CADMIUM ACETATE INDUCED BIOCHEMICAL ALTERATIONS IN SERUM (BLOOD) OF KUROILER CHICKS

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ABSTRACT : Cadmium toxicity affects the biochemical parameters. Cadmium was a Class I carcinogen by the International Agency for Research on Cancer (IARC) and it is one of the most hazardous heavy metal pollutant. Cadmium immuno toxicity provides new vision into the alterations of Cadmium treatment on immunity, as well as effective ways to induce Cadmium biochemical parameters in blood serum of animals. Immune response hematological and biochemical parameters are closely related in blood hence any change in the immune response would also induce alternation in the biochemical parameters like serum glucose, serum cholesterol, serum protein, serum urea, serum acid phosphatase and serum alkaline phosphatase. Extra pollution of heavy metal toxicity like cadmium results may be much more reliable and satisfactory in experimental animals rather than humans. The concept of cadmium modulation of biochemical toxicity is an important subject for the studies. Present studies have been taken to find out the biochemical alterations in blood serum, which would help in understanding the toxicity of cadmium acetate in Kuroiler chicks and also to find the ways and means to counteract the toxicity.

Key words : Biochemical parameters, cadmium acetate, toxicity, alterations, blood serum, serum protein, glucose, cholesterol, urea, uric acid, acid phosphatase, alkaline phosphatase.

INTRODUCTION

Cadmium is not a normal constituent of the body of domestic animals and human but cause serious damage in all tissues of animal and human with blood and serum components. When cadmium enters in the blood stream its distribution and accumulation in blood, target organs, soft and mineral storing tissues. Cadmium toxicity in blood of organism affects the erythrocytes membrane and decrease the mobility of erythrocytes and alterations of other hematological and biochemical parameters. Heavy metals are found naturally in the environment as organic or inorganic compounds. These metals are went into the air and are subsequently deposited in soil and water, from there these metals enter the food chain and can forms many human health risks. Since, some last decades industrialization has developed at a fast rate, which has largely increased the demand for the over using of Earth’s natural resources and led to world’s environmental pollution.

Humans are on large risk of cadmium exposure by respiration in polluted air and through ingestion from water, grains, leafy vegetables, potatoes and sea foods also. Occupationally cadmium occurs mainly through respiration, whereas in the other population, cadmium enters mainly through food ingestion, smoking and smoke inhalation. In several countries, the Cadmium levels in human and animals have been found to more than the tolerance level of various organs associated with the developing risk of chronic dangerous diseases, like cancer, diabetes, and osteoporosis. Cadmium stores in several organs and tissues. Cadmium does acute, sub chronic and chronic toxicity in the liver, kidneys, lungs and bones and also in hematological and biochemical parameters. Cadmium can be released into the blood from the lungs and gastrointestinal tract. Here, it joints to blood cells and affect the blood system. Cadmium mainly forms damage through the formation of free radicals. Cadmium immuno toxicity provides new vision into the alterations of cadmium treatment on immunity, as well as affective ways to induce cadmium biochemical alterations in blood serum of the
level found in mother’s blood due to cadmium absorption through food chain is high so it is found in higher amount than other beneficial ions in blood, blood serum, milk and circulated body fluid.

From this work the Author had drawn the following conclusions have been done. Experimental treatment revealed Hypo proteinemia and Hypo glycaemia in Kuroiler chick. The Hyper cholesterolemia was observed in treated chick. The present study revealed increased level of uric acid with the treatment of sub lethal dose of cadmium acetate in Kuroiler chick. Experimental exposure of sub lethal dose of cadmium acetate induced significant measure in serum acid phosphate and decline in serum alkaline phosphatase.

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