

차자로부터 분리된 화합물들의 신경세포보호 작용  
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### Neuroprotective effects of isolated compounds from *Gardeniae Fructus*

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#### Objective

A variety of human neurodegenerative disorders and symptoms has been associated with damage to essential biochemical structures of the cells of the nervous systems. The prevention of neuronal cell death appears to be a desirable therapeutic strategy for treating such diseases. In this study, we aimed to isolate the neuroprotective constituents from *Gardeniae Fructus* guided by the assay of neuroprotection on PC12 cells apoptosis induced by hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>).

#### Materials and Methods

##### ○ Materials

*Gardeniae Fructus* (*Gardenia jasminoides*) was purchased in Aug. 2006 in Daejeon, Korea. The rat pheochromocytoma (PC12) cell line was used for neuroprotective effect assay.

##### ○ Methods

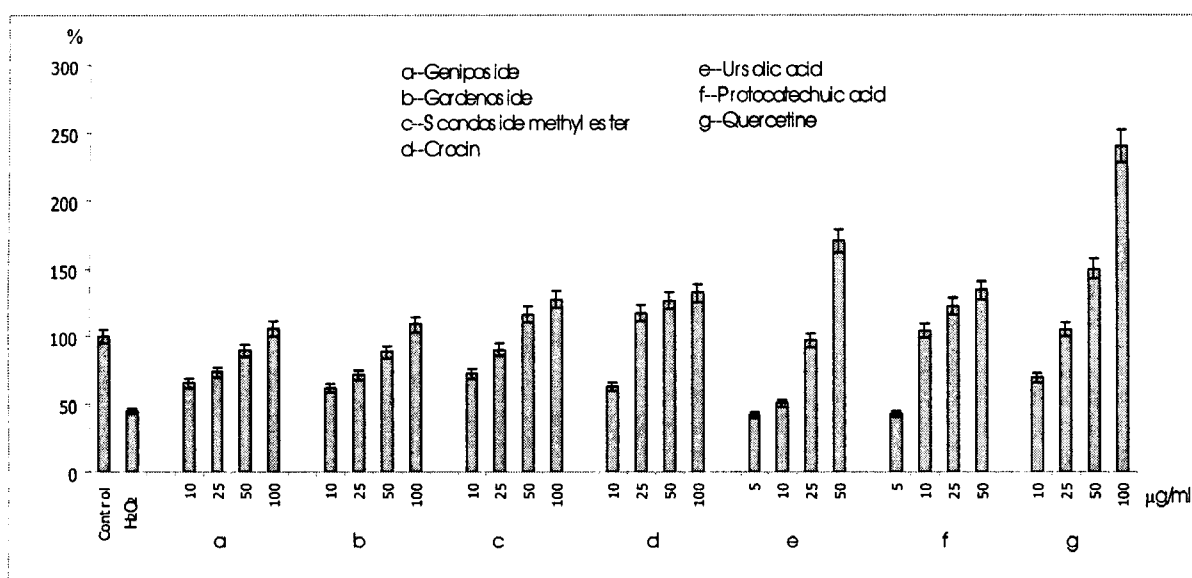
The fruits of *Gardenia jasminoides* (4.5 kg) were sliced and extracted with hot MeOH, and partitioned to hexane-EtOAc-, and BuOH-soluble fractions. BuOH-soluble fraction, which showed good protective effects on PC12 cells apoptosis induced by H<sub>2</sub>O<sub>2</sub>, was further separated by chromatographic methods. Isolates were identified by physicochemical methods and tested for their neuroprotective effect by MTT assay.

#### Results

Butanol fraction of the *Gardeniae Fructus* showed 104% of protective effect at 100 µg/ml related to control group on PC12 cells apoptosis induced by H<sub>2</sub>O<sub>2</sub>. Till now, bioassay-guided fractionation of butanol-soluble fraction of *Gardenia jasminoides* led to the isolation of geniposide, gardenoside, scandoside methyl ester, crocin, protocatechuic acid, and ursolic acid (Fig 1). All isolated compounds were test for their protective effects on PC12 cells apoptosis induced by H<sub>2</sub>O<sub>2</sub>. Compared with H<sub>2</sub>O<sub>2</sub> treated group which have induced 55% of cell death, geniposide, gardenoside, scandoside methyl ester, and crocin showed around 66~106%, 62~109%, 73~128%, and 63~132% of survival rate in 10~100 µg/ml, respectively. Furthermore, ursolic acid and protocatechuic acid showed around 51~171% and 42~170% of survival rate in 5~50 µg/ml, respectively (Fig. 2).

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**Fig. 1.** The isolated compounds from *Gardenia jasminoides*



**Fig. 2.** Protective effects of isolated compounds on PC12 cells apoptosis induced by H<sub>2</sub>O<sub>2</sub>.

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