

PHARMACEUTICAL STUDY OF TILADI LEPA AND ITS MODIFICATION TO OINTMENT FORM

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Received: 25-08-2016; Revised: 16-09-2016; Accepted: 23-09-2016

Abstract

Lepa Kalpana is a type of Bahiparimarjana Chikitsa. Lepa preparations are the topical medicaments meant for external application to the skin or mucosal membrane. Wound is a common clinical condition mostly occurred by trauma. Poor wound healing may lead to secondary infections. Tiladi Lepa is a well known formulation used for wound healing. Due to the inconvenience of Lepa application, there is need for pharmaceutical modification of the same for better enhancement of efficacy, shelf life and acceptability. Hence the study was undertaken with an effort to make a pharmaceutical modification of Lepa into ointment form. The ointment was prepared as per the modern pharmaceutical principle using fine powder of the ingredients along with honey and white petroleum jelly was used as the base. Trituration method had been adopted for the preparation of the ointment.

Key words: Lepa kalpana; Wound; Tiladi lepa; Ointment.

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Cite This Article

Soumya KR, Krishnamurthy MS. Pharmaceutical study of Tiladi lepa and its modification to ointment form. Ayurpharm Int J Ayur Alli Sci. 2016;5(9):114-120.

INTRODUCTION

A physician fights diseases using drugs as weapons. Therefore, the result of the treatment depends on the preparation of the drug. Success of the treatment depends on the skillful preparation of genuine drugs and their administration in the diseased condition. Lepa Kalpana is one of the Bahiparimarjana Chikitsa (external therapies) mentioned in Ayurvedic classics. Lepa preparations are the topical medicaments meant for external application to the skin or mucosal membrane. The drugs are made into fine powder form. It is mixed with some liquid or other medium indicated in each preparation and made into soft paste before application. Wet medicinal drugs are made into Kalka (paste) form by adding little quantity of water and grinding. In Sushruta Samhita,^[1] in the context of Vrana (wound) and Shopha (inflammation) treatment Alepa has been explained with prime importance.

Wound healing is one of the major concerns among health care practitioners and scientists. Poor healing not only causes trauma to the patient but also increases the burden of financial resources. This shows requirement for cost effective management of wounds within health care system. Wound healing involves a highly dynamic integrated series of cellular, physiological and biochemical process that occurs in living organisms. Restoration of damaged tissue (wound) is an important process which plays vital role in survival of life. Plant possessing antiseptic, astringent, anti-inflammatory and anti-microbial property helps to enhance the rate of wound healing.

Tiladi Lepa is a classical Lepa preparation mentioned in Chakradatta.^[2] It contains four ingredients - Tila, Madhuka, Nimba patra and Madhu. All of these drugs possess wound healing property and all have anti-oxidant property which helps in wound healing property. While explaining the efficacy of

Lepa, it is mentioned in Sushruta Samhita that by pouring water over a burning house, how the fire is get stopped immediately, in same manner by application of Lepa, provoked Doshas of Vrana (wound) (Vedana (pain), Shopha (inflammation) etc. Complications of Vrana (wound)) will get subsided. Lepa is having actions like Shodhana(purification), Utsadana (elevating wound edges) , Ropana (wound healing) etc.^[3]

But Lepa Yoga has some demerits like its short shelf life and difficulty in handling. So there is a need to modify the preparation to a patient friendly form. So in this study Tiladi Lepa is modified to a topical ointment form. For preparing the ointment, white petroleum jelly had been selected as the base substance.

AIMS AND OBJECTIVES

1. Preparation of Tiladi Lepa
2. Modification of Tiladi Lepa into ointment form

MATERIALS AND METHOD

The reference of Tiladi Lepa is Chakradatta, Vranasothadhikara. Tila, Madhuka, Nimbapatra and Madhu are the four ingredients.

Preparation of Tiladi Lepa

The ingredients with respective quantities taken for the preparation are given in Table 1.

The quantities of ingredients are not mentioned in the formulation, so equal quantities were taken. Among these ingredients Madhu (Honey) is in liquid consistency. So it was taken as the base substance to mix all other ingredients to get the fine paste form. Madhu was taken in sufficient quantity to mix all other ingredients which had been taken in equal quantity.

Figure 1: Preparation of tiladi lepa



Mixing of Tila to Madhuka Choorna



Powdered Tila and Madhuka



Grinding of Nimba Patra



Adding powders to Kalka



Adding honey to Lepa



Tiladi Lepa

Procedure

6 g of each ingredient was taken separately. 6g Tila was powdered well with 6g Madhuka Choorna to a fine powder form. 6g fresh Nimba patra was grounded well to paste form. The above prepared powder was mixed with the Nimbapatra Kalka and grounded well and then 6g of honey was added and grounded together to get a homogenous mixture or Lepa. The total time taken for the preparation was half an hour. The observations found during the preparations are given in Table 2.

Precaution

It was difficult to make fine powder of Tila due to its oil content. So it was powdered along with Madhuka Choorna so that, the oil content of Tila will get absorbed by Madhuka Choorna and the fine powder of these two drugs together was obtained.

RESULT

All ingredients were taken 6 g each. The total quantity of ingredients was 24 g. The quantity of Lepa obtained was 28 g. 4 g gains in weight were obtained.

Figure 2: Preparation of tiladi ointment



Heating of Petroleum jelly



Measuring temperature



Pouring liquid petroleum to mortar



Mixing of powders



Filling of ointment



Tiladi ointment

This may be due to the weight of water content present in the Lepa. The consistency of Lepa obtained was fine paste form and the colour was found to be dark greenish brown.

Preparation of Tiladi ointment

The equipments needed for the preparation are mortar and pestle, water bath, weighing machine, spoon and stainless steel vessel. Here white petroleum jelly is taken as the base substance for the preparation of ointment.

The ingredients with respective quantities taken had been given in Table 3. The ratio of the quantity of powdered drugs to petroleum jelly was taken as 1:4. Madhu had been taken in sufficient quantity.

Procedure

Ingredients 1, 2, 3 were taken in equal parts (40 g each). They were made into fine powder separately. Tila was powdered along with the fine powder of Madhuka, so that the oil extracted was absorbed by the Madhuka

Choorna. A mixture of Tila and Madhuka in fine powder form was obtained. Petroleum jelly was taken in a stainless steel vessel. It was heated in a water bath while attaining 60 - 70°C, at which it liquefied. It was poured into a clean mortar. To this liquid petroleum jelly, the mixture of powders was added little by little and stirred well. Sufficient quantity of honey was added to it and mixed well again. It was kept undisturbed to obtain the ointment consistency. Total time taken for the whole procedure was 1 Hr. 30 min. The observation during the preparation is given in Table 4.

RESULTS

The expected output of the ointment was 600 g. The obtained output was 580 g. A 20 g loss in weight was observed. It might be due to the adherence to the walls of the containers while

Lepa Kalpana comes under the Bahiparimarjana Chikitsa - a treatment modality explained in Ayurvedic classics. Lepas are usually applied against the hair follicular direction; this facilitates the quicker

absorption of the drug potency through Romakupa (hair roots), Sweda vahi (Sweat glands) and Sira mukha (Blood capillaries). Our body is invaded by Oordhwagata, Tiryag gata and Adhogami dhamanis.

These Tiryag gami dhamanis again divided to form a network, and their openings are attached to hair follicles which carry sweat and replenish Rasa inside and outside, through them the Veerya (potency) of Lepa Dravya enter the body.^[10]

Lepa yoga has its own limitation like shorter shelf life, difficulty in handling, difficulty for carrying to different places. So it is beneficial if it is modified to an ointment form. Lepa is a paste of herbs meant for external application. Herbs may be either in wet or dry form. Wet drugs are made into paste form by grinding it with a little quantity of water or any suitable liquid. In case of dry drugs, the fine powder is

packing. The product obtained was semisolid in consistency and dark brown in colour.

DISCUSSION

Here an attempt had been made to modify Tiladi Lepa into an ointment form and to pharmaceutically evaluate the properties of both the formulations.

Tiladi Lepa is a well known formulation used for Vrana Ropana (wound healing). Although much progress has been made in the management of wound in past few years, management of Vrana (wound) is a significant health related issue since the period of Sushruta. Sushruta described sixty different types of management of Vrana in general. Alepa is the second procedure mentioned among Shashtyupakrama.^[9]

taken and made into paste form by mixing it with water or any other appropriate liquid media. Here honey is the liquid media used.

Ointments are usually oily vehicles that may contain a surfactant to allow them to be washed off easily.^[11] Paraffin are the most widely used oily vehicle for topical application. Soft paraffin is the main ingredient in many products. There are two forms of soft paraffin - yellow and white. The paraffin are occlusive and chemically inert. The melting point of white petroleum jelly is within a few degree of human body temperature, having a melting range of 38°C to 56°C.^[12]

It is colourless or of pale yellow colour (when not highly distilled), translucent and devoid of taste and smell when pure. It does not oxidize on exposure to the air and is not readily acted on by chemical reagents. Hence used in this formulation as base.

There are two methods of imparting the ingredients into the ointment base. i.e. trituration and fusion.

Table 1: Ingredients with specific quantities of Tiladi Lepa

Sl. No.	Ingredients	Scientific Name	Quantity
1	Tila ^[4]	<i>Sesamum indicum</i>	6 g
2	Madhuka ^[5]	<i>Glycyrrhiza glabra</i>	6 g
3	Nimbapatra ^[6]	<i>Azadiracta indica</i>	6 g
4	Madhu ^[7]	Honey	6 g

Table 2: Observations of preparation of Tiladi Lepa

Time duration	Procedure	Change Observed
8.30am - 8.35 am	Previously cleaned ingredients are taken in equal quantity	-
8.35 am - 8.45 am	Tila is powdered along with Madhuka Choorna	Brown coloured fine powder of both the drugs together is obtained
8.45 am - 8.55 am	Fresh Nimbapatra is grounded well	Dark green paste is formed
8.55 am - 9.00 am	Above obtained powder and honey are mixed together with the paste of Nimbapatra and grounded well	Dark brownish green paste is obtained

Table 3: Ingredients with specific quantities of Tiladi ointment

Sl. No.	Ingredients	Scientific Name	Quantity
1	Tila	<i>Sesamum indicum</i>	40 g
2	Madhuka	<i>Glycyrrhiza glabra</i>	40 g
3	Nimbapatra	<i>Azadiracta indica</i>	40 g
4	Madhu	Honey	20 g
5	White petroleum jelly ^[8]		480 g

Table 4: Observation of the preparation of Tiladi Ointment

Time duration	Procedure	Change observed
2.30 - 2.45 pm	All the apparatus are kept ready Ingredients are measured	
2.45 - 3.00 pm	40 g Madhuka Choorna is mixed with 40 g of Tila and ground well in a mixture	Brown coloured powder is obtained Oil extracted from Tila is absorbed in Madhuka Choorna 5 g gain in weight due to the oil extracted It liquefied completely.
3.00 - 3.20 pm	480 g white petroleum jelly is heated in water bath (Temp : 65 - 70°C)	A whitish transparent liquid is obtained
3.20 - 3.40 pm	Liquefied white petroleum jelly is poured into a mortar Powdered ingredients are added little by little and stirred well with a pestle Kept undisturbed	Liquid in consistency for first 5 min. Colour is changed to dark brown Became thicker in consistency in last 15 min.
3.40 - 4.00 pm	Weight is measured Packing and labeling of the ointment	20 g loss in weight

In trituration method the finely subdivided insoluble medicaments are evenly distributed by grinding with a small amount of the base followed by dilution with gradually increasing amounts of the base.

In fusion method, the ingredients are melted together in descending order of their melting point and stirred to attain homogeneity.

In this study, trituration method was adopted for making the ointment using white petroleum jelly as the base substance.^[13] While preparing Tiladi Lepa and its ointment form, the powdering of Tila into fine powder form was found to be difficult because of the oil present in it. So it was powdered along with Madhuka Choorna, so that the oil content was get absorbed into the Madhuka Choorna and thus a mixture of both the powders were obtained.

All the four ingredients of both Tiladi Lepa and its ointment possess wound healing property. Tila, Madhuka and Nimba patra are good anti-oxidants which aid the wound healing property. Tila, Nimba patra and honey possess anti microbial effect which helps to clean the wound and thus enhances the wound healing activity.

CONCLUSION

Tiladi Lepa is a classical preparation mentioned in Chakradatta Vranasothadhikara. In the present study, Tiladi Lepa was modified to a topical ointment form. The ointment was prepared using White petroleum jelly as the base substance and the method adopted was trituration method. Pharmaceutically the preparation method was found to be easy with only a few numbers of ingredients.

The Lepa prepared was fine paste form with greenish brown colour and had a characteristic smell of Nimba patra and honey. The ointment was found to be smooth in appearance with a dark brown colour with a characteristic smell of Nimba patra. Lepa can only be used as an instant medicine. Its modification to ointment form facilitates a longer shelf life.

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Source of Support: Nil

Conflict of Interest: None Declared