
Abstract:

Green tea and its polyphenols content have recently attracted attention because of their physiologic activity. This study was designed to compare the green tea extract (GTE) with atorvastatin regarding to their effects on lipid profile, oxidative activity, atherosclerotic changes of aorta and body weight and also to compare the green tea with enalapril regarding to their effects on arterial blood pressure in vivo.

In the model of hypercholesterolemia twenty-four rats were used and divided into four equal groups: Control group, hypercholesterolemic group received high fat diet (1% cholesterol and 10% coconut oil) for seven weeks, hypercholesterolemic group treated with GTE (each rat received 325 mg daily for 4 weeks by oral route) and hypercholesterolemic group treated with atorvastatin (30 mg/kg orally for 4 weeks). As regard studying the effect on blood pressure, A model of hypertension was done by renal artery ligation of left kidney for seven weeks. Twenty-four rats were used and divided into four equal groups: Control group, hypertensive group, hypertensive group treated with GTE (each rat receiving 325 mg daily for last 4 weeks by oral route) and hypertensive group treated with enalapril (30 mg/kg orally for last 4 weeks). At the end of the study period, total cholesterol, LDL, HDL, malondialdehyde levels (MDA) (as oxidative stress marker) were determined in blood of rats, in addition to total body weight. Moreover, histopathological evaluation of the aortic sections was performed. While the rats of induced-hypertension were subjected to measuring SBP and MBP. The data revealed that GTE and atorvastatin produced a significant reduction in total cholesterol, LDL, and MDA levels with significant increase of HDL in hypercholesterolemic rats. Both GTE and atorvastatin produced significant reduction of atherosclerotic changes that occurred in aortic sections. GTE also produced more significant reduction of body weight compared to atorvastatin. It was found that GTE had no significant effect on blood pressure compared to the enalapril which produced significant reduction of SBP and MBP. In conclusion, within the constraint of this study, the data revealed that GTE may be effective for treatment of hypercholesterolemia, obesity and prophylaxis of cardiovascular disease due to its antihyperlipidemic and antioxidant effects.