سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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سامية محمد مصطفى

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بالرسالة صفحات لم ترد بالأصل

Contribution of Dietary Fats and Iron Overload in Modulation of Hepatic Lipid Peroxidation in Rats

Thesis

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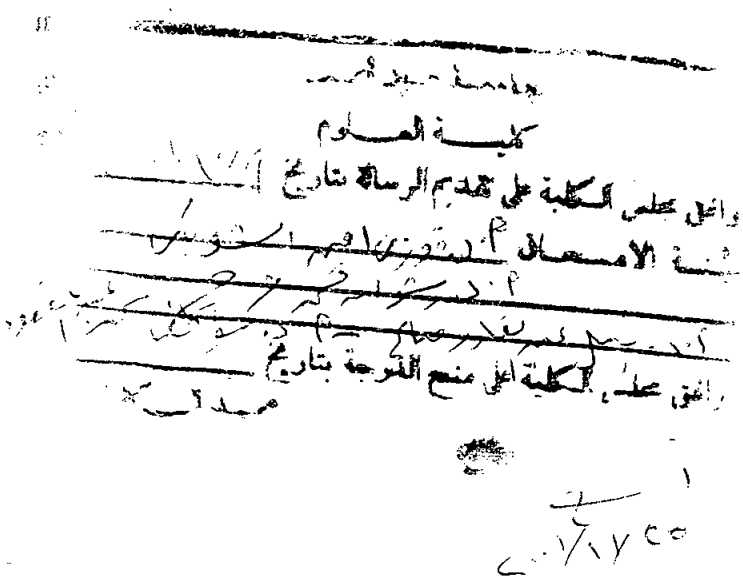

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Abstract

The effect of dietary lipids on hepatic lipid peroxidation and antioxidant status was studied in growing male albino rats (Sprague Dawley) during acute and chronic induction of hepatic iron overload. Three types of dietary fats were administrated (palm oil, butter fat and cotton seed oil) *ad-libitum* for 7 weeks. Acute iron overload was induced by subcutaneous injection of iron dextran at 50 mg/kg body weight on day 1, 3 and 5 before sacrificing. Chronic iron overload was produced by dietary supplementation with carbonyl iron (2.5 mg/g diet). Rats were fed the different experimental diets The biochemical and histological results revealed that rats with chronic iron overload showed reduced food intake and weight gain associated with marked increase in relative weight of organs and hepatic iron deposits especially in groups fed on butter fat. Hepatic malondialdehyde concentrations were significantly increased in iron-loaded liver as compared to controls and such increase was more apparent in the chronic iron loaded, cotton seed oil-fed groups. Thus, iron overload and cotton seed oil seem to have a synergistic effect on lipid peroxidation. Assessment of some antioxidant defence systems in the iron loaded rats disclosed a reduction in erythrocyte Cu/Zn-superoxide dismutase activity, plasma levels of α-tochopherol, selenium and manganese, with an increment of liver catalase and erythrocyte glucose-6-phosphate dehydrogenase activities. These changes were modulated by the type of ingested dietary fat. Our results showed also that experimental iron overload causes marked

perturbations in lipid pattern of plasma. This was evidenced by the parallel increment of plasma triacylglycerols and total cholesterol concentrations, associating marked increase in lipid deposition in liver especially in butter fat-fed groups. It can be concluded that iron overload induced oxidative stress and dietary lipids play a convenient key role in determining cellular susceptibility to this oxidative stress.

Key Words: Dietary lipids, Iron overload, , Lipid peroxidation, Oxidative stress, Antioxidant status, Rats.

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