



Preventing dyslipidemia by *Chlorella pyrenoidosa* in rats and hamsters after chronic high fat diet treatment

Jong-Yuh Cherng, Mei-Fen Shih*

Department of Pharmacy, Chia-Nan University of Pharmacy and Science, 60 Erh-Jen Road, Sec.1, Tainan, 717, Taiwan R.O.C.

Received 21 July 2004; accepted 14 October 2004

Abstract

The effects of *Chlorella pyrenoidosa* on serum lipid profiles, after concomitant long-term treatment of high-fat diet (HFD) in rats and hamsters was studied. Wistar rats and Syrian hamsters were fed with or without various concentrations of *Chlorella pyrenoidosa* contained high-fat diet (CHFD) for 2, 4 and 8 weeks prior to assay of serum lipids. Fasting triglycerides, total cholesterol, and LDL cholesterol as well as HDL cholesterol levels in high-fat diet treated rats and hamster were determined. Results showed that triglycerides, total cholesterol and LDL cholesterol levels in HFD treated rats and hamsters were increased from the normal rodent diet (NRD) treated controls after 2, 4, and 8-week treatments. However, the presence of *Chlorella pyrenoidosa* in high-fat diets significantly decreased the levels of triglycerides, total cholesterol and LDL cholesterol with comparison to HFD group in rats and hamsters. The total cholesterol/HDL ratios, an indication of occurrence of coronary heart disease, were decreased in all CHFD treated grouped rats and hamsters which suggests administration of *Chlorella pyrenoidosa* could lower the occurring risk of heart diseases. In conclusion, *Chlorella pyrenoidosa* has the ability to prevent dyslipidemia in chronic high-fat fed animals and could be potential in use to prevent intestinal absorption of redundant lipid from our daily intake and subsequently to prevent hyperlipidemia as well as atherosclerosis.

© 2005 Elsevier Inc. All rights reserved.

Keywords: *Chlorella pyrenoidosa*; High-fat diet; Serum lipids; Rats; Hamsters

* Corresponding author. Tel.: +886 6 2492707; fax: +886 6 2666411.

E-mail address: meifenshih@mail.chna.edu.tw (M.-F. Shih).