

A Review- Learning and Memory activity of Brahmyadi Ghrita

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Abstract

Brahmyadi Ghrita (BG) is one of the formulations recommended in Ashtangahridya Balrogadhikara as medhya & Smritivardhak. It contains 8 ingredients Brahmi, Kushta, Sariva, Pippali, Vacha, Sidhartaka, Goghrita Saindhav. These are mainly having Medhya, Rasayana, Krimihara, Shodhana, Hridya, Dipana, Pachana properties. In totality ingredient possess Tikta, Katu Rasa, Ushna Virya, Katu Vipaka. Due to these properties it acts as Kaphavatahar and by clearing 'Srotorodh' it makes the way for the action of Medhya drugs on target cells.

Keywords: Brahmyadighrita, Learning, Memory

Introduction

Human health is defined as per WHO is a state of complete physical, mental, social and spiritual well-being and not merely the absence of disease or infirmity¹. In Ayurved science the healthy individual is represented as one has equilibrium of Dosha² (Vata, Pitta, Kapha), Agni (metabolic activity), Dhatu (metabolites), Mala (proper elimination of waste products), Atma (soul), Indriya (sense organ) and Mana (mind)³. Functions of mind are correlated with the Buddhi (intellect), Dhi (decision making / yathaeth anubhava or perception of true knowledge.), Dhruti (Control over the Mind, grasping and retention capacity) and Smriti (memory / subjects ability to recall things)⁴. Dhi⁵, Dhruti⁶ and Buddhi⁷ takes part as a key role for grasping and learning of the subject, while Smriti helps to regain or subject ability to recall things.

Healthy mind exists in a healthy body because of change of life style, Eating of fast foods, improper regimen, excessive use of electronic devices. The Food eaten and regimen followed by mother during gestation. Due to these factors the Doshas in the body gets vitiated and makes the body and mind unhealthy, this in turn makes the process of learning is difficult task. In day today life many parents approach to physician to help their Children who perform low in school matters; Hence there is need to find out some improved physical and Learning ability.

Nowadays, in urban population of children 20-30% of kids are found as disability disorder as per study conducted by W.H.O. Learning disability is hampered due to stress, in competitive world. And due to these reasons, learning disabilities are found in children and symptoms include : Poor organizational skills, Loss of ability to understand and interpret the new things which are taught, Loss of interest in study Irritation during studies, Loss of concentration, Poor hand writing, Difficulty with reading comprehension or math skills. Some other Common Types of Learning Disabilities are Dyslexia (difficulty reading), Dyscalculia (difficulty with math), Dysgraphia (difficulty with writing) Brahmyadi

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Ghrita⁸ contains Brahmi⁹ which is proven medicine for number of disorders, particularly those involving intellect and poor memory. The plant has prominent action on CNS, where it improves understanding, memory, intellect, and speech, corrects aberrations of emotions, mood, personality in individuals. Its act as antipsychotic, smooth muscle relaxant, adaptogenic, antistress, anxiolytic, antidepressant, memory booster, learning facilitator. Vacha¹⁰ possess sedative, analgesic and antipsychotic effects. Kushtha¹¹ shows anticytotoxic, diuretic, hypolipidemic, hypotensive, spasmolytic, immunostimulant activity, Pippali¹² acts as CNS stimulant., Siddharthak¹³ is having antioxidant activity, Saindhav¹⁴ Lavana having penetrating effect i.e. sukshmaguna can reach upto cellular level. Goghrit possess Buddhi, smritivardhak, agnivardhak property. So conclusion for literary study is that almost all the drugs possess medhya activity. Hence Brahmyadi Ghrita (BG) increase the learning and memory capacity of Children.

Review

Review of Ayurvedic literature Buddhi

The term Buddhi is implied to the power of forming & retaining conception & general notions (Monier Villiam). It means intelligence or intellect. The term Buddhi is derived from the Sanskrit root Budh with the suffix of Ktin¹⁵. The term Mati synonym for Buddhi also give the meaning as above & derived from the Sanskrit root Mana with the suffix of Ktin.

Definition of Buddhi:

In the origin of universe, Mahat is an repercussion of Avyakta. However the same Mahat Tatva is called as Buddhi by Charaka¹⁶. It has been found that, the Buddhi is termed as Dnyana (Knowledge) in Ayurveda & different Darshana.

Some Ayurveda authors in ancient time & some Acharyas have mentioned that the process of all conduct or behaviour is called Buddhi¹⁷. In Nyaya Darshana & Vaisheshika Darshana Buddhi, Upalabdh and Dnyana has been considered synonyms. However, in Ayurveda Buddhi can be obtained with the help of Indriya & Mana. In Ayurvedic literature, such as Charaka Samhita, Susruta Samhita, it has been mentioned in different contents that the sense objects (Artha) are grasped by Sense organs

which are in contact with mind. There after the sense object is interpreted or understood by the mind (Mana) with its merits & demerits. Thus conclusive judgement is formed regarding the sense object i.e. matter in hand. Sense object, such as any Shabda or Rupa are grasped respectively by the auditory sense organ & sense organ of vision. There after these Shabda & Rupa of sense object are interpreted or understood by Mana.

Review of modern literature memory

The topic of memory is fundamental to the discipline of psychiatry. Memory¹⁸ provides the essential substrate for the cognitive activities that define human experience, it allows one to connect the present moment to what came before, and it is the basis of Cultural Revolution. Remembering and forgetting are two facets of the same coin and both are equally important in learning. The process of retaining and reproducing what has been learnt is known as remembering. The power of mind to retain and reproduce is called memory¹⁹.

Learning –It is the acquisition of knowledge through experiences i.e. Learning experience. If it is interesting so that they could create mental images that could be revised when needed.

Retention –It is the process of preserving the materials learnt. Nature of the learning material, amount of learning done, method of learning, speed of learning, mental set, attention, interest, appreciation, intention etc are some factors which influence the retention.

Recall – Means revival of memorized things whenever it is needed. There are two types of recall. They are spontaneous recall and deliberate recall. Appropriate mental set, right motives, healthy physique, right emotion, absence of inhibition, perfection of clues etc are factors helpful for easy recalling.

Recognition – It is the awareness of experiences by which we identify the material retained and recalled.

Review of BrahmyadiGhrita

There are different dosage forms like Single drugs, Churna, Ashava/Arista, Vati/ Guggulu preparations, Ghrita-oil, Bhasma/Rasaushadhis, Avalehetc. Are advocated in classical text to treat Unmadand Apasmar various dosage forms are given. Siddha ghrita (Medicated

ghee) is one of the best dosage forms available for the treatment of Unmada due to its lipophilic action which facilitates absorption and digestion of drug. Lipid soluble active ingredients present in drug get extracted in ghee during manufacturing process. Lipid soluble drugs can easily cross blood brain barrier (BBB) due to rich blood supply. BG is one of the medicated ghee formulation explain to treat Unmada. BG is explaining in Ashtang Hriday, Uttarsthana, chapter no.1, verse no. 42.

There are some formulations by name Brahmighrita in various texts like Ashtang Hruday, Charakasamhita and Sushruta samhita; but their ingredients are different from the above said Brahmyadighrita. This same composition has also been described by Vrrudh jivakin Kashyap samhita with the name Abhaya ghrita and Govind das sena in Bhaishajya Ratnavali by the name Ashtamangal Ghrita. In present study, reference of Brahmyadighrita was taken from Ashtang Hrudya as it is advocated for treatment of stammering, stuttering and psychosis. It prevents from viral, bacterial and other fatal infections. It also improves memory, cognition and helps to achieving longevity.

Review of ingredients of brahmyadighrita

1) Brahmi²⁰

Drug name: Brahmi

Botanical name: Bacopa monnieri

Family: Scrophulariaceae

Part used: Whole plant

Synonyms: Brahmi, Kapotvanga, Somavalli, Sarasvati, Mandookparni, Madnooki, Divya, Mahaushadhi.

Vernacular names:

Sanskrit: Sarasvati, Kapotavanka

English: Thyme Leaved Gratiola

Hindi: Manduka Parni

Marathi: Jalnam, Brahmi, Birami

Gujarati: Neerbrahmi, Bamanvari

Morphology:

Root - Thin, wiry, small, branched, creamish-yellow.

Stem - Thin, green or purplish green, about 1-2 mm thick, soft, nodes and internodes prominent, glabrous; taste, slightly bitter.

Leaf - Simple, opposite, decussate, green, sessile, 1-2 cm long, obovate-oblong; taste, slightly bitter.

Flower - Small, axillary and solitary, pedicels 6-30 mm long, bracteoles shorter than pedicels.

Fruit - Capsules upto 5 mm long, ovoid and glabrous.

Chemical constituents: Alkaloids - Brahmine, Herpestine, Nikotine, Saponin-Monierin, Hersaponin – Bacoside-A, Bacoside-B, Some steroids, Triterpene, Bacosine.

Distribution: Throughout India, ascending to an altitude of 1320 m in marshy places.

Pharmacology:

Rasa: Tikta, Kashaya, Madhur

Guna: Sara, Laghu, Shit

Virya: Shit

Vipak: Madhur

Prabhav: Medhya

Doshghnata: Vata-kapha shaman

Karma: Medhya, Rasayana, Swarya, Smritiprad, Ayushya

Rogaghata: Kushtha, Pandu, Meha, Kasa, Vish. Shoph, Jwar, Arsh

Brahmi shows Tranquilizing, Smooth musclerelaxant, Nootropic, Nerve tonic, Adoptogenic, Anti stress, Anxiolytic, Anti depressant, Memory booster, learning facilitator effect.

2) Siddharthak²¹

Drug name: Siddharthak

Botanical name: Brassica campestris

Family: Brassicaceae

Part used: Seed

Synonyms: Sarshapa, Katusneha, Siddharthak, Tantubha.

Vernacular names:

Sanskrit: Katusneha, Siddhartha

English: Mustard

Hindi: Saraso

Marathi: Mohari

Gujarati: Sarasad, Rai

Morphology: Seeds small, slightly oblong, pale or reddish-brown, bright, smooth, 1.2- 1.5 mm in dia.; under magnifying glass it is seen to be minutely reticulated; taste, bitter and sharp.

Chemical constituents - Fixed Oil.

Pharmacology:

Rasa: Katu, Tikta

Guna: Tikshna, snigdha

Virya: Ushna

Vipak: Katu

Doshghnata: Vata-kapha shaman

Karma: Dipan

Rogaghata: Vran, kandu, kushtha, koth ,krimi, grahbadha.

Siddharthak as a single herb was proved for its various activity such as anti-fungal, nootropic, antimicrobial and antioxidant. The oil of sarshap is widely used externally and internally for its medicinal purpose.

3) Vacha²²

Drug name: Vacha

Botanical name: *Acaruscalamus*

Family: Araceae

Part used: Rhizome

Synonyms: Vacha, Uragandha, Shadgrantha, Golomi, Shatparvika, Kshudrapatri, Mangalya, Lomasha.

Vernacular names:

Sanskrit: Uragandhi, Ugra, Sadgranthi

English: The Sweet Flag

Hindi: Bach, Gora-bach

Marathi: Vaca, Vekhandas

Gujarati: Ghoduvaj, Ghodvach

Morphology:

Drug occurs in simple or rarely with thumb-like branches at nodes; sub cylindrical to slightly flattened, somewhat tortuous or rarely straight, cut pieces of 1-5cm long, and 0.5-1.5 cm thick; upper side marked with alternately arranged, large, broadly, triangular, transverse leaf scars which almost encircle the rhizome; at nodes leaf sheath mostly having an appearance present; lower side shows elevated tubercular spots of root scars; light-brown with reddish-tinge to pinkish externally, buff coloured internally; fracture, short; odour, aromatic; taste, pungent and bitter.

Chemical constituents –Asarone, calamenol, calamenone, calamine, eugenol, mythyl eugenol, various fatty acids, calamol, calamine, acoradine, azulene, sugars, glucosides-acorin, Volatile Oil (principal constituents of the Volatile oil are Asamyl alcohol, Eugenol and Asarone), also contains Starch and Tannin.

Distribution: Throughout India up to an altitude of 2200 m in the Himalayas. **Pharmacology:** Pharmacology of drug according to Ayurved includes rasadi properties and its effect on dosha.

Rasa: Katu, Tikta

Guna: Tikshna, Ushna

Virya: Ushna

Vipak: Katu

Doshghnata: Vata-kapha shaman

Karma: Vantikrut, vanhikrut, Skrutmootravishodhini

Rogaghna: Vibandh, Adhman, Shoolaghna, Apasmar, Unmad, Krimi, Grahbadha.

Vacha has mainly effect on CNS system. It has been studied on various animal models and proved for its effect such as Antidepressant, Anticataleptic, Anxiolytic, Antihepatotoxic, Antioxidant, Analgesic and anticonvulsant.

4) Sariva²³

Drug name: Sariva

Botanical name: Hemidesmusindicus

Family: Asclepiadaceae

Part used: Root

Vernacular names:

Sanskrit: Ananta, Gopasuta, Sariva

English: Indian Sarasa Parilla

Hindi: Anantamul

Marathi: Upalsari, Anantamula

Gujrati: Upalsari, Kabri

Morphology:

Roots occur in pieces, about 30 cm long and 3-8 mm in diameter, cylindrical, thick, hard, somewhat tortuous, sparsely branched, provided with few thick rootlets and secondary roots, external appearance dark brown, sometimes with violet grey tinge, centre yellow, woody, surrounded by a mealy white cortical layer, bark brownish, corky, marked with transverse cracks and longitudinal fissures and easily detachable from the hard central core, odour, characteristic, taste, sweetish, slightly acrid and aromatic.

Chemical constituents –Phytosterols, triterpenes, essential oil, saponin, resin, tannins, sterols glycosides, fatty acids and glucosides.

Distribution: Greater part of India, from upper Gangtok plain eastwards to Assam and throughout central, western and southern India.

Pharmacology:

Rasa: Madhur

Guna: Snigdha, guru

Virya: Shit

Vipak: Madhur

Doshghna: Tridosha-ghna

Karma: Aamhar, shukrakar

Rogaghna: Agnimandhya, aruchi, swas, kasa, aamvisha, raktapradar, jwar, atisar.

Sariva possesses anti-convulsant, antioxidant, antiinflammatory and antiulcerogenic activities.

5) Kushtha²⁴

Drug name: Kushtha

Botanical name: Saussurealappa

Family: Compositae

Part used: root

Synonyms: Kushtha, Vapya, Paribhavya, Utpala

Vernacular names:

Sanskrit: Amaya, Pakala

Gujarati: Upleta

Hindi: Kutha

Marathi: Upleta, Kustha

Morphology: Drug greyish to dull brown, thick, stout, fusiform to cylindrical, 7-15cm long, 1.0-5.5 cm broad, thicker roots with collapsed centre, occasionally ridged, wrinkles longitudinal and anatomized, rootlets rarely present, cut surface shows two regions, outer periderm ring thin, inner porous woody portion lighter in colour showing fine radial striations and often the central portion collapsed, fracture, short, horny, odour, strong, characteristically aromatic, taste, slightly bitter.

Chemical constituents: Resinoids, essential oil, alkaloid, saussurine, tannin, insulin, sugar and bitter resin.

Distribution: Kashmir and alpine Himalayan ranges at 8000-12000 ft.

Pharmacology:

Rasa: Katu, Tikta, Madhur

Guna: Laghu

Virya: Ushna

Vipak: Katu

Doshghnata: Vata-kapha shaman

Karma: Shukral

Rogaghata: Vatrakta, Visharpa, Kasa, Kushta

Kushthahas **Antihepatotoxic, Neuroleptic** and **Anticonvulsant activity.**

6) Pippali

Drug name: Pippali

Botanical name: Piper longum

Family: Piperaceae

Part used: Fruit

Synonyms: Pippali, Magadhi, Krushna, Vaidaihi, Chapala, Kana, Ushna, Saundi, Kola, Tikshnatandula

Vernacular names:

Sanskrit: Kana, Magadhi, Magadha,

English: Long Pepper

Gujarati: Lindi Peeper, Pipali

Hindi: Pipar

Marathi: Pimpali, LendiPimpali

Morphology: Fruit greenish-black to black, cylindrical, 2.5 to 5 cm long and 0.4 to 1 cm thick, consisting of minute sessile fruits, arranged around an axis; surface rough and composite; broken surface shows a central axis and 6 to 12 fruitlets arranged around an axis; taste, pungent producing numbness on the tongue; odour, aromatic.

Chemical constituents: Piperidin, piperine,

piplartine, triaconatane, terpinolene, zingiberene, steroids, sugars, glycosides, sesamin, essential oil and alkaloids.

Distribution: It occurs in hotter parts of India from central Himalayas to Assam, Khasi, Mikir hills, Lower hills of Bengal and evergreen forests of Western ghats from Konkan to Travancore.

Pharmacology:

Rasa: Katu

Guna: Snigdha, Laghu

Virya: Anushna

Vipak: Madhur

Doshghnata: Vata-kapha shaman

Karma: Dipan, Rasayan, Rechan, Vrushya

Rogaghata: Swas, Kasa, Udar, Jwar, Kushtha, Prameh, Gulma, Arsh, Pliha, Shool, Aamvat

At drug act as multidimensional effect on various system of body, it has been described as Antiepileptic, Antidepressant, Antioxidant, Antihepatotoxic, CNS depressant, Analgesic and Anti-rheumatoid.

7) Saindhav lavan

Drug name: Saindhavlan

English name: Rock Salt

Rasa: Lavan, Madhur

Guna: Snigdha, Laghu

Veerya: Shit

Vipaka: Madhur

Karma: Dipan, Pachan, Ruchya, Vrushya, Netrya.

Dosha karma: Tridoshaghna

Physical properties:

Appearance-Big chunks

Color- Pinkish white

Consistency- Hard

Solubility- dissolves in water

Chemical constituent: Sodium and Chlorine

During literature study, no work has been done on, that shows Saindhav Lavana as act towards brain. According to Ayurveda Saindhav Lavan haslaghu, ushna, vishadand vibandhhar activity which enhances the efficacy of formulation.

8) Goghrita

Name of drug: Goghrita

English name: Clarified butter

Latin name: ButyrumDeperatum

Synonyms: Ajya, Sarpi, Ghrita

Vernacular names:

Sanskrit: Goghrita Gujarati: Ghee

Hindi: Gaya Ghee

Marathi: Toop

Rasa: Madhur

Guna: Snigdha

Virya: Shit

Vipak: Madhur

Doshghnata: Tridoshaghna

Karma: Dipan, Medhya, Rochan, Balya, Hrudya, Rasayana, Ayukar, Kantikar,

Ojovardhan

Rogaghata: Visha, Unmada, Shosa, Jvara, Mada, Apasmara, Murcha, Yonishoola, Karnashoola, Shirashoola.

Conclusion

The Brahmyadi Ghrita possesses a tremendous Pharmacological and Therapeutic potential. All ingredients of Brahmyadi Ghrita shows action towards CNS as well as its potential for enhancing memory, intelligence, and concentration is also seen. The Brahmyadi Ghrita also act as a yogvahi which in

ayurveda is beneficial from therapeutic value as well. The ingredients of this formulation includes bramhi, siddharthak, vacha, sariva etc which are a great source of medhya according to ayurveda and thus are beneficial for individuals with whole mankind also.

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Ethical Clearance: Taken from institutional ethics committee

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