

Differential effects of CLA on Serum Lipid and Cytokine Profiles of Obese Zucker Rats fed Saturated fats from Vegetal and Animal Origin

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Conjugated linoleic acid (CLA) refers to a group of linoleic acid isomers that possess conjugated double bonds. Many studies have revealed a multitude of biological properties of these isomers, such as, the capacity to modulate the lipid metabolism and the inflammatory system affecting body composition and cytokines profile. The aim of the present work was to study the effects of CLA when combined with saturated fats from vegetal and animal origin, on the serum cytokine profile of obese Zucker rats. Four animal groups were fed with one of the following atherogenic diets (15% fat and 2% cholesterol): P - palm oil; PCLA - palm oil plus 1% CLA; O - ovine fat; OCLA - ovine fat plus 1% CLA. The Luminex xMAP technology was used for the simultaneous quantification of insulin, leptin, IL-1 β , IL-6, PAI-1, MCP-1 and TNF- α . Adiponectin, ghrelin and CRP were determined by ELISA methodology. A decrease in final body weight and daily intake was observed in animals from PCLA and OCLA groups. Liver weights and hepatic lipids were lower in CLA-fed rats. Total-cholesterol, LDL-cholesterol and adiponectin levels were higher in PCLA and OCLA groups, contrasting with PAI-1, which was diminished in these animals. Despite CLA had no interference on the remaining inflammatory markers, ovine fat diets increased insulin, leptin and IL-1 β levels. Hence, this study suggests deleterious effects of saturated fat from animal origin but not from vegetal origin. The presence of CLA in the diets affected favourably PAI-1 and adiponectin but negatively total and LDL-cholesterol levels, denoting differential effects of these diet groups.

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