

The hypolipidemic natural product *Commiphora mukul* and its component guggulsterone inhibit oxidative modification of LDL.

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Abstract

There is accumulating evidence that LDL oxidation is essential for atherogenesis, and that antioxidants that prevent this oxidation may either slow down or prevent atherogenesis. In the present study, we found that *Commiphora mukul* and its cholesterol-lowering component, guggulsterone, effectively inhibited LDL oxidation mediated by either catalytic copper ions, free radicals generated with the azo compound 2,2'-azobis-(2-amidinopropane)dihydrochloride (AAPH), soybean lipoxygenase enzymatically, or mouse peritoneal macrophages. This inhibition was assessed by the decrease in the following parameters describing LDL oxidation: conjugated dienes, relative electrophoretic mobility (REM), thiobarbituric acid reactive substances, lipid hydroperoxides, oxidation-specific immune epitopes as detected with a monoclonal antibody against oxidized LDL, and the accumulation of LDL derived cholesterol esters in mouse peritoneal macrophages. We concluded that *C. mukul* and its lipid-lowering component, guggulsterone, significantly inhibit LDL oxidation. The combination of antioxidant and lipid-lowering properties of *C. mukul* and guggulsterone makes them especially beneficial against atherogenesis.