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Plantago asiatica leaf extract ameliorates obesity in high-fat diet-induced C57BL/6J mice

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P^{lantago asiatica} (PA) has been widely used as Korean medicine. In present study, water extract of *Plantago asiatica* leaf (PAL) was used to investigate the effects of PAL on anti-obesity in C57BL/6J mice fed high-fat diet. Animals were divided into 7 groups; ND (normal diet+0.9% saline), HFD (high-fat diet+0.9% saline), GC500 (high-fat diet+Garcinia cambogia (500 mg/kg)), PAL100, 200, 300 and 400 (high-fat diet+PAL (100 mg/kg, 200 mg/kg, 300 mg/kg and 400 mg/kg). Treatments were performed orally for 6 weeks. Body weights, adipose tissue weights and Food Efficiency Ratio (FER) were significantly lower in mice fed the high-fat diet containing PAL than in mice fed the high-fat diet alone. In plasma, triglyceride, total cholesterol and Low-Density Lipoproteins (LDL) cholesterol levels significantly decrease but High-Density Lipoproteins (HDL) cholesterol levels significantly increased in PAL groups compared to HFD group. Also, triglyceride levels decreased in liver and increased in fecal in PAL groups compared to HFD group. To identify protein expression levels of factors which affect adipocyte differentiation (AMP-activated protein kinase (AMKP), phospholyrated-AMPK (p-AMPK), acetyl-CoA carboxylase (ACC), phospholyated-ACC (p-ACC), Peroxisome Proliferator-Activated Receptor gamma (PPAR-γ), Sterol Regulatory Element-Binding Protein-1c (SREBP-1c), western blot was carried out in liver. The results showed that protein expression intensities of p-AMPK and p-ACC in liver increased but those of PPAR-γ and SREBP-1c decreased in PAL groups compared to HFD group. Therefore, our results indicated that PAL extract is effective in preventing and improvement obesity, so it might be a potential and safe material for anti-obesity agent or functional supplements.

Biography

So-Young Kim has completed her studies in Pharmaceutical Engineering in Deagu Hanny University, Republic of Korea. Currently she is studying about obesity at the Graduate School, Department of Herbal Pharmacology in Daegu Hanny University. She has published more than 3 papers in reputed Korean journals.

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