

ABSTRACT

Neurological disorders have become an alarming challenge to the global health concerns. Harmful effects of synthetic drugs have diverted the focus of world's scientific research to herbal medicines. Current study aimed to determine the phytochemicals and antioxidant activity of *Adiantum pedatum* as well as to investigate the neuropharmacological potential ethanolic extract of *Adiantum pedatum*. The phytochemical and antioxidant tests on *Adiantum pedatum* revealed remarkable results. The results indicated that the maximum phytochemicals were present in both chloroform and ethanol extract. However, amino acids were absent in all extracts. The highest DPPH % scavenging was observed in n-hexane extract i-e 68.54 ± 0.31 at $250 \mu\text{L}$ concentration while the lowest DPPH % scavenging was observed in ethanol extract i-e 20.75 ± 0.17 at $50 \mu\text{L}$ concentration. The highest total phenolic content was observed in aqueous extract i-e 52.72 ± 0.11 while the lowest TPC value was observed in ethanol extract i-e 20.66 ± 0.09 . To determine neuropharmacological potential, four groups of 20 Swiss albino male mice were selected and labelled as control, standard (caffeine 10 mg/kg), low dose (200 mg/kg) and high dose (400 mg/kg) treatment groups. Neuropharmacological activities of plant extract were evaluated by performing open field, rearing, cage cross, head dip, traction and forced swimming test. One-way ANOVA was used to analyze the results of these tests. Results suggested that ethanolic extracts of *Adiantum pedatum* possess anxiolytic and CNS stimulant effect as an increased locomotor activity was observed during tests and also suggested the possible use of *Adiantum pedatum* in drug industry. However, further studies are required to gain the knowledge about the mechanism of action, efficacy of plant and its therapeutic application.