

## A CRITICAL REVIEW OF KRIMINASHAK LEPA WITH SPECIAL REFERENCE TO SHARANGDHAR SAMHITA

<sup>1</sup>\*Dr. Komal A. Badhe, <sup>2</sup>Dr. Pallavi Bhange

<sup>1</sup>P.G Scholar, Department of Rasashastra and Bhaishajya Kalpana, MAM's Sumatibhai Shah Ayurved Mahavidyalaya, Maharashtra, Hadapsar, Pune- India.

<sup>2</sup>Associate Professor, Rasashastra and Bhaishajya Kalpana Department, Sumatibhai Shah Ayurved Mahavidyalay, Hadapsar, Pune.

Article Received on 13 Jan. 2026,

Article Revised on 03 Feb. 2026,

Article Published on 16 Feb. 2026,

<https://doi.org/10.5281/zenodo.18657059>

### \*Corresponding Author

Dr. Komal A. Badhe

PG Scholar, Department of Rasashastra and Bhaishajya Kalpana, MAM's Sumatibhai Shah Ayurved Mahavidyalaya, Maharashtra, Hadapsar, Pune- India.



**How To Cite This Article:** <sup>1</sup>\*Dr. Komal A. Badhe, <sup>2</sup>Dr. Pallavi Bhange. (2026). A Critical Review of Kriminashak Lepa With Special Reference To Sharangdhar Samhita. "World Journal of Pharmaceutical Research, 15(4), 26-40. This work is licensed under Creative Commons Attribution 4.0 International license.

### ABSTRACT

Lepa Kalpana is an important external therapeutic formulation described in Ayurveda, primarily used for the management of various skin disorders, inflammatory conditions, pain, swelling, and localized ailments. It involves preparation of a semisolid paste by triturating powdered drugs with suitable liquids such as water, herbal decoctions, oils, or other medicated media. Lepa, when applied over the affected area, exerts its action through transdermal absorption, helping to pacify aggravated Doshas—mainly *Vata* and *Pitta*. Among various lepa, Kriminashak lepa is described in Sharangdhar Samhita. Kriminashak lepa helps to kill off the bacteria present in wound. The individual drugs of Kriminashak Lepa have antimicrobial property. Classical texts mention several types of lepa based on the method of preparation and therapeutic indications, including Pradeha, Pralepa, and Alepa. The efficacy of lepa depends on factors such as drug selection, particle size, duration of contact, temperature, and thickness of

application. Lepa Kalpana remains a widely used modality in Ayurvedic clinical practice due to its rapid action, ease of application, cost-effectiveness, and minimal systemic side effects. Contemporary research also supports its role in promoting wound healing, reducing inflammation, and enhancing local circulation. Thus, Lepa Kalpana represents a significant and versatile component of Ayurvedic therapeutics.

**KEYWORDS:** Lepa Kalpana, Kriminashak Lepa, Doshas, Wound healing.

## INTRODUCTION

Lepa Kalpana<sup>[1]</sup> is one of the most prominent *Bahya (external) Kalpana* (therapeutic formulations) in Ayurveda, extensively described in classical texts such as *Charaka Samhita*, *Sushruta Samhita*, *Sharangdhar Samhita* and *Ashtanga Hridaya*. Derived from the root “lip,” meaning *to apply or smear*, Lepa refers to a topical medicated paste prepared by triturating herbal drugs with suitable media. It is primarily indicated for conditions localized to the skin, muscles, joints, and superficial tissues, where direct external application produces therapeutic benefits.

Ayurveda emphasizes that Lepa exerts its action by transdermal penetration of active phytoconstituents, influencing the *Rasa* and *Rakta dhatus* and thereby mitigating the aggravated *Vata*, *Pitta*, or *Kapha* depending on the formulation. Classical principles highlight that Lepa is particularly beneficial in conditions involving inflammation (Shotha), pain (Shoola), burning sensation (Daha), discoloration (Vaivarna), wounds (Vrana), and various skin disorders (Kushtha). The physiological mechanism described includes *Stambhana* (astringent action), *Shothahara* (anti-inflammatory effect), *Dahaprashtamana* (relieving burning sensation), and *Vedanasthapana* (pain relief).

Multiple varieties of Lepa—such as *Pradeha*, *Pralepa*, *Alepa*, and *Upanaha*—are categorized based on their consistency, temperature, duration of application, and therapeutic intent. The selection of drugs, particle size, method of trituration (*Bhavana*), and medium of preparation play crucial roles in determining the efficacy of the formulation. Samhitas caution against complete drying of the applied Lepa, as it may cause increased *Vata* aggravation and subsequent discomfort.

In contemporary practice, Lepa Kalpana remains widely utilized due to its affordability, convenience, rapid local action, and minimal systemic adverse effects. Modern studies have begun to explore its anti-inflammatory, antimicrobial, wound-healing, and analgesic properties, correlating traditional principles with pharmacological evidence. Kriminashak lepa<sup>[2]</sup> can be used to kill off the micro-organisms present in wound. It has been mentioned that all the individual contents of kriminashak lepa i.e. *karanja*, *nimba*, *nirgundi* possess antimicrobial activity. Previously studied research of contents of Kriminashak Lepa. i.e. nimba shows that nimbapatra pottali swedana is highly effective in dadru. Local application

of nimba patra kshar was found to be effective in dushta vrana. Antimicrobial study of Vitex negundo linn. (Nirgundi) leaves extract showed the presence of wide spectrum of antibacterial activity against all bacteria.

## MATERIAL AND METHODS

### Definition Of Lepa

द्रव्यमार्दशिलापिण्ठं शुष्कं वा सद्रवं तनु ।

देह प्रलेपनार्थं तल्लेप इत्युच्यते ॥ (द्र.गु.वि.उ.यादवजी)<sup>[1]</sup>

Lepa is defined as a semi-solid medicinal paste applied externally for therapeutic purposes, primarily to relieve pain, swelling, inflammation, discoloration and skin disorders.

### Properties of Lepa

Acharya Charaka<sup>[3]</sup> has been described the properties of Lepa

नातिस्निग्धो न रूक्षश्च न पिण्डो न द्रवः समः ॥ (Cha. Chi. 21/100).

According to Acharya Charaka, Sneha Drava may be taken in sufficient quantity, quantity of other liquid media should be sufficient neither more or less quantity. Quantity of the Sneha Drava or other liquid media which is able to form the Lepas should be taken.

#### 1. Shoshana (शोषण)

- Absorb excessive kapha, swelling, or secretions.
- Helpful in inflammatory conditions, edema, and wounds.

#### 2. Stambhana (स्तम्भन)

- Stop secretion, bleeding, and reduces movement of doshas.
- Used in bleeding disorders, oozing wounds, and burning sensations.

#### 3. Swedana (स्वेदन)

- Some lepas act as mild sudation to reduce stiffness, pain, or ama.
- Good for joint pain, muscle spasm, etc.

#### 4. Shamana (शमन)

- Pacifies local Vata, Pitta, or Kapha depending on ingredients.
- Example: cooling lepa for pitta; warming lepa for vata.

## 5. Vedana Sthapana (वेदना स्थापन)

Reduces pain, tenderness, burning.

- Applied in arthritis, sprain, headache, etc.

## 6. Srotoshodhana (स्रोतोशोधन) — Channel Purification

- Clears blocked channels by reducing inflammation and toxins.
- Useful in skin disorders, swelling, abscesses.

## 7. Twak Prasadana (त्वक् प्रसादन) — Skin-soothing / Nourishing

- Improves skin texture, relieves itching, hydrates or cools the skin.
- Very effective in eczema, dermatitis, acne.

## 8. Lekhana (लेखन) — Scraping

- Removes excess kapha, fat, toxins, or thick secretions.
- Applied for obesity areas, lipomas, kapha disorders.

## 9. Ropana (रोपण) — Healing

- Promotes wound healing, tissue regeneration, and scar reduction.

## 10. Dahashamana / Sheeta (दाहशमन / शीत) — Cooling

- Cooling lepas reduce burning, redness, inflammation, Pitta vitiation.

## 11. Sthanik Karma (स्थानिक कर्म) — Localized Action

- Works directly on site, giving fast relief without systemic effects.

**IMPORTANCE OF LEPA KALPANA<sup>[4]</sup>**

Acharya Sushruta has mentioned the importance of Lepa Kalpana.

यथा प्रज्वलिते वेश्मन्यम्भसा परिषेचनम् ।

क्षिप्रं प्रशमयत्यग्निमेवमालेपनं रूजः ॥ (Su. Chi 1/15)

Acharya Sushruta described the importance of Lepa Kalpana through an example that, when pouring the water over burning house, the fire is extinguished immediately or may be control, in the same manner the Lepa pacifies the local Doshas by the instant/initial stage of local application.

Acharya Sushruta also mentioned<sup>[5]</sup> that – आलेप आध उपक्रमः, एषसर्वशोफानां सामान्य प्रधानतमश्च ॥ (Su. Su. 18/3)

*Acharya Sushruta* indicates that *Alepa* is initial and best topical application he also mentioned that it is the best treatment for Shotha and pain reliver.

### SYNONYMS OF LEPA<sup>[6]</sup>

आलेपस्य च नामानि लिप्तो लेपश्च लेपनम् । (Sha. Sa. Ut. Kha. 11/01)

Alepa, Lipta, Lepa, Lepan etc. words are used as Lepa in different classics.

### CLASSIFICATION OF LEPA

There are different types are described in Ayurveda Classics. Some important classifications are described below by different Acharyas.

#### A. According to Acharya Sushruta<sup>[7]</sup>

- Pralepa
- Pradeha
- Alepa

#### B. According to Acharya Vaghbhata<sup>[8]</sup>

- Snaihika
- Nirvapana
- Prasadana
- Stambhan
- Vilayana
- Pachana
- Pidana
- Shodhan
- Shoshan
- Savarnikaran.

#### C. According to Acharya Sharangadhar<sup>[9]</sup>

- Doshghna Lepa

- Vishghna Lepa

- Varnya Lepa

Kriminashak Lepa

करञ्जारिष्टनिर्गुण्डी लेपो हन्याद् व्रणक्रिमीन् ।

(शारंगधर संहिता उ.ख.अ ११).

Kriminashak Lepa consists of karanja<sup>[10]</sup> (Pongamia Pinnata) patra churna, nimba<sup>[10]</sup> (Azadiracta Indica) patra churna, nirgundi<sup>[10]</sup> (Vitex Negundo) patra churna. Karanj, nimba, nirgundi are having tikta rasa. Tikta rasa being the most effective krumighna ras among all rasa.

## PROPERTIES OF KRIMINASHAK LEPA

Properties Of Karanja

- Latin Name: Pongamia pinnata Pharmacological actions
- Rasa (Taste): Katu, Tikta
- Guna (Qualities): Laghu, Tikshna, Rooksha
- Veerya (Potency): Ushna
- Vipaka (Post-digestive effect): Katu
- Doshaghna: Vata-Kapha shamak, reduces Kapha and Vata

## Key Actions

- Krimighna (antimicrobial, wormicidal)
- Kandughna (anti-itch)
- Kushtaghna (anti-skin disease)
- Shothahara (anti-swelling)
- Vedanasthapana (pain-relieving)
- Vranashodhana (wound cleansing)
- Vata-Kapha hara (helps in joint disorders)

## Uses

Eczema, fungal infections, wounds, arthritis, itching, ulcers.

Properties of Neem

- Latin Name: Azadiracta indica Pharmacological actions
- Rasa: Tikta, Kashaya

- Guna: Laghu, Rooksha
- Veerya: Sheeta
- Vipaka: Katu
- Doshaghna: Pitta-Kapha shamak

### Key Actions

- Krimighna
- Kushtaghna
- Rakta shodhaka
- Jantughna
- Tridoshahara
- Shothahara
- Vedanasthapana

### Uses

Acne, eczema, psoriasis, wounds, fever, detox, oral health, dandruff.

Properties of Nirgundi.

- Latin Name: Vitex negundo Pharmacological actions
- Rasa: Tikta, Katu, Kashaya
- Guna: Laghu, Ruksha, Tikshna
- Veerya: Ushna
- Vipaka: Katu
- Doshaghna: Vata-Kapha shamak

### Key Actions

- Shothahara (anti-inflammatory)
- Vedanasthapana (analgesic)
- Shoolaghna (pain-relieving)
- Shothahara (reduces swelling)
- Krimighna (antimicrobial)
- Srotoshodhana (channel cleansing)
- Vata-Kapha hara (ideal for joint pains & respiratory issues)

### Uses

Arthritis, sciatica, muscle pain, swelling, sinusitis, asthma, wounds.

### Preparation of Kriminashak Lepa Ingredients

- Karanja leaves / powder – 1 part
- Neem leaves / powder – 1 part
- Nirgundi leaves / powder – 1 part
- Water

### Equipments

- Grinding & Mixing Equipment
- Mortar & Pestle (Khalva Yantra)
- Grinder / Mixie
- Mixing Bowl (Stainless steel / Glass)
- Spatula or Spoon (Stainless/wooden)
- Weighing Scale
- Filter cloth / Muslin cloth
- Airtight Container

### Procedure

Dried leaves of karanja, neem, nirgundi are taken and grinded in the form of fine powder. Then water is added at the time of application and make it into a thick semisolid paste. The paste should be uniform, non-gritty, and thick. Ideal thickness:  $\frac{1}{2}$  – 1 cm when applied. It is applied in direction opposite to hair growth (रोमावली के विपरीत). Thickness: medium layer. Only the affected area is covered. Kept for 30–45 minutes. It is removed before it dries completely. Then it is washed with lukewarm or normal water based on dosha.

### THICKNESS OF THE LEPA

For proper therapeutic action, Lepa must be applied correctly on the skin. Its effectiveness depends on the quantity applied, as a layer that is either too thin or too thick will not produce the desired effect. Therefore, Lepa should be applied in the prescribed manner and thickness. In Ayurveda classics, it is well defined according to their presence of Doshas, or use of purpose.

### Charaka Samhita<sup>[11]</sup>

Acharya Charaka has described first about thickness of the Lepa  
त्रिभागांगुष्ठ मात्रः स्यात् प्रलेपः कल्कपेषितः । (Cha. Chi 21/100).

According to acharya Charaka Pralepa should be applied 1/3 part of the Angushta.

### Sushruta Samhita<sup>[12]</sup>

तस्यस प्रमाण महिषार्द्धमाहिषचर्मोत्सेधमुपदिशन्ति ॥ Su. Su. 18/12Su. Su. 18/12

According to Acharya Sushruta thickness of the Lepa for the application on the skin should be equal to the buffalo's skin.

### Sharangdhar Samhita<sup>[13]</sup>

त्रिप्रमाणश्वतुर्भागस्तिभागोऽर्धगुलोत्रतः ॥Sha. Sa. Ut. Kha. 11/2

Thickness of the Lepa is one fourth, one third and half Anguli is respectively for Doshaghna, Vishaghna and Varnya Lepa.

## APPLYING METHOD OF LEPA

Acharya Sushruta.<sup>[14]</sup> has mentioned how to applied the Lepa. They described about usefulness of Lepa according to proper methodology.

तत्र प्रतिलोममालिम्पेत्रानुलोमम् ।

प्रतिलोमे हि सम्यगोषवमवतिष्ठतेऽनुप्रविशति ॥

रोमकूपान् स्वेदवाहिमिश्व सिरामुखैरीर्य प्राप्नोति ॥ (Su. Su. 18/4)

According to Acharya Sushruta, *Lepa* should be gently applied on the skin in an upward direction, that is, opposite to the direction of hair growth, to improve its effectiveness. With this method of application, *Lepa* enters *Romakoopa* and is quickly absorbed through the *Swedavahi Srotas* and *Siramukha*, producing the desired effect. Gentle rubbing increases the skin temperature, which helps faster absorption and better penetration of the drug through the skin.

## TIME AND DURATION OF LEPA APPLICATION<sup>[15]</sup>

The time schedule of a particular medicine is necessary for its proper effect. The time of application is chosen in such a way that it does not produce any harmful effects. The duration for which medicines like *Lepa* and *Upanaha* are applied is fixed and specifically described in the classical texts. Acharya Sushruta has described that—

न चालेलं रात्रौ प्रयुंजीत, मा भूचैत्यपिहितोष्मणस्तदनिर्गमाद्विकार प्रवृत्तिरिति ॥ (Su. Su. 18/13)

Generally, it is described that body heat is released through the skin pores at night. If *Lepa* or other topical applications are applied at night, the skin pores may get blocked, obstructing the release of body heat. Therefore, *Lepa* is generally not advised to be applied at night. Acharya Charaka has described that during night time, all the *Srotas* in the body become relatively closed, and their functional capacity decreases compared to daytime. Hence, the application of *Lepa* at night does not produce the desired effect.

However, there are certain exceptions, such as conditions like *Apakva Shotha* and *Rakta Shleshma Shotha*, where *Lepa* may be applied even at night.

### **Analytical Methods<sup>[16]</sup> For Standardization Of Kriminashak Lepa**

#### **1. Organoleptic Evaluation**

- Colour
- Odour
- Taste
- Texture

#### **2. Physicochemical Parameters**

Moisture Content, pH Value, Total ash, Acid-insoluble ash, Water-soluble ash, Water soluble extractive, Alcohol-soluble extractive, Particle Size Analysis, Spreadability, Viscosity.

#### **3. Microscopic Evaluation**

#### **4. Phytochemical Screening**

- Alkaloids
- Tannins
- Flavonoids
- Saponins
- Glycosides
- Steroids
- Phenolic compounds

#### **5. Chromatographic Analysis**

TLC / HPTLC, GC / HPLC, AAS / ICP-MS.

## 6. Microbiological Analysis

Total bacterial count, Total fungal count.

## PREVIOUS WORK DONE

No previous work done has been found on antimicrobial activity of kriminashak lepa. However there is study related to individual drugs.

### 1. A PILOT STUDY ON ROLE OF NIMBA PATRA POTTALI SWEDAN IN DADRU<sup>[17]</sup>

In this study it is given that Nimbapatrapatali is highly effective in management of Dadru. After usage of Nimba internally and externally mainly Kandu was reduced.

### 2. CASE STUDY OF DUSHTA VRANA TREATED WITH NIMBA KSHARA<sup>[18]</sup>

Local application of nimbapatra was found to be very effective in the management of Dushta Vrana. Nimbapatra possesses the high efficacy in Vrana Shodhana and Vrana ropana.

### 3. Antimicrobial Activity of Vitex Negundo Linn. (Nirgundi) Leaves Extract<sup>[19]</sup>

The result of this study showed the presence of wide spectrum of antibacterial activities against all the bacterial pathogens studied.

### 4. A REVIEW ON LEPA KALPANA IN AYURVEDA<sup>[20]</sup>

Lepa is used in different conditions like Wound cleansing, healing, fairness, inflammation, acne, other skin diseases.

### 5. A CRITICAL REVIEW ON LEPA KALPANA IN SKIN DISORDERS W.S.R TO SHARANGDHAR SAMHITA.<sup>[21]</sup>

Lepa are helpful in preventing and curative purposes of any skin problem. There is a huge scope of research as a drug discovery and development in the context of lepa formulations mentioned by Sharangdhar Samhita. However new dosage form as a cream or ointment has a further scope for study and scientific database is created with help of clinical study for establishment of effectiveness of lepa.

## DISCUSSION

The concept of *Lepa Kalpana* plays a crucial role in achieving optimal therapeutic outcomes. Classical texts emphasize that *Lepa* should be freshly prepared, smooth in consistency, and applied in an appropriate thickness. Application against the direction of hair growth facilitates

drug entry into *Romakoopa* (hair follicles), enhancing local absorption. Removal of the *Lepa* before complete drying is advised to prevent irritation and excessive dryness of the skin. These principles ensure maximum drug availability at the site of action and minimize adverse effects.

Krimi-related skin disorders are commonly associated with symptoms such as *Kandu* (itching), *Shotha* (inflammation), discoloration, and local discomfort, which predominantly involve *Kapha* and *Pitta Dosha*. Ayurveda emphasizes *Bahya Chikitsa* in the management of such conditions, and *Kriminashak Lepa* is an effective topical formulation described for this purpose. The present formulation containing **Karanja (Pongamia pinnata)**, **Nimba (Azadirachta indica)**, and **Nirgundi (Vitex negundo)** has been selected based on their classical indications and complementary pharmacodynamic properties.

Karanja possesses *Katu* and *Tikta Rasa*, *Laghu* and *Ruksha Guna*, and *Ushna Virya*, which collectively contribute to its potent *Kriminashak* and *Kandughna* actions. These properties help in reducing *Kapha Dosha* and destroying parasitic and microbial factors at the local site. Nimba, characterized by *Tikta* and *Kashaya Rasa* and *Sheeta Virya*, exhibits *Kriminashak*, *Kuṣṭhaghna*, and *Raktaśodhaka* properties. Its cooling and bitter nature helps in alleviating inflammation, itching, and burning sensation, while supporting detoxification at the tissue level. Nirgundi, with *Katu-Tikta Rasa* and *Ushna Virya*, contributes *Shothahara* and *Vedanasthapaka* effects, thereby reducing swelling and discomfort and enhancing local circulation.

The mode of action of *Kriminashaka Lepa* can be understood through both classical and contemporary perspectives. From an Ayurvedic viewpoint, the dominance of *Katu* and *Tikta Rasa* along with *Ushna Virya* helps in *Krimi Vinasha* and *Kapha Shamana*. The drug penetrates through *Romakoopa* and gets absorbed via *Swedavahi Srotas* and *Siramukha*, leading to localized therapeutic action. Gentle rubbing during application increases skin temperature, which may enhance pilosebaceous uptake and improve transdermal permeation of the active constituents. This combined effect results in reduction of itching, inflammation, and microbial load, thereby promoting healing of the affected skin.

Thus, the synergistic combination of Karanja, Nimba, and Nirgundi in *Kriminashak Lepa*, can be said to have antimicrobial property.

## CONCLUSION

*Kriminashak Lepa* is an effective Ayurvedic topical formulation for the management of *wound related* disorders. The ingredients Karanja, Nimba, and Nirgundi possess *Kriminashak*, *Kandughna*, and *Shothahara* properties that help reduce itching, inflammation, and infection. When prepared and applied properly according to classical guidelines, the lepa ensures good local absorption and produces the desired therapeutic effect. Hence, *Kriminashak Lepa* can be safe and useful treatment in the management of *wound infection*.

## REFERENCES

1. Trikamji Y. Dravyaguna vigyan-Uttarardha: Publisher- Suresh Kumar Sharma-1986.
2. Sharangdharacharya, 'Sharangdhar Samhita' Uttarkhanda, with Dipika Hindi Commentary by Dr. Bramhanand Tripathi, Publication of Chaukhamba Sanskrit Sansthan, Varanasi, Edition: Reprint, 2006; Page No.-404.
3. Charaka Samhita Chikitsa Sthan, 21/100, Pt. Kasinatha Sastri and Dr. Gorakha Natha Chaturvedi, Caraka Samhita of Agnivesha, Chaukhamba Bharati Academy, Varanasi Reprint, Edition, 2013.
4. Sushruta Samhita Chikitsa Sthan 1/15, with the Nibandhasangraha Commentary of Dalhana and the Nyaya chandrika Panjika of Gayadasa on Nidana sthana, Edited by Vd. Yadavaji Trikamaji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Surbharati Prakashana, Varanasi, Reprint Edition, 2008.
5. Sushruta Samhita Sutra Sthan 18/3, with the Nibandhasangraha Commentary of Dalhana and the Nyaya chandrika Panjika of Gayadasa on Nidana sthana, Edited by Vd. Yadavaji Trikamaji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Surbharati Prakashana, Varanasi, Reprint Edition, 2008.
6. Sarangadhar Samhita Uttar Khanda 11/1, with Deepika Hindi commentary by Dr Brahmanand Tripathi Choukhamba Surbharati Prakashan, Edition 2016.
7. Sushruta Samhita Sutra Sthan 18/6, with the Nibandhasangraha Commentary of Dalhana and the Nyaya chandrika Panjika of Gayadasa on Nidana sthana, Edited by Vd. Yadavaji Trikamaji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Surbharati Prakashana, Varanasi, Reprint Edition 2008.
8. Ashtaanga Samgraha uttar sthan 30/7, with Shashilekha Sanskrita Commentary by Indu, Edited by Dr. Shivaprasada Sharma, Chowkhamba Sanskrita Series office, Varanasi, Second Edition 2008.

9. Sarangadhar Samhita Uttar Khanda 11/1, with Deepika Hindi commentary by Dr Brahmanand Tripathi Choukhamba Surbharati Prakashan, Edition 2016.
10. Bhavmisra, 'Bhavprakasa Nighantu' with Commentary by Prof. K.C. Chunekar Publication of Chaukhamba Bharti Academy, Varanasi, Edition: Reprint, 2018; Page No.- 314,330,335.
11. Charaka Samhita Chikitsa Sthan, 21/100, Pt. Kasinatha Sastri and Dr. Gorakha Natha Chaturvedi, Caraka Samhita of Agnivesha, Chaukhamba Bharati Academy, Varanasi; Reprint Edition 2013.
12. Sushruta Samhita Sutra Sthan 18/12, with the Nibandhasangraha Commentary of Dalhana and the Nyaya chandrika Panjika of Gayadasa on Nidana sthana, Edited by Vd. Yadavaji Trikamaji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Surbharati Prakashana, Varanasi, Reprint Edition 2008.
13. Sarangadhar Samhita Uttar Khanda 11/2, with Deepika Hindi commentary by Dr Brahmanand Tripathi Choukhamba Surbharati Prakashan, Edition 2016.
14. Sushruta Samhita Sutra Sthan 18/4, with the Nibandhasangraha Commentary of Dalhana and the Nyaya chandrika Panjika of Gayadasa on Nidana sthana, Edited by Vd. Yadavaji Trikamaji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Surbharati Prakashana, Varanasi, Reprint Edition, 2008.
15. Sushruta Samhita Sutra Sthan 18/13, with the Nibandhasangraha Commentary of Dalhana and the Nyaya chandrika Panjika of Gayadasa on Nidana sthana, Edited by Vd. Yadavaji Trikamaji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Surbharati Prakashana, Varanasi, Reprint Edition, 2008.
16. General guidelines for drug development of ayurvedic formulation. 1st ed. New Delhi: Central council of research in ayurvedic sciences, ministry of AYUSH, goverment of India, 2018.
17. Kokane RH, Tiwari VJ, Dhomse K. 'A PILOT STUDY ON ROLE OF NIMBA PATRA POTTALI SWEDAN IN DADRU'.
18. Paliwal A, Mishra A, Asutkar V.' CASE STUDY OF DUSHTA VRANA TREATED WITH NIMBA KSHARA'.
19. Deogade MS, Pandya T, Prasad KS, Kale K, Tankhiwale N.'Antimicrobial activity of Vitex negundo Linn. (Nirgundi) leaves extract'. Journal of Research in Traditional Medicine, 2018 Feb 16; 2(4): 99-

20. Helge SR, Mane RG. 'A REVIEW ON LEPA KALPANA IN AYURVEDA'.21. Agrawal R, Gavali J. 'A critical review on lepa kalpana in skin disorders wsr to Sharangdhar Samhita'. Int Ayurvedic Med J., 2020; 8(9): 4418-25.