

Aloysia gratissima (Gill. Et Hook) Tronc.- a native plant of Brazil promotes neuroprotection against glutamate toxicity in Hippocampal Slices

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Aloysia gratissima (Gill. Et Hook) Tronc. (Verbenaceae) is a perennial plant used as herbal medicine in South America including in Brazil. The aerial parts of *Aloysia gratissima* have numerous traditional medicinal usages. It has been used to alleviate symptoms associated with indigestion, rheumatism, influenza and it is also used for headache, bronchitis and nervous system disorders. In view of its wide array of biological effects, aqueous extract of this plant was tested for its putative cytoprotective effect. Hippocampal slices exposed to *Aloysia* (0.0001; 0.001; 0.01; 0.05; 0.1; 0.5 and 1 mg of extract/ml) for 1 h did not show any alteration in cell viability as measured by 3-(4,5-Dimethylthiazol-2-yl)-diphenyltetrazolium bromide (MTT) reduction and Lactate dehydrogenase (LDH) leakage (n=3; p<0.05). The neuroprotective effect of *Aloysia* (aqueous extract in the doses 0.1; 0.5 and 1 mg/ml) was tested against a glutamate insult (10 μ M for 1h and evaluated after 6h) to hippocampal slices. Pre-treatment with *A. gratissima* (0.1 mg/ml for 30 min) significantly attenuated the glutamate excitotoxicity (n=3; p<0.05). This study suggests *Aloysia gratissima*, a plant used as a folk medicine has a potential to be a neuroprotective agent against neurodegenerative disorders.

Keywords: *Aloysia gratissima*, hippocampal slices, glutamate excitotoxicity.