



Review Article

Exploring Potential of *Kushmanda Avaleha* in a Memory Enhancement – A Comprehensive Review

Dr. Divyarani^{1*}, Reeti Rastogi²

^{1*}Associate Professor, Dept. of Samhita Siddhanta and Sanskrit, YAMCH, Yenepoya (Deemed to be) University Deralakatte, Mangaluru Karnataka – 575018, divya.hpatil@gmail.com Mob – 9164094504/8770990868

^{2*}Assistant Professor, Dept of Psychiatry, YMCH, Yenepoya (Deemed to be) University, Deralakatte - 575018, Mangaluru, Karnataka

Abstract

Ayurveda is an ancient Indian medical system, and it is based holistic approach to physical and mental health. Ayurveda has eight major disciplines that are collectively known as Ashtanga Ayurveda. *Rasayana Chikitsa* is one among the Ashtanga Ayurveda and it is a unique branch of Ayurveda, which comprises a specialized use of herbs, herbal-mineral formulations, food articles, and lifestyle along with self-discipline with social etiquette to achieve the optimum state of tissues and systems of the body. Some of these *Rasayanas* are having intellect-promoting drugs called *Medhya Rasayana*. Such *Rasayanas* act on the brain and helps in the improvement of memory power, retention and grasping power. A large number of drugs like *Shankhapushpi*, *Mandookaparni*, *Guduchi*, *Ashwagandha*, *Kushmanda* etc. are mentioned under *Medhya Rasayan*. *Kushmanda Avaleha* is a formulation with multi-ingredients mentioned as *Smriti Vardhaka* drug in the Ayurvedic literature and it is having *Medhya* effect by its *Prabhava*. The main ingredient of this herbal formulation is *Kushmand* (Benincasa Hispida) which is Ash gourd. Thus, this article is emphasized on compiling and exploring various references of *Kushmanda* formulations and its ingredients which help in the brain functions. All the information has been placed here in comprehensive manner.

Keywords: *Medhya Rasayan*, *Kushmanda Avaleha*, Benincasa Hispida, Memory.

***Author for correspondence: Email:** divya.hpatil@gmail.com

Received: 02/09/2024 Accepted: 05/09/2024

DOI: <https://doi.org/10.53555/AJBR.v27i2S.1614>

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INTRODUCTION

Ayurveda is a widely practiced system of traditional medicine in India. The knowledge about medicinal plants at an early age was documented systematically and organized scientifically in Ayurvedic Samhitas, Nighantus and other texts. These structures or texts provide many references to medicinal plants. *Medhya Rasayana* is a group of medicinal plants described in Ayurveda (Indian system of medicine) with multi-fold benefits, specifically to improve memory and intellect by *Prabhava* (specific action). *Medha* means intellect and/or retention and *Rasayana* means therapeutic procedure or preparation that on regular practice will boost nourishment, health, memory, intellect, immunity and longevity¹. *Medhya Rasayanas* are used

either in polyherbal preparations or alone. Mainly there are four plants famous and mentioned as *Medhya Rasayana*, that can be used singly or in combinations. They are *Mandukaparni*, *Yastimadhu*, *Guduchi* and *Shankhapushpi*.² But there are many other drugs that are in practice and mentioned in Ayurveda classical textbooks as *Medhya* by their effect. They are *Aindri*, *Jyothishmati*, *Kushmanda*, *Vacha* and *Jatamamsi* etc. In ancient medical systems formulations of *Kushmanda* is used as a medicine for many diseases. The familiar name for *Kushmanda* is Ash gourd. The most famous sweet, 'Agra ka Petha', is also prepared using this *Kushmand*. It has a tissue-protective preventive effect on colchicine-induced Alzheimer's disease via direct and indirect antioxidant activity³.

Aim

Analyzing the effect of *Kushmanda Avaleha* as a memory enhancer.

Materials and Methods

An extensive literary review was done from standard Ayurvedic texts, Research Articles, the Internet etc. to elaborate on the concept of memory according to Ayurveda and about the role of *Kushmanda Avaleha* in its Memory boosting effect.

Review of Kushmand Avaleha

Extensive literature search pertaining to *Kushmanda avaleha* was performed through available classical treatises such as

Charaka Samhita, *Sushruta Samhita*, *Astanga Hridaya*, *Yogratnakara*, etc.,

Kushmanda Avaleha is a polyherbal ayurvedic formulation, rich source of carbohydrates. *Kushmanda* is one of the *Medhya Rasayana* as described by Bhava Mishra⁴. *Kushmanda Avaleha* is also mentioned as *Medha-Smriti Balapradam*.⁵

In-depth meticulous appraisal of classical authoritative texts spotted that *Kushmanda Avaleha* has been documented in around 20 treatises under 12 different nomenclatures stated as *Kushmanda Rasayana*, *Kushmandaka Rasayana*, *Khanda kushmandaka*, *Khanda Kushmanda*, *Khandakushmanda*, *Khandakushmandakavaleha*, *Kushmanda avaleha*, *Kushmanda Khanda*, *Brihat Kushmanda avaleha*, *Kushmanda Paka Brihat*, *Kushmanda Paka Mahan*.⁶

Table 1: Ingredients used for preparation of Kushmanda Avaleha

Kushmanda Avaleha – Ingredients	Quantity
Kushmanda (Kushmand or Petha) – Benincasa Hispida fruit Pieces without seeds and outer skin	200 Parts (4kgs)
Water	800 Parts(8liters)
Ghee – Clarified Butter	32 Parts(320gms)
Sharkara – Sugar	200 Parts(4kgs)
Pippali (Long Pepper) – Piper Longum	8 Parts(2pala)
Sonth (Ginger Rhizome) – Zingiber Officinale	8 Parts(2pala)
Jeera (Cumin Seeds) – Cuminum Cyminum	8 Parts(2pala)
Dhania (Coriander) – Coriandrum Sativum	1 Parts (half Pala)
Tejpata (Indian Bay Leaf) – Cinnamomum Tamala	1 Parts (half Pala)
Elachi (Green Cardamom) – Elettaria Cardamomum	1 Parts (half Pala)
Kali Mirch (Black Pepper) – Piper Nigrum	1 Parts (half Pala)
Dalchini (Cinnamon) – Cinnamomum Zeylanicum	1 Parts (half Pala)
Shahad (Madhu) – Honey	16 arts

Discussion

On exploring various scientific journals and online databases, to substantiate the efficacy of its ingredients in cognitive ailments through manifold mechanisms in CNS stimulant is analysed here.

Kushmanda - is mentioned as one of the *Medhya* drug in the Ayurvedic literature, *Kushmanda Ghrita* showed statistically highly significant results in Memory boosting.⁷ Also, *Kushmanda* is used for the treatment of *Unmada* and *Apasmara*.⁸

Ghrita - is the *uttama sneha*, considered best for stimulation of digestion, promotion of longevity, promotion of memory and intellect, and further described as *yogavahi rasayana*, which means that any drug processed with *ghrita* will possess the quality of the added drug.⁹

Sugar - Brain functions such as thinking, memory, and learning are closely linked to glucose levels and how efficiently the brain uses this fuel source. If there isn't enough glucose in the brain, for example, neurotransmitters, the brain's chemical messengers, are not produced and communication between neurons breaks down.¹⁰

Long Pepper - acts as a *Rasayana*. *Vardhamana pippali*¹¹ is well appreciated for the purpose of *Rasayana*. It's also having an effect as *Kasahara*, *Shvasahara*, *Hikkanigrahana* and *Rasayana Medhya*.¹² Pharmacological activities of Pippali are Antibacterial, anti-inflammatory, insecticidal, antimalarial, and CNS stimulant.¹³

Ginger - Bioactive compounds found in ginger increase the activity of acetylcholine, a neurotransmitter that plays an important role in learning and memory. Ginger has traditionally been used to treat memory loss and dementia. Now, research shows that it enhances a wide variety of other cognitive functions besides memory. When healthy adults were given dried ginger supplements, they showed improvements in working memory, reaction time, and attention. Ginger may slow the progression of Alzheimer's and many brain disorders are linked to chronic inflammation of the brain like anxiety, dementia, depression, post-traumatic stress disorder, schizophrenia and suicidality¹⁴ due to its anti-inflammatory property which will help in brain health and function.

Cumin - will help the body by stimulating the central nervous system to be more effective. This can result in a sharper memory and greater control over limbs. Cumin might even be able to help treat Parkinson's disease because of its contribution to the body's central nervous system function.¹⁵

Coriander seeds - The antioxidants in coriander may reduce brain inflammation, improve memory, and reduce anxiety symptoms, though more research is needed.¹⁶

Bay leaves - contain antioxidant properties that can help to improve memory and reduce other cognitive problems from ageing, like neurodegenerative disorders.¹⁷

Cardamom - is really good for Brain Health, Cardamom is particularly good for the brain since it increases memory and thinking ability.¹⁸

Black Pepper - Black peppers are also full of a variety of other vitamins. These can improve the mood of the person who eats them, as well as help to improve brain function. By improving brain function, memory can also be improved. Studies have shown that piperine, the primary component in black pepper, can help improve brain function and lower depression symptoms.¹⁹

Cinnamon - The main outcome of most studies (n = 40) proved that cinnamon significantly improves cognitive function (memory and learning). In vivo, studies showed that using cinnamon or its components, such as eugenol, cinnamaldehyde, and cinnamic acid, could positively alter cognitive function.²⁰

Honey - The research set out that honey has memory booster effects to treat dementia and cognitive deterioration. It improves the cholinergic system and blood flow in the brain and has antioxidant effects.²¹

Conclusion

Thus, as per the literature available on the ingredients of *Kushmanda Avaleha*, this presents an update and analysis done on the ingredients of *Kushmanda Avaleha*, each ingredient helps in memory enhancement. Hence *Kushmanda Avaleha* shows its effectiveness as a memory enhancer. The evidence used are mostly facts from research on animal models or on bioactive principles with some preclinical works on the human system.

Acknowledgement

To Yenepoya (Deemed to be) University and Yenepoya Ayurveda Medical College, Mangalore for providing the necessary facilities and supporting the study.

Financial support and sponsorship

Yenepoya (Deemed to be) University, Deralakatte, Mangalore

Conflicts of interest

There are no conflicts of interest.

References

1. Bharti, et al: Experimental Study on Albino Rats to Evaluate the Anti-Anxiety Effect of Kushmanda Beej Choorna, IJAHM, 2018
2. Deane Alban, <https://bebrainfit.com/ginger-health-benefits/#>
3. Dr. Annamoreswar kunte & Krishna Ramachandra Shastri, Astanga Hridaya with the Sanskrit commentaries Sarvanga Sundar by Arunadatta & Ayurveda Rasayan by Hemadri, Chikitsa Sthana: Kasa Chikitsa Adhyaya: Chapter 3: Verse 117, Choukambha Orientalia, Varanasi, 2017, pg.no. 596
4. Dr. Gyanendra Pandey, Dravyaguna Vigyana, Chaukambha Krishanadas Academy, Varanasi, Reprint 2004; 3:116-122.
5. Dr. Sheetal Sharma, et al., Exploring potential of Kushmanda Avaleha in respiratory illness – A comprehensive review, BLDE University Journal of Health Sciences | Published by Wolters Kluwer – Medknow, July 19, 2022, Pg. No. 27-34.
6. <https://hms.harvard.edu/news-events/publications-archive/brain/sugar-brain#>
7. <https://share.upmc.com/2015/02/spices-boost-brain/#>
8. <https://www.healthkart.com/connect/did-you-know-cardamom-benefits-you-not-only-physically-but-also-mentally>
9. <https://www.healthline.com/health/cumin-benefits>
10. <https://www.healthline.com/nutrition/coriander-benefits#4.-May-protect-brain-health>
11. <https://www.tuasaude.com/en/bay-leaf/#>
12. Nurul Ashykin Zamri, Honey on brain health: A promising brain booster, Published online 2023 Jan 17. doi: 10.3389/fnagi.2022.1092596
13. Rajni Chandre, et al; Clinical evaluation of Kushmanda Ghrita in the management of depressive illness, AYU, Apr-Jun 2011, Vol 32, Issue 2.
14. Rajni Chandre, et al; Clinical evaluation of Kushmanda Ghrita in the management of depressive illness, AYU, Apr-Jun 2011, Vol 32, Issue 2.
15. Reena Kulkarni, et al: Nootropic herbs (Medhya Rasayana) in Ayurveda: An update Pharmacognosy Reviews, July-December 2012, Vol 6, Issue 12.
16. Sadhana Singh, Pharmacognostical and phytochemical analysis of Pippali (Piper longum Linn.), The Pharma Innovation Journal, 2018; 7(6): 286-289.
17. sSamaneh Nakhaee, Nutr Neurosci, Cinnamon and cognitive function: A systematic review of preclinical and clinical studies, 2023 Jan 18; 1-15. doi: 10.1080/1028415X.2023.2166436. (Online ahead of print.)
18. Sushruth Kumar Jain, et al: Application of Medhya Rasayana in Astanga Ayurveda: A Review, Pharm. Sci. Innov. (JPSI) 2016; 5(6).
19. Vd. Yadavaji Trikamaji Acharya, Charaka Samhita - Ayurveda Dipika commentary by Chakrapani, Chikitsa Sthana, Rasayana Adhyaya, Chapter 1: Pada 3, Verse 30, Choukambha Surbharati Prakashan, Varanasi, Edition 2011.
20. Vd. Yadavaji Trikamaji Acharya, Charaka Samhita - Ayurveda Dipika commentary by Chakrapani, Chikitsa Sthana, Rasayana Adhyaya, Chapter 1: Pada 3, Verse 36 – 40, Choukambha Surbharati Prakashan, Varanasi, Edition 2011.
21. Vijaysinh Babasaheb Patil, et al: Conceptual Study of Kushmanda Ghrita Nasya as A Memory Booster, IAMJ, October, 2017, 5(10).