

Neuroprotective Effect of Germinated Dolichos lablab on 6-Hydroxy Dopamine (6-OHDA) Induced Toxicity in SH-SY5Y Neuroblastoma Cell

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Abstract : Natural and artificial toxic substances namely neurotoxins induce the bitter effect in the nervous system termed as neurotoxicity. It can modulate the normal functioning of the nervous system either hyperactivate it or damage homeostasis of neuronal system. Neurotoxins induced toxicity ultimately kills the neuron. The present study investigated the neuroprotective effects of germinated Dolichos lablab on 6-hydroxydopamine (6-OHDA)-induced neurotoxicity using SH-SY5Y neuroblastoma cells. Germination is a process of plant growth from a seed. Sprouting of a seedling from a seed induced many molecular changes in the seed in order to prepare it for further growth. Because of these molecular and chemical changes, the neuroprotective effect of Dolichos lablab is higher in the germinated form than in the normal condition. SH-SY5Y cells were treated with Dolichos lablab extract (50, 100 μ g/ml) followed by 6-OHDA (25 μ M) induced toxicity. Cell Viability was measured to check the cell survival against 6-OHDA induced toxicity using MTT assay. Dolichos lablab showed a neuroprotective effect against 6-OHDA induced neuronal cell death in neuroblastoma cell at a higher concentration of 100 μ g/ml however the effect is much better even at the lower concentration after germination 50 μ g/ml. Cell survival was increased dramatically after 15 h of germination and increased with time of germination in concentration dependent manner. Trigonelline as a representative compound was validated in germinated Dolichos lablab by HPLC analysis that might enhance the neuroprotective effect of Dolichos lablab. This result suggests that Dolichos lablab possess neuroprotective effect in neuroblastoma cells against 6-OHDA however its activity was more potent in the germinated form.

Keywords : dolichos lablab, germination, neuroprotection, trigonelline

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