

Protective Effect of Mogroside V on Ethanol-induced Fatty Liver in Rats via Nrf2-relevant Antioxidative Signal Path

Jingtao WU¹*, Hongyan WANG² # & Zuojing FENG³

¹ Department of Science and Technology, University of Jinan, Jinan 250022, China

² Maternal and Child Health Care Hospital of Shandong Province, Jinan 250014, China

³ Department of Nutrition, Qilu Hospital of Shandong University, Jinan 250012, China

SUMMARY. Mogroside V (MV) is one of the main bio-active ingredient, extracted from fruit of *Siraitia grosvenorii* (Swingle) C. Jeffrey ex A.M. Lu & Z.Y. Zhang (FSG) which is a traditional Chinese medicine and has the function of protecting liver in folk. In order to figure out the hepatoprotective effect and antioxidative activity of MV, its underlying mechanism were studied using ethanol-induced fatty liver (EFL) rat model. The results show that MV significantly ($P < 0.01$) activates signal path enzymes of Keap1, Nrf2 and small Maf, increases hepatic antioxidant enzyme expression of HO-1, GCLM and NQO1, changes the oxidative stress indicated by ROS, T-AOC capacity, and MDA contents, and improves the liver injury degree indicated by serum ALT and AST, liver TG, and histological evaluation. The finding indicates that MV is an effective inhibitor of EFL via Nrf2 relevant antioxidative signal path.

RESUMEN. Mogroside V (MV) es uno de los principales ingredientes bioactivos extraído de los frutos de *Siraitia grosvenorii* (Swingle) C. Jeffrey ex A.M. Lu y Z.Y. Zhang (FSG), que es una medicina tradicional china y tiene la función de proteger el hígado en las personas. Para determinar el efecto hepatoprotector y la actividad antioxidante de MV, se estudió su mecanismo subyacente utilizando el modelo de rata de hígado graso inducido por etanol (EFL). Los resultados muestran que MV ($P < 0.01$) activa significativamente las enzimas de la ruta de señal de Keap1, Nrf2 y Maf pequeña, aumenta la expresión de la enzima antioxidante hepática de HO-1, GCLM y NQO1, cambia el estrés oxidativo indicado por la capacidad de ROS, T-AOC y el contenido de MDA, y mejora el grado de lesión hepática indicado por ALT y AST sérica, TG hepático y la evaluación histológica. El hallazgo indica que MV es un inhibidor efectivo de EFL a través de la ruta de señal antioxidativa relevante Nrf2.

KEY WORDS: antioxidant response element, ethanol-induced fatty liver, mogroside V, nuclear factor erythroid 2 related factor 2, *Siraitia grosvenorii*.

This author has equal contribution and is equal to the first author.

* Author to whom correspondence should be addressed. E-mail: ost_wujt@ujn.edu.cn