



## PHARMACEUTICAL AND ANALYTICAL STUDY OF BHRUNGARAJ TAIL

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### ABSTRACT

*Rasashastra* and *Bhaishajya kalpana* is the basic science of Ayurvedic pharmaceuticals. Now a days Ayurvedic preparations are commonly used and have become very popular. *Sneha kalpana* is described in *Bhaishajya kalpana* and it is found to be commonly used in day to day Ayurvedic practice. Now a days, common problems of hair like *Palitya* (greying of hair), *arushika* (dandruff) and *Khalitya* (hair fall) are seen. *Bhrungaraj tail* is a very effective preparation described in *Shandandhar Samhita*. The ingredients of this formulation are *Bhrungaraj swaras*, *Mandoor or Loha churna*, *Triphala kalaka*, *Sariva kalaka* and *Til tail*. It is indicated for *Palitya* (greying of hair), *Arushika* (dandruff) and *Khalitya* (hair fall). By considering such importance of *Bhrungaraj tail*, its pharmaceutical and analytical study

has been done. Analytical studies like Refractive index, viscosity, saponification value, acid value, peroxide value, free fatty acid of *Bhrungaraj Tail* have been performed.

**KEYWORDS:** Ayurvedic pharmaceuticals, *Sneha kalpana*, *Bhrungaraj tail*.

### INTRODUCTION

*Rasashastra* and *Bhaishajya kalpana* is the base of Ayurvedic Pharmaceuticals. These makes second *paad* of *Chikitsa*.<sup>[1]</sup> In *Bhaishajya kalpana*, *Vanaspatis* and *Jantavya dravya* are used to prepare *Pachavidha kashay kalpana* and other allied kalpana. *Sneha kalpana* is seen to be a very important and commonly used kalpana in day to day Ayurvedic practice.

Sneha kalpana is prepared by using 1 part of Kalka dravya, 4 parts of Sneha and 16 parts of Dravadravya.<sup>[2]</sup> There are two types of Sneha kalpana -Tail kalpana and Ghrit kalpana. In Shadandhar Samhita, it is described that the Sneha preparation should not be done in one day.<sup>[3]</sup> Bhrungaraj Tail is included under tail kalpana. Bhrungaraj tail is a very effective preparation described in Shandandhar Samhita. It is also described in Yogratanakar, Bruhat Nighantu Ratnakar, Bhaishajya Ratnavali for Kshudra rog.<sup>[4]</sup> Other references of Bhrungaraj tail are also found in Vriddha Madhav, Rasratnasammuchay, Bhaishajaya Ratnavali, Yogrtanakar, Gadnighraha for Netra rog.<sup>[5]</sup> It is prepared using Bhrungaraj swaras(Eclipta prostrata), Mandoor or Loha churna, Trifala kalaka(Haritaki- Terminalia chebula, Bibhitaki-Terminalia belerica, Amalaki- Phyllanthus emblica), Sariva kalaka(Hemidesmus indicus) and Til tail(Sesame oil). It is used for Palitya (greying of hair), Arushika(dandruff) and Khalitya (hair fall).<sup>[6]</sup> Bhrungaraj is described as keshya (useful for hairs) in Bhavprakasha.<sup>[7]</sup> Bibhitak is also described as keshya in Bhavprakasha.<sup>[8]</sup> Amalaki described as Rasayan, it prevents early whitening of hairs and hair loss as described in Dravyagunvidnyan.<sup>[9]</sup> The contents of Bhrungaraj are wedelactone, clomethyl wedelactone, dymethyl wedelactone, luteolin, heptacosanol and stigmasterol. Its methanolic extract has a potential of hair growth promoter, its extract promotes follicular enlargement and prolongation of Anagen phase.<sup>[10]</sup> Greying of hair, hair fall are very common problems. Hence present study regarding the pharmaceutical procedure and analytical findings of Bhrungaraj tail has been done.

## MATERIALS AND METHODS

### 1. Pharmaceutical Study

The preparation of *Bhrugaraj tail* was done as per the reference from Sharangdhar Samhita.<sup>[6]</sup>

### Selection of raw material

The ingredients were procured from local market, those were identified and authenticated.

### Contents of *Bhrugaraj tail*

#### 1. *Kalka*- 125 gm

### Dravyas used for kalka

1. Mandoor- 41.6 gm
2. Triphala kalaka - 41.6 gm
3. Sariva kalaka-41.6 gm

2. *Tail- Til tail -250ml*

3. *Drava dravya*

*Bhrungaraj swaras (Eclipta prostrata)- 2 litre.*

#### **Preparation of *Bhrungaraj tail***

**Preparation of *Bhrugaraj swaras-*** *Bhrugaraj swaras* was prepared by grinding the whole plant of *Bhrungaraj* in a mixer and grinder machine along with little quantity of water. Then it was squeezed through a cotton cloth.

#### **Preparation of *Kalka***



**Figure 1: Fruits of Haritaki, Bibhitaki and Amalaki.**

*Bharad churna* of *Aamalaki*, *Haritaki*, *Bibhitaki* fruits was taken and its *kalka* was prepared by adding water in small quantity to it. *Sariva kalka* was prepared by grinding it in a mixer. Then *kalka* of *Triphala* and *Sariva* were mixed with *Mandoor* and final *kalka* to be used was prepared.

#### **Preparation of *Bhrugaraj Tail***

*Til taila* was taken in a S.S.vessel. It was heated on a gas burner. Heating was stopped when there was phenodgam (appearance of foam) in *Taila*. After that, it was allowed to cool. Then the above prepared *kalka* was added to it. Then *Bhrungaraj swaras* was added to it. Mild heat was given with continuous stirring up to 6 hrs. Heating was stopped and the mixture was kept standing overnight.

Next day heating was continued till the mixture attained *sneha siddhi lakshana* i.e. *vartivat kalka, shabdahinoagninishipte and fenodgama*<sup>[11]</sup> and thereafter heating was continued till *khara pak lakshana* was seen. It took 2 hrs.



**Figure 2: Preparation of *Bhrugaraj Tail*.**

### **Determination of *Kaal* for the preparation of *Taila***

*Bhrungaraj* tail was prepared in 2 days.<sup>[3]</sup>

### ***Sneha siddha lakshan*<sup>[11]</sup> of tail**

Acharya Sharangdhar has mentioned following *sneha siddhi lakshan* of Tail-

1. *Vartivat sneha kalaka* after *anguli mardan*
2. Absence of *chatchat* sound after lodgement of *varti* on flame
3. *Phenoudagam*
4. *Gandha, varna utpatti* like that of its ingredients was found.

These signs were observed while the preparation of *Bhringaraj Tail*. But in this study, *kharapaka* of *Bhringaraj Tail* was expected, so heating was continued till *lakshan*(sign) of *kharapaka* was seen.

***Kharapaak lakshan***- It was determined by the sign of *Kathin kalka* as Acharya Sharangdhar has mentioned.<sup>[12]</sup>

## **2. Analytical study**

### **Refractive Index**<sup>[13]</sup>

It is ratio of the velocity of light in vacuum to its velocity in a specified medium. Density of sample compared to air and liquid media. In oily preparation it indicates concentration of a solute in an aqueous solution.

**Specific Gravity<sup>[14]</sup>**

It is also called as Relative density. It is ratio of density of substance to that of standard substance.

**Saponification Value<sup>[15]</sup>**

It is expressed by potassium hydroxide in mg required to saponify 1 gram of fat. Amount of alkali needed for saponification of given quantity of oil will depend upon number of Carboxylic acid group present.

**Acid Value<sup>[16]</sup>**

It shows presence of free fatty acid in the oil, which is responsible for rancidity of compounds.

$$\text{Free Fatty Acid} = \text{Rancidity}$$

This helps to decide the shelf life of the oil

**Iodine Value<sup>[17]</sup>**

Degree of unsaturation of oil-

↑ Unsaturation = ↑ Possibility of absorption and atmospheric oxidation leading to rancidity.

↑ Iodine Number = ↑ Unsaturated fatty acid bonds

Unsaturated fatty acid are better absorbed than saturated fatty acids.

**RESULT****Organoleptic tests.**

TEST	<i>Til Taila</i> <sup>[18]</sup>	<i>Bhrungaraj Taila</i>
Colour	yellowish	Greenish black
Appearance	viscous	viscous
Smell	Characteristic smell of <i>Til taila</i> .	Characteristic smell of <i>Bhrungaraj taila</i>
Touch	oily	oily
Taste	–	–
Clarity	clear	clear

**Chemical analysis of Bhrungaraj Taila.**

Sr no.	Parameters	Til taila <sup>[18]</sup>	Bhrungaraj taila
1.	Acid value	<2.0	1.48
2.	Free fatty acid	–	0.74
3.	Specific gravity	0.9160-0.9190 cp	0.92 cp
4.	Saponification value	188-195	188
5.	Iodine value	103	105.8
6.	Refractive index	1.4650-1.4665	1.512

## DISCUSSION

In this study, *taila* preparation was started and it was kept for one night and second day again the preparation was continued till the *siddhi lakshan* were seen as described in *Shadangadhar Samhita*. Keeping the *tail* preparation for one night may be causing increase the *guna* (quality) of the *tail* preparation. The colour of final product of *Bhrungaraj tail* was greenish black it may be due to the green colour of *Bhrungaraj swaras* and black colour of *Mandoor*. Hence it may be being useful for blackening of hair. The final product of *Bhrungaraj tail* is more thick than *til tail*, may be due to the active parts of ingredients which were added to it during the process of *tail paak vidhi*. In the *siddhi lakshan* of *Bhrungaraj Tail*, *vartivat kalka* was checked, it is indicative of complete evaporation of its water content.

There was no such change observed in saponification value and acid value of *Bhrungaraj taila* as compared to *Til taila*. Specific gravity is increased in *Bhrungaraj tail* as compared to *Til tail*, it is suggestive that relative density of *Bhrungaraj tail* is increased due to *Snehapak*. Iodine value is also increased in *Bhrungaraj tail*, indicating that there is increase in unsaturation which is indicative of better absorption quality of *Bhrungaraj tail* as compared to *til tail*.

In this study *khara paak* was done because in *Shadangdhar Samhita khara paak* has been indicated for external application.<sup>[19]</sup>

These observations suggest that *taila pak vidhi* affects physicochemical parameters of *sneha dravya*.

In present study, pharmacological and analytical findings of *Bhrungaraj tail* are studied. Such study can be done in various batches for its standardization. The purpose of standardisation of *Bhrungaraj tail* is to ensure its therapeutic efficacy since the active constituents may vary according to geographical source of drug.

## CONCLUSION

Present study concludes that *taila pak vidhi* affects the physico-chemical parameters of the *sneha dravya* i. e. *taila*. It definitely increases its properties and makes it liable to cure the indicated diseases. The analytical findings definitely help in building confidence in its use.

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