

P.54 땅콩 식물체 조직별 Resveratrol 함량 변이

전북대학교 농과대학 : 박명렬[†], 이병국, 최혜란, 조은애, 박미은, 백소현, 윤성중*
순천대학교 : 진일두

Occurrence of Resveratrol in Tissues of Peanut Plant

Chonbuk National University : Myoung-Ryoul Park[†], Byoung-Kook Lee, Heh-Ran Choi,
Eun-Ae Cho, Mi-Eun Park, So-Hyeon Baek, Song Joong Yun*
Sooncheon National University : Il-Doo Jin

실험목적

땅콩에 함유되어 있는 기능성 성분인 resveratrol의 분석방법을 확립하여 땅콩의 각 식물체 조직의 resveratrol 함량을 조사하고자 함.

재료 및 방법

○ 공시재료 : 진풍 땅콩

○ 실험방법

HPLC system: Waters 626

Mobile phase: Water-acetonitrile gradient elution at a flow rate of 1.0 ml/min

Column : C18 RP columns

1) Symmetry (4.0 x 250 mm, 5 μ m, Waters, USA)

2) Versapak C18 column (3.9 x 300 mm, 10 μ m, Alltech, USA)

Detector: 1) Fluorescence detector (Waters 474, USA, 330 nm for excitation and 374 nm for emission)

2) UV/Vis detector (Sykam 3200, Germany)

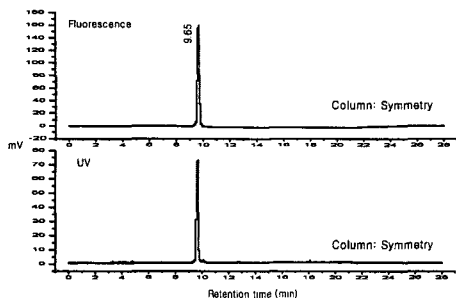
Resveratrol 추출: 1) Free resveratrol: Methanol, 80% (v/v) ethanol

2) Conjugated resveratrol: 1N HCl

실험결과

- Resveratrol의 검출 감도는 형광검출기가 UV 검출기 보다 2.2배 높았다.
- Resveratrol의 머무름 시간은 Versapak과 Symmetry 컬럼에서 각각 7.35, 9.65분이었다.
- 땅콩에는 유리형과 결합형의 resveratrol이 존재하였으나 대부분 유리형이었으며, 결합형은 꼬투리에 가장 많이 존재하였다.
- Resveratrol 함량(μ g/gFW)은 뿌리>꼬투리>잎>종피>종실 순으로 높았다.

연락처: 윤성중, E-mail: sjyun@moak.chonbuk.ac.kr, 전화: 063-270-2508



Detector	RT (min)	Peak area (mV*sec)
Fluorescence(A)	9.65	1340.084
UV (B)	9.65	608.231
A/B		2.203
Column: Symmetry (4.0 x 250 mm, 5 um, Waters)		

Fig. 1. HPLC chromatograms of the standard compound detected by fluorescence and UV detector. Relative detection sensitivity is indicated in the table.

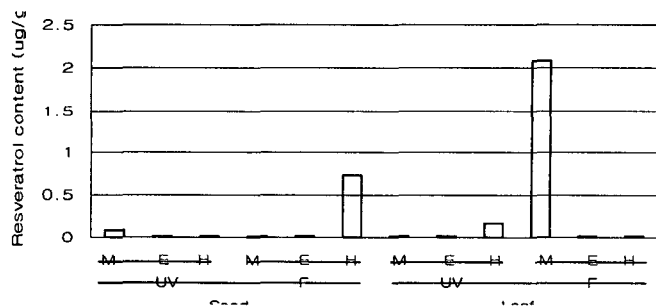


Fig. 2. Effects of extraction and detection methods on resveratrol content.

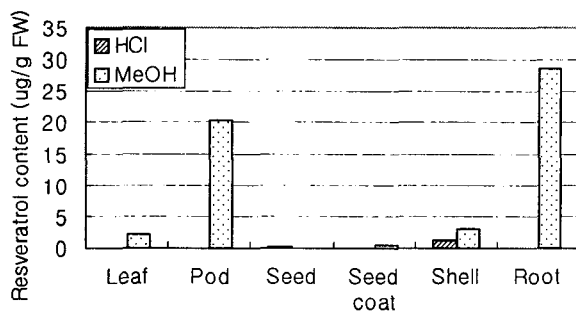


Fig. 3. Content of free and conjugated forms of resveratrol in various tissues.

Table 1 Elution gradient programme

t(min)	solvent A(%)	solvent B(%)	flow rate(ml/min)
0.0	82.0	18.0	1.1
5.0	82.0	18.0	1.1
10.0	70.0	30.0	1.1
15.0	55.0	45.0	1.1
16.0	50.0	50	1.1
18.0	0.0	100.0	1.1
20.0	100.0	0.0	1.1
22.0	82.0	18.0	1.1

solvent A glacial acetic acid : DCW (52.6 : 900)

solvent B acetonitril : solvent A (80 : 20)

* equilibrium for 10 minute before following injection

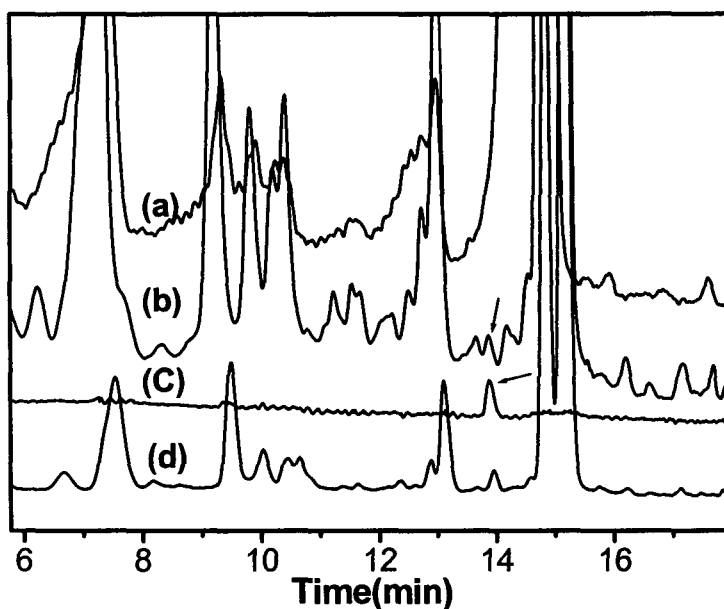


Fig. 1 Chromatograms at 308nm, corresponding to a peanut extracts and *trans*-resveratrol standard

- (a) By direct injection, (b) After purified extract,
- (c) *trans*-resveratrol standard
- (d) spiked with a *trans*-resveratrol standard