Polyphenols as potential therapeutical agents against cardiovascular diseases

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Abstract:
Increasing evidence suggests that polyphenols from fruits, vegetables and beverages such as wine and tea may exert protective effects on the cardiovascular system. Indeed, research in the field of polyphenols points out their antioxidant and free radical scavenging properties, leading to lower low-density lipoprotein (LDL) oxidation and platelet aggregation. These compounds are also able to modulate the generation of nitric oxide (NO) from vascular endothelium and to interfere with the mechanisms leading to inflammation and endothelial apoptosis, contributing to the prevention of the endothelial dysfunction, known to play a central role in the pathogenesis of cardiovascular diseases. This article reviews the potential targets of polyphenols involved in the complex pathophysiological events occurring in cardiovascular diseases, such as hypertension, atherosclerosis and stroke.

Key words:
cardiovascular diseases, polyphenols, antioxidant, endothelial function, NO


Introduction
Epidemiological studies have shown an inverse correlation between polyphenols enriched diet and reduced risks of cardiovascular diseases [100]. Polyphenols are widely distributed in the human diet, mainly in plant-derived food and beverages (fruits, vegetables, nuts, seeds, herbs, spices, tea and red wine) and represent more than 8000 phenolic structures. On the one hand, flavonoids are the major constituents of this group with more than 4000 compounds. They share a common flavan core formed with 15 carbon atoms arranged in 3 rings and this class can be divided into