

## Eat *Momordica charantia* to Get Rid of Dementia

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### ABSTRACT

*Momordica charantia* commonly known as bitter gourd in English and Karela in Hindi is widely used as a vegetable throughout the World. The present study was undertaken to investigate the effects of *Momordica charantia* fruit (MCF) on memory, total cholesterol levels, glucose levels and brain cholinesterase activity in mice. A total of 336 mice divided in 56 different groups were employed in the present investigation. Different groups of young and aged mice were fed orally with a specially prepared diet containing various concentrations of *Momordica charantia* (5, 10, 20% w/w) for 30 days consecutively. The memory of these animals was measured using various exteroceptive and interoceptive behavioral models. MCF produced a dose-dependent improvement in memory scores of young and aged mice. MCF also reversed successfully the amnesia induced by scopolamine and diazepam. Interestingly, brain cholinesterase activity, blood glucose and total cholesterol levels were reduced by MCF administered in daily diets. The underlying mechanism of action for the observed memory-enhancing effect of MCF may be attributed to its acetyl cholinesterase inhibitory activity, hypoglycemic activity and/or cholesterol lowering property. Thus eating of bitter gourd on regular basis through daily diets would help in protecting us from developing dementia.

### Key words :

*Momordica charantia*,  
Amnesia,  
Memory,  
Hypoglycemia.

**M***omordica charantia* (Family: Cucurbitaceae), commonly known as bitter gourd in English and 'Karela' in Hindi is cultivated throughout the world as a vegetable for its nutritional and medicinal value. *Momordica charantia* fruit (MCF) has been used as a traditional anti diabetic remedy in developing countries like Brazil, China, Colombia, Cuba, Ghana, India, Mexico, New Zealand, Nicaragua and Peru. Ayurvedic literature as well as recent studies highlight multifarious biological activities of *Momordica charantia*. MCF has been shown to possess useful anti diabetic activity, anticancer activity, anti-ulcer activity, antimalarial activity and immunomodulatory activity (Parle and Kadian, 2007). Alzheimer's disease (AD) is said to be the leading cause of dementia in elderly individuals. Alzheimer patients exhibit deterioration in mental functions rendering them incapacitated to perform normal daily activities. Since, there is no satisfactory cure in allopathic system of medicine for Alzheimer's disease, it is worthwhile to explore the benefits of nutrients in the prevention of dementia. The development of Alzheimer disease appears to be positively linked to high cholesterol and high glucose levels in the body. There are around 30 millions Alzheimer patients all over the world. Since, no study has been carried out to the best of our

knowledge exploring the potential of MCF as a memory enhancer, present project was undertaken.

### Objective:

The present project was undertaken to explore the potential of *Momordica charantia* fruit in preventing dementia. Furthermore, the effects of MCF on serum cholesterol levels, blood glucose levels and brain acetylcholinesterase activity were studied in mice.

### MATERIALS AND METHODS

#### Plant material:

The fresh fruits of *Momordica charantia* were purchased during the months of October, 2005 from local market of Hisar, Haryana (India). The plant material was taxonomically identified and compared with the internal standard specimen. The fruits of *Momordica charantia* were ground into a fine paste using an electric grinder. Different concentrations of MCF (5, 10, 20% w/w) were fed to separate groups of mice through a specially prepared diet. This special diet comprised of a mixture of *Momordica charantia* fruit paste, wheat flour kneaded with water, a small amount of refined vegetable oil and a pinch of salt (sodium

Accepted :  
January, 2009