

Title Changes in protecting effect of green tea on A β -induced neurotoxicity during storage
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Abstract

Amyloid β protein (A β) is known to increase oxidative stress in nerve cells, leading to apoptosis that is characterized by free radical formation and lipid peroxidation. The neurodegenerative diseases such as Alzheimer's disease (AD) are characterized by large deposits of A β in the brain. In our study, neuronal protective effects of green tea along with water investigated against A β -induced cytotoxicity in neuron-like PC12 cells. Powdered green tea was extracted with 70°C distilled water for 5 min, and this hot water extract was freeze dried and stored at -20°C until use. In cell viability assay using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT), the extract of fresh and 1 week storage showed more protective effect on A β -induced neurotoxicity. Since oxidative stress causes membrane breakdown, the protective effect of green tea extracts was investigated by lactate dehydrogenase (LDH) and trypan blue exclusion assays. LDH release into medium was inhibited by all samples (20-25%). In addition, all extracts of green tea (fresh-4 weeks) also showed more efficient cell protective effects (93.3 \pm 1.8~95.2 \pm 2.4) than vitamin C (91.0 \pm 1.6) as positive control. From the present study, the results suggested that the more store the less effective.