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EFFECTS OF  $^{60}\text{Co}$  GAMMA RADIATION ON THE ANTIGENIC AND IMMUNOGENIC PROPERTIES OF *Bothrops jararacussu* VENOM

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Ionizing radiation has been successfully used to attenuate snake venoms and toxins for immunization of antisera producing animals. The irradiated products induce a high humoral response with very low toxicity, but the modifications resulting from irradiation have not been completely elucidated. In the present work, we investigated the effects of gamma rays on the antigenic and immunogenic properties of *Bothrops jararacussu* venom. *Bothrops jararacussu* whole venom samples (2 mg/ml in 150 mM NaCl) were irradiated with 500, 1000 and 2000 Gy with  $^{60}\text{Co}$  gamma rays at room temperature. The antigenicity of these samples was then assayed by antigen capture ELISA on microplates coated with commercial bothropic antiserum. The bound antigen was detected with rabbit antiothropic IgG and peroxidase conjugated antirabbit IgG. Immunogenicity was assayed by immunizing rabbits with either native or 2000 Gy irradiated venom and the produced antibodies were assayed by ELISA and western blot against native venom. The 1000 and 2000 Gy irradiated samples lost reactivity against commercial antiserum, suggesting structural modifications and destruction of conformational epitopes, while the 500 Gy irradiated sample behaved very similarly to the native venom. On the other hand, when comparing the reactivity of the antisera produced against native or irradiated venom, we observed higher antibody levels as well as an increase in reactivity against all components of native venom for the latter. These data suggest that irradiation leads to structural modifications of the conformational epitopes, but that linear epitopes are preserved and that these linear structures are able to induce an efficient immune response, resulting in native venom binding immunoglobulins.

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