Drug Discovery and Development: Anticonvulsant and in vitro antioxidant activities of *Momordica cissoides L*. (Cucurbitaceae)

ABSTRACT

Drug discovery involves the use of high throughput screening techniques to identify new compounds, both synthetic and natural, as novel drugs. Unfortunately, this approach has yielded very few successes in the field of anticonvulsant drug discovery. The present study investigated the anticonvulsant effect of an herbal medicine candidate *Momordica cissoides,* by using two animal models of epilepsy; Pilocarpine-induced status epilepticus (SE) and seizures and the 4-aminopyridine-induced (4-AMP) seizures methods using albinos mice. Four doses (425, 212.5, 106.25 and 42.5 mg/kg) of the plant extract were prepared and administered to four groups of mice respectively. for each group test M. cissoides protected 100% of mice at the doses 106.25 and 212.5 mg/kg and 80% at the doses of 42.5 and 425 mg/kg against generalized convulsions induced by pilocarpine (PILO) and 100% at the doses 106.25 and 212.5 mg/kg against tonic and clonic convulsions induced by 4-aminopyridine (4-AMP). Moreover, for the test of induction of convulsions by PILO, M. cissoides protected 100% of mice at doses 106.25 and 212.5 mg/kg and 80% at the doses of 42.5 and 425 mg/kg against death after 1 h and 24 h respectively. In addition, study evaluated the free radical scavenging of the decoction extracts of M. cissoides leaf in vitro. The antioxidant activity of M. cissoides were evaluated using the free radical scavenging activity assay (DPPH), total phenolic (TPC) and total flavonoids content (TFC) and ferric reducing antioxidant potential. Attained results show that the extract of M. cissoides leaf can be used in SE, generalized seizure, tonic and clonic seizures treatment. Moreover, the antiepileptic effect of this extract is probably caused by its antioxidant properties.