Chromosomes fragmentation induced in human leukocytes by Calloselasma rhodostoma snake venom

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Calloselasma rhodostoma venom exhibit toxins which induce effects such as haemorrhage, necrosis and apoptosis affecting physiological effects. The Comet and Micronucleus tests in human cells, \textit{in vitro}, had been broadly using to detect genomic lesions that may result in mutations. However, it has few studies about genotoxicity/mutagenicity induced by venoms and toxins. The objective in this study was to evaluate the genotoxic potential of the venom from \textit{C. rhodostoma} on human leukocytes, using the test of Micronucleus with cytokinesis block. Human blood was collected from ten healthy donors with prior consent of the volunteers and ethical approval of the project. 500 \(\mu\)L of blood was cultured with 5 mL of RPMI (10\% FBS, 100 U/ml penicillin/streptomycin and 1\% phytohemagglutinin). The treatments with venom at different concentrations or cisplatin were performed 24 h after the cultures, and cytochalasin B was added after 44 h. The culture was extended for 72 h at 37\(^\circ\)C, followed by cell harvest performed with several washings, one step with hypotonic solution and four steps with fixing solution and one for conservation of cellular structures. The resulting cells were then evaluated in slides for assessing the presence of micronuclei in binucleated cells (1000 BN) and for counting 500 cells (mono, bi, tri and multinuclear) to calculate the cytokinesis block proliferation index (CBPI). The CBPI was adequate and similar between controls and treated cultures. \textit{C. rhodostoma} venom in high concentration (64\(\mu\)g/mL) induced low levels of injuries genomic; it had been noticed 17.4 microclei in comparison with cisplatin (20\(\mu\)g/mL) that induced the formation of the 42 micronuclei. LAAOs stand out in the induction of the DNA damage due the generation of oxidative stress. Studies of this nature complement the characterization of venom and emphasize the importance of the compounds from venoms as sources of therapeutic and laboratory tools.

Key Words – \textit{Calloselasma rhodostoma}, Micronucleus, genotoxicity, snake venom

Financial support: FAPEMIG