

COMPARATIVE PHARMACEUTICAL AND ANALYTICAL STUDY OF SURYAPAKI  
PRITHVISARA TAILA, I.E. WITH AND WITHOUT SODHANASreelakshmi.L<sup>1</sup>, Saran Babu<sup>2</sup>, Vikram S<sup>3</sup>

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## ABSTRACT

*Sneha Kalpana* is a unique dosage form in Ayurveda pharmaceuticals. The method of *Sneha* preparation is of two types: *Agnipaka Vidhi* and *Surya paka vidhi*. *Agnipaka vidhi Taila* preparations are more well-documented, whereas *Suryapaka vidhi taila* preparations are less and less documented. Methods: *Prithvisara taila* is told in *Chakradutta Kusta roga Chikista*. This *Taila* contains *Visha Dravya's*, contemplating this a pharmaceutical and analytical study was conducted on this *Taila* i.e. with two batches with and without *Shodhana*. Results: The analytical study of both batches of *Prithvisara Taila* is the same except for the peroxide value and saponification value, which is higher in the *Ashodhita* batch, which might affect their shelf life and more prone to Rancidity compared to the *Shodhita* batch. Conclusion: The outcome is that the *Shodhita Taila* have more shelf life compared to *Ashodhita Taila*

**Keywords:** *Prithvisara Taila, Suryapaki Taila, Chakradutta, Shodhita.*

## INTRODUCTION

*Sneha Kalpana* is a group of medicated *Taila*, *Ghrta*, *Vasa*, and *Majja* products. It is an effective and potent *Kalpana* that may contain water and fat-soluble

active principle. *Sneha Kalpana* is advised by both *Bahya* and *Abhyantara Prayoga*. *Snehapaka* can be done by *Agni Paka* or *Surya Paka*. *Suryapaka*, where

*Sneha* and *Kalka Dravyas* are kept in the sun's rays for a particular duration, i.e., till they attain *Sneha Siddhi Lakshana*.<sup>[1]</sup> This preparation is used in external applications, mainly in skin disorders and hair and scalp areas. As such, no specific *Siddhi Lakshanas* are mentioned, but few opine that the *Pa-tra*'s (vessel) colour should change after the proper *Paka*. Drugs having more volatile principles and *Rasa Dravyas* are commonly used in this method of *Paka*. *Snehas*, which are used for skin disorders, can be prepared by this method.

*Kushta* is one of the most common dermatological diseases affecting the world's population today. It is produced invariably by the vitiation of seven factors, including three *Doshas* and four *Dushyas*. Skin disorders constitute one of the most significant health problems in general practice and hospitals, so external application will be more effective for treating *Kusta*, *Vrana*, and internal medicine.

*Suryapaka Sneha* is used externally, especially in skin disorders, as this *Sneha* absorbs UV rays from the sun. The sun's Ultraviolet rays are made up of UVA and UVB rays. UVB rays are more effective in treating skin disorders because they penetrate more and help with rapid skin shedding and growth. It reduces inflammation of the skin.<sup>[2]</sup>

*Prithvisara Taila* <sup>[3]</sup> is one such *Surya paki Sneha* preparation. This *Taila* is mainly indicated in *Kusta*, *Vruna* and *Raktaja Vikara*. *Prithvisara Taila* contains five drugs, along with *Kanji*. *Karanja taila* is the base of this preparation. Here, all the ingredients are mixed and kept under the sunlight till *Sneha Siddhi Lakshana* is attained. Here, only "sabdhaheeno agnikshiptha" [4] can be noted as *Sneha Siddhi Lakshana* because of the presence of *Kanji*. As this preparation contains *Visha Dravya* contemplating, a pharmaceutical and analytical study was conducted with two batches of *Taila*, i.e. with and without *Sodhana* of the *Visha Dravyas*.

#### AIM AND OBJECTIVES

Prepare two batches of *Prithvisara Taila*, i.e., with *Sodhana* and without *Sodhana* of *Visha Dravya*, and carry out the analytical study of both batches.

#### MATERIALS AND METHOD

*Prithvisara taila* is one of the *Suryapaki Taila* mentioned in *Chakradutta*. Its uniqueness is in its method of preparation. Most of the *Suryapaki / Adhitya Paka Taila* will not contain *Drava dravya*, but here, the *Drava Dravya* is mentioned as *Kanji*. This *Taila* is mainly indicated in *Kusta*, *Vrana*, and *Raktaja Vikara*.

**Table 01: Shows the ingredients of *Prithvisara Taila***

Batch 1 – With <i>Shodhana</i>		Batch 2 – Without <i>Shodhana</i>	
Ingredients	Quantity	Ingredients	Quantity
<i>Suddha Vatsanabha</i>	144g	<i>Ashuddha Vatsanabha</i>	144g
<i>Suddha Karavira</i>	144g	<i>Ashuddha Karavira</i>	144g
<i>Nirgundi</i>	144g	<i>Nirgundi</i>	144g
<i>Chitraka</i>	144g	<i>Chitraka</i>	144g
<i>Nadicha Beeja</i>	144g	<i>Nadicha Beeja</i>	144g
<i>Karanja Taila</i>	1152g	<i>Karanja Taila</i>	1152g
<i>Kanji</i>	144g	<i>Kanji</i>	144g

#### Method of preparation

- All the dry drugs are washed well and pounded with the help of a pulveriser.
- Two required-sized vessels were taken and marked as Batch 1 and Batch 2.

- The powdered drugs were added, followed by the *Karanja Taila* and then *Kanji*.
- The ingredients were mixed well and kept under the sunlight at around 9 am and were kept out from the sunlight around 3 pm.
- Every 3-hr. interval mixing of the *Kalka* was done, and variation in the temperature pattern

was also noted with the help of an infra-red thermometer.

- The *Taila* will start separating from the *Kalka* at midday, but once mixing is done, it will again blend with the *Kalka*.
- The *Taila Siddhi Lakshanas* were examined every third day, i.e., *Agnipareeksha-Sabdhaheeno agninishkiptha* and organoleptic examinations were done.
- On the 14<sup>th</sup> day, the *Taila Siddhi Lakshanas* were attained for both batches, and the *Taila* extraction was done the next day.
- Both the *Taila* samples were sent for analysis.

#### Observation

- The oil was blended with the *kalka*, but once it reached midday, the oil started separating from the *kalka* in both batches.

- The oil starts separating from the *Kalka* but again disappears while mixing.
- The temperature pattern was noted, which ranged from 42°C to 64°C.
- Strong *Gomutra* smell felt in Batch 1 due to the presence of *Sodhita Vatsanabha*.
- The *Kalka's* colour turns darker brown around the 8<sup>th</sup> day.
- On the 14<sup>th</sup>, the *Kalka* became dark brown, and the *Agni Pariksha* got positive.
- The *Taila* was extracted on the 15th day. It was thick and difficult to extract using a hand and oil presser.
- Even after the extraction of the *Taila*, the remnants of *Kalka* particles were seen at the bottom of the vessel.
- The final product of *Taila* obtained was 915g for batch 1 and 902g for batch 2.

#### Results

**Table 02: Shows the organoleptic characters of *Prithvisara Taila***

Organoleptic characters	Batch 1	Batch 2
Colour	Brownish yellow	Brownish yellow
Odour	The characteristic smell of <i>Karanja Taila</i> with a Slight <i>Gomutra</i> smell	The characteristic smell of <i>Karanja Taila</i>
Consistency	Slightly thicker in consistency	Slightly thicker in consistency

**Table 03 shows the analytical reports of *Prithvisara Taila***

Tests	Batch 1	Batch 2
Acid value	19.62	18.36
Iodine value	83.06	74.55
Refractive index	1.480	1.482
Saponification value	197.03	199.77
Peroxide value	109.43	160.75
Viscosity	2,608	2,898
pH	5.23	4.98
Specific gravity	0.933	0.934

## DISCUSSION

*Taila Kalpana* is a unique dosage form where the active principal present in the drugs is brought into the *Taila* using other liquid media like water, Kashaya, Kanji, etc. Two methods of *Taila* preparation are told in the classics, which are *Agni Paka vidhi* and *Surya paka vidhi*. *Prithvisara taila* is one

such preparation that uses sunlight as a heat source. This preparation is also unique because most of the *Surya paka taila* contains no *Drava Dravya*, but *Prithvisara taila* contains *Kanji* as *Drava Dravya*. As the preparation contained *Visha Dravya's*, it was planned to prepare two batches of *Taila*, i.e. with *Shodhita* drugs and without *Shodhita* drugs and their analysis was carried out. *Sneha* is said to absorb UVB rays and become more effective in treating skin dis-

orders. UVB rays penetrate more and help with rapid skin shedding and growth. It helps to reduce the inflammation of the skin. Therefore, the medicine made in Sun Light is very effective for external use. *Shodhana* of *Visha dravya* is also an important procedure which makes the toxic drug useful for their therapeutic use. The fermentation process of kanji enhances its anti-inflammatory properties, helping to reduce redness, swelling, and irritation associated with *Kusta*. *Kanji* has a cooling effect, which helps in soothing irritated and inflamed skin, providing relief from itching and discomfort. The presence of urea, creatinine, carbolic acid, phenols, calcium, and manganese in *Gomootra* has potent antimicrobial and germicidal properties that are useful in treating *Kusta*. The pH of batch 1 is almost in the range of normal skin pH (5 to 6.5), which signifies that it won't cause skin irritation [5]. The presence of Gomutra in this sample might be the reason for this value. The acid value indicates the presence of free fatty acids [6]; higher fatty acid content of oils makes it faster rancid. The acid values of both batches were higher, which means that there are more chances of rancidification. Heat plays a contributing factor in accelerating the oxidation of the oil. Here, a variation in temperature pattern is noted, which might contribute to the increased acid value. The consistency of *Prithvisara taila* is higher than that of normal Agnipaka taila. *Kalka* was in contact with Taila for a longer duration, which led to a higher concentration of solutes in Taila. This might be the reason for the high viscosity. The high peroxide value shows that the oil can quickly go rancid [7] and has a short shelf life because of lipolytic hydrolysis and oxidative deterioration. The peroxide value decreases with an increase in temperature. The peroxide value of Batch 2 is higher compared to Batch 1, which indicates a higher chance of rancidification in Batch 2. The presence of *Shodhita* drugs in Batch 1 might be the reason for the low peroxide value in Batch 1. The saponification value is also a measure of oxidation [8]; saponification value is directly related to the rancidity factor. The saponification value of Batch 2 is slightly higher, which signifies chances of fast rancidity. The specific gravi-

ty indicates the relative density of the oil, which depends on the dissolved and suspended particles present in the oil. The presence of sedimentation in the base of the container in both batches indicates that the percentage of suspended particles was higher.

## CONCLUSION

*Sneha* is a pharmaceutical preparation through which water-soluble and fat-soluble active principles can be extracted from herbs. *Sneha paka* can be done by *Agni paka* or *Surya paka* methods, and by various methods of *Sneha paka*, the active components come into *Sneha*. *Suryapaki taila* is widely indicated for skin disease; here, the *Sneha* absorbs the UV rays, which facilitates the penetrating property of *Sneha*. UV rays help in the rapid shedding and growth of skin. *Prithvisara Taila* is mainly indicated for *Kusta*, *Vrana*, and *Raktaja vikaras*. The present study on *Pritvisara taila* from *Chakradutta* was carried out with two objectives. The first is the preparation of 2 batches of Taila, i.e. with and without *Sodhana* of *Visha Dravya*'s, and their analysis. Slight differences in the analytical parameters of both branches of *Taila* were seen. The analytical parameters like pH, peroxide, and saponification values are more in batch 2. This signifies that batch 2, i.e. without *Shodhana* of *Visha Dravya*'s, is more likely to get rid of comparison to Batch 1, which may, in turn, affect the shelf life. *Sodhana* plays a vital role in the pharmaceutical process of *Kalpna*. They mainly affect the preparation both therapeutically and analytically.

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