



PHARMACEUTICAL PREPARATION OF VRANAROPANI MALAHARA AND ITS ANALYTICAL EVALUATION

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ABSTRACT

Vrana (wound) is an oldest ailment from which the mankind is suffering since its origin. Wound healing has become a major concern in the health care system. The financial and social impact imposed by chronic wound on society is substantial. Apart from classical references, a vast majority depends on folklore medicines. This study aims at introduction of one such efficient, wound healing ethno-medicine, *Vranaropani* (*Hemigraphis colorata*-Acanthaceae), and its modification into *Malahara* form. *Taila* was prepared from the drug *Vranaropani*. To overcome the inconvenience of extraction as well as for better enhancement of efficacy, shelf life and acceptability, *Vranaropani Malahara* was prepared. Analytical study carried out to standardize the preparation. Light brown coloured, homogenous *Malahara* with strong smell of *Siktha* was obtained. The pH value was 7.4. Spreadability value was 12. Extrudability study findings were good. Thermal stability value was 40-45°C. Loss on drying value was 2.7%. Through this study, a folklore drug was explored and modified into an acceptable form. The result of analytical study was found to be encouraging and it can be taken up for clinical study.

Keywords: *Vranaropani*, *Vrana*, *Malahara*, Wound healing

INTRODUCTION

A wound can be defined as a disruption in the continuity of epithelial lining of skin or mucosa. It happens relatively quickly in which the skin is torn, cut or punctured or where blunt force or trauma causes a contusion. As per Ayurvedic perspective, *Acharya Susrutha* in *Susrutha Chikitsa*, - explains *Vrana* (wound) is derived from the root 'Vran', which means splitting or tearing the body or that which causes discontinuity in the body¹. According to a statistical survey in India, cutaneous wounds have an incidence of 15 per 1000; in which 10.5 corresponds to acute cases while 4.5 are chronic². Wound healing is a complex process in which the skin and the tissues under it repair themselves after injury. Skin is a protective barrier of our body and any hindrance in its continuity is a major health issue. Wound healing has many challenges like oxygenation, infections, age, sex hormones, stress, diabetics, obesity, medications, alcoholism, smoking and nutrition. It is estimated that 1-2% of the population in developed countries will suffer from chronic wounds in their lifetime. Patients with chronic wounds may experience chronic pain, loss of function and mobility, increased social stress and isolation, depression and anxiety, prolonged hospitalization, increased financial burden, increased morbidity and mortality. The impact of chronic wounds on the health and quality of life of patients and their families should not be underestimated. This shows need of an effective management of wounds.

Apart from classical references, a vast majority of people depends on folklore methods. *Vranaropani*³ (*Hemigraphis colorata* – Acanthaceae family), known as *Murikootti* in Malayalam, is one such drug widely used by folklore practitioners of villages of Kerala and Karnataka, as a remedy for wound. The fresh leaves are crushed and the extract (*Swarasa*) is applied over the affected part. But due to the inconvenience of this method, there is a need for the pharmaceutical modification of the same, for better enhancement of efficacy, shelf life and acceptability. With such an intension, the study has been undertaken to prepare a *Malahara* (ointment) from *Vranaropani*.

Materials and Methods

I. Identification and collection of drugs

Fresh leaves of *Vranaropani* (*Hemigraphis colorata* – Acanthaceae family), was procured from authentic source in local areas of Kannur, Kerala. Cleaned well and washed.

II. Pharmaceutical preparation: Pharmaceutical preparations such as *Vranaropani Taila* and *Vranaropani Malahara* was carried out under the supervision of experts from the *Rasashastra* and *Bhaishajya Kalpana* Lab, Alva's Ayurveda Medical College, Moodubidire.

Vranaropani Taila: The preparation was carried out as per classical references of *Taila Kalpana*.^{4,5} *Kalka* (paste of raw drug) and *Swarasa* (fresh leaf extract) was taken from the same drug. Coconut oil was used as *Sneha Dravya* in the preparation. The preparation was carried out in mild intensity of fire, with frequent stirring, till the attainment of *Taila Paka Sidhi Lakshana*. Further it was filtered using a clean cloth, preserved in an airtight container. The ingredients of the *Vranaropani Taila* are depicted in Table. 1.

Vranaropani Malahara: *Vranaropani Malahara* is a modified preparation without any classical references. The procedures were according to the rules of *Malahara Kalpana*⁶. The ratio followed was 1:6. To *Vranaropani Taila*, small pieces of bee's wax was slowly added and stirred carefully. Preparation was carried out in mild intensity fire. After complete dissolution of wax, filtered properly using a clean cloth. The *Malahara* was later filled into the tubes. The composition of *Vranaropani Malahara* is depicted in Table 2.

III. Analytical study

A study can never be valued without any scientific basis. Standardization of herbal medicine has become the present-day need. To achieve this, one must carry out necessary analysis to detect any factors which hinders the genuinity of the product. Analytical studies were carried out from Srinivas College of Pharmacy, Valachil, Mangaluru, according to standard procedures of Laboratory guide for analysis of Ayurveda

and Sidhha formulations⁷. The parameters considered for analysis includes:

Organoleptic evaluation: Carried out by sensory organs. It includes:

1. *Sparsha*- consistency,
2. *Rupa* - appearance, colour,
3. *Gandha* - odour

Physico- chemical evaluation: This includes:

1. Loss on drying,
2. Determination of pH,
3. Spreadability,
4. Extrudability study,
5. Microbial contamination

Topical sensitivity test

RESULTS

Pharmaceutical preparation

Table 1: Ingredients of *Vranaropani Taila*

Sl.No	Ingredients	Quantity Used	Quantity Obtained
1	<i>Vranaropani Kalka</i>	625 G	4.2 L
2	<i>Vranaropani Swarasa</i>	20 L	
3	<i>Narikela Taila</i>	5 L	

Table 2: Ingredients of *Vranaropani Malahara*

Sl.No	Ingredients	Ratio	Quantity Used	Quantity Obtained
1	<i>Vranaropani Taila</i>	6 Parts	2000 ML	1980 G
2	Beeswax	1 Part	335 G	

Organoleptic Characters

Table 3: Organoleptic Characters:

Parameters	Results
Colour	Light Brown
Odour	Strong Characteristic Odour Of <i>Siktha</i>
Consistency	Homogenous and Free From Lumps

Table 4: Physico- Chemical Analysis:

Parameters	Results
pH	7.4
Spreadability (Gm.Cm/S)	12
Extrudability Study (G)	180
Thermal Stability (⁰ C)	40-45 ⁰ C
Loss On Drying (At 3hr/ 105 ⁰ C)	2.7%W/W
Microbial Contamination	18 Colonies of Bacteria

Topical Sensitivity Test: Negative.



Fig1: Vranaropani Taila



Fig2: Vranaropani Malahara



Fig3: pH

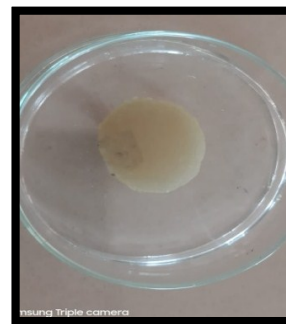


Fig.4 Spreadability

DISCUSSION

Drug: *Vranaropani* is an ethno-medicinal plant that promotes healing of wound. This possesses considerable number of phytochemical constituents that can be used for various medicinal purposes. Studies proved its pharmacological effects like anti-bacterial, anti-inflammatory, antioxidant and wound healing property.^{8,9} The relevance of selecting this drug includes its efficacy, acceptability and its wide availability.

Pharmaceutical preparation:

In *Taila* preparation, the *Kalka* and *Swarasa* were taken from the same drug itself, as the fresh leaf extract of *Vranaropani* is used in folklore. The ingredients; *Kalka*: *Snehadravya*: *Swarasa* was taken in the ratio 1/8:1:4.¹⁰ Coconut oil (*Narikela Taila*) was used as the *Sneha Dravya*. *Taila Paka* was carried out for 3 days as *Swarasa* was taken as *Drava Dravya*. Throughout the procedure, mild intensity fire and frequent stirring was followed. *Taila* with *Madhyama Paka* was collected after observing proper *Paka Lakshana*. In *Malahara* preparation, *Siktha* and *Vranaropani Taila* was taken in the ratio 1:6, as this ratio yield a product with good consistency. A homogeneous butter like substance with light brown colour was obtained.

Analytical study:

Quality of medicine is very important in health care system. Various analytical studies were carried out, to check the genuinity of the product.

The organoleptic study provides a basic idea about the quality of formulation. The characters were evaluated by using sense organs. The colour of prepared *Mala-*

hara was light brown. It had specific smell of beeswax as it was used as the base of *Malahara*. It was good in consistency, homogeneous and free from lumps. The results of analysis were satisfactory. The pH value obtained was 7.4. The slight alkalinity may be due to the presence of coconut oil and beeswax used in the preparation. To justify the variation from the normal pH range, topical sensitivity test was carried out¹¹. This is done to check any possibilities of developing skin irritation or other adverse reaction by topical application of the formulation. *Malahara* was applied to the elbow of the hand and observed for any side effects like skin inflammation, irritation, reddening of skin (allergic reaction) etc. The result was negative i.e. it is non – irritating to skin. Spreadability denotes the extent of area to which the cream or ointment spreads on application to skin or the affected part. The value was found to be 12. It shows the ointment is having fast spreading nature and good for application. Thermal stability determines the likelihood of a material to undergo phase transitions in response to thermal stress which may occur due to manufacturing process or storage conditions. *Malahara* shows a temperature range of 40-45°C. Extrudability is the measure of force required to extrude the material from a collapsible tube when certain amount of force has been applied on it in the form of weight. The value signifies, the percent of ointment extruded was good. Loss on drying at 105°C indicates the presence of all evaporating solvents along with water. Higher the moisture content more will be the percentage of loss on drying of the substance. The value obtained was

2.7% which shows less water content in the product. The formulation was subjected to microbial contamination study to rule out the presence of pathogens in the preparation which may affect the efficacy and stability of product. The result revealed that the product contains 18 colonies of bacteria. It was difficult to suppress all microbes as the base is oil, it gives protection to microbes. The result shows low contamination of *Malahara*. These microbes may enhance the wound healing process which may be studied in further research.

CONCLUSION

Malahara of a folklore drug *Vranaropani* was prepared and standardized on the basis of phytochemical analysis. The results obtained in the present study were found to be encouraging. The inconvenience of using crude drug can be satisfied, as this study focuses on the preparation of *Malahara*, which is acceptable, easily available as well as has more shelf life. Traditional medicine lives among people as part of their culture. Exploring them and proving them scientifically is essential. Here one such drug *Vranaropani* is identified. Further experimental and clinical evaluation can be carried out considering the current study.

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