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# Preparation of *Gandhak Taila* by *Patalyantra* method and Pharmaceutico-analytical Study of *Gandhak Taila* cream

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## ABSTRACT

*Gandhak* has been used as a potent medicine in *Ayurvedic* system of treatment for various kinds of skin manifestations of different as well as bacterial origin. *Gandhak* can be used internally or/and topically in different dosage form. Various methods of *Gandhak Taila* preparation are described in a *Rasatarangini*. Purified *Gandhak* has fungicidal, bactericidal, anti-parasitic effect and mainly used in various skin diseases like dermatitis, psoriasis, eczema, internally-arthritis, chronic cough.

**Key words:** *Gandhak*, Sulphur, *Taila*, *Patalyantra*, *Ayurveda*.

## INTRODUCTION

Ayurveda is one of the oldest systems of medicine with its root in India which is called the ancient science of life. In Ayurveda, a healthy is described as a condition where the *Tridoshas* present in the body and mind are in an equilibrium state. Ayurveda is a holistic and integral system of medicine that treats the person as a whole in combination with body, mind and soul giving importance to prevention and maintenance of health along with curing the disease promoting longevity of life.

*Rasashastra* and *Bhaishajya Kalpana* is the branch of

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Ayurveda which deals with herbal and herbo-mineral drugs for therapeutic use. Some of these drugs which have unique attributes, these unique attributes needs to be validate and explored using the scientific and technological advances of today's world. *Bhaishajya Kalpana* explains various methods of processing a drug to make the drug more palatable, rich with potency, pleasing with good odor, colour etc. and long lasting to improve the shelf life of the preparation.

It is based on the concept of *Panchavidha Kashaya Kalpana* the five basic forms of formulations. The primary *Kalpana*: *Swaras*, *Kalka*, *Kwath*, *Hima* and *Phanta* and the secondary *Kalpana*; *Ksheer Kalpana*, *Sneha Kalpana*.

In *Gandhak Taila* preparation, Sulphur is converted into stable liquified state. *Gandhak Taila Kalpana* was explained by many *Acharyas*. *Rasatarangini* has explained one of the methods of *Gandhak Taila* preparation by *Patalyantra*. Extraction of oil is done by this method.

The present study is to prepare *Gandhak taila* and cream, and the Physico-chemical standards of *Gandhak Taila* cream. The drugs used in *Gandhak Taila*

are *Gandhak*, *Palash beej* (seeds), *Aja Dugdha* (Goat milk).

## MATERIALS AND METHODS

*Gandhak Taila* is prepared by the reference *Rasatarangini*. For the preparation of *Gandhak Taila*, raw materials were collected from the local market and subjected to the standardization based on the data provided in Ayurveda pharmacopoeia.

### (A) Raw Materials

The samples were collected under the supervision of our unit head.

### Ingredients of *Gandhak Taila*

SN	Raw Drug	Quantity
1.	Palash Beej (Palash seeds)	400 gm
2.	Aja Dugdha (Goat Milk)	500 ml
3.	Gandhak (sulphur)	25 gm
4.	Go-Dugdha (Cow milk)	500 ml
5.	Go-Ghrit (Cow ghee)	250 gm

### (B) Apparatus

The apparatus used in this experiment is *Patalyantra*. It is useful to extract oil from raw material

Apparatus for *Taila Patan* comprises

- *Kach Kupi* (Glass bottle)- capacity: 500 ml
- One rectangular vessel
- collecting glass beaker - capacity:250 ml
- Metal wire
- Stainless steel mesh
- Cloths
- *Multani Mitti*

### (C) Preparation of *Patalyantra*

- Instead of digging a pit, a similar arrangement was created in the following way:

- A rectangular shaped steel vessel is taken instead of earthen pot and a hole was done at the base of it with the help of cutter, through which the mouth of *Kachkupi* can partially pass.
- Tripod is made with the help of 9 bricks of size 3x6x3.
- Then *Kachkupi* was inserted in an inverted position through the hole made at the base of the vessel. (Previously, *Kachkupi* (Glass bottle) was covered with *Mritalepita Vastra* and allowed for sun drying. This procedure was done for 7 times)
- *Multani Mitti* was used to seal the gap between *Kachkupi's* mouth and rectangular vessel.
- Cowdung cakes were arranged layer wise around *Kachkupi*.
- Collecting beaker was placed properly below the mouth of the *Kachkupi*.
- Cowdung cakes were ignited from the bottom layer and allowed for complete burning.

### Method of preparation of *Gandhak Taila*

1. *Palash* seeds were taken, cleaned properly & then crushed.
2. Crushed seeds were kept in goat milk for soaking, then kept for sun drying. Seeds dried after about 5-6 days.
3. *Gandhak Shodhan* was done in *Go-Ghrita* (cow ghee) and *Go-dugdha* for 7 times. *Shodhit Gandhak* ( purified sulphur) was powdered.
4. Dried and crushed seeds, powdered *Gandhak* were mixed properly and filled in the *Kachkupi*. The mouth of *Kachkupi* was closed with stainless steel mesh and tied tightly with metal wire.
5. The *Kachkupi* was placed inverted in the vessel in such a position that mouth inserts through that round shaped opening. Gap was sealed by *Multani Mitti*
6. Collecting beaker was placed properly below mouth of *Kachkupi*.

- Cowdung cakes are arranged layer wise around the *Kachkupi*. The lower most layer was ignited first and allowed for complete burning.
- After 30 minutes of burning, fumes started appearing at the mouth of *Kachkupi*. Oil started collecting drop wise.
- Approximately 50 ml *Gandhak Taila* was collected in the beaker.

### Preparation of Gandhak Taila Cream

*Gandhak Taila* cream was prepared by using *Gandhak Taila* according to the procedure mentioned in a textbook of cosmetic formulations.

### Composition of Gandhak Taila cream

SN	Raw Drug	Quantity Taken
1.	<i>Gandhak Tail</i>	40 ml
2.	E. wax	8 gm
3.	Stearic acid	8 gm
4.	Distilled water	60 ml
5.	EDTA	0.5 gm
Total Quantity Obtained		60 gm

Demineralized water was taken in a container and heated in a water bath. Preservative (EDTA) was added to it and stirred till it dissolves. This is mixture A.

*Gandhak Taila* is taken in another container and heated in a water bath. E-wax, stearic acid added to the mixture and stirred till it dissolves. This is mixture B.

Mixture A and B are mixed when at equal temperature. Blended it till cream gets formed.

### OBSERVATION AND RESULTS

Semisolid consistency cream was obtained. 60 gm of brown coloured *Gandhak Taila* cream was obtained

### Observation and Results of Gandhak Taila (GT)

Date of starting of GT	09/04/2022
Date of completion	09/04/2022
Fuel used	30 Cow Dung Cakes
Weight of cow dung cakes	3 Kg

Quantity of ingredients	425 gm
Quantity of GT Obtained	50 ml
Time taken for the extraction of GT	3 hours

### Analytical study of Gandhak Taila cream

In present study, analytical evaluation of *Gandhak Taila* cream was carried out. The samples were analyzed first of all on the basis of organoleptic characters. Physico-chemical parameters such as rancidity, pH, and total acidity, loss on drying and microbial contamination were done at Shree Dhootpapeshwar Ayurvedic Research Foundation, Panvel.

### Observation and Results of Gandhak Taila cream

### Analytical values of Gandhak Taila cream

SN	Test	Values
1.	Colour	Dark Brown
2.	Odour	Charred
3.	Rancidity	Complies
4.	Total Acidity	1.98 %
5.	pH	5.48
6.	Loss On Drying	71.46

### Microbial Contamination

SN	Test	Values
1.	TPC Count	720 cfu/ml
2.	TYMC Count	< 10 cfu/ml
3.	E. Coli	Absent
4.	P.aeruginosa	Absent
5.	S.typhi.	Absent
6.	S.aureus.	Absent





*Gandhak Taila* is a herbo-mineral preparation which is applied tropically for healing various types of skin diseases as well as can be consumed internally with *Rasasindoor*.

*Palash beej* has antioxidant properties when applied tropically. It effectively reduces skin allergies, fungal growth.

*Gandhak Taila* is an oil base sample, which is used locally mostly to the skin diseases. *Gandhak Taila* cream is able to prohibit various types of skin diseases.

Clinical study of *Gandhak Taila* and *Gandhak Taila* cream can be done on patients and is analytically found to be safe for external use.

### CONCLUSION

The formulated cream has the analytical values within the normal limits, which was mentioned in literature of *Gandhak Taila*, as the *Gandhak Taila* works against Skin diseases. Oil plays 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 the cream preparation is to provide alternative to oil. Analytical parameters show it is safe for external application.

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### DISCUSSION

Raw materials procured from authentic source that give optimum results as if reflects in physicochemical analytical studies of raw materials pass the Ayurvedic pharmacopoeia standards. An organoleptic study shows that appearance, odor and touch is acceptable to go for further analysis and clinical use.

*Gandhak Taila* preparation is described by different *Acharyas*. *Rasatarangini* has described *Gandhak Taila* preparation by *Patalyantra* method.

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