

ACTION OF FREE RADICALS ON BOTHROPS JARARACA VENOM IRRADIATED WITH GAMMA RAYS IN SCAVENGERS PRESENCE

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Gamma radiation, by inducing different modifications on the toxic, enzymatic and immunological activities of proteins, can be an useful implement for the detoxification of snake venoms. In the present work was done a study of the mechanism of action and the effects of gamma rays on the B.jararaca venom determining the most important free radicals on this process. A pool of jararaca venom was irradiated in solution of 0.15M NaCl and in presence of different concentration of scavengers such as sodium nitrate (0.001 to 0.1M) and tert-butanol (0.1 to 2M), in the concentration of 2mg/ml and in presence of O₂, with dose of 2,000Gy (dose rate= 860Gy/h), by gamma source of ⁶⁰Co. The non irradiated venom samples containing the different scavengers utilized were used as controls. The proteic contents after irradiation was altered only in the samples containing 1.5 and 2M of tert-butanol. The comparison of HPLC chromatographic profile showed the same formation of proteic aggregates in the samples irradiated in absence and presence of sodium nitrate. On the other hand, the relation of tert-butanol concentration and molecular weight alteration of irradiated protein was observed. The UV absorption spectrum showed the same increase of optical density in the samples irradiated in the absence and presence of sodium nitrate, while the irradiated venoms in presence of tert-butanol showed similar spectrum of non irradiated one. The most important enzymatic activities of bothropic venoms were decreased by irradiation in the absence of scavengers and protected according to the concentration of sodium nitrate and tert-butanol. These results indicated the participation of hydroxyl radicals in the conformation and structural alteration and also the decreased of the coagulant activity, and both free radicals (OH and e_{aq}) in the attenuation of proteolytic, hemorrhagic and edema-forming activities of B.jararaca venom by gamma radiation.