International Journal of PharmTech Research
CODEN (USA): IJPRIF, ISSN: 0974-4304, ISSN(Online): 2455-9563
Vol.13, No.02, pp 110-122, 2020

Evaluation of Neuroprotective and In-vitro Anti-oxidant Activity Isolated Hexane and Ethyl Acetate Fraction from Methanolic Extract of *Biophytum reinwardtii*

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Abstract : Nature is the best source of complementary and alternative medicine. The plant *Biophytum reinwardtii* has been used traditionally in pain, inflammatory and oxidative stress related disorders. In this consequence, fraction of methanolic extract of *Biophytum reinwardtii* was selected to explore the ability of this plant to enhance cognitive function, brain antioxidant enzymes and anti-acetyl cholinesterase activity which can be used for the treatment of oxidative stress related disorders like Alzheimer's disease (AD). The purpose of this study was to investigate the neuroprotective effect of HEMBR on learning and memory impairment in scopolamine-induced rats of dementia and oxidative stress. Treatment with HEMBR (i.e., 50 and 100 mg/kg b.w.) was investigated in scopolamine-treated Swiss albino male rats for 7 days and its neuroprotective effects were examined using Elevated Plus Maze (EPM) test, Passive Avoidance (PA) test and, Morris Water Maze (MWM) test as well as level of antioxidant enzymes such as catalase (CAT), reduced glutathione (GSH) and acetylcholinesterase (AChE) activity in rat brain tissue homogenates. The present study demonstrates that HEMBR showed the neuroprotective effect by improving cognitive functions and reduces oxidative stress by increasing the level of brain antioxidant enzymes as well as decreasing acetylcholinesterase activity. Therefore, this plant extract faction can be used for enhancing learning, memory, antioxidant potentiality and anti-acetylcholinesterase activity in neurodegenerative disorders like AD.

Keywords : Dementia, Scopalamine, Cholinesterase, memory, HEMBR.

DOI= http://dx.doi.org/10.20902/IJPTR.2019.130214

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