

Memory enhancing activity of methanolic extract of *Pterocarpus marsupium* Roxb.

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Abstract

The present study was undertaken to investigate the effects of methanolic extract of *Pterocarpus marsupium* Roxb. on learning and memory in albino mice. Two doses of methanolic extract of *P. marsupium* (25 and 50 mg/kg p.o.) were administered for neurotoxicity test. The mice administered with 25 mg/kg of the extract could significantly maintain the equilibrium on the rotating rod. Elevated plus-maze and Morris water maze test were employed to test learning and memory in mice. Administration of *P. marsupium* significantly ameliorated scopolamine induced amnesia in elevated plus maze test as indicated by increase in inflexion ratio and reduction in transfer latency. In the Morris water maze test, *P. marsupium* improved the impairment of spatial memory induced by scopolamine as indicated by the formation of reference and working memories. Since scopolamine-induced amnesia was reversed by *P. marsupium*, it is possible that the beneficial effects on learning and memory were due to facilitation of cholinergic-transmission in mouse brain. However, further studies are required to identify the exact mechanism of action. In the present investigation, *P. marsupium* has shown promise as a memory enhancing agent in all the laboratory models employed.

Keywords: *Pterocarpus marsupium*; Memory; Elevated plus maze; Morris water maze; Scopolamine; Piracetam

Introduction

Dementia is a mental disorder characterized by loss of intellectual ability sufficiently severe as to interfere with one's occupational or social activities and it invariably involves impairment of memory. The most common cause of dementia is a progressive neurodegenerative disorder associated with loss of neurons in distinct brain areas. The central cholinergic pathways play a prominent role in learning and memory processes (Nabeshima, 1993). Centrally acting anti-muscarinic drugs (e.g. scopolamine) impair learning and memory both in animals (Higashida and Ogawa, 1987) and human beings (Sitaram *et al.*, 1978). The noot-