

Format: Abstract

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Mulberry anthocyanin extracts inhibit LDL oxidation and macrophage-derived foam cell formation induced by oxidative LDL.

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Abstract

Low-density lipoprotein (LDL) oxidation plays a role in atherosclerosis; therefore the lower the formation of oxidative LDL (oxLDL), the lower the occurrence of coronary heart diseases (CHD). Mulberry, the fruit of *Morus alba* L., is used effectively in Chinese medicines for prevention of CHD. However, the mechanism of this action is unclear. Two extracts, MWEs (mulberry water extracts) and MACs (mulberry anthocyanin-rich extracts), which exhibit antioxidative and anti-atherosclerogenesis abilities *in vitro*. Data showed that MWEs and MACs were able to inhibit ($P < 0.05$) the relative electrophoretic mobility (REM), ApoB fragmentation, and thiobarbituric acid reaction substances (TBARS) formation in Cu^{2+} -mediated oxidation LDL. MWEs and MACs also had the ability of 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging for reducing the formation of free radicals mediated by copper ions. Furthermore, we observed that MWEs and MACs could decrease ($P < 0.05$) macrophage death induced by oxLDL. In addition, the MWEs and MACs also could inhibit ($P < 0.05$) the formation of foam cells. Both MWEs and MACs showed a great ability of scavenging radicals, inhibition of LDL oxidation, and decrease in atherogenic stimuli in macrophages, while the efficacy of MACs is 10-fold greater than that of MWEs. It also demonstrated that anthocyanin components in mulberry extracts were regarded as the prevention of atherosclerosis.

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