e-ISSN: 2456-4435
April- June 2019 | Vol. 03rd | Issue: 2nd
International Journal of Research in Indian Medicine

Pharmaceutico Analytical study of Dhustur Tail & its conversion into cream.

Harshal J. Shende*[1], Gangaprasad Asore[2], Sachin sheth[3]

1. PG Scholar,
2. Associate Professor,
3. Associate Professor,

P.G Dept. of Rasashastra, APM's Ayurved Mahavidyalaya, Sion, Mumbai, Maharashtra, India

***Corresponding author:**

Ethical approval: Approved by the Institutional ethics committee

Conflict of Interest: None declared

Sources of Funding: None

Date of Submission: 27/02/2019.

Date of Peer Review: 22/03/2019.

Date of Acceptance: 29/03/2019.

Date of Publishing: 09/04/2019.

Name of Publication: *Dudhamal Publications (OCP) Pvt. Ltd.,* Chembur, Mumbai, Maharashtra, India

Abstract:

The knowledge of herbal medicines is gaining widespread acceptance at global level. Ayurveda, is a branch of science in which almost all medicinal preparations are derived from plants. Since ancient times, people are well aware with the concept of beauty and cosmetics. Importance of herbal medicines is mentioned in various ancient classical texts. *Dhustur*, one of the classical drugs of herbal origin, is used for the management of different disease conditions. *Ayurvedic* literature *Bhaishajya Ratnavali* has mentioned about *Dhustur Tail*.It is medicated oil used in Ayurveda for *Asthi-Sandhi graha* vinashanam, *Asthi-Sandhi* graha is caused by vitiated *Vata Dosha, kapha dosha or Aaam dosha*.

Today we are living in the world of cosmetics. To sustain in this world, we should develop alternate form of drug which will be safe, bioactive, easily available and potent. Asoils alone cannot restore the elasticity and flexibility of our epidermis. Therefore, considering our skin barrier composition, we need both oils and water in order to hydrate the skin efficiently. So, Oil can be converted into cream which will increase its ease and shelf life.The present study is about the preparation of *Dhustur* cream and its comparative Physico-chemical study with *Dhustur* oil. In this study conversion of oil into cream is done as it is easily acquired by society.

Keywords: *Dhustur* tail, *Dhustur* cream, *Asthi sandhi graha*, cream, tail, *Dhustur*, Ayurveda

Introduction:

Ayurvedic science is one of the most ancient science existing on earth since its origin. Importance and significance of Indian herbs is known worldwide since long back. The aim of the present study was to do physico-chemical analysis for *Dhustur* Tail and *Dhustur* tail cream. *Dhustur* Tail is a medicated oil used in Ayurvedic system of Medicine for *Asthi-Sandhi graha*.[1] The drug used in *Dhustur* Tail is Dhattura Stramonium. Classical book *Bhaishajya Ratnavali* has explained *Dhustur* Tail in the context *Bhaishajya Ratnavali* parishistam *Kapharog chikitsa* prakaranam[2]. The method of preparation is explained as the general *Sneha Paka* method[3]. They have mentioned the use of *katu* Tail as *Sneha dravya*.

A cream is a preparation usually used for application to the skin. Creams are semi-solid emulsions of oil and water. Oil-in-water creams are more comfortable and cosmetically acceptable. This is because they are less greasy and more easily washed off using water. Creams are a mixture of oils and water, while oils, as the word suggests are oils as they do not contain any water. It is clear that oils play an important role in preserving the structure of the skin. However, new data reveals that oils alone will not restore the elasticity and flexibility of our epidermis. Furthermore it has been demonstrated that occlusive oils, like petroleum jelly, increase rapid hydration but it is only a 'quick fix' as within three hours the skin's composition appears unbalanced.

Therefore, considering our skin barrier composition, we need both oils and water in order to hydrate the skin efficiently.

Aim:

- Pharmaceutical Analytical study of *Dhustur* Tail & its conversion into cream.

Objective:

1. Identification of raw Materials
2. Authentication of raw Materials.
3. Study literature w.r.t cream preparation.
4. To prepare *Dhustur tail*&*Dhustur* tail cream
5. Analytical study of *Dhustur tail*&*Dhustur* tailcream

Material and Methods:

*Dhattura (*Dhattura Stromium*)*,and *katu Tail* were procured from market required for the study.

Table –1: Ingredients of *Dhustur Tail*[4]

S.No	Name of Ingredients	Sanskrit Name	Part used	Qty
1	Kwath preparation (Dhatturastromium)	Dhattur	Panchang	1920 gm
2	Katu tail	Sarshap	Oil	960 gm
3	Water	Jal		30720 ml
4	Kalka dravya (Dhattur stromium)	Dhattur	Patra	240 gm

Preparation[5]:

1. Ingredient *Dhattur panchang* was weighed by weighing machine.
2. *Dhattur panchang*was cleaned with water.
3. 1920gm of washed *Dhattur panchang* was taken in a clean vessel and 16 part of water was added to it.
4. Mixture was boiled on low flame till 1/8th amount of it remains.
5. It was allowed to cool for some time and then filtered.
6. Filtered material was taken in another clean vessel and *Kalka dravya* i.e *Dhattur patra kalka* was added to it and kept on low flame.Stirring was done intermittently.
7. When mixture started boiling 960gm *katu* tail was added to it.
8. When all water content was evaporated *sneha siddhi pariksha* was done.(*Sneha siddhi pariksha* is done to confirm that there is no water content left in *sneha* and it is ideal to use as medicine.)
9. Finally *sneha* was filtered with clean cloth and kept in air tight container.

There are three *sneha siddhi* pariksha-[6]

1. Fen pariksha-Foam(fen) starts coming on tel.
2. Varti pariksha- When the kalka is rubbed in between the fingers of the hand varti forms.
3. Shabda pariksha-When sneha is dropped on flame it get burn without any noise like chat.

Cream preparation was done by cream base materials, all materials are given in table below. Oil was prepared by the reference of *Tail paak vidhi* mentioned in *Sharangdhar Samhita Madhyam khanda*[7].

Precautions:-

- All apparatus should be clean.
- Use clean water.
- Use of low flame for boiling the kwath.
- Take care that kalka will not get burn while boiling the kwath.
- Keep stirring the kwath in between.

Observation:-

- When the kalka is rubbed in between the fingers of the hand itsvarti is formed.
- When sneha is dropped on flame it burns without any noise like chat chat.
- Fen starts coming on tel.(this observation is specific for tail only in case of ghrit fen start disappearing).

- Other than this, sneha get smell,taste,colour of all ingredients used.

Evaluation:

Formulations prepared is evaluated by, organoleptic tests and physic-chemical parameters such as pH, specific gravity, refractive index and density. Also, to assure the quality of products, specific tests for cream like LOD, Particle size, Uniformity of contents, Spreadability tests were carried out.

Physical appearance inspection:

Dhustur tail and dhustur cream were evaluated in terms of their Colour, taste, odour, Appearance, Uniformity and Spreadability.

Importance of pH:

pH is a 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 Density:

Density is important parameter which indicates whether the object will float or sink.

Importance of Particle size:

Particle size is also one of the important parameter of testing. To know the particle size of the formulation is important as they affect key colloid properties such as surface area, rheology, packing density and film gloss.

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.

Importance of LOD:

The moisture content is important indicator of shelf life of many raw materials and products. The method commonly used for determination of moisture content is loss-on-drying method.

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 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. Moisture

in inappropriate amounts and places is very damaging.

Importance of Iodine value of oil:

The most important function of iodine value is to determine the amount of unsaturated 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.

Importance of Viscosity of oil:

Viscosity is an important parameter to measure the resistance of oil to its flow. It decreases (thins) with increasing temperature. Increase in viscosity at higher temperature results in lower oil consumption and less wear.

Results:-

Table-2: Analytical Values of Dhustur Tail

Sr. No.	Test	Result
1	Appearance	Clear Oil
2	Colour	Dark Yellow
3	Odour	Characteristic
4	Taste	Characteristic
5	Refractive Index	1.466
6	Specific Gravity	0.9078
7	Saponification value	191
8	Unsaponification Matter	1.9
9	Iodine Value	110
10	pH	5.8

Table 3: Analytical Values of *Dhustur* Cream

Sr. No.	**TEST**	**RESULT**
1	Appearance	Semi Solid Soft Cream
2	Colour	White
3	Odour	Characteristic
4	Taste	Slightly Bitter
5	LOD	10.85
6	P^H	8.2
7	Melting Point	49
8	Spreadability	Uniformly Spreadable
9	Uniformity of content	Complies
10	Density	0.7549

Discussion:

Ayurvedic literature named *Bhaishajya Ratnavali* has explained *Dhustur* oil in parishistam *Kapharog chikitsa* prakarnam which is used in *Asthi sandhi graha vinashanam, shoth, sannipath jwar, Vata kapha vinashanam*. *Dhustur* is *katu, tikta rasatmak, Ushna viryatamak* as mentioned in *samhita*. In this oil preparation *Dhustur* is a main ingredient of oil. It has good penetrating power.*Katu* tail is used as a base for preparation of oil. *Dhustur* Tail is unique formulations designed by our Acharya for the management of symptom *Asthi sandhigraha*. The use of *Dhustur* in this formulation is best implied by its unique property i.e. *shothagna.Sandigatvat*[8], as explained in the ancient literature i.e *Charak samhita* is a disease which is characterized by pain in the joints especially large joints, *Asthisandhi graha*, *Ushnasparsha*, oedema and restriction in movement of joints. In such condition the main line of treatment is explained as *Bahya lepa* and *Abhyanga.*

Dhustur Tailis having *Sukshma Srotogami* property which can penetrate into deep tissues very easily. When there is predominance of *kapha dosha/ aama dosha*, then with the help of its *guna* it decreases the alleviated *kapha* and reduces *aama*.As *aama* is reduced all *strotasas* are cleared and oedema is relieved.With its *Ushna guna*[9] and *virya* it is considered as better *Vatashamaka* and helps in unlocking *Asthi sandhi graha.*

In this modern era application of oil is not easy, so to ease the use of medicine in day today life we have converted oil into cream. Cream also shows similar properties as of oil from analytical testing, so we can also use cream if application of oil is not possible.

Water is an indispensable element for the skin. The skin's water reservoir is beneath the superficial layers, and although the journey from the deep layers to the skin's barrier is not clear, scientific studies show the pH of the skin is about 5.5; slightly acidic. Despite the skin's ability to regulate its pH very efficiently, it is better to use the product which is slightly alkaline in nature.

The Analytical values of *Dhustur* Tail are presented in Table 2. *Dhustur* cream appearance is semi solid soft cream, white in Colour, having characteristic odour, slightly bitter in taste, Spreadability of cream is Uniform Spreading and Density is 0.754. Prepared *Dhustur* cream was found to be stable, natural and safe.

The indications of both *Dhustur* Tail and *Dhustur*cream are said to be in the

symptomatic management of *shoth* and *Shoola* associated with *sandhigatvat.*Clinical study of *Dhustur tail* & *Dhustur* 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 *Dhustur* oil. As the *Dhustur*oil is working against *Asthi sandhi graha vinashanam, shoth, sannipath jwar, Vata kapha vinashanam.*

Oils play an important role in preserving the structure of the skin. However, new data reveals that oils alone will not restore the elasticity and flexibility of our epidermis. Furthermore it has been demonstrated that occlusive oils, like petroleum jelly, increase rapid hydration but it is only a 'quick fix' as within three hours the skin's composition appears unbalanced.

Therefore, considering our skin barrier composition, 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 shows it is safe for external application.

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How to Cite this article:

Pharmaceutico Analytical study of Dhustur Tail & its conversion into cream.
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Ayurline: International Journal of Research In Indian Medicine 2019; 3(2): pages: 01-08