ATHEROPROTECTIVE EFFECT OF THE PLINIA CAULIFLORA (JABOTICABA) EXTRACT

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Atherosclerosis remains the most common cause of mortality in industrialized countries. High concentration of serum low density lipoproteins (LDL) has been considered one of the major risk factors for atherosclerosis development and progression. Specifically, oxidative modifications of LDL play a determinant role in atherogenesis. Thus, reducing LDL oxidation is a potential approach to reduce the risk of the atherosclerosis. It is known that high intake of fruits is protective against cardiovascular risk factors. In this regard, recent experimental studies demonstrated that Plinia cauliflora Berg (jaboticaba) peels reduces significantly blood cholesterol and obesity-associated insulin resistance. Jaboticaba is an indigenous Brazilian fruit found in the largest part of the country, particularly in the Southeast. The aim of this study was to evaluate the potential atheroprotective effect of the jaboticaba fruit peels hydroalcoholic extract in preventing Cu(2+)-induced LDL oxidation. Moreover, the scavenger activity of jaboticaba extract (using 2,2-diphenyl-1-picrylhydrazyl - DPPH) was also evaluated in an attempt to delve into mechanisms related to the protective effects. Of note, we used a flavonoid rich hydroalcoholic (ethanol 50%) extract fraction of jaboticaba peels. The hydroalcoholic jaboticaba extract caused a concentration-dependent inhibition of serum and isolated LDL oxidation evidenced by the increasing of the lag phase of lipid peroxidation and decreased the lipid oxidation rate (Vmax). This atheroprotective property of jaboticaba was related to increased free radical scavenger activity. Considering the powerful effect of this hydroalcoholic extract of jaboticaba in preventing the LDL oxidation, developing of new therapeutic approach to preventing and treating atherosclerosis could be considered.

Keywords: atherosclerosis; LDL oxidation; jaboticaba hydroalcoholic extract.