

Indian traditional memory enhancing herbs and their medicinal benefits

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ABSTRACT

Herbs are generally safe and well tolerated. However, they still contain phytochemicals that modify biochemical processes in the body. Therefore, they can also be toxic in high doses, cause side effects in normal doses and unsafe to use with some drugs. Traditional medicines of various cultures, but especially Chinese and Indian traditional medicines, have always turned to herbs to slow down cognitive decline and reverse memory loss. Dementia especially in the elderly is pretty common disorder for which there are traditional remedies. With the current advancements in medicine and biological sciences, it is now possible to determine which of these herbs are truly effective for improving memory. By extracting the active principles in these herbs, researchers are able to predict how these herbs work and in what doses can be deemed appropriate. Therefore, with our better understanding of therapeutic benefits of herbs, here are 10 of the most effective nootropic herbs for improving memory.

Key words: Memory enhancing herbs, improving memory, Brain booster

INTRODUCTION

Memory is a process of retaining, storing and recalling experiences, and it is closely associated with learning. Though learning, knowledge is acquired, and through memory this knowledge is made available. There are different types of memory, temporary or short term, which is stored for a very short period of time in the brain- a millisecond to a few minutes, and permanent or long term, which is more lasting. Short term memory can become long term through focused attention, associated ideas, and repetition. There are also two categories of memory. Declarative memory is what we use to remember facts and events, such as your phone number, or anniversary. Procedural memory is what comes into play for procedures and abilities, such as riding a bicycle, driving a car, or tying your shoes. Memory is the ability of an individual to record sensory stimuli, events; information, etc retain them over short or long periods of time and recall the same at later date when needed. Poor Memory, lower retention and slow recall and are common problems in today's stressful and competitive world. Age stress, emotions are conditions that may lead to memory loss, amnesia, anxiety, high blood pressure, dementia, to more ominous threat like schizophrenia and Alzheimer's diseases. The nature provides a new opportunity to regain one's full mental capacity. A number of herbs traditionally employed in the Indian System of Medicine "Ayurveda", have yielded positive results.

Different kinds of memory

Implicit vs. Explicit: prompting (giving clues or partial stimuli) will cause people with anterograde amnesia to remember what they had seen (implicit memory) explicit memory requires intentional

recollection (when asked) Are these different memory systems or just differences in retrieval ability?

Declarative Vs. procedural

Declarative = informational

Procedural = actions, skills, operations (perceptual-motor)

Memory for skills is largely unconscious and thus it might be related somehow to implicit memory

Semantic (knowledge not tied to time) vs episodic (knowledge tied to time when it happened) declarative memory

Supporting factors to enhance memory and to promote mental functioning: In order to enhance memory, optimum mental functioning must be promoted. Optimum mental functioning requires mental stimulation, proper nutrition, social interaction and support, breathing and relaxation, Water intake, physical exercise, rest and sleep. Some medications can cause memory problems, so special care should be taken to identify if this is a side effect of any of your medications, and if so to discuss this with your health care provider should memory problems develop. The following provides more information on specific areas to address for promoting mental function and enhancing memory.

Learn/ do something new: The brain can absorb new data, make new connections, and acquire new skills, which helps to enhance memory. To take on new things you need to believe that you can deal with the specific activity or problem and that you will have reasonable success. You can improve cognitive functioning with training that focuses on learning how to draw conclusions from a set of facts, or identifying relationships between different shapes. Try activities that are new for you and require you to think and do

things that are unfamiliar to you. Consider learning to play a musical instrument, studying a foreign language, practicing yoga or other body work activities, take up cooking. Challenge yourself to stimulate the growth of new brain cells. Guided imagery can also help to stimulate the brain. In guided imagery one must be mindful of their breathing, using their breath to help them relax into this practice. Through guided imagery a pleasant experience is brought into the mind's eye. Through the senses all the dimensions of the experience, the sight, smell, sounds, and feelings, not only helps to produce a feeling of well being, it sharpens the memory by recalling an experience and revisiting its sensory details.

Social interaction and support: Humans require positive meaningful interactions with other humans. Lack of stimulation from these types of interactions can lead to depression and cause memory problems. Unfortunately not all human interactions are of this nature. In addition to your routine interactions seek out those with whom you can have positive and meaningful interactions.

Nutrition & water: Breathing is good, it is essential to life. We can use breathing to calm ourselves. Focusing on your breathing can help to reduce tension and nervousness, which can inhibit our ability to pay attention and can interfere with memory. Water is an essential element for human to exist; it also helps to promote memory. Not enough water can lead to dehydration, which can cause confusion and problems with memory.

Physical exercise: The mind-body connection is real. Physical exercise can promote mental alertness and healthy aging. Exercise comes in many different forms. Finding what is best for you and fits with your lifestyle is critical to making it part of routine activities. The keys to physical exercise are that it must be safe for you, be something that you enjoy doing, and you must do it regularly several times a week.

Rest /Sleep: Both rest and sleep is very important for the body as well as the brain. During sleep the brain has a decrease in sensory input in which the brain to sort through experiences and activities and store memory.

Brain booster checklist for enhancing memory: Brain booster means things or criteria which is used to improve memory, brain boosters are employed to improve brain functioning power, following tips should be used for enhancing memory

1. Take all opportunities to do simple math in your head.
2. Memorize your favorite poems and recite them often.
3. Learn a new skill each year (wood engraving, French, slide trombone, etc.)
4. Engage in the adult continuing education opportunities in your community.
5. Get enough sleep.
6. Exercise regularly and moderately
7. Use a good quality Multi-Vitamin.

Herbal drugs used in memory enhancement:

I. Ginkgo biloba: Ginkgo biloba is a member of the Ginkgoaceae family, the world's oldest living tree species. Ginkgo is the most researched herbal medicine and the primary function of this marvelous plant is to stimulate peripheral circulation. This means increasing blood flow to the hands, feet and head. Not only is Ginkgo very useful for increasing memory (awesome before exams) but also helps prevent degeneration of vision, hearing, taste and smell. Studies prove that Ginkgo increases the flow of glucose and ATP (the main energy unit produced by our metabolism) into all cells, and also stabilizes cell membranes including those forming the blood brain barrier. Ginkgo has been repeatedly shown to slow the onset of dementia resulting from hardening of cerebral arteries. Ginkgo stimulates the biosynthesis of natural vasodilating agents, destroys free radicals, blocks the formation of free radicals and inhibits lipid peroxidation - the breakdown of fatty tissues, which comprises 85% of the central nervous system. An infusion of fresh herb can be made (equal parts water to herb) and 60 drops of the "tea" is recommended up to 4 times daily. Rarely, ginkgo use can produce headaches.

Benefits of use: The Ginkgo biloba tree and its extract are over 200 million year old and is used extensively in China and Japan as an aid to old age. Herb with no toxicity, improves memory, protects the heart and restores blood circulation; heals hearing and vision; fights common allergies; and preserves health and vitality.

Ginkgo combats vertigo, depression, macular degeneration of the eye and even organ transplant rejection by improving related blood circulation. Ginkgo increases blood flow to the capillaries and increases cellular glucose uptake (essential for brain function) It also improves transmission of nerve cells, inhibits platelet clumping (as an antioxidant) and enhances energy production inside the cells themselves.

Research and studies: The Ginkgo Biloba tree and its extract are over 200 million years old and are used extensively in China and Japan as an aid to old age. There are numerous studies covering the positive benefits and importance of ginkgo biloba to proper today functioning and optimized health.

Doses and directions: Adults, as a dietary supplement, 2 capsules daily or as directed by health care professional.

Keeping tightly closed in a cool place.

Ingredients: Rice Flour contains no artificial preservatives, coloring, flavors, salt soy, sugar, starch, wheat or yeast.

Each capsule contains: Ginkgo Biloba-60 mgs, guaranteed at 24% (Ginkgo flavor glycosides).

Clinical Trial: Many clinical trials have suggested that ginkgo is beneficial in the treatment of dementia and cognitive disorders associated with aging. Unfortunately, most of these trials were small, open label, or of poor design. One double blind, placebo-controlled study of patients with mild to moderate Alzheimer's disease or multi-infarct dementia was published in 1997 in the United States.

Patients treated with ginkgo extract (EGb 761) 40 mg three times per day for 26 weeks had a small improvement in the average score on a standard cognitive test compared to patients given placebo. This improvement was less than that seen in similar studies comparing donepezil, rivastigmine, or glutamine (drugs approved for the treatment of Alzheimer's disease to placebo. The clinician's observations for improvement found no difference between the ginkgo and placebo groups. A recent analysis of 4 studies concluded that Alzheimer's disease patients who took ginkgo extract (120-240 mg per day) had a small but significant improvement (3%) in cognitive functions at 3 and 6 months compared to those taking placebo. Long-term, well designed studies with doses greater than 120 mg per day are needed to confirm the beneficial effects of ginkgo and are currently in progress.

Adverse effects: Ginkgo appears to be very well tolerated. Infrequent side effects include mild gastrointestinal disturbances, headache, and allergic skin reactions. Four cases of serious bleeding, including subtotal hecatomb, have been reported. One case suggests an interaction with warfare (Comedian) and one an interaction with aspirin. In one of the few studies examining a possible ginkgo-warfare interaction, there was found no increase in the INR

(Prothrombin time) when volunteers taking warfare were given ginkgo. Considering the ant platelet activity of ginkgo and the limited information available, "Patients should be advised to discuss ginkgo and warfare therapy when used together with their physician or pharmacist." The risks and benefits of taking ginkgo with aspirin, clopidogrel, ticlopidine or other ant platelet agents (including fish oil and high dose vitamin E) must be weighed carefully and patients should be advised of the bleeding risk.

II. Hesperia Serrate: An herbal medicine called Qian Ceng Ta that is prepared from Chinese club moss (*Huperzia serrata*) has been used for centuries in China to treat colds, fever, inflammation, pain, and irregular menstrual cycles. Huperzine A, an alkaloid isolated from Chinese club moss, has recently been used for treating dementia and myasthenia gravis in China. It is available in the U.S in supplements promoted as memory enhancers.

This common moss which grows throughout Asia (also called Chinese Moss) contains "Huperzine A" which improves short-term memory, increases brain acetylcholine levels and supports overall cerebral function. The active alkaloid (opposite of acidic) Hup A inhibits the enzyme which breaks down the major memory neurotransmitter, acetylcholine. Alzheimer's disease, as well as being characterized by amyloid brain deposits, is associated with a decline in the numbers of nerve cells that produce acetylcholine. Hup A prolongs the impact of acetylcholine on the central nervous system (brain - identical synthetic extract is available. The dosing range is wide 50 to 1000 mcg daily. Most studies use 200 mcg twice daily, but start with the lowest dose, because that may be effective. Reported side effects include mild nausea and diarrhea. Those with heart rhythm disorders or severe asthma should not use this extract. Discontinue for surgery and do not take along with the drugs congex and aricept, which have similar mechanisms of action.

III. Ephedra sinensis (Ma Huang): This potent herb, widely used in Asia for centuries, is mostly known her in the "west" as a weight loss aide and stimulant, which is certainly is However, Zen and Taoist monks before meditation to sharpen the awareness without causing agitation have long used, it small doses. It also doesn't have a "let down" effect as it wears off. While it is indeed a stimulant and should not be used by weak or debilitated persons, it can actually relieve stress because it clams and focuses the mind.

A classic 17th century Chinese formula to sharpen the memory and "quicken the mind" contains

2 part each of Tang Kwei (*Angelica sinensis*) and Red Dates, and one part each of Ginseng, lycium, Schizandra, Astragalus, Suk Gok and Ma Huang. Without the Ma Huang, the formula works more gradually. Ephedra contains alkaloids including an ephedrine, whose action is similar to adrenalin. However, the effect is longer-lasting and much less potent. Ephedra increases blood flow to the brain by increasing blood pressure, so it is completely contraindicated for those with hypertension. It is an effective bronchodilator and helpful in mild to moderate asthma. Be aware that using Ephedra with aspirin, caffeine and theophylline (found in chocolate) will potentiate the herb's ability to increase fat burning. Overdosing will cause insomnia and anxiety. Use one cup of tea daily (1 Tablespoon herb per cup of water) or half the recommended dose in supplements advertising Ephedra for weight loss.

Quality and labeling: There is a marked variability between labeled ephedra alkaloid/ephedrine content and actual content, and is one of the many concerns with the use of this herb. A study of twenty products found discrepancies between labeled and actual content for 10 products and significant lot to lot variations for four of the products.

Adverse effect: The adverse effects of Ma huang include anxiety, insomnia, headache, increased heart rate, increased blood pressure, urinary retention, increased blood glucose and a "flushing sensation. The FDA has received hundreds of adverse effect reports, including deaths in previously healthy, young adults taking the manufacturer's recommended dose of ma huang supplements. Acute hepatitis, kidney stones, myocarditis, stroke and psychosis have been reported. Excessive doses have resulted in heart failure, hypertensive crisis, and death. The FDA recently withdrew recommendations for a daily intake of no more than 24 mg ephedrine, used for no more than 7 consecutive days. As might be expected, other CNS stimulants such as decongestants and caffeine should be avoided or used with caution by individuals taking Ma huang. Alarmingly, supplements often contain MH in combination with other stimulants, including botanical sources of caffeine such as guarana and kola nut. Ma huang has the potential to interact with a plethora of conventional drugs, including theophylline, MAO inhibitors, hypoglycemic drugs, antihypertensive and digoxin. Patients should be counseled to avoid products that contain Ma huang. Individuals with hypertension, angina, heart failure, diabetes, a psychiatric condition, or a previous heart attack or stroke should be especially advised to avoid this herb.

IV. Gotu kola (*Centella asiatica*): Gotu Kola, in the parsley family, grows abundantly as a weed in many parts of the world but is best known throughout India, where it is widely employed not only as a nerve tonic, but for diseases of the skin and blood the leaves are used for improving memory, and the tea form works well. It combines synergistically with Gingko as a memory stimulant. Gotu Kola has been studied as a drug detoxifying agent (synthetic drugs), in particular for helping to clear the mind after cocaine abuse. Not only does Gotu Kola improve memory, it is considered an "anti-stress" herb that has been shown to prevent adrenal hyper functioning. Ideally the supplement can be taken as a fresh extract of recently harvested wild Gotu Kola. Non-commercial (wild or organically grown) dried powdered whole plant is also useful as a brain booster. In tincture form, 30 to 60 drops up to three times daily is an often-cited dose. It is also delicious fresh, as a salad herb. Avoid in pregnancy.

Centella asiatica, commonly known as Mandookaparni is a widely available Indian herb has been used for centuries in Indian systems of medicine. In India for the last 3000 years of Ayurvedic medicine, it has been used for the purpose like boosting memory, wound healing, a mild diuretic, increasing concentration, alertness, as well as anti-anxiety and anti-stress. It has also been used for centuries in the treatment of liver and kidney problems. In pharmacological and clinical trials *Centella asiatica* has been found to improve the power of concentration and general ability and behavior of mentally retarded children. The clinical trials demonstrated that the extract increases the intelligence quotient in mentally retarded children. In a clinical trial an Ayurvedic drug having *Centella asiatica* as one of the main ingredients reported marked improvement is seen in children with behavioral problems. It is found to improve short-term memory and learning performance due to its possible nootropic action involving cholinergic and GABAergic modulation. Preclinical studies showed an impressive improvement in memory. The treated rats retained learned behavior 3 to 60 times better than the untreated rats. *Centella asiatica* causes an overall decrease in the turnover of central monoamines, implicating the involvement of Norepinephrine, Dopamine and 5-HT systems in learning and memory process.

V. *Acorus calamus*: A semi-aquatic, medicinal herb *Acorus calamus* also called Sweet Flag is a valuable medicinal plant found almost throughout India. It is traditionally employed in nervous disorders. The

rhizomes of *Acorus calamus* are used in loss of memory given in combination with other drugs like *Centella asiatica*, *Bacopa moneira* and *Rauwolfia serpentina* as a memory booster.

Acorus calamus well known for its memory enhancing activity enhanced learnign performance, of the descendents of drug-administered animals, and the animals themselves. *Acorus calamus* when mixed with food was given to albino rats, showed excellent learning performance, enhancing activity proving its popular memory boosting activity.

VI. *Bacopa monnieri*: *Bacopa monnieri* a well known booster is a Indian herb commonly given to infants where it is observed to boost memory power intelligence, and mental health. *Bacopa monnieri* for memory enhancement goes back 3000 years or more in India, when it was cited for its medicinal properties, especially the memory-enhancing capacity, in the Vedic texts "Athar-Ved Samhita" (3:1) of 800 B.C and in Ayurveda. The placebo-controlled, double blind study, tested the efficacy of *Bacopa monnieri* in children for Six Weeks, 50 normal school children split into two groups were given *Bacopa monnieri* and placebo respectively. At the conclusion, they were evaluated for attention, concentration, and memory. *Bacopa monnieri* was shown to improve all these aspects significantly. Preclinical studies have reported that the administration of extract (40mg/kg, p.o.) For three or more days is reported to improve the performance of rats in various learning situations. Studies revealed that bacosides which are the major phytoconstituents in *Bacopa monnieri*, help to repair damaged neurons by enhancing proteins involved in the regeneration of neural-cell synapses. These are the relay stations of the of the brain that facilitate the transmission of nerve imulses. Thus *Bacopa monnieri* can be viewed as a neural nourished, restoring depleted synaptic activity and leading to enhance memory function.

VII. *Celastrus painculata*: *Celastrus paniculata* belonging to the genus of woody, climbing shrubs is distributed almost all over the India. In folk medicine the seeds are boiled and taken for blood purification the seeds constitute the drug; they are bitter, and have an unpleasant odour and are traditionally used for sharpening the memory. Recent preclinical Studies of the seed extract on male rats showed an improvement in learning and memory in both the shuttle-box and step through paradigms. The study also demonstrates that the cognitive-enhancing properties of extract of *Celastrus paniculatus* seed could be attributed to its antioxidant effect. Yet another study investigated the

effect of the seed oil of *Celastrus paniculatus* on the 6 day performance of young adult rats in a navigational memory task-the Morris water maze. These studies confirm the memory boosting properties of *Acorus Calamus*.

VIII. *Withania somnifera*: *Withania somnifera* (Ashwagandha) has been used for thousands of years as popular remedy for many conditions. *Withania somnifera* is one of these best known and most researched Ayurvedic herbs and holds a place in the Ayurvedic traditions similar to Ginseng in Chinese therapies. For that reason, *Withania somnifera* has been often referred to as the "Indian Ginseng" *Withania somnifera* is used in several disease conditions. *Withania somnifera* extract (50,100 and 200 mg/kg; orally) has improved retention of passive avoidance task in a step-down paradigm in mice. It also reversed the scopolamine-induced disruption of acquisition and retention and attenuated the amnesia produced by acute treatment with electro convulsive shock (ECS), immediately after training. Chronic treatment with ECS, for 6 successive days at 24 h intervals, disrupted memory consolidation on day 7. Daily administration of ashwagandha for 6 days significantly improved memory consolidation in mice receiving chronic ECS treatment. *Withania somnifera* (50 mg/kg) significantly reversed both ibotenic acid induced cognitive deficit and the reduction in cholinergic markers after 2 weeks of treatment. In another study conducted, it was observed that *Witania somnifera* extracts induced. An increase in cortical muscarinic acetylcholine receptor capacity which might partly explain the cognition-enhancing and memory-improving effects of the extracts as observed in animals and humans.

IX. Ginseng: There are at least eleven different herbs labeled "ginseng" The most commonly used in herbal medicine are panax ginseng (Asian or Korean ginseng) and panax quinquefolius (American ginseng). Ginseng powder and extract are prepared from the roots of these perennial herbs. Standardized ginseng extract contains 4% ginsenosides, the primary active components of P. Ginseng and P. quinquefolius.

X. Ginseng: Asian Ginseng has been used for many years as a stimulant and a tonic for Qi deficiency, to treat gastrointestinal disorder (diarrhea, vomiting) and respiratory problems, to improve stamina, and to reduce the adverse effects of stress. Small doses are taken daily to ward off physical or mental impairment. Ginseng is widely used inresistance tostress and

improves immune function. Other uses include lowering blood sugar and treating male impotence.

Clinical trials: A review of randomized, controlled trials evaluating ginseng for a number of uses (enhancement of physical and intellectual performance, stimulation of the immune system, treatment of type 2 diabetes and herpes infection) concluded that efficacy has not been established for any of these indications. Recently, a small study found that American ginseng taken 40 minutes before a meal decreases the post-meal rise in blood glucose in both non-diabetic patients and those with type 2 diabetes.

Adverse Effect: To date, serious adverse effects have not been reported with American ginseng. Side effects reported with Asian ginseng include insomnia, diarrhea and skin eruptions. There is some evidence that both American and Asian ginseng may lower blood glucose levels. Until more data is available, ginseng products should be used with caution in patients with diabetes because the risk of hypoglycemia may be increased. Individuals with and without diabetes should probably take ginseng with meals. One case report suggested that ginseng may decrease the anticoagulant effect of warfarin (decrease the INR). One small study found no change in the INR. However, when patients stabilized on warfarin were given a two week course of ginseng. Two cases involving a possible interaction with phenelzine have been reported. One patient experienced headache and tremor and another developed mania. Further study is needed to establish the effectiveness of ginseng for any indication.

Quality and labeling: Ginseng root varies in quality, with the highest quality being very expensive. Adulteration is common and significant variation can occur between the actual ginseng content in a product and the content stated on the label. In April and May 2000 an independent laboratory evaluated the purity and potency of 22 brands of Asian and American ginseng products. Eight products contained excessive amounts of pesticides, two contained excessive lead, and seven had less than the minimum concentration of ginsenosides (2%). Only 10 products met or exceeded the claimed ginsenoside concentration on their labels.

Shankpushpi: Shankpushpi is one of the popular herbs used as brain tonic and memory enhancer. Many leading pharmaceutical companies of India prepared formulations using Shankpushpi. In these formulations they use Shankpushpi alone or in combination with other herbs. The natives of India have deep faith in this herb. And from childhood they

give Shankpushpi based herbal populations to their children in order to enhance the memory power. In Chhattisgarh, Shankpushpi occurs as a wasteland plant. Although for agriculture scientists it is a harmful weed that competes with agricultural crops for light, moisture and food but for the natives and traditional healers, it is a valuable herb. Every year the herb collectors collect tons of Shankpushpi herbs and after shade drying supply it to the traders at state level. This is a good thing that the buyers at national and international levels are aware of its natural occurrence in Chhattisgarh and according to them. In terms of quality and medicinal value, the Shankpushpi of Chhattisgarh is better than the Shankpushpi of other states. This herb is in the list of non-wood forest products of Chhattisgarh having regular demand.

In nature, Shankpushpi grows in poor soils. The cultivation in good soil increases the production but from a quality point of view, the produce is inferior. The detailed package of practice for commercial cultivation has yet not been developed. Seeing the encouraging allelopathic effects of Shankpushpi on *Jatropha*, we are trying Shankpushpi - *Jatropha* intercropping in small plots at different agroclimatic locations of Chhattisgarh. We are also studying the allelopathic effects of *Jatropha* on Shankpushpi. The Shankpushpi-*Jatropha* intercropping is never tried earlier in any part of the world. Botanically, Shankpushpi is a perennial herb with a woody rootstock; stems many, more than 5 cm long, prostrate, spreading, wiry, usually clothed with long hairs; leaves many, elliptic-oblong, base acute, silky hair; flowers light blue (It is also known as Nilpushpi, Nil-blue; Pushup flower), solitary or sometimes 2, peduncles very long, axillary; fruits capsule, globose, thin, four-valved; seeds glabrous; flowering time July-November. According to Ayurveda, Shankpushpi is bitter, pungent, alexiteric, alternative, tonic, anthelmintic, brightens intellect, improves complexion, increases appetite, useful in bronchitis, biliousness, epilepsy, leucoderma and teething troubles of infants etc. On the basis of flower colors, three types of Shankpushpi are described in reference literatures viz. Red, White and Blue. According to reference literatures, white flowered Shankpushpi is most powerful and genuine. But for the traditional healers of Chhattisgarh, blue flowered Shankpushpi is the best one. They give second preference to red flowered type and least preference to white flowered type.

The herbal collectors are not aware of these specifications and they collect all types of Shankpushpi for sale. As a memory enhancer they use Shankpushpi with Kali Mirch and sugar. According

to the healers, its regular use gives desirable effects in very short time. Beside memory enhancer, the healers also use this herb in treatment of respiratory troubles. They prepare herbal cigarettes using this herb. According to them the use of these herbal cigarettes is much beneficial in case of asthma and bronchitis. In treatment of chronic cases, they use other herbs like Blumea, Adhatoda, Datura etc. in this herbal cigarette the healers of Chhattisgarh plains, use this herb internally in treatment of insanity and epilepsy. The juice of fresh herb is given daily to the patients till

complete cure. It is also good for chronic constipation. In treatment of hysteria, the healers use Shankhpushpi in combination with other herbs mainly Bach (*Acorus calamus*), Shatavari (*Asparagus racemosus*) etc. It is considered as good female tonic. Chhattisgarh forests are fulfilling the national and international demand but this is bitter fact that there is not a single pharmaceutical unit in Chhattisgarh engaged in procession of this herb. There is a tremendous scope in this field.

Table.1.Herbs to magnify your memory

Name	Dose	Why it works
<i>Bacopa monnieri</i>	200-400 mg divided in daily doses, standardized to 20% bacosides A and B	Decreases blood pressure to reduce anxiety and stimulates production of neurotransmitter, GABA.
Dragon’s blood (<i>Croton lechleri</i>)	1-1.5 g capsule	Prevents breakdown of enzyme compounds in acetylcholine used to store memories.
Gotu kula (<i>Centella asiatica</i>)	1,000 mg daily	Generally increases mental function.
Huperzine A (<i>Huperzia serrata</i>)	50-400 mg daily, depending on quality	Inhibits breakdown of acetylcholine, an enzyme essential to memory function.
Maca (<i>Lepidium meyenii</i>)	Recommended as an extract, dosage depending on quality	Enhances body’s endocrine system, increasing hormone efficiency.
Rhodiola (<i>Rhodiola rosea</i>)	100 mg daily, standardized to 3% rosavin	Adaptogen qualities stimulate immune system, enhance concentration and improve memory.
Vinpocetine	10 mg twice daily	A blood thinner that enhances brain circulation, improves oxygen use and has antioxidant properties.

CONCLUSION

There are certain types of herbs that aid in memory improvement. People may wonder if this is effective or not but the use of herbs for memory enhancement has been used since ancient times. Different types of spices or even spicy foods increase the brain’s cognitive functions.

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