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Hepatoprotective potential of moralbosteroid against carbon tetrachloride induced hepatotoxicity in Wistar albino rats

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The present work presented here evaluates the hepatoprotective potential of moralbosteroid, isolated from *Morus alba*, against carbon tetrachloride induced hepatotoxicity in Wistar albino rats. Hepatoprotective action was estimated by measuring aspartate amino-transferase (AST), alkaline phosphatase (ALP), serum alanine amino-transferase (ALT), total bilirubin (TB), and total protein (TP), including glutathione transferase (GST), glutathione peroxidase (GPx), catalase (CAT), lipid peroxidation (LPO) and superoxide dismutase (SOD). The oral administration of carbon tetrachloride significantly increased the LPO level (13.22±1.59 μM/mg protein) when compared to control. The levels of antioxidant enzymes including CAT, SOD, GPx and GST were decreased significantly (0.38±0.6 nmol/min/ml, 0.89±0.83 U/ml, 3.90±0.91 μmol and 0.05±0.16 U/min/mg protein in testicular tissue) as compared to control animals. Moralbosteroid significantly prevented the marked escalation of serum markers and inhibited the free radical processes by scavenging hydroxyl radicals. It also modulates the levels of LPO and prominently increases the endogenous antioxidant enzyme levels in hepatocellular toxicity induced by carbon tetrachloride. The results obtained in this study suggest the preventive influence of moralbosteroid on liver toxicity in rats induced by carbon tetrachloride comparable with those of Silymarin.

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Aerobic but not resistance training is effective to counteract colonic preneoplastic lesions in mice

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Physical exercise has been accepted as one of the most effective strategies to prevent the development of colon cancer, however whether aerobic or resistance physical trainings can alter the risk for this malignancy remains unknown. Here, we sought to investigate the effects of different physical training modalities on colon carcinogenesis. For this, BALB/c mice were exposed or not to the chemical carcinogen N-methyl-N'-nitro-N-nitrosoguanidine (MNNG, 5 mg/ml), and were then subjected to either aerobic or resistance trainings. Muscle, plasma and colon samples were analyzed afterwards. Soleus catalase activity was elevated in both training modalities ($P<0.001$), whereas citrate synthase content did not changed in response to exercise training. However, Aerobic training not only inhibited the development of colonic dysplastic aberrant crypts (AC; $P<0.05$), but further reduced the formation of dysplastic aberrant foci (ACF) composed by more than 4 aberrant crypts ($P<0.05$). Colonic cyclooxygenase-2 (COX-2) was significantly decreased in aerobic trained and carcinogen-exposed mice ($P<0.05$). Furthermore, only aerobic training had a 7-fold higher difference in colonic interleukin-10 (IL-10) production ($P<0.05$). These data provided strongevidenceto support a role ofaerobic training as potential antiinflamatory response in such extension to effectively reduce colon preneoplastic lesions, nevertheless, these data were not observed in the resistance training.

Biography

F Frajacomo has completed his PhD from the University of Sao Paulo, Brazil, in 2014 working on experimental exercise models to prevent preneoplastic colonic lesions chemically-induced in mice. From August 2012 through July 2013, he stayed at University of Utah as a visitor scholar under supervision of Prof. Paul LaStayo. In this fruitful collaboration, he was a key collaborator and co-author on an invited review paper published in a very respected journal. More recently, he is focusing on the effects of exercise as a strategy to counteract cancer cachexia in his postdoctoral research.

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