



LAKSHAADI GANA DRUGS FOR SHODHANA OF DUSHTA- VRANA

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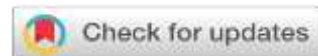
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ABSTRACT

Due to interference of vitiated *Doshas*, Normal healing of *Vrana* gets delayed. As per the modern view, wounds are said to be non-healing(chronic), when does not improve after 4 weeks or do not heal within 8 weeks. The causes of delay healing are many, viz. local causes and systemic causes, but often the root causes are reduced tissue regeneration, angiogenesis, and neurological problems. The presence of replicating microorganisms results in pus, foul odor, and discharge, leading to delayed wound healing. In *Sushruta Samhita*, *Chikitsa sthana Acharya Sushruta* mentioned *Shashti upkrama* for management of *Vrana* in the form of *Kashaya, Kalka, Varti, Rasa kriya*, etc. Among these *Aptarpana* to *Virechana* are specially used in *Shohta*, and the rest are used for *Vrana Chikitsa*. He has also explained many herbs or herbo-mineral combinations and 37 *gana* for the management of *Vrana* and other systemic and local diseases. Among these *Lakshaadi gana* is specially mentioned for *Shodhana* of *Dushta Vrana*. The drugs mentioned in the *Lakshaadi gana* are said to be Antimicrobial. In this review article, the antimicrobial properties and wound healing properties of each drug of *Lakshaadi gana* are discussed.

Keywords: *Lakshaadi gana, Dushta Vrana, Antimicrobial, Wound.*

INTRODUCTION

The management of different surgical diseases has been mentioned in detail using surgical and Para surgical approaches in *Shalya tantra*, one of the major branches of Ayurveda. *Vrana* is a very common surgical disease. *Acharya Sushruta* elaborated the concept of *Vrana* and its management in different-different chapters of *Sushruta Samhita Sutra sthana* and *Chikitsa sthana*. He has described *Vrana* very precisely and in a scientific manner with reference to *Shatkriyakala*,^[1] types,^[2] sub types, *Shasti upkrama*,^[3] *Vrana upadrava*,^[4] *Sadhaya-Asadhyata*,^[5] *Vranavastu*,^[6], etc. He has clearly mentioned that the *Vranavastu* (scar) of a *Vrana* never disappears after complete healing and its imprint persists lifelong.^[7] Due to interference of vitiated *Doshas*, *Vrana* becomes *Dushta*, and normal healing gets delayed.^[8] As per the modern view, wounds are said to be non-healing(chronic), when does not improve after 4 weeks or do not heal within 8 weeks. The causes of delay healing are many,

viz. local causes and systemic causes, but the root causes are reduced tissue regeneration, angiogenesis, and neurological problems.^[9] The presence of replicating microorganisms results in pus, foul odour, and discharges, leading to delayed wound healing. In general *E. coli*, *S. aureus*, and *P. auregnosa* are commonly isolated microorganisms in infected non-healing wounds.^[10] *Acharya Sushruta* explained many herbs or herbo-mineral combinations and 37 *gana* for the management of *Vrana* and other systemic and local diseases.^[11] Among which *Lakshaadi gana* is specially mentioned for *Shodhana* of *Dushta Vrana*. The drugs *Laksha*, *Aragvadha*, *Kutaja*, *Ashvamaar*, *Katphala*, *Haridra*, *Daru-Haridra*, *Nimba*, *Saptaparna*, *Malti* and *Tryamana* form the *Lakshaadi Gana*. These act as *Kushta*, *Krimi nashak* (Antimicrobial), and *Dushta Vrana Vishodhak*.^[12]

Table 01: Contents of Lakshaadi Gana

S. No	Sanskrit Name	Latin Name	Family
1.	<i>Laksha</i>	<i>Luccifer lacca</i>	<i>Lucciferaceae</i>
2.	<i>Aragvadha</i>	<i>Cassia fistula</i>	<i>Leguminosae</i>
3.	<i>Kutaj</i>	<i>Holarrhena antidysenterica</i>	<i>Apocynaceae</i>
4.	<i>Ashvamaar</i>	<i>Nerium indicum</i>	<i>Apocynaceae</i>
5.	<i>Katphala</i>	<i>Myrica esculenta</i>	<i>Myricaceae</i>
6.	<i>Haridra</i>	<i>Curcuma Longa</i>	<i>Zingiberaceae</i>
7.	<i>Daru-Haridra</i>	<i>Berberis aristate</i>	<i>Berberidaceae</i>
8.	<i>Nimba</i>	<i>Azadirachta indica</i>	<i>Meliaceae</i>
9.	<i>Saptaparna</i>	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>
10.	<i>Malti</i>	<i>Jasminum officinale</i>	<i>Oleaceae</i>
11.	<i>Traymana</i>	<i>Gentiana kurroo</i>	<i>Gentianaceae</i>

Drug Review:

1. LAKSHA-

In *Bhav Prakash Laksha* is described as *Vrana nashak*.^[13]

In *Dhanvantari Nighantu* also *Laksha* is described as *Vrana nashak*.^[14]

Lac (also known as Laksha) is a slick serum and secretion produced by the *Laccifer lacca* scale insect. These insects feed on the sap of a variety of plants and bushes, then cover themselves in Lac as a protective layer. *Luccifer lacca* appears as tiny patches on plants with no limbs that are covered in a sticky fluid.^[15] It

has *Laghu* and *Snigdha Guna*,^[16] *Tikta* and *Kashaya Rasa*.^[17]

The chemical composition of *Laksha* is Resin, dye, wax, albuminous matter, mineral matter, water,^[18] Resinoltannols of aleuritic acid, erythrolaccin, and lacconic acid.^[19]

It has Astringent, Coagulation modifier, Anti-inflammatory, and Antiulcerogenic properties. It is applied over the skin for skin diseases. It stops bleeding in wounds and injuries and heals skin ulcers.^[20]

2. ARAGVADHA-

Acharya Sushruta has told *Aragvadha patra* for *Vrana prakshalan*.^[21]

In *Harit Samhita Aragvadha* is mentioned for *Vrana ropak*.^[22]

It is small to a medium-sized tree that typically grows up to 30-40 feet tall in height and is found in India, Kerala, and Thailand.^[23]

It has *Tikta*^[24] and *Madhur Rasa, Guru, Mridu* and *Snigdha Guna, Madhur Vipaka* and *Sheet Veerya*.^[25]

Its extracts mainly contain Anthraquinone, fisulic acid, resins, flavonoids, rhein glycoside, etc. It has various therapeutic properties like laxative, antibacterial, analgesic, antipyretic, anti-inflammatory, wound healing activity, etc.^[26] The methanol extract of *C. fistula* seeds was investigated for potential antimicrobial activity against different bacterial and fungal stains using the disk diffusion technique.^[27]

3. KUTAJA-

Acharya Charaka has told *Kutaja* as *Vrana roana*.^[28] *Holarrhena antidysenterica* is a shrub, distributed throughout India up to an altitude of 4000 ft.^[29]

It has *Laghu, Ruksha Guna, Tikta, Kashaya Rasa, Katu Vipaka*, and *Sheet Veerya*.^[30]

The stem bark and seeds of the plant contain a number of steroidal alkaloids such as conanines, and 3- amino-conanines. The stem bark of it also contains conessine and isoconessine.^[31]

These chemicals show traditional pharmacological activities such as analgesic, anti-bacterial, antipyretic, and anti-inflammatory activities.^[32] Leaves are helpful for ulcers and wounds.^[33]

4. ASHVAMAAR-

Acharya Sushruta has told *Karveer patra* for *Vrana shodhan*.^[34]

It is a large evergreen shrub with milky juice. It is distributed all over the Philippines, India, Nepal, and Bangladesh and found on ranges of 6500 feet.^[35]

It has *Laghu, Ruksha* and *Tikshna Guna, Katu Tikta Rasa, Katu Vipaka* and *Ushna Veerya*.^[36]

Its leaves contain neriin and oleandrin. Bark contains scopoletin and scopoli. The alcoholic extract of the root bark showed the presence of a-amyryn, and b- si-tosterol.^[37] It acts as an Antimicrobial, Antimalarial,

Antioxidant, Antiulcer, Analgesic, and Hepatoprotective.^[38] In a study, Alcoholic leaf extract has shown non-specific broad-spectrum antimicrobial activity.^[39] Its leaves have the ability to heal old wounds.^[40]

5. KATPHALA-

Acharya Charaka has told *Katphala twak churna* for *Vrana ropana*.^[41]

Katphala is an evergreen medium-sized tree growing to a height of 5-15 m. and found in the northern Himalayan belt of India.^[42]

It has *Laghu* and *Tikshna Guna, Katu, Tikta, Kashaya Rasa, Katu Vipaka* and *Ushna Veerya*.^[43]

Its bark contains myricetin, myricitrin, and glycosides. Leaves of the plant contain beta-sitosterol and quercetin, etc.^[44] It has antiseptic, analgesic, anti-bacterial, and wound healing activity.^[45] In a study, the antimicrobial effects of *Katphala* leaf extract revealed more action against *B. Subtilis*, *S. aureus*, and *E.coli*. Its extract is potential against *S. Aureus*, explored to develop a topical antimicrobial therapy to promote skin wound healing.^[46]

6. HARIDRA-

In *Dhanvantari Nighantu*^[47], *Raj nighantu*^[48], and *Bhav Prakash*,^[49] *Haridra* is described as *Vrana nashak*.

It is a tall herb, rootstock large, ovoid, with sessile cylindrical tubers, orange coloured inside, and cultivated throughout the tropical and other regions in India.^[50]

It has *Laghu* and *Ruksha Guna, Katu, Tikta Rasa, Katu Vipaka* and *Ushna Veerya*.^[51]

The plant contains phytoconstituents like volatile oil, resin, starch grains, curcuminoids, and curcumin.^[52] It is used for various diseases including cough, diabetes, and hepatic disorders. Curcumin is the main chemical compound, and it has antioxidant, anti-diabetic, anti-bacterial, and hepatoprotective Pharmacological activities.^[53] It is useful in inflammations, ulcers, and wounds.^[54] *Curcuma longa* rhizome has been traditionally used as an antimicrobial agent. Several studies have reported the broad-spectrum antimicrobial activity of curcumin.^[55]

7. DARU-HARIDRA-

Acharya Charaka described *Daru-haridra* for *Vrana ropana*.^[56]

In *Dhanvantari Nighantu*,^[57] *Raj Nighantu*^[58] and *Bhav Prakash*,^[59] *Daru-Haridra* is also described as *Vrana nashak*.

It is primarily seen in the Sub-Himalayan region, the Nilgiri hills in Southern India, and the hilly portion of Nepal.^[60]

It has *Laghu* and *Ruksha Guna*, *Tikta*, *Kashaya Rasa*, *Katu Vipaka* and *Ushna Veerya*.^[61]

The plant contains phytoconstituents like berberine, oxyacanthine, epiberberine, palmatine, columbamine, etc. The plant can act as an antioxidant, anti-inflammatory, antipyretic, anti-bacterial, anti-microbial, anti-hepatotoxic, etc. It is also useful in the treatment of haemorrhoids. HIV-Aids, wound healing, skin diseases, etc.^[62] Berberine extracts, and decoctions have exhibited antimicrobial efficacy against bacteria, fungus viruses, etc.^[63] Based on clinical observation, the rate of healing and change in histomorphological features, a study on male adult goat wound healing activity was undertaken. *Daru-haridra* was applied as an ointment to open wounds in animal models and showed improvement.^[64]

8. NIMBA-

In *Dhanvantari Nighantu*^[65] and *Bhav Prakash*,^[66] *Nimba* is described as *Vrana nashak*.

In *Harit Samhita*, *Nimba* is explained as *Varna shodhak*.^[67]

In *Sharandhar samhita*, *Nimba kalk* is explained as *Vrana shodhana* and *ropana*.^[68]

Neem is a fast-growing tree that can reach a height of 15-20 m and rarely 35-40 m. and is native to the Indian subcontinent and most of the countries in Africa.^[69]

It has *Laghu Guna*, *Tikta*, *Kashaya Rasa*, *Katu Vipaka* and *Sheet Veerya*.^[70]

Alkaloids, flavonoids, triterpenoids, phenolic compounds, carotenoids, steroids, and ketones are chemical constituents, and the biologically most active compound is azadiractin.^[71]

It acts as an anti-inflammatory, antiarthritic, antipyretic, antifungal, antibacterial, and anti-tumour.^[72]

A study was made to evaluate the wound healing activity of the extracts of leaves of *A. indica*. It promotes wound healing activity through increased inflammatory response and neovascularization.^[73]

The aqueous extract of leaves exhibited antiulcer and anti-inflammatory activity.^[74]

9. SAPTAPARNA-

In *Bhav Prakash*^[75] and *Raj Nighantu*^[76] *Saptaparna* has been described as *Vrana har*.

It is naturally found up to a height of 40 m in the Sub Himalayan tract, West Bengal, Bihar, India, and Andamas.^[77]

It has *Laghu* and *Snigdha Guna*, *Tikta*, *Kashaya Rasa*, *Katu Vipaka* and *Ushna Veerya*.^[78]

The tree is rich in alkaloids and flavonoids. The main chemical of this herb is – Diatamine, echitenine, and echitamine, etc.^[79]

It's possessing anti-microbial, anti-oxidant, anti-inflammatory, hepatoprotective, analgesic, anti-ulcer, and wound healing activities.^[80]

The poultices of tender roasted leaves act as a useful local stimulant for unhealthy ulcers with foul discharge.^[81] A study done on animal models showed that methanol extracts of *Alstonia* leaf promote the healing of open wounds.^[82] Another study done on animal models' treatment with *Alstonia* extracts was shown to improve skin healing and promote skin regeneration in wounds.^[83]

10. MALTI-

Acharya Sushruta has mentioned *Malti patra* for *Vrana shodhana*.^[84]

In *Dhanvantari Nighantu*, *Malti* is described as *Vrana nashak*.^[85]

Malti is a small plant growing naturally and is cultivated all over India, in the temperate climate for its flowers.^[86]

It has *Laghu*, *Mridu* and *Snigdha Guna*, *Tikta*, *Kashaya Rasa*, *Katu Vipaka* and *Ushna Veerya*.^[87]

The leaf of the plant contains ascorbic acid, anthranilic acid, and its glucoside, indole oxygenase, alkaloid, jasmine, and anasalicylic acid. The flower contains pyridine and nicotinate derivatives.^[88] The pharmacological activities of the plant are anti-cancer, anti-inflammatory, anti-bacterial, anti-ulcer, and wound healing activity.^[89]

It accelerates wound healing by enhancing collagen turn over.^[89]

11. TRAYMANA–

It is an annual and perennial herb or shrub, native to northern areas of the world.^[90]

It has *Laghu* and *Ruksha Guna*, *Tikta Rasa*, *Katu Vipaka* and *Ushna Veerya*.^[91]

Chemical constituents are iridoids, xanones, C-gluco-xanthone, and mangiferin. It acts as an Anti-inflammatory, Antibacterial, Analgesic, and Sedative.^[92]

A recent study revealed the antibacterial and antioxidant activity of the extracts of *G. kurroo* prevented the growth of Gram-positive and Gram-negative bacteria.^[93]

CONCLUSION

All drugs of *Lakshaadi gana* have *Tikta Rasa*, which has the property of *Puya shoshan*,^[94] which means *Lakshaadi gana* will help in decreasing secretions and therefore, depleting the effect of microbes. Most of the drugs of *Lakshaadi gana* have *Laghu guna*, due to which *Lakshaadi gana* possess *Vrana Ropan* and *Lekhana karma*.^[95] Some of these drugs have *Kashaya Rasa*, due to which *Lakshaadi gana* possesses *Vrana Ropak* property.^[96] Moreover, some of these drugs have *Katu Rasa*, due to which *Lakshaadi gana* will show *Vrana nashak* and *Krimi nashak* property.^[97]

Various research studies shows, each of the drug included in *Lakshaadi gana* possess antimicrobial property. So as a whole, we can conclude that *Lakshaadi gana* possesses antimicrobial and *Vrana ropaka* properties, which can be beneficial for the *Shodhana karma* of *Dushta-Vrana*.

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