

## **EFFECT OF MURCHHANA SAMSKARA IN THE PREPARATION OF MEDICATED OIL (BHRINGAMALKADI TAILA) WITH RESPECT TO NARIKEL TAILA**

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**Abstract:** Medicated oils are used in various therapeutic as well as cosmetic purposes. In Ayurvedic pharmaceuticals *sneha kalpana* is one of the important process in which ordinary oils are converted into medicated oils. For the preparation of medicated oils, various crude oils like castor oil, coconut oil etc. are primarily treated with some herbals following a specific working principle called *sneha murchhana*. The procedure causes effective removal of the rancidity factors (*amadosa*), and simultaneously remedial quality is enhanced. In this study, it is tried to substantiate the magnitude of this *murchhana* process for preparing medicated oils, over medicated oils prepared without following *murchhana* process. The oil media considered here is *Narikela taila* (coconut oil). It is observed that in the preparation of medicated oil used for upper clavicular diseases<sup>1</sup> namely *Bhringamalakadi taila*, *taila murchhana* plays a significant role. It causes alter in different quality control parameters liable for the nobility of the medicated oil preparations. The parameters like acid value, saponification value, specific gravity, refractive index are analyzed in the medicated oils, as well as in crude oils. All the analytical values obtained are discussed. We hope this will help the ayurvedic pharmaceuticals as well as researchers to more enlighten this ancient pharmaceutical process.

**Key words-** *Taila murchhana*, Iodine value, saponification value, rancidity factor, *sneha kalpana*.

### **Introduction:**

For preparing a medicated oil different crude oils like castor oil (*narikela taila*), *til* oil, mustard oil, coconut oil etc. are taken as base. Before using these oils as base of particular medicated oil, a special Ayurvedic treatment is given to that oil called *taila murchhana*. Through the *murchhana process* the oils are believed to leave the *amadosa* (rancidity factor), *durgandhata* (foul odour) hence shelf life of the medicine

prepared is enhanced along with therapeutic quality<sup>2</sup>.

Oil preparations manufactured in Ayurvedic pharmaceuticals are used for medicinal purposes and extended for cosmetic purposes. It is a very time tested effective techniques in Ayurvedic drug industry to achieve both fat soluble and water soluble extractives into the oil media. The basic oils taken for the preparation of any medicated oil are nonpolar in nature and may commonly contained

fixed oils, fatty acids (saturated and unsaturated), free acids<sup>3</sup> etc.. These oils are contained in, different undesired substances for therapeutic purposes and are more prone to *amadoshas* (rancidity factors). Also in contemporary period crude oils are found adulterated many where, for the shake of financial profit compromising with the dignity of business and health of the consumer.

The oil contains fatty acids, free fatty acids, glycerols etc. in different proportions in different oils. Hence the oil is subjected for chemical analysis like saponification value, measurement of fatty acids, free fatty acids etc. and for some physical characteristics there on like refractive index, specific gravity etc... In fact these values indicate the purity and quality of the oil in turn genuinity and quality of the medicine.

#### **Materials and Methods:**

For exposé of the importance of *taila murchhana* for preparation of medicated oil, *Bhringamalakadi taila*, is prepared taking *murchhita narikela taila* and ordinary *narikela taila*. Both the samples are subjected for different Physico-chemical analysis like refractive index, specific gravity, saponification value, and acid value.

#### **Materials:**

The following materials are taken for the analytical study

- *Amurchhita narikela taila*, collected from Market (Sample-1)
- *Murchhita narikela taila*<sup>4</sup> (Sample-2)
- *Bhringamalakadi taila* prepared taking *Amurchhita narikela taila*<sup>5</sup> (Sample-3)
- *Bhringamalakadi taila* prepared taking *murchhita narikela taila*<sup>5</sup> (Sample-4)
- Abbe's Refractometer
- Dropper
- Specific Gravity Bottles (Pycnometer, 25ml capacity)
- Weighing balance

- 0.5N Alcoholic KOH solution and 0.5N HCl Solution
- Round bottom flasks
- Reflux condensor
- Water bath
- Titration indicator (phenolphthalein)
- Burrate
- 0.1N NaOH solution
- Solvent Ether

#### **Methods:**

##### **A. Determination of Refractive Index<sup>6</sup>:**

The refractive index of a substance is the ratio of the velocity of light in vacuum to the velocity of light in the substance.

- At first the mirror of the Abbe's Refractometer was adjusted to 45 degree. Then while sample was inserted in the prism box by using a thin dropper.
- Various colour bands were observed in the right eye piece. Colour 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 are adjusted to the cross wire with the help of lever. Finally the reading was noted on the scale through left eye piece.

##### **B. Determination of Specific Gravity<sup>7</sup>:**

Specific gravity of a substance is the weight of the substance in grams at a specific temperature compared with the weight of the same volume of water in grams at a same temperature.

- A clean and dried 25ml capacity of specific gravity bottle (picnometer) was weighed empty. Then it was filled with water and weighed at room temp.
- Again the bottle was clean and dried then filled the oil sample up to the mark and weighed at the same temp.

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- The specific gravity was determined by dividing the weight of the sample in grams by the weight of the water in grams.

**Specific gravity of the sample =  
Weight of (oil) sample in grams/  
weight of same volume of water  
at same temp in grams.**

**C. Measurement of Saponification Value<sup>6</sup>:**

Saponification value of an oil or fat is defined as the number of milligrams of KOH required to neutralize the fatty acids resulting from the complete hydrolysis of 1 gm. of sample.

- At first 250ml capacity of round bottom flask is fitted with a reflux condenser. Then 2gms of oil sample with 25ml of 0.5N KOH was taken into the round bottom flask.
- Then 2-3 pieces of pumice stones were put into the same flask and the mixture was boiled on water bath at 40<sup>o</sup>c for 30 min.
- Afterward it was taken out from water bath and 1 ml of phenolphthalein solution (indicator) was added to it. Titration was done immediately with 0.5N HCl.
- The burrate reading was noted (a).
- The same procedure was carried out without taking the oil sample, i.e. a

**Observations:**

Sl.No.	Oil smple	Specific Gravity at 26 <sup>o</sup> c	Refractive Index at 28 <sup>o</sup> c	Saponification Value	Acid Value
01	Sample-1	0.9214	1.4630	268.580	1.120
02	Sample-2	0.9155	1.4635	266.570	0.336
03	Sample-3	0.9190	1.4650	269.475	1.008
04	Sample-4	0.9175	1.4645	266.980	0.336

The analytical results indicated specific gravity of *Amurchiita narikela taila* is 0.9214, which is decreased to 0.9155 in comparison to murchhita

blank test under same conditions and burrate reading was noted (b).

Saponification value was determined as per following formula.

**Saponification value = {(b-a) x56.1}/W**

\*W=Weight in gms of the substance.

**D. Measurement of Acid Value<sup>7</sup>:**

The acid value of an oil or fat is defined as the number of milligrams of alkali (NaOH) required neutralizing the free acid in 1 gm of the sample.

- A solvent is prepared by mixing 25ml alcohol and 25 ml ether. Then 10 gms of (oil) sample was mixed in 50ml of solvent prepared earlier.
- Then 1 ml of Phenolphthalien 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.
- Burrate noted the reading.

Acid value was calculated as per following formula

**Acid value = Nx5.6/W**

\*N= Number of ml of 0.1NaOH required

\*W =Weight of sample in gms of the substance.

*narikela taila*. The other analytical values like saponification value and acid value for *amurchhita narikela taila* are 268.580 and 1.120 respectively



which are decreased to 266.570 and 0.336 correspondingly in comparison to *murchhita narikela taila*. But the refractive index is insignificantly increased.

It is observed that specific gravity of *Bhringamalakadi taila* prepared with *Amurchiita narikela taila* is 0.9190, which is decreased to 0.9175 in same medicated oil, prepared with *murchhita narikela taila*. But the other analytical values like refractive index, saponification value and acid value for *Bhringamalakadi taila* prepared with *amurchhita narikela taila* are 1.4650, 269.475 and 1.008 respectively which are decreased to 1.4645, 266.980 and 0.336 correspondingly in the same medicated oil prepared with *murchhita narikela taila*.

#### **Discussions:**

Specific gravity of oils determines the solid to liquid ratio in oils. The *Bhringamalakadi taila* prepared with *murchhita narikela taila* (Sample-4) has lower specific gravity in comparison to *Bhringamalakadi taila* prepared with ordinary *narikela taila* (Sample-3). It indicates the thinness of the medicated oil sample -04 which may be due to heating during procedure.

The other analytical values like refractive index, saponification values and acid values are decreased, in comparison to the medicated oil prepared by taking ordinary *narikela taila* from market. These may happens due to the ancient *murchhana* technique adopted for preparation of medicated oils. During the *murchhana* process it is indicated to boil the oil with many herbal pastes, decoctions and juices along with prescribed amount of water.

More the acid values and Saponification values more will be the rancidity factor and less will be the self life and therapeutic value. Hence decreasing of these values will add benefit and augmented the acceptability of medicated oil preparations. Heating or boiling the oil is also an ancillary part which may cause decreasing of the rancidity factors because only heating itself causes the evaporation of any moisture contents. The herbal ingredients used during the *murchhana* process may play the significant role for decreasing of refractive index, saponification value and acid value in a crude oil. Theses may also cause for increasing the therapeutic values by adding many water soluble and fat soluble extractives to the initial oil which inclines to the healthy effect in the human system. Ultimately *murchhana* process reduces degree of saturation of oils and enhances degree of unsaturation which is beneficial for human health. Hence the medicated oil should prepared by taking the *murchhita* oil as base, rather than crude oil.

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