
Beneficial effect of 3,4,5,6-tetrahydroxyxanthone on dyslipidemia in apolipoprotein E-deficient mice.

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Abstract

Previous investigations have shown that decreased expression of angiopoietin-like protein 3 (Angptl3) is protective against dyslipidemia in atherosclerosis. The present study was conducted to test the effect of 3,4,5,6-tetrahydroxyxanthone, a xanthone compound, on dyslipidemia in apolipoprotein E-deficient (ApoE-/-) mice. Forty mice were randomly divided into 4 groups (n = 10): control group (C57BL/6J mice), ApoE-/- mice group, and two groups of ApoE-/- mice treated with 3,4,5,6-tetrahydroxyxanthone (10 or 30 mg/kg per day). Eight weeks after treatment, lipid levels in the blood and liver, expression of hepatic Angptl3, and adipose tissue lipoprotein lipase (LPL) were determined. Treatment with 3,4,5,6-tetrahydroxyxanthone (10 or 30 mg/kg) significantly decreased plasma and hepatic total cholesterol and triglyceride concentrations, increased plasma high-density lipoprotein cholesterol, and significantly downregulated expression of Angptl3 mRNA and protein concomitantly with upregulated expression of LPL mRNA. In addition, T0901317 (a liver X receptor ligand) caused elevated expression of hepatic Angptl3 mRNA and protein, and the effect of T0901317 was also abrogated by 3,4,5,6-tetrahydroxyxanthone in vivo and in vitro. The present results suggest that the beneficial effect of 3,4,5,6-tetrahydroxyxanthone on dyslipidemia may be related to reduced expression of Angptl3.

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