

MANAGEMENT OF GRIDHRASI WITH KUPILU: A CONCEPTUAL REVIEW

Monica Salaria¹, Aditya²

¹MD *Kriya Sharir*; ²MD *Kayachikitsa*, Medical Officer;
Govt. Ayurvedic Dispensary, Baspur, Jammu, India

Email: monicasalaria@gmail.com

ABSTRACT

Vatavyadhi comprises of many conditions with predominance of *vatadosha*. *Gridhrasi* being one important among the *Vataja* conditions. It has received its name from word “*Gridhra*” means vulture because the ailing person feels pain as if bitten by a vulture or the posture and gait of patient resembles like a vulture because of excessive pain felt. It is classified into two forms i.e. *Vataja* and *Vatakaphaja* according to predominance of *dosha*. *Ayurveda* has advocated *Vatajaupakrama* especially *Abhyanga*, *Kativasti*, *Vastikarma*, *Swedana*, *Agnikarma* etc. as the treatment procedures. There are many drugs that are prescribed for the said condition. They have opposite qualities to that of *Vata*. Among the preparations, the *Vishatinduka Vati* is extensively used, the active ingredient of which is *Kupilu*. Thus, the action of *Kupilu* should be assessed for the said condition.

Keywords: *Gridhrasi*, *Sciatica*, *Kupilu*, *Strychnus Nux Vomica*, *Vata Vyadhi*.

INTRODUCTION

Gridhrasi is a disease of *Vataja* origin. Due to indulgence in the *Vatakaraka nidana*, there is vitiation of *Vata* that also particularly *Apana Vata* which creates trouble at *Sfigpradesh* followed by *Kati*, *Prishta*, *Uru*, *Janu*, *Jangha*, *Pada*¹. Sometimes, it is *Kapha* that is viciated and thus causes the obstruction in the movement of *Vata*. Hence, an *Avaranajanya* pathology leading to the pain and stiffness of the lower back along with other *Kaphaja* features like *Aruchi*, *Tandra* and *Gourava*². Here *Ama* also plays an important role in pathogenesis and the condition of *Agni* seems to be diminished. The day today routines of modern society are source of degeneration, *Vatavridhi* and *Agnimandya*, *Avarana* etc. so the disease concept study will be useful for present day.

AIMS & OBJECTIVES:

To study Literary aspects of *Gridhrasi* and the possible mode of action of drug *Kupilu* in its management.

DISEASE DESCRIPTION:

There are eighty types of *Vatavyadhi*, amongst which the *Gridhrasi* is one important one³. The disease is described in *Brihat-trayi*, *Laghu-trayi*.

NIDANA:

Vata gets vitiated by two ways viz. *Dhatukshaya* and *Margavarana*⁴. So, the various *Vata prakopaka hetus* are divided likewise.

The particular causative factors of *Gridhrasi* are not mentioned in the classics. The general causes of *vatavyadhi* are considered as the causes of *Gridhrasi*.

The *Vata prakopaka hetus* found in different *samhitas*^{5 6 7} are written as under:

Aharaj Causes:

Ruksha, Sheeta, Laghu, Khara, etc. are the inherent properties of *Vatadosha*. In *Gridhrasi*, it is manifested by the stiffness produced in the *Kandara* of the leg as *Rukshaguna* is *Kathinyakara*. *Rukshaguna* affects the *Asthigata sneha* i.e. *Majjadhatu* in *Gridhrasi*. *Stambhana* is the *karma* of *Sheetaguna*. *Laghuguna* is exactly opposite to *Guru guna* and does *Lekhana karma*. *Charak* has stated that *Atiyoga* of *Katu rasa* causes pain in limbs, *Prishtha* etc. along with *Kampa, Toda, Bheda* etc.⁸. *Tikta rasa* when used exclusively, by virtue of its *Ruksha, Khara, Vishadaguna* affects *Rasa, Rakta, Mamsa, Meda, Asthi* and *Majja dhatu* and produces *Vatavyadhies*. *Kashaya rasa* also has *Khara* and *Vishada guna* and produces *Stambhana* and *Vatavyadhies* when consumed excessively⁹

Viharaj Causes:

Atiyavaya causes *Apanavata prakopa* which is the main culprit in *Gridhrasi*, while *Vegavarodha, Ratrijagran* and *Divaswapan* are other factors.

Manasika Causes:

In conditions of *Shoka, Chinta, Bhaya* etc. *Vata* is vitiated¹⁰.

Miscellaneous Factors:

Excessive emaciation due to other diseases leads to *Dhatukshaya* which in turn provokes *vata*. If *Ama* is produced by *Agnimandya* and it combines with *Vata*, the *Vata samshrishta ama* is capable of producing many *Vatavyadhies*¹¹. Thus, when *Apana vata* is combined with *Ama*, *Gridhrasi* may be produced. *Vata* gets vitiated by the *Avarana* of other *doshas, dhatus* etc. It produces obstruction to the normal *gati* of *vata*.

SAMPRAPTI:

Because of the *samprapti vishesh*, the same *nidanans* produce different *vatavyadhies*. This is because the presentation of the disease changes according to the *sthana* where *dosha-dushya sammurchhana* takes place¹².

This *Dhatukshaya* results into the aggravation of *Vata* and this vitiated *Vata* fills up the empty *Srotasas* ultimately causing *Vatavyadhi*¹³. The second type of *samprapti* takes place by *Santarpana* causing

Margavarodha. Here *Kapha* is found as *Anubandhi dosha* along with *vata*. De-arranged *Jatharagni* leads to formation of *Ama*. *Ama* produces obstruction to the normal *gati* of *Vata*. To overcome the resistance *vata* attempts to function hyper dynamically. This leads to *vataprakopa*. Also, when the *Amasamshristavayu* resides at *Kati, Prishtha* etc. *Gridhrasi* may be produced¹⁴.

Acharya Charak has mentioned that rogas of *snayu, sira* and *kandara* be treated like *Vataroga Chikitsa*¹⁵. Thus, from the above description involvement of *rasa, rakta, mansa, meda* and mainly *asthi, majja dhatus, kandaras, siras* and *snayus* in the disease *Gridhrasi* is obvious.

POORVARUPA:

Avyaktrupa of the *lakshana* themselves¹⁶.

RUPA:

Acharya Charaka has listed *Ruka, Toda, Stambha* and *Muhuspandana* as the cardinal symptoms¹⁷. To be more precise about the track of pain. Also, *Sakthikshepa nigraha* is added to the list of cardinal signs by *Acharya Vagbhata*¹⁸. *Tandra, Gaurav, Aruchi, Bhaktadwasha, Mukhpraseka* etc. are the *lakshanas* of *vata-kaphaj Gridhrasi*¹⁹. Vitiated *doshas* when affect *Snayu, Sira* and *Kandara, Stambha, Sphurana* and *Supti* are produced²⁰. This process when takes place in lower limb, *Gridhrasi* is produced.

CHIKITSA:

Charaka mentions *siravedha* between the *Kandara & Gulfa, basti (anuvasana & niruha)* and *agnikarma* as the line of treatment for *Gridhrasi*²¹. *Sushrut*, being the master of *Shalya-tantra* has advised only *siravedha* at *janu* after flexion²². *Siravedha* four *angula* above or below *janu* is mentioned for *Gridhrasi* in *Ashtanga Hridaya*²³. The common line of treatment of *Vatadosha* is also applicable here. *Vagbhat* has stated that *Sneha, Sweda, Mruda Samshodhana* along with *Madhur, Amla, Lavana dravyas. Veshtana, Trasana, Madya, sneha siddha* with *deepan* and *pachan* drugs, *mansarasa* and *Anuvasana basti* pacify the *vata*²⁴. *Basti* stays at *Pakwashaya*, but due to its *virya*, acts on the *doshas* from top to toe and scabs off the *doshas* from *kati*,

prishtha, kostha etc. and removes them through anus²⁵. *Snehabasti* strengthens *pada, jangha, uru, kati, prishtha*²⁶.

DRUG DESCRIPTION:

VISHMUSHTI (Seed):

Kupilu (Vishmushti) consists of dried seed of *Strychnosnux-vomica* Linn. (Fam. Fabaceae), a tree, upto a height of 9 to 15 m found throughout tropical parts of the country upto 3600 m altitude in the moist deciduous forest. Seed is poisonous and can produce ill effects²⁷.

PROPERTIES AND ACTION:

Rasa :Katu, Tikta.

Guna : Laghu, Ruksha, Ushna

Virya : Ushna,

Vipaka : Katu,

Karma : Grahi, Madakaraka, Vatalam, Kaphanshaka, Vranashodhana, Parama

*Vedanahara, Rujahara, Jantunashana*²⁸.

SAMPRAPTI VIGHATAN:

As we know that “*samprapti vighatan meva chikitsa*”. As per *samprapti*, it is clear that the pathology is mainly two types i.e. one through pure *vata*-vitiation and another through *avarana* or *margavarodha* of *vata* by *Kaphadosha*. Here the *Kupilu* will act in a certain way. The *katu, tiktaras* and *Katu Vipaka* are *Kapha shamaka* along with *Kshna virya* which is *vatakapha shamaka*. *Ruksha* and *laghu guna* will check *kapha* while *Ushna guna* will check *Vata kapha*. The *nadi-uttajekprabhav* will lead to the better movement of *Vatadosha* across the body. The *Ushna Viryaca*n improves the *Keval Vataj* condition too. In this way, *Kupilu* will do the *samprapti vighatan*. Thus, can be taken as a good drug in said condition principally.

ACTIVE PRINCIPLES:

CONSTITUENTS- Alkaloids, Indole Alkaloids, Strychnine & Brucine, Monoterpenoid Glycoside (Loganin), α , β -Colubrine, Vomisine²⁸.

PHARMACOLOGICAL & BIOLOGICAL ACTIVITIES:

Antinociceptive:

Nux vomica seeds extract has been used in various analgesic preparations of traditional Chinese medicine. Using tail-pressure, hotplate and acetic acid-induced writhing tests models, the intraperitoneal administration of crude alkaloid fractions (CAF) and processed alkaloidal fractions (PAF) of *nux vomica* seeds extract exhibited antinociception potential in mice; however, PAF showed stronger antinociception than CAF²⁹. Using the same models, the transdermal administration of modified total alkaloid fractions (MTAF) containing low strychnine and high brucine was significantly improved the analgesic activity in compared to the total alkaloidal fractions (TAF). Strychnine possessed little antinociceptive property; however, brucine and brucine N-oxide showed strong antinociceptive potential. It has been also demonstrated that the transdermal absorption of brucine of MTAF was significantly higher than brucine alone, which might account somewhat for the higher antinociceptive potential of MTAF. Therefore, it has been postulated that antinociceptive potential of *nux vomica* seed extract might be due to a synergistic effect of low-level strychnine with brucine and brucine N-oxide which might attributed by the inhibition of cyclooxygenase (COX) and monoamine oxidase activities^{30,31}.

Anti-inflammatory:

A number of different solvent extracts from different parts of *S. nux vomica* have shown anti-inflammatory activity in different test models. Mitra *et al.* reported the significant anti-inflammatory activity of raw and purified seed extract of this plant against formaldehyde induced hind paw edema in rats³². In a more recent study, the MTAF of *nux vomica* seeds extract with a low strychnine content showed 1.8 times higher anti-inflammatory potential than that of total alkaloid fraction (TAF) at the dosage of 1 mg/kg body weight against xylene-induced ear edema in rats. Alkaloids of *nux vomica* seeds such strychnine, brucine and brucine N-oxide were reported as primary active compounds exhibited significant anti-inflammatory activ-

ity. Brucine and brucine N-oxide showed higher anti-inflammatory potential than that of strychnine; since brucine N-oxide was found to more active than that of brucine³³.

Neuropharmacological:

Nux-vomica crude extract rarely used in clinical practice, as such due to the high content of strychnine, but still it widely used in the alternative medicine system after processing. Studies showed that the sub-convulsive dose of processed seed extract (125 mg/kg) significantly inhibited the pentylenetetrazole-induced convulsions and potentiated barbiturate induced hypnosis in animals and the facts are indicative of CNS depressant action of processed seed extract of nux vomica. It was also seen that processed seed extract antagonized the morphine induced catalepsy in rats which may justify the clinical use of nux vomica in muscular rigidity³⁴. Further, the brucine was found to allosteric enhancers of acetylcholine binding to the muscarinic 1 receptor by 2-fold³⁵

PRECAUTIONS:

It should be taken in indicated dosage after being processed with proper *shodhana* procedures otherwise being a poisonous substance, it can prove fatal³⁶.

CONCLUSION

In *Ayurveda*, the drug *Kupilu* has been used in practice in *Gridhrasi* so the drug was studied for its pharmacological properties and actions. There are several evident studies conducted that prove its efficacy. The sciatica is a painful condition with much prevalence in society and is treatable in *Ayurveda* system. The treatment of *Gridhrasi* in other systems of medicine is not very effective so an attempt was made to do the pharmacological study on effect of *Kupilu* on *Gridhrasi* which showed a good result principally. Further, clinical studies are required for complete evaluation.

REFERENCES

1. Charaka Samhita Chikitsasthana 28th chapter 56th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 787.
2. Charaka Samhita Chikitsasthana 28th chapter 57th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 787.
3. Charaka Samhita Sutrasthana 20th chapter 11th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 399.
4. Charaka Samhita Chikitsasthana 28th chapter 58th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 788.
5. Charaka Samhita Chikitsasthana 28th chapter 15th-18th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 779.
6. Sushruta Samhita Sutrasthana 21st chapter 19th-20th shloka, edited with Ayurveda Tattva Sandipika Hindi commentary by Kaviraja Ambikadutta Shastri and forwarded by Dr. Pranajivana Manekchanda Mehta, Reprint Year 2007, Chaukhambha Sanskrit Sansthan, Varanasi, India, Page no 91.
7. Astanga Hridaya Nidana 1st Chapter 14th-15th Shloka-Nirmala hindi commentary by Dr. Brahmanand Tripathi; Reprint 2013, Chaukhambha Sanskrit Pratishthan, Delhi, India, Page no. 432.
8. Charaka Samhita Sutrasthana 26th chapter 43rd shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 506.
9. Charaka Samhita Sutrasthana 26th chapter 43rd shloka - Vidyotini Hindi commentary by Kashinath Shastri and

- Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 507.
10. Charaka Samhita Chikitsasthana^{3rd} Chapter 115thshloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 125.
 11. Charaka Samhita Chikitsasthana^{15th} Chapter 48th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 460.
 12. Charaka Samhita Sutrasthana^{18th} chapter 45rd shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 383.
 13. Charaka Samhita Chikitsasthana^{28th} Chapter 18th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 779.
 14. Charaka Samhita Chikitsasthana^{15th} Chapter 48th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 460.
 15. Charaka Samhita Sutrasthana^{28th} chapter 29th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 573.
 16. Charaka Samhita Chikitsasthana 28th Chapter 19thshloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 780.
 17. Charaka Samhita Chikitsasthana^{28th} Chapter 56thshloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 787.
 18. Astanga Hridaya Nidana 15th Chapter 54th Shloka-Nirmala hindi commentary by Dr. Brahmanand Tripathi; Reprint 2013, Chaukhambha Sanskrit Pratishtan, Delhi, India, Page no. 544.
 19. Madhava nidana 22nd Chapter 56th Shloka-Madhukosha Vyakhya by Vijayrakshita and Srikanth Dutta, Vidyotini Hindi commentary by Sh. Sudarshan Shastri, revised and edited by Prof. Yadunandan Upadhyaya; Reprint Year 2002, Chaukhambha Sanskrit Bhawan, Varanasi, India, Page no. 484.
 20. Charaka Samhita Sutrasthana 28th chapter 21st shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 572.
 21. Charaka Samhita Chikitsasthana 28th Chapter 101th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 795.
 22. Sushruta Samhita Chikitsasthana 5th chapter 23rd shloka, edited with Ayurveda Tattva Sandipika Hindi commentary by Kaviraja Ambikadutta Shastri and forwarded by Dr. Pranajivana Manekchanda Mehta, Reprint Year 2007, Chaukhambha Sanskrit Sansthan, Varanasi, India, Page no 33.
 23. Astanga Hridaya Sutasthana^{27th} Chapter 15th Shloka-Nirmala hindi commentary by Dr. Brahmanand Tripathi; Reprint 2013, Chaukhambha Sanskrit Pratishtan, Delhi, India, Page no. 297.
 24. Astanga Hridaya Sutasthana^{13th} Chapter 1st -3rd Shloka-Nirmala hindi commentary by Dr. Brahmanand Tripathi; Reprint 2013, Chaukhambha Sanskrit

- Pratishthan, Delhi, India, Page no. 185.
25. Sushruta Samhita Chikitsasthana 35th chapter 28th -29th shloka, edited with Ayurveda Tattva Sandipika Hindi commentary by Kaviraja Ambikadutta Shastri and forwarded by Dr. Pranajivana Manekchanda Mehta, Reprint Year 2007, Chaukhambha Sanskrit Sansthan, Varanasi, India, Page no 151.
26. Charaka Samhita Siddhithana 04th Chapter 24th shloka - Vidyotini Hindi commentary by Kashinath Shastri and Gorakhnath Chaturvedi, edited by Rajeshwardutt Shastri, Pandit Yadunandan Upadhyaya, Pandit Gangasahaya Pandeya, Dr. Banarasidas Gupta; Reprint year 2011, Chaukhambha Bharati Academy, Varanasi, India, Page no 1008.
27. The Ayurvedic pharmacopoeia of India e-book, part- 1, volume – 4, government of india ministry of health and family welfare; department of AYUSH; page no 158.
28. The Ayurvedic pharmacopoeia of India e-book, part- 1, volume – 4, government of india ministry of health and family welfare; department of AYUSH; page no 160.
29. et al. Processing of Nux vomica. VII. Cai B, Nagasawa T, Kadota S, Antinociceptive effects of crude alkaloids from the processed and unprocessed seeds of Strychnosnux-vomica in mice. Biol Pharm Bull 1996;19:127-31.
30. et al. Processing of Nux vomica. VII. Chen J, Wang X, Qu YG. et al. Processing of Nux vomica. VII.. J Ethnopharmacol 2012;139:181-8.
31. Analgesic and anti-inflammatory properties of brucine and brucine N-oxide extracted from seeds of Strychnosnux-vomica Yin W, Wang TS, Yin FZ.. J Ethnopharmacol 2003;88:205-14.
32. A comparative anti-inflammatory activity of raw and processed Kupeelu Strychnosnux-vomica (Linn.) seeds on albino rats Mitra S, Kumar V, Ashok BK Anc Sci Life 2011;31:73-5.
33. Evaluation of antibacterial efficacy of leaves of Cleistanthuscollinus and Strychnosnux-vomica. Kalaivanan C, Chandrasekaran M, Venkatesalu V. Int J Nat Prod Res 2014;4:65-71.
34. Ayurvedic processed seeds of nux-vomica: Neuropharmacological and chemical evaluation. Katiyar C, Kumar A, Bhattacharya SK. Fitoterapia 2010;81:190-5.
35. Subtype-selective positive cooperative interactions between brucine analogues and acetylcholine at muscarinic receptors: Radioligand binding studies. Lazareno S, Gharagozloo P, Kuonen D. Mol Pharmacol 1998;53:573-89.
36. Dravyaguna Vigyana by Prof. P.V Sharma, Volume 2nd 31st drug chapter, Reprint 2001; Chaukhamba Bharti Academy Page no.86.

Source of Support: Nil

Conflict Of Interest: None Declared

How to cite this URL: Monica Salaria & Aditya: Management Of Gridhrasi With Kupilu: A Conceptual Review. International Ayurvedic Medical Journal {online} 2019 {cited July, 2019} Available from: http://www.iamj.in/posts/images/upload/1193_1198.pdf