ANTI-AMNESIC EFFECTS OF BLUEBERRY LEAF EXTRACTS ONamyloid β PROTEIN-INDUCED ALZHEIMER’S DISEASE MODEL

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Anti-amnesic effects on amyloid β protein induced learning and memory impairment model were investigated to elucidate neuronal protective effects of blueberry (Vaccinium corymbosum L.) leaf. The EtOAc fractions from blueberry leaf extracts showed relatively higher total phenolics and in vitro antioxidant effects than other fractions. Intracellular ROS accumulation from Aβ treatment of PC12 cells was significantly reduced when the EtOAc fractions were present in the media compared to PC12 cells treated with Aβ only. In a cell viability assay using (3-(4,5-dimethythiazol-2-yl))-2,5-diphenyl-tetrazolium-bromide (MTT), the EtOAc fractions showed cellular protection against Aβ-induced neurotoxicity, and lactate dehydrogenase (LDH) release into the medium was also inhibited. High performance liquid chromatography (HPLC) analysis showed that chlorogenic acid was the predominant phenolic compound in the EtOAc fractions. In addition, in vivo anti-amnesic effects were evaluated by using in vivo Y-maze and passive avoidance tests. After behavioral testing, mice were sacrificed, and acetylcholinesterase (AChE) was extracted to check the inhibitory effects. The results showed that EtOAc fractions from blueberry leaf administration attenuated Aβ-induced learning and memory injury, AChE activity and malondialdehyde (MDA) production.