



## TRADITIONAL USED PLANTS AGAINST COGNITIVE DECLINE

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### ABSTRACT

The medicinal plants in classical literature of Ayurved and traditional folk care health practices provide clues to new area of pharmaceutical research. The numbers of plants had been mentioned in Ayurveda for curing various pathophysiological stages of ailment and these are being practiced in various traditional streams in different parts of India. The present study aims to focus selected herbs that can be beneficial over psychological factors like cognition. Cognitive behavioral performance can be commonly noticed with gradually increasing forgetfulness generally due to old age or some neuropathological factors. It may be troublesome or embarrassing to observe such suffering individual with mild behavior problems. But consistent or increasing concern about your mental performance may suggest Cognitive Decline. Ayurveda considers three *Gunās* i.e., *Satva*, *Raja* and *Tama* along with *Tridoshas* and their disequilibrium leads to abnormal functioning and behavior pattern of mental health. The significance of mental health is equally emphasized under the definition of health by WHO along with physical health. Today's upcoming lifestyle in terms of diet and regimen leads to a number of Psychological factors. Cognitive Decline is one of them. The selected herbal drugs possess *Sadnyastapan* property and are helpful in cognitive enhancement. Ayurveda mentioned list of plants that are used and practiced for the treatment of neurological disorders in traditional indigenous medicine. The medicinal plants possess positive effects on various cognitive functions by means of its multifold action. The selected mentioned drugs in the study can be useful for treatment of neuropsychiatric disorders and capable of enhancing cognitive performance. These herbs can prove better medicaments in case of Cognitive Decline.

**KEYWORDS:** Ayurveda, Cognition, *Pradnyaparadha*, *Sadnyasthapan*, *Medhya*.

### INTRODUCTION

Medicinal herbs are a potential source of therapeutic aids and have gained significant importance in the healthcare system all over the world for both humans and animals in diseased conditions and to maintain proper health. The medicinal plants have been used for the prevention as well as curing of various ailments in the ancient indigenous science of Ayurveda. More than 2000 herbal plants are being used in the treatment of a number of diseases all over India. Out of which many plants found to be useful in the treatment for the management of symptoms associated with brain functioning and neurological disorders. These drugs are grouped under "*Medhya* drugs" supposed to act on mind and the nervous system<sup>1</sup>.

In Ayurvedic literature, Acharya Charaka had mentioned that the improper usage of *Kala* (time), *Buddhi* (intellect) and *Indriya* (Senses) leads to prognosis of ill health of body and mind<sup>2</sup>.

WHO defines health as "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity<sup>3</sup>. Both physical and mental health contribute to maintain good health of a person. Central nervous system co-ordinates all body functions in an organism through its complex integrated circuits. Body and mind is the place where various factors

lead to the genesis of diseases. And at the same place happiness is experienced.

According to Ayurvedic literature, mind has three folds-*Satva*, *Rajz* and *Tam*. The equilibrium among them is necessary to maintain a healthy condition of mind<sup>4</sup>. While *Vata*, *Pitta*, *Kapha* are the three *Doshas* responsible for maintaining physical health. Their unequilibrium among themselves results in ill health and leads to prognosis of various mental diseases associated with behavioral and physiological symptoms.

### Modern Review

The word cognition comes from the Latin verb *cognacs*. (con = with & gnus = to know).

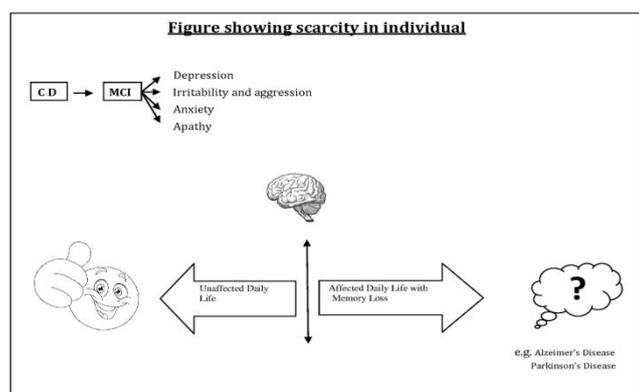
Cognitive Decline (CD) is a cognitive deficit that is present with many of neuropsychiatric conditions and/or alone as a developmental deficit. CD is a brain function syndrome involving the onset and evolution of cognitive impairments beyond those expected based on the age and education of the individual without significant interference of daily activity<sup>7</sup>.

It is a transitional stage between normal aging and Dementia. CD can be present with a variety of symptoms. Individual with MCI (Memory Cognitive Impairment) does not meet diagnostic guidelines for dementia.

In CD, memory loss is the predominant symptom. Memory is a relatively permanent storage form of the learned information<sup>8</sup>. e.g. trouble in recalling ones name. It is known as ‘amnesic MCI’. This symptom is mostly seen at earlier stage of Alzheimer disease, while individuals may not meet neuropathological criteria for the disease<sup>9</sup>.

A person with MCI is at an increased risk of developing Alzheimer's or another dementia.

Figure showing scarcity in individual



In ‘nonamnesic MCI’, individual have impairment in domains (groups of related items) other than memory. In this case, memory is working but starts forgetting important information.

**DIAGNOSIS**

CD is difficult to diagnose clinically but it can be experienced by- Depression, Irritability and aggression, Anxiety and Apathy.

It is diagnosed on the basis of:

1. Evidence of memory impairment
2. Prevention of general cognitive and functional abilities
3. Absence of diagnosed dementia

It requires considerable clinical judgment. Minute clinical observation, Neuro imaging, blood tests and neuropsychological testing are helpful for diagnosis of CD.

**TREATMENT**

No medications are currently approved by the U.S. Food and Drug Administration (FDA) to treat mild cognitive impairment, expect treatment with Benzodiazepine and barbiturates.

**DISCUSION**

Symptoms observed in CD resemble the symptoms as mentioned by Charak under first chapter of *Sharirsthana* in the Samhita.

*Budhya Vishanm Vidnyam...*[Charak Samhita/ Sharirsthana-1/101]

*Visham dnyan, Aathyoogya dnyan Alpa dnyan* of subjective cognition is the *Pradnyaparadha*.

*Dhee Dhruti Smruti Vibhransha .....*

*..... Dnyatatvya Dukhahetawa* [Charak Samhita/Sharirstana1/98]

Repeated consumption of unhealthy food and regimen for the body, results in *Pradnyaaparadha*. It has three folds-*Dhee* (intellect), *Dhruti* (Cognition) and *Smruti* (Memory)<sup>10</sup>. These all together or alone becomes individual incapable of working in day to day life. Above mentioned three folds of *Pradnyaaparadha* split ends in unbeneficial happenings for health by individual<sup>11</sup>. This group of related responsible factors is the *Pradnyaaparadha*. It is the root cause for starting prognosis by means of vitiation of bodily *Tridosha* and neurological *Doshas*. Ultimately it result in deteriorate condition of the body.

**Ayurved therapy**

*Prashatmatyaoshaghei .....*

*.....Smrutee Samadhibhi* [Charak Samhita/ Sutrasthana 1/ 58.]

The treatment of neurological condition include *Dnyan* (Spiritual knowledge), *Vignyan* (Medical knowledge), *Dhairya* (Patience), *Smruti* (Memory) and *Samadhi* (Concentration)<sup>12</sup>. Acharya Charaka also mentioned specific group of drugs that are beneficial in maintaining healthy neurological condition. It includes ten different herbs that posses supporting resuscitative multi-dimensional action for proper working in such impairments. *Satvajaya* (psychotherapy) and *Rasayan* (adaptogens- including immunomodulators, anti-stress and rejuvenation drugs) therapy also found to be useful in treating physiocycological condition.

*Hingukaitaryamedavacha.....*

*...Etedasemanisadnyasthapan bhawanti.* [Charak Samhita/ Sutrastana 4/ 48]

It is the group of ten herbs including *Hingu*, *Kaitarya*, *Arimeda*, *Vacha*, *Chorak*, *Vayastha*, *Golomi*, *Jatila*, *Palankasha*, *Katuki*<sup>13</sup>. These herbs shows therapeutic action in neurological disorders by possible mechanism of action by means of attributes possessed by each individual as summarized in the chart. There are also list of drugs like *Shankhpushpi*, *Jyotismati*, *Nagadamani*, *Vedamusk* practiced for in different parts of India<sup>14</sup>.

The herbal drugs useful in neuropsychiatric disorders and capable of enhancing cognitive performance are summarized in the following table.

Table showing useful herb in CD

S. No.	Latin Name of herb	Common Indian Name	Part Used	Active Chemical Constituents	Recent Studies Done
1.	<i>Ferula narthex</i> (Boiss)	<i>Hinga</i>	Exudates	Asaresinotannol, Disulphide	Act on CNS <sup>13</sup> as radical
2.	<i>Melia azedarach</i> (Linn)	<i>Mahanimba</i>	Flower, Leaves	Azadiridin, Margocin	Scavenging activity. <sup>14</sup>
3.	<i>Acorus caramus</i> (Linn)	<i>Vacha</i>	Root	Asarones, Acorones, B-fanrese, Octaoic acid	Act as immunostimulants <sup>15</sup> and enhance humoral immune responses. <sup>16</sup>
4.	<i>Acacia farisiana</i> (Willd)	<i>Irimeda</i>	Heart -	Catachin, Catechutaic	Acts on CNS. <sup>17</sup>

			wood	acid, B-sitosterol	
5.	<i>Agelica archangelica</i> (Linn)	<i>Chandda</i>	Root	Acidic compounds, Coumarins	Antioxidant and Free Radical Scavenging Activities. <sup>18</sup>
6.	<i>Cetallia asiatica</i> (Linn)	<i>Brhami</i>	Whole plant	Cassia acid, Asiatiside, Madecassoide, Brahmi acid	Acts as anticonvulsant. <sup>19</sup>
7.	<i>Selinum tenuifolium</i> (Wall)	<i>Jatamansi bheda</i>	Root	Athracyaosides, Flavois Acid, Quioes, Polyphenols	Cognitive-enhancing and anti-oxidant properties. <sup>20</sup>
8.	<i>Nardostachus jatamansi</i> (DC)	<i>Jatamansi</i>	Root	Jatamansin, Jatamansone	Act on inflammatory coindition. <sup>21</sup>
9.	<i>Commiphora Mukula</i> (Hook)	<i>Gugglu</i>	Exudates	Comphorie, Quercin, Guggul-tetrol, Ferulic acid	Shows antioxidant properties. <sup>22</sup>
10.	<i>Picrorhiza kurro</i> (Royle)	<i>Katuki</i>	Root	Picrorhizin, Kutkin, D-maitol, Kutakiol	Acts Antioxidant. <sup>23</sup>
11.	<i>Celastrus paniculatus</i> Willd	<i>Jyotishyamati</i>	Seed	(1 $\alpha$ , 2 $\alpha$ , 8 $\beta$ , 9 $\beta$ )-1, 8-bis (acetyloxy)-2, 9-bis (benzoyloxy)-14-hydr oxy- $\beta$ -dihydroagarofuran	Shows Immunomodulatory <sup>24</sup> action
12.	<i>Salix caprea</i> Linn	<i>Jalavtetas</i>	Flower	Kaempferol, Luteolin, Apigenin, Naringenin quercetin isorhamnetin, Luteolinsalicaprin Capreoside, Salicapreoside	Shows Anti inflammatory activity <sup>25</sup> .

Though the selected drugs showed differences in term of *Rasa, Veerya, Vipak, Guna, Karma*, they have multi-fold actions which in turn alter the neuropsychiatric activity during development and ageing in CD in terms of pathogenesis. The scientific studies conducted in recent years with these drugs have proven targeted approach such as anti-convulsion properties, anti-inflammatory activity, neuro-protective effect, increased blood flow at neuropathy, which is responsible for the improvement of overall brain function.

### CONCLUSION

1. CD remains leading cause of mental and physical disability and its conventional therapy provide moderate relief.
2. The symptoms in CD resembles with the symptoms mentioned by Charak as in '*Pradnyaparadha*.'
3. Selected plants are found to be promising for cognitive enhancing property, leading to the development of valuable medicine for CD in terms of safety.

### SCOPE OF STUDY

Though modern existing parameters come from in-vivo studies, assessment of possible effect by using these herbal drugs can be studied to better determine the efficacy.

### REFERENCES

1. Sharma P.V., Dravyaguna vignana. 13th Ed. Varanasi, Chaukhamba Vishwa Bharati Academy. 1992; p: 3-5.
2. Kashinath Pandey, Ghorakhnath, Charak Samhita, Part-1, Varanasi, Chaukhamba Bharati Academy, Varanasi, p.31.
3. [http://www.who.int/features/factfiles/mental\\_health/en](http://www.who.int/features/factfiles/mental_health/en)
4. Kashinath Pandey, Ghorakhnath, Charak Samhita, Part-1, Varanasi, Chaukhamba Bharati Academy, Varanasi, p.32.
5. Petersen RC, Smith GE, Waring SC, Ivnik RJ, Tangalos EG, Kokmen E "Mild cognitive impairment: clinical characterization and outcome". Arch. Neurol (1999). 56 (3): 303-8.
6. Vander AJ, Sherman JH, Luciano DS Human Physiology., Boston, McGraw Hill. 1998; p: 365-368.
7. Petersen RC, Parisi JE, Dickson DW, et al. "Neuropathologic features of amnesic mild cognitive impairment". Arch. Neurol. (2006). 63 (5): 665-72.
8. Y.G.Joshi; Charak Samhita; 1<sup>st</sup> edition; Pune; Vaidya Mitra Prakashana; 2003; p:168. (C.S./Sharirstana 1/98).
9. Y.G.Joshi; Charak Samhita; 1<sup>st</sup> edition; Pune; Vaidya Mitra Prakashana; 2003; p:218. (C.S./Sharirstana 1/102).
10. Kashinath Pandey, Ghorakhnath, Charak Samhita, Part-1, Varanasi, Chaukhamba Bharati Academy, Varanasi, p.34.
11. Kashinath Pandey, Ghorakhnath, Charak Samhita, Part-1, Varanasi, Chaukhamba Bharati Academy, Varanasi, p.97.
12. An Appraisal of Tribal Folk Medecines, New Delhi, CCRAS, 1999, P.19.
13. CNS-Coleman DE. "The effect of certain homeopathic remedies upon the hearing". J Am Inst Homeopathy 1922;15:279-81.
14. Ali Dehpour et al, "Antioxidant activity of the methanol extract of Ferula assafoetida and its essential oil composition", grasas y aceites, 60 (4), julio-septiembre 2009, p.405-412.
15. Sharma ML, Rao CS, Duda PL., "Immunostimulatory activity of Picrorhiza kurroa leaf extract". J Ethnopharmacol. (1994); 41: 185-192.
16. Vohora SB1, Shah SA, Dandiya PC, "Central nervous system studies on an ethanol extract of Acorus calamus rhizomes", J Ethnopharmacol. (1990) Feb; 28(1):53-62.
17. Kandhasamy Sowndhararajan, Jince Mary Joseph & Sellamuthu Manian, "Antioxidant and Free Radical Scavenging Activities of Indian Acacias: Acacia Leucophloea (Roxb.) Willd., Acacia Ferruginea Dc.,

- Acacia Dealbata Link. and Acacia Pennata (L.) Willd” Indian Jou of Food Properties, vol16, 2013 issue8.vol16 2013 issue8, 1717-1729.
18. Jarogniew J. Luszczki et al. “Anticonvulsant Anticonvulsant and acute neurotoxic effects of imperatorin, osthole and valproate in the maximal electroshock seizure and chimney tests in mice: A comparative study”, Epilepsy Results, August 2009, Volume 85, Issues 2-3, 293-299.
  19. Veerendra Kumar, YK Gupta, “Effect of Centella asiatica on cognition and oxidative stress in an intracerebroventricular streptozotocin model of Alzheimer's disease in rats”, Clinical and Experimental Pharmacology and Physiolog, Volume 30, Issue 5-6, May 2003, 336-342.
  20. Uniyal et al, “Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya”, Journal of Ethnobiology and Ethnomedicine, (2006).
  21. Naznum Nyle et al, “ The role of antioxidant properties of Nardostachys jatamansi in alleviation of the symptoms of the chronic fatigue syndrome”, Behavariol Brain Research Vol 202, Issue 2, 2009, p.285-290.
  22. B.Ramesh & D. Saralakumari, “Antihyperglycemic, hypolipidemic and antioxidant activities of ethanolic extract of Commiphora mukul gum resin in fructose-fed male Wistar rats”, Journal of Physiology and Biochemistry December 2012, Volume 68, Issue 4, pp 573-582.
  23. Amit Gupta et al, “Immunomodulatory activity of biopolymeric fraction RLJ-NE-205 from Picrorhiza kurroa”, International Immunopharmacology, Vol 6., Issue 10, 2006, 1543-1549.
  24. Ajaz Ahmed at al. “In-vitro anti inflammatory activity of Salix caprea Linn. (goat willow) by HRBC membrane stabilization method”, Vol.4.Issue 4. April 2011, P.1067-1068.

**Cite this article as:**

Surve P. P, Burley A.K. Traditional Used Plants Against Cognitive Decline. International Journal of Ayurveda and Pharma Research. 2017;5(3):79-82.

**Source of support: Nil, Conflict of interest: None Declared**

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