

ALTERATION IN SERUM LIPID PROFILE AND HOMOCYSTEINE LEVEL INDUCED BY PALM OLEIN AND OLIVE OIL ENRICHED DIET IN RAT

Sivan M. and Venkataramanan S.

Faculty of Health and Life Sciences, Management & Science University, Shah Alam,
Selangor Darul Ehsan, Malaysia
E-mail: svn_sivan@yahoo.com

ABSTRACT

Repeatedly heated cooking oil may contribute to cardiovascular disease such as formation of atherosclerosis. Several studies in past decade proven that chronic intake of repeatedly oxidized saturated and unsaturated fatty acid develop to this condition. In present study, we examined the effects of three-times heated palm and olive oil on serum lipid profile (SLP) and homocysteine (HOC) level in rats. This study conducted using both oil is mainly to compare palm oil and Mediterranean diet which consist olive oil as a main fat source. Thirty *Wistar* rats at average weight of 180-220g were divided equally into three groups. The control (CG) and treatment groups (PO and OO) was given commercial food fortified with nutrients and vitamins throughout the research period. The two treatment groups received three-times heated palm olein (PO) and olive oil (OO) respectively. Both dietary groups were administered by force feed with dosage 2.5ml/kg body weight of repeatedly heated oil for 42 days. Blood sample were obtained and analyzed SLP and HOC. SLP included total cholesterol (TC), triglycerides, HDL cholesterol, LDL cholesterol were measured. Besides, the initial and final body weight of rats obtained. There was a statistically significant different noted between all group in HDL, LDL, TC/HDL ratio and HOC level ($p < 0.05$) and no significant different noted between group in TC and triglycerides. Repeatedly heated PO diet caused a significant increase ($p < 0.05$) in HDL cholesterol (0.764 ± 0.07 mmol/L) compare to OO diet (0.609 ± 0.06 mmol/L). TC/HDL ratio significantly lower in three-times heated PO diet (2.351 ± 0.24) compare to control group (3.001 ± 0.34). Independent risk factor of cardiovascular system, HOC level significantly lower in olive oil compared to control group. The findings suggest that olive oil diet did not cause significant effect on lipid profile. In addition, palm oil diet showed better effect in term of elevation of HDL cholesterol and reduction of TC/HDL ratio.

Reproduced with permission of copyright
owner. Further reproduction prohibited
without permission.