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

Bhupender Kumar1*, Amit Kumar Sharma2, Reetesh Ramnani2, Subhash Yadav3, Sakhitha K.S4, K. Shankar Rao5

1*P.G.Scholar, 2Ph. D Scholar, 3Phytochemist, 4Lecturer, 5Professor & H.O.D, P.G. Department of Rasashastra & Bhaishajya Kalpana, NIA, Jaipur (RAJ.)India.

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 vangasa 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. 1.985 kg 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 pharmaceutics, 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 etc. For the present study Arka taila mentioned in Sarangadhara Samhita 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

| S.N. | Ingredients | Total Quantity of drug |
|------|-------------|-----------------------|
| 1.   | Haridra     | 750gm                 |

(B) Sneha Dravya
Sarshapa taila - 3 kg.

(C) Drava Dravyas
Arka patra swarasa - 12 kg.

Table 1: Showing drug for Kalka
Preparation of Kalka

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

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 Swasrasa 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:

| S.N. | Ingredients                  | Uses                | Quantity in gm. | Quantity in % |
|------|------------------------------|---------------------|-----------------|---------------|
| 1    | Arka taila                   | 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    | Ceto stearyl 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 %          |

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

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 upto80°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, Ceteosteryl 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](image1)
![Arka patra swarasa](image2)
![Arka Taila](image3)
![Arka Taila Cream](image4)

**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

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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 2 litres 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 *Mandragni*. 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 *Sarshap 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 are 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[10]. 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* 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 (Gino 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 a homogenizer upto 25 mins to 30mins maintaining a decreasing temperature from 80⁰C to 50⁰C 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 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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