

## REVIEW ARTICLE

# A Comprehensive Review of Navagraha Vellai and Its Therapeutic Significance in Siddha Medicine

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### ABSTRACT

Siddha medicine is a traditional medical system that utilizes Herbo-mineral formulations for the management of chronic and complex diseases. Navagraha Vellai is a classical Siddha Pathangam preparation traditionally indicated for Kuttarogangal (skin diseases) and Soolai Rogangal (inflammatory disorders). The formulation contains several purified mineral and herbal ingredients possessing diverse therapeutic properties. To review the traditional Siddha concepts, chemical profile, phytochemical constituents, pharmacological activities, and nano-medicinal significance of the ingredients present in Navagraha Vellai. Information related to Navagraha Vellai was collected from classical Siddha literature, Siddha formularies, Materia medica texts, and published scientific research articles. The review focused on the pharmacological activities, traditional uses, chemical constituents, and analytical studies of the ingredients present in the formulation. The ingredients of Navagraha Vellai demonstrated significant antimicrobial, antioxidant, anti-inflammatory, wound healing, analgesic, and anticancer activities. Kodiveli (*Plumbago zeylanica*) showed potent pharmacological effects due to the presence of plumbagin. Camphor exhibited antimicrobial and wound healing properties, while processed mineral ingredients such as cinnabar, mercurial compounds, and arsenicals demonstrated therapeutic potential after purification procedures. Modern analytical studies including XRD, SEM, FTIR, and ICP-OES revealed the formation of stable mineral complexes and nano-sized particles, which may enhance bioavailability and therapeutic efficacy while reducing toxicity. The available traditional and scientific evidence supports the therapeutic potential of Navagraha Vellai as a Siddha Herbo-mineral formulation with significant pharmacological and nano-medicinal properties.

**Keywords:** Navagraha vellai, Siddha medicine, Nano Medicines, Review, Pharmacological activity.

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### INTRODUCTION

Siddha Medicine is one of the oldest traditional systems of medicine practiced mainly in South India and Sri Lanka. The Siddha system emphasizes a holistic approach in which health is maintained through the equilibrium of the three humors namely *Vatham*, *Pitham*, and *Kabham*. Siddhars developed numerous formulations using herbs, metals, minerals, and animal-derived substances to manage various acute and chronic diseases. These formulations are considered unique because of their specialized pharmaceutical preparations and synergistic therapeutic actions [1]. According to classical Siddha literature, Siddha medicines are broadly classified into internal and external medicines, each comprising 32 dosage forms. Among the internal preparations, Pathangam occupies an important place in Siddha pharmaceuticals. *Pathangam* refers to medicines prepared through the process of sublimation, in which solid substances are converted directly into vapor by heating and subsequently condensed into solid form without passing through the liquid phase. Substances such as sulphur, camphor, benzoin, mercurial compounds, and arsenicals are commonly used in this process [2]. Modern scientific investigations have shown that several Siddha herbo-mineral formulations contain particles in the nano range due to repeated purification, trituration, calcination, and sublimation processes. Nano-sized particles improve bioavailability, enhance targeted drug delivery, increase therapeutic efficacy, and reduce toxicity and

adverse effects. Nano medicines also possess greater stability and prolonged shelf life compared to conventional formulations [3]. Hence, Siddha formulations are increasingly gaining importance in nanomedicine research. Among the classical Siddha formulations, *Navagraha Vellai* is a herbo-mineral *Pathangam* preparation indicated for *Kuttarogangal* (skin diseases) and *Soolai Rogangal* (inflammatory and painful conditions) as mentioned in classical Siddha texts [4]. The formulation has been therapeutically utilized in Siddha clinical practice for the management of chronic diseases. The ingredients present in *Navagraha Vellai* possess various pharmacological activities including antimicrobial, antioxidant, anti-inflammatory, wound healing, immunomodulatory, and analgesic properties, which may contribute to its therapeutic efficacy [5]. The present review aims to systematically compile the phytochemical constituents, pharmacological actions, and medicinal importance of each ingredient present in *Navagraha Vellai*. The review also attempts to scientifically validate the traditional therapeutic claims of this formulation and to explore its potential role in contemporary drug research and nanomedicine.

## MATERIAL AND METHODS

### Drug details:

#### Study drug: NAVAGRAHA VELLAI

#### Preparation of the drug Ingredients:

- 1) *Seenakkaram* (Alumen)
- 2) *Naattuvengaram* (Sodium biborate)
- 3) *Seemaivengaram*
- 4) *Vediuppu* (Potassium Nitrate)
- 5) *Indhuppu* (Sodium chloride Impure)
- 6) *Gowripasaanam* (Arsenic Trioxide)
- 7) *saveeeram* (Hydrargyrum perchloride)
- 8) *Jathilingam* (Red sulphide of mercury)
- 9) *Karpooram* (Camphor)
- 10) *Kodivelisaaru* (*Plumbago zeylanica*)
- 11) *Rasam* (Mercury)
- 12) *Kariuppu* (Sodium chloride)

#### Method of Preparation:

All the ingredients should be Purified. Equal quantity of above-mentioned drug from 1 to 9 will be made into fine powders individually. Then mixed together and grind with kodiveli leaf juice (*Plumbago zeylanica*) and made into fine paste. Then crucible (kugai) is made by using that fine paste. A pot with broad mouth will be taken and is filled with 3/4th of kariyuppu. A pit is made in the kariyuppu by using a finger. The prepared crucible will be filled with Rasam and kugai will be kept inside the pit. The pot will be covered with the suitable another pot having identical size of mouth and sealed with seven layers of mud pasted cloth. Then the mud pot will be heated for 12 hours. Then it's allowed to cool itself. Then the cloth will be removed and the Pathangam which was found deposited on the inner side of the upper mud pot, it carefully collected from pot using brush.

**Dosage** - 65mg (bd)

**Adjuvant** - Palm jaggery

**Indication** – Soolairogangal, Kuttarogangal

## LITERATURE OF REVIEW

### Siddha aspect [6]

#### 1. VEERAM

**Chemical Name:** Hydrargyrum perchloride (Perchloride of Mercury)

**General Properties:** Veeram is a potent mercurial drug used in Siddha Medicine after proper purification. It is traditionally indicated in chronic skin diseases, venereal disorders, ulcers, inflammatory conditions, glandular swellings, and Vatha-related disorders..

**Potency:** Hot (*Veppam*)

**Taste:** Bitter

**Pharmacological Actions:** Alterative, Antimicrobial, Antiseptic, Caustic.

**Traditional Uses:** Traditionally, Veeram is used in the management of leprosy, gastric ulcers, chronic wounds, painful conditions (Soolai), sexually transmitted diseases, abnormal tissue growth, and certain eye diseases.

## 2. VENGARAM

**Synonyms:** *Porikaram, Karam, Urukkinam, Urukkumithran, Danganam, and Thoomathaiyadakki.*

**General Properties:** *Vengaram* (Borax) is a medicinal mineral salt commonly used in Siddha Medicine for its therapeutic and preservative properties. Classical Siddha texts describe its usefulness in the treatment of skin diseases, gastric ulcers, carbuncles, itching, haemorrhoids, respiratory disorders, and urinary ailments.

**Taste:** Predominantly sweet with an astringent property.

**Pharmacological Actions:** Demulcent, Diuretic, Sedative, Tonic, Alterative, Antiseptic, Astringent

**Traditional Uses:** It is also traditionally employed for reducing inflammation, improving digestion, and promoting wound healing.

## 3. RASAM

**Synonyms:** *Sootham, Punniyam, Karpam, Soorya Virothi, Saamam, Sukilam, Yogam, Eesan Sivan Vinthu, Kanavan, Vasuki Nathan, Baratham, and Vinneer.*

**General Properties:** *Rasam* (Mercury) is regarded as one of the fundamental mineral substances in Siddha Medicine. Classical Siddha texts describe its importance in treating chronic and difficult diseases after undergoing appropriate purification procedures.

**Taste:** *Rasam* is believed to possess all six tastes, with sweetness being the predominant taste.

**Pharmacological Actions:** Rejuvenative agent, General tonic, Mild laxative, Diuretic, Pitham balancing agent, Sialagogue, Anti-inflammatory agent, Anti-venereal medicine

**Traditional Uses:** Traditionally, it has been used in conditions such as ocular disorders, venereal diseases, chronic ulcers, *Gunmam*, painful inflammatory disorders (*Soolai*), and leprosy.

## 4. VEDIUPPU

**Vernacular names:** *Pottiluppu, Inangan, Padairasan* (Commander for the war troops), *Boomikoormai* (Sharpness of the earth), *Navacharamithru*

**General properties:** *Vediuppu* (Potassium nitrate) is an important mineral salt used in Siddha Medicine for its wide range of therapeutic applications. Classical Siddha texts describe its usefulness in the management of various disorders including different types of *Gunmam* (abdominal diseases), uterine fibroids, anorexia, anaemia, urinary tract infections, dysuria, strangury, ascites, menopausal disorders, abdominal distension, and asthma. It is also traditionally believed to support female reproductive health and improve fertility.

**Taste:** Predominantly salty with a mild cooling property.

**Pharmacological Actions:** Diuretic, Anti-inflammatory, Antipyretic, Vaso modulatory agent, Carminative

**Traditional Uses:** *Vediuppu* is traditionally used in Siddha Medicine for the management of abdominal disorders (*Gunmam*), urinary tract diseases, dysuria, ascites, asthma, inflammatory swellings, and rheumatic conditions. It is also indicated in fever, gonorrhoea, throat infections, eye diseases, and bleeding disorders. Classical texts additionally mention its role in improving female reproductive health and relieving abdominal distension.

## 5. LINGAM

**Synonyms:** *Rasalingam, Hingulam.*

**General Properties:** Classical Siddha texts describe *Cinnabar* as a potent mineral drug possessing rejuvenative and therapeutic properties. It is traditionally used in the management of chronic diseases, respiratory disorders, skin diseases, nervous disorders, and venereal conditions.

**Taste:** Bitter and astringent.

**Potency:** Hot potency (*Veppam*).

**Pharmacological Actions:** Rejuvenative, Tonic, Antimicrobial, Alterative, Stimulant, Aphrodisiac, Anti-inflammatory

**Traditional Uses:** *Cinnabar* is commonly incorporated into Siddha herbo-mineral formulations intended for chronic respiratory illnesses, skin disorders, fatigue, debility, and infectious diseases. It is also traditionally believed to enhance vitality, improve strength, and support longevity therapies.

## 6. INDUPPU

**Synonyms:** *Induppu, Sendhalavanam, Mathi Koor Uppu.*

**General Properties:** *Induppu* (Rock salt) is an important salt drug used in Siddha Medicine for its digestive and therapeutic properties. It is traditionally indicated in digestive disorders, abdominal distension, indigestion, constipation, loss of appetite, and *Vatha*-related diseases. Siddha texts also mention its usefulness in respiratory ailments and urinary disorders.

**Taste:** Predominantly salty with a mild sweet taste.

**Potency:** Hot potency (*Veppam*).

**Pharmacological Actions:** Digestive, stimulant, Carminative, Laxative, Appetizer, Expectorant, Antispasmodic

**Traditional Uses:** *Induppu* is commonly used in Siddha formulations to improve digestion, relieve flatulence, stimulate appetite, and balance deranged Vatha and Kabha humors. It is also traditionally administered in respiratory disorders such as cough and asthma.

#### 7. KARPOORAM

**Synonyms:** *Karpooram, Pachai Karpooram, Chandrakantham.*

**General Properties:** Karpooram (Camphor) is an aromatic substance widely used in Siddha Medicine for its stimulant, antiseptic, and cooling properties. It is traditionally indicated in respiratory disorders, fever, inflammatory conditions, skin diseases, and neurological ailments.

**Taste:** Pungent with a slight bitter taste.

**Potency:** Cooling potency (*Kulirchi*).

**Pharmacological Actions:** Antiseptic, Anti-inflammatory, Analgesic, Expectorant, Stimulant, Carminative, Antipruritic

**Traditional Uses:** Karpooram is commonly used in Siddha preparations for the management of cough, cold, asthma, chest congestion, headache, skin irritation, and painful inflammatory conditions. It is also externally applied in medicated oils and liniments to relieve pain and swelling.

#### 8. PADIGARAM

**Synonyms:** *Padigaram, Vengaram Padigaram, Sphatika.*

**General Properties:** *Padigaram* (Alum) is a mineral salt commonly used in Siddha Medicine for its astringent and antiseptic properties. It is traditionally employed in the treatment of wounds, ulcers, bleeding disorders, throat infections, skin diseases, and leucorrhoea.

**Taste:** Astringent with a mildly sour taste.

**Potency:** Cooling potency (*Kulirchi*).

**Pharmacological Actions:** Astringent, Antiseptic, Haemostatic, Antimicrobial, Anti-inflammatory, Wound healing agent

**Traditional Uses:** *Padigaram* is widely used in Siddha medicine for managing oral ulcers, sore throat, haemorrhoids, excessive bleeding, skin infections, and chronic wounds. It is also externally applied for wound cleansing and reduction of inflammation.

#### 9. GOWRIPASANAM

**Synonyms:** *Gowri Pasanam, Gauri Pashanam.*

**General Properties:** *Gowripasanam* is an important mineral ingredient used in classical Siddha Medicine formulations after appropriate purification procedures. It is traditionally indicated in chronic diseases, skin disorders, respiratory ailments, fever, and inflammatory conditions.

**Taste:** Bitter and astringent.

**Potency:** Hot potency (*Veppam*).

**Pharmacological Actions:** Alterative, Antimicrobial, Antipyretic, Anti-inflammatory, Tonic

**Traditional Uses:** *Gowripasanam* is commonly incorporated into Siddha herbo-mineral medicines used for the management of chronic skin diseases, respiratory disorders, glandular swellings, ulcers, and infectious conditions. It is also traditionally believed to enhance the therapeutic potency of polyherbal formulations.

#### 10. KARIUPPU

**Synonyms:** *Kari Uppu, Karuppu Uppu.*

**General Properties:** Kariuppu (Black salt) is a medicinal salt widely used in Siddha Medicine for its digestive and carminative properties. It is traditionally indicated in indigestion, abdominal discomfort, flatulence, constipation, loss of appetite, and Vatha-related disorders.

**Taste:** Salty with pungent and slightly bitter taste.

**Potency:** Hot potency (*Veppam*).

**Pharmacological Actions:** Carminative, Digestive stimulant, Laxative, Appetizer, Antispasmodic, Expectorant

**Traditional Uses:** Kariuppu is commonly used in Siddha formulations to improve digestion, relieve bloating, stimulate appetite, and reduce abdominal pain caused by deranged Vatham. It is also traditionally administered in respiratory conditions such as cough and asthma.

#### 11. KODIVELI [7]

**Synonyms**

*Kodiveli, Chithiramulam, Vellai Kodiveli.*

**Family:** Plumbaginaceae.

**General Properties:** *Kodiveli* (*Plumbago zeylanica*) is an important medicinal herb used in Siddha Medicine for its potent digestive, stimulant, and anti-inflammatory properties. It is traditionally indicated in digestive disorders, inflammatory diseases, skin disorders, haemorrhoids, and rheumatic conditions.

**Taste:** Pungent and bitter.

**Potency:** Hot potency (*Veppam*).

**Pharmacological Actions:** Digestive stimulant, Carminative, Anti-inflammatory, Antimicrobial, Analgesic, Appetizer

**Traditional Uses:** *Kodiveli* is commonly used in Siddha formulations for the management of indigestion, abdominal distension, constipation, arthritis, chronic skin diseases, and respiratory ailments. The root is especially valued for stimulating digestive fire and reducing accumulated *Kabham* and *Vatham*.

**Table 1: Chemical profile of ingredients used in *Navagraha vellai***

| INGREDIENTS         | English Name      | Chemical Name               | Chemical formula                                       |
|---------------------|-------------------|-----------------------------|--------------------------------------------------------|
| <i>Vengaram</i>     | Borex             | Disodium tetra borate       | $\text{Na}_2\text{B}_4\text{O}_7\text{H}_2\text{O}$    |
| <i>Vediuppu</i>     | Saltpeter         | Pottasium Nitrate           | $\text{KNO}_3$                                         |
| <i>Padigaram</i>    | Alam stone        | Pottasium Aluminium Sulfate | $\text{KA1}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ |
| <i>Induppu</i>      | Rock salt         | Impura Sodium Chloride      | $\text{NaCl}$                                          |
| <i>Kariuppu</i>     | Black salt        | Sodium Chloride             | $\text{NaCl}$                                          |
| <i>Rasam</i>        | Mercury           | Hydragryum                  | $\text{Hg}$                                            |
| <i>Jathilingam</i>  | Natural Cinnabar  | Mecury sulfide              | $\text{HgS}$                                           |
| <i>Veeram</i>       | Mercuric Chloride | Hydrargyrum perchloride     | $\text{HgCl}_2$                                        |
| <i>Gowripasanam</i> | Arsenic Trioxide  | Arsenic (III) Oxide         | $\text{As}_2\text{O}_3$                                |
| <i>Karpooram</i>    | Camphor           | Terpene Ketone              | $\text{C}_{10}\text{H}_{16}\text{O}$                   |

**Table 2: Organoleptic and Phtochemical features of herbal drug**

| Ingredients     | Sceintific Name                 | Part Used | Taste   | Potency               | Major Phytochemical Constituents                  |
|-----------------|---------------------------------|-----------|---------|-----------------------|---------------------------------------------------|
| <i>Kodiveli</i> | <i>Plumbago Zeylanica</i> .Linn | Leaf      | Pungent | Hot (veppa veeriyam ) | Plumbagin ( $\text{C}_{11}\text{H}_8\text{O}_3$ ) |

**Table 3: Pharmacological activities of ingredients present *Navagraha vellai***

| Ingredients         | Pharmacological Activity                         | Reference                                 | Key Findings                                                                                                             |
|---------------------|--------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <i>Seenakaram</i>   | Antimicrobial<br>Wound healing                   | Shahbandeh M, Salehi MA, et al.           | Potassium alum-containing ointment showed significant antibacterial and wound healing efficacy in burn wound models [8]. |
| <i>Vengaram</i>     | Antimicrobial<br>Wound healing                   | Bozbeyoglu Kart N, et al.                 | Borax-loaded preparations demonstrated antibiofilm and wound healing properties [9].                                     |
| <i>Vediuppu</i>     | Antimicrobial                                    | Xu Z, Zhao X, Chen X, et al.              | Nitrate-based compounds demonstrated antibacterial effects against wound pathogens [10].                                 |
| <i>Induppu</i>      | Antimicrobial wound healing<br>Anti-inflammatory | Ziaian B et al                            | 5% hypertonic saline significantly improved wound healing by reducing wound size in diabetic foot ulcers. [11].          |
| <i>Kariuppu</i>     | Antimicrobial<br>Antioxident                     | Chander V, et al.                         | KCl exhibited antimicrobial activity against several pathogenic bacteria comparable to NaCl on a molar basis. [12].      |
| <i>Gowripasanam</i> | Anticancer<br>Antimicrobial                      | An YL, et al.                             | Arsenic sulfide nanoparticles exhibited selective cytotoxic and antimicrobial effects [13].                              |
| <i>Rasam</i>        | Antimicrobial                                    | Bayat Z, Yousefi A, Sabounchei SJ, et al. | Novel mercury complexes demonstrated significant antibacterial activity against pathogenic microorganisms [14].          |
| <i>Veeram</i>       | Antimicrobial                                    | Liu J, et al.                             | Mercurial compounds showed antimicrobial activity, though toxicity depends on chemical form [15].                        |
| <i>Jathilingam</i>  | Antimicrobial<br>Nano-mecicine action            | Karthikaa T, et al.                       | The study confirmed stable $\text{HgS}$ formation and nano-sized particle characteristics in cinnabar preparations [16]. |
| <i>Karpooram</i>    | Antimicrobial                                    | 1.Duda-Madej A, et                        | 1.Camphor derivatives showed potent                                                                                      |

|                 |                                                             |                                                                    |                                                                                                                                                                                                            |
|-----------------|-------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | Antioxidant<br>Wound healing                                | al. 2. Raja Sekharan<br>T, et al.                                  | antimicrobial and antibiofilm activity [17].<br>2.Camphor-based formulations enhanced<br>wound healing and antioxidant activity [18].                                                                      |
| <i>Kodiveli</i> | Antimicrobial<br>Antioxidant<br>Anticancer<br>Wound healing | 1.Shukla B, Saxena S,<br>Usmani S, et al.<br>2.Mukherjee S, et al. | 1.Kodiveli demonstrated antimicrobial,<br>antioxidant, anti-inflammatory, and wound<br>healing properties [19].<br>2.Plumbagin-rich extracts showed strong<br>antioxidant and antibacterial activity [20]. |

## DISCUSSION

The present study highlights the pharmacological significance of the Siddha herbo-mineral formulation *Navagraha Vellai* based on traditional Siddha principles and recent scientific evidence. The formulation contains multiple herbal and mineral ingredients reported to possess antimicrobial, anti-inflammatory, wound healing, and anticancer activities. *Kodiveli* (*Plumbago zeylanica*) is one of the major herbal ingredients in *Navagraha Vellai*. The plant contains plumbagin, a biologically active naphthoquinone compound with proven antimicrobial, antioxidant, anti-inflammatory, wound healing, and anticancer activities. Experimental studies demonstrated that plumbagin inhibits pathogenic microorganisms and suppresses inflammatory mediators, thereby supporting the traditional Siddha use of *Kodiveli* in chronic inflammatory and infectious diseases. *Karpooram* (Camphor) has been traditionally used in Siddha medicine for its analgesic, antimicrobial, and anti-inflammatory properties. Recent reviews suggest that camphor improves local circulation and contributes to wound healing and antimicrobial action. Mineral ingredients such as *Rasam* (Mercury), *Jathilingam* (Cinnabar), *Gowri Pasaanam* (Arsenic pentasulphide), and *Saveeram* are subjected to Siddha purification (*Suddhi*) and calcination procedures before therapeutic application. Modern analytical studies using XRD, SEM, FTIR, and ICP-OES demonstrated that these pharmaceutical processes convert raw toxic metals into stable sulfide complexes and nano-sized particles with altered physicochemical characteristics. Such transformation may reduce toxicity and improve therapeutic efficacy. Recent Siddha pharmaceutical studies also revealed the presence of nano-sized particles in herbo-mineral formulations after calcination procedures [14-20]. Nano-particle formation may improve bioavailability, cellular uptake, and pharmacological activity at lower doses. These findings support the Siddha concept that repeated purification and calcination enhance potency while minimizing toxicity. *Seenakkaram* (Potassium alum) has been reported to exhibit antimicrobial and wound healing activity, while *Vediuppu* and *Indhuppu* may contribute supportive actions such as electrolyte balance, digestive stimulation, and enhanced drug absorption. The synergistic interaction between herbal bioactive compounds and processed mineral ingredients may collectively contribute to the therapeutic efficacy of *Navagraha Vellai*. Overall, the available pharmacological and analytical evidence supports the traditional Siddha claim that *Navagraha Vellai* possesses significant therapeutic potential. However, further experimental pharmacological studies, toxicity evaluation, and clinical validation are required to establish its safety, efficacy, and mechanism of action according to modern scientific standards.

## CONCLUSION

The present study scientifically supports the pharmacological potential of the Siddha herbo-mineral formulation *Navagraha Vellai* through available analytical and experimental evidence. The ingredients of the formulation demonstrated antimicrobial, anti-inflammatory, wound healing, and anticancer activities. Modern analytical techniques such as XRD, SEM, FTIR, and ICP-OES revealed the formation of stable mineral complexes and nano-sized particles following Siddha purification and calcination procedures, which may reduce toxicity and enhance therapeutic efficacy. The synergistic interaction between herbal and mineral ingredients may contribute to the therapeutic effectiveness of *Navagraha Vellai*. Nevertheless, further pharmacological, toxicological, and clinical studies are essential to establish its safety, standardization, and clinical efficacy according to contemporary scientific parameters.

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