

COMPARATIVE PHYSICO – CHEMICAL ANALYSIS OF AMOORCCHITA AND MOORCCHITA SAMPLES OF TILA TAILA, KATU TAILA AND ERANDA TAILA W.S.R. TO BHAISHAJYA RATNAVALI

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ABSTRACT

Sneha Kalpana has its eccentric place in Ayurvedic pharmaceuticals & therapeutics. *Sneha Kalpas* are efficacious preparations having comparatively longer shelf life. They are better absorbed when administered internally. *Snehakalpa* are used both internally & externally in various forms like *Paana*, *Nasya*, *Basti*, *Karnapoorana*, *Abhyanga*, *Dhaara* etc. *Moorchana* is a specific process of *Sneha* indicated as a prerequisite for *Snehapaka*. The primary intention of performing *Sneha moorcchna* is to remove *Gandha Dosha* and *Aamdosha* from raw *Sneha* and render ready absorbability of medicinal properties in it from the drugs with which it is processed. Different numbers of *TailaKalpas* are mentioned in Ayurvedic classics & used effectively in therapeutic practice. *TilaTaila* is the most commonly used *Taila*. However, *Katu Taila* and *Eranda Taila* are also used in special conditions. Hence in the present study compilation of *Tila taila*, *Katu Taila* and *Eranda Taila Moorcchana* is mentioned with the reference given in the *Bhaishajya Ratnavali* and also they were analyzed physico – chemically before and after *Moorcchana* process.

KEYWORDS: Murcchana, Taila, Snehakalpana, Physico-chemical analysis

INTRODUCTION

Snehakalpana includes preparation of various kinds of *Tailas* and *Ghrutas*. They are an important secondary dosage form described in Ayurvedic pharmaceuticals and it has a broad range of medicinal uses in different ailments. For the preparation of medicated oil *Tila Taila* (Sesame oil) is generally used and in some special conditions *Katu / Sarshapa Taila* (Mustard oil) and *Eranda Taila* (Castor Oil) are also used. Moisture content in oil causes rancidity (*Aam Dosha*) which is an

important factor in the decomposition of fatty acids of oil leading to decrease in life span of medicines prepared with oil. *Moorcchana* is a pre - treatment process to remove rancidity factor (*Aamdosha*) and simultaneously enhancing therapeutic quality of medicine^[1].

The concept of *Sneha Moorcchana* is found in *Dipika* Commentary of *Shrangdhara* which was written in later parts of 14th century. *Bhaishajaya Ratnavali* deals in detail about the *Sneha Moorcchana* concept

of *Ghrutas* and different *Tailas* used for different therapeutic purpose. *Bhaishajaya Ratnavali* is compiled by Kaviraj Shri Govind Das Sen in 18th Century. It is considered as one of the main formulary of the Ayurveda. Since there are no obvious references for *Sneha Moorchhana* concept in *Bruhatrayi* or *Laghutrayi* it might fare to jump to the conclusion that the concept of *Sneha Moorchhana* didn't prevailed earlier to 14th century or is it the case that the procedure prevailed but was somehow not documented^[2].

The primary aim of performing *Sneha Moorchhana* is to remove *Aama Dosha* from raw *Sneha* and enhance its appetite of drug absorption. *Sneha* also attains good odour, turns lighter for digestion and drug absorbability and assimilation are greatly enhanced. Specific group of plant materials used in the *Moorchhana* process perhaps alter the chemical compositions of *Sneha*

MATERIALS & METHODS

Table 1: Ingredients for Moorchhana of TilaTaila, Katu Taila and Eranda taila

<i>Tila Taila Moorchhana</i>	<i>Katu Taila Moorchhana</i>	<i>Eranda taila Moorchhana</i>
<p>1. <i>Amoorchita Tila Taila</i> (oil of <i>Sesamum indicum seeds</i>) – 1 part – 4 litre</p> <p>2. <i>Manjishtha choorna</i> (<i>Rubia cordifolia</i>) – 1/16th part – 250 gm</p> <p>3. <i>Haridra choorna</i> (<i>Curcuma longa</i>) – 1/64th part – 60 gm</p> <p>4. <i>Lodhra choorna</i> (<i>Symplocos racemosa</i>) – 1/64th part – 60 gm</p>	<p>1. <i>Amoorchita Katu Taila</i> (oil of <i>Brassica campestris seeds</i>) – 1 <i>Prastha</i> – 768 gm (here we have taken 750 ml)</p> <p>2. <i>Haritaki choorna</i> (<i>Terminalia chebula</i>) – 1 <i>Karsha</i> – 12 gm</p> <p>3. <i>Haridra choorna</i> (<i>Curcuma longa</i>) – 1 <i>Karsha</i> – 12 gm</p> <p>4. <i>Musta choorna</i> (<i>Cyperus rotundus</i>) – 1 <i>Karsha</i> – 12 gm</p>	<p>1. <i>Amoorchita Eranda Taila</i> (oil of <i>Ricinus communis</i>) – 1 <i>Prastha</i> – 768 gm (here we have taken 750 ml)</p> <p>2. <i>Manjishtha choorna</i> (<i>Rubia cordifolia</i>) – 1 <i>Shana</i> – 3 gm</p> <p>3. <i>Musta choorna</i> (<i>Cyperus rotundus</i>) – 1 <i>Shana</i> – 3 gm</p> <p>4. <i>Dhaanyaka choorna</i> (<i>Coariandrum sativum</i>) – 1 <i>Shana</i> – 3 gm</p>

dravyas, which indirectly helps in extraction of active principles into the *Sneha* medium.

The present study is aimed to perform comparative physico – chemical analysis of *Amoorchita* and *Moorchita* samples of *Tila Taila*, *KatuTaila* and *ErandaTaila* as these 3 oils are used widely for many therapeutic purpose and also there is a need to develop standard manufacturing processes of *Snehab Moorchhana* of these oils.

AIM

Comparative physico – chemical analysis of *Amoorchita* and *Moorchita* samples of *Tila Taila*, *Katu Taila* and *Eranda Taila*

OBJECTIVES

1. To carry out *Moorchhana* of *Tila Taila*, *Katu Taila* and *Eranda taila*. as per the reference of Bhaishajya Ratnavali,
2. To comparatively analyse *Amoorchita and Moorchita Tila Taila, Katu Taila and Eranda taila* samples with physico – chemical parameters.

<p>5. <i>Musta choorna</i> (<i>Cyperus rotundus</i>) – 1/64th part – 60 gm</p> <p>6. <i>Nalika choorna</i> (<i>Cinnamomum tamala</i>) – 1/64th part – 60 gm</p> <p>7. <i>Amalaki choorna</i> (<i>Euphoria officinalis</i>) – 1/64th part – 60 gm</p> <p>8. <i>Haritaki choorna</i> (<i>Terminalia chebula</i>) – 1/64th part – 60 gm</p> <p>9. <i>Bhibhitaki choorna</i> (<i>Ternimalis belerica</i>) – 1/64th part – 60 gm</p> <p>10. <i>Suchipushpa Moola Swarasa</i> (<i>Pandanus tectorus</i>) – 1/64th part – 60 gm</p> <p>11. <i>Vatankura</i> (Leaf buds of <i>Ficus bengalensis</i>) – 1/64th part – 60 gm</p> <p>12. Water – 16 litre (All measurements are taken as per commentary of Prof. Siddhinandan Mishra)</p>	<p>5. <i>Bilva moola twaka choorna</i> (<i>Aegel marmelos</i>)– 1 Karsha – 12 gm</p> <p>6. <i>Dadima choorna</i> (<i>Punic granatum</i>) – 1 Karsha – 12 gm</p> <p>7. <i>Nagkesar</i> (<i>Messua ferrea</i>)– 1 Karsha – 12 gm</p> <p>8. <i>Krishna jeeraka</i> (<i>Crum bulbocastanum</i>) – 1 Karsha – 12 gm</p> <p>9. <i>Sugandha bala</i> (<i>Hribera</i>) (<i>Pavonia odorata</i>) – 1 Karsha – 12 gm</p> <p>10. <i>Nalika choorna</i> (<i>Cinnamomum tamala</i>)– 1 Karsha – 12 gm</p> <p>11. <i>Bibhitaki choorna</i> (<i>Ternimalis belerica</i>) – 1 Karsha – 12 gm</p> <p>12. <i>Manjishtha choorna</i> (<i>Rubia cordifolia</i>) – 2 Pala - 100gm</p> <p>13. Water – 3 litre (All measurements are taken as per commentary of Prof. Siddhinandan Mishra)</p>	<p>5. <i>Triphala choorna</i> (<i>Euphoria officinalis</i>, <i>Terminalia chebula</i>, <i>Ternimalis belerica</i>) – 1 Shana each – 3 gm each</p> <p>6. <i>Agnimantha choorna</i> (<i>Clerodendrum phlomidis</i>) – 1 Shana – 3 gm</p> <p>7. <i>Sugandha bala</i> (<i>Hribera</i>) (<i>Pavonia odorata</i>) – 1 Shana – 3 gm</p> <p>8. <i>Vatankura</i> (Leaf buds of <i>Ficus bengalensis</i>) – 1 Shana – 3 gm</p> <p>9. <i>Haridra choorna</i> (<i>Curcuma longa</i>) – 1 Shana – 3 gm</p> <p>10. <i>Daru haridra choorna</i> (<i>Berberis aristata</i>) – 1 Shana – 3 gm</p> <p>11. <i>Nalika choorna</i> (<i>Cinnamomum tamala</i>) – 1 Shana – 3 gm</p> <p>12. <i>Shunthi choorna</i> (<i>Zinziber officinale</i>) – 1 Shana – 3 gm</p> <p>13. <i>Ketaki moola</i> (<i>Pandanus amaryllifolius</i>) – 1 Shana – 3 gm</p> <p>14. <i>Dadhi</i> (Curd) – 1 Shana – 3 gm</p> <p>15. <i>Kanji</i> (Sour gruel) – 3 ml (All measurements are taken as per commentary of Prof. Siddhinandan Mishra)</p>
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Instruments & Equipment:

1. *Khalva Yantra* (Pestle and mortar)
Gas cylinder with stove and lighter
2. Stainless steel vessels
3. Spoon

4. Cotton cloth/filter cloth
5. Wide mouthed glass bottle for storage.

I) **Pharmaceutical method**^[2]

Table 2: Procedure of Moorcchana of Tila Taila, Katu Taila and Eranda Taila

Tila Taila Moorcchana (Figure:1)	Katu Taila Moorcchana (Figure:2)	Eranda Taila Moorcchana (Figure:3)
<p>Step1: Amoorchita Tila Taila was taken in a clean stainless steel vessel. This vessel was placed over mild to moderate fire and heated until foam started appears. Soon the fire was lit off and waited for <i>Nishphenabhava</i> & <i>Shaitya bhava</i> of the oil.</p> <p>Step 2: The oil was then placed again over mild fire and required quantity of water was added to it. Meanwhile, the fine powder of <i>Manjishtha</i> and other drugs was mixed with little quantity of water to prepare <i>Kalka</i> (Paste). This <i>Kalka</i> was then added to the vessel and the boiling was continued with frequent stirring. Boiling was continued until all <i>Sneha siddhi Lakshanas</i> were attained. Later it was filtered through a clean cotton cloth and stored in wide mouthed glass bottle. The oil retained reddish colour (<i>Arunavarna</i>) after the process.</p>	<p>Step1: Amoorchita Katu Taila was taken in a clean stainless steel vessel and heated over mild to moderate fire until foam started appears. Soon the fire was lit off and waited for <i>Nishphenabhava Shaitya bhava</i> of the oil.</p> <p>Step 2: The oil was then placed again over mild fire and required quantity of water was added to it. Meanwhile, the <i>Kalka</i> was prepared out of all the <i>Kalka Dravyas</i> mentioned. This <i>Kalka</i> was then added to the vessel of oil and water to boil further with frequent stirring. Boiling was continued until all <i>Sneha siddhi Lakshanas</i> were attained. Later it was filtered through a clean cotton cloth and stored in wide mouthed glass bottle.</p>	<p>Step1: Amoorchita Eranda Taila was taken in a clean stainless steel vessel and heated over mild to moderate fire until foam started appears. Soon the fire was lit off and waited for <i>Nishphenabhava Shaitya bhava</i> of the oil.</p> <p>Step 2: The oil was then placed again over mild fire and mentioned quantity of Dadhi + Kanji mixture was added to it. Meanwhile, the <i>Kalka</i> was prepared out of all the <i>Kalka Dravyas</i> mentioned. This <i>Kalka</i> was then added to the vessel and boil further with frequent stirring to attained <i>Sneha siddhi Lakshanas</i>. Later it was filtered through a clean cotton cloth and stored in wide mouthed glass bottle.</p>

Precautions

1. Mild to moderate heat was given throughout the *Moorcchana* procedure.
2. Over flowing of oil was avoided for each time.

3. During process, frequent stirring was done to avoid sticking of *Kalka* on to the bottom of the vessel.

II) Analytical method^[3]

To study the effect of *Moorchana Samskara* on the oil both the samples – *Amoorchita* and *Moorchitaitaila* of all the 3 oil samples were analyzed to obtain parameters, such as acid value, saponification value, iodine value,

and refractive index according to the Quality Control Manual of Ayurveda, Siddha, and Unani Medicine (the standard protocol mentioned in books). The test was done as per the standard pharmaceutical laboratory process given in Appendix 3 (Physical test determination) of the Ayurvedic Pharmacopeia of India.

OBSERVATION AND RESULTS

Table no. 3: Panchabhautika Parikshana of Moorchita TilaTaila, Katu Taila & Erandaitaila

Shabda	Sparsha	Roopa	Rasa	Gandha
<i>Taila</i> – Fire test = burns without any crackling sound <i>Kalka</i> – Fire test = No any crackling sound	Soft <i>Madhyamkalka</i> Made into <i>Vartiform</i>	All the samples of <i>Moorchitaitaila</i> gets desired reddish colour due to <i>Manjishthachoorna</i> .	<i>Avishehsa</i>	All the samples of <i>Moorchitaitaila</i> gets desired pleasant smell.

Table 4: Modern Parameters

Batch 1 - AmoorchitaTilaTaila

Batch 2 - MoorchitaTilaTaila

Batch 3 - AmoorchitaKatuTaila

Batch 4 - MoorchitaKatuTaila

Batch 5 - Amoorchita ErandaTaila

Batch 6 – Moorchita ErandaTaila

Parameters	Batch – 1	Batch – 2	Batch – 3	Batch – 4	Batch – 5	Batch – 6
pH (By strip)	5	5	5	5	5	5
Loss on drying	0.39	0.09	0.24	0.04	0.29	0.29
Refractive Index	1.4707	1.4708	1.4708	1.4709	1.4804	1.4805
Specific gravity	0.9170	0.9030	0.9110	0.9110	0.9650	0.9380
Density (Gm/cm ³)	0.9280	0.9140	0.9240	0.9220	0.9770	0.9490
Viscosity	82.81	79.30	81.42	93.15	354.68	342.17
Saponification value	222.66	155.67	109.23	92.33	247.62	162.44
Acid value	5.83	5.5	3.37	2.69	1.68	0.34

Iodine value	0.050	0.151	0.101	0.195	0.025	0.028
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DISCUSSION AND CONCLUSION

According to ancient Ayurvedic texts the primary intention of performing *Sneha Moorchhana* is to get rid of from *Aam Dosha* of raw *sneha* and render ready absorbability of medicinal properties in it from the drugs with which it is processed. In other word we can say to enhance the appetite of drug absorption. Heating of *Taila* during *Moorchhana* process is itself an important factor which causes the evaporation of any moisture contents that leads to the decrease in rancidity factors.

As per modern process it may be referred as refinement of oil and is aimed at removing un – dissolved solids from crude oil, moisture content, undesirable colour, free fatty acids, phosphatides etc which may alter the physico – chemical characters of *Sneha*.

Many researches show that *Moorchhana* decreases the acid value^[4]. *Moorchhana* helps in maintaining the necessary ratio of unsaturated and saturated fats suitable for human physiology. The present study also describes that reduced acid value indicates less percentage of free fatty acids. *Moorchhana* of *Snehais* done for the removal of *Aam Dosha* which inhibits lipid per oxidation and incorporates antioxidant property for augmentation of medicinal properties of the medicated *Taila / Ghrita*. Saponification values and acid values are directly related to rancidity factor. Specifically, it is the hydrolysis and/or autoxidation of fats into short-chain aldehydes and ketones which are objectionable in taste and odour^[5]. When these processes occur in food, undesirable

odours and flavours can result^[6]. Higher rancidity value indicates lesser shelf life and therapeutic value. Hence decreasing of these values will help in making the *Siddha Snehais* more stable and sustainable. More will be refractive index; there will be more concentration of light which facilitates rancidification of *Sneha*^[7]. During the process of *Moorchhana* water and fat soluble extractives are added to the initial *Sneha* that enhances its medicinal properties. All the studies concluded that *Murchhana* process reduces degree of saturation of oils and enhances degree of unsaturation which reduces chances of decomposition and helps in increasing both life span and therapeutic value.

Therefore, more research works need to be done in comparing the significance of *Moorchhana Sanskara* in *Sneha Kalpanas* that are used internally as well as externally to validate its efficacy and stability^[8]. Further scope for researchers to study over this subject matter is immense with special reference to TLC, HPTLC or stability studies.

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Fig:2: Katu Taila Moorchhana Procedure



Fig:3 Eranda Taila Moorchhana

