

AN IN-VITRO ANTIMICROBIAL STUDY OF VRUNARAKSHASA TAILA

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ABSTRACT

The aim of Ayurveda is to maintain the healthy life of every individual and to cure the disease. Rasaushadhi is the combination of herbal, mineral and herbo-mineral ingredients. Vrunarakshasa Taila is one of the herbo mineral formulation mentioned in Bhaishajya Ratnavali and is indicated in Vruna (wound). Gram +ve Bacteria: *Staphylococcus aureus* and *S. mutans*, Gram –ve Bacteria: *Pseudomonas aeruginosa* and *Escherichia Coli* and Fungi: *Candida Albicans* and *Aspergillus Niger* are the common microorganisms causing wound. Vrunarakshasa Taila is indicated in Vruna hence, in the present study an attempt was made to assess antimicrobial activity of Vrunarakshasa Taila as an invitro experimental study.

KEYWORDS: Vrunarakshasa Taila, Antimicrobial study

INTRODUCTION

Rasashastra and Bhaishajyakalpana is a branch in which metals, minerals and herbal drugs are studied in detail. Vrunarakshasa Taila is one of the herbo- mineral formulation mentioned in Bhaishajya Ratnavali and is indicated in the Vruna¹. Gram +ve Bacteria: *Staphylococcus aureus* and *S. mutans*, Gram –ve Bacteria: *Pseudomonas aeruginosa* and *Escherichia Coli* and Fungi: *Candida Albicans* & *Aspergillus Niger* are the common microorganisms causing wound². Vrunarakshasa Taila is indicated in Vruna hence, in the present study an attempt was made to assess Antimicrobial activity of Vrunarakshasa Taila as an in-vitro experimental study.

METHODOLOGY

The study is divided into 3 parts:

- 1) Pharmaceutical study 2) Analytical study and 3) Antimicrobial study

PHARMACEUTICAL STUDY

Pharmaceutical Procedure: Preparation of Vrunarakshasa Taila³:

Steps involved are as follows:

-Collection of Raw materials: From Reliable sources

-Place of preparation: BVVS Ayurved Pharmacy-Bagalkot.

-Type of Snehapaka : Niragni Snehapaka.

-Duration : 15-Days

1) Procedure involved in the preparation of Vrunarakshasa Taila:(Fig. 1)

Reference: Bhaishajya Ratnavali, Vranashotha Rogadhikara

Instruments/ Equipments: Ingredients, Khalva Yantra, Wide mouthed utensil,

Spoon, Cotton cloth, Air tight glass container.

Ingredients:

Sl. No.	DRAVYA	BOTANICAL NAME	PART USED	PRAMANA
01.	Kajjali	<i>Black Sulphide of Mercury</i>	Powder	12gm
02.	Shuddha Haratala	<i>Arsenic trisulfide</i>	Powder	12gm
03.	Shuddha Manashila	<i>Arsenic disulfide</i>	Powder	12gm
04.	Nagasindura	<i>Red oxide of mercury</i>	Powder	12gm
05.	Tamra Bhasma	<i>Copper</i>	Powder	12gm
06.	Shuddha Vatsanabha	<i>Aconitum ferox</i>	Rhizome	12gm
07.	Lashuna Kalka	<i>Allium sativum. Linn</i>	Bulb	12gm
08.	Murchita Sarshapa Taila	<i>Brasica compestris</i>	Oil	192ml
09.	Jala	Water	Liquid	4 parts

Procedure:

- Kajjali was taken in the Khalva yantra.
- To this Shuddha Haratala and Shuddha Manashila were added and Mardana was carriedout to get homogenous consistency.
- Later fine powder of Nagasindura and Tamra bhasma was added and Mardana was carried out to get homogenous consistency.
- To this fine powder of Shuddha Vatsanabha and Lashuna kalka was added, again Mardana was carried out to get homogenous consistency.
- Now, to this homogeneous mixture Murchita Sarshapa Taila was added.
- This mixture was taken in the wide mouthed utensil along with four parts of water andwas stirred thoroughly.
- This final mixture of all the ingredients

was kept under the sunlight daily till the water content evaporates (intermittent stirring was done after an every hour).

-The final product filtered through the clean cloth and stored in the air tight glass container.

ANALYSIS OF ANALYTICAL STUDY:

(Fig. 2)

ANALYSIS OF ANTIMICROBIAL STUDY⁴: (Fig. 3)

Disk Diffusion Test: Also known as Kleihauer- Betke test (KB test) or agar diffusion test. Here the filter paper disk impregnated with a known concentration of an antimicrobial compound is placed on a muller- hinton (MH) agar plate, immediately water is absorbed into the disk from the agar. The antimicrobial begins to diffuse into the surrounding agar. The rate of diffusion through the agar is not as rapid as the rate of

extraction of the antimicrobial out of the disk, therefore the concentration occurs as the distance from the disk increases. The culture of microorganisms is applied on the surface of the agar plate and later streaked. The size of zone of inhibition around the disk is determined after the 18 to 24 hours. This shows the sensitivity of the drug to the test strain.

DISCUSSION

External infections involving the skin and wound are most frequent complications affecting humans. Herbo-mineral formulations play a great role in the treatment of skin and wounds. As Vrunarakshasa Taila is one such herbo-mineral formulation, the present research study which was carried out on Vranarakshsa taila as an antimicrobial, which is beneficial in treating the wounds. The antimicrobial results show that it has an effective action towards the selected microorganisms, we can treat the patients of wounds effectively by using this oil as an external application.

Contributions made towards increasing the state of knowledge in the subject are as follows:

-Through this study one can have the brief knowledge about the description of drugs used in the preparation of Vranarakshasa Taila.

-This study provides the knowledge about Niragni Snehapaka Vidhi.

-This study provides the knowledge about general rules and regulations to be followed during the preparation of formulation.

-One can have the knowledge about the organoleptic as well as the physico-chemical standards of Vranarakshasa Taila.

-This study also provide the knowledge about how the selected microorganisms act towards Vranarakshsa Taila

Overall, one can have the idea about how the Vranarakshasa Taila acts as an antimicrobial through this research study.

CONCLUSION

In this research work the following conclusions are drawn from the various sections of the work.

-Vrunarakshasa Taila was prepared in our college pharmacy by Niragni Snehapaka (Surya Pak) by following the classical rules and regulations and has achieved Sneha Siddhi lakshanans.

-Analytical parameters include the organoleptic standards and physico chemical standards. In organoleptic study the assessment of the colour, odour, taste, and appearance was done and it complies within the standard values.

-The colour of Vranarakshasa Taila was dark chocolate, odour was pungent and the taste of Vranarakshasa Tila was pungent.

-In physico chemical study the Saponification value, Iodine Value, Acid value and Specific gravity of Vranarakshasa Taila was done. The saponification value of Vranarakshasa Taila was found to be 39.88, the iodine value was 78.05, the Acid value was 4.032 and the Specific gravity of Vranarakshasa Taila was 0.966. All the values complies within standard values as per API (Ayurveda Pharmacopoeia of India). From the Antimicrobial result it is concluded that Vrunarakshasa Taila is having significant antimicrobial activity on selected micro organisms Gram +ve Bacteria: *Staphylococcus aureus* and *S.mutans*, Gram -ve Bacteria: *Pseudomonas aureginosa* and *Escherichia Coli*. And Fungi: *Candida Albicans* and *Aspergillus Niger*.

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Fig.1: PHARMACEUTICAL PROCEDURE

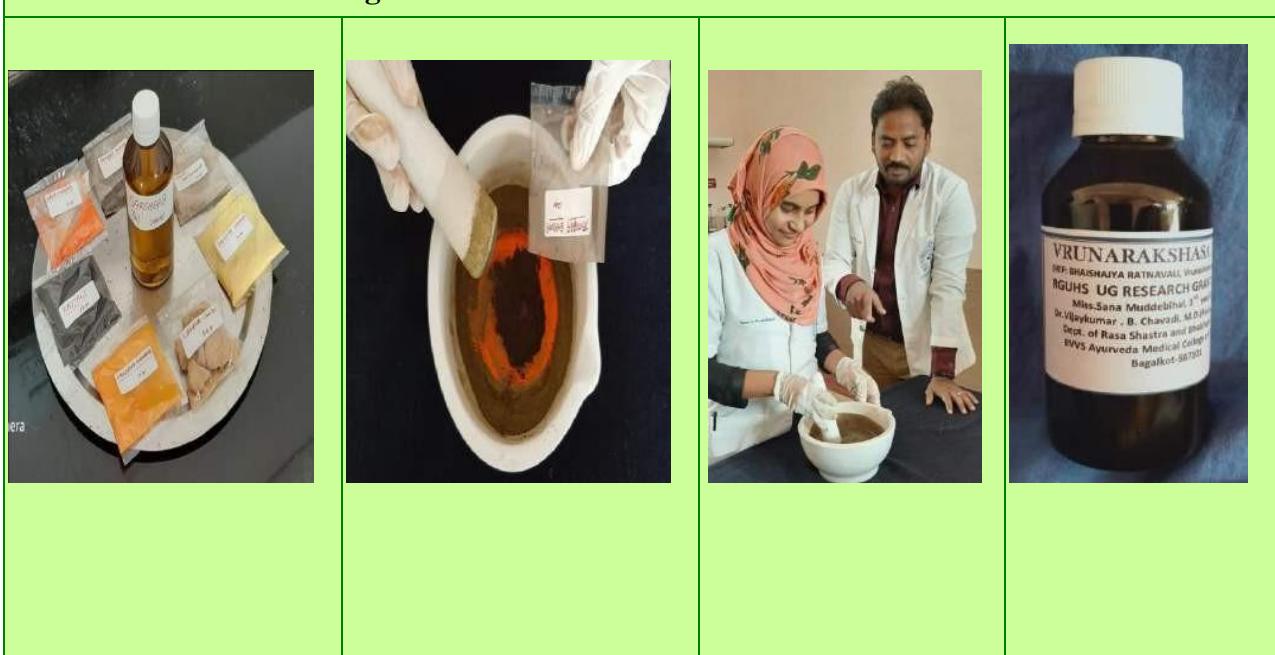


Fig.2 ANALYTICAL STUDY:

SHRI B M KANKANAWADI AYURVED MAHAVIDYALAYA
 A Constituent Unit of KLE ACADEMY OF HIGHER EDUCATION & RESEARCH (DEEMED-TO-BE-UNIVERSITY)
 (Re-Accredited 'A' Grade by NAAC (2nd Cycle) || Placed under Category 'A' by MHRD Govt.)
CENTRAL RESEARCH FACILITY
 (AYUSH Approved ASU Drug Testing Laboratory Lic. No.TL-8/2011)

Reference No:CRF/FG/66/2020-21	Batch No: NA	Registration Dt:-17/02/2020
Submitted by:Miss.Sana Muddebihal	Date:17/02/2020	Requisition no:---
Sample: Vrunarakshasa taila		Ref: BR
Sample Qty: 100ml		Report Date :02/03/2020
(* N/A - Not Available)		

TEST REPORT
 Form-50 [See Rule 160-D (f)]
(The Drugs & Cosmetic Act 1940 and the rules there under)

Organoleptic Characters :

TESTS

Form

Colour

Odour

Taste

RESULTS

: Taila

: Dark chocolate

: Pungent smell

: Pungent

Physico-Chemical Standards :

TESTS

Saponification Value

RESULTS

: 39.88

Iodine Value

: 78.05

Acid Value

: 4.032

Specific Gravity

: 0.966


ANALYST




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AUTHORISED SIGNATORY

Fig.3 ANTIMICROBIAL ACTIVITY:

	
Gram positive Bacteria <i>Staphylococcus aureus</i> with 26mm zone of inhibition.	Gram positive Bacteria <i>S.mutans</i> with 28mm of zone of inhibition

	
Gram negative Bacteria Escherichia coli with 15mm of zone of inhibition	Gram negative Bacteria Pseudomonas with zone of inhibition 28mm
	
Fungus Candida albicans with 25mm of zone of inhibition	Fungus A.niger with 26mm of zone of inhibition



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Results:

Sr. No.	Name of organism	Vrunarakshasa Taila	Ciprofloxacin
01	Staph	26mm	40mm
02	E.coli	15mm	42mm
03	Pseudomonas	23mm	45mm
04	S.mutans	28mm	35mm
05	Candida	25mm	32mm (Flucanazole)
06	A.niger	26mm	30mm (Flucanazole)

Date: 09.03.2020
Place: Belgaum



Iulax
Dr. Kishore G. Bhat
MD, (Microbiology)