



PHARMACEUTICO-ANALYTICAL STUDY OF PUNNAGA TAILA MALAHARA

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ABSTRACT

Malahara kalpana is a kind of preparation included under *Bahya Kalpana* (external application). The word 'Malahara' because it removes *mala* (impurities) from *vrana* (wounds), *vidradhi* (abscess), *tvak vikaras* (skin diseases) etc. It has properties such as *ropana* (wound healing), *snehana* (oleation) and *varnya* (complexion enhancer) depending on the drugs used in its preparation. The drug *Punnaga* (*Calophyllum inophyllum*) in *taila* form has been exclusively used in folklore medicine in various disorders especially skin diseases such as *vyanga* (hyperpigmentation) etc. *Punnaga* has *sheeta-veerya* and is *kapha-pitta hara*. It is mentioned in *varnya dashemāni* in *Charaka Samhita*. *Acharya Sushruta* has categorized it under *Elādīgana* and is said to be *varna prasādana*, the use of these *Elādīgana* in treating *vyanga* has been carried out and fair results has been obtained in research area. Oil extracted from *Punnaga* is used topically in wounds, certain skin allergies, psoriasis, acne, dermatoses (diseases of skin) and for cosmetic purposes to cure dermal problems. A take home topical applicant feasible to common man is the need of the hour. Taking all this into consideration, here *Punnaga taila* is obtained in *Malahara* form because of its ease in application, better penetration, better retention and *Malaharas* basic property of enhanced action on application. Since globalization expects pharmaceutical standardization, an attempt is made in this present study to elucidate and unfold the mystery of the use of *Punnaga taila* in the folklore by accessing the Pharmaceutico-analytical study on the *Malahara* prepared by it.

Key words: *Punnaga taila Malahara*, *Calophyllum inophyllum*, Pharmaceutico-analytical study, *Vyanga*, Hyperpigmentation

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INTRODUCTION

Malahara kalpana is a kind of ointment preparation exclusively used in external application. It is used in many diseases like *bhangandara* (fistula in ano), *vrana* (wounds), *arsha* (hemorrhoids), *daha* (burning sensation) etc.

The drug *Punnaga* (*Calophyllum inophyllum*) in *taila* form has been exclusively used in folklore medicine in various disorders especially skin diseases such as *vyanga* (hyperpigmentation) etc [1]. *Punnaga* has *sheeta-veerya*. and is *kapha-pitta hara*. It is mentioned in *varnya dashemāni* in *Charaka Samhita* [2]. *Acharya Sushruta* has categorized it under *Elādigana* and is said to be *varna prasādana* [3], the use of these *Elādigana* in treating *vyanga* has been carried out and fair results has been obtained in research area [4]. Oil extracted from *Punnaga* is used topically in wounds, certain skin allergies, psoriasis, acne, dermatoses (diseases of skin) and for cosmetic purposes to cure dermal problems [5], [6]. A take home topical applicant feasible to common man is the need of the hour.

Punnaga (*Calophyllum inophyllum*) is an evergreen, moderately sized tree growing up to 25m tall. The bark is grey to brown coloured on the outside and pink on the inside. Leaves are simple, glossy and opposite in

arrangement. One large brown seed 2-4 cm in diameter is found in each fruit. Both the bark and seed of this drug has medicinal values in concern with skin diseases [5]. In *Ayurveda*, this drug has been mentioned in *Raja Nighantu* under *karaveeradi varga* and in *Kaiyadeva nighantu* under *Aushadhi varga* [7], [8]. It is said to have *varnya* property. Drugs having *varnya* property helps in the management of *vyanga* by pacifying the aggravated *doshas*. It is essential to produce a safe and efficient formulation

for the needy patients and henceforth, this medicine is opted for study owing to its ease in preparation and cost effectiveness.

AIMS AND OBJECTIVES

1. Preparation of *Punnaga taila Malahara* as per Standard method of *Malahara* preparation.
2. Pharmaceutico-analytical study of the *Punnaga taila malahara* to standardize the formulation.

MATERIALS AND METHODS

Collection

The raw drugs required for the preparation of medicine were freshly procured from Shobhavana, a unit of Alva's Ayurveda Medical College, Mijar. *Punnaga* seed oil and bee wax was procured from local market. The

authentication was done based on The ingredients used for preparation is organoleptic and morphological characters. depicted in table 1.

Preparation

Table 1: Ingredients

S.No	Ingredients	Botanical family	Family	Parts used	Quantity
1	<i>Punnaga</i>	<i>Calophyllum inophyllum</i>	Guttiferaeae / Clusiaceae	Bark	For <i>kalka</i> - 50g, For <i>kashaya</i> - 400g
				Seed oil	200ml
2	Water				3200ml
3	Bee wax				32ml

1. Preparation of *Punnaga* bark *Kalka*

50g *Kalka* (in fig 1) was prepared by pounding *Punnaga* bark well by adding required amount of water in *kalva yantra*.

2. Preparation of *Punnaga* bark *Kashaya*

Punnaga bark *Kashaya* was prepared taking 400g coarse powder of *Punnaga* bark adding 3200ml of water and reducing it to 800ml (in fig 2). The obtained liquid was filtered through clean cotton cora cloth and filtrate was collected as *Punnaga* bark *Kashaya*.

3. Preparation of *Punnaga* taila by *taila-paaka* method

Taila paaka was carried out in three days (in fig 4 and 5) by taking *kalka*, *Punnaga* seed oil and *kashaya* in ratio 1:4:16 (i.e 50g:200ml:800ml) respectively (in fig 3).

Punnaga seed oil was taken in a stainless steel vessel as the base oil and heated over mild flame till the complete evaporation of moisture, then the *Kalka* was added slowly and the mixture was stirred well, followed by the addition of *Punnaga* bark *kashaya* as *drava dravya*. Heating was continued over mild flame with constant stirring for proper mixing of the contents and to ensure that *Kalka* doesn't stick to the bottom of the vessel. On the first day, the heating process was carried out for the duration of 1 hour. The *taila* was kept undisturbed over-night and mouth of the vessel was covered with clean cloth. The following day, *taila* was heated over mild flame till the reduction of the contents with continuous stirring for about 4 hours. On

the next day, *taila* was heated over mild flame until the attainment of *Taila Paka Siddhi Lakshana*. The duration taken was 2 hours. Then the *taila* was filtered with a clean cotton cora cloth. The final quantity of *taila* obtained was measured to be 160ml. It was stored in clean air tight container.

4.Preparation of Punnaga taila Malahara

Obtained *Punnaga taila* from *taila paaka* preparation and bee wax was taken in the ratio 5:1 respectively (160ml:32g). *Punnaga*

taila in a vessel was heated over a large vessel containing water under mild fire, bee wax was added to it and the bee wax was allowed to melt completely (In fig 6). The obtained product was filtered through clean cotton cora cloth into another clean vessel and allowed to cool. Then, it was stored in an air tight container (In fig 7).

The formulation composition of *Punnaga taila Malahara* is depicted in table 2.

Table 2: Composition of Punnaga taila Malahara

S.No	Ingredients	Proportion	Quantity
1	Obtained Punnaga taila by taila paaka	5	160 ml
2	Bee wax	1	32 g

ANALYTICAL EVALUATION

The analytical aspect includes organoleptic evaluation and Physico- Chemical analysis.

1.Organoleptic Parameters

These tests were performed by using the sensory organs. The Organoleptic characters including *Rupa* (Color), *Gandha* (Odour) and *Sparsha* (Consistency) of the formulations were recorded.

Table 3: Organoleptic characters

Parameters	<i>Punnaga taila Malahara</i>
Odor	Characteristic
Color	Greenish yellow
Consistency	Smooth

Fig 1: Punnaga bark kalka



Fig 2: Punnaga bark Kashaya



Fig 3: Kalka, seed oil and bark kashaya of Punnaga



Figure 4: Preparation of Punnaga taila by Taila Paaka method



Figure 5: Taila paaka carried out in three days



Figure 6: Melting the bee wax in taila and filtering the product



Figure 7: Punnaga taila Malahara stored in an air tight container



Fig. 1 to Fig.7: Preparation of Punnaga Taila Malahara

2. Topical sensitivity test

The test was carried out to check any possibilities of developing skin irritation or any other adverse reaction by topical application of this formulation. The formulation was applied to the elbows in selected human volunteers and was observed for any side effects like skin inflammation, irritation, reddening of the skin etc.

3. Physico-chemical Parameters

The formulation was analysed for pH, Loss on drying, Total fat, Specific gravity, Refractive index, Spreadability at Alva's Traditional Medicine Archive & Research Centre, Vidyagiri, Moodabidre. All the tests were done as per the standard pharmaceutical laboratory process given in Laboratory guide for the analysis of Ayurveda and Siddha formulations [9].

Table 4: Physico-chemical profile

Parameters	<i>Punnaga taila Malahara</i>
pH	5.74
Loss on drying	12.1%
Specific gravity	0.653
Refractive index	More than 35 bricks
Total fat	13.86%
Spreadability	22 mm

Results

- The quantity of *malahara* obtained was 192g with characteristic odor, greenish yellow color and smooth consistency.
- The pH, Loss on drying, Specific gravity, Refractive index, Total fat, Spreadability are 5.74, 12.1%, 0.653, more than 35 bricks, 13.86% and 22mm respectively.

DISCUSSION

Raw drugs required for preparation were freshly obtained. *Punnaga* seed oil obtained

from local market was taken as base oil. *Taila paaka* was done as per classical *Taila paaka vidhi*. The *Malahara* was then prepared by adding bee wax and obtained taila in the ratio of 1:5 respectively. The colour of the final product was greenish yellow. The Organoleptic study of topical formulation is very necessary with regards to their physical stability. It provides evidence of physical instability if present in the product like formation of agglomerates, any discolouration, emulsion breakdown, shrinking due to the evaporation

of water etc. From the data of organoleptic study of the formulations, it is evident that all the parameters were found to be satisfactory. Analytical study revealed that the pH of the formulation was 5.74 which lies in the normal skin pH range (5 and 6.5). The pH affects solubility, stability, and can also have potential to cause skin irritation. Since the pH of the formulation was within the normal range, it was found to be safe. Spreadability is a measure denotes the extent of area to which the topical application readily spreads on application on the skin. Spreadability of the product was found to be 22mm. It shows the ointment is having fast spreading nature and is good for application. Loss on drying at 105°C indicates the presence of all the evaporating solvents along with water. Higher the moisture content, more will be the percentage of loss on drying of the substance.

CONCLUSION

Punnaga seed oil is exclusively used in folklore medicine for skin ailments. Present study focuses Pharmaceutico-analytical study on *Punnaga taila malahara*. *Punnaga* seed oil was taken as base oil and *taila-paaka* was carried out. The obtained *taila* was converted into a convenient form of *Malahara* with due consideration for enhancement of the shelf life, acceptability and better presentation of the product. This formulation was found to be

non-irritant. The other physico- chemical parameters were found to be in the satisfactory. The current data can be considered for future studies.

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CITE THIS ARTICLE AS

Shetty P. Vismitha, Raviprasad Hegde, Subrahmanya Padyana. Pharmaceutico-analytical study of Punnaga Taila Malahara, *J of Ayurveda and Hol Med (JAHM)*. 2022;10(3):25-32

Source of support: This study is a part of the project for which funds were granted by Rajiv Gandhi University of Health Sciences (RGUHS) under UG Short Term Research Project in the year 2021-22.

Conflict of interest: Declared