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To study the Hepatoprotective Activity of the Fruit of Exogenous Plant of Xanthophyceae family Against Carbon Tetrachloride Induced Hepatotoxicity in Albino Rats.

Research article

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ABSTRACT:

The Hepatic is midst the best industrious and pennon organs in the feasible body. Hepatotoxicity is a symbol intermediary of morbidity and lenity, and its extent is leave off increment appointment by steady old-fashioned in the industrialized nations. Hepatotoxicity is characterized by atomic pyknosis and eosinophilic cytoplasm, followed by copious rash hepatic poison, pudginess changes, lipid peroxidation leads to hepatic centrilobular necrosis. Paracetamol, reluctant tubercular drugs, demon rum, and azathioprine are meditate on to be the tricky venture factors implicated in the progression of hepatotoxicity. Unusual signaling mechanisms, such as activation of transmissible represent encode alike Kupffer cells, simple hew to pieces cells, incendiary mediators, intracellular Ca² concentration and reactive oxygen species are involved in the pathogenesis of hepatotoxicity. At realistic, helter-skelter is petite aglow panacea is at hand to squeamish patients give hepatotoxicity becoming to deficiency of colleague of signaling culprits involved in the pathogenesis of hepatotoxicity. Gross models are zoological seasoned to reform esteem the plague pathogenesis and develop drugs for hepatotoxicity. In the physical study, we take on submit discrete extremist models for hepatotoxicity, which may frankly vistas for developing new drugs to treat hepatotoxicity.

Introduction:

The liver is the second largest organ within the body. It works arduous, playing many complicated functions, including, Fighting infections and sickness, Removing toxins (poisons), like alcohol, from the body, Controlling steroid alcohol levels, Helping blood to clot (thicken), Releasing digestive fluid, a liquid that breaks down fats and aids digestion. Liver disease does not sometimes cause any obvious signs or symptoms till it's fairly advanced and also the liver is damaged. At this stage, potential symptoms will embrace loss of appetency, weight loss and jaundice. (1) Liver diseases area unit forever dealt terribly seriously by the graduate physicians because of their potentiality to cause morbidity and mortality. The prevalence rate of disease in Asian country is the highest within the world. (2) Liver is the main organ concerned within the metabolism of biological toxins and medicative agents. (3) Hence; metabolism is usually related to the disturbance of hepatocyte organic chemistry and generation of ROS. (3,4,5) ROS area unit concerned in liver injury induced by many conditions like hepatitis. (6) alcohol abuse liver disease of liver. (7) malignant hepatoma. (8) and paracetamol-induced liver injury. (9)

Material and method**Plant extracts preparation**

It is obtained form the fruit of exogenous plant of Xanthophyceae family whole generous and species is about to be autheuticated from the national laboratory.

Extraction of drug

The plant fruits in collect and dry then disslove in the water for 10 day and filter water soluble fruits. The solution is use for plant exrect.

Animal

Albino Rats will be used in this study. Weighing around 120g to 130g. The animal will be purchased from animal house of Central Drug Research Institute, Luck now. The mice will allow the free access of food and water. Animals will house in groups of three to four per cage and will kept under controlled room temperature ($24 \pm 2^\circ\text{C}$) in a 12 hour light – dark cycle. The experiment will be conducted in noise free

environment. Institutional Animal Ethics Committee (IAEC) had approved the experimental protocol and care of animal will be as per guideline of Committee for the Purpose of Control and Supervision of Experiments on Animal (CPCSEA) and ethical norms will be strictly follow during all experimental procedure. (10) Albino rats will be treated with a single ip injection of ccl4 (50 $\mu\text{g}/\text{kg}$) or vehicle. After 7 days, . Serum levels of ALT, AST and ALP should serve as hepatotoxicity indexes. Indeed, CCl4 administration produced significant elevations of serum ALT and AST compared to the normal control group. However, pretreatment of rats with 0.01, 0.05 and 0.1 g/kg b.w. plant extract significantly decreased these serum biochemical indices as compared with the CCl4 treatment group.

Method

CCl4 is activated by phase-II detoxifying enzymes in liver cell endoplasmic reticulum to form trichloromethyl and peroxytrichloromethyl free radicals. These can react covalently with several biomolecules such as protein, nucleic acid and lipid, resulting in cellular membrane degeneration, increased permeability, and leakage of cytoplasmic ALT, AST and ALP. Serum levels of ALT, AST and ALP should serve as hepatotoxicity indexes. Indeed, CCl4 administration produced significant elevations of serum ALT and AST compared to the normal control group. However, pretreatment of rats with 0.01, 0.05 and 0.1 g/kg b.w. plant extract significantly decreased these serum biochemical indices as compared with the CCl4 treatment group. These antioxidant enzyme activities were all statistically significantly greater in the group treated with plant extract compared with the CCl4 treatment group. There was no significant alteration in control rats treated solely with plant extract (11,12,13)

Experimental design:

Experimental design will bedone such that the effect of evaluated *silymarin* drug after 7 days against ccl4 induced Hepatotoxicity. Five groups of animal will be made, each group consisting of six animals. Group - 1 is controle group treated with vehicle 0.9% saline for seven day group-2 is treated ccl4 in last tow day induce disease group-3 is standard drug silymirin treated seven day group-4 is the test group treated with low doses plant extract 100mg/kg for seven day and group-5 is the test group treated with high doses of

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plant extract 200mg/kg for seven days next day sacrifice the all group 30 animals and check different parameters of liver.

Estimation of biochemical parameters:

At the end of the experimental period, animals were sacrificed by cervical decapitation. Blood was collected and serum was separated for biochemical analysis. Liver marker enzymes such as SGOT, SGPT, MDA, GSH, and total Protein were estimated (14,15). The liver tissue was excised in 10% neutral buffered formalin for histopathological studies (16).

Result

The results showed exhibit the significant hepatoprotective effects of the plant. The levels of serum were taken as an index for hepatotoxicity induced by CCl₄. The levels of SGOT, SGPT, MDA, GSH and Protein were analyzed in serum samples of different groups of *albino* rats. Serum marker enzymes such as SGOT, SGPT were analyzed for the all group experimental animals. In the group II CCl₄ induced animals were significantly increased (disease) with olive oil treated animals.

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