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Anti-oxidation and nitric oxide inhibition effect of black goat extracts**Seokwon Kang, Dongwook Kim, Hye-Jin Kim, Hee-Jin Kim, Hanna Kim, Jung-Soo Kim, Joko Sujiwo and Aera Jang**
Kangwon National University, Korea

In recent years, many studies have addressed the anti-oxidative effect and reduction activity of inflammatory factors of foods. Oxidative stress is associated with a disturbance in the pro-oxidant and anti-oxidant balance in favor of the pro-oxidant. Oxidative stress results in direct or indirect damage of nucleic acids, proteins, and lipids. Nitric oxide (NO) formed by inducible NOS (iNOS) in macrophages and other cells play multiple roles in the inflammatory response. NO is oxidized to nitrites or nitrates. These are usually generated with large amounts of superoxide anion (O₂⁻). These two can form peroxynitrite (ONOO⁻) which mediates the cytotoxic effects of NO. In Korea, about 80% of the goat population is predominantly black. Black goats are consumed in the form of meat or boiled extract for folk medicine. However, there are few studies about health improving effect and functionality of black goat extracts (BGE). Therefore, the purpose of this study is to identify the anti-oxidation and nitric oxide inhibition effect of BGE. In this study, BGE were obtained from Cheonriwon. Farming Association. For anti-oxidative activity evaluation, 2,2-diphenyl picrylhydrazyl (DPPH), 2,2'-azino-bis(3-ethyl benzothiazoline-6-sulfonic acid) (ABTS) radical scavenging activity, ferric ion reducing antioxidant power (FRAP) activity, and oxygen radical absorbance capacity (ORAC) were determined. To evaluate reduction of inflammatory factors, concentration of NO was measured with a Griess Reagent System (Promega, Madison, WI). DPPH, ABTS radical scavenging activity, and FRAP activity of BGE at 1 mg/ml was 68.73, 146.44, and 123.12 μ M Trolox equivalent (μ M TE), respectively. ORAC of BGE at 0.2 mg/ml was 54.22 μ M TE. Concentration of NO in LPS stimulated RAW 264.7 cell was not affected by the BGE concentrations of 30, 50, and 100 μ g/ml, compared to LPS only treated cell. However, concentration of NO was significantly decreased with BGE at 200 and 500 μ g/ml. These findings suggest that the BGE could be used as a potential bioactive compound (anti-oxidation and anti-inflammation) in food industry.

Biography

Seokwon Kang is currently a senior student at College of Animal Life Science at Kangwon National University. His major is Animal Origin Food Science. He is one of the members of the lab of food and bio-metabolic regulation at College of Animal Life Science. He is interested in the evaluation of bioactivity of various animal origin foods.

tjrdnjs1001@gmail.com

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