



ENDOCANNABINOID SYSTEM: A NOVEL DRUG TARGET FOR PARKINSON'S AND ALZHEIMER'S DISEASE

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Neurodegeneration leading to Parkinson's Disease (PD) and Alzheimer's Disease (AD) has become a major health burden globally. Current treatments target controlling symptoms but no therapeutics are available to arrest the neurodegeneration or repair the degenerated neurons. Thus, the demand for novel research on the two disorders is imperative. This literature study aims to identify the research scope of current therapeutics and the use of endocannabinoid system (ECS) as a potential drug target for PD and AD within the country and globally through published literature. A wide literature survey was conducted using the key-terms "Parkinson's", "Alzheimer's", "endocannabinoid", "THC", "CBD", and "Sri Lanka" with Boolean "AND" on the Google Scholar search engine and NCBI database. PD characterised by progressive death of dopaminergic neurons and intracellular accumulation of Lewy bodies enriched in α -synuclein leading to motor-symptoms frequently treated with L-DOPA and deep brain stimulation. Recent gene modification and remodelling techniques such as CRISPR through human embryonic stem cells and induced pluripotent stem cells have shown to be a promising strategy for personalised medicine. AD characterised by extracellular deposits of amyloid β -senile plaques and neurofibrillary tangles of tau protein commonly uses choline acetyltransferase enhancers as therapeutics. The ECS is currently being studied as PD and AD drug targets where overexpression of ECS receptors exerted neuroprotection against PD and reduced neuroinflammation in AD on a global-scale. No published data of ECS based research for PD and AD were identified within the country. The THC and CBD cannabinoids of plant *Cannabis sativa*, has shown neuroprotection for PD and AD animal models, yet triggered toxic effects on patients when administered directly, therefore, understanding the precise molecular cascade following cannabinoid treatment is suggested focusing especially on gene expression to identify drug targets for preventing and repairing neurodegeneration.

Keywords: Parkinson's disease, Alzheimer's disease, Endocannabinoid, THC, CBD

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