

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Study of Physiological and Histological Effects Under very low Concentration of Cyanobacterial toxin MC-LR on Lab. Mice (*Mus musculus*).

Emad YA Al-Sultan*, Majda IY, and Abbas AK Abbas.

Department of Biology, College of Education for Pure Science, Basra University, Iraq.

ABSTRACT

Microcystin is cyanobacterial toxin (Hepatotoxin) and the lethal dose concentration reach to 50 µg / kg/ day , study included using very low concentration of cyanotoxin microcystin-LR (first dose 0.05 and the second dose 0.14 µg / kg/ day) for two periods at acute injection (after 48 h) and chronic (after two week) to evaluate certain physiological effects and histopathological changes in laboratory mice after i.p injection. Hemoglobin and packed cell volume was decreased significantly ($P \leq 0.05$) with increase doses and periods of injection compared with control group. Liver enzymes (AST, ALT, and ALP) increased significantly in particular at second dose receiving group as chronic injection reached (70.25, 169.75 and 276 IU/L, respectively) and followed by first dose receiving group of MC-LR compared with control group. Many histopathological changes were obvious in liver and kidney of laboratory mice was increased with increasing of doses and periods of injection. In liver at acute injection necrosis of hepatocyte as pyknosis of nuclei , karyorrhexis of necrotic hepatocytes nuclei with pyknotic nuclei where showed for two doses , while chronic injection showed hydropic degeneration with hypertrophy of hepatocytes , pyknosis of necrotic hepatocyte nuclei , infiltration of lymphocytes , karyolysis, hydrobic degeneration for two doses . kidney under first and second doses in acute injection showed some histopathological changes represented by shrinkage glomerules , dilation of bowman capsule space , necrosis of cell blood capillaries and some renal tubules , while at chronic injection under second dose several changes were showed represented by hypertrophy, hyperplasia with disappearance of renal tubules cavity or its narrowed, hypertrophy of squamous epithelial cells of glomerular arterioles , metaplasia of squamous epithelial tissue of bowman capsule wall in to cuboidal epithelial tissue .

Keywords: Cyanobacterial toxins (MC-LR) ,Liver , Kidney , Physiological and histological effects

*Corresponding author