

방풍(*Saposhnikovia divaricata*)의 초고압 추출법을 이용한 항산화 활성의 증진
강원대학교 : 김지선, 서용창, 최운용, 이현용*

Enhancement of Antioxidant Activities of *Saposhnikovia divaricata*
by Ultra High Pressure Extraction

¹Medical& Bio-Material Research Center, Kangwon National University, Chuncheon 200-701, Korea

²Department of Biomaterials Engineering College of Bioscience and Biotechnology,
Kangwon National University, Chuncheon 200-701, Korea

Ji-Seon Kim¹, Yong-Chang Seo¹, Woon-Yong Choi² And Hyeon-Yong Lee^{1,2*}

Objectives

This study was investigated to enhance antioxidant activities of *Saposhnikovia divaricata* by ultra high pressure extraction process at 500Mpa for 15minutes with water solvents.

Materials and Methods

○ Materials

Saposhnikovia divaricata was extracted by water extraction at 100°C and 60°C, 70% ethyl alcohol extraction at 60°C and ultra high pressure extraction at 500 MPa for 30 minutes at 60°C.

○ Methods

In order to measured antioxidant effects by total polyphenol and flavonoid contents, free radical scavenging activities and reducing power.

Results

Total polyphenol contents from WE100, WE60, EE and HPE were measured as 13.28, 11.85, 11.36 and 21.82 $\mu\text{g/ml}$, respectively. The flavonoids contents also were measured as 14.44, 14.01, 15.39 and 26.11 $\mu\text{g/ml}$, respectively. The extracts from ultra high pressure extraction showed the strongest free radical scavenging activities as 72.3% in adding 1 mg/ml of the sample, due to higher release of total polyphenols while other extracts were measured as 64.05, 61.36 and 62.55% from WE100, W60 and EE, respectively. The reducing power of the extracts from HPE was 67.54% in adding 1 mg/ml, which was also higher those from other processes. The results tell that ultra high pressure processe at above 500 Mpa effectively extract polyphenols and flavonoids for *Saposhnikovia divaricata*, which results in high antioxidant activities.

주저자 연락처(Corresponding author) : 이현용 E-mail : hyeonl@kangwon.ac.kr Tel : 033-250-6455

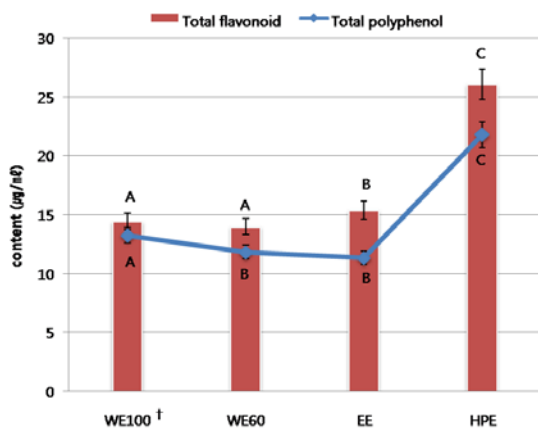


Fig. 1. Total polyphenol and flavonoid contents of the extracts of *Saposhnikovia divaricata* by different extraction processes.

[†] WE100 : water extraction at 100°C, WE60 : water extraction at 60°C EE : 70% ethyl alcohol extraction at 60°C HPE : high pressure extraction for 30 minutes at 60°C with 70% ethyl alcohol solvent.

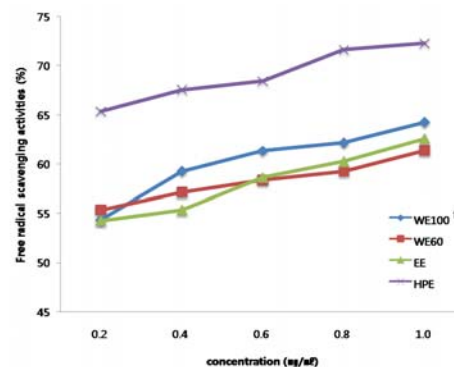


Fig. 2. Free radical scavenging activities of the extracts of *Saposhnikovia divaricata* by different extraction processes and concentration.

[†] WE100 : water extraction at 100°C, WE60 : water extraction at 60°C EE : 70% ethyl alcohol extraction at 60°C HPE : high pressure extraction for 30 minutes at 60°C with 70% ethyl alcohol solvent.

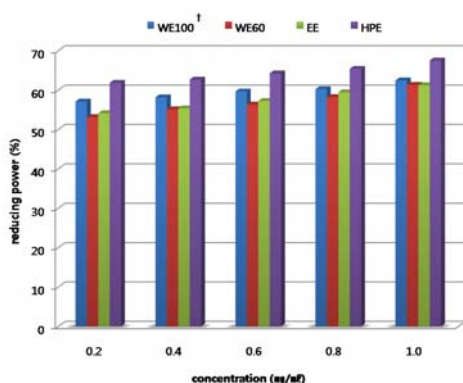


Fig. 3. Reducing power of the extracts of *Saposhnikovia divaricata* by different extraction processes.

[†] WE100 : water extraction at 100°C, WE60 : water extraction at 60°C EE : 70% ethyl alcohol extraction at 60°C HPE : high pressure extraction for 30 minutes at 60°C with 70% ethyl alcohol solvent.