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PHARMACEUTICAL STUDY OF *DURDURADI TAILA*

T. Siri Geetha*[1] and Ch Sridurga[2]

[1]Post Graduate Scholar, PG Department of Rasa Shastra and Bhaishajya Kalpana, S. V. Ayurveda Medical College and Hospital, T. T. D, Tirupati, Andhra Pradesh, India.

[2]Professor and Head, PG Department of Rasa Shastra and Bhaishajya Kalpana, S.V. Ayurveda Medical College and Hospital, T. T. D, Tirupati, Andhra Pradesh, India.

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***Corresponding Author**
Dr. T. Siri Geetha
Post Graduate Scholar, PG Department of Rasa Shastra and Bhaishajya Kalpana, S.V. Ayurveda Medical College and Hospital, T. T. D, Tirupati, Andhra Pradesh, India.

ABSTRACT

Background: *Sneha Kalpana* is defined as - A pharmaceutical process to prepare oleaginous medicaments which is included under *Bhaishajya Kalpana.* It is again of two types *Ghrita* and *Taila Kalpana*. *Durduradi Taila* is one such formulation which is mentioned in *Sahasrayogam, Taila prakarana* for the management of *Kesacyuti and Sirahkandu. Durduradi Taila* contains *Dhattura patra, Dhattura Bheeja, Tila taila.* **Aim:** To prepare *Durduradi Taila,* Pharmaceutical study of *Durduradi Taila*. **Methods:** *Durduradi Taila* was prepared according to the general method of preparation of *Taila.* The pharmaceutical procedures which were adopted in this study include *Shodana, Churna Nirmana, Swarasa Nirmana, Kalka Nirmana* and *Taila paka.* **Results:** 1L of *Taila* was obtained as the final product with a loss of 100ml. **Conclusion:** Safety and efficacy of any medicine depends on how good it is manufactured so Pharmaceutical Standardization is necessary. In this study, the quality of raw materials, method of preparation, observations during the preparation, final product were assessed as per Ayurvedic classics.

KEYWORDS: *Durduradi Taila,* Pharmaceutical study, *Swarasa Nirmana, Dhattura bheeja Shodhana, Taila Paka.*

INTRODUCTION

Rasa Shastra and *Bhaisajya Kalpana* is a branch of *Ayurveda* which deals with mineral, herbal and herbo mineral processing techniques and their therapeutic uses. *Bhaishajya*

Kalpana deals with *Aushada nirmana* by using tools like *Samyoga* (combination), *Vishlesha* (separation), *Kala* (time factor), *Samskara* (washing, heating, etc) and *Yukti* (one's own intelligence).[1]

Sneha Kalpana is one of the commonly used dosage forms in day to day practice in all diseases and all age groups. *Sneha Kalpana* consists of *Taila Kalpana* and *Ghrita Kalpana*. *Taila Kalpana* deals with *taila* preparations in which the *taila* is boiled with prescribed *kashaya* and *kalka* of drugs as mentioned in *Ayurvedic* classics.

Taila are used both externally and internally as *snehapana, nasya, vasti, lepa, abhyanga, upanaha* etc,. *Durduradi taila* is a herbal preparation mentioned in *Sahasrayogam, taila prakarana* indicated in *Sirahkandu, Kesacyuti* which is prepared using *Dhattura patra, Dhattura beeja, Tila taila.*[2]

Standardization of *Ayurvedic* drugs starts from the collection of raw materials and ends in the preparation of the final product. Hence in this study, an effort is made to understand the significance of the pharmaceutical procedures and to standardize the method of preparation of *Durduradi taila*.

AIMS AND OBJECTIVES

- Pharmaceutical Study of *Durduradi taila*.

MATERIALS AND METHODS

Collection of drugs

The raw materials like *Dhattura patra, Dhattura beeja* were collected from the herbal garden of S.V. Ayurvedic College, TTD, Tirupati. *Tila taila* purchased from the local market of Tirupati. Drugs were identified macroscopically from PG Department of *Dravyaguna*, S. V. Ayurvedic College, TTD, Tirupati.

METHODS

The Pharmaceutical study was carried out in four stages:

Stage I

- *Shodana* of *Dhattura bheeja.*

Stage II

- Preparation of *Shodita Dhattura beeja Churna*.
- Preparation of *Dhattura patra swarasa*.

Stage III

- Preparation of *kalka* using *Shodita Dhattura beeja churna*.

Stage IV

- Preparation of *Durduradi taila*.

Apparatus: *Khalwa yantra,* Steel vessel, Cloth, Tray, thread, Stand for hanging *pottali*, Gas stove.

PREPARATION OF *DURDURADI TAILA*

Durduradi taila was prepared in the PG Department of *Rasa Shastra* and *Bhaishajya Kalpana*, S.V. Ayurveda College, TTD, Tirupati. The ingredients used to prepare the *taila are:*

Table 1.

S.No	Name of the Ingredient	Quantity
1.	*Dhattura patra swarasa*	4000ml
2.	*Tila taila*	1000ml
3.	*Shodhita Dhattura beeja churna*	250g

***Dhattura Beeja Shodana*[3]**

- *Dhattura* seeds were taken and washed properly.
- They were tied in a cotton cloth to prepare *Pottali* and suspended in *Dolayantra* containing *Godugdha* and subjected to heat for three hours.
- After 3hours, the *Pottali* was removed, opened and seeds were washed with hot water.
- Then, they were dried and stored in air tight container for further use.

Preparation of *Shoditha Dhattura beeja Churna*

- *Shodhita Dhattura beeja* were taken in *Khalwa yantra* and pounded.
- Pounded *Dhattura beeja Churna* was sieved through cloth to get very fine powder
- *Shodhita Dhattura beeja Churna* was obtained.

Preparation of *Dhattura Patra Swarasa*

- *Dhattura patra* were taken, cleaned properly, pounded in *Khalwa yantra* and made into a paste.
- It was squeezed and filtered through a clean cloth.
- *Dhattura patra swarasa* was obtained**.**

Preparation of *Kalka*

- In a veseel, *Shodhita Dhattura beeja churna* was taken and made into bolus using sufficient quantity of water.
- *Kalka* was formed.

Preparation of *Durduradi Taila*

Tila taila was taken in a clean wide mouthed stainless steel vessel and placed over the stove on mild fire(*mandagni*). It was heated until foam starts appearing. To this, *Shodita Dhattura beeja kalka* was added and then *Dhattura patra swarasa* was also added into it and stirred well. Heating was continued till *Kharapaka lakshana* were obtained. After that, the *taila* was filtered through a cloth and stored in air tight container. Thus *Durduradi taila* was obtained.

Images showing the sequential steps in the Preparation of *Durduradi Taila*

Figure 1: Ashodhita Dhattura beeja.

Figure 2: Dolayantra sweda using Godugdha.

Figure 3: Shodhita Dhattura beeja.

Figure 4: Shodhita Dhattura beeja Churna.

Figure 5: Dhattura patra.

Figure 6: Pounded in Khalwa yantra.

Figure 7: Squeezed and stained through cloth.

Figure 8: Dhattura patra swarasa.

Figure 9: Dhattura beeja kalka.

Figure 10: Addition of kalka to taila.

Figure 11: Addition of swarasa to taila.

Figure 12: Taila paka.

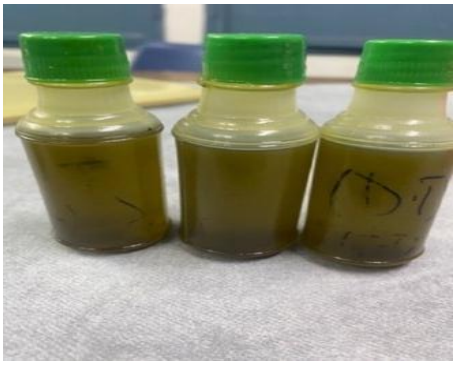

Figure 13: Filtered and stored in bottles.

Precautions

- *Pottali* should be made properly so as the drug shouldn't spill into *Godugdha*.
- The *pottali* should not touch the bottom of pot.
- *Pottali* should be completely immersed into the liquid media.
- Uniform level of heat should be maintained throughout the process.
- Uniform level of *Godugdha* should be maintained throughout the *Swedana* process.
- *Dhattura beeja* should be washed properly after removing from *Godugdha* and dried properly so as to prevent spoilage.
- Care should be taken to avoid the spillage during *Dhattura patra swarasa nirmana*.

- A wide mouthed vessel was taken for the preparation so as to avoid the spillage of *taila* during boiling.
- *Mandagni* should be maintained till *Kharapaka lakshana* were obtained.
- *Durduradi Taila* should be transferred into absolute sterile and moisture free bottles to avoid spoiling.

RESULTS

The obtained results are presented in the following tables:

Table 2: Results showing *Shodhana* and *Churna Nirmana* performed in the preparation of *Durduradi Tailam.*

S. No	Name of the Practical	Initial weight	Final weight	Gain\Loss in weight
1.	*Dhattura beeja Shodana*	300g	320g	20g -gain
2.	*Shodita Dhattura beeja Churna Nirmana*	320g	270g	50g - loss

Table 3: Results of *Swarasa Nirmana* performed in the preparation of *Durduradi Taila.*

S. No	Name of the Practical	Quantity of drug taken	Swarasa Obtained
1.	*Dhattura Patra Swarasa*	5.5kg	4L

Table 4: Results of preparation of *Dhattura Beeja kalka.*

S. No	Name of the Practical	Initial weight	Final weight	Gain in weight
1.	*Kalka Nirmana*	250g	260g	10g

Table 5: Results of preparation of *Durduradi Taila.*

S. No	Name of the Practical	Initial weight	Final weight	Gain\loss in weight
1.	*Durduradi Taila*	1000ml	900ml	100ml

DISCUSSION

Dhattura, an *upavisha* has *Vishagna, Kanduhara, Kustahara, Krimihara (Antah, Bahya), Shothahara* properities. Leaves, roots, seeds are useful parts but only seeds are poisonous which need *Shodana.*[4] *Dhattura* is the main ingredient of *Durduradi Taila*. It is used in the management of *Sirahkandu, Kesacyuti*.

The Pharmaceutical procedures adopted in this study are ***Shodana - Dolayantra Swedana, Churna Nirmana, Kalka Nirmana* and *Taila paka*.**

***Shodana*[5,6]**

All the pharmaceutical procedures such as washing (*Kshalana*), trituration (*Mardana*), heating, dipping (*Nirvapana*) etc are carried out over a medicinal drug with the intention of getting it purified is called as *Shodana.*[5] *Dolayantra* is a conventional apparatus used for *swedana* of drugs (*Parada, Swarna makshika, Shilajatu, Guggulu* etc) as a part of their purification.[6]

Dhattura beeja were subjected to *Dolayantra swedana* using *Godugdha* as a media to remove the toxic principles present in the drug.

- During *swedana*, the level of *Godugdha* decreased slowly so it was added to maintain uniform level throughout the process.
- Colour of *Godugdha* changed from cream to creamy brownish as the toxic principles in *Dhattura beeja* get absorbed into milk.
- At the end of the process after the removal of *pottali*, the milk solid particles were adhered to *Dhattura beeja*. Hence *Dhattura beeja* were washed properly with hot water.
- The colour of *Dhattura beeja* changed from dull brown to shiny brown.
- Weight of *Dhattura beeja* increased after *Shodana*, may be due to addition of organic matter from *Godugdha.*

***Churna Nirmana*[7]**

The *Churna* is a fine powder of completely dried drug. *Shodhita Dhattura beeja* were made into *Churna* by pounding in *Khalwa yantra* and filtering through a clean cloth.

Here reduction in weight was observed which was due to spillage while pounding and during filtration.

***Swarasa Nirmana*[8]**

Swarasa is the juice extracted from freshly collected plant drugs by pounding and straining through cloth. *Swarasa* is the most potent form of *Panchavidha Kasaya Kalpana.*

Here *Dhattura patra* were pounded, made into paste, taken in a cloth and squeezed to collect the *swarasa*.

***Kalka Nirmana*[9]**

Kalka is a soft paste, of a wet or dry drug prepared by grinding wet drug without adding water and dry one with little quantity of water.

Here *Kalka* was prepared by adding little quantity of water to *Shodhita Dhattura beeja churna*. Increase in weight was observed due to addition of water.

Preparation of *Durduradi Taila*[10,11,12]

Sneha kalpa are prepared by using either oil or ghee as the base to extract the active principles of the drugs into fatty media. *Sneha Kalpa* is prepared by using 1part of *kalka dravya*, 4parts of oil/ghee and 16 parts of *drava dravya.*[10]

Sneha Kalpana is the pharamaceutical procedure where the fat soluble and water soluble active principles are extracted from all the ingredients into *Sneha*. *Sneha Kalpana* is beneficial as it preserves the drugs for longer time. It also enhances and hastens the absorption of drugs when used topically.

Durduradi Taila is prepared by taking 4L of *Dhattura patra Swarasa* as *Drava dravya*, 250g of *Shodhita Dhattura beeja churna* as *Kalka* and 1L *Tila taila* as base.

- Simmering favours the migration of active principles of drug into the fat media. Violent heat leads to evaporation of active principles and adhering of *kalka* to the bottom of the vessel. So, *mandagni* was maintained throughout the process.
- The colour of *Tila taila* initially was golden yellow. It turned to green after *paka* which is due to dissolution of active principles of *Dhattura* in *taila*.
- The heating was continued till the *Kharapaka lakshana* were obtained. In *Kharapaka*, *Kalka* becomes hard and stiff and does not yield any *Sneha* on pressing.[11]
- *Kharapaka* is good for external application because it is totally devoid of moisture. Hence, it is easily absorbed into the skin.[12]
- The contents were filtered through cloth to obtain *Durduradhi Taila* and it was transferred into air tight containers.

CONCLUSION

A good quality product is always prepared by using good quality raw material and efficient pharmaceutical process. So it is very important to ensure the quality of *taila* by assessing the quality of drugs taken and following standard processing techniques. So Pharmaceutical standardization is must for every drug as it leads to production of safe and efficacious drug.

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