



Research Article

PHYSICO CHEMICAL ANALYSIS OF ASANAVILWADI TILA TAILAM AND ASANAVILWADI KERA TAILAM

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ABSTRACT

*Taila Kalpana*- A liquid dosage form of Ayurveda used for both external and internal application has an important role in clinical practice. *Asanavilwadi taila* is a preparation mentioned in *Sahasrayogam taila prakaranam* and in *Chikitsa manjari Siro roga chikitsa*. It is used in the treatment of diseases of eye, ear and head and found to be very effective. Based on the data collected about the production of *Asanavilwadi tailam* from various manufacturing companies, it was noted that large amount of *Asanavilwadi tila tailam* and *Asanavilwadi kera tailam* are produced. In the present scenario there is increase in the number of manufacturing companies, increased production of formulations and there is decreased availability of raw drugs. So, it is necessary to confirm the genuinity of formulations available in the market. But *Asanavilwadi tailam* has not been standardized yet in API. This work was initiated to develop a standard analytical parameter for *Asanavilwadi tila tailam* and *Asanavilwadi kera tailam*. *Asanavilwadi taila* is prepared both in the media of *Tila taila* and *Kera tailam* as both samples are used for clinical practice and physico-chemical analyses were done. Standard analytical protocol proposed by Pharmacopoeial Laboratory of Indian Medicine (PLIM) and Ayurvedic Pharmacopoeia of India were taken as the study tool.

INTRODUCTION

*Sneha Kalpana* is an Ayurvedic contribution that guarantees that the active therapeutic elements of the raw drugs are transformed into *Sneha*. *Sneha Kalpana* with terms as *Sneha* referring to fat or fatty substance and *Kalpana* referring to the pharmacological practice of creating medicaments. *Sneha Kalpana* is a pharmaceutical procedure that involves preparing oleaginous medicaments in a precise proportion from ingredients such as *Kalka*, *Kwatha*, and *Dravadravyas* by exposing them to a specified temperature and time. *Sneha Kalpana* is a great example of secondary *Kalpana*, since it combines three fundamental *Kalpanas*: *Swarasa*, *Kalka*, and *Kwatha*.

Typically, *Ghritha* or *Taila* are employed as extraction media, with *Vasa* and *Majja* being utilized in exceptional circumstances.

*Sneha Kalpana* mainly consists of *Ghritha Kalpana* and *Taila Kalpana*. Preparation of *Taila Kalpana* is similar to that of *Sneha Kalpana* in general, as *Kalka*: 1 part, *Taila*: 4 parts, *Drava dravya*: 16 parts.

*Asanavilwadi tailam* is used for external application. It is used for the ailments of eye, ear and head. *Asanavilwadi tailam* is mentioned in *Sahasrayogam taila Prakaranam*<sup>[1]</sup> and *Chikitsa manjari Siro roga chikitsa*<sup>[2]</sup>. The ingredients of *Asanavilwadi taila* includes the herbal decoction, *Kashaya* having ingredients as, *Asana*, *Bilva*, *Bala*, *Amrita* and herbal paste ingredients, *kalka* as *Madhuka*, *Nagaraka*, *Amalaki*, *Vibheetaki*, *Hareetaki*. Processed in *Go ksheera* and prepared in the medium of *Tila taila/Kera taila* (coconut oil).

In the present work, 3 consecutive samples of *Asanavilwadi tila tailam* and *Asanavilwadi kera tailam* were prepared separately. These samples were subjected to physicochemical analyses and analytical profile were developed.

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**AIM AND OBJECTIVE**

**Aim:** To evaluate physico chemical analysis of *Asanavilwadi tila tailam* and *Asanavilwadi kera tailam*.

**Objective:** To develop an analytical profile of *Asanavilwadi tila tailam* and *Asanavilwadi kera tailam*.

**MATERIALS AND METHODS**

The raw drugs, *Asana*, *Vilwa*, *Bala*, *Amrita*, *Amalaki*, *Hareethaki*, *Vibheethaki*, *Yashti* and *Sunti* were subjected to analytical tests and compared with API parameters. Organoleptic evaluation, microscopy as well as powder microscopy of raw drugs of the formulation were also done.

*Tila taila* samples were gathered from three distinct manufacturing facilities and subjected to analytical tests and sample that matched API and AGMARK standards the best was chosen. Similarly, samples of *Kera tailam* from three distinct manufacturing facilities were subjected to analytical tests and the *Kera tailam* sample that fitted the AGMARK criteria the best was picked. *Asanavilwadi tailam* consists of ten ingredients such as *Asana*, *Vilwa*, *Bala* & *Amrita* for *Kashaya* and *Amalaki*, *Hareethaki*, *Vibheethaki*, *Yashti* and *Sunti* for *Kalka*. And *Ksheera* is also added. The preparation is made in both medium *Tila tailam* and *Kera tailam* as base. 41.6gm of *Kalka*

was mixed with 1000ml of *Kashaya*. The mixture was slowly added to the 250ml *Tailam* contained in the vessel. The mixture of *Tailam*, *Kashaya* and *Kalka* were properly mixed with the help of clean and dried steel ladle. The *Paka* was done under *Mandagni*. The mixture was stirred continuously throughout the process to prevent the adherence of *Kalka dravya* to the base of vessel. The stirring was continued until *Mridu paka* was attained as the *Kalka* looks waxy when rolled in between index finger and thumb. On attaining *Mridu paka*, 250ml milk were added and stirred properly. Preparation was again continued under *Mandagni* with frequent stirring and *Kalka* was constantly checked for *Paka lakshanas*. The *Paka* was continued till *Khara paka*, i.e., *Kalka* became brittle when rolled in between fingers. Then the stove was turned off and the *Taila* was filtered through a clean cotton cloth into a dried and cleaned vessel and stored in a clean air tight container.

- 3 consecutive samples of *Asanavilwadi taila* were prepared separately and was labelled as P1, P2, P3.
- 3 consecutive samples of *Asanavilwadi kera taila* were prepared separately and was labelled as P4, P5, P6.

**Table 1: Ingredients of *Asanavilwadi tila tailam* and *Asanavilwadi kera tailam***

Ingredients	Quantity	Parts used
<i>Asana</i>	62.5g	Heart wood
<i>Vilwa</i>	62.5g	Root
<i>Bala</i>	62.5g	Root
<i>Amrita</i>	62.5g	Stem
<i>Amalaki</i>	8.32g	Pericarp
<i>Hareethaki</i>	8.32g	Pericarp
<i>Vibheethaki</i>	8.32g	Pericarp
<i>Sunti</i>	8.32g	Rhizome
<i>Yashtimadhu</i>	8.32g	Root
<i>Ksheera</i>	250ml	
<i>Tila tailam/Kera tailam</i>	250ml	

The prepared sample were analysed as per PLIM; organoleptic study, specific gravity, wt./ml, acid value, iodine value, saponification value, peroxide value, refractive index, HPTLC and microbial contamination were done.

**RESULTS AND DISCUSSION****Table 2: Result obtained after preparation of *Asanavilwadi tila tailam***

Observations	P1	P2	P3
Initial quantity of <i>Tila tailam</i>	250ml	250ml	250ml
Final product obtained	220ml	236ml	236ml

**Table 3: Result obtained after preparation of Asanavilwadi kera tailam**

Observations	P1	P2	P3
Initial quantity of kera tailam	250ml	250ml	250ml
Final product obtained	240ml	240ml	240ml

**Table 4: Results obtained after analysis of Tila tailam and Kera tailam**

S.No.	Parameters	Values	
		Tila Tailam	Kera Tailam
1.	Wt./ml	0.859	0.865
2.	Specific gravity	0.911	0.916
3.	Refractive index	1.466	1.450
4.	Saponification value	190.21	324.90
5.	Iodine value	105	9
6.	Acid value	2.28	1.92
7.	Rancidity	Not rancid	Not rancid

**Table 5: Developed analytical profile of Asanavilwadi tila tailam and Asanavilwadi kera tailam**

Parameters	Asanavilwadi tailam	Asanavilwadi kera tailam
Colour	Dark brown	Light brown
Odour	Characteristic smell	Characteristic smell
Texture	Smooth	Smooth
Wt./ml	0.879	0.883
Specific gravity	0.913	0.917
Refractive index	1.467	1.450
Saponification value	198.78	324.94
Iodine value	103.56	9.17
Acid value	5.2	4.71

All the prepared AST and ASK samples exhibited a higher wt./ml than the raw oil, indicating that the processed oil had grown denser than the raw oil. Specific gravity of prepared sample of AST and ASK were within standard limit and were higher than the raw *Tila taila* and *Kera taila* taken. Hence it can be said that the density of the oil is increased as the density of the substance is directly related to specific gravity. Refractive index of prepared samples was within the limit, which implies the authenticity of the samples. Saponification value is the average molecular weight (or chain length) of all the fatty acids present as triglycerides in the sample. Saponification value and molecular weight of an oil are inversely proportional to each other. High saponification value indicate that the fat is made up of low molecular fatty acid and vice versa. Saponification value of the prepared samples of AST were slightly raised from the raw *Tila taila* taken and were within limit indicates the stability of the oil. Saponification value of prepared ASK samples were fairly similar to raw *Kera taila*. Acid value is a parameter used to determine the rancidity of oils. In rancidification due to oxidation, triglycerides are

converted into glycerol and free fatty acids, leading to an increase in acid value. Acid value of the prepared sample, which lies within the standard limit of acid value of *Tila tailam*. Prepared samples of ASK show higher acid value than the raw *Kera taila* & within the standard limit. Iodine value is the degree of unsaturation. Iodine value of prepared AST and ASK samples fall within the standard range of Iodine value of sesame oil and coconut oil respectively, which ensures the shelf life of oil. At the commencement of the study, Kreis test was done to check the rancidity of the samples. All the prepared samples were found to be free from rancidity. Under 254nm and 366nm all the prepared samples showed similar Rf values indicate the presence of similar chemical constituents. All the prepared samples were subjected to microbial tests and found to be free from microbial contamination.

#### CONCLUSION

By assessing physicochemical parameters of prepared samples of *Asanavilwadi tila tailam* and *Asanavilwadi kera tailam* an analytical profile was developed. For a future view standpoint, analytical

data for specific gravity, refractive index, acid value, saponification value and iodine value might be regarded as standard values. HPTLC can be taken as the fingerprint of the formulation.

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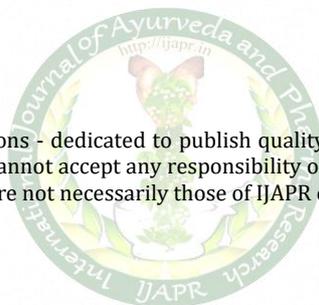
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**Figure 1: Raw Drugs of Asanavilwadi tila tailam and Asanavilwadi kera tailam (a) Asana (b) Vilwa (c) Bala (d) Amrita (e) Yashti (f) Hareethaki (g) Vibheethaki (h) Amalaki (i) Sunti (j) Kera taila (k) Tila taila (l) Ksheera**



Figure 2: Prepared samples of *Asanavilwad tila tailam* and *Asanavilwad kera tailam*



Figure 3: HPTLC of AST and ASK samples at 254nm

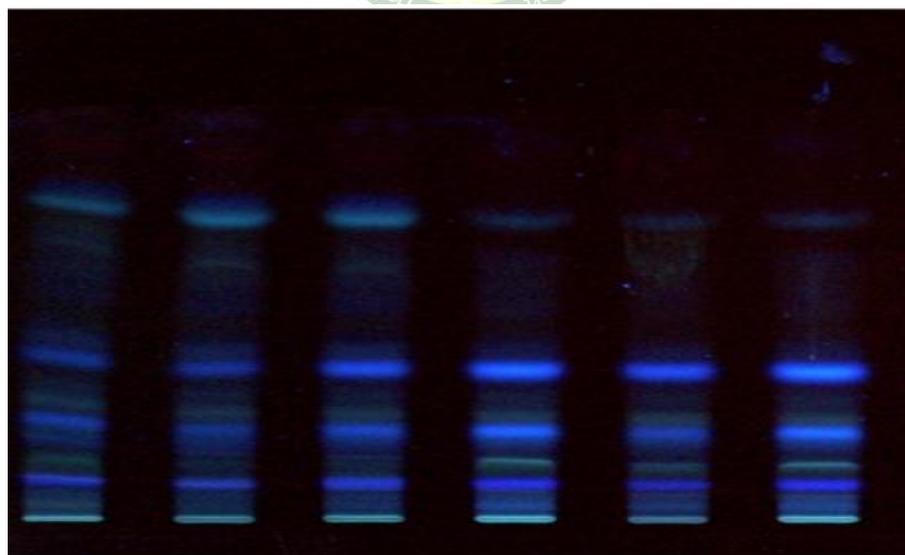


Figure 4: HPTLC of AST and ASK samples at 366nm