

Acute toxicity profiling of the ethyl acetate fraction of *Swietenia macrophylla* seeds and in-vitro neuroprotection studies

ABSTRACT

Swietenia macrophylla (SM) is a medicinally important plant found in tropical and subtropical regions of the world. The ethyl acetate fraction of the seeds of *S. macrophylla* (SMEAF) is reported to exhibit potent anticancer, antitumor, anti-inflammatory and antifeedant activities. Till date, there have been no studies reported on the acute oral toxicity profile of the ethyl acetate fraction of the seeds of SM. The objective of the present study was to determine the acute toxicity of SMEAF and evaluate the in-vitro neuroprotective activity of SMEAF using primary neuronal cell cultures. In acute oral toxicity study, the SMEAF did not produce any lethal signs of morbidity and mortality. Histo-pathological findings, support the safety of SMEAF, as there were no significant changes observed in any of the parameters studied. Based on the results obtained in MTT assay, we infer that SMEAF has a significant neuroprotective effect, as it increased the cell viability and exhibited protection to the neuronal cells against TBHP induced oxidative stress. Thus, SMEAF can be suggested for use in the development of herbal drug formulations with neuroprotective potential.

Keyword: *Swietenia macrophylla*; Ethyl acetate extract; Neuroprotection; Oxidative stress; Acute oral toxicity