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RESEARCH ARTICLE

Musk melon in the role of a memory melon

MILIND PARLE AND KULWANT SINGH

ABSTRACT

The seed kernels (commonly known as Magaj) of *Cucumis melo* (Musk melon) are edible and nutritive in nature. The present study was undertaken to explore the anti-Alzheimer effect of CMS (*Cucumis melo* seed) kernels powder, when admixed in diet of mice. A total of 318 mice divided in 53 groups were employed in this study. The brain acetylcholinesterase activity, blood cholesterol and blood glucose levels were also estimated in the present study. The administration of CMS for 14 consecutive days significantly protected the animals from developing memory deficits due to diazepam and scopolamine. In the present study, the seed kernels exhibited memory improving effect as indicated by decreased transfer latency, increased TSTQ, decreased escape latency time, increased discrimination index and increased step down latency. The CMS administration also significantly decreased the acetyl cholinesterase activity indicating its pro-cholinergic effect. The CMS administration significantly decreased the total blood cholesterol level and blood glucose levels in the present study. Thus, CMS may prove to be a useful remedy for the management of Alzheimer's disease owing to its seven-fold mechanism (i) the flavonoids present in muskmelon possess powerful antioxidant property (ii) linoleic acid and arachidonic acid present in muskmelon seeds are responsible for growth and regeneration of cholinergic neurons (iii) phosphatidylethanolamine and phosphatidylcholine present in musk melon seeds serve as the precursors for the synthesis of acetylcholine (iv) α-linoleic acid abundantly present in the seed kernel stimulates the release of neuroprotectin D_1, which performs a neuro-protective role (v) the inhibition of acetyl cholinesterase enzyme by musk melon seeds (vi) lowering of blood cholesterol and (vii) finally, anti-hyperglycemic effect of muskmelon seeds help in the prevention of brain damage due to excessive glucose.

Key words : *Cucumis melo*, Dementia, Magaj

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INTRODUCTION

Alzheimer's disease (AD), a neurodegenerative disorder characterized by progressive memory loss and cognitive deterioration, has become a major health problem (Xu *et al.*, 2011). Despite the fact that more than 35 million people are suffering from AD worldwide, there are only few treatment options available (Xu *et al.*, 2011). Nootropic agents such as piracetam and acetyl choline-esterase inhibitors like donepezil are being primarily used to improve memory, mood and behaviour. Considering the adverse effects of allopathic drugs, continuous search for safe natural remedies is need of the hour. Therefore, natural products may provide a new source of beneficial neuropsychotropic drugs. According to Ayurveda, Alzheimer's disease is an imbalance of vata, pitta and kapha (Joshi and Parle, 2006). *Cucumis melo* (Kharbooja) has been shown to possess useful medicinal properties (Parle and Singh, 2011) such as analgesic, anti-inflammatory, anti-oxidant, anti-ulcer, anti-cancer, anti-microbial, and immunomodulatory activity. The seed kernels of *Cucumis melo* (Musk melon) are edible and nutritive in nature. Furthermore, no scientific reports are available on the usefulness of musk melon in the management of dementia till date. Therefore, the present study was undertaken to explore the memory enhancing potential of musk melon seed kernels.

MEMBERS OF THE RESEARCH FORUM

Address for correspondence :
MILIND PARLE, Department of Pharm. Sciences, Pharmacology Division, Guru Jambheshwar University of Science and Technology, HISAR (HARYANA) INDIA
E-mail : mparle@rediffmail.com

Coopted auhors :
KULWANT SINGH, Department of Pharm. Sciences, Pharmacology Division, Guru Jambheshwar University of Science and Technology, HISAR (HARYANA) INDIA

MATERIALS AND METHODS

Plant material:

The seed kernels (magaj) of *Cucumis melo* (Kharbooja)