

ABSTRACT

Neurodegeneration disease is a condition of progressive loss of neuron and function that lead to poor life quality. Macro mushroom *Lignosus rhinocerus* is a natural medicine and home remedies that has been used to treat variety of diseases. The aim of this study are to observe neurite outgrowth and investigate the neuroprotection properties of *Lignosus rhinocerus*. In this study, the average result showed that enhanced neurite outgrowth stimulation of 125% under 160 µg/ml ethanol alone. This mushroom also has neuroprotection properties according to pretreatment and concurrent treatment by protecting more than 40% of cell population from cell death. Neurite outgrowth was measured by using phase contrast microscope, while neuroprotection assay is using MTT. This is the first study on neurite outgrowth and neuroprotection with by using *Lignosus rhinocerus* extracts as an effort to find a better treatment for neurodegenerative disease.

Keywords: *Lignosus rhinocerus*, neurite outgrowth, neuroprotection.