MEDHYA (COGNITIVE ENHANCERS) HERBAL DRUGS OF BHAVPRAKASH NIGHANTU: A LITERARY REVIEW

[1]Kadam Rupa S   [2]Koul Anu

[1]Asso. Professor, Dravyaguna Dept, YMT, Ayurvedic Medical College & Research Centre,Kharghar, Navi Mumbai.

[2]PG Scholar, Dravyaguna Dept, YMT, Ayurvedic Medical College & Research Centre,Kharghar, Navi Mumbai.

ABSTRACT

Cognitive impairment can have devastating effects on a person's emotional and physical well-being. The cognitive enhancers can be used to attenuate the impairment of cognitive functions .In traditional practices of medicines, numerous plants have been used to treat cognitive disorders. *Ayurveda* plays vital role in Cognitive disorders and explained them under *mansaroga.* Many treatment modalities have been explained in *Brihattrayi* (*Charka Samhita, Susruta Samhita and Ashtang Hridyum)* and *Laghutrayi* (*Bhavprakash, Madhav Nidan and Sharangdhara Samhita*). In *Bhavprakash Nighantu*, a part of *Bhavprakash Samhita*, *Bhavmishra* mentions certain drugs having *Medhya* property which can be correlated with cognitive enhancement. These drugs can be used specifically to improve memory and intellect. The present study was designed to screen the drugs from *Bhavprakash Nighantu* with *Medhya, medhavardhak, matiprada, medhakrit, buddhida, medhaprada, medhakara, medhahito, Medhyagnivardhini, buddhismrutiprada, smrutibuddhida* and *Smrutikara* properties. Out of 426 drugs 23 drugs were described as cognitive enhancers throughout the text. These screened drugs will be a handy reference for the treatment of cognitive disorders.

Keywords: Cognition, *Medha, Bhavprakash Nighantu.*

INTRODUCTION: Cognition refers to a range of high-level brain functions, including the ability to learn and remember information to organize, to plan, to solve, to focus, to maintain and shift attention as necessary; to understand and use language; to accurately perceive the environment; and perform calculations.[1] Cognitive disorders are a category of mental health disorders that primarily affect learning, memory, perception, and problem solving include amnesia, dementia, and delirium.[2] While age is the primary risk factor for cognitive impairment, other risk factors include family history, brain injury, exposure to pesticides or toxins, physical inactivity, and chronic conditions such as Parkinson's disease, heart disease , stroke and diabetes**.** However, some causes of cognitive impairment are related to health issues that may be treatable, like medication side effects, vitamin B_{12} deficiency, and depression. Individuals may reduce the risk of cognitive impairment by keeping physically active and maintaining healthy cholesterol and blood sugar levels. [3]

Available allopathic nootropic drugs may only delay or slow down disease progression. Also the side effects that they cause, make them unfit for regular consumption. This drives us to reach and develop alternative methods for cognitive enhancement. In *Ayurveda*, every complete human being is considered as combination of both mind and body. The perfect

combination of body, mind and soul is considered as complete health in *Ayurveda. Ayurveda*, being a stream of treatment, can no way ignore the importance of cognitive impairment.

Ayurveda has already described several medicinal plants under the concept of *Medhya dravya* which refers to the agents acting on higher brain function by interacting on ability or power of acquisition (intelligence), ability or power of retention and ability or power of recall or memory by amelioration of *Medha* of the individuals. Most of the *Ayurvedic Medhya dravyas* have shown their efficacy by acting on different receptors, thought to play a role in the prevention of cognitive decline.

The herbs that are considered *Medhya* are said to be working with the higher brain function, or mind-rejuvenating herbs. They engender and summon intelligence, memory, mental perception' bring nervine and nervous system restorative action[4]. The word *medha* is derived from the Sanskrit root "*medhri sangame*" which means to meet or to come together or harmonize. *Medha* means, the knowledge *Buddhi, Dhee* which has power of retaining knowledge for very long period to have proper correlation and understanding about the knowledge of the existing objects. Without *medha*, knowledge cannot be understood. *Acharyas* opines that means ability of discrimination of objects, further without *medha*, knowledge cannot be understood and it is defined as that which groups or retains knowledge[5]. According to *Dalhana*, it is a power, which retains the knowledge of text and also said that *medha* is very deep knowledge gained for the long period. According to *Arunadatta, Medha* is equated to *Buddhi*, which means it is a

faculty of *Buddhi* (Knowledge)[6].*Chakrapani* opines that *Medha* is equated to *Dhee*, which means it is a type of *Dhee* having the power of retention of knowledge[7]

It is clear from *Shabdakalpadruma* that, *medha* is equivalent to *Buddhi* and *Pragya*, because *Pragya* and *Medha* are the two synonyms of *Buddhi* among other names like *Mati, Chit, Dharana* etc[8]**.**

About Bhavprakash Nighantu[9]: In the field of *Ayurveda, Nighantus* play an important role. Literally, *Nighantu* means the compilation of words with their root meanings and synonyms. *Ayurvedic Nighantu* put a foot ahead in including the properties, both morphological and pharmacological along with therapeutic indications. Here in the text, the very purpose is fulfilled extra ordinarily with the exhaustive efforts of *Bhavmishra* and that is why *Bhavprakash Nighantu* is considered the best among all the *Nighantus. Bhavprakash Nighantu* is a comprehensive work in an elegant style and simple language. He had touched practically all the aspects & added new information based on the knowledge and traditions of that age as well as his own experiences as a scholar, physician, The clarity present in his style of presentation, excellence of arrangements, systematic classification of drugs has illuminated and resolved many obscure and disputed passages of the ancient writers and his important compilation marks the last revival of old *Ayurvedic* literature and is considered as a thesaurus of all the useful information reaped from the vast field of millenniums old *Ayurvedic* literature. For each drug he gave synonyms, properties/qualities, and therapeutic applications .At many places he tried to clarify the identification of a particular

plants species. There is some consciousness observed in the plant names, which is corrected by later commentators depending upon this *Nighantu* part. This *Nighantu* is considered as the latest among classical works in the field of *Dravyaguna Nighantu* and is commonly followed by physicians and students of *Dravyaguna*. Out of 426 herbal drugs, 23 drugs have been mentioned having *Medhya* properties. Hence this study planned to review and explore the potential drugs having *Medhya* i.e. memory enhancing property.

AIM AND OBJECTIVES:

➤ To collect the information regarding the herbal drugs mentioned as *Medhya* in *Bhavprakash Nighantu*.

➤ To analyze their property mentioned in the *Bhavaprakash Nighantu*.

MATERIALS AND METHODS:

Bhavprakash Nighantu was explored for the herbal drugs having *Medhya* **p**roperty i.e. cognitive enhancer property. The data thus obtained was tabulated to analyze the properties of those drugs.

METHOD: In *Bhavprakash Nighantu* the *Medhya* property was described by various synonyms like *Medhya. medhavardhak, matiprada, medhakrit, buddhida, medhaprada, medhakara, medhahito, Medhyagnivardhini, buddhismrutiprada, smrutibuddhida, Smrutikara*. All the drugs mentioned having these properties were sorted and tabulated for their identity and properties. The tabulated data was analyzed for *Raspanchaka* systematically.

Table no 1: List of Medhya herbal drugs in Bhavprakash Nighantu

S.No.	HERBAL DRUG	BOTANICAL NAME	FAMILY	REFERENCES
1	*Haritaki*	*Terminalia chebula Retz.*	Combretaceae	*Haritakyadi Varga*
2	*Pippali*	*Piper longum Linn*	Piperaceae	*Haritakyadi Varga*
3	*Jirak*	*Cuminum cyminum Linn*	Umbelliferae	*Haritakyadi Varga*
4	*Jirak(krishna)*	*Carum carvi Linn*	Umbelliferae	*Haritakyadi Varga*
5	*Kalonji*	*Nigella sativa Linn*	Ranunculaceae	*Haritakyadi Varga*
6	*Jyotishmati*	*Celastrus paniculatus Willd.*	Celastraceae	*Haritakyadi Varga*
7	*Rason*	*Allium sativum Linn*	Liliaceae	*Haritakyadi Varga*
8	*Bhallatak*	*Semicarpus anacardium Linn f.*	Anacardiaceae	*Haritakyadi Varga*
9	*Jatamansi*	*Nardostachys jatamansi DC.*	Valerianaceae	*Karpuradi Varga*
10	*Renuka*	*Vitex agnus- castus Linn*	Verbenaceae	*Karpuradi Varga*
11	*Sthouneyak*	*Clerodendrum infortunatum Linn*	Verbenaceae	*Karpuradi Varga*
12	*Gambhari*	*Gmelina arborea Linn*	Verbenaceae	*Guduchyadi Varga*
13	*Aparajita*	*Clitorea ternatea*	Fabaceae	*Guduchyadi Varga*

		Linn		
14	*Shatavari*	*Asparagus racemosus Wild.*	Liliaceae	*Guduchyadi Varga*
15	*Nagdanti*	*Croton oblongifollius Roxb.*	Euphorbiaceae	*Guduchyadi Varga*
16	*Vriddhdaruk*	*Argyreia speciosa sweet.*	Convolvulaceae	*Guduchyadi Varga*
17	*Mundi*	*Sphaeranthus indicus Linn*	Compositae	*Guduchyadi Varga*
18	*Shankhapushpi*	*Evolvulus alsinoides Linn*	Convolvulaceae	*Guduchyadi Varga*
19	*Brahmi*	*Bacopa monnieri Linn*	Scrophulariaceae	*Guduchyadi Varga*
20	*Kaidarshali*	*Oryza sativa Linn*	Gramineae	*Dhanya Varga*
21	*Yava*	*Hordeum vulgare Linn.*	Gramineae	*Dhanya Varga*
22	*Til*	*Sesamum indicum Linn*	Pedaliaceae	*Dhanya Varga*
23	*Chanchuki*	*Corchorus fascicularis Lam.*	Tiliaceae	*Shak Varga*

Table no 2: List of Medhya herbal drugs by Bhavprakash Nighantu according to Raspanchaka

S. No	HERBAL DRUG	*RASA*	*GUNA*	*VIRYA*	*VIPAK*	*PRABHAV*
1	*Haritaki*	*Kashaya,Madhura ,Amla,Katu,Tikta*	*Ruksha,Laghu*	*Ushna*	*Madhura*	*Tridoshghna*
2	*Pippali*	*Katu*	*Snigdha,Laghu*	*Anushnasheet*	*Madhura*	Not mentioned
3	*Jirak*	*Katu*	*Ruksha,Laghu*	*Ushna*	Not mentioned	Not mentioned
4	*Jirak(krishna)*	*Katu*	*Ruksha,Laghu*	*Ushna*	Not mentioned	Not mentioned
5	*Kalonji*	*Katu*	*Ruksha,Laghu*	*Ushna*	Not mentioned	Not mentioned
6	*Jyotishmati*	*Katu,Tikta*	*Sara*	*Ushna*	Not mentioned	Not mentioned
7	*Rason*	*Katu,Tikta, Kashaya,*	*Snigdha,Guru,*	*Ushna*	*Katu*	Not mentioned

		Lavan,madhura	*Tikshna*			
8	*Bhallatak*	*Kashaya.Madhura*	*Snigdha,Laghu, Tikshna*	*Ushna*	Not mentioned	Not mentioned
9	*Jatamansi*	*Tikta,Kashaya*	Not mentioned	*Sheet*	Not mentioned	Not mentioned
10	*Renuka*	*Tikta,Katu*	*Laghu*	*Ushna*	*Katu*	Not mentioned
11	*Sthouneyak*	*Katu,Madhura,Tikta*	*Snigdha*	Not mentioned	Not mentioned	Not mentioned
12	*Gambhari*	*Madhura,Kashya, Tikta*	*Guru*	*Ushna*	Not mentioned	Not mentioned
13	*Aparajita*	*Katu,Tikta,Kashya*	Not mentioned	*Sheet*	*Katu*	Not mentioned
14	*Shatavari*	*Tikta,Madhura*	*Snigdha, Guru*	*Sheet*	Not mentioned	Not mentioned
15	*Nagdanti*	*Katu,Tikta*	*Ruksha,Laghu*	Not mentioned	Not mentioned	Not mentioned
16	*Vriddhdaruk*	*Kashaya.Katu,Tikta*	*Sara*	*Ushna*	Not mentioned	Not mentioned
17	*Mundi*	*Madhura*	*Laghu*	*Ushna*	*Katu*	Not mentioned
18	*Shankhapushpi*	*Kashaya*	*Sara*	*Ushna*	Not mentioned	Not mentioned
19	*Brahmi*	*Tikta,Kashaya, Madhura*	*Sara, Laghu*	*Sheet*	*Madhura*	Not mentioned
20	*Kaidarshali*	*Kashaya*	*Guru*	*Sheet*	Not mentioned	Not mentioned
21	*Yava*	*Kashaya,Madhura*	*Guru,Ruksha, Picchil, Abhishyandi*	*Sheet*	*Katu*	Not mentioned
22	*Til*	*Katu,Tikta,madhura,*	*Snigdha,Guru*	*Ushna*	*Katu*	Not mentioned

		Kashaya				
23	*Chanchuki*	*Madhura*	*Picchil,Sara*	*Sheet*	Not mentioned	Not mentioned

RESULTS: The above tabulated herbal drugs were analyzed for *Rasapanchaka (Rasa, Guna, Virya and Vipaak)* and the following are noticed:

Table no.3   Medhya Herbal drugs according to Rasa

S.NO	RASA	NO.OF HERBAL DRUGS	PERCENTAGE
1	*Madhuraa*	11	48%
2	*Amla*	01	04%
3	*Lavana*	01	04%
4	*Katu*	12	52%
5	*Tikta*	13	56%
6	*Kashaya*	12	52%

It is observed that, in the above table, *Tikta rasa dravya* are maximum in number (13) followed by *Katu rasa* and *Kashaya rasa* (12), *Madhuraa rasa* (11) *Amla rasa* and *Lavana rasa* (01). This clearly indicates that the herbal drugs with *Tikta, Katu ,Kashaya and Madhuraa rasa* play significant role as *Medhya.*

Table No.3 Medhya Herbal drugs according to Viryas

S.NO	VIRYA	NO. OF HERBAL DRUGS	PERCENTAGE
1	*Ushna*	13	56%
2	*Sheeta*	07	30%
3	*Anushnasheeta*	01	04%

Most of the herbal drugs mentioned are *Ushnavirya* in nature (13) followed by *Sheetavirya* (07) and *Anushnasheetvirya* (01).

Table no.4 Medhya Herbal drugs according to Vipaak

S.NO	VIPAKA	NO.OF HERBAL DRUGS	PERCENTAGE
1	*Madhura vipaka*	03	13%
2	*Katu vipaka*	06	26%
3	*Amla vipaka*	0	0%

Madhurarvipak (03) Katuvipaka (06) and Amlavipaka (0) are mentioned to have the *Medhya* property.

Table no.5 Medhya Herbal drugs according to Guna

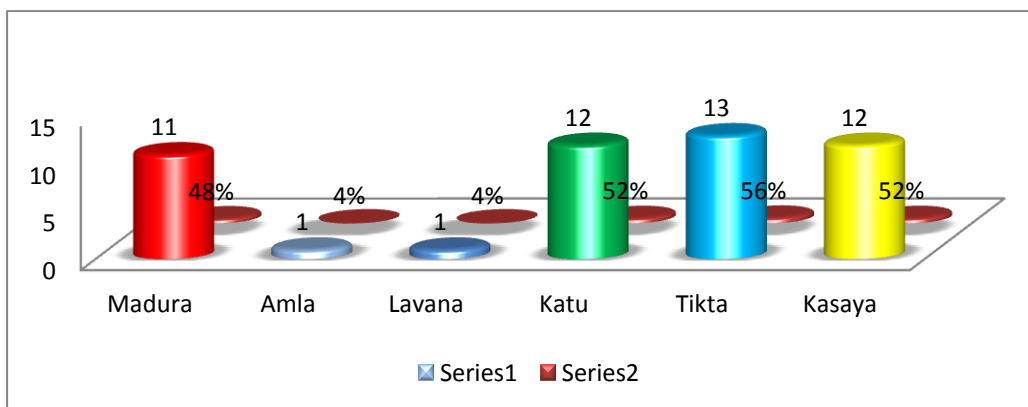| S.NO	GUNA	NO.OF HERBAL DRUGS	PERCENTAGE
1	*Ruska*	06	26%
2	*Laghu*	10	43%
3	*Tikshna*	02	9%
4	*Sara*	03	13%
5	*Snigdha*	06	26%
6	*Guru*	05	22%
7	*Picchil*	02	9%
8	*Abhishyandi*	01	4%

Laghu (10), Ruksa and Snigdha (06), Guru (05), Sara (03), Tikshna and Picchil (02), Abhishyandi (01) are mentioned to be mostly acting as *Medhya*.

DISCUSSION: *Bhavamishra* has given idiosyncrasy consideration to the impairment of cognition and used various drugs for this Condition. Present study deals with extensive variety of herbal drugs from *Bhavprakash Nighantu. Bhavamishra directly* mentions the *karma* or action of these drugs as *Medhya* (cognitive enhancer) .Herbal Drugs from whole *Bhavprakash Nighantu* were screened for the action *Medhya* (Cognitive enhancer). Obtained data were presented as per *rasapanchak* and along with different *Vargas* (chapter wise classification) with corresponding reference. Out of 426 drugs from *Bhavprakash Nighantu 8(1.88%) belong to Haritakyadi Varga,*

3(0.70 %) of drugs from *Karpuradi varga, 8 (1.88%)* belong to *Guduchyadi varga.* Subsequent to herbal origin *Dhanyadi Varga 3 (0.70%) and Shaka Varga 1 (0.23%)* has been stated as cognitive enhancer.
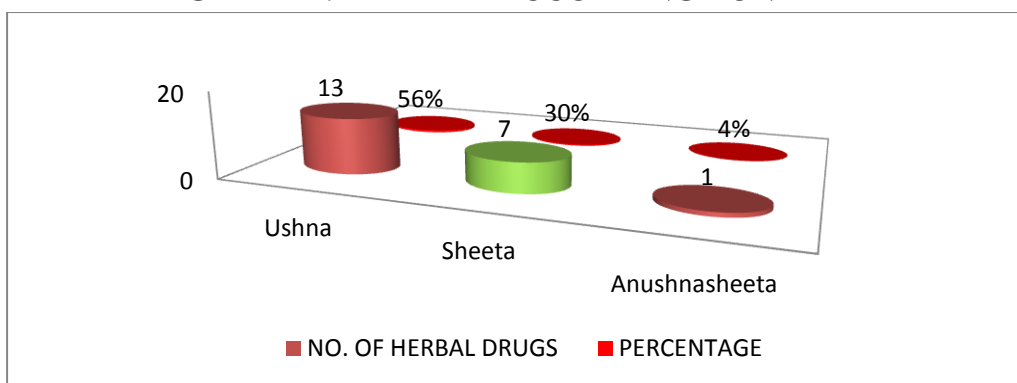
It is observed that, of the herbal drugs mentioned as *Medhya rasa dravya* are maximum in number *Tikta rasa 13 (56%)* followed by *Katu rasa* and *Kashaya rasa 12 (52%), Madhura rasa 11(48%) ,Amla rasa* and *Lavana rasa 01(4%). Tikta rasa* causes stimulation to *jatharagni* and

thereby increases *Dhatvagnis.*Increased *Dhatvagni,* in turn increases *Majjadhavtagni* i.e. nourishes *Majjadhatu.Madura rasa* because of its suitability to the body promotes *Majjadhidhatu.Kashaya Rasa* pacifying *kapha, rakta* and *pitta* giving cooling effect and stimulates the retention power (*dhriti*). *Katu rasa* stimulates the *sadhakpitta* which in turns gives nourishment to *Buddhi*. Thus, it stimulates intellect due to *Tikta, Kashaya, Katu and Madhura Rasa*. This clearly indicates that the herbal drugs with *Tikta, , Kashaya, Katu and Madhura rasa* play significant role as *Medhya. Ushnavirya 13(56%)* drugs are maximum in number followed by *Sheetavirya 07(30%)* and *Anushnasheetvirya 01(4%)* in nature. *Usnavirya dravya* acts on *pachaka, sadhaka, alochaka pitta,* reduces *avarana of raja and tamas and Strotoshodan* action at the level of *Manovahastrotas* and *Rasavahastrotas* which enhance power of *Smarana*(Acquiring new information) and *Grahana* (data interpretation) i.e. stimulates *dhi, smriti* while *Sheetavirya* herbs acts by increasing nourishment to the neuronal matter of brain via *tarpaka* and *avlambkha kapha* which improves dharana (retention power). *Anushnasheetvirya dravya* gives stimulation to *dhi, smriti* and retention power.
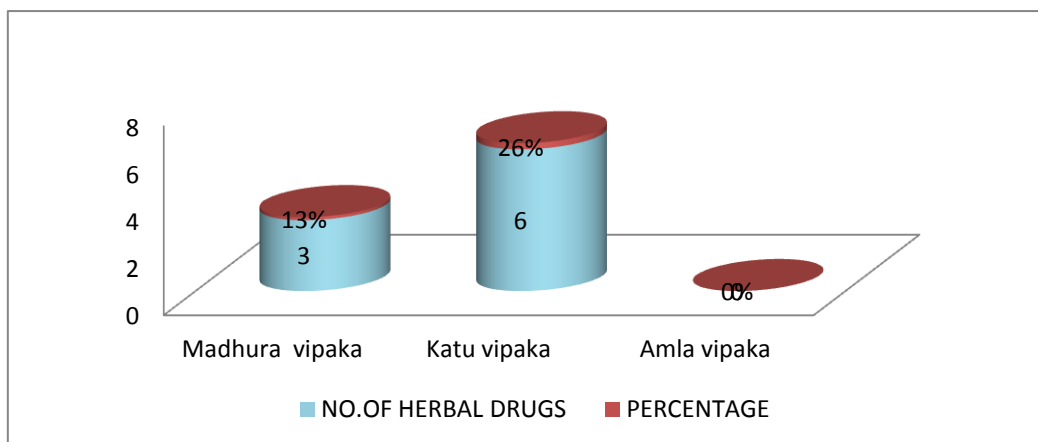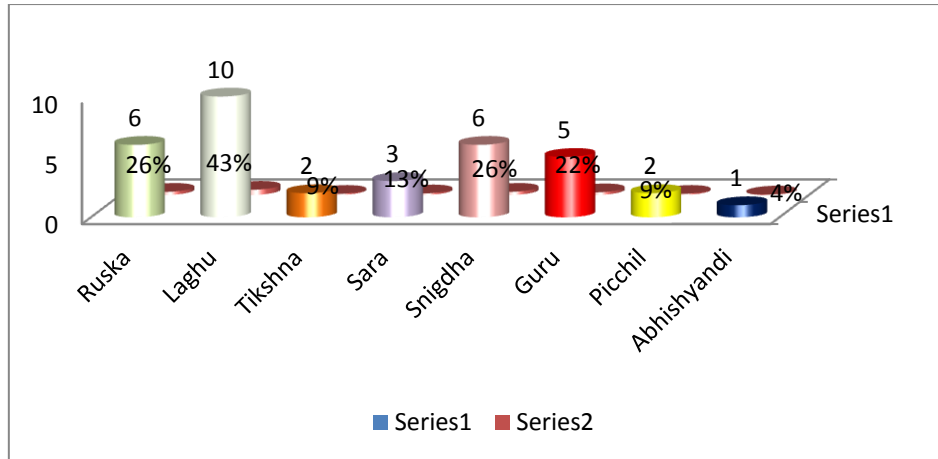
GRAPH 1: MEDHYA ACCORDING TO RASA

GRAPH 2: MEDHYA ACCORDING TO VIRYA

GRAPH 3: MEDHYA ACCORDING TO VIPAAK

GRAPH 4: MEDHYA ACCORDING TO GUNA

CONCLUSION: *Medha* is combination of power of acquisition (*Grahan*), retention (*Dharan*) and recollection (*Smaran*). *Tikta, Madura, Kashaya Rasa and Ushna, sheet virya* drugs acts through different mechanism and enhance cognition. This research paper demonstrates that out of 426 drugs 23 drugs of herbal were described as cognitive enhancers throughout the text. These screened drugs will be a handy reference for the treatment of cognitive disorders. This study may provide parameters for selection of *Medhya drug* in different memory disorder.

REFERENCES:

1) http://www.nationalmssociety.org/Symptoms-Diagnosis/MS-Symptoms/Cognitive-Changes; 2017

2) https://en.wikipedia.org/wiki/Cognitive_disorder;2005

3) https://www.cdc.gov/aging/pdf/cognitive_impairment/cogimp_poilicy final2009

4) http://www.naturalmedicinejournal.com/journal/2014-05/effect-ashwagandha-tests-cognitive-and-psychomotor-performance;2014

5) www.ijipsr.com/user/download/359/IJIPSRMN-50;2014

6) Arundatta, Ashtanga hrudaya. Pt Harisadashiva Shastri Paradakara editor. Reprinted edition. Varanasi: Chamkhamba Surabharati Prakashana; 1997. P. 61. 2.

7) Chakrapanidatta, Charaka Samhita sutra sthana chapter 27 sloka 350.Jadavaji Trikamji Acharya editor. Reprinted edition. Varanasi: Chaukhamba Sanskrit sansthana; 2004. P.174

8) Raja Radha Kantadeva, Shabdakalpadruma vol. 3. Shri Vardaprasad editor.3rd edition. Varanasi: Chaukhamba series office; 1967. P. 434

9) Bhavapraksh Nighantu, Dr. K.C.Chunekar, Dr. G.S.Pandey Revised and enlarged edition 2010 Chaukhambha Bharati Academy, Varanasi.

Corresponding author: Dr Rupa S Kadam, Asso Professor, YMT, Ayurvedic Medical College & Research Centre,Kharghar, Navi Mumbai.
E-mail: dr.rupakadam@rediffmail.com