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**Protective Effects of Liliaceae Root Extracts on Amyloid  $\beta$ -protein-Induced Cell Death in PC12 cells**

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The amyloid  $\beta$ -protein (A $\beta$ ) is the principal component of the senile plaques characteristic of Alzheimer's disease (AD) and elicits a toxic effect on neurons in vitro and in vivo. Many environmental factors including antioxidants and proteoglycans modify Ab toxicity. In this study, we have investigated the effects of Liliaceae root extracts on A $\beta$ 25-35-induced oxidative cell death in cultured rat pheochromocytoma (PC12) cells. PC12 cells treated with A $\beta$ 25-35 exhibited increased lipid peroxidation and accumulation of reactive oxygen species. A $\beta$ 25-35 treatment also led to the induced DNA fragmentation and the proteolytic cleavages of  $\beta$ -catenin and PARP. Among the Liliaceae roots, organic solvent extracts of *Polygonatum falcatum*, *Liriope platyphylla*, and *Hemerocallis fulva* attenuated A $\beta$ 25-35-induced cytotoxicity, apoptotic features, and intracellular accumulation of reactive oxygen species. Especially chloroform extracts of *Hemerocallis fulva* was the most effective in protecting PC12 cells from the A $\beta$ 25-35-induced oxidative cell death. These results suggest that extracts of Liliaceae root may contain the protective component(s) against A $\beta$ 25-35-induced oxidative cell death in PC12 cells. [Supported by a grant from ARPC203050-03-I-CG000]

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