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Ayurveda nootropic herbal drugs in current lifestyle management WSR cognitive health and mental well-being

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Abstract

Introduction. The growing prevalence of lifestyle disorders has increased interest in cognitive health and mental well-being. *Ayurveda* offers a holistic approach through *Medhya Rasayana* – a class of herbal interventions aimed at enhancing intellect (*Dhi*), retention (*Dhrti*), and memory (*Smriti*).

Aim. This article explores the classical Ayurvedic concept of nootropic agents, detailing their physiological basis in relation to *Dosha* balance and mind-body functions.

Materials and methods. A range of herbs such as *Shankhapushpi* (*Convolvulus pluricaulis*), *Brahmi* (*Bacopa monnieri*), *Jatamansi* (*Nardostachys jatamansi*), *Mandukaparni* (*Centella asciatica*), *Guduchi* (*Tinospora cordifolia*), *Ashwagandha* (*Withania somnifera*), *Amalaki* (*Phyllanthus emblica*), *Sarpagandha* (*Rauvolfia serpentina*), *Hareetaki* (*Terminalia chebula*), *Shatavari* (*Asparagus racemosus*), *Vacha* (*Acorus calamus*), and *Jyotishmati* (*Celastrus paniculatus*) added with importance of ghrita (medicated ghee) as suitable dosage are discussed with classical references and modern pharmacological evidence highlighting their neuroprotective, adaptogenic, and memory-enhancing effects.

Results and discussion. These nootropic agents work by helping to restore balance among the three *Doshas*, especially by calming Vata, Pitta and Kapha which play an important role in mental functions. They also support brain health by improving communication between neurons and aiding in the repair and nourishment of nerve tissues. These herbs act as natural antioxidants, protecting brain cells from damage caused by oxidative stress and helping to maintain overall cognitive function. The ghrita dosage form being lipid soluble molecules, have the capacity to cross the Blood Brain Barrier thus increasing the availability of active principles in the brain of the above mentioned nootropic agents.

Conclusion. By integrating traditional wisdom with contemporary research, *Medhya Rasayana* emerges as a viable, multifaceted strategy for cognitive enhancement and lifestyle disorder management in the modern era.

Keywords: *Ayurveda*, *Medhya Rasayana*, Nootropics, Cognitive enhancement, Lifestyle disorders, *Ghrita*

Conflict of interest. The authors declare that they have no obvious and potential conflicts of interest related to the publication of this article.

Contribution of the authors. Mohammed Faisal – study of conception. Vijay B. Negalur – analysis and interpretation of results. Punith P. – design of article. All authors reviewed the results and approved the final version of the manuscript.

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Аюрведические ноотропные растительные препараты в современном подходе к управлению образом жизни, когнитивному здоровью и психическому благополучию

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Резюме

Введение. Повсеместное распространение заболеваний, связанных с образом жизни («болезни цивилизации»), повысило интерес к возможности сохранения когнитивного здоровья и психического благополучия. Аюрведа предлагает комплексный подход посредством *Medhya Rasayana* – комплекса растительных препаратов, направленных на улучшение интеллекта (*Dhi*), запоминания (*Dhrti*) и памяти (*Smriti*).

Цель. В данной статье рассматривается классическая аюрведическая концепция ноотропных средств, подробно описывается их физиологическая основа в сохранении физического, ментального и эмоционального баланса.

Материалы и методы. Ряд растительных объектов, таких как *Shankhapushpi* (*Convolvulus pluricaulis*), *Brahmi* (*Bacopa monnieri*), *Jatamansi* (*Nardostachys jatamansi*), *Mandukaparni* (*Centella asciatica*), *Guduchi* (*Tinospora cordifolia*), *Ashwagandha* (*Withania somnifera*), *Amalaki* (*Phyllanthus emblica*), *Sarpagandha* (*Rauvolfia serpentina*), *Hareetaki* (*Terminalia chebula*), *Shatavari* (*Asparagus racemosus*), *Vacha* (*Acorus calamus*), и *Jyotishmati* (*Celastrus paniculatus*) обсуждаются с использованием классических источников и современных фармакологических данных, подчеркивающих их нейропротекторные, адаптогенные и улучшающие память эффекты.

Результаты и обсуждение. Данные ноотропные средства действуют, помогая восстановить баланс между тремя Дошами (*Doshas*), особенно успокаивая Вату (*Vata*), Питту (*Pitta*) и Капху (*Kapha*), которые играют важную роль в умственной деятельности. Они также поддерживают здоровье мозга, улучшая связь между нейронами, способствуя восстановлению и питанию нервной ткани. Эти растительные средства действуют как природные антиоксиданты, защищая клетки мозга от повреждений, вызванных окислительным стрессом, и помогая поддерживать общую когнитивную функцию. Дозированная форма *Dhrti*, имея липофильные свойства, способна преодолевать гематоэнцефалический барьер, тем самым увеличивая доступность активных веществ вышеупомянутых ноотропных средств в мозге.

Заключение. Благодаря соединению принципов традиционной медицины с достижениями современных исследований, *Medhya Rasayana* представляет собой жизнеспособную, многогранную стратегию для улучшения когнитивных функций и лечения заболеваний образа жизни в современную эпоху.

Ключевые слова: аюрведа, *Medhya Rasayana*, ноотропы, улучшение когнитивных функций, заболевания образа жизни («болезни цивилизации»), *Ghrita*

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

Вклад авторов. М. Файсал – планирование исследования. В. Б. Негалур – анализ и интерпретация результатов. П. Пунит – разработка дизайна статьи. Все авторы ознакомились с результатами и одобрили окончательную версию рукописи.

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Introduction

Ayurveda is one of the most ancient sciences of life. The basic concept of *Ayurveda* about the healthy person is to maintain the equilibrium of *Shariri-ka* (Bodily) and *Manasika* (Mind) *Dosha* (Humour) [1] Urbanization and westernization of the world have brought many advantages which had led to an improvement in the quality of life. At the same time, it has given way too many disadvantages in the form of a sedentary lifestyle, improper dietary habits, and excessive mental stress, leading to cropping up of many life-

style disorders [2]. *Ayurveda* explains group of special remedies called *Medhya Rasayanas*, which help to improve memory, learning and emotional balance. In *Sanskrit*, *Medhya* means the ability to think clearly, remember well and stay focused.

More than 264 million people globally suffer from depression. Approximately 284 million people worldwide have an anxiety disorder. Mental health disorders affect over 1 billion people globally. About 800 000 people die by suicide every year, making it the second leading cause of death among 15–29-year-olds. Mental health conditions cost the global economy $1 trillion per year in lost productivity [3].

Good mental health is a sense of well-being, confidence, and self-esteem. It enables one to fully enjoy and appreciate other people in day-to-day life and in one's environment. When a person is mentally healthy, he/she can form positive relationships, use one's abilities to reach one's potential, and deal with life's challenges[1]. Subjective well-being refers to how one evaluates one's life and specific domains and activities in one's life[2].

In modern science, similar substances are called nootropics or brain boosters. *Ayurveda* uses natural herbs, healthy food, daily routines, seasonal care and rejuvenating therapies to improve brain function. This holistic approach supports mental health and also prevents diseases linked to modern lifestyle habits.

Today's fast- paced lifestyle, unhealthy diet and stress can harm brain health and lead to memory loss, anxiety and other problems. Herbs like *Brahmi, Shanka pushpi, Mandukaparni* etc are well known for improving concentration, reducing stress and protecting brain cells.

Materials and methods

The materials for this study were collected from classical Ayurvedic texts, including the *Charaka Samhita* and *Sushruta Samhita*, as well as from modern contempory literature and peer-reviewed journal articles. Based on traditional descriptions and contemporary scientific evidence, twelve major *Medhya Rasayana* herbs were selected, which includes *Shankhapushpi* (*Convolvulus pluricaulis*), *Brahmi* (*Bacopa monnieri*), *Jatamansi* (*Nardostachys jatamansi*), *Mandukaparni* (*Centella asciatica*), *Guduchi* (*Tinospora cordifolia*), *Ashwagandha* (*Withania somnifera*), *Amalaki* (*Phyllanthus emblica*), *Sarpagandha* (*Rauvolfia serpentina*), *Hareetaki* (*Terminalia chebula*), *Shatavari* (*Asparagus racemosus*), *Vacha* (*Acorus calamus*), and *Jyotishmati* (*Celastrus paniculatus*). The benefits of ghee (*Ghrita*) were also incorporated, as the formulations were specifically prepared with ghee for the management of mental disorders, in accordance with Ayurvedic principles that recognize ghee as a potent *Yogavahi* (catalyst) and *Medhya* (nootropic) substance.

Result

Lifestyle

Lifestyle is the way a person lives. Lifestyle is a distinguishing (typical or personal) group of behaviours adopted by a person which includes one's habits, customs, social group, mode of dress, general diet, kinds of entertainment, language characteristics and how one performs common daily activities of living. So, lifestyle is often an accurate reflection of our deepest values, attitudes, prejudices, moral standards, economic approaches and personal philosophy [1].

Lifestyles are adjusted through social interaction with parents, peer groups and through school and man media. Healthy lifestyle promotes health. Surveys and observations carried out during last three decades clearly indicate that there is an association between health and lifestyle of individuals. Many conditions like coronary heart disease, cancer, obesity, drug addiction are associated with changes of life style. Adequate nutrition, enough sleep, sufficient physical activity, can actually promote health. In English grammar, "pun" is explained by an example "Is life worth living?" and the answer is "That depends on the Liver" (one who lives or proper functioning of the organ liver) [4].

Lifestyle disorders

Life style disorder termed as the "disease those are associated with once lifestyle". It is the habit of person that detracts him from healthy activities to sedentary routine which is the main cause of various health issues. Lifestyle diseases are the diseases primarily based on the daily habits of the people as a result of inappropriate relationship with the environment. Lifestyle disorders are the results of an unbalanced diet. One could get trapped in a lifestyle disorder if their eating habits are linked to skipping meals, overeating and high intake of sugar and oily foods. A person who follows an unhealthy diet takes nutrition in all its forms. They are also easily affected by lifestyle related health issues such as diabetes, stroke and heart diseases.

Habits that detract people from activity and push them towards a sedentary routine can cause a number of health issues that can lead to chronic non-communicable diseases that can have near life threatening consequences. The lifestyle factors include diet, nutrition, physical fitness, cigarette smoking, alcohol, environmental pollutants, infections, stress, physical inactivity, hygiene, sleep, cultural and personal choice and social adjustments [5].

[1] Mental Health and Wellbeing. Available at: https://www.healthywa.wa.gov.au/Articles/J_M/Mental-health-and-wellbeing Accessed: 02.01.2024.

[2] Subjective Well-Being: Measuring Happiness, Suffering, and Other Dimensions of Experience. Available at https://nap.nationalacademies.org/resource/18548/dbasse_086038.pdf Accessed: 02.01.2024.

Ayurvedic Management of Lifestyle Disorders

In the management of lifestyle diseases, *Ayurveda* offers various regimens including *Ahara* and *Vihara* (dietary habits & daily routine), *Dinacharya* (Daily regimen), *Ritucharya* (Seasonal regimen), *Panchakarma* and *Rasayana* (Rejuvenation) therapies.

Ayurveda strategies explain various characteristics to manage life style that includes:

- Prevention of causative factors and maintained their balance.
- Lifestyle intervention Bio purification rejuvenation therapies.
- Restoration of physical, mental and systemic function of wellbeing.
- Palliative treatment.
- Yoga, Meditation and Good conduct.

Concept of Medhya & Medhya Rasayana

The Ayurvedic texts show a plentiful description of a class of drugs called *Medhya dravyas*, for the management of psychological, psychosomatic and psychiatric conditons/disorders. The word '*Medhya*' literally means mental vigor or power, understanding, intelligence, intellect, prudence, wisdom, retentiveness, memory. The substance or thing which is beneficial for the *Medha* is called *Medhya*. Medhya means a quality of the drug that stimulates or nourishes the brain. As per Ayurvedic understanding the medicine/drug or therapy or modalities which promotes *Medha* is *Medhya*. It is also known as *Prajna*. *Prajna* consists of three components. They are – *Dhi* or buddhi or intelligence, *Dhrti* or power of holding or retention and *Smrti* or memory [6].

Medhya effect of the drug is nothing but its basic quality of *Rasayana* property that which improves the *Prajna*. *Rasayana* literally means the method or measure by which one can obtain the qualities of dhatus or tissues. In fact, all drugs and measures, which may improve the flow of nutrients through the living tissues through a number of ways, lead to the *Rasayana* effect.

Mode of action of *Rasayana Dravyas*:

First, at the level of *Posaka rasa* by improving the nutritional value of the plasma. Second, at the level of *Agni* by promoting the digestion and metabolism, thus improving the tissue nourishment. Third at the level of *Srotas* by improving the microcirculation, thus allowing improved tissue perfusion and nourishment. Such drugs probably cause *sroto-visodhana*, in turn helping the improved circulatory function, which finally produces the desired *Rasayana* effect. Thus, *Rasayana* works at one or all the three above mentioned levels and produce beneficial effect.

References of *Medhya Rasayana* mentioned in our classics:

Mandukaparni Swarasa, Yastimadhu churna mixed with milk, *Guduchi swarasa* along with its root and flower and *Shankapushpi kalka*. These *Rasayana* recipes are *Medhya* (wholesome for intellect). Among them, the drug *Shankapushpi* considered as excellent for the promotion of *Medhya* (intellect) [7]. Powder of *Vacha*, gold and *bilva*- these three taken with ghee promotes intellect, life-span, immunity, development and charm. Oil cooked in decoction of *Vasa* root one *tula* with the paste of the same should be taken after offering oblations thousand times. It promotes intellect and life-span [8].

Benefits of Rejuvenation therapy:

Acharya Charaka has given the benefits as follows – a person undergoing rejuvenation therapy attains longevity, memory, intellect, freedom from diseases, youth, excellence of lustre, complexion and voice, excellent potentiality of the body and the sense-organs, *vaksiddhi* (perfection in deliberation), respect and brilliance [9].

The rasapanchaka (pharmacological property) of nootropic single drug (ekala dravya) is shown in Table 1 [10].

1. *Shankhapushpi (Convolvulus pluricaulis* Choisy): *Shankhapushpi* is a revered *medhya rasayana* in *Ayurveda* known for its profound calming effects on the nervous system. It is traditionally used to enhance memory, reduce anxiety, and promote peaceful sleep. As described in Ayurvedic texts like *Charaka Samhita*, it acts on the *manovaha srotas* (channels of the mind), promoting clarity of thought and emotional stability. Modern pharmacology attributes its calming action to the presence of compounds like convolvine, which have anxiolytic and neuroprotective properties.

Research Updates [11]:

- Active compounds: Convolvine, convolamine, β-sitosterol.
- Mechanism: Enhances cholinergic activity, reduces oxidative stress.
- Research: Animal studies show improved learning and memory retention. Increases acetylcholine levels in the brain. Useful in stress-induced memory deficits.

2. *Brahmi (Bacopa monnieri* (L.) Wettst.): *Brahmi* is one of the most esteemed herbs in Ayurveda for enhancing intellectual functions. It is classified as a *medhya* drug and is extensively mentioned in *Charaka Samhita* for improving memory, intellect, and reducing mental fatigue. Brahmi acts as a nervine tonic that soothes the mind and supports the brain's adaptability to stress. Bacosides, its active compounds, aid in neuronal repair and enhance synaptic communication, making it beneficial in anxiety, ADHD, and age-related cognitive decline.

Research Updates [12]:

- Active compounds: Bacosides A & B, alkaloids.
- Mechanism: Enhances synaptic transmission, neuroprotection, antioxidant.
- Research: Clinical trials in humans show improved attention span, cognitive processing, and memory recall over 12 weeks.

3. *Jatamansi (Convolvulus pluricaulis* Choisy): *Jatamansi* is a powerful tranquilizer and rejuvenator for the mind. It is extensively used in the treatment of insomnia, stress, and hyperactivity. Ayurvedic texts like

Table 1. **The rasapanchaka (pharmacological property) of nootropic single drug (*Ekala Dravyas*)**

Dravya	***Rasa* (Taste)**	***Guna* (qualities)**	***Virya* (potency)**	***Vipaka* (post-digestive effect)**
Shankapushpi	*Tikta* – bitter *Kashaya* – astringent	*Snigdha* – unctuous *Picchila* – sticky	*Shita* – cold	*Madhura* – sweet
Jatamansi	*Tikta* – bitter *Kashaya* – astringent *Madhura* – sweet	*Laghu* – light *Snigdha* – unctuous	*Shita* – cold	*Katu* – pungent
Brahmi	*Tikta* – bitter *Kashaya* – astringent	*Laghu* – light	*Shita* – cold	*Madhura* – sweet
Mandukaparni	*Tikta* – bitter	*Laghu* – light	*Shita* – cold	*Madhura* – sweet
Guduchi	*Tikta* – bitter *Kashaya* – astringent	*Guru* – heavy *Snigdha* – unctuous	*Ushna* – hot	*Madhura* – sweet
Ashwagandha	*Tikta* – bitter *Kashaya* – astringent	*Laghu* – light *Snigdha* – unctuous	*Ushna* – hot	*Katu* – pungent
Amalaki	*Lavana varjita Pancha rasa* – all taste without salt	*Laghu* – light *Ruksha* – drying	*Shita* – cold	*Madhura* – sweet
Sarpagandha	*Kashaya* – astringent *Tikta* – bitter	*Ruksha* – drying	*Ushna* – hot	*Katu* – pungent
Haritaki	*Lavana varjita pancha rasa* – all taste without salt	*Laghu* – light *Ruksha* – drying	*Shita* – cold	*Madhura* – sweet
Shatavari	*Madhura* – sweet *Tikta* – bitter	*Guru* – heavy *Snigdha* – unctuous	*Shita* – cold	*Madhura* – sweet
Vacha	*Tikta* – bitter *Katu* – pungent	*Laghu* – light *Tikshna* – strong	*Ushna* – hot	*Katu* – pungent
Jyotishmati	*Katu* – pungent *Tikta* – bitter	*Tikshna* – strong	*Ushna* – hot	*Katu* – pungent

Bhavaprakasha describe it as an herb that balances *Vata dosha* and nourishes the brain tissue (*majja dhatu*). Its neuroprotective activity is supported by the presence of jatamansone and other sesquiterpenes, which have been shown to modulate GABA levels and act as natural sedatives.

Research Updates [13]:

- Active compounds: Jatamansone, nardostachone.
- Mechanism: GABA agonism, antioxidant, anti-inflammatory.
- Research: Protective effect against scopolamine-induced memory loss. Enhances mental alertness and reduces depressive symptoms.

4. *Mandukaparni (Centella asiatica* (L.) Urb.): *Mandukaparni* is widely used in *Ayurveda* and traditional medicine systems as a brain tonic and anti-anxiety agent. Referred to as a *medhya rasayana* in classical texts, it promotes concentration, mental clarity, and emotional balance. The triterpenoid compounds in *Mandukaparni* help increase cerebral blood flow, reduce oxidative stress, and enhance neurogenesis, thereby promoting calmness and improving learning and memory.

Research Updates [14]:

- Active compounds: Asiaticoside, madecassoside.
- Mechanism: Stimulates nerve regeneration, enhances dendritic growth.
- Research: Improves memory, particularly spatial learning and working memory. Shown to increase neuronal dendritic arborization.

5. *Guduchi (Tinospora cordifolia* (Willd.) Miers): *Guduchi* is classified as a *Rasayana* and adaptogen in *Ayurveda*, primarily working by enhancing the body's resistance to stress and fatigue. Though not traditionally a *medhya* herb, its immune-boosting and *ojovardhaka* (Ojas-enhancing) qualities indirectly support mental health. Modern studies confirm its anti-inflammatory and antioxidant properties, which help mitigate neuroinflammation and support brain function under stress.

Research Updates [15]:

- Active compounds: Tinosporaside, berberine, cordifolioside.
- Mechanism: Modulates HPA axis, antioxidant and adaptogenic.
- Research: Enhances learning in passive avoidance models; promotes stress resistance and cognitive stability.

6. *Ashwagandha (Withania somnifera* (L.) Dunal): *Ashwagandha* is a prominent adaptogenic herb known for its calming and strengthening properties. In *Ayurveda,* it is described as *balya*, *rasayana*, and *nidrajanaka*, aiding in stress management, sleep regulation, and mental endurance. It calms the *Vata dosha*, which is responsible for anxiety and restlessness. Modern studies

show that withanolides in *Ashwagandha* reduce cortisol levels, enhance mood, and improve neuronal connectivity, making it effective in anxiety, depression, and cognitive decline.

Research Updates: [16]:

- Active compounds: Withanolides, sitoindosides.
- Mechanism: Promotes neurogenesis, reduces cortisol.
- Research: Restores memory and cognitive functions in Alzheimer's model; clinical trials show reduction in stress and improved cognition.

7. *Amalaki (Phyllanthus emblica* L.): *Amalaki* or Indian gooseberry, is a potent *Rasayana* with rejuvenating effects on the body and mind. It supports mental clarity, memory, and overall brain health through its *tridosha* balancing and *ojovardhaka* effects. Rich in antioxidants like vitamin C and polyphenols, *Amalaki* helps reduce oxidative stress in brain cells and supports neurotransmitter balance. Though not a primary *medhya* herb, it is essential in formulations aimed at mental rejuvenation.

Research Updates [17]:

- Active compounds: Ascorbic acid, ellagic acid, emblicanin A & B.
- Mechanism: Potent antioxidant, neuroprotective.
- Research: Reverses aging-related oxidative damage in brain, improves working memory and attention in aged rats.

8. *Sarpagandha (Rauvolfia serpentina* (L.) Benth.ex Kurz): *Sarpagandha* is a potent sedative herb traditionally used in the treatment of insomnia, hypertension, and certain mental disorders such as *unmada* (psychosis). *Sushruta Samhita* and other texts mention its efficacy in calming the nervous system and promoting restful sleep. The alkaloid reserpine in *Sarpagandha* depletes excessive catecholamines, thus reducing hyperactivity and agitation. However, its use is recommended with caution due to potent pharmacological activity.

Research Updates [18]:

- Active compounds: Reserpine, ajmaline, serpentine.
- Mechanism: CNS depressant; depletes monoamines.
- Research: Used traditionally for calming the mind in hyperactive states. Not a direct nootropic; may impair cognition on long use.

9. *Haritaki (Terminalia chebula* Retz.): *Haritaki* is a *Rasayana* known for its capacity to enhance memory, intelligence, and perception. While it is mainly recognized for its digestive and detoxifying actions, *Ayurveda* also credits it with *medhya* properties. It balances Vata, thereby calming an overactive mind. Modern research shows it possesses strong antioxidant properties, which may help protect brain tissue from degenerative changes and support mental clarity.

Research Updates [19]:

- Active compounds: Chebulinic acid, chebulagic acid, gallic acid.
- Mechanism: Antioxidant, reduces neural inflammation.
- Research: Improves memory and prevents neural degeneration in animal models exposed to neurotoxins.

10. *Shatavari (Asparagus racemosus* Willd.): *Shatavari* is a nourishing herb that primarily supports hormonal balance and emotional well-being. *Ayurveda* classifies it as *balya* and *rasayana*, making it suitable for enhancing *ojas*, which indirectly nourishes the mind. It is particularly helpful in managing stress-related mood fluctuations and mental exhaustion. Modern studies suggest that its saponins support HPA-axis regulation, reduce cortisol, and promote emotional resilience.

Research Updates [20]:

- Active compounds: Saponins (shatavarins), flavonoids.
- Mechanism: Modulates endocrine and immune response; neuroprotective.
- Research: Promotes learning, memory consolidation and anti-stress effects in rats.

11. *Vacha (Acorus calamus* L.): *Vacha* is a potent herb with stimulant and speech-enhancing qualities, widely recognized as *medhya* in *Ayurveda*. It sharpens intellect, improves memory, and is especially useful in conditions like speech disorders and mental dullness. It clears *kapha* from the head and stimulates the nervous system. The active compound α-asarone is known for improving synaptic efficiency and alertness, although its usage should be regulated due to safety concerns at high doses.

Research Updates [21]:

- Active compounds: α-asarone, β-asarone.
- Mechanism: CNS stimulant, enhances synaptic plasticity.
- Research: Improves cognitive function and learning in children; used in speech delay and developmental disorders.

12. *Jyotishmati (Celastrus paniculatus* Willd.): *Jyotishmati*, also known as the "elixir of intelligence", is traditionally regarded as a potent *medhya rasayana*. It enhances mental agility, learning ability, and memory retention. Classical texts describe it as *smriti vardhaka* (memory-enhancer). Its oil is often used for improving intellect and calming mental disturbances. Compounds like celastrine and paniculatine have shown cognitive-enhancing effects in modern studies, confirming its ancient use in neuropsychiatric disorders.

Research Updates [22]:

- Active compounds: Celastrine, paniculatine.
- Mechanism: Enhances acetylcholine levels, promotes dendritic growth.
- Research: Increases memory retention, neurogenesis, and is effective in models of amnesia.

Ghee (Grita) – Role as Medicinal preparation in cognitive disorder

Ghrita (clarified butter) is highly valued in *Ayurveda* as a *Medhya Rasayana*, meaning it promotes intellect, memory, and emotional stability. [23] Its unique *sukshma* (subtle) and *yogavahi* (carrier) properties allow it to deeply nourish brain tissues and enhance the effects of

medhya herbs like *Brahmi* and *Shankhapushpi*. *Ghrita* pacifies *Vata* and *Pitta* doshas, which are often responsible for mental restlessness, anxiety, and irritability. It supports *ojas* (vital essence) and enhances *satva guna* (clarity and calmness), making it effective in calming the mind, improving learning, and promoting sound sleep. Regular use is beneficial in mental fatigue, memory loss, and even in conditions like epilepsy or emotional disturbances.

Purana Ghrita [24] – Known for its enhanced potency over time, *Purana Ghrita* is beneficial in treating psychiatric disorders like *unmada* (insanity), *apasmara* (epilepsy), and memory-related issues. It is highly *medhya* (intellect-promoting) and balances *vata* and *pitta*. Few Examples of its preparations are *Maha Tikthaka Ghrita, Kalyanaka Ghrita*, *Maha paishachika Ghrita*, *Maha panchagavya Ghrita*.

Discussion

Ayurveda offers a holistic approach to strengthening cognitive health, especially in the face of modern lifestyle challenges such as stress, poor diet, and sedentary habits. *Medhya Rasayanas* like *Brahmi, Shankhapushpi, Jatamansi, Mandukaparni, Ashwagandha, Guduchi* etc are well known for enhancing memory, calming the mind, and improving resilience, and their effects are now supported by modern research showing neuroprotective, adaptogenic, and stress-relieving actions. These herbs not only sharpen intellect, memory, and concentration but also help manage psychosomatic conditions such as diabetes, psoriasis, thyroid disorders, and irritable bowel syndrome by working on the mind–body connection.

Among these, *Brahmi* and *Mandukaparni* are extensively documented for improving memory, attention, and learning ability through their nootropic properties. Their bioactive compounds, bacosides and triterpenoids respectively, enhance synaptic transmission, antioxidant defense, and neuronal regeneration, thereby supporting long-term cognitive resilience.

Shankhapushpi and *Jatamansi* act as neurorelaxants and adaptogens, modulating the hypothalamic-pituitary-adrenal (HPA) axis and promoting mental calmness without sedation. These herbs are known to enhance cholinergic activity, supporting both short- and long-term memory formation.

Ashwagandha, a Rasayana herb, exhibits anti-stress and neuroprotective effects by reducing cortisol levels and oxidative stress markers. Clinical studies have demonstrated its role in enhancing executive function, attention, and reaction time, making it a potent cognitive enhancer.

Guduchi and *Amalaki*, rich in antioxidants, further contribute to mitigating neuroinflammation and oxidative neuronal damage-factors linked to cognitive decline and neurodegenerative disorders.

Vacha and *Jyotishmati* have long been recognized as medhya dravyas (intellect-promoting herbs). *Vacha* supports mental clarity and verbal communication, while *Jyotishmati*'s alkaloids (celastrine and paniculatine) enhance neurotransmitter efficiency and synaptic plasticity, improving memory consolidation and learning ability.

Hareetaki has been historically recognized in Ayurveda as a "rejuvenating" or Rasayana herb, primarily used to promote longevity and cognitive clarity. Modern pharmacological studies have validated these traditional claims, demonstrating that Hareetaki possesses potent antioxidant and anti-inflammatory properties due to its rich content of polyphenols, tannins, and flavonoids.

Sarpagandha, commonly known as Indian snakeroot, has long been utilized in Ayurveda for managing anxiety, hypertension, and insomnia. Its principal alkaloid, reserpine, is known to deplete catecholamine stores (dopamine, norepinephrine, and serotonin) in the central nervous system, leading to sedative and tranquilizing effects. While chronic depletion of these neurotransmitters may have adverse effects if misused,

Shatavari, another key Rasayana herb, is traditionally regarded as a rejuvenator of both mind and body, especially in supporting emotional resilience and hormonal balance. Phytochemically, it contains steroidal saponins (shatavarins), flavonoids, and alkaloids that have been linked to anxiolytic, antidepressant, and cognitive-enhancing effects.

The nootropic herbs ayurvedic properties are less significantly implies to its pharmacodynamics as these drugs are acting by its special affinity (Prabhava) towards neurological cells. But herbs like Vacha and Jyotishmati which has strong penetrating property (*Teekshna*), hence minimum dose is prescribed.

Classical preparations like *Ghrita* further enhance their efficacy through deep nourishment and improved bioavailability. By blending timeless wisdom with scientific validation, *Medhya Rasayanas* emerges as safe, effective, and sustainable options for promoting mental clarity, emotional balance, and overall well-being in today's fast-paced world.

Conclusion

Ayurvedic *Medhya Rasayanas* provide safe and holistic support for memory, intellect, and emotional balance, making them highly relevant in today's stress-driven and sedentary lifestyles. Herbs like *Brahmi, Shankhapushpi, Ashwagandha,* and *Mandukaparni,* along with classical formulations such as Ghrita, not only enhance cognition but also help manage psychosomatic aspects of lifestyle disorders. By integrating ancient wisdom with modern scientific validation, these nootropic remedies stand as effective, sustainable strategies for maintaining mental clarity and overall well-being.

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