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Pharmaceutico-Analytical study of *Karanjadi Taila* and its conversion into cream

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ABSTRACT

Karanjadi Taila is medicated oil used in Ayurveda for *Indralupta* (Alopecia). *Indralupta* comes under *Kshudra Roga* which is characterized by loss of hair it can be correlated with Alopecia areata which is having chief complaint of hair loss on body especially on scalp. The aim of the present study is to do physic-chemical standards for the above *Taila* and its conversion into *Karanjadi Taila* cream. These two formulations have a special importance from pharmaceutical point of view when compared to usual *Tailas* or cream. In present article, we are trying to study analytical results of *Karanjadi Taila* w.s.r. to *Karanjadi Taila* cream.

Key words: *Karanjadi Taila, Karanjadi Taila Cream, Indralupta, Cream, Taila.*

INTRODUCTION

Rasashastra and Bhaishajya Kalpana is one of the branch of Ayurveda in which all methods of Ayurvedic medicine purification, formation, dose, indication is available. *Taila Kalpanas* are the unique formulations of Ayurveda treatment which are prepared by using oil as base. *Tailas* are useful for both *Bahya* and *Abhyantar Chikitsa.* The aim of the present study was to do physico-chemical standards for *Karanjadi Taila* and *Karanjadi Taila* cream. *Karanjadi Taila* is medicated oil used in Ayurvedic system of medicine for *Indralupta* (Alopecia). The drugs used in *Karanjadi Taila* are *Karanja Patra* (*Pongamia pinnata*), *Karvira Patra* (*Nerium indicum*), *Jati Patra* (*Jasminum officinale*), *Chitraka Patra* (*Plumbago zeylanica*). Acharya Sharangadhara has explained *Karanjadi Taila* in the context of *Sneha Kalpana Adhyaya* of *Madhyama Khanda.* The method of preparation is explained as the general *Sneha Paka* method. Acharya has also mentioned the use of *Tila Taila* as *Sneha Dravya.*

Pharmaceutical study is the study of drug manufacturing. In treating an ailment, the first and foremost thing is preparation of the drug should be proper.

Analytical study deals with the analysis of the values of some physical constants and chemical values of the prepared formulation. Analytical study is a framework for quality improvement. Common Analytical tests adopted for *Sneha Kalpana* are Acid value, Saponification value, Iodine value, pH, Refractive index, etc.

AIM

Pharmacetico Analytical study of *Karanjadi Taila*[1] and its conversion into cream.

OBJECTIVES

1. Identification of raw Materials
2. Authentification of raw Materials.

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3. Study literature of *Sneha Kalpana* and cream preparation.
4. To prepare *Karanjadi Taila* and *Karanjadi Taila* cream.
5. Analytical study of *Karanjadi Taila* and *Karanjadi Taila* cream

Materials and Methods

Fresh leaves of *Karanja, Jati, Karvira, Chitraka* collected from botanical Garden of our institute. *Tila Taila* was taken from local market. Authentic ingredients were used in the preparation of *Karanjadi Taila*. The preparation of a standard sample of *Karanjadi Taila* is as per the Sharangdhar Samhita. The samples were prepared under the supervision of our unit head.

Preparation of *Karanjadi Taila*

Table 1: Ingredients of *Karanjadi Taila*

SN	Raw Drug	Part used	Quantity
1.	*Karanja* (*Pongamia pinnata*)	*Patra*	15gm
2.	*Karvira* (*Nerium indicum*)	*Patra*	15gm
3.	*Jati* (*Jasminum officinale*)	*Patra*	15gm
4.	*Chitraka* (*Plumbago zeylanica*)	*Patra*	15gm
5.	*Tila Taila* (*Sesamum indicum*)	Oil	250 ml
6.	*Jala* (water)	-	1000ml

Oil was prepared by the reference of *Taila Paak Vidhi*[2] mentioned in Sharangdhar Samhita Madhyam Khanda.

1. *Kalka*[3] was prepared by using fresh leaves of *Karanj, Jati, Karvir, Chitrak.*
2. *Kalka* of all leaves 1 part, 4 parts of *Tila Taila* and 16 parts of water were added to it. Then it was heated on mild flame till the *Siddhi Lakshanas* of *taila* appeared (*Sneha Siddhi Pariksha* is done to confirm that there is no water content left in *Sneha* and it is ideal to use as medicine.)
3. There are three *Sneha Siddhi Lakshana*[4]
   a) *Fen Pariksha* - Foam (fen) starts coming on *Taila*.
   b) *Varti Pariksha* - When the *Kalka* is rubbed in between the fingers of the hand *Varti* forms.
   c) *Shabda Pariksha* - When *Sneha* is dropped on flame it get burn without any noise like chat.
4. Finally, *Sneha* was filtered with clean cloth and kept in air tight container.

Preparation of *Karanjadi Taila* Cream[5]

Karanjadi Taila cream was prepared using *Karanjadi Taila* according to the procedure mentioned in A textbook of cosmetic formulations as given in Table 2.

Table 2: Composition of *Karanjadi Taila* Cream.

SN	Raw Drug	Quantity taken	Quantity obtained
1.	*Karanjadi Taila* (Base)	30 ml	105 gm
2.	E wax (Emollient)	8 gm	
3.	Stearic acid (Lubricant)	8 gm	
4.	Glycerin (Humectants)	10 ml	
5.	Distilled water (Vehicle)	60 ml	
6.	Preservative	0.5 gm	

E-wax, Stearic acid and water are heated to a temperature of about 85-90°C in a separate container. Preservatives should be dissolved in water before heating of mixture. This is mixture A. *Karanjadi Taila* is added to glycerin. This is mixture B. Mixture B is added to mixture A then it is mixed thoroughly after cooling of Mixture A.

Observations

- After continuous stirring of Mixture, A and Mixture B, it starts emulsifying and Semisolid constituency cream was obtained.
- 105 gm of Light dull Yellow coloured *Karanjadi Taila* Cream was obtained.

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Evaluation[6]

The prepared *Karanjadi Taila* & *Karanjadi Taila* cream was analyzed in authenticated laboratory.

To evaluate the formulations prepared, quality control tests including organoleptic assessment and physicochemical controls such as Refractive index, Acid value, Iodine Value, Saponification, Unsaponifiable matter, pH, Specific gravity were performed.

Physical appearance inspection

The formulations prepared (oil and cream) is evaluated in terms of their Appearance, color, odour, Taste, clarity.

Importance of Moisture content of oil

The moisture content is important indicator of shelf life of many raw materials and products. More the moisture percentage more chances of decay of product. Moisturein inappropriate amounts and places is very damaging.

Importance of pH

pH is an indicator of acidity and alkalinity. Acidic pH inhibits the growth of bacteria. The pH of the skin is slightly more acidic and should be around.

Importance of refractive index of oil

The refractive index of any medium gives the ratio of the speed of light in vacuum to the speed of light in that medium.

Importance of acid value of oil

The acid value (AV) is a common parameter in the specification of fats and oils. It is defined as the weight of KOH in mg needed to neutralize the organic acids present in 1g of fat and it is a measure of the free fatty acids (FFA) present in the fat or oil.

Importance of iodine value of oil

The most important application of the iodine value is to determine the amount of unsaturation contained in fatty acids. This unsaturation is in the form of double bonds which react with iodine compounds. The higher the iodine value, the more unsaturated fatty acid bonds are present in a fat.

Importance of Saponification of oil

Saponification is the hydrolysis of fats or oils under basic conditions to afford glycerol and the salt of the corresponding fatty acid. It is important to the industrial user to know the amount of free fatty acid present, since this determines in large measure the refining loss.

Specific gravity (Weight per millimeter)

Is the weight in g of 1 ml of a liquid when weight in air at 25°C. Unless otherwise specified.

Unsaponifiable Matter

The term "unsaponifiable matter" refers to those substances present in oils or fats that are not saponifiable by alkali hydroxides and are determined by extraction with an organic solvent of a solution of the saponified substance being examined.

Importance of Spreadability

Spreadability of semisolid formulations, that is, the ability of a cream or gel to evenly spread on the skin, plays an important role in the administration of a standard dose of a medicated formulation to the skin and the efficacy of a topical therapy.

RESULTS

Tila Taila taken was 250ml and final product obtained was 240 ml.

Analytical test of *Karanjadi Taila* and *Karanjadi Taila* Cream was done and results are given in table 3 and 4 respectively.

Table 3: Analytical values of *Karanjadi Taila*

Test	Result
Appearance	Clear Oil
Color	Light blackish Yellow
Odor	Characteristic
Refractive Index @ 40° c	1.462

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Specific Gravity	0.9235 gm/ml
Saponification Value	180
Unsaponification Matter	1.5 %
Iodine Value	114
Acid value	1.8
Ph	6.1

Table 4: Analytical values of *Karanjadi Taila* Cream

Test	Result
Appearance	Semisolid soft cream
Color	Light dull Yellow
Odor	Aromatic
Texture	Shiny & Smooth
Specific Gravity	0.9828 gm/ml
Ph	6.2
Moisture content	0.78%
Spreadability	Uniformly Spreadable

DISCUSSION

Raw materials procured from authentic source that give optimum result as it reflects in physicochemical analytical studies of raw materials. All raw materials pass the Ayurvedic pharmacopeia standards. Physicochemical parameters are selected as these are the minimum parameters required to evaluate the quality of *Taila* preparations.

An Oranganoleptic study shows that appearance, odour and touch is acceptable to go for further analysis and clinical use. Physico-chemical analysis results show that prepared oil was physical & chemical stable and help to maintain the consistency of *Madhyampak* as it required for Local application.

Tila Taila is used as a base for preparation of oil. In *Karanjadi Taila - Karanj, Karvira, Jati, Chitrak* were the main constituents which are *Katuvipaka* and *Ushnavirya*. By virtue of these properties, it is *Kaphavata Shamaka.* Additionally, *Jatitikta, Kashaya* in *Rasa* so it is *Pittashamaka* too. *Tila Taila* is *Madhura Ushna* and *Tridoshashamaka*. *Karvira* and *Chitraka* also possess the properties of *Swedajanana* and *Karanja* is mainly used in skin disorders and *Jatiirakta Prasadana*.[7]

Karanjadi Taila is unique formulations designed by our Acharyas for the management of symptoms of *Indralupta*. *Indralupta* (Alopecia) comes under *Kshudra Roga* which is characterized by loss of hair it can be correlated with Alopecia areata which is having chief complaint of hair loss on body specially on scalp associated with itching for which the main line of treatment is explained as *Abhyanga* (external application). If we look into the general method of preparation of any *Snehan Dravya*, it is said that the preparation of *Snehan* should not be completed in a single day and the reason behind this may be explained in terms to extract all the active principle.

The Analytical values of *Karanjadi Taila* are presented in Table 3. *Karanjadi Taila* cream appearance is semi solid soft cream, colour light dull yellow, pH of cream is 6.2, Spreadability of cream is Uniform Spreading. The indications of both *Karanjadi Taila* and *Karanjadi Taila* cream are said to be in the symptomatic management of *Kandu* and *Khalitya* associated with *Indralupta*. Clinical study of *Karanjadi Taila* and *Karanjadi Taila* cream can be done on patients and is analytically found to be safe for external use.

CONCLUSION

The formulated cream has the entire expected efficacy which was mentioned in literature of *Karanjadi Taila*. As the *Karanjadi Taila* is working against *Indralupta*. Oils play an important role in preserving the structure of the skin. We need both oils and water in order to hydrate the skin efficiently. So the aim of cream preparation is to provide alternative to oil. Analytical parameters show it is safe for external application.

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