EVALUATION OF NEUROPROTECTIVE AND COGNITION IMPROVING POTENTIALS OF OCIMUM TENUIFLORUM IN MICE

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Introduction: Dementia is one of the age-related mental problems, and a characteristic symptom of Alzheimer’s disease. Nootropic agents and cholinesterase inhibitors like donepezil® are clinically used in situations where there is organic disorder in learning abilities and for improving memory, mood and behavior, but the resulting side-effects associated with these agents have made their utility limited. Ayurveda emphasizes use of herbs, nutraceuticals or life-style changes for controlling age related neurodegenerative disorders.

Objective: The present study was undertaken to assess the potential of an ayurvedic rasayana (rejuvenator) drug Ocimum tenuiflorum Linn. as a memory enhancer.

Methods: Elevated plus maze and passive avoidance paradigm were employed to evaluate learning and memory parameters. Freeze dried extracts of O. tenuiflorum Linn (15 and 30 mg/kg, p.o.) were administered for 8 successive days to both young and aged mice.

Results: The dose of 30 mg/kg of O. tenuiflorum extract significantly improved learning and memory in young mice and also reversed the amnesia induced by diazepam (1 mg/kg, i.p.), and scopolamine (0.4 mg/kg, i.p.). Furthermore, it also reversed aging induced amnesia due to natural aging of mice. O. tenuiflorum significantly increased whole brain acetyl cholinesterase inhibition activity.

Conclusion: Hence, O. tenuiflorum might prove to be a useful memory restorative agent in the treatment of dementia seen in the elderly. The underlying mechanism of its action may be attributed to its antioxidant and acetyl cholinesterase inhibition property.