



An Antimicrobial property of Murcchit Katu Taila

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ABSTRACT

In Ayurvedic system of medications many formulations are used in treating the diseases e. g. Guti, Vati, Avaleha, Churna, Taila, Ghruta etc. Murchana has been adopted for enhancing the potency and shelf life of oil, and to remove the Gandhdosha (bad odour) and Amadosha. Mainly three oils are used in medicine.

The process of Murchana has high significance in today's scenario of globalization and the urge for better therapeutic efficacy. Hence the process of Murchana must be strictly included as the fundamentals of any medicated oil preparations. This article describes antimicrobial study of murcchita Katu Taila.

Keywords: Murchhana, Katu taila murchhana, Microbes, Antimicrobial activity.

INTRODUCTION

Taila strengthens body and beneficial for skin. It increases the qualities of the drugs added to it without losing its own qualities. The fat soluble active principles of the drugs can be easily extracted into the Taila. In Sneha Kalpana both water soluble and fat soluble active principles of the individual ingredients can be extracted.

GENERAL PROCEDURE OF SNEHA KALPANA

Medicated Snehas are those preparations in which sneha is boiled with prescribed drava and kalka of drugs according to the formula. This process ensures absorption of active therapeutic principles of the ingredients in two different solvents i.e. water and fat.

There are generally three essential components for the preparation of the sneha is mentioned bellow.

1. Drava dravya : Kashaya, Swaras, Dugdha, Dahi, Gomutra which may be one or more
2. Kalka : A fine or coarse powder/ pastes of drugs.
3. Sneha : Ghrita, Taila, etc.
4. In .Samhitas following ratio is mentioned,

कल्काच्चतुर्गुणीकृत्य घृतं वा तैलमेव वा ।
चतुर्गुणे द्रवे साध्यं तस्य मात्रा पलोन्मिता ॥
निक्षिप्य क्वाथयेत्तोयं क्वाथ्यद्रव्याच्चतुर्गुणम् ।
पादशिष्टं गृहीत्वा च स्नेहं तेनैव साधयेत् ॥

–शा.म.खं.९/१–२

Sneha Siddhi Lakshna:-

If can be classified in two categories

A) Symptoms related to kalka

- Varti of kalka forms
- Finger prints seen on kalka varti

B) Symptoms related to sneha

- No any sound when heating. (Shabdahin)
- Appearance of foam in case of taila and foam disappears in case of ghrita paka.
- Characteristic smell, colour and taste of related drugs appear in sneha.

वर्तित्वं स्नेहकल्कः स्याद् यदाङ्गुल्या विमर्दितः।

शब्दहीनोऽग्निनिक्षिप्तः स्नेहः सिद्धो भवेत् तदा॥

यदा फेनोद्गमस्तैले फेनशान्तिश्च सर्पिषि ।

गन्धवर्णरसोत्पत्तिः स्नेहसिद्धिस्तदा भवेत् ॥–शा.सं.म.खं. ९/१२–१३

Sneha Paka:-

स्नेहपाकस्त्रिधा प्रोक्तो मृदुर्मध्यः खरस्तथा ।

ईषत्सरसकल्कस्तु स्नेहपाको मृदुर्भवेत् ॥

मध्यपाकस्य सिद्धिश्च कल्के नीरसकोमले।

ईषत्कठिन कल्कश्च स्नेहपाको भवेत् खरः॥
तदूर्ध्वं दग्धपाकः स्याद् दाहकृत् निष्प्रयोजनः।
आमपाकश्च निर्वीर्यो वह्निमान्द्यकरो गुरुः ॥

–शा.सं.म.खं. ९/१४–१६

Sneha paka are of three types :

- Mrudu Paka
- Madhyam Paka
- Khara Paka

• **Mrudu paka:**

A small quantity of kalka taken out and pressed in between the fingers, if it yield large quantity of sneha then it is said to be mrudu paka. In this stage kalka is sticky on touch due to the presence of trace amount of water and produces cracking sound if thrown in to fire.

• **Madhyama paka:**

If kalka doesn't yield any sneha but is soft in consistency, the paka is madhyama. In this stage when kalka put in fire it burns without any crackling sound and the kalka still remains soft in consistence and not sticky due to the complete disappearance of water content. Kalka can be made into varti form in between the fingers and the sneha is also free from water content.

• **Khara paka:**

Further heating after madhyama paka leads to khara paka. If the kalka does not yield any sneha and is hard, rough due to excessive of heat then it is said to be kharapaka stage.

Murcchana Samskara of Sneha:-

It is necessary to remove durgandha, amadosha, ugrata etc. Apart from these, by this Samskara, the Virya of Sneha is enhanced.

Removal of Amata enhances the potency of Sneha and makes it more suitable to assimilate active principles from the medicaments.

Katu Taila

Katu Taila is obtained from Sarshapa beeja.

Botanical Name- Brassica campestris

Family- Cruciferae

Synonyms - Sarshapa, Siddhartha, Katusneha, Tantubh

English Name - Mustard (seed)

Part Used - Seed (oil)

Ayurvedic Properties:

Rasa	:	Katu, Tikta
Guna	:	Tikshana, Snigdha
Veerya	:	Ushna
Vipaka	:	Katu
Doshagnata	:	Kapha – Vata shamaka
Rogagnata	:	Kustha, Plihavruddhi, Krimiroga, Rajorodha, Vishghna, Udardaghna, Lekhana, Karnaroga, Vatavyadhi.

Karma :

Vidahi, Agnidipana, Vamanopaga, Varnya, Raktapittavardhaka, Krimighna, Jantughna, Dantapuyaghna, Lekhana, Kusthghna, Shonitoklesh(seed).

Physical Constants :

Moisture 7.60%, N-substance 29.10%, N-free extract 19.20%, ether extract 28.20%, Ash 5.00%, Crude fiber 11.00%, the seed yield – 27.33% of fixed oil. Specific (150/150)0.912 – 0.917, n = 1.4633 – 1.4670/ 400: saponification value = 99 – 107.

Chemical Constant:

Fixed oil : 27-33%, the volatile oil : 0.7 – 1.2%, sin grin glucoside all ylisoth iocyanate. Specifications of the pharmaceutical oil are (B.P.C.)

Sp. Gr 1.014 – 1.025: n/200, 1.525 – 1.530: and sinalbin, sulphocynide, lecithin, myrocin, protein and minerals, phosphates of potassium, magnesium and calcium.

Pharmacological activities :

Emetic stimulant, digestive stimulant, rubefacient, antipruritic, sporostatic, antifungal

Drugs used for Katu Taila Murchhana:

Sr. No.	Sanskrit name	Latin Name	Family	Rasa, Vipaka, Veerya	Pharmacological actions
1	Bibhitaki	Terminalia belerica	Combrataceae	Kashaya, Madhura, Ushna	Astringent, Laxative, expectorant

2	Aamalaki	Emblica officinalis	Euphorbiaceae	Pancharasa, madhura, sheeta	Refrigerant, diuretic, laxative, carminative and stomachic
3.	Haridra	Curcuma longa	Zinziberaceae	Tikta, madhura-katu- ushna	Aromatic, carminative blood purifier, tonic, alterative, antiperiodic, anthelmintic, antacidantiseptic and antibacterial, antifungal, anti-inflammatory, antiarthritic, antifertility, ulcerogenic
4	Mustaka	Cyperus rotundus	Cyperaceae	Tikta, katu, Kashaya. katu shita.	diuretic: anthelmintic, antifungal, hypotensive anti-inflammatory
5	Bilva	Aegle Marmelos	Rutaceae	Kashay, Tikta, Katu Ushna	Antimicrobial Disestive, astringent spsmolytic, Hypoglycaemic.
6	Dadim Tvak	Punika Granatum	Punicaceae	Madhur, Kashaya, Amla , Madhur, Amla, Anushna	astringent, stomachic, digestive-used for dirrhoea, dysentery, colitis, dyspepsia.
7	Krishnajirk	Carum bulbocastanum	Umbelliferae	Katu, Katu, Ushna	Carminative, Antispasmodic, Antimicrobial
8	Nagakeshar	Mesua Ferra	Guttiferae	Kashaya, Tikta, Katu, Ushna	antibacterial, antifungal, astringent, haemostatic, anti-inflammatory , stomachic. antidysentric

9	Rhiber	Vetiveria Zizanioids	Graminae	Tikta, Madhur, Katu , Sheet	refrigerant, febrifuge, diaphoretic: stimulant, stomachic, antispasmodic.
10	Nalika	Indigophera Tinctoria	Leguminocae	Tikta, Katu, Ushna	Antiseptic, hepatoprotective, hypoglycaemic, nervine tonic.
11	Manjishtha	Rubia cordifolia	Rubiaceae	Tikta, Kashay, Madhur, Katu, Ushna	Blood purifier, astringent, diuretic, antidysentric, antiseptic.

Procedure:

Snehapak Kalpana-(Taila Murcchana) by method from Bhaishajya ratnavali jwarachikitsa 5/1288-89.

Ingredients:-

1.Aamalaki Churna - 30 gm	7.Nalika Churna – 30 gm.
2. Haridra Churna – 30 gm.	8.Bhibhitak Churna -30 gm.
3.Mustaka Churna – 30 gm.	9.Dadim Churna – 30 gm.
4.Nagkeshar Churna – 30 gm.	10..Nalika Churna – 30 gm.
5.Krishnajirak Churna – 30 gm.	11.Manjishtha Churna –240 gm.
6.Rhiber Churna – 30 gm.	Sarshapa Taila – 1920 ml.
Water – 7680 ml.	

Equipments: -

Steel vessel, cloth, gas stove, measuring vessel, etc.

Procedure:-

- First Katu Taila was taken in a big steel vessel.
- Then it was kept on gas stove & it was warmed.
- Then heat was stopped and it was allowed to cool.

- Then all above drugs were taken and kalka of these drugs was made & mixed in it.
- Then water was mixed in it.
- Then steel vessel was kept on gas stove and agni was given to it.
- Mandagni was given and it was maintained during procedure.
- Taila Murcchana was done according to Snehapak Kalpana.

Precautions:-

- Overflow of Taila was avoided .
- During process Taila was continuously & carefully stirred, otherwise kalka would be stucked on to the bottom of the vessel.
- Mandagni was given.
- Mrudupaka was done.

Observations:

- Total time of heating – 9 hrs.
- Completion test of Taila Murcchana –
 1. Taila-Fire test-Burns without any crackling sound
 2. Kalka –Fire test – No any crackling sound.
Consistency –Soft.
Non sticky.
Could be made into varti form.
Also finger print was seen on it.
Colour – Reddish brown.

Result:

Time in the preparation of Katu Taila Murcchna – 9 hrs.

Total quantity of Taila taken -1920 ml.

Total quantity remained – 1700 ml.

Organoleptic tests:

Consistency – Liquid.

Colour – Reddish.

Smell – mixed smell of above drugs.

Analytical Tests:

1) Table showing Physical tests:

Sample	Colour	Consistency	Touch	Smell
A	Reddish	Liquid	Slippery	Taila gandhi

OBSERVATIONS AND RESULTS

Observations:

- 1) While preparing the Katu Taila Murcchana the smell of Katu Taila was spread all over. The colour of mixture was reddish black.
- 2) Completion test of Taila Murcchana –
 - a) Taila – Fire Test – Burns without any crackling sound.
 - b) Kalka – Fire test – No any crackling sound. Consistency – Soft, non-sticky could be made into Varti form. Finger prints seen on it. Colour – Reddish brown.
- 3) Time taken for preparation of Katu Taila Murcchana – 9 hrs.
- 4) Total quantity of Katu Taila taken – 1920 ml.
- 5) Total quantity remained – 1700 ml.
- 6) Organoleptic Tests –
Consistency – Liquid.
Colour – Reddish.
Smell – Tailagandhi.

Antimicrobial activity:

Sr.No.	Sample	Diameter of Inhibition Zone in mm		
		Escherichia coli	Staphylococcus aureus	Candida albicans
1.	Murcchita Katu Taila	21	22	19

Murcchita Katu Taila showed significant antimicrobial activity.

- 1) 0.5 ml Sample of Murcchita Katu Taila showed 21 mm of zone of inhibition against Escherichia coli bacteria.
- 2) 0.5 ml Sample of Murcchita Katu Taila Showed 22 mm of zone of inhibition against Staphylococcus Aureus bacteria.
- 3) 0.5 ml Sample of Murcchita Katu Taila Showed 19 mm of zone of inhibition against Candida albicans fungi.

CONCLUSION

Higher values of chemical constant shows these oils prepared from Murcchita Katu Taila is having greater degree of unsaturation. So it is beneficial for human health and this oil act as carrier of active medicaments.

Murcchita Katu taila is having greater antimicrobial activity against Escherichia coli bacteria which is gram negative bacteria.

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