

**Kimchi (Korean fermented vegetable) attenuates liver damage through improving lipid metabolism and suppressing apoptosis in high cholesterol diet-fed mice**Minji Woo<sup>a</sup>, Mijeong Kim<sup>a</sup>, Serim Kim<sup>a</sup>, Jeong Sook Noh<sup>b</sup> and Yeong Ok Song<sup>a\*</sup><sup>a</sup>Pusan National University, Republic of Korea<sup>b</sup>Tongmyong University, Republic of Korea

High cholesterol diet (HCD) is known to cause hepatic steatosis. Apoptosis is a major cell death pathway hepatocyte which occurs in a wide variety of liver diseases. Kimchi, a Korean traditional fermented vegetable, demonstrated to have antioxidative, anti-atherogenic, and anti-cancer properties. This study investigated whether kimchi methanol extracts (KME) affects lipid metabolism and apoptosis in the liver of HCD-fed mice. Animals fed HCD for 8 weeks with oral administration of KME (200 mg/kg bw/day) or distilled water as a vehicle (n = 10 for each group). Compared with the control group, the kimchi group decreased the hepatic protein expression for fatty acid synthesis (SREBP-1, ACC $\alpha$ , FAS) and cholesterol synthesis (SREBP-2, HMGCR), whereas increased that for fatty acid oxidation (PPAR- $\alpha$ , CPT1, ACOX1) and cholesterol export (CYP7A1) (all for P<0.05). Additionally, hepatic protein expression for proapoptotic factors (Bax, p-JNK, caspase-3, -9) was decreased, while that for anti-apoptotic factors (Bcl2, cIAP) was elevated in the kimchi group (all for P<0.05). Furthermore, histological analysis (oil red O, H&E, TUNEL staining) in the liver tissue showed that hepatic steatosis, inflammation, and apoptosis in the kimchi group were less severe. In conclusion, HCD-induced liver damage can be alleviated by kimchi administration via improving lipid metabolism and suppressing apoptosis.

**Biography**

Yeong Ok Song has completed her MS from California University and PhD from Pusan National University. She is now the professor of Dept. Food science and nutrition in Pusan National University. She has made research achievements, focusing on the lipid lowering and anti-atherogenic effects of functional foods, and kimchi in particular. She has published more than 50 papers for kimchi in reputed journals. Moreover, her excellence in research has been recognized by the Academic Society, by which she was awarded 'The Greatest Achievement in Research in 2015.

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