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Quantificational analysis of tocopherol derivate in transgenic *Codonopsis lanceolate* Trautv with γ-tocopherol methyltransferase using Highperformance Liquid Chromatography

Division of Bioresources Technology, Kangwon National University, Chunchon 200-701
Dong Wook Lee*, Hyun Young Kil, Ji Mi Kim, Hee Young Kim, Chang Yeon Yu

Objectives

γ-tocopherol methyltransferase (γ-TMT) obtained from Arabidopsis, has been transferred into *Codonopsis lanceolate* Trautv by using *Agrobacterium* mediated transformation. γ-TMT t-DNA introduced to *Codonopsis lanceolate* by transformation and its reaction product in last step of tocopherol synthesis pathway, γ-tocopherol and its derivate was characterized using HPLC.

Materials and Methods

○ Plant material
- Transgenic *Codonopsis lanceolate with* with γ-tocopherol methyltransferase:
  Aerial part (contained leaves and stem)
  Subterral part (root)

○ HPLC analysis

o Sample were harvested, freeze-dried (200 g) and was extracted with n-haxane (150 mℓ×2, 24h)
o γ-tocopherol and its derivate was quantified through HPLC on a model LC-10A liquid chromatography (Shimadzu Co., Kyoto, Japan) by method described as above literature
o UV-detector : Model SPD-10AV(295nm)
o Mobile phsase : Mixture of n-hexane andiso-propanol(98:2)
o Stational phase : CLC-SIL(M) (4.6·250 nm, Shim-pack, Shimadzu) column
o flow rate : 1.0mℓ/min

Results and Discussion

Table. Tocopherol contents in aerial and subterranean of control and selected transgenic *Codonopsis lanceolata* with γ-TMT cDNA

Plant	Aerial			Subterranean		
	content(μg)/Ex. Hexane-DMSO(100μg)		α/γ-tocopherol ratio	content(μg)/Ex. Hexane-DMSO(100μg)		α/γ-tocopherol ratio
	α-toco	γ-toco		α-toco	γ-toco	
Control	1.012	0.956	1.0	1.100	2.215	0.5
Trans-genic	0.966	0.237	4.0	1.132	0.806	1.4