

Pharmacological Intervention of Classical Ayurvedic Formulation *Chaturbeeja churnam*-A Narrative Review Based on Guna Concept

Krishnasamy Venkateswaran^{1,*}, Anita Patel²

ABSTRACT

Many internal Ayurvedic medicinal herbs are effective in treating *Vata rogam*, out of these *Chaturbeeja churnam* (*Methika, Chandrashura, Kalajaji, and Yavanika*) is one of the combinations (taken internally) described in *Bhavaprakasha Nighantu* by *Bhavaprakasha in mishrak gana*. The relevant literature was collected from the book source *Bhavaprakasha Nigandhu, Dravyaguna Vigyan*, and Web sources such as Google Scholar, PubMed, Web of Science, Ayush Portal, etc. This article is to explain the therapeutic action of *Chaturbeeja churnam* in *Vatarogam* and other diseases with modern comparison. As described in the various treatise of Ayurveda it is mainly working in *Vata dosha* and other diseases as per text and an attempt is made to correlate some other conditions which are not explained specifically in ayurvedic text with its possible modern diseases. This article discussed the individual ingredient of *Chaturbeeja churna* for its antispasmodic, analgesic, spasmolytic, and other important activities. It increases the pain threshold and facilitates better pain tolerance capacity. Hope that this review analysis will pave a way for better use of this potent drug to treat various chronic ailments which caused due to alteration in *Vata dosham*.

Key words: *Chaturbeeja Churnam, Vatharogam, Vatavyadhi, Therapeutic action, Bhavaprakasha nighantu.*

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INTRODUCTION

Chaturbeeja churnam is novel ayurvedic preparation consist of four herbals that were mentioned in ayurvedic literature named "*Bhavaprakasha Nighantu*". It is predominantly mentioned to treat *vatarogam* and diseases like *Ajeernam* (*indigestion*), *Soola* (*pain*), *adhmanam* (*distention of abdomen*), *parshwashulam* (*pain in flanks*), and *katishulam* (*low back ache*). An attempt is made to understand the pharmacodynamics and pharmacokinetics effects of *chaturbeeja churnam* in our body through the *Ayurvedic Guna* concept. Further in this study the all-possible correlation of therapeutic actions of each drug with ayurvedic concepts and correlated some of the modern diseases to open up for further researches in these areas with *Chaturbeeja churnam*.

Evidence Based Approach

The relevant literature was collected from the book source *Bhavaprakasha Nigandhu* and Web sources such as Google Scholar, PubMed, Web of Science, Ayush Portal.

METHIKA

Trigonella foenum greacum Linn. belongs to Fabaceae and it is cultivated in several parts of India as a commercial crop we do not have direct references in

the name *Methika* in *Brihat trayees*. The fenugreek seed has traditionally been used as a carminative, demulcent, expectorant, laxative, and stomachic agent. Major chemical constituents like steroidal saponins-diosgenin and gitogenin, oil, etc., in seeds. Fenugreek having multiple pharmacological properties constitute antioxidative, antineoplastic, anti-inflammatory, antiulcerogenic, antipyretic, immunomodulatory, and antitumor.^[1] The compounds present in the ethanolic extract of *Trigonella foenum greacum* were found to be interacting with key proteins that activate EGFR/AKT/mTOR signaling cascade which aiming the therapeutic implication to treat hyperglycemia and hyperlipidemia.^[2] Polysaccharides such as galactomannans contain antidiabetic effects^[3] and an amino acid 4-hydroxy isoleucine has been shown to possess insulin-mimetic properties.^[4]

CHANDRASURA

Lepidium sativum Linn. is an annual herb belongs to the Cruciferae family it extensively used in Arab countries like Saudi Arabia as their traditional medicine for respiratory illness such as bronchitis, asthma, etc.,^[5] This drug having the properties like abortifacient, antibacterial aphrodisiac, diuretic, expectorant, gastrointestinal stimulant, gastroprotective,

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Table 1: Ingredients and their qualities as per text.

S.No	Drug Name	Rasam	Gunam	Veeryam	Vipakam	Karma
1	Methika	Katu	Laghu, Snigdha	Usna	Katu	Kaphavata Haram, Raktapittaharam, Krmighnam
2	Chandrasura	Katu, Thiktham	Laghu, Ruksha, Theekshnam	Usna	Katu	Kaphavata Haram, Balyam
3	Kalaajaji	Katu Thiktham	Ruksha, Laghu	Usna	Katu	Vata Kapha Haram, Dipana Pachanam
4	Yavanika	Katu	Laghu, Ruksha, Theekshnam	Usna	Katu	Kapha Vata Haram, Dipana Pachanam.

laxative and stomachic and it is very much useful in hemorrhoids, constipation, swelling, water retention, wart.^[6]

The above said herb contains lepidine, imidazole, oleic acid, semilepidinose A and B, linoleic acid, β -carotenes, ascorbic acid, palmitic acid, stearic acid, sinapic acid, and sinapin. *Lepidium sativum* is reported to exhibit antihypertensive, diuretic, anti-inflammatory, analgesic, anti-coagulant, antirheumatic, hypoglycemic, laxative, prokinetic, anti-diarrheal, and antispasmodic properties.^[7]

KALAAJAJI

Nigella sativa Linn is an annual herb of the Ranunculaceae family that contains many chemical constituents and mainly contains essential oils having cymine nigellone, carvone, limonene, nigellimine in it. The above-mentioned herb has been tremendously studied for its biological activities and therapeutic potential and it possesses a broad spectrum of activities such as diuretic, antihypertensive, antidiabetic, anticancer and immunomodulatory, antimicrobial, anthelmintics, analgesics, anti-inflammatory, spasmolytic, bronchodilator, gastroprotective, hepatoprotective, renal protective and antioxidant properties. The seeds of *N. sativa* are popularly used in the treatment of various diseases like bronchitis, asthma, diarrhea, rheumatism, and skin disorders. It is also used as a digestive, anti-diarrheal, appetite stimulant, emmenagogue, to fight against parasitic infections, and to support the immune system. Mostly the therapeutic effects of this plant are due to the presence of thymoquinone (TQ) which is a major active chemical component of the essential oil.^[8]

YAVANIKA

Carum copticum belongs to the Umbelliferae family is an annual herb extensively used for both household and medicinal purposes. It is a well-known herb for abdominal pain due to indigestion or flatulence. *Charaka* mentioned this *yavanika* under the *sulaprasamanam* group of drugs.^[9] It acts as bronchodilatory, antitussive, and antidyspnea. Medicinal effects of this plant in GIT disorders, such as reflux, cramps, abdominal tumors, abdominal pain, and *Helicobacter pylori*, as well as in eye infections have been revealed by various research articles. *C. copticum* seeds also have some therapeutic properties like carminative, antiseptic, amoebiasis expectorant, antimicrobial, antiparasitic, antiplatelet-aggregatory, and antilithiasis.^[10] This is beneficial in treating the common cold and acute pharyngitis, galactagogue, anticarcinogenic and diuretic activities have been observed for this plant. It has been shown that this plant has also fetotoxicity, Abortifacient.^[11]

COMPARISON BETWEEN MODERN AND AYURVEDA

METHIKA

After reviewing so many articles on *Trigonella foenum-greacum* Linn. it is found to have therapeutic activities such as Antidiabetic, Antioxidative, Hypocholesterolaemia, Antineoplastic, Anti-Inflammatory, Antiulcerogenic, Antipretic, Immunomodulatory, and Antitumor.

The seed of methika contains oil it is having *Snigdha guna* (unctuousness) as per Ayurveda which is opposite to *ruksham guna* (dryness) of *vayu*, *Usna veerya* (hot potency) which is opposite to both *Kapha* and *Vata* (both having a cold as its nature), as *amayika prayoga* the leaves of *methika* are mentioned for *Vrana shopha* (inflammation). All the above therapeutic actions are maybe correlated as *kaphapradhanya rogas* with Ayurvedic *guna* and *dosa* concept. This methika also mainly working on *kaphapradhanya rogas* with the other two *doshas* as per textual reference of Ayurveda.^[12]

CHANDRASURA

After reviewing so many articles on *Lepidium sativum* Linn., it is found to have therapeutic activities such as abortifacient, antibacterial, aphrodisiac, diuretic, expectorant, gastrointestinal stimulant, gastroprotective, laxative, useful for stomachic hemorrhoids, constipation, swelling, water retention, wart removal.

In Ayurveda *Brihatrayees* like *Charaka Samhita*, *Susrutha Samhita*, and *Astanga Hridayam* are not explained this drug, later this drug was mentioned by *Bhavamishra* in *Bhavaprakasha Nigandu*. It is *Katu* (pungent) *rasam* and *vipakam*, *Usna Veeryam* and *Karmas* like *Kaphavata Samakam* and *Balyam* property. The above therapeutic effects after reviewing many articles of Chandrasura maybe correlated with *kaphapradhanyavata rogam* in Ayurveda. As per Ayurvedic *Dosha* and *Guna* concept, it can be useful for *kaphapradhanya rogas* with *Vata anubandha*.^[13]

KALAAJAJI

After reviewing so many articles on *Nigella sativa* Linn. it is found to have therapeutic activities such as Diuretic, antihypertensive, antidiabetic, anticancer and immunomodulatory, antimicrobial, anthelmintics, analgesics, anti-inflammatory, spasmolytic, bronchodilator, gastroprotective, hepatoprotective, renal protective, and antioxidant properties.

The above therapeutic effects after reviewing many articles of *kalajaji* may be possibly correlated with *vatapradhanya Kapha rogam* as per Ayurveda. With Ayurvedic *Dosha* and *Guna* concept, this drug will be beneficial in *vatapradhanya Kapha rogas*.^[14]

YAVANIKA

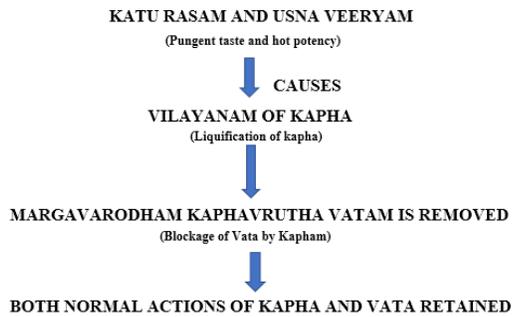
After reviewing many articles it is found to have potential effects such as Bronchodilatory, antitussive, antidyspnea, carminative, antiseptic, amoebiasis expectorant, antimicrobial, antiparasitic, antiplatelet-aggregatory, antilithiasis, galactagogue, anticarcinogenic and diuretic. It is useful in GIT disorders, such as reflux, cramps, abdominal tumors, abdominal pain, and *Helicobacter pylori*, as well as in eye infections, common cold, and acute pharyngitis. It has been shown that this plant has also fetotoxicity, Abortifacient.

The above therapeutic effects after reviewing many articles of *Yavanika* Maybe correlated with *Kaphapradhanya Vata rogam* as per Ayurveda. *Yavanika* has potential effects based on *Ayurvedic Dosha* and *Guna* concept towards *Kaphapradhanya Vata rogam*.^[15]

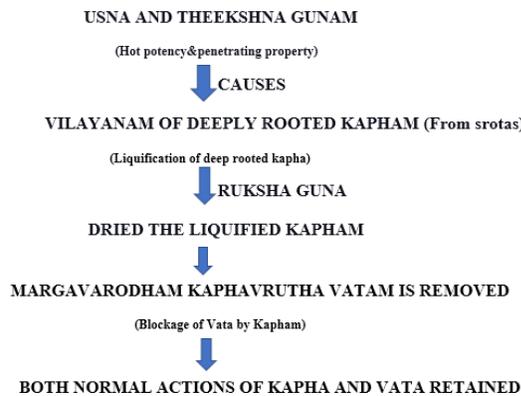
DISCUSSION

Total Discussion part is explained as per Ayurvedic Dosha and Guna concept with system-wise modern correlation.

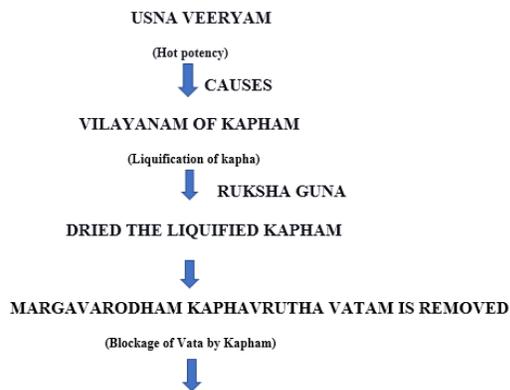
METHIKA:



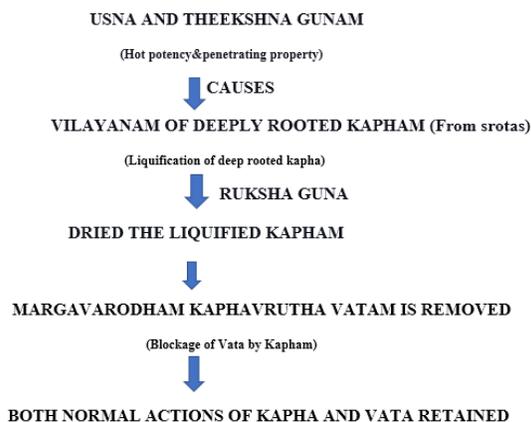
CHANDRASURA:



KALAJAJI:



YAVANIKA:



Gastrointestinal Disorders

1. Achalasia cardia

It is otherwise called Cardiospasm and the lower oesophagus sphincter fails to relax due to nerve damage.

So in this condition *kaphavataharam*, *anulomanam* (downward movement), *usna* (hot potency), and *Snigdham* (unctuous) are beneficial to treat the disease. So *chaturbeeja churnam* with ghee having all the above qualities may be beneficial in the above disease.

2. Non-ulcer dyspepsia

Kind of indigestion but the patient doesn't have an ulcer.

In this case, the patient is feeling heaviness even if he takes minimal food and having indigestion so we can treat this condition with *Kapha Vata samanam*, *agnidipanam* (appetizer), *vataanulomanam* (downward) drugs so *chaturbeeja churnam* may have a potential effect on this condition.

3. Gastritis due to *H. pylori*

Aqueous extract of *Yavanika* which is an ingredient of *chaturbeeja* having action on *H. pylori* infection.

The symptoms of *H. pylori* gastritis like stomach ache, nausea, loss of appetite, bloating may be treated with *chaturbeeja churnam* because of their *agnidipanam* (appetizer), and *vatanulomanam* (downward) qualities.

4. Nausea and vomiting due to indigestion

Chaturbeeja churnam is directly indicated for indigestion (*ajeernam*) because of its *agnidipanam* (appetizer) property so nausea and vomiting due to indigestion may be treated with *chaturbeeja churnam*.

5. Non-bleeding piles

In this condition, the treatment protocol as per Ayurveda is *Suska-Vata Kapha Hara*, *usna*, *srotosodhanam* (clear hollow space), *vatanulomanam* (downward). *chaturbeeja churnam* having all these qualities so it may be helpful in this condition.

6. Constipation

Constipation may be due to an increase in *ruksha* (dryness) *guna* of *vayu* or *stambham* (block) which is caused due to increased *kapham*. *Chaturbeeja churnam* may be effectively working in both types of constipation because the drugs in this preparation having both *kaphavata haram*, *anulomanam* (downward) properties in them.

7. Spastic colon

The symptoms of the spastic colon include abdominal pain, bloating, diarrhea, constipation

Chaturbeeja churnam having a direct indication of abdominal pain, bloating (*adhmanam*) and *chandrasura* of *chaturbeeja churnam* is effective on constipation so the total combined formulation of this drug is useful in the spastic colon.

8. Intestinal Obstructions (non-structural)

For non-structural intestinal obstructions, we have to incorporate *mudavata* (disease caused by blockage of Vata) *chikitsa* and *vatanulomana* (downward movement) property *aushadhi* is needed to remove the obstruction. *Chaturbeeja churnam* having both properties so it may be beneficial in this condition.

Liver Disorders

Even Though it is not a *Yakrut vishesha* (Liver-specific) it may be useful with proper consideration of *Pittam*. (Can prescribe along with other *Yakrut Vishesha Aushadhis*)

1. Obstructive jaundice

Because of *Katu* (pungent) *rasam*, *Agnidipanam* (appetizer), *Srotosodhanam* (clear hollow structure) properties the obstruction may be treated with this formulation.

2. Hepatomegaly (depends on the cause)

Thiktha Katu (bitter and pungent) rasa, *Kapha haram*, *mutralam* (diuretics) are the line of treatment for hepatomegaly as per Ayurveda. With due consideration of *pittam chaturbeeja*, *churnam* may have a possible therapeutic effect on Hepatomegaly based on the causative factor.

3. Fatty liver and NASH

Fatty liver may be correlated with *medo dhatu vriddhi in yakrut* due to *dhatuvagni mandhyam* (metabolic problems). So *dipana* (appetizer) *pachana* (digestive) *kaphahara*, *srotosodhana* (cleansing hollow structure) properties of *chaturbeeja churnam* may have a potential effect on this condition.

4. Gall stones

Mostly Gall stones are produced by cholesterol and bile we can correlate these with *Kapha* and *pitta* then they become hard. So, in this condition *pittavardhana kaphavilayanam* by *usna* (hot potency) property and *anulomana* (downward) property of *chaturbeeja* may be helpful.

Cardiac Disorders

1. Angina (fatty deposits in coronary artery)

Fat may be considered as *Kapha* in Ayurveda with *usna guna* (hot potency) we can liquefy the fat substances and with *anulomana* (downward movement) property of *chaturbeeja churnam* we can flush it out from the artery by these mechanism *chaturbeeja churnam* may have potential effects on angina due to fat deposits in the coronary artery.

Renal Disorders

1. Atonic bladder (depends on the cause) and BPH

Atonic bladder due to prostate enlargement or any other obstruction may be possibly treatable with *vatakaphaharam*, *usna veeryam* (hot potency), and *srotosodhanam* (clearing hollow structure) properties of *chaturbeeja churnam*.

Bone Disorders

1. Acute cervical spondylosis

Acute cervical spondylosis due to herniated cervical disc can be correlated with *kaphavrutha vatam* so the drugs in *chaturbeeja churnam* having the possible action on *kaphavrutha vatam* and they are having *soolaprashamanam* (analgesics) qualities also. So, it may be beneficial in this condition.

2. Polymyalgia rheumatica (for stiffness)

It is a painful and stiffness condition of the hip and shoulder joint due to inflammation.

The drugs in *chaturbeeja churnam* having *usna guna* (cause *vilayanam* of *Kapha*) and *soolaprasamana* (analgesics) effect so both pain and stiffness can be treatable and it is having anti-inflammatory actions also.

3. Osteoarthritis (for obese person)

Chaturbeeja churnam is *kaphavata haram*, *katu* (pungent) *rasam*, *usna veeryam* (hot potency), and *soolaprasamana* (analgesics) so it will be beneficial in pain and stiffness of osteoarthritis with obesity.

4. Iliotibial band syndrome

The iliotibial band does not glide due to inflamed bursa so the pain will increase during movements.

Because of the anti-inflammatory and *soolaprasamana* (analgesics) characters of *chaturbeeja churnam*, it may helpful for pain management in this condition.

Neurological

1. Bell's Palsy

Temporary facial paralysis resulting from damage or trauma to the facial nerves. In Ayurveda, it is correlated with *arditam* under the category of *vataja nanatmaja vyadhi*. Sometimes it may be caused due to other *doshas* involvement with *Vata* also.

Ayurvedic view: *Vata Vriddhi* in *Kapha Sthanam* so treatment should be *kaphavata samanam*, *srotosodhanam*, or *avaranaagham*, *usna virya aushadham*. *Chaturbeeja Churnam* may have potentially useful in this condition because of having the above actions.

2. Trigeminal Neuralgia

Piercing or stabbing pain due to disorder of the 5th cranial nerve. Its characteristic feature is muscle spasms accompanied by pain.

Chaturbeeja churnam may be useful to reduce pain and muscular spasm in trigeminal neuralgia. Because in this condition *Kaphavruthavata chikitsa*, *usna virya*, *srotosodhanam* qualities drugs may be beneficial.

3. Sleep Apnea (Obstructive type)

Sleep apnea may have one or more pauses in breathing during sleep. Obstructive type is more common in this.

As per Ayurveda, the possible treatment protocol may be *Kapha Hara chikitsa*, *swasa chikitsa*, to remove the obstruction in *Pranavaha Srotas*. For these action *usnaveeryam*, *srotosodhanam*, *anulomanam* is needed *chaturbeeja* having all the above qualities so it may be beneficial in this condition.

4. Spinal Cord Compression (due to disc bulge)

The symptoms in cord compression due to disc bulge can be correlated with *kaphavrutha vatam* and *avaranam* (encapsulated) with *usnaveeryam* (hot potency), *vatanulomanam* (downward) and *srotosodhanam* (cleansing the hollow structures) properties of *chaturbeeja* may have possible effects on this condition.

5. Thoracic Outlet Syndrome

Compression of blood vessels or nerves in the thoracic outlet.

May be taken as *avaranam* of *kaphavrutha vatam* and *apabahukam chikitsa* will be helpful in this condition.

Chaturbeeja churnam may reduce the pain in this condition because of its *avaranaagham* and *srotosodhana* properties.

CONCLUSION

Even though *chaturbeeja churnam* is mainly indicated for *Vata rogam* as per the above review it will work mainly in *Kaphanubandha vatam* and especially it will work in *Kaphavrutha vatam* and having *agni sandhookshana* (regulate the metabolic activity) qualities.

This article is to explain the possible indication which is not explained directly in literature for *chaturbeejam* and correlated many systems with modern diseases in those areas further researches with *Chaturbeejam Churnam* is needed to prove its therapeutic efficacy.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

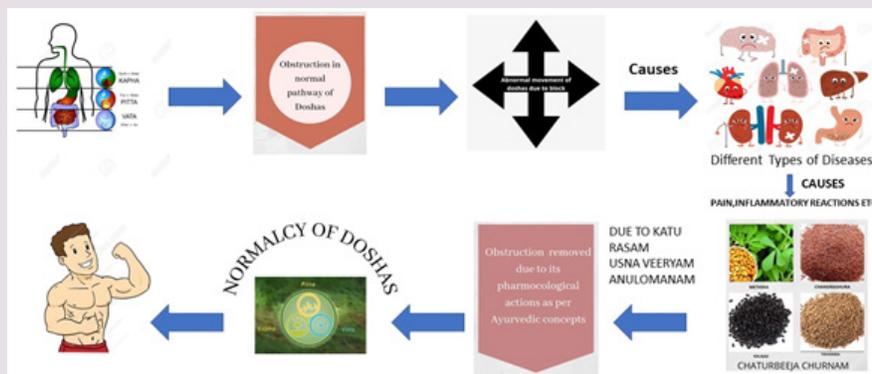
ABBREVIATIONS

H. pylori: *Helicobacter pylori*; **BPH**: Benign Prostatic Hyperplasia.

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GRAPHICAL ABSTRACT



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