERGIA NUCLEAR-SP
INSTITUTO DE PESQUISAS ENERGÉTICAS E NUCLEARES
Caixa Postal 11049 - Pinheiros
05499 - São Paulo - BRASIL

ABSTRACT

Crotalus durissus terrificus whole venom samples (2mg/mℓ in 0.15M NaCℓ) were irradiated at a dose of 900 Gy/h, total doses of 1,000 or 2,000 Gy, under a Co-60 source. Although the irradiated venom became 3 to 5 times less toxic and their electrophoretic profiles were drastically changed as compared with the correspondent non-irradiated venom samples (Purananda, C. IAEA - R - 661, 1971; Herrera. Et. al., Inf. Nucl. 3:1-14, 1986; Murata, Y. and Rogero,J. R., IPEN. 153, 1988) their antigenic properties were preserved (Murata, Y. - Dissertation, IPEN, 1988). Groups of adult outbred mice were immunized with irradiated and non-irradiated whole *C.d.terrificus* venom. Each animal received 40 µg of venom divided into four equal doses within 7 days intervals. In the first injection the venom was injected incorporated in Freud's complet adjuvant; in the second injections the venom was pre-absorbed in Aℓ(OH)₃; and in the fourth injection the venom was dissolved in 0.15 M NaCℓ. Samples of blood were collected just before each injection and sera used to determine the antibodies against whole venom by ELISA method. The animals were intraperitoneal challegend with 8 LD_{50} 14 days after the last injection. The animals immunized with crude venom were partially resistant to 8 LD_{50} (75% protection)while 64% of the animals immunized with 1,000 Gy irradiated venom survived. The maximum protection (100%) was attained when the animals were injected with 2,000 Gy irradiated venom. The resistance was demonstable on the basis of a good correlation with the antibody titers.

Key Words.: *Crotalus durissus terrificus* venom; venom irradiation ; protection against snake venoms.

(*) Paper presented at III Pan-American Symposium of Animal, Plant and Microbial
(**)From Instituto Butantan - São Paulo