



Role of Alternative Medications for the Treatment of Alzheimer's Disease

Hasan Arshad, Awasthi Himani*, Srivastava Dipti, Srivastava Vivek, Fatima Zeeshan

Amity Institute of Pharmacy, Amity University, Uttar Pradesh Lucknow, India.

*Corresponding author's E-mail: hawasthi@lko.amity.edu

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ABSTRACT

Alzheimer's disease AD is the long-term brain disease which gradually damage memory & learning skills ultimately, the capability of doing easiest things. In several individual, the symptoms are shown in their mid-60s. The causes of dementia can vary, depending on the types of brain changes that may be taking place. There is various type of the medication that is generally used for the treatment of AD. There are Alternative therapies for the AD like: - Herbal, Homeopathic and Unani medicine. There are some drugs like *Ginko biloba* that showed the effective result that deal with the treatment of AD. Homeopathic medicine *Nux-vomica* is also used for the treatment of Alzheimer's disease, but that shows the irritation. Asgandh has Mohallil-e-warm (anti-inflammatory), Muqawwi (tonic), Muqawwi-e-Hafiza (memory enhancing) and Muqawwi-e-Bah (aphrodisiac) property. It is also eliminating the putrid phlegm and black bile. The energetic role of the *Withania Somnifera*, that containing of sitoindosides VII-X, and Withaferin-A that has been shown to exhibition important anti-stress and antioxidant outcome in the rat brain of striatum and frontal cortex. Amla exhibited significant improvement in memory retention of the aged and youngest rats in a dose-dependent method. It inverted in the diazepam and scopolamine tempted loss of memory. As a memory enhancer and reversal of memory deficits, *Emblca officinalis*, it is important for the treatment of memory deficits and AD.

Keywords: Alzheimer, Dementia, Alternative, Herbal, Homeopathic, Unani, *Ginko biloba*, Muqawwi-e-Hafiza, Amla.

INTRODUCTION

Alzheimer's disease (AD) is the long-term brain disease which gradually damage memory & learning skills ultimately, the capability of doing easiest things. In several individual, the symptoms are shown in their mid-60s. Evaluation differ, but specialists propose that more than five million Americans might suffer with Alzheimer's¹.

It is one of the greatest communal form of dementia in the young and older patients. Dementia is generally known as the temporary loss of memory functioning, remembering any things, thinking and behavioral activities to such as the presence that it affects the daily life routine and activities of the person². The causes of dementia could differ, depends on the types of brain changes that may be taking place. Other dementias include Lewy body dementia, front temporal disorders, and vascular dementia³.

Dr. Alois Alzheimer named this disorder that Alzheimer's disease. In 1906, Dr. Alois Alzheimer noticed that their significant changes in the brain muscle in a woman, who had died of an infrequent cerebral illness. Her symptoms involved memory loss, language problems, and unpredictable behavior. After she died, he examined her brain and found many abnormal clumps (now called amyloid plaques) and tangled bundles of fibers (now called neurofibrillary, or tau, tangles)⁴. These plaques and tangles in the brain are still considered some of the chief structures of AD. Another feature is the loss of relevance between nerve cells (neurons) in the brain. Neurons

transmit messages between several portion of the brain, and from the brain to muscles and organs in the body.

Scientists continue to unravel the multifaceted of the brain fluctuations that involved in the beginning and the development of the AD. It appears prospective that damage to the brain starts a decade or more before memory and other cognitive problems appear. During this preclinical stage of Alzheimer's disease, people seem to be symptom-free, but toxic changes are taking place in the brain.

Abnormal deposits of proteins form amyloid plaques and tau tangles throughout the brain. Once healthy neurons stop functioning and lose connections with other neurons, they die⁵.

The damage initially appears to take place in the hippocampus, the brain portion important in establishing memories. As more neurons die, another brain portion is affected, & they begin to contract. The last phase of Alzheimer's, harm is pervasive, and brain volume significantly shrunk.

Sign and Symptoms⁶

Cognitive

- Memory loss, Aphasia, Apraxia, Agnosia, Disorientation, Impaired execution function

Non-cognitive

- Depression, psychotic symptom (Hallucination delusions)



- Behavioral disturbance (Physical and verbal aggression, motor hyperactivity uncooperativeness)

Functional

- Inability to care for self

Herbal drugs

1. *Ginko biloba*
2. Huperzine A
3. Piracetam
4. Lecithin
5. Curcumin
6. *Curcuma longa*
7. *Bocopamonnira wettst*
8. *Withania somnifera*
9. *Rosmarinus officinalis*
10. Gotu kola
11. Shankhpuspi
12. Gugglu

Homeopathic drugs

1. Nux vomica
2. Mercuris
3. Ignatia
4. Calcarea carb
5. Lycopodium
6. Staphisagria
7. Chamomilla
8. Terentula
9. Baryta carb
10. Conium

Unani Medicines

1. *Juglans regia*
2. *Withania somnifera*
3. *Acorus calmus*
4. *Centella asiatica*
5. *Baswellia serrate*

Herbal Drugs for the treatments of Alzheimer's disease AD

Ginkgo biloba

Ginkgo biloba GB is an herbal drug that used in the treatment of variation of diseases over thousands of years in China⁷. In several studies it is found that *Ginkgo*

biloba extract is used in the management of evolution of AD. There is a study on 309 patients was done, having mild dementia individual patient were given 120 mg dose of GB extract along with control each day for a year. At the six-month it was noted that twenty seven percent of patient given *Ginkgo biloba* had adequate improvement. Thus, investigators originated that the extract have significant effect in blood and oxygen movement. It is also observed that GB Extract seems to be maximum effective at early phases of AD⁸. This might possibly patients with initial stage of AD might be preserve an ordinary life. GB Extract has the capacity to stabilize the Ach receptors in the hippocampus zone. GB Extract also raise the cholinergic activity and deliver the progresses in disease. The most current standardized to a concentration for GB extract is of 24 percent *Ginkgo biloba* consist of flavoglycosides. There is a study associated the efficiency of the maximum usual, of AD medication⁹ like Rivastigmine and donepezil, to which GB extract is named as EGb-761. The investigators strong-minded that EGb-761 is effective in any of these frequently approved medications in pick up the check indications of AD patients. *Ginkgo biloba* must be in use by inordinate carefulness and through the guidance of a medical doctor. The greatest traded formula of *Ginkgo biloba* is in Europe. Various study originates that EGb761¹⁰ inhibits f-amyloid toxicity of brain cells, a key part of the improvement of the disease. All the formulas of GB should to be occupied regularly for a minimum of 3 months, possibly tough mission for the AD, that decide the enhancement is functioning. Additionally, current complete examinations of numerous of clinical trials originated alike consequences through the EGb-761 in those patients. Which established that EGb761 is as nontoxic as sample. Since the indication, suggested that cholinesterase inhibitors could be used in preference to *Ginkgo biloba* in patients with slight to modest AD¹¹.

Huperzine A

Huperzia serrata (Lycopodiaceae) is one of the types in the Huperziaceae. This is used for its memory-boosting effect since centuries in the Traditional Chinese Therapeutic method¹² and is recognized to comprise a huge cluster of alkaloids called 'Lycopodium alkaloids'. *Huperzine A*¹³ a novel Lycopodium alkaloid extracted from *Huperzia serrata*, is well recognized as a flexible, powerful, and selective Ach E inhibitor. It is also recognized as 'Qian Ceng Ta' in China, and Huperzine it has been used as a healing agent for AD from ages. As described by investigators, taking *Huperzine-A* chiefs to an insignificant development in retention, concentration, and the wisdom capability. Investigation has also revealed that *Huperzine-A* substantially decreases the unusually high fundamental action both in animals' brain as well as in Alzheimer's patients' blood¹⁴. An investigational study in monkeys shown that converses scopolamine-induced amnesia, signifying that it may advantage the mental difficulties in Alzheimer's patients or those with other mental disorders¹⁵.



LECITHIN

Lecithin, a choline-containing phospholipid, a main nutritional basis of choline and has been revealed to rise choline serum levels¹⁶. That is been assumed the *Lecithin* that may fast-track acetylcholine combination of the brain by improved accessibility of the choline substrate. A meta-analysis of ten clinical trials that deliberate the patients with the AD examined statistics on 265 subjects. Dosages of the lecithin reached from 1 to 35 gram per day, though the attentiveness varied to between 25% and 95%. All judgements described misleading marks for mental test there was no significance¹⁷ result on the performance or ADLs. The two judgements described on the nearly worldwide changes. They formed a mutual probabilities ratio approximation of 3.0 in service of sample, which nearly touched significance.

***Curcuma longa* L. (Zingiberaceae)**

Curcuma longa CL¹⁸ (Turmeric, Harida) that is used as a basis of *Curcumin* (diferuloylmethane), an, yellow-orange component of turmeric and curry powder. Studies have proved that *Curcumin* has the antioxidant and anti-inflammatory activities¹⁹ and it helps in combating Alzheimer's disease (AD). Regular consumption of this herb helps in keeping the mind balanced. The dose of *curcumin* can be reduced by making it to colon targeting.

***Bacopa monniera* Wettst. (Scrophulariaceae)**

Goswami et al²⁰ evaluate the effect of *Bacopa monnieri* (Brahmi), associated with the Ayurveda system of medicine, on the intellectual functions in Alzheimer's patients²¹, and conclude that it could be beneficial in these patients, but more study is needed.

***Withania somnifera* (Solanaceae)**

Active glycol with anolides of *Withania somnifera* (Ashwagandha) have a significant of antioxidant function, that proficient by the increasing activities glutathione peroxidase catalase and superoxide dismutase²². Nervine tonic that reported that rejuvenates the cell and boosts energy is also Ashwagandha. This assessment the inhibition of cholinesterase was carried out by the use of colorimetric method that is based on the Ellman's reaction and demonstrated with that the Ashwagandha extract significantly repressed the AChE in a concentration dependent manner²³.

***Rosmarinus officinalis* (Lamiaceae)**

Rosemary (Satapatrika) contains the following natural COX-2 inhibitors: like ursolic acid, thymol, Apigenin, oleanolic acid and carvacrol. 'If an artificial COX-2 inhibitor can prevent the AD, so could a natural COX-2 inhibitor,' according to Duke 2007²⁴. In addition, Rosemary contains nearly additional dozen of anti-inflammatory and two dozen of antioxidant compounds. Few of them are very strongest antioxidant substances in this herb are carnosic acid and ferulic acid, that have the even greater reported antioxidant activity than that

commonly synthetic antioxidant of BTH (butylated hydroxytoluene) and BHA (butylated hydroxyanisole)²⁵. Rosemary can be used as a tea, in shampoo, or in bath water, because it can be absorbed through the skin²⁶.

***Gotukola*.**

*Gotu kola*²⁷ (*Centella asiatica*) is called as Brahmi (Bacopa monnieri, family Apiaceae) and is a recurrent creeping basil with the lengthy profuse branches & horizontal follower's leaves. This used in the treatment of blood pressure²⁸ also as a blood purifier, memory enhancing agent, & stimulating durability. For tension relieving, mind relaxing, & comforting anxiety tea made from *Gotu kola* are very useful. As an Ervine adaptogen, ingredients of *Gotu kola* are accomplished of the growing aptitude, durability, & cognitive function. In Traditional medicine system²⁹ the watery extract of *Gotu kola* generally useful for stimulating of good sleep and for regenerating and renovating of neural cells. *Gotu kola* has a potent activity for the disease of Epilepsy. The main chemical constituents are saponins, the aglycone Asiatic acid is connected to the trisaccharide moiety, that formed madasiatic acid and cassoside. Additional constituents which are generally isolated by the *Centella asiatica* like Brahmoside and it might be used for the memory function & utero relaxant activity³⁰ but have to be established by the medical studies. Asiaticoside derivatives from *Gotu kola* at a molecular level are proficient of the decreasing cell death encouraged by hydrogen peroxide, reducing level of free radical, & preventing in vitro neural cell death mediated by A β ³¹. Consequences shows that *Gotu kola* play an important role prevention of toxicity treatment of A β . It has antioxidant action & could change the function mitochondria³². Because dysfunction in mitochondrial are very communal procedure that causes neurodegeneration in several neurodegenerative disorder³³, there are hypothetically wide effects for usage *Gotu kola* water extract. In animals, *Gotu kola* water extracts at tenuate memory damage at Tg2576 module of mouse of the A β deposition deprived of changing load of plaque & inhibit in vitro toxicity A β ³⁴. It has harmless record. Though, at large amounts, it causes patients sleepy. The T- half of these drugs are not known. Big different centre experimental trials of *Gotu kola* in dementia patients haven't done³⁵. Some Studies on healthy human have revealed hopeful cognitive improving properties of *Gotu kola* water extracts. A study report that the two-month treatment of *Centella asiatica* (750mg/day) it improves the memory in healthy volunteers³⁶.

***Shankh pushpi*.**

Convolvulus pluricaulis that is *Shankhpushpi*³⁷ belonging to family Convolvulaceae is the communal herb plant in the India. The entire herb plant is used in several formula easanervine tonic for boosting memory & improving cognitive function³⁸. It is used for disorders of nervous system, like stress, anxiety, mental fatigue, & insomnia³⁹.



⁴⁰. The main constituents are flavonoids, hydroxycinnamic acid, & glucose⁴¹ which are responsible for its nootropic and memory improving activity, with its different pharmacological actions. *Shankhpushpi* ethanolic extract induces antioxidant effect in rats there by improve learning & memory. Also, it used in the treatment of cholesterol-fed gerbils, LDL cholesterol, triglycerides, & phospholipids⁴². This is escorted by a majorly enhancing the no. of dendritic in trisections, branch points, & dendritic procedures start from neurons of cell bodies, in difference with the aged-matched saline regulator. Consequences recommend the ethanolic extract of *Shankhpushpi* improve the memory problems by enhancing neurite outgrowth⁴³.

Guggulu

It is an oleo-gum⁴⁴ resin isolating from woof of the various plant species like *Commiphora wightii*, *Commiphora molmol* and *Commiphora mukul*. *Guggulu* water soluble extract consist of sugars, mucilage, & proteins. It kept the strong scavenger of superoxide radicals that are ferulic acid, phenols, and another non-phenolic aromatic acid⁴⁵⁻⁴⁶. Those may be useful for the management of neurodegenerative disorders which are connected with oxidative stress. The *Guggul* sterones antagonize nuclear hormone receptors & reduces levels of cholesterol, which clarify the hypolipidemic actions of *Guggulu*. Several works have showed the connection between cholesterol, processing of amyloid precursor protein, & AD⁴⁷. The important modulator of the physio-chemical and functional properties of the plasma membranes is cholesterol though their important roles in regulating function of synapse & neuronal plasticity. Invitro & in-vivo variation of levels membrane cholesterol⁴⁸ disturbs various pools of cholesterol inside the cell membrane bilayer which are very complex & disturbing A β . By the lowering effect of cholesterol, it might be beneficial for treating AD. Reduced level of neuronal cholesterol, obstruct the formation of A β amyloidogenic trail, maybe by the eliminating APP from sphingolipid-enriched membranes micro domains and Cholesterol. Those fascinating interactions increase the optimisms that stimulate the cholesterol- lowering strategies that might be development of dementia associated with AD⁴⁹. Guggulipid (Z-guggulsterone) administration majorly decreases the level of triglyceride and serum LDL, associating to the assessment that is the Guggulipids possibly yield useful properties in CVS⁵⁰. It also causes useful activities in the STZ-induced model that could to be recognize their cholesterol-lowering, antioxidant, & anti-acetylcholine esterase actions. The T-halves of this compound are unknown. Basic different center experimental trials of that mixtures in human with dementia haven't done⁵¹.

Homeopathic medicine

***Nux Vomica*⁵²**

Nux vomica that homeopathic medicine is used in cases of dementia with the dose of 1mg/kg body weight in the rats, where the patient is extremely sensitive to the words and actions of others and is always seeking attention. There is suicidal tendency in the patient and he also is inclined towards killing friends. Although suicidal, the patient⁵³ does not have the courage to perform the act. Extreme irritation is noticed. The patient becomes vindictive and quarrelsome in nature.

***Mercurius*⁵⁴**

This homeopathic medicine is given to patients with dementia who have lost all sense of decency. They become filthy and develop a grovelling mentality. Memory weakens to a great extent and the patient has problems with vision, unpleasant breath odour and a heavily coated tongue. This illustrates how using various models can hint at the physiopathological mechanisms of high-dilution effects of 6, 12, 30 and 200cH potencies in reducing paw edema induced by carrageenan.

***Ignatia*⁵⁵**

This homeopathic medicine is given to people who have extreme sensitivity of the mind, which further leads to depression and grief⁵⁶. The 30c or a 200c taken every twelve hours for three doses. This may occur due to failure in love relationships.

***Calcaria Carb*⁵⁷**

Calcaria Carb is an effective homeopathic medicine used in cases of dementia where the brain and other organs do not develop properly. The dose of the medicine given 6 and 30ch. The patient becomes forgetful and very slow in learning something.

***Lycopodium*⁵⁸**

This medicine is used when the dementias affected people experience great depression, become despondent and constantly worry about themselves and their activities. They become fearful, irritable and angry. The dose of *Lycopodium* is 12, 30, 100ch and 1M. Constipation is also observed in such cases.

***Staphisagria*⁵⁹**

Staphisagria is used to treatment dementia characterized by sleeplessness. The patient becomes cowardly and is full of shameful, disgust, humiliation and shyness. The patient treated by the *staphisagria* with dose of 20 and 300ch. He would rather be alone than have company.

***Chamomilla*⁶⁰**

This is another homeopathic medicine for treating dementia with acute sensitiveness. For the treatment of dementia chamomilla given with the dose of 6, 20, and



200ch. Irritation and peevishness are common, and the patient tends to get angry very easily.

Baryta Carb⁶¹

Baryta Carb 30ch this can help those who are regressing into a fearful behaviour, timidity with shyness and lack confidence. There is the loss of memory and some patients may suffer from chronic glandular disorders.

Unani medication

***Juglans regia* (akhrot)**

Strengthening the vital organs particularly to older people. Physically it looks like human brain. Walnut is made up of 15 to 20% protein, contains omega 6 fatty acid (linoleic acid) and omega 3 fatty acid alpha linoleic⁶² vitamin E & vitamin B6 making them an excellent source of sustenance to nervous system. The dose of *Juglans regia* given 160mg/day. It shows a good free radical scavenging activity and could be effective⁶³ in reducing oxidative stress. It may be able to relieve disorders like insomnia, depression, compulsive behavior.

***Withania somnifera* (Asgand)**

Asgand has Mohallil-e-warm (anti-inflammatory), Muqawwi (tonic), Muqawwi-e-Hafiza (memory enhancing) and Muqawwi-e-Bah (aphrodisiac) property. It also eliminates the putrid phlegm and black bile. Sitoindosides VII-X is the active part of the WS⁶⁴. Withaferin A has been shown that exhibit important antioxidant and anti-stress effects in rat brain striatum and frontal cortex. The dose of *withania somnifera* is 500mg/day orally administered. The experimental studies in animals have extensively demonstrated a GABA-mediated action of WS⁶⁵.

***Acorus calmus* (Wajturki)⁶⁶**

It is used as Muqawwi-e-Bah (Aphrodisiac), Mufarreh (exhilarant) and Muqawwi-e-Hafiza (memory improving)⁶⁷. 200mg/kg of AC extract was administered orally. Recently, Wajturki has reported its own to antioxidant activity.

***Centella asiatica* (Barhamibooti)**

Centella asiatica is used as Muqawwi-edimaghwaHafiza (Brain and memory tonic) and Musaffi-e-khoon (blood purifier)⁶⁸, mufaareh (Exhilarant) and Muqawwi-e-aza-erai (vital organ tonic)⁶⁹. It increases the longevity, imagination and memory power⁷⁰. Recent studies show that the biochemical composition of brahmi-booti has to play a very significant role in therapeutic as well as in the nutraceutical⁷¹ application and *C. Asiaticis* believed for its biologically active components of triterpenes saponins with the dose of 50mg/kg/day. By the triterpenes, the protective effects of antioxidant of *Centella asiatica* is divided its enriched flavonoids and selenium contents to stimulate cell rejuvenation, improve physical and mental health.

***Boswellia serrate* (Kundur)**

Kundur removes the phlegm and distract evil suggestion and improve intelligence and mind. Since it boosts the pnama, heart and brain so it is useful in slow-wetted and dementia⁷². In the Islam Hazarat Abdullah bin Abbas (Radhi AllahoAnho) says that the SAW removes the water from kundar at the night. SAW mixed brown sugar in the Kundar and drank. SAW says that kundar is very beneficial for the urine problems and memory enhancement⁷³. SAW supposed that the take the juice of kundar early in the morning before meal this is very helpful in the memory enhancement. This juice is very beneficial for the treatment phyto-therapy for the memory⁷⁴.

***Dhaniya* (*Coriandrum sativum*)**

In a study conducted, *Coriandrum sativum* was given for 45 days for its efficacy on cognitive function in male Wistar rats. The study was conducted in comparison with aging, scopolamine and diazepam induced amnesia. It was concluded that *Coriandrum sativum* exhibited memory enhancing effects by its anti-inflammatory and antioxidant & cholesterol lowering activities⁷⁵.

***Sumbul-ut-teeb* (*Nardostachys jatamansi*)**

In a study, *Nardostachys jatamansi* exhibited memory retention and learning enhancing abilities in aged and young mice and reversed scopolamine and diazepam induced amnesia. In another study conducted by⁷⁶ Joshi and Parle, 2006; *Nardostachys jatamansi* reversed aging induced amnesia⁷⁷. In another study, efficacy of *Nardostachys jatamansi* was reported in the prevention of stress induced memory deficit.

***Amla* (*Emblca officinalis*)**

In a study conducted, *Amla* exhibited significant improvement in memory retention of early age and aged rats in the uniformity of dose. It inverts induced the dementia by scopolamine and diazepam. As a memory enhancer and reversal of memory deficits, *Emblca officinalis* is very important for treatment of AD and memory deficits⁷⁸.

There was a study conducted to investigate the memory enhancing effect of piracetam when used together with *Emblca officinalis* and *Curcuma longa* the cognitive dysfunction and oxidative damage in rats induced by the Aluminium. The inducing agent Aluminium chloride at the dose 100mg/kg was given orally to the rats for the 6 weeks. *Emblca officinalis* (100mg/kg, p.o.) *Curcumin* (100mg/kg, p.o.) and Piracetam (200mg/kg, i.p.) were concomitantly 6 weeks administered daily to the rats. Oxidative stress was significantly reduced and memory was significantly improved in rats treated with *Emblca officinalis* (100 mg/kg, p.o.), *Curcumin* (100 mg/kg, p.o.) and Piracetam (200mg/kg, i.p.) than rats treated only by the Piracetam (200mg/kg, i.p.)⁷⁹.



CONCLUSION

In the conclusion the alternative medication treatment strategies will have to comprise variability of the interferences focused at to the several targets. So, the consequences with the existing the FDA permitted to the medicines for the Alzheimer's disorder are repeatedly unacceptable, and here is a platform of the alternative medicine, in specific Herbal, Homeopathy and Unani medicine. As designated for numerous that herb medication, these is in circumstance, an alleged pharmacological goal like neurotransmitter and receptors, none of these herb medications can to be supposed to treat the whole disease"

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