COMPARATIVE ANALYTICAL STUDY OF AMOORCCHITA AND MOORCCHITA TILA TAILA.

Patil Trupti,1,* Deshmukh Ashwini.2

1. B.A.M.S., PG Scholar, Dept. of Rasashastra and Bhaishajya Kalpana, Dr. G.D. Pol foundation’s Y.M.T. Medical Ayurvedic College, Kharghar, Navi Mumbai, MS, India.
2. M.D. (Rasashastra), Reader, Dept. of Rasashastra and Bhaishajya Kalpana, Dr. G.D. Pol foundation’s Y.M.T. Medical Ayurvedic College, Kharghar, Navi Mumbai, MS, India.

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ABSTRACT

Sneha Kalpana has its eccentric place in Ayurvedic pharmaceutics & therapeutics. Sneha Kalpas are efficacious preparations having comparatively longer shelf life. They are better absorbed when administered internally. Sneha kalpa are used for internal and external administration in various forms like Paana, Nasya, Basti, Karnapoorana, Abhyanga, Dhaara etc. Moorcchana 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 Aam dosha from raw Sneha and render ready absorbability of medicinal properties in it from the drugs with which it is processed. Different numbers of Taila Kalpas are mentioned in Ayurvedic classics & used effectively in therapeutic practice. Tila Taila is the most commonly used Taila. Hence in the present study we have compiled Tila taila Moorcchana with the reference given in the Bhaishajya Ratnavali1 and also they were analysed physico – chemically before and after Moorcchana process.

Keywords – Moorcchana, Til Taila, Physico – chemical analysis.

1. INTRODUCTION

Sneha kalpana includes preparation of various kinds of Tailas and Ghrutas. They are an important secondary dosage form described in Ayurvedic pharmaceutics 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 (Mustord 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 (Aam dosha) and simultaneously enhancing therapeutic quality of medicine.

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 Moorchhana concept of Ghrutas and different Tailas used for different therapeutic purpose1. Since we find no obvious references for Sneha Moorchhana concept in Bruhattrayi or Laghuttrayi it might fare to jump to the conclusion that the concept of Sneha Moorcchana didn’t prevailed earlier to 14th century or is it the case that the procedure prevailed but was somehow not documented.

The primary aim of performing Sneha Moorcchana is to remove Aam Dosha from raw Sneha and enhance its appetite of drug absorption2. Sneha also attains good odor, turns lighter for digestion and drug absorbability and assimilation are greatly enhanced. Specific group of plant materials used in the Moorcchana process perhaps alter the chemical compositions of Sneha Dravyas, which indirectly helps in extraction of active principles into the Sneha medium3. The present study is aimed to perform comparative physico – chemical analysis of Amoorcchita and Moorcchita samples of Tila Taila as this oil is used widely for many therapeutic purpose and also there is a need to develop standard manufacturing processes of Sneha Moorcchana of these oils4.

2. MATERIALS & METHODS

2.1. AIM

*Corresponding Author: Trupti Patil.
B.A.M.S., PG Scholar, Dept. of Rasashastra and Bhaishajya Kalpana, Dr. G.D. Pol foundation’s Y.M.T. Medical Ayurvedic College, Kharghar, Navi Mumbai, MS, India. Email: ptruptipatil18@gmail.com.
Comparative physico – chemical analysis of Amoorcchita and Moorcchita samples of Tila Taila.

2.2. OBJECTIVES

- To carry out Moorcchana of Tila Taila as per the reference of Bhaishajya Ratnavali,
- To analyze Amoorcchita and Moorcchita Tila taila samples with physico – chemical parameters.

2.3. MATERIALS

All the required raw material was collected from Local market, Dadar, Mumbai & All India Kirana Stores (Raw Material Drugs) Shop, Pydhonie, Mumbai & authenticated from the Dravyaguna & Rasashastra & Bhaishajya kalpana departments of Y.M.T. Ayurvedic Medical College, Kharghar, Navi Mumbai.

Ingredients for Moorcchana of Tila Taila

- Amoorcchita Tila Taila (Sesame oil / oil of Sesamum indicum seeds) – 1 part – 4 litre
- Manjishtha choorna (Rubia cordifolia) – 1/16th part – 250 gm
- Haridra choorna (Curcuma longa) – 1/64th part – 60 gm
- Lochra choorna (Symplocos racemosa) – 1/64th part – 60 gm
- Musta choorna (Cyperus rotundus) – 1/64th part – 60 gm
- Nalika choorna (Cinnamum tamala) – 1/64th part – 60 gm
- Amalaki choorna (Euphoria officinalis) – 1/64th part – 60 gm
- Haritaki choorna (Terminalia chebula) – 1/64th part – 60 gm
- Bhibhitaki choorna (Terminalis belerica) – 1/64th part – 60 gm
- Suchipushpa Moola Swarasa (Pandanus tectorus) – 1/64th part – 60 gm
- Vatankura (Leaf buds of Ficus bengalensis) – 1/64th part – 60 gm
- Water – 16 litre

2.4. INSTRUMENTS & EQUIPMENT

- Khalva Yantra (Pestle and mortar)
- Gas cylinder with stove and lighter
- Stainless steel vessels
- Spoon
- Cotton cloth/filter cloth
- Wide mouthed glass bottle for storage.

2.5. METHODS

2.5.1. PHARMACEUTICAL METHOD

Procedure of Moorcchana of Tila Taila (all explanatory figures are included at the end of the article)

- **Step 1:** Amoorcchita 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 Nishphena Bhava & Shaitya bhava of the oil.
- **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 Manjishtha and other drugs was mixed with little quantity of water to prepare Kalka (Paste). This Kalka was then added to the vessel and the boiling was continued with frequent stirring. Boiling was continued until all Sneha siddhi Lakshanas were attained. Later it was filtered through a clean cotton cloth and stored in wide mouthed glass bottle. The oil retained reddish colour (Aruna varna) after the process.

Precautions

- Mild to moderate heat was given throughout the Moorcchana procedure.
- Overflowing of oil was avoided for each time.
- During process, frequent stirring was done to avoid sticking of Kalka on to the bottom of the vessel.

2.5.2. ANALYTICAL METHOD

To study the effect of Moorcchana Samskara on the oil both the samples – Amoorcchita and Moorcchita tila taila 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.

**pH value:** The pH of the all the samples were determined by using pH strip method. 500 mg of each sample were taken & dissolved in 50 mL distilled water & pHs of all the samples were noted.
Loss on Drying at 110 °C: The Loss on drying determines the amount of evaporative material in the drug sample. 10 gm of each sample was taken in a special evaporating dish. Then it was kept into the oven for drying at 110 °C for 5 hrs. Later each sample was weighed again. This process of drying and weighing was continued until the difference between 2 successive weighings corresponds to not more than 0.25%.

Measurement of Specific gravity: A clean and dried 25ml capacity of specific gravity bottle kept in hot air oven was taken out and put into the desiccators. It was weighed empty first. Then it was filled with water and weighed again at room temp.

Again, the bottle was cleaned and dried in hot air oven and then was taken out into desiccator. *Amoorcchita and Moorcchita Tila Taila* samples were filled into the bottle up to the mark and weighed at the same temp.

Specific gravity of the sample = Wt. of Sample/ Wt. of Water = Weight of (oil) sample in gms/ weight of same volume of water at same temp in gms.

Determination of Refractive index: Abbe’s Refractometer was used to determine the Refractive Index. First the mirror of the Abbe’s Refractometer was adjusted to 45° C. Then the samples of *Amoorcchita and Moorcchita Tila Taila* were inserted in the prism box by using a pipette. After analyzing each sample refractometer was cleaned with petroleum ether followed by the distilled water. Different color bands were observed in the right eye piece. These color bands were removed with the help of compensator knob in such a way that only the black and white portion should be seen in the right eye piece. The black and white portion were accustomed to the cross wire with the help of lever. Finally, the result was noted on the scale through left eye piece. Both samples were analyzed in similar manner.

Measurement of Saponification value: Initially 500ml capacity of round bottom flask was fitted with a reflux condenser. Then 4gms of Taila (Oil) sample with 50ml of 0.5N KOH was taken into the round bottom flask. 2-3 pieces of pumice stones were put into the same flask and the mixture was boiled on water bath at 40 °C for 30 min. Then after it was taken out from water bath and 1 ml of phenolphthalein solution (indicator) was added to it. Titrations was done immediately with 0.5N HCl. The burette reading was noted. Process was repeated out without taking the samples of *Amoorcchita and Moorcchita Tila Taila* i.e., a blank test under same conditions and burette reading was noted. All the samples were analyzed by this method. Saponification value was determined as per following formula.

\[
\text{Saponification value} = \left\{ (b-a) \times 28.05 \right\}/W.
\]

\(*W=\text{Weight of the substance in gms.}\)

Determination of Acid value: First of all a solvent was prepared by adding 50ml alcohol and 50 ml ether in a container. Then 20 gms of each samples of *Amoorcchita and Moorcchita Tila Taila* were mixed in 100ml of solvent which was prepared earlier. Now 2 ml of Phenolphthalein indicator was added to it and titration was done with 0.1 N Sodium hydroxide (NaOH) until the solution remained faintly pink for 30 sec even after shaking. Finally the reading of the burette was noted. Acid value was calculated as per following formula Acid value = (N x 5.61)/W

\(*N=\text{Number of ml of 0.1NaOH required and } W=\text{Weight of sample in gms.}\)

Determination of Iodine Value:

- First an iodine flask was taken having capacity of 250 ml and was dried into hot air oven.
- Accurately weighed 5 gms of sample was placed into dry iodine flask.
- Carbon tetrachloride 10 ml was added into the iodine flask and dissolved slowly by shaking.
- 20 ml of iodine monochloride solution was added in the above mixture. It was allowed to stand in a dark place with the help of stopper at a temperature of about 170 °C for thirty minutes.
- Then 15 ml of solution of potassium iodine and 100 ml water was added into the iodine flask. It was shaked and titrated with 0.1 N sodium thiosulphate, using solution of starch as indicator.
- Note the number of ml of 0.1 N sodium thiosulphate required for titration (a).
- The operation was repeated in exactly the same manner, but without the sample being tested, and notes the number of ml of 0.1 N sodium thiosulphate required for titration (b).
- Calculate the iodine value from the formula:

\[
\text{Iodine Value } = (b-a) \times 0.01269 \times 100 \ \text{W}
\]

Where ‘W’ is the weight in g of the substance taken.

3. OBSERVATION
5. DISCUSSION

According to ancient Ayurvedic texts the primary intention of performing *Sneha Moorchhana* is to get rid off 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 *Moorcchana* decreases the acid value. *Moorcchana* helps in maintaining the necessary ratio of unsaturated and saturated fats suitable for human physiology.

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8. TABLES AND FIGURES

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Table 1: Modern Parameters
(Batch 1 - Amoorcchita Tila Taila & Batch 2 - Moorcchita Tila Taila)

Figure 1: Amoorcchita Tila Taila

Figure 2: Choorns of all Moorcchana drugs
Figure 3: Kalka of Figure

Figure 4: Frying of Kalka
Figure 5: Tila taila moorcchana

Figure 6: Sneha siddhi lakshanas
Figure 7: Filteration and bottling

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