



## MEDICINAL HERBS AS NOOTROPICS-A REVIEW

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### ABSTRACT

Nootropics are “smart drugs” that improve mental functions such as memory, intelligence, motivation, attention, concentration. Cognitive enhancement may be defined as the amplification core capacity of the brain through improving the information process systems. Memory disabilities are a spectrum of disorders like Alzheimer's disease, Corticobasal Degeneration Creutzfeldt-Jakob Disease, Front temporal Dementia, Huntington's disease, Levy Body Dementia, Mild Cognitive Impairment, Progressive Supra nuclear, Palsy, Vascular Dementia etc., and affecting people from years ago. Traditional system of herbal medicinal plants has been used to improve memory and cognitive function and to treat neurodegenerative diseases. This review will help to get an idea about the natural plants that have been tested for their nootropic potential.

**Key words:** Nootropics, Smart drugs, Memory, Intelligence, Phytomedicine.

### INTRODUCTION

Memory is the ability of the brain to store, retain and subsequently recall information. Memories naturally degrade with the passing of time. Although the information is initially registered and stored, after a couple of days, weeks, or even years, it is simply erased from storage. The decline of memory function is due to normal aging or due to specific medical conditions, greatly affects one's day-to-day life. Memory improvement can be done by using nootropics. Nootropics are referred to as smart drugs, memory enhancers, and cognitive enhancers, are drugs, supplements, nutraceuticals, and functional foods that are purported to improve mental functions such as cognition, memory, intelligence motivation, attention, and concentration[9].

### Mechanism of Action of Nootropics

Increasing circulation to the brain.  
Improving neuronal function.  
Preventing oxidative neuronal damage.  
Providing energy sources to the brain [4].

### Types of Nootropics

#### A) Natural nootropics

They are naturally made from vitamins, natural herbs and minerals which include ingredients like Vitamin B6, Alpha GPC, Bacopa, Vinocetine, Huperzia, Serrata, Amino acids, L-Theanine and L-Tyrosine.

#### B) synthetic/Chemical nootropics

Produced by combination substances, that has been scientifically synthesized in the laboratory. Examples include Recetams, Modafinil[10].

### NOOTROPIC FOODS & DRUGS

#### 1) Walnuts:



Walnuts, like most nuts, are high in a number of neuroprotective compounds such as vitamin E, melatonin, several polyphenols as well as a significant amount of  $\alpha$ -linolenic (the omega -3 fattyacid found in plants). Walnuts are high in antioxidants, which helps to reduce free radicals in the brain and also associated with improved cognition and memory [5].

#### 2) Ginger:



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Ginger is the dried rhizome of *Zingiber officinale* belonging to the family zingiberaceae. Ginger is the only source of a unique group of polyphenols called gingerols. Which are strong antioxidants, and so can offer the brain protection against oxidative stress and gingerols which give nootropic effects [6].

### 3) Ashwagandha:



Ashwagandha or *Withania somnifera* is also known as Indian ginseng although it belongs in the Solanaceae family. As a tonic, it is used to combat stress, reduce anxiety and cognition. Other benefits of this root extract include improving memory [12].

### 4) Rhodiola (rose root):



Rhodiola (*Rhodiola rosea*) also known as King's crown belonging to the family Crassulaceae grows in cold regions of the world. It helps to improve mood and relieve depression. This effect on mood is due to rhodiola's ability to increase the levels of dopamine and serotonin in the brain.

### 5) Lions mane (mushroom):



Lions Mane is the name of an edible mushroom *Hericium erinaceus* belonging to the family Hericiaceae. Mushroom improved cognition, and increases the secretions of nerve growth factors. Nerve growth factor is a protein that contributes to the longevity of the brain health because it is vital for growth and maintenance of neurons in the brain [11].

### 6) Thyme (garden thyme):



Thyme is an herb obtained from the *Thymus vulgaris* belonging to the family Lamiaceae. Thyme is great for supporting brain health. The volatile oil in this herb is beneficial for the brain because they protect against age-

related cognitive decline. They also improve learning and memory [7, 8].

### 7) Oregano (mountain mint):



Oregano is the herb of *Origanum vulgare* belonging to the family Lamiaceae. Oregano leaves can help enhance mental well-being and regulate mood and also help to decrease anxiety and improve learning and concentration.

### 8) Black pepper:



Black pepper is a flowering vine of *Piper nigrum* belonging to the family Piperaceae. It contains a pungent compound called piperine that increases beta-endorphins in the brain and boosts cognitive function.

### 9) Wheat grass:



Wheat grass is a food prepared from the cotyledons of the common wheat plant of *Triticum aestivum* belonging to the family Poaceae. Wheatgrass is full of valuable nutrients which increase memory capacity. It restores the chemical balance of the cells in the brain and gives a boost to its function.

### 10) Lemon balm (honey plant):



Lemon balm is a bushy perennial herb of *Melissa officinalis* belonging to the family Lamiaceae. It effectively treats anxiety, nervous disorders, migraines, hypertension, hyperthyroidism and insomnia. This herb also enhances cognitive skills and memory power. Lemon balm develops brain function along with improving memory.

## CONCLUSION

From this study, it is clear that the herbals play a vital role against poor memory. Various herbal plants and plants extracts have significant memory improving activity in animal models.

The memory Improving activity is probably due to the presence of flavonoids in almost all these plants. A variety of botanical products have been reported to possess memory improving activity with fewer side effects such as headache, fatigue, GI tract issues etc.

Finally it should be noted that substances such as flavonoids and tannins that possess memory improving activity are of particular therapeutic importance. The results of the study indicate that of some medicinal plant have good potential for use in poor memory.

#### REFERENCES

1. Carlson Neil R. Psychology: the science of behavior. Boston, Mass: Allyn & Bacon. 2010, ISBN 0-205-68557-9. OCLC 268547522.
2. Cowan N. The magical number 4 in short-term memory: a reconsideration of mental storage capacity (PDF). *Behav Brain Sci*, 24 (1) 2001, 87–114.
3. Miller GA. The magical number seven plus or minus two: some limits on our capacity for processing information. *Psychol Rev*, 63(2), 1956, 81–97.
4. Rogers LM, Gross EZ, Ryals AJ, Dokucu ME, Brandstatt KL, Her miller MS, & Voss JL. Targeted enhancement of cortical-hippocampus brain networks and associative memory. *Science (New York, N.Y.)*, 345(6200), 2014, 1054-7.
5. Pribis P. Effect of walnut conception on cognitive performance in young adults. *British Journal of Nutrition*, 19(N/A), 2011, 1-9.
6. Saenghong N. Zingier officinale, improves cognitive function of the middle aged; healthy women. *Evid Based Complement Altered Med*, 2012.
7. Grag DS, Dhanwantari-Vanaushadhivishesh Anka, Vol-6, Vijaygard, Aligarh, India. Dhanvantary Karyala, 1971, 452
8. Park SY, Kim DS. Discovery of natural products from Curcuma longa that protect cells from beta –amyloid insult;<http://www.herbcompanion.com/health/herbs-for-memory-maintain-your-brain.aspx>
9. Definition to nootropics - [supplymentpolice.com/nootropics](http://supplymentpolice.com/nootropics).
10. Guide to different types of nootropics [nootropicsupplymentreview.com](http://nootropicsupplymentreview.com)
11. Nootropicsupplyment –review. com / top five natural – nootropics.
12. [www.progressivehealth.com/herbal-treatment-for-memory-loss.htm](http://www.progressivehealth.com/herbal-treatment-for-memory-loss.htm).