

## P R E F A C E

The laboratory of animal physiology, University Department of Zoology, Shivaji University, Kolhapur (Maharashtra), India, has been engaged in extensive work on uranyl nitrate (UN) induced acute/chronic renal failure. An extensive data is available on uranyl nitrate induced toxicity. So far a good number of research articles have been published in national/international journals devoted to this area and several research papers have been presented in international and national conferences.

The study of uranyl nitrate induced acute renal failure and chronic renal failure is essential since it possess a serious risk as industrial health hazard, but there is no evidence that uranium compounds are carcinogenic. That is why it has been used as a tool to induce acute renal failure in experimental animals analogous to the acute renal failure in human patients to study its pathophysiology. It has been found that the two chief sites of deposition of uranyl nitrate are the bone and kidney. In this regard extensive work have<sup>s</sup> been carried out from this laboratory. Pathophysiological response of kidney; behaviour of lipolytic enzymes in kidney; pathophysiology of liver and brain under uranyl nitrate intoxication; hematological alterations during uranyl nitrate induced acute renal failure; behavioural and physical response of the animal to uranyl nitrate and possibility of acquisition

of tolerance of uranyl nitrate; protective efficiency of dithiothreitol in experimental acute renal failure and its effect on hemolytic profile in uranyl nitrate induced acute toxicity; uranyl nitrate induced corpuscular derangement as early indication of renal dysfunctioning; anemia of uranyl nitrate induced chronic renal failure; erythropoietic tissue under toxic influence of uranyl nitrate have been worked in detail.

Although extensive data is available on histopathological alterations induced by uranyl nitrate in liver, serum lipolytic activity there are some hitherto neglected aspects like changes in plasma lipid as well as red cell lipids. The alteration in the plasma lipids has been worked out in the present investigation. Thin layer chromatographic separation of plasma neutral lipid and phospholipid components has been carried out. The quantitative analysis of all the phospholipid components and neutral lipid components has been also done. Thus in the present investigation an effort has been made to study the alteration in the plasma lipids during uranyl nitrate induced acute renal failure.

The thesis is divided in to **Four Chapters**. The first chapter gives history of toxicology, describes toxicity of uranium compounds. It gives a brief review of literature on uranyl nitrate induced pathophysiological and/or morphological changes in some important organs like kidney, liver, adipose tissue and blood. It also gives an outline of the plan of the

present investigation along with the reasons that led us to take up this work. The chapter second explains in detail the material and biochemical methods employed in this present work. Chapter three gives alterations with uranyl nitrate. It shows the chromatographic separation of the plasma neutral lipid components and plasma phospholipid components. The last chapter gives a general discussion of the observed facts.

The present investigation opens several avenues for the future research in the uranyl nitrate induced acute renal failure.

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Date :

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