

고욤나무 잎 추출물의 항산화성과 항암활성

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Antioxidant and Anticancer Activities of Date Plum (*Diospyros lotus*) Leaf Extracts

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실험목적

- 국내 자생 수목자원인 고욤나무로부터 천연 약리 및 기능성소재의 발굴
- 항산화 및 항암활성 *in vitro* 검정을 통한 생리활성능 확인

실험재료 및 방법

- 물질추출은 고욤나무의 잎과 성숙 과실을 동결건조 한 다음 마쇄하여 methanol 로 추출 하고, 감압농축한 후 분말화 하여 시료로 사용함
- 생리활성능 검정은 DPPH free radical 소거법에 의해 항산화 활성, 항산화 효소 활성 검정, 아질산염 소거작용, 그리고 인간 위암과 대장암 세포를 사용하여 항암효과를 조사 함
- 잎과 성숙과실에서 폴리페놀 및 플라보노이드 함량을 조사함

실험결과

Table 1. Cytotoxic effect on cell survival of *Diospyros lotus* L. on human cancer cell lines

Sample	IC ₅₀ ¹⁾ (µg/ml)	
	HCT-116 ²⁾	Calu-6 ³⁾
<i>Salicornia herbacea</i> L.	633.98	498.58
<i>Diospyros lotus</i> L.(Leaf)	430.65	597.50
<i>Diospyros lotus</i> L.(Fruit)	≥ 800	≥ 800

Each value was expressed as mean±standard deviation (n=3). Extract concentrations which inhibit 50% growth of the cells.

²⁾ Human colon carcinoma ³⁾ human pulmonary carcinoma

Table 2. DPPH radical-scavenging activity of ethanol eactracts from *Diospyros lotus* L. Their activities were compared with synthetic antioxidants, Vitamin C and BHT

con.(µg/ml)	DPPH radical scavenging activity (%)				
	<i>Salicornia herbacea</i> L.	<i>Diospyros lotus</i> L. (Leaf)	<i>Diospyros lotus</i> L. (Fruit)	BHT	Vit C
1000	45.7±2.1	93.2±3.2	91.2±5.9	91.6±6.1	97.1±3.9
500	35.9±1.9	91.4±4.8	88.0±6.2	92.0±5.4	95.2±5.2
250	22.6±2.2	92.1±3.9	72.9±6.3	87.4±4.9	96.9±7.3
125	20.1±1.7	90.8±5.3	57.2±5.2	74.6±6.4	96.2±3.6

Each value was expressed as mean±standard deviation (n=3).

Table 3. SOD activity from extract of *Diospyros lotus* L.

Sample	SOD activity (U/mg protein)
<i>Salicornia herbacea</i> L.	11.2±0.5
<i>Diospyros lotus</i> L.(Leaf)	20.5±0.4
<i>Diospyros lotus</i> L.(Fruit)	2.1±0.1

Each value was expressed as mean±standard deviation (n=3).

Table 4. APX activity from extract of *Diospyros lotus* L.

Sample	APX activity (U/mg protein/min)
<i>Salicornia herbacea</i> L.	3.9±0.4
<i>Diospyros lotus</i> L.(Leaf)	4.9±0.2
<i>Diospyros lotus</i> L.(Fruit)	3.7±0.2

Each value was expressed as mean±standard deviation (n=3).

Table 5. CTA activity from extract of *Diospyros lotus* L.

Sample	CTA activity (U/mg protein/min)
<i>Salicornia herbacea</i> L.	89.1±5.1
<i>Diospyros lotus</i> L.(Leaf)	105.8±4.7
<i>Diospyros lotus</i> L.(Fruit)	74.5±4.1

Each value was expressed as mean±standard deviation (n=3).

Table 6. Total phenolic contents from extract of *Diospyros lotus* L.

Sample	Total phenolic compounds (mg/g)
<i>Salicornia herbacea</i> L.	50.8±1.3 a*
<i>Diospyros lotus</i> L.(Leaf)	445.6±2.7 b
<i>Diospyros lotus</i> L.(Fruit)	112.1±2.8 c

* Means followed by the same letter within each column are not significantly different by LSD test at P < 0.05.

Table 7. Total flavonoid contents from extract of *Diospyros lotus* L.

Sample	Total flavonoid (mg/g)
<i>Salicornia herbacea</i> L.	28.6±1.6 a*
<i>Diospyros lotus</i> L.(Leaf)	260.9±2.2 b
<i>Diospyros lotus</i> L.(Fruit)	20.6±0.3 a

* Means followed by the same letter within each column are not significantly different by LSD test at P < 0.05.

Table 8. Nitrite scavenging ability(pH4.0) from extract of *Diospyros lotus* L.

Sample	Nitrite salt scavenging ability (%)
<i>Salicornia herbacea</i> L.	45.5±0.4 b*
<i>Diospyros lotus</i> L.(Leaf)	46.0±1.1 b
<i>Diospyros lotus</i> L.(Fruit)	49.5±2.0 b
Vitamin C	99.5±0.1 a

* Means followed by the same letter within each column are not significantly different by LSD test at P < 0.05.