Lactuca sativa (LETUCE) AS A MODEL FOR CYTOGENOTOXIC EVALUATION OF VENOMS: EFFECTS OF Crotalus durissus terrificus AND Lachesis muta VENOMS ON THE CELL CYCLE

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Elucidating the mechanisms of action of animal venoms is very useful for obtaining drugs based on compounds present in them. However, there are few studies on the effects of these compounds on DNA molecules, which were accomplished in animal cells. An alternative would be the use of plant organisms, which are efficient, low cost and present a good correlation with other models and test systems. The objective of this work was to determine the cytogenotoxic potential of Crotalus durissus terrificus (C.d.t.) and Lachesis muta venoms on roots tip cells of Lactuca sativa exposed to the venoms during seed germination. For both, we used the cell cycle test, evaluating 10 squashed slides per venom, 5,000 cells/slide were anotated. Mitotic Index (MI) and cell cycle alterations (CCA) were recorded. Distilled water was used as negative control. Data were compared by Tukey test (p<0.05). Significant differences were detected between venoms and control in both parameters evaluated. For C.d.t. a decrease of 45% in the IM and an increase of 5.65 times in the ACC were noticed. The treatment with L. muta resulted in a reduction of 38.17% on IM and an increase of about 9.2 times on ACC. The most abundant CCAs found for both venoms were condensed nuclei and sticky chromosomes, occurring at a frequency of 33.93 and 25%, respectively for C.d.t. and 31.11 and 22.22% for L. muta. The tested venoms acted on the DNA molecules and the chromosomes structure. These results enable better understanding of action mechanisms of these venoms. Furthermore, the plant model used for the tests proved quite efficient and responsive for evaluating the effect of natural compounds.

Key Words – Lactuca sativa, cytogenotoxicity, snake venom

Financial support: FAPEMIG