

## THE PHARMA INNOVATION - JOURNAL

# Standardization Of Sahacharadi Taila – A Compound Formulation Used In Medicated Enema Therapy (Basti Karma)

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Sahacharadi taila is a poly herbal formulation widely used in Ayurveda clinical practice with multi fold benefits, specifically to management of Gridhrasi (Sciatica). There are no work on record on the standardisation aspect of this formulation though individual herbs used for the preparation has been studied. This study highlights physico-chemical characterization, HPTLC and densitogram profiling of Sahacharadi taila which can be applied for authentication of this poly herbal formulations. Sahacharadi Taila was prepared according to Snehapaka Vidhi i.e. Tila Taila and Kwatha were taken into liter (volume) and ratio of Kalka, Sneha and Kwatha was 1:4:16. first 1 part of kalka of Sahachara (*Barleria prionitis*), Nagara (*Zingiber officinalis*), Devadaru (*Cedrus deodara*), 4 parts Tila Taila and 16 part Kwatha of Sahachara, Devadaru and Nagara were taken then the mixture was boiled on mild flame and stirred well continuously during its preparation. The Taila Paka was done in the method of five days. After the whole preparation of Taila it was filtered and preserved in container and subjected for detailed physico-chemical and HPTLC analyses. Sahacharadi taila herbs were compounded and set of physico-chemical characteristics was derived to serve as diagnostic parameters to identify this polyherbal formulation. HPTLC fingerprint profile which can serve as an important fingerprint for the identification of the formulation has been proposed.

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**Keyword:** Sahacharadi Taila, Poly Herbal Formulation, HPTLC.

### 1. Introduction

Ayurveda, the Indian system of medicine is the first recorded medical science widely practiced in India since ancient times. In recent years there is global revolution worldwide towards acceptance of this holistic science owing to its effectiveness and safety. The increasing demand at the global level has created great need to standardize herbal medicines. The earliest references of drug standardizations are mentioned in Ayurveda classics under the speciality of *Bhaishajya Kalpana* and *Rasa Shastra* which exclusively deal with drug formulation and manufacturing. Most of the tests described in ancient literature

appear to be based on observations and seems to be subjective without valid scientific backing. Hence standardization and development of reliable quality protocols are important <sup>[1]</sup>.

Devadaru is Kapha, Vatashamaka having the properties like Vedana Sthapana, Shothahara, Kusthaghna, Kaphanisaraka, Vranashodhana, Vranaropana. It is used in Mutra Roga, Krimi Roga, Sthaulya, Jwara <sup>[2]</sup>.

Nagara is Kapha-vatashamaka useful in the conditions like Shwasahara, Shothahara, Shulahara. Internally it is digestive <sup>[3]</sup>.

Sahachara is also Kapha-vatashamaka having the properties like Vedana Sthapana, Shothahara,

Kusthaghna, Kaphanisaraka, Vranashodhana, Vranaropana. It is used in Mutra Roga, Krimi Roga, Sthaulya, Jwara <sup>[4]</sup> Which is used in combination.

Sahacharadi Taila which is mentioned by the Vagbhata containing three drugs among them all are having the Ushna veerya and Kapaha-Vatashamaka properties. It is indicated where there is difficulty in lower limb causing the altered gaits <sup>[5]</sup>.

## 2. Materials and Methods

### 2.1 Plant Materials

Required plant medicines were first identified and authenticated by experts at SDM Ayurveda Pharmacy, Hassan.

### 2.2 Tested at SDM research centre Udupi

#### 2.2.1. Instrumentation and Techniques

##### A. Refractive index

Place a drop of water on the prism and adjust the drive knob in such a way that the boundary line intersect the separatrix exactly at the centre. Note the reading. Distilled water has a refractive index of 1.3325 at 25 °C. The difference between the reading and 1.3325 gives the error of the instrument. If the reading is less than 1.3325, the error is minus (-) then the correction is plus (+) if the reading is more, the error is plus (+) and the correction is minus (-). Refractive index of oil is determined using 1 drop of the sample. The correction if any should be applied to the measured reading to get the accurate refractive index. Refractive index of the test samples were measured at 28 °C.

##### B. Weight per ml

It is obtained by dividing the weight of sample , by 10, contained in the 10 ml relative density bottle.

##### C. Determination of Acid value

Weighed 10 g of ghritha in a conical flask. Added 50 ml of acid free alcohol-ether mixture (25 + 25 ml) previously neutralised by the addition of 1 ml of Phenolphthalein solution and titrated against 0.1N Potassium hydroxide solution. End point was the appearance of pale pink colour which

persists for 15 sec. Repeated the experiment twice to get concordant values.

$$\text{Acid value} = \frac{56.1 \times \text{Titre} \times \text{Strength of Potassium hydroxide}}{\text{Weight of the Oil / Fat}}$$

##### D. Determination of Saponification value

About 2 g of the substance was weighed in tared 250 ml round bottom flask. 25 ml of the alcoholic solution of KOH was added and a reflux condenser was attached. Kept it for boiling on water bath for 1 hr, the contents of the flask was rotated frequently. The flask was cooled and 1ml phenolphthalein solution was added and excess of alkali titrated with 0.5 N HCl. The number of ml (a) required was noted. The experiment was repeated with the same quantities of reagents in the same manner omitting the substance. The number of ml required (b) was noted. The experiment was repeated twice to get concordant values.

$$\text{Saponification value} = \frac{56.1 \times (b-a) \times \text{Strength of Hydrochloric acid}}{\text{Weight of the sample taken}}$$

##### E. Determination of Unsaponifiable matter

Weighed 5 g of the substance into the flask. added 50ml alcoholic KOH into the sample. Boiled gently but steadily under reflux condenser for one hour. The condenser was washed with 10 ml of ethyl alcohol and the mixture was collected and transferred to a separating funnel. The transfer was completed by washing the sample with ethyl alcohol and cold water. Altogether, 50ml of water was added to the separating funnel followed by an addition of 50 ml petroleum ether. The stopper was inserted and shaken vigorously for 1 minute and allowed it to settle until both the layers were clear. The lower layer containing the soap solution was transferred to another separating funnel and repeated the ether extraction six times more using 50ml of petroleum ether for each extraction. All the extracts were collected in a separating funnel. The combined extracts were washed in the funnel 3 times with 25 ml of aqueous alcohol and shaken vigorously. And drawing off the alcohol-water layer after each washing. The ether layer was again washed repeatedly with 25 ml of water until

the water no longer turns pink on addition of a few drops of Phenolphthalein indicator solution. The ether layer was transferred to a tarred flask containing few pieces of pumice stone and evaporated to dryness on a water bath. Placed the flask in an air oven at 85 °c for about 1 hour to remove the last traces of ether. A few ml of Acetone was added and evaporated to dryness on a water bath. Cooled in a desiccator to remove last traces of moisture and then weighed.

### F. Sample preparation for HPTLC

Sample obtained in the procedure for the determination of unsaponifiable matter is dissolved in 10 ml of chloroform.

### G. HPTLC

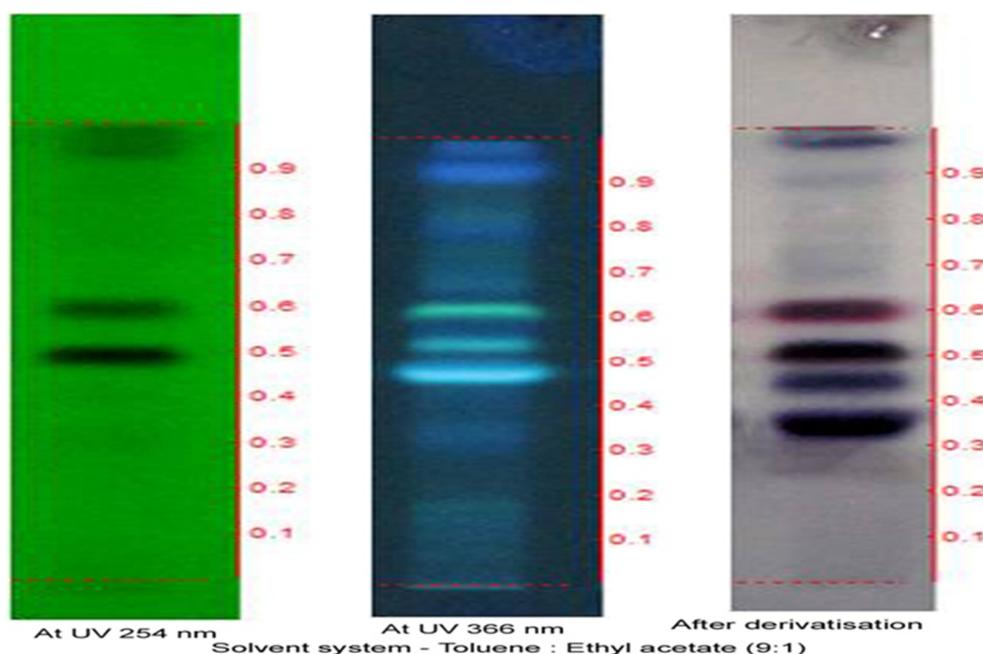
15 µl of the above sample was applied on a

precoated silica gel F254 on aluminum plates to a band width of 8 mm using Linomat 5 TLC applicator. The plate was developed in Toluene – Ethyl acetate (9:1) and the developed plates were visualized and scanned under UV 254 and 366 nm, after derivatisation in vanillin-sulphuric acid spray reagent. R<sub>f</sub>, colour of the spots and densitometric scan were recorded.

### 3. Results

**Table 1:** Results of standardization parameters

Parameter	Sahacharadi taila
Refractive index	1.47017
Weight per ml	0.916
Acid value	14.233
Saponification value	228.050
Unsaponifiable matter %	1.665



**Figure 1.** TLC photodocumentation of unsaponifiable matter of sahacharadi taila (15 µl)

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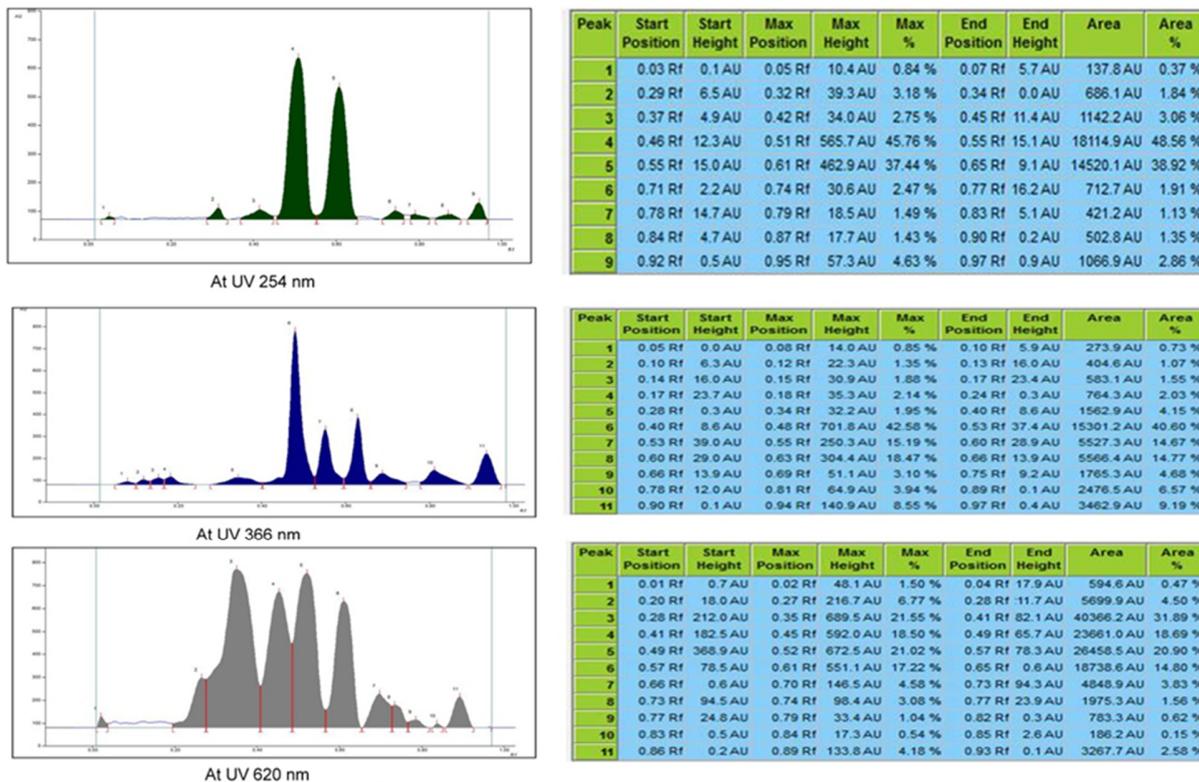


Figure 2. HPTLC Densitometric scan

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