

- Document Type** : Thesis
- Document Title** : *Effect of Different Dietary Oils on Liver Function in Rats*
تأثير الزيوت النباتية المختلفة على وظائف الكبد في الجرذان
- Document Language** : Arabic
- Abstract** : Objective: This research aims to study the effect of various dietary oils, as used domestically, on hepatocyte composition and function by histological and biochemical means. Methods and design: Seventy male Wistar rats, aged 3 months (120-150g) were used. The rats were randomly divided into seven groups; a control group and six experimental groups. Experimental animals were fed five pre-cooked (heated to 200C? for 10-15 min) vegetable oils (corn, sunflower, palm, soybean and coconut oils) commonly used in Saudi Arabia and the sixth group was fed unheated olive oil. These oils were mixed with the regular diet (10%, w/w). Rats were weighed and their blood was collected at 8 weeks and 12 weeks for serum lipid profile and liver function tests. The liver was weighed and part of it was homogenized to determine the activity of Na⁺, K⁺ -ATPase, thiobarbituric reactive substance (TBARS) and tissue cholesterol and triacylglycerol. Results: At the end of the experiment, animals fed on palm and corn oils, their total cholesterol (TC) and high density lipoprotein (HDL-C) concentrations were significantly increased. Low density lipoprotein (LDL-C) concentration was also increased with palm oil but remained unchanged with corn oil. All other oils significantly led to increase in the HDL-C concentrations. In rats fed corn, sunflower, palm, and soybean oil, alkaline phosphatase (ALP) activity and ?-glutamyltransferase (GGT) were significantly higher compared to the control group. TBARS level was significantly higher in rats fed olive oil compared to the control group. Na⁺, K⁺ -ATPase activity in hepatic membrane was unchanged in all experimental groups. Hepatic triacylglycerol (TG) levels were notably higher in the group fed coconut oil compared to the control. Hepatic TG levels were significantly lower in olive, sunflower, palm and soybean oils compared to the control. Conclusion: Our study showed that some commonly used dietary oils did not cause any increase in oxidative stress in the liver (and likely the membrane). However, the washing process and storing to which olive oil (unheated) was subjected caused an increase in the level of TBARS in hepatic tissue. Moreover, the results indicate that feeding the rats with these types of oils did not causes any alteration in hepatic cellular membrane fluidity/function
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