


Research Article
FORMULATION AND DEVELOPMENT OF ARKA TAILA CREAM- A MODIFIED DOSAGE FORM OF ARKA TAILA
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ABSTRACT

Skin diseases comprise a large proportion of patients approaching clinics and hospitals. *Arka taila* is an Ayurvedic preparation for *Kandu* (itching), *Pama* (scabies), *Vicharchika* (eczema). It is mentioned in various classical books of Ayurveda like *Sharangadhara samhita vangasena samhita* etc. To make the *Taila* form, it was decided to convert it in to cream form without compromising on its efficacy. In the present study *Arka taila* was prepared by classical methods and its cream was prepared by modern parameters. Initially 3 litres of *Sarshap taila* was taken as raw material and yield of *Arka Taila* was 2.815L. 1.985kg of *Arka Cream* was prepared from it. The pharmaceutical process reveals that a good quality *Arka Taila* can be easily prepared by taking caution about various stages occurring during the *Sneha-Paka* and by paying attention to the *Sneha-Siddhi-Lakshanas*. Furthermore, preparation of a stable, effective and good consistency emulsion was formulated in the form of *Arka cream*.

KEYWORDS: *Arka Tail, Vicharchika, Sarshap taila, Sharangadhara samhita, Cream.*
INTRODUCTION

In Ayurveda pharmaceuticals, *Panchavidha Kashaya kalpanas* are considered as fundamental preparations. In addition to these there are preparations like *Avaleha, Sneha, Vati, Sandhana kalpana* etc are mentioned in classics that add to the vast compendium of formulations that have more shelf life. *Arka taila* is mentioned in various classical texts like *Sharangadhara samhita, Vangasena samhita*^[1] etc. For the present study *Arka taila* mentioned in *Sarangdhara Samhita*^[2] was found as a good choice. *Arka taila* contains ingredients like *Arka Patra, Haridra* and *Sarshap Taila* and is indicated in various skin disorders including *Vicharchika*. Considering a better patient acceptability of modified dosage forms it was decided to convert *Arkataila* in to cream form. Because they are non-sticky, requires low energy during formulation, are stable and have aesthetic value.

OBJECTIVES

The present pharmaceutical study was planned with the following aims and objectives:

- ❖ To prepare *Arka taila* according to classical texts under proper SOP and SMP conditions.
- ❖ To prepare *Arka taila* cream as per the standards of modern cosmetics.

- ❖ To compare SOP & SMP of *Arka taila* according and its cream for better quality oleaginous medicinal substance.

MATERIALS

Materials and methods used in this preparation are based on availability, feasibility in classical indication of *Rasashastra*, traditional value and expert opinions. All the raw materials were procured from the N.I.A. pharmacy.

METHODS
Preparation of Arka Taila

The recipe of *Arka taila* contains the following drugs:

(A) *Kalka Dravya*

Table 1: Showing drug for Kalka

S.N.	Ingredients	Total Quantity of drug
1.	<i>Haridra</i>	750gm

(B) *Sneha Dravya*

Sarshapa taila- 3 kg.

(C) *Drava Dravyas*

Arka patra swarasa - 12 kg.

Method of Preparation**Preparation of Kalka**^[3]

For preparation of *Kalka* the *Haridra* was weighed 750g, was washed properly with distilled water, subjected to coarse powder and ground with an edge runner electrical grinder by adding little amount of water constantly till the drugs attained *Kalka* form.

Preparation of Swarasa^[4]

Fresh leaves of *Arka patra* 18kg washed properly with distilled water and was grinded with an edge runner electrical grinder by adding little amount of water constantly till the drug became in *Kalka* form. The paste was squeezed through a sterile cloth and 12 liters of *Arka patra Swarasa* obtained.

Preparation of Arka Taila

The *Sarshap taila* was kept in a 20liters stainless steel vessel and kept on fire, heated properly to evaporate the moisture present in the oil. This stage was confirmed by dipping a wet mango leaf which turns brittle. Then allow it to cool. Then the *Kalka* was slowly and gently added.

12liters of *Arka patra swarasa* was added to the mixer and kept on fire and subjected for slow heat till the water content got evaporated. During the process different stages such as *Amapaka*, *Mridupaka*, *Madhyamapaka* and *Kharapaka* stages were recognized and the temperature of these stages was recorded. They are as follows:

(1) *Amapaka* - 60°C - 62°C(2) *Mridupaka* - 97°C - 98°C(3) *Madhyamapaka* - 98°C - 99°C(4) *Kharapaka* - 105°C - 106°C

In *Ama paka* stage the liquids are in heterogeneous stage. The *Kalka* and the oil contain water. The liquid resembles an emulsion. In *Mridu paka* stage the oil became free from water and appeared homogenous. Water was present in the paste and thus it has sticky character. When examined by keeping *Kalka* on fire it produced crackling sounds. In *Madhyama paka* stage both *Kalka* and *Taila* were free from water. When *Kalka* was rolled between fingers, it formed *Varti* and both oil and *Kalka* when kept on fire it failed to produce sounds. The end point was appearance of massive foam in the vessel. In *Khara paka* the paste became hard and sandy, Due to total absence of moisture *Kalka* tends to form *Varti*.

It was observed that the oil develops smell and colour of a particular vegetable and other ingredients used. The sample was collected at *Khar paka* stage of *Taila paka* and stored in a well closed narrow container and subjected for further use.

Preparation of Arka taila Cream**Ingredients**

The *Arka taila* cream comprised of ingredients as given table 2.

Table no 2. Showing ingredients for of Arka taila cream (2 kg.)

S.N.	Ingredients	Uses	Quantity in gm.	Quantity in %
1.	<i>Arka taila</i>	Active ingredient	500 g	25 %
2.	Bee Wax	Thickening/ Emollient	25 g	1.25 %
3.	Emulsifying Wax	Emulsifying agent	50 g	2.5 %
4.	Parafin Wax	Base ingredient	25 g	1.25 %
5.	Cetostearyl alcohol (Ginol 1618)	Emulsifying agent	30 g	1.5 %
6.	Cetyl alcohol	Thickening agent	20 g	1 %
7.	Stearic acid	Emulsifier	30 g	1.5 %
8.	Glycerol Monostearate (GMS)	Emulsifier	40 g	2 %
9.	Isopropyl Myristate (IPM)	Emollient	60 g	3 %
10.	Methyl Paraben Sodium (MPS)	Preservative	10 g	0.5 %
11.	Distilled water	To formulate phase I (Water Phase)	1500 g	75 %

Procedure**Preparation of Phase 1 (Aqueous Phase)**

Phase 1 (Aqueous Phase) was prepared by heating distilled water and MPS on a heating mantle in a glass beaker maintaining the temperature at 80°C - 85°C.

Preparation of Phase 2 (Oil Phase)

Phase 2 (Oil Phase) was formulated by, firstly talking the active ingredient which was heated upto 80°C - 85°C. When the oil was hot the bees wax,

Parafin Wax and emulsifying Wax were added one by one each time after the previous got completely dissolved. Thereafter, Cetostearyl Alcohol (Ginol 1618) was added followed by Glycerol Mono stearate, Cetyl Alcohol, Stearic Acid and lastly the Isopropyl Myristate (IPM) and slowly with glass rod to mix.

Mixing of Phase 2 into Phase 1 (Making Emulsions)

Both the glass beakers containing Phase 1 and Phase 2 were removed from the heating mantle

and brought to same temperature. Then Phase 2 (Oil Phase) was mixed into Phase 1 (Aqueous Phase) slowly with continuous stirring with a homogenizer at equal temperature of both Phases. The mixer of both Phases was stirred continuously for 25 to 30 minute maintaining a decreasing temperature from 80°C to 50°C until a homogenous mixture was obtained. After the formulation became cool and kept aside for 24 hours to allow the formulation to set before packing.

Pictures of Pharmaceutical Study



Sarshap taila and Haridra kalka



Arka patra swarasa



Arka Taila



Arka Taila Cream

OBSERVATIONS AND RESULTS

On observation the color of the *Sarshap taila* was yellow colour, the *Kalka* was greenish white, and the oil was floating on the mixture of *Arka patra Swarasa*, and water in the beginning of the preparation. After some time oily *Swarasa* emulsion was observed, this is *Ama paka* stage. The oil collected at this stage was slurry with greenish cloudy in appearance^[5]. At *Mridu* and *Madhya paka* stage homogeneity of oil was observed. The color of the oil was found pale yellow, the degree of colour was found dark green in succeeding stages. The smell at the *Ama paka* was oily and green in *Mridu*, *Madhya* and *Khara paka*. It observed to have pleasant smell. The *Kalka* at the beginning stage was whitish green and light hard on touch. At *Mridu paka* stage the *Kalka* was soft and containing water, *Kalka* produced

sound when kept on fire. At *Madhya paka* – the *Kalka* was soft and free from water. At *Khara paka* stage the *Kalka* was turned to snuff colour, having hard and sandy consistency. Initially oil taken was 3lt and final weight was 2815ml. The decreased in weight of the oil was due to soaking of oil by the *Kalka* and subjected to test during ensuring various test.

Table 3: Showing initial and final weight and loss of oil

S.N.	Initial Amount of Sarshap Taila	Medicated oil obtained	Loss of Oil
1.	3 Litre	2815ml.	185ml.

Water and oil both were heated simultaneously on two heating mantles by maintaining the temperature at 80°C to 85°C. Bees

Wax, Parafin Wax and Emulsifying Wax were added first into the hot oil because they have higher melting points than the rest of the ingredients and rest of the ingredients were added one after another after the previous ingredient got completely dissolved. Finally, a soothing, moisturizing, soft, good rub-in, non-greasy, nice skin-feel emulsion was obtained.

Results: Light green colored *Arka Taila* Cream obtained.

Final Cream weight = 1985g, Loss = 15g

Table 4: Showing Physico-Chemical Parameters of Arka Taila Cream

S.N.	Parameters	Observations
1.	Consistency	Viscous, Semi - Solid
2.	Colour	Light green
3.	Odour	Characteristic
4.	Touch	Non-Greasy, Soft, smooth

DISCUSSION

In this study *Arka Patra Swarasa* was prepared as per the reference in *Sharangadhara Samhita*. The fresh *Arka* leaves were weighed, washed and soaked in 2litres of water for 30 minutes which were later subjected to steam to soften the leaves. Leaves were then grinded and filtered through double layered cotton. The obtained *Swarasa* were 12 litres from 18kg *Arka* leaves.

Arka Taila was prepared by developing SOP and SMP. The preparation was done as per the reference from *Sharangadhara Samhita* following the general dictum for the ratio of 1/4th:1:4 respectively i.e., 750g of *Kalka* was taken; *Sarshap Taila* 3L and 12L *Arka Patra Swarasa* was taken. The preparation was carried out under Good Laboratory Practices. *Haridra* was used as *Kalka dravya*. There was *Drava dravya* used *Arka patra swarasa*. Whole *Sneha Paka* was carried out on *Mandagni*. In the present study LPG was used as heating device. The process of general classical *Sneha-paka* was adopted to prepare *Arka Taila* but the *Sarsahp Taila* was not subjected to *Murchana* a preliminary treatment done to the *Sneha* so as to remove its impurities and *Ama dosha*. In ancient texts (*Brihatrayee* and *Laghutrayee*) there were no suggestion about the preliminary treatment of *Murchana*, which however seems to have been introduced some-time later (*Bhaishajya ratnavali*). In view of this, in modern practice there is a difference of opinion amongst the Ayurvedic exponents whether *Murchana* is a necessity or not for preparing medicated oil or ghee. The previous workers H.C Tiwari et.al and K.S. Rao et.al suggest that *Murchana* is not necessary for preparing the *Sneha Kalpana*. And also as seen in the Kerala practice the *Murchana* isn't followed while preparing this oil. During the

process different stages such as *Ama paka*, *Mridu Paka*, *Madhama Paka* and *Khara paka* stages were recognized and temperatures of these stages were recorded^[6]. They are as follows:

(1) *Ama Paka*- 60°C -62°C (2) *Mridu Paka*- 97°C -98°C (3) *Madhya Paka*- 98°C -99°C (4) *Khara Paka*- 105°C-106°C. It took total 3 days to complete the *Paka* until *Siddhi lakshana* were noticed. After confirmation of *Siddhi-Lakshana*^[7] the oil was immediately filtered with a sterile cotton cloth while in very hot condition to avoid loss. Viscous dark green color oil with characteristic odor was obtained. The final yield obtained for *Arka Taila* was 2815ml. The reason for decrease was due to the testing of *Sneha Siddhi Lakshana* at various stages and some amount of *Taila* was absorbed by the *Kalka dravya* to some extent due to handling loss and sticking to the utensils. The yield is satisfactory because they were filtered immediately in very hot state. Observations show that continuous stirring is recommended to avoid *Kalka* from sticking vessel and getting burnt. Maintaining *Mandagni* throughout the process is very essential lest the *Kalka* and oil gets burnt. Also monitoring of *Siddhi-Lakshanas* time to time is very essential to avoid the *Taila* from going beyond the desired *Paka*. Caution is to be taken regarding identification of the particular stage of *Paka*, because the time between *Siddhi Lakshanas* and the different stages of *Pakas* is quite short. Obtained oil was subjected to physico-chemical analysis to ascertain physico-chemical standards.

In the preparation of *Arka taila* Cream 2 phases viz. Phase I (Water Phase) and Phase II (Oil Phase) were prepared separately which were then mixed together. Phase I (Water Phase) was prepared by heating distilled water 1500g and MPS 10g in a glass beaker on a heating mantle maintaining the temperature at 80°C - 85°C. Phase II (Oil Phase) was formulated by firstly heating the active ingredient *Arka Taila* 500g, maintaining temperature at 80°C - 85°C. When the oil was hot the Bees Wax 25g, Parafin Wax 25gm, Emulsifying Wax 50g, Cetostearyl Alcohol (Ginol 1618) 30g, Glycerol Monostearate 40g, Cetyl Alcohol 20g, Stearic Acid 30g, and Isopropyl Myristate (IPM) 60g were added one by after each previous ingredient melted completely with continuous stirring with glass rod to mix well maintaining the temperature at 80°C - 85°C. After both the phases were ready Phase I and Phase II were removed from the heat source and brought to an equal temperature. Then Phase II (Oil Phase) was mixed into Phase I (Water Phase) slowly with continuous stirring with a homogenizer upto 25 mins to 30mins maintaining a decreasing temperature from 80° C to 50° C until a thick homogenous texture

obtained. After the formulation became cool and kept aside for 24 hours to allow the formulation to set before packing. The final yield of *Arka taila* Cream weighed 1985g with a loss of 15g (3%). The loss was due to handling and sticking onto the equipments during process and also due to little amounts used for checking the consistency time again during the process. A light green colour emulsion due to the presence of green colour in *Arka Taila* having got its green colour from the *Arka Patra Swarasa (Calotropis)* leaves, a soothing, nourishing, moisturizing, soft, good rub-in, non-greasy, nice skin-feel light green color emulsion obtained with semi-solid and viscous consistency and characteristic odor cream was obtained. No any synthetic color was used. To make the formulation more effective maximum part i.e., 25% of active (500g) was decided to be used for this dosage form. Since this was a double phase preparation Phase II (Oil Phase) was mixed into Phase I (Water Phase) with continuous stirring with a homogenizer to obtain a homogenous emulsion of *Arka taila* cream.

CONCLUSION

Arka Taila is frequently used formulation for all skin disorders. *Arka Taila* and its modified forms Cream was prepared as per modified reference under good laboratory practices in the departmental laboratory of NIA, Jaipur by establishing proper SOP and SMP. The pharmaceutical process reveals that a good quality *Arka Taila* can be easily prepared by taking caution about various stages occurring during the *Sneha-Paka* and by paying attention to the *Sneha-Siddhi-Lakshanas*. Furthermore, preparation of a stable, effective and good consistency emulsion was formulated in the form of *Arka taila* cream. The oil

preparation process was carried out for 3 days to complete the *Paka* until *Sneha-Siddhi Lakshana*.

A total yield 2815ml of *Arka Tail* was obtained with cream was prepared, having the yield of 1985g and 15g loss.

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