BLOOD ENRICHING CAPACITY OF NITRATE TREATED LIVER MEAT DELICACY IN WISTAR RATS: HAEMATOLOGICAL AND HISTOPATHOLOGICAL PERSPECTIVES

BY

OKOLO RAPHAEL CHINWEIKE
PG/MSC/06/45935

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE MASTER OF SCIENCE (Msc) IN HAEMATOLOGY

IN

MEDICAL LABORATORY SCIENCES
SUPERVISOR VEN. PROF.E.O. UKAEJIOFO

MAY, 2013
ABSTRACT

This research was carried out to determine the effects of nitrate on the blood parameters, liver, kidney and heart of wistar rats. Thirty wistar rats were kept in Animal house of the University of Nigeria Enugu Campus to acclimatize for 3 weeks before the commencement of the study. They were divided into 5 groups (A-D) of six rats per group. Groups A-D was treated with test substance while E served as control. They were fed orally with graded doses of potassium nitrate and liver meat (250mg nitrate, 250mg liver, 125mg nitrate/liver, 125mg liver/kg/body weight respectively) once daily for 60 days in lower concentration compared to an oral LD$_{50}$ of 500mg/kg/body weight was determined using Field and Wilcosin as modified by Shetty and Anika. At the end of the experiment (60days), the rats were bled from the retro- bulbular plexus of the medial canthus and about 2.5ml of blood sample were collected from the five groups into K$_3$-EDTA anticoagulant container for haematological analyses. Two selected rats from each group were sacrificed; the liver, the kidney and the heart were dissected out and fixed in 10% formalin for microscopy. The analyses showed significant decrease in the body weight and total white blood cell counts were significantly decreased in nitrate alone treated rats when compared with other groups (P<0.05). The platelet counts showed increase in nitrate-liver treated rats (P<0.05). Blood pictures of the nitrate treated rats showed stomatocytes, poikilocytes, crenated red cell, irregularly contracted red cells. The histology showed that the kidney of the nitrate-treated groups had glomerular erosions, tubular dilatation and inflammatory cells. The heart showed inflammatory cells while the liver showed vacuolation, tubular oedema and inflammatory cells.