IMMUNOGENIC ASPECTS OF Bothrops jararaca VENOM IRRADIATED WITH CO-60 RAYS. *

Miriam Camargo GUARNIERI CRUZ, Nanci do NASCIMENTO, Yoko MURATA, Jayme Nunes de Souza FILHO e José Roberto ROGERO.

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

ABSTRACT

Ionizing radiations are sufficiently energetic to be capable of severing any chemical bond and as a result the molecules of every substance that is present in the solution will be chemically changed and their biological properties affected by irradiation. A pool of Bothrops jararaca venom (2 mg/ml in 0.15M NaCl) was irradiated with CO-60 gamma source. Doses of 1,000 and 2,000 Gy were used at the dose rate of 900 Gy/h. The irradiated venom became 3 to 5 times less toxic and their chromatografic profile were drastically changed as compared with correspondent non-irradiated venom samples. On the other hand, the antigenic properties were apparentely preserved (Guarnieri Cruz, Et.al.; Third Pan American Symposium of I.S.Y., 1990, in press). Groups of adult outbred mice were immunize with irradiated and non-irradiated Bothrops jararaca venom. Each animal received 6 µg of venom divided into three equal doses with 7 day intervals. In the first and second injections the venom was incorporated in Freud's complete and incomplete adjuvant, respectively. Samples of blood were collected just before each injection and sera used to determine the antibodies against whole venom by ELISA method. All the animals were challenged by intraperitoneal injection of 3 LD 50 of non irradiated venom; the animals injected with non-irradiated venom, irradiated with 1,000 and 2,000 Gy showed a protection of 73%, 64% and 46%, respectively. The determination of antibodies titers showed to be identical in the non-irradiated and 1,000 Gy irradiated venon and smaller in 2,000 Gy irradiated venom. These results showed the mainteance of the immunological properties of gamma irradiated venoms in the doses tested.