

*Ain Shams University
Girls College
Biochemistry and Nutrition Department*



***“Interrelated effect of lentils
(Whole and Split)
and fat on lipid metabolism in rats”***

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by

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and fat on lipid metabolism in rats”***

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Thesis

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Introduction

The major lipids present in the plasma are fatty acids, triglycerides, cholesterol and phospholipids. Because they are not water-soluble, lipids are transported in the plasma in association with proteins. Albumin is the principal carrier of free fatty acids (FFA) while the other lipids circulate in complexes known as lipoproteins. Lipoproteins are macromolecular complexes that, in addition to cholesterol and its esters, contain triglycerides, phospholipids and apoproteins. The non-polar lipids, mainly cholesteryl esters and triglycerides, are contained in the core of the particle while free cholesterol and phospholipids are on the surface. The apoproteins are located on the outer membrane and are bound to lipids via their lipophilic regions, thus stabilizing the particle. Apoproteins also serve several important metabolic functions as ligands for the binding of lipoproteins to receptors and as cofactors for enzymes involved in lipoprotein metabolism . Twelve major classes of apoproteins have so far been described, many of which exhibit polymorphism (*Schaefer et al. , 1978 ; Kostner, 1983 ; Mahley et al. , 1984 Calvert and*

Abbey, 1985 ; Kraemer, 1987 and Breslow, 1988). Lipoproteins show great variability in their size and composition (*Lippel , et al . , 1987*) .

At present the lipoproteins are classified into five major classes: chylomicrons, very low density lipoproteins (VLDL), intermediate density lipoproteins (IDL), low density lipoproteins (LDL) and high density lipoproteins (HDL). The chylomicrons are the largest particles found in plasma and are secreted by the intestine to transport the dietary triglycerides. Since the average daily intake of triglyceride is about 100 grams, large amounts of these triglyceride rich particles are synthesized after each meal but in normal persons are cleared efficiently (half life 4.5 min) so that after an overnight fast the serum is free of these particles (*Nikkila , 1983*) .

However, recent studies based on labelling chylomicrons with dietary retinoic acid suggest that smaller species of these particles may persist in the serum for longer periods (*Weintraub et al. , 1987*) .