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# In vitro and in vivo Assessment of Cholinesterase Inhibitory Activity of the Bark Extracts of Pterocarpus santalinus L. for the Treatment of Alzheimer's Disease

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**Abstract :** Alzheimer’s disease (AD) (a progressive neurodegenerative disorder) is mostly predominant cause of dementia in the elderly. Prolonging the function of acetylcholine by inhibiting both acetylcholinesterase and butyrylcholinesterase is most effective treatment therapy of AD. Traditionally Pterocarpus santalinus L. is widely known for its medicinal use. In this study, in vitro acetylcholinesterase inhibitory activity was investigated and methanolic extract of the plant showed significant activity. To confirm this activity (in vivo), learning and memory enhancing effects were tested in mice. For the test, memory impairment was induced by scopolamine (cholinergic muscarinic receptor antagonist). Anti-amnesic effect of the extract was investigated by the passive avoidance task in mice. The study also includes brain acetylcholinesterase activity. Results proved that scopolamine induced cognitive dysfunction was significantly decreased by administration of the extract solution, in the passive avoidance task and inhibited brain acetylcholinesterase activity. These results suggest that bark extract of Pterocarpus santalinus can be better option for further studies on AD via their acetylcholinesterase inhibitory actions.

**Keywords :** Pterocarpus santalinus, cholinesterase inhibitor, passive avoidance, Alzheimer's disease
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