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## Biological activities of resveratrol-3-O- $\beta$ -D-glucoside in transgenic *Rehmannia glutinosa* L.

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### Objectives

We described that cDNA fragment RS3 (AF227963, *Arachis hypogaea*) transformed in medicinal plant *Rehmannia glutinosa* L using *Agrobacterium* (Lim et al., 2004b). By succession, the gene expression of resveratrol synthase identify and characterize its reaction product after transformation using HPLC. Also its antioxidative, antibacterial and AP-1 transactivation effects were tested, and concluded that could be useful as a phytoalexin for plant health, as well as a phytochemical for human health.

### Materials and Methods

#### Isolation and characterization of resveratrol-3-O- $\beta$ -D-glucoside

Chromatography <Stationary Mobile phase: Sephadex LH-20 column, Mobile phase : MeOH- H<sub>2</sub>O (7:13)> Recrystallization, 2D-TLC plates <BuOH-HOAc-H<sub>2</sub>O (3:1:1, v/v, solvent A) and 6% HOAc (solvent B)를 UV lamp (254, 365nm)>

Violet colouration : vanillin-HCl-ethanol (4.8g:12ml:480ml) reagent

#### Antioxidant activity assay

Inhibition of lipid peroxidation induced by Cu<sup>2+</sup> in fresh mouse LDL (low density lipoproteins) DPPH (1,1-diphenyl-2-picrylhydrazyl) free radical scavenging

#### Antimicrobial activity assay

Tolerance against plant disease and potency of antimicrobial activity in transgenic *R. glutinosa* producing stilbene compounds (resveratrol, resveratrol-3-O- $\beta$ -D-glucoside), a paper disk method

Strain: Two yeast (*Pichia jadinii*, KCTC 7293; *Candida albicans*, KCTC 7965); five bacteria (*Staphylococcus aureus*, KCTC 1916; *Bacillus subtilis*, KCTC 3728; *Klebsiella pneumoniae*, KCTC 2001; *Escherichia coli*, KCTC 1924; *Salmonella typhimurium*, KCTC 1925)

#### Inhibition by resveratrol-3-O- $\beta$ -D-glucoside of JB6 P+ Cell Transformation Induced by EGF

Resveratrol-3-O- $\beta$ -D-glucoside isolated from the leaf of transgenic plant in *R. glutinosa* L to examine their effects on AP-1 transactivation and subsequent cell transformation in mouse epidermal JB6 cells

### Results and Discussions

These results demonstrate that the resveratrol-3-O- $\beta$ -D-glucoside to be required for EGF-induced AP-1 transactivation and cell transformation at high concentration.