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A STUDY ON THE EFFECT OF LEAD ON THE BIO-DISTRIBUTION OF CALCIUM, COPPER, IRON, LEAD AND ZINC IN PB INTOXICATED MICE

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Lead (Pb) is a toxic metal, found in nature in the form of sulphide ores. Pb enters into the human body through the respiratory system and gastrointestinal tract. More than 1/3 of the absorbed Pb spreads to the organs and tissues. Lead exerts toxicity on the central nervous system, haematopoiesis, excretory, cardiovascular, and endocrine and immune systems, gastrointestinal tract, and reproductive functions in men and women. One of the possible mechanisms by which lead causes its toxic effects involves alteration of bio-metal ions homeostasis. The aim of our study was to evaluate the effects of Pb on the bio-distribution of calcium (Ca), copper (Cu), iron (Fe), lead (Pb) and zinc (Zn) in mice, subjected to sub-acute Pb-poisoning. 60-day-old male ICR mice were randomized into two groups - control group (untreated animals) and toxic group exposed to Pb(II) nitrate treatment in an average daily dose of 80 mg/kg b.w. for two weeks. Treatment of mice with Pb(II) nitrate increased significantly the concentration of the toxic metal ion in their spleen, lungs, kidneys, heart, liver, testes and brain compared to the untreated control animals. In this study, we found that the intoxication of mice with Pb(II) nitrate for 14 days increased significantly the concentration of Ca

in spleen, of Cu and Fe in heart, compared to control group. Our study demonstrates that Pb(II) intoxications caused a significant depletion of concentrations of Ca in kidneys, lungs and testes, of Cu in spleen and testes, of Zn in lungs and Fe in spleen, liver and heart, compared to untreated animals. Herein we present for the first time a detailed study on the effect of lead on the bio-distribution of essential metal ions in mice.

Biography

Kalina Kamenova completed her Bachelor of Science degree in Computer Chemistry at Sofia University "St. Kliment Ohridski". In 2015, she obtained Master of Science degree in Medicinal Chemistry from Sofia University "St. Kliment Ohridski". Presently, she is a regular PhD student in Department of Analytical Chemistry. She is a co-author of five scientific papers and she has participated in eight national and six international conferences. She is a member of an interdisciplinary team of 11 national and two international projects. She received two Alma Mater Awards from the Rector of Sofia University for her achievements in science.

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