

## Comparison of Biological Active Compounds in Korean Peony Germplasms

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### 한국산 작약근 유전자원의 생리활성물질 비교

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### Objectives

The objectives of this study is to determine the contents of paeoniflorin, albiflorin, phenolic compounds, and extract in peony germplasms root, and to provide the basic information of quality evaluation in Korean peony root.

### Materials and Methods

- Materials : 417 accessions of three-year-old peony root(*Paeonia lactiflora* Pall.)
- Treatment : Dried for 30days at room temperature and ground at 40mesh
- Extraction : Powder(1g) was extracted with H<sub>2</sub>O by ultrasonic bath for 30 min.
- HPLC analysis : Tosoh ODS-120T, H<sub>2</sub>O : CH<sub>3</sub>CN : CH<sub>3</sub>OH : CH<sub>3</sub>COOH = 80 : 15 : 5 : 0.2
- Extract analysis : Aqueous extract method (50% EtOH extraction)

### Results

Peony root used extensively in oriental medicine as an analgesic, an anti-spasmodic, an astringent and a sedative for the treatment of a variety of painful afflictions. In the peony root, paeoniflorin, albiflorin and phenolic compounds are present along with other glycoside and other possibly effective constituents. Therefore, the effects of biological activity of peony root is presumed due to combination and synergic effect of these compounds. The contents of paeoniflorin, albiflorin, and extract in peony root are considered as a standard of quality evaluation of peony root. There is a large genetic variation in biological active compound contents of peony roots. The contents of paeoniflorin, albiflorin and extract among 417 peony germplasms which were positively correlated with quality of peony roots, were ranged 0.00~5.95% with an average 1.30%, 0.11~2.48% with an average 0.39%, and 16.81~40.01% with

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an average 28.15% respectively.

Range in (+)-taxifolin-3-O- $\beta$ -D-glucopyranoside, (+)-catechin, (-)-epicatechin, and benzoic acid among 417 peony germplasms was 0.00~1.15% with an average 0.14%, 0.00~4.02% with an average 0.23%, 0.05~4.94% with an average 1.02%, and 0.04~1.38% with an average 0.65% respectively.

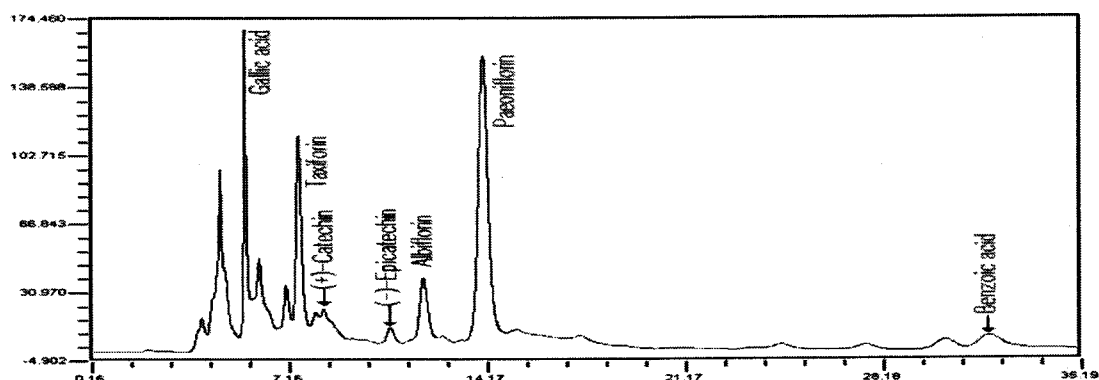


Fig. 1 HPLC chromatogram of aqueous extract in peony root.

Table 1. Statistical parameters of biological active compound contents in 417 Korean peony germplasms.

	Contents (%)							
	Extract	Gallic.	(+)-Taxi.	(+)-Cate.	(-)-Epicate.	Albi.	Paeoni.	Benzoic.
Min	16.81	0.03	0.00	0.00	0.05	0.11	0.00	0.04
Max.	40.01	0.35	1.15	4.02	4.94	2.48	5.95	1.38
Mean	28.15	0.16	0.14	0.23	1.02	0.39	1.30	0.65
SD	3.72	0.05	0.10	0.37	0.63	0.37	1.34	0.27
CV(%)	13.20	29.49	71.53	158.94	61.30	93.97	103.03	41.45

Table 2. Simple correlation coefficients among investigated biological active compound contents in 417 Korean peony germplasms.

	Extract	Gallic.	(+)-Taxi.	(+)-Cate.	(-)-Epicate.	Albi.	Paeoni.	Benzoic.
Extract	1	0.183**	0.184**	0.087	-0.064	0.045	0.220**	-0.019
Gallic.		1	0.066	0.083	0.063	0.121*	0.202**	0.034
(+)-Taxi			1	0.251**	-0.080	0.068	0.527**	-0.163**
(+)-Cate.				1	-0.250**	0.257**	0.250**	-0.119*
(-)-Epic					1	-0.267**	-0.525**	0.578**
Albi.						1	0.270**	-0.297**
Paeoni.							1	-0.652**
Benzoic.								1

\*,\*\* Significant at the 0.05 and 0.01 probability levels, respectively