F-P-15

Optimal Hot Water Extraction Conditions of Mixed Herbs Extract Mixture Using Response Surface Methodology

Tae-Young Park1), Junseok Oh1), Jae-Heoi Hong1), Seong-Eun Hong1), Seong-Min Hong1), Hyeon-Min Oh1), Gyeong-Su Park1), Hee Gyeong Jeong2), Kyung Je Kim2), Seong Woo Jin2), Young Woo Koh2), Seung Bin Im2), Neul-I Ha2), and Kyoungsun Seo2)*

1)Dongbu Eastern Herbal Medicine Agricultural Association Corporation, Suncheon 58019, Korea
2)Jangheung Research Institute for Mushroom Industry, Jangheung 529-851, Korea

ABSTRACT

Human needs energy to maintain metabolisms, and these energy sources were uptake foods or nutritions. The most effective source was known for glucose among the nutrients, furthermore the glucose is an important source of energy for blood cells and control brain maintenences cells. But as food is plentiful and eating habits become more westernized, fast food and irregular meal times by works. Nowadays, diabetes were rapidly increased by malnutriton and obesity . Diabetes was the sixth highest on the list of causes of death in Korea, released by the Statistics Korea in 2015, which is considered a serious social problem for adult diseases.

Therefore, this study aims to establish the optimal hot water extraction conditions of mixed herbs extract mixture compounds that are effective in diabetes. The independent factors were extraction temperature (X1: 40-120℃), extraction time (X2: 2-10 hrs.), and the ratio of water to sample (X3: 40-200 mg/mL). Their effects were assessed on dependent variables of the extract properties, which included soluble solid contents, Brix of sample extract, total polyphenols content, total flavonoids content and DPPH Radical scavenging activity.

As a result, the content of total polyphenol content was the highest in No.12(6 hrs, 120℃, 67 mg/mL) and the highest total flavonoid contents was found in No.16(6 hrs, 80℃, 40 mg/mL). DPPH Radical scavenging activity showed the highest activity in No.7(8 hrs, 100℃, 100 mg/mL).

Key words : Response Surface Methodology, DPPH radical scavenging activity, total polyphenols, total flavonoids, mixed herbs extract

*(Corresponding author) E-mail: astragali@daum.net Tel: +82-61-862-8877

**Acknowledgement :This paper has been written with the support of Jeollannam-do ('2018 R&D supporting program' operated by Jeonnam Technopark).