

An aqueous extract of Citrus mitis possess antioxidative properties and improves plasma lipid profiles in rat induced with high cholesterol diet

ABSTRACT

The in vitro antioxidant activity of Citrus mitis aqueous extract (CME) and its effects on antioxidative status and lipid profiles of rat fed with high cholesterol diet were examined. The in vitro antioxidant activity was assessed by 1,1-diphenyl-2-picrylhydrazyl (DPPH) and ferric-reducing antioxidant power (FRAP), while the total phenolic content was measured as gallic acid equivalent. The antioxidative status in the plasma was further assessed by thiobarbituric acid reactive substances (TBARS) assay whereas plasma lipid profile was analysed spectrophotometrically. The result showed that both 5 and 10% extracts possessed antioxidant activities in concentration dependent manner in all tested methods which positively correlated with high phenolic content. The supplementation of 5 mg/kg of both 5 and 10% CME respectively reduced plasma total cholesterol (TCHOL), low-density lipoprotein (LDL) and triglycerides (TG) levels concomitantly with an increased level of high-density lipoprotein (HDL) in rat induced hypercholesterolemia ($p < 0.05$). The lipid parameters were comparable with statin. The atherogenic index (AI) and sdLDL values were found to be lower in CME-treated groups compared to the control ($p < 0.05$). Microsomal lipid peroxidation indicated with TBARS estimation was found to be lower in both CME-treated groups. The results obtained suggest that C. mitis aqueous extract possesses lipid lowering and antioxidative effect in hypercholesterolemic-induced model and could potentially be used as therapeutic regimen in managing hypercholesterolemia.

Keyword: Citrus mitis; Lipid profile; Lipid peroxidation; Malondialdehyde; Antioxidant