

## 크라테구스 열매 추출물의 미백효능

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### Whitening Effects of *Crataegus pinnatifida bunge* Fruit Extracts

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The fruit of the *Crataegus pinnatifida bunge* has been known to have a role as a digestive stimulant, and is used for postpartum abdominal pain and women's menstrual pain. It is used for coronary artery disease, angina pectoris, hypertension and hyperlipidemia.

Ascorbic acid, hydroquinone, retinoids, alpha-hydroxy acids, kojic acid, azelaic acid have been used for cosmetic whitening and medical depigmentation. To determine whether *Crataegus pinnatifida bunge* fruit also has whitening and depigmentation effect, tyrosinase inhibition assay was performed with American *Crataegus pinnatifida Bunge* ethanol extracts, Korean *Crataegus pinnatifida Bunge* (Cra) ethanol extracts and Arbutin as a positive control as previously described by Korean FDA guideline. Korean Cra fruit ethanol extracts were 1.87 fold more inhibitory function to tyrosinase activity than American Cra in the experimental condition that inhibitory function to tyrosinase activity of Korean Cra Arbutin is 81.8% when compared to that of the standard control Arbutin as 100%.

These results suggest that ethanol extracts of *Crataegus pinnatifida bunge* have significant whitening effects and may provide the basis for development of cosmetic whitening agent and medical depigmentation applications.

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#### 미백 실험방법

- 1) 기질을 2mM로 제조한다.
- 2) 96 well plate에 시료 20 $\mu$ l 넣고 기질 70 $\mu$ l와 buffer 105 $\mu$ l를 넣는다.
- 3) 96 well plate에 효소 5 $\mu$ l를 넣는다.
- 4) 37°C에서 10분간 반응시킨다.
- 5) 490nm

시료: Arbutin 10mg/ml (in D.W)

기질: L-tyrosin 2mM (in D.W)

buffer: 0.1M Potassium phosphate

효소: tyrosinase (2500U/ml) [(총 g)/(총 units)/(2500U/ml)]

L-tyrosine 2mM 제조 과정

0.2mM tyrosine를 만들기 위해 2.9mg tyrosine에 용매(증류수)7.8ml를 넣었다.