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A80

UNDERSTANDING THE MECHANISM OF SILVER NANOPARTICLE TOXICITY

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Along with the development of silver nanoparticles (AgNP) applications, the concern about their possible toxicity has increasingly gained attention. As the respiratory system in one of the main route of exposure, the aim of this study was to evaluate the harmful effects developed in lung after an acute AgNP exposure using 2D and 3D *in vitro* and *in vivo* models. When AgNP were characterized they showed a hydrodynamic diameter of 17 ± 6 nm and they were able to initiate the hemolytic cleavage of H_2O_2 that may lead to OH^\cdot production. First, an *in vitro* approach was done in A549 cells exposed to 2.5 $\mu\text{g/mL}$ AgNP up to 24 h. A decreased in mitochondrial respiration ($p < 0.01$) and in the extracellular acidification rate under stressed conditions ($p < 0.05$) were observed after 3h of exposure, while a 72% increase in H_2O_2 production was observed after 1h ($p < 0.001$). Moreover, increased expression of HO-1 was observed after 24 h exposure (49% $p < 0.01$). In an EpiAir way 3D tissue exposed to 2.5 $\mu\text{g/ml}$ AgNP for 24 h we observed a decreased in the transepithelial electrical resistance ($p < 0.05$). In the *in vivo* studies, Balb/c mice (25g) were intranasally instilled (0.1 mg AgNP/kg body weight). Biodistribution was evaluated by labelling AgNP with ^{99m}Tc showing the lung as the main organ of AgNP deposition. Samples were collected 1 h after the exposure to measure lung O_2 metabolism. Tissue O_2 consumption increased by 31% ($p < 0.05$), due to an increased mitochondrial active respiration (55%, $p < 0.001$). Moreover, mitochondrial H_2O_2 production rate was also increased by 39% ($p < 0.05$) along with an increased SOD and CAT activity (68%, $p < 0.01$; 18% $p < 0.01$ respectively) and a decreased GSH/GSSG ratio. Taken together, these results show that AgNP remain in the lung, may lead to damage and impaired lung function due to O_2 metabolism alterations.

A81

COMPARATIVE STUDY OF PROTEOLYTIC ACTIVITIES OF VENOM FROM ADULT AND JUVENILE SPECIES OF *Bothrops alternatus*

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Because of the technological advance in proteomic essays, ontogenic variations studies about snake venoms have become more relevant in the last years. The differences would be associated with differences in the snake venom protein composition and could have importance in the selection of the samples for production and control of quality of antivenoms. On the other hand, some authors suggested the use of venom from young snakes (yV) in order to purify some of the main components present in major proportions than in venom from adult snakes (aV). In this study, we compared venoms from *Bothrops alternatus* (yará grande) from both stages of ontogeny, focusing on the study of the protein bands by SDS-PAGE and also on the study of proteolytic activities (metalloproteinases and serineproteases enzymes) exhibited by these venoms as the main responsible for the physiopathological action exhibited by this animal. Proteolytic activity was assessed by azocasein method, coagulant activity by citrated plasma and then, amidolytic activity was evaluated on BApNA. The results showed differences not only in the protein profile, but also in the enzymatic activities from young and adult snake venoms. Young snake venom coagulated the citrated plasma in the half time (6.3 s) the adult snake venom did. The relation yV/aV of proteolytic activity assessed on azocasein was 2 and 23 in the case of amidolytic action. These results highlight the differences in metalloproteinases concentration (responsible of caseinolytic activity) and especially in the serineproteases composition (tested on BApNA), which would express in low quantities in adult snake venoms. These evidences warn about the necessity to assay the level of protection that the standart antivenom produces against a potential snakebite by young species and, at the same time, look for the development of antivenoms with pools including young and adult organisms.

A82

FLUOXETINE EFFECT ON LIFE CYCLE AND SOME MORPHOLOGICAL PARAMETERS OF *Dermestes maculatus* (COLEOPTERA: DERMESTIDAE)

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The study of cadaveric insects for detecting xenobiotics in a qualitative and quantitative way is called forensic entomotoxicology. It also studies how xenobiotics can affect insect development. Generally, antidepressants are the most chemical agents used in suicide. In a previous study was determined and quantified fluoxetine (selective inhibitor serotonin reuptake, SSRI) in *Dermestes maculatus* (Coleoptera: Dermestidae), an insect of forensic interest. In this study was evaluated the effect of fluoxetine on *D. maculatus* development. For that, adults of this species were put inside plastic containers and fed with a mixture of pig muscle and fluoxetine