



EFFICACY OF KESHARADI LEPA IN HONEY BEE STING

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ABSTRACT

In *Ayurveda* *Visha* is classified as *Sthawara* (inanimate) and *Jangama* (animate). *Jangama Visha* is the *Visha* of animal origin. There are sixteen *Adhithanas* mentioned by *Accharya Susruta*. Out of above sixteen *Sandansa* type toxin is spread by needle like structure e.g. scorpion, Honey bees etc. *Madhu* (honey) and *Madhu-Uchhista* (bee wax) are used in most of the *Ayurvedic* therapeutical drugs. During collecting the honey there are chances of getting attacked by Honey bees. When Honey bee attacks it leaves sting on the site, It causes severe local pain and inflammation and patient may get die due to anaphylactic shock. In *Ayurveda Chaturvinshati Upkramas* (24 Modalities of treatment of poisoning) are described by *Charaka* for treatment of *Vishas*. *Lepa* is one of them. In various *Ayurvedic Granthas* there are so many preparation are described for the local application among them *Kesharadi lepa* is taken to study the efficacy of '*Kesharadi Lepa*' as a local application on Honey bee sting.

Keywords- *Visha*, Honey bee sting, *Sandansa*, *Lepa*, *Kesharadi Lepa*

INTRODUCTION

In *Ayurveda Visha* is classified as *Sthawara* (inanimate) and *Jangama* (animate). *Sthawara Visha* is the *Visha* other than animal origin, and the *Jangama Visha* is the *Visha* of animal origin. There are sixteen *adhithanas* mentioned by *Accharya Susruta* -dristi-vision, *Nishwas*-exhalation, *Danstra*-bite, *Nakha*-nails, *Mutra* - urine, *Purisha*-stool, *Shukra*-semen, *Lala*-saliva, *Artava*-menses, *Mukha*-mouth, *Sadansh*-sting, bite, *Visardhita*-flatus, *Tundasthi*-bones of animals died by toxin.^[1] Out of above sixteen *Sandansa* type toxin is spread by needle like structure e.g. Honey bees etc. "*MADHUMAKHI*" in regional language and scientific name for it is "*Apis Cerena Indica*". *Madhu* (honey)

and *Madhu-Uchhista*(bee wax) are used in most of the *Ayurvedic* therapeutical drugs. These are collected from forests, villages, and in the apiculture where the Honey bees are conserved, cultivated and honey is collected. During collecting the honey there are chances of getting attacked by Honey bees. In *Ayurveda Chaturvinshati Upkramas* (24 Modalities of treatment of poisoning) are described by *Charaka* for treatment of *Vishas. Lepa* is one of them^[2]. The local applicaton of *Kesharadi lepa* is effective in Honey bee sting.

MATERIAL AND METHOD

For Preparation of *Kesharadi Churna*:

Ingredients-

Keshar ,Tagarmool, Shunthi, Maricha, Dantimool

Table no. 1 PROPERTIES AND ACTION

DRUGS	RASA	GUNA	VIRYA	VIPAKA	KARMA
<i>Kesar</i>	<i>Katu, Tikta</i>	<i>Snigdha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Jantughna, Shothhar, Varnya, Dushtvrana, Vishaghna</i> ^[3]
<i>Tagar</i>	<i>Katu, Tikta, Kashaya</i>	<i>Laghu</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vishaghna, Tridoshara, Raktadoshara, Manasdoshara</i> ^[4]
<i>Shunthi</i>	<i>Katu</i>	<i>Laghu, Snigdha</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Anuloma, Dipana, Hrdya, Pachana, Vatakaphapaha, Asmadosahara</i> ^{[5],[6]}
<i>Marich</i>	<i>Katu, Tikta</i>	<i>Laghu, Ruksha, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Sleshmahar, Jantunasana, Chedi, Kaphvatajit</i> ^[7]

<i>Danti</i>	<i>Katu</i>	<i>Laghu, Sara, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kushtha, Krimighna, Dipana, Kaphara, Vrana, Shodhak, Vikasi^[8]</i>
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EXTERNAL AND INTERNAL USES OF DRAVYAS

KESAR

External uses-

- It improves complexion and hence is used for application on hyperpigmented lesions of the skin .
- It is also used for application in headache .
- Its paste applied on wound .
- For weak eyesight , a mixture of rose water and kesar is put in the eyes . Its paste is also used in hepatitis .
- It is useful in nervous debility , migrane , rheumatoid arthritis , pain caused by *Vata*, loss of appetite, liver disorder, heart diseases .

Internal uses-

- *Kesara* is used in dysurea . It is also used in impotency, dysmenorrhoea and painful labour.
- It is very useful in small pox . It has also been used in a rejuveneter since ancient times .

2. TAGAR

External use-

- It is used for local application in wound healing, fractures and rheumatoid arthritis.
- Decoction help in wound healing and also as an analgesic.

Internal uses-

- It is mainly used in Bell's palsy, hemiplegia, osteoarthritis, rheumatoid arthritis and gout.
- It reduces pain, convulsions and nourishes the central nervous system.
- Since it is appetizer, digestive , antispasmodic, laxative and hepatostimulant, it is useful in loss of appetite, colic, flatulance, hepatomegaly etc .
- It is cardio stimulant, but in large doses it causes hypotension.
- It also useful in cough, asthma, retention of urine, impotency and dysmenorrhoea. Also useful in debility, poisoning , skin disorders, blood disorders and chronic fever

3.SHUNTHI-

External uses-

- By *Sheet Prashaman* and anti inflammatory and analgesic properties it is used as a local application in swollen joints and rheumatoid arthritis.
- It help to reduce cold and stiffness . Paste prepared in water or milk is useful in infantile cold and swelling .
- Dry ginger powder is rubbed on skin in excessive swelling and hypothermia.

Internal uses -

- It is best medicine for all *Vata* disorders, It is excellent appetizer, digestive ,antiflatulent, antihaemorrhoidal, and anti spasmodic.
- It purifies blood and antiinflammatory. It is *Kafaghna* and antiasthamatic by its property of *Tikta* and *Snigdha*. Due to *Madhur S Vipak* it act as an aphrodisiac and sex stimulant.

4.MARICHA

External uses:

- Its poultice is *Ushna*, antiinflammatory and scraping agent. Therefore it is used in newly formed boil, stye, and Abscess. It also used in leucoderma, scabies etc.
- Pepper powder mixed with oil is also used locally. Application of pepper paste on inflamed part reduces both the pain and inflammation.
- Night blindness, *Shukla* are treated with pepper mixed with honey. In tooth ache, teeth are brushed with pepper powder (or pepper dried ginger and long pepper powder) or decoction of this mixture is used for gargling.
- Fistula is treated with *Ksharsutra* prepared with black papper. In comatose patient, inhalation with pepper is given.
- In pharyngitis black pepper decoction is used for gargles or they are chewed to reduce inflammation.

Internal use:

- It is stimulant and tonic for nerves. It is liver stimulant and other digestive juices are also released.
- It is stimulant to circulatory system. Used in hepatitis, splenomegaly and chronic skin disorders. There is no better substance than pepper to reverse sluggishness of *Pranavaha Srotas* and reduce the mucous secretion.
- It increases the flow of urine by stimulating the blood vessels in the kidneys.Useful in reducing pruritus and skin diseases.

5. DANTI

External use-

- The paste of roots and seeds is used in oedema and pain.
- The root paste is applied on painful oedema and haemorrhoids. Seed oil is used massage in *Vata* disorders.

Internal use-

- Digestive system-Being an appetizer,liver stimulant,cholagogue and laxative, it is used in anorexia, haemorrhoids and helminthiasis .
- Circulatory system- It is blood purifier, *Raktagami*.It reduces oedema by its eliminative action. Useful for elimination of *Doshas* in jaundice
- Respiratory system- Decoction of leaves used in dyspnoea
- Urinary system – Used in calculi
- Skin- As it is diaphoretic, it cures skin by eliminating *Doshas*
- Temperature- Useful in fever with constipation

Preparation of *Kesharadi Churna*:

According to ref of *Sharangdhara Samhita*, *Kesharadi Churna* was prepared.

For this, 25 Gms each Ingredient was put into grinder and ground until a fine powder was made. It was then sieved through 100 no. mesh. In this way, I had prepared fine *Kesharadi Churna* for the experiment.^[9]

Method of Preparation of *Lepa*:-

As in *Kesharadi Lepa Yoga*, there is no *Pramana* (proportion) of contents mentioned, hence according to *Sharangdhar Samhita* ‘where no proportion is mentioned all contents of that *Yoga* is to be taken in same proportion’. *Kesharadi Dravyas* (*Kesar, Tagar, Shunthi, Maricha, Danti*) was mixed in same proportion and water was used as base. Consistency of *Lepa* was medium (not too thick and not too thin).^[10]

Dose calculation of *Kesharadi Lepa* for local application:

Thickness of *Doshaghna Lepa* application is should one fourth of the *Anguli*.

Thickness of *Vishaghna Lepa* application should be one third of the *Anguli*.

Thickness of *Varnya Lepa* should be half of the *Anguli*.

But considering the age and weight factor of the Albino mice, I had applied the *Kesharadi lepa*, in the dose such as the *Lepa* should cover the whole wound and inflammation around it. (Not too thick & Not too thin).

Protocol used for Animal Experiment:-

Animal species	Albino mice
Strain	Swiss Albino
Average Wt. of Mouse	20 – 25 gms
No. of Mice	6
Age of Mice	6 – 8 weeks
Sex of Mice	50% Males & 50% Females
Period of Acclimatization	7 days
Route of Drug Administration	Local application of <i>Lepa</i>

Groups used for Animal Experiment:-

GROUP 1 – Local application of *Kesaradi Lepa* on Bee bite site.

GROUP 2 - Standard Drug (mild steroid ointment) i.e. Cutisoft ointment.

GROUP 3 - Control Group (no application of drug I.e. Natural healing)

Method of Experiment:-**A) Preparation of Mice before sting operation-**

All mice were prepared for experiment. Only desired area i.e. from back of each mouse hair was removed by hair removing cream.

1. Foraged – bees (of 2-3 weeks) colony was selected for the experiment .
2. For identification of groups of male and female Mice. They were stained (yellowish) with Picric acid which remains for three – four weeks.
3. Then each Mouse was given six bee stings one by one at their dorsal side maintaining a safe distance between two stings. (Before giving the stings each spot was marked earlier)
4. After stinging – out of six stings in each Mouse three stings were removed on one side and another three stings were kept in situ.
5. After that skin reaction was observed at the time of sting operation.
6. Then after few minutes (15-20 min) sequentially *Kesaradi Lepa* (daily freshly prepared), Cutisoft ointment, and no drug were applied from mouse tail upwards.
7. After sting operation all mice were observed for 24 hours for any toxic signs.
8. Skin reactions and other signs were observed for seven days.
9. Rating of skin reaction was evaluated as per the Indian standards BIS (Bureau of Indian

Standards) 1992.

- During observations Tenderness, inflammation, Erythema, Scaling, Fissures, Edema, and Diameter of wound was assessed.
- Duration of lowering or vanishing the local effect of bee sting in –
 - a) Control group i.e. No application of medicine.
 - b) Standard drug group i.e. Cutisoft ointment.
 - c) *Kesharadi Lepa* group (topical application)

10. . Histopathological test was done to compare the efficacy of above three groups in Honey sting on mice & their results are described as follow.

During observations:- Tenderness (T), Erythema (E), Scaling (S), Fissures (F), Oedema (O), and Diameter (D), of the wound was predominantly observed in all mice.

Females show severe reaction. Few females also show lacrimation of eyes and defecation during stinging. This indicates the severity of pain in them. Therefore females were more sensitive to sting. Male became restless and irritable after stinging.

Histopathological observation-

1) In Standard group:-

In male and female standard with sting in the dermis, there is a focus of congestion, Chronic inflammation and vasodilation. Edema is present. Infiltration is seen, infiltrate is mainly monocytic. Eosinophils are rare. The infiltrate quantity is mild.

In standard group without sting The epidermis and dermis are histologically normal. There is no inflammation on dermal and epidermal region. There is no edema. Appendages are normal.

2) In Experimental group:-

Male *Ayurvedic* Group with sting in the dermis there is a focus of congestion, vasodilation and chronic and chronic inflammation. Edema is present. The infiltrate is mainly monocytic.

In both male and female *Ayurved* Group without sting. The epidermis and dermis are histologically normal. There is no dermal or subdermal inflammation The appendages are normal with no edema

C) In Control group:-

In male and female control group with sting Chronic inflammation with infiltration of lymphocytes, macrophages and beginning of fibrosis was seen in the subcutaneous tissue. In the dermis there is a focal congestion, vasodilatation, and chronic inflammation, presence of edema. In the infiltration there are rare Eosinophils and mainly monocytes with infiltration

In control Group Male & Female mouse without sting. The epidermis and dermis were histologically normal. There is presence dermal or subdermal inflammation, normal appendages with mild edema.

RESULT AND DISCUSSION

Anti toxic effect of *Kesharadi Lepa* in compared with Cutisoft oint. (Hydrocortisone 1%) and control group on the bee-sting. In the study bee-venom was induced by the natural bee-sting for these *Apis-cerena indica* bees were used. The grades of parameters used in the experiment were approved by ISI standards of Indian government for skin reaction.

Freshly prepared *lepa* has been applied for 7 days daily after stinging for local application on wound.

It was found that –

1) In all the 3 groups wound was healed after six-eight days, but the pattern of healing was different in each group.

2) But after experimental Histopathology of each mice was made which shows –

In Histopathological observation Wound healed with *Ayurvedic* drug shown that –

In male and female standard with sting In the dermis, there is a focus of congestion, chronic inflammation and vasodilation. Edema is present. Infiltration is seen, infiltrate is mainly Monocytic. Eosinophils are rare. The infiltrate quantity is mild.

In standard group without sting the epidermis and dermis are histologically normal. There is no inflammation on dermal and epidermal region. There is no edema. Appendages are normal.

3) Wound healed by Cutisoft cream shown that-

In both male and female *Ayurvedic* Group with sting In the dermis there is a focus of congestion, vasodilation and chronic inflammation. Edema is present. The infiltrate is mainly Monocytic.

In both male and female *Ayurvedic* Group without sting. The epidermis and dermis are histologically normal. There is no dermal or subdermal inflammation. The appendages are normal with no edema.

4) Wound healed by control group shows that-

In male and female control group with sting chronic inflammation with infiltration of lymphocytes, macrophages and beginning of fibrosis was seen in the subcutaneous tissue. In the dermis there is a focal congestion, vasodilatation, and chronic inflammation, presence of edema. In the infiltration there are rare Eosinophils and mainly Monocytes with infiltration

In control Group Male & Female mouse without sting the epidermis and dermis are histologically normal. There is presence dermal or subdermal inflammation, normal appendages with mild edema.

CONCLUSION

According to *Abhinav Chintamani*, *Kesharadi Lepa* is useful in *Makshika Dansha*. Crocin is the main Chemical composition of *Keshar* and having *Vishghna* property mentioned in *Dhanvantari Nighantu*. All ingredients in *Kesharadi Lepa* having property of *Vishghna* and Antiinflammatory. Experimental observation shows that, symptoms of Bee sting wound were significantly reduced in Experimental group i.e. *Kesharadi Lepa*. Histopathological examination the Epidermis and Dermis were histologically normal there was no dermal or subdermal inflammation. There was no edema. Statistically standard drug was found best in reducing the all symptoms of wound produced after bee sting, experimental group with sting & without sting was also significantly effective in reducing the all symptoms of wound produced after Bee sting and control group was less effective. As per stastical data it is proved that, *Kesaharadi Lepa* is less effective than standard group but more effective than Control Group in healing of wound caused by Honey bee sting. *Kesharadi Lepa* is significantly effective in reducing Honey Bee sting wound.

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