Pharmaceutical and Chemical Study of Mahoshadh Sarpi Anjana : An Ayurvedic Formulation

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ABSTRACT

Ayurveda have been preached by sears like *Atreya, Charaka, Sushruta, Madhav* and *Kashyapa*. They have established numerous formulations for treatment of various diseases.The need of the hour is to approach these formulations scientifically making them standardized products having good compliance and cost effectiveness. This fact encouraged researcher to choose an *Ayurvedic* formulation mentioned for the treatment of *Shushkakshuipaka* as described in *Sushruta Samhita* in the present study and was named '*Mahoshadh Sarpi Anjana'*.Best scientific approach ,through different experiments is devised to procure the drug in ointment form, while working in the parameters of original text. *Mahoshadh Sarpi Anjana is* prepared in the form of ointment & different scientific analytical parameters like physical & physio-chemical characters, HPTLC profile were worked out so as to attain a standardized *Mahoshadh Sarpi Anjana* in the form of ointment. Further the stability of the drug was also worked out and finally a standardized and stable formulation (*Mahoshadh Sarpi Anjana*) was prepared in form of ointment according to modified classical method so it can be easily used topically for its clinical indications.

Keywords : *Shushkakshuipaka, Mahoshadh Sarpi Anjana, ointment, HPTLC, standardized*

INTRODUCTION

In the universe of medical systems; Ayurveda is a giant galaxy full of numerous stars of various drug formulations for a number of diseases.These formulations though are time tested but the need of the hour is to approach these formulations scientifically making them into standardized products.Moreover they should be made into the form which is patient friendly thus resulting in better compliance and at the same time should cost reasonably. Thus the present work on *Mahoshadh Sarpi Anjana*[1] a formulation mentioned in Sushruta Samhita was undertaken. Quality assurance of raw drugs and S.O.P. of ointment preparation was ascertained.Best scientific approach through different experiments was devised to procure the drug in ointment

form while working in the parameters of original text. Detailed analytical Study of finished product consisting of physio-chemical parameters and HPTLC findings along with study of stability and microbial load were done.

AIMS AND OBJECTIVES

A) To find out the organoleptic and Physio-chemical characters of drug.

B) To establish the stability of *Mahoshadha Sarpi Anjana* formulation.

C) To find out the Quality Assurance through HPTLC (High Performance Thin Layer Chromatography).

MATERIALS AND METHODS:

1. COLLECTION OF RAW MATERIAL

Contents of this formulation are- *Shunthi, Go-dugdha, Go-ghrita* were procured from local market.

2. QUALITY ASSURANCE OF RAW DRUGS

The collected material was subjected to pharmacopoeial analysis so as to judge its quality.The description, macroscopic as will as microscopic study resembled with the A.P.I. Various tests were also done for whom the observations and results are given below-

TOTAL ASH

2-3 g of drug was incinerated in a muffle furnace at temperature of 550 ^{0}c for 2 hours and the percentage ash was calculated as follows-

% ash = weight of Ash x100/weight of *Aushadha*

ACID INSOLUBLE ASH

The ash in the above experiment is boiled with 30% hydrochloric acid for 5 minutes and the residue was collected and the percentage insoluble in acid was calculated.

WATER SOLUBLE EXTRACTIVE

2-3 g of substance was coarsely powdered and known volume of water was added and shaking was done for 6 hours and kept for overnight, filtered and filtrate was evaporated to dryness, and water soluble extractive was calculated.

ALCOHOL SOLUBLE EXTRACTIVE

The method was same as of water soluble extractive. Here in place of water, ethyl alcohol of known volume was used for calculating the alcohol soluble extractive.

S. No.	Parameters	A.P.I. standards	observations
1.	Foreign matter	Not more than 1 %	NIL

2.	Total Ash	Not more than 6 %	5.47 %
3.	Acid Insoluble Ash	Not more than 1.5 %	1.06 %
4.	Water soluble extract	Not less than 10 %	15.29 %
5.	Alcohol soluble extract	Not less than 3.0 %	4.92 %

Thus drug *Shunthi* which was being used in the formulation, was found to be of standard quality. **The cow ghee** used in the preparation was of 10 years, collected through authentic source. The pharmacopoeial standards found were as follows, whereas the **cow milk** used in the preparation was found to be of ph 6.6 and the specific gravity – 1.0028

3. S.O.P. of *Mahoshadh Sarpi Anjana*

Following standard operative procedures was adopted in preparation of this ointment –

Extraction of oleo-resins of Shunthi:

55g of *Shunthi* is crushed and mixed with 1100 ml of AR quality Ethyl Alcohol. Frequent shaking was done for 6 hours and the mass was kept for 24 hours. Next day it was filtered and the liquid filtrate was evaporated to dryness, first on a hot plate subsequently on a water bath. The liquid was finally dried in hot air oven at 105^{o}c cooled and kept in a desicator for further work. In this process the yield of oleo-resin was found to be 1.5 g which is approximately 0.03%.

Preparation of Base:

As the preparation of this drug in the form of ointment was totally a new work. Thus in this preparation the base has a great role for getting the drug in ointment form. For that a number of batches of base are prepared and tested for desired physical properties like consistency, melting temperature etc. Finally the following ratio of ingredients is assessed appropriate for the formulation in the form of ointment –

1.	Hard Paraffin	10 g
2.	Bee wax	15 g
3.	Light liquid paraffin (LLP)	35 g
4.	Petroleum Jelly	35 g
5.	Cow-ghee	5 g
6.	Cow milk	Q.S.

4. METHOD:

Hard paraffin was melted first on hot plate followed by Bee-wax, LLP, Cow-*Ghrita* and Petroleum Jelly in the ratios as mentioned above. These are mixed with constant stirring to get a homogenous and clear mixture.

Preparation of *Mahoshadh Sarpi Anajana* Ointment:

Oleo-resin was added in two concentrations with base so as to get the ointment for two concentrations i.e. 0.5% and 1.0%.For that base is melted first and oleo-resin of known weight is added and a proper stirring is done so as to make the mass homogenous. It is filtered through cotton packed in funnel for two to three times. This mass is filled in 5g ophthalmic tubes. These ophthalmic ointment tubes are made microbial free (sterile) by passing them through Gamma Radiation Technique.

5. ANALYTIC STUDY

Physical Characterization Description or Organoleptic study

Parameters	*Mahoshadha Sarpi Anjana*
Appearance	Clear viscous liquid
Colour	Light brown
Odour	Characteristic, feeble
Taste	Characteristic

PHYSIOCHEMICAL TESTING

Particle Size: 16 μm

Ph: 6.5

Melting Point: 47ºC

STUDY OF STABILITY

The ointment tubes under observation for stability are kept for two temperatures i.e. 25° c and 40° c for 6 months in incubator maintained at that temperature continuously during the study. The study is made for ph 6.5 and the physical properties like consistency, colour, clarity etc. as shown in the following observation table.

Table Showing the various parameters for stability of drug at 25 °c and 40 °c

Days	**Colour**	**Clarity**	**Consistenc y**	**Ph**	
				25 °c	40 °c
30	Light brown	Clear	Good	6.51	6.53

60	Light brown	Clear	Good	6.60	6.50
120	Light brown	Clear	Good	6.55	6.55
180	Light brown	Clear	Good	6.50	6.58

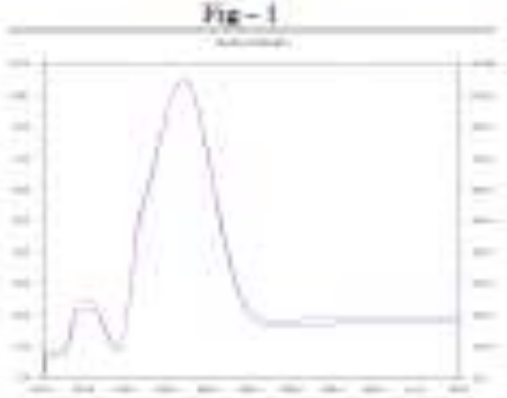
In the observation the physical conditions and the other parameter shown above are found to be more or less same during the study period of 6 months. It clarifies the facts that the drug can be kept for at least 6 months duration. As per safety level drug should be protected from sunlight and hot conditions above 40^{o}c keeping in mind that the melting point of the present drug is found to be 47^{o}c.It Should not be kept in refrigerator so as to avoid the freezing of the ointment and the best temperature is the ambient temperature (25^{o}c).

QUALITY ASSURANCE THROUGH HPTLC

The soluble extract of *Mahoshadh Sarpi Anajana* Ointment in organic solvent was used to identify the presence of main ingredient *shunthi* in the drug through High performance thin Liquid chromatography and the protocol is compared with the observations obtained for the ingredient shunthi as a standard. Three samples of ointment A_1, A_2 & A_3 are used along with standard which is extract of *shunthi*. Fig-1 to 3 shows the pattern under the mobile phase a mixture of n-hexane & diethyl ether in ratio 4:6 and spectra is observed at 200-600 nm. The R_f value and for the sample comes out to be 0.41. HPTLC confirms the presence of a standard peak for *shunthi (sonth)* in fig-4 whereas the same ingredient which was used in ointment form drug (*Mahoshadh Sarpi Anajana* Ointment) has also been confirmed through HPTLC method and is shown in Fig.5. This method confirms the presence of *shunthi* in the drug.

HPTLC REPORT OF SONTH IN OINTMENT SAMPLE

Fig – 1



Spectra of standard

Fig – 2

S1 S2 S3 A1 A2 A3

At 254 nm

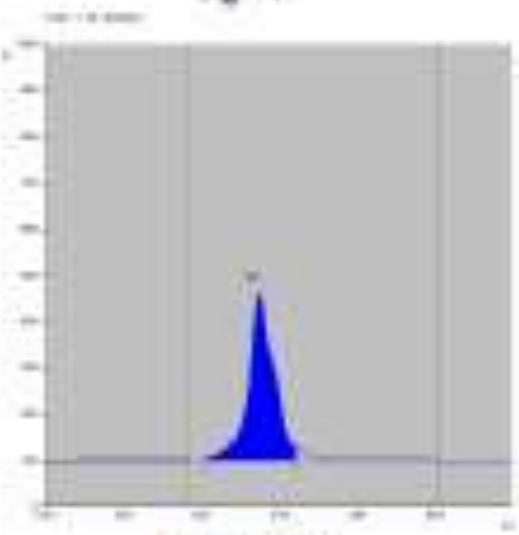
Fig - 3

S1 S2 S3 A1 A2 A3

At 366 nm

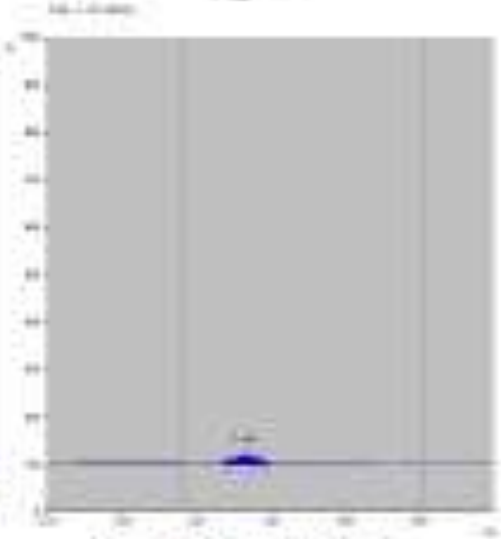
- Mobile phase : n-Hexane:Diethyl ether (4:6)
- Scanning wavelength : 354 nm
- Spectra : 200-600 nm
- Mode : Absorption
- Rf : 0.41
- S1, S2,S3 : Standard
- A1,A2,A3 : Sample

Fig – 4

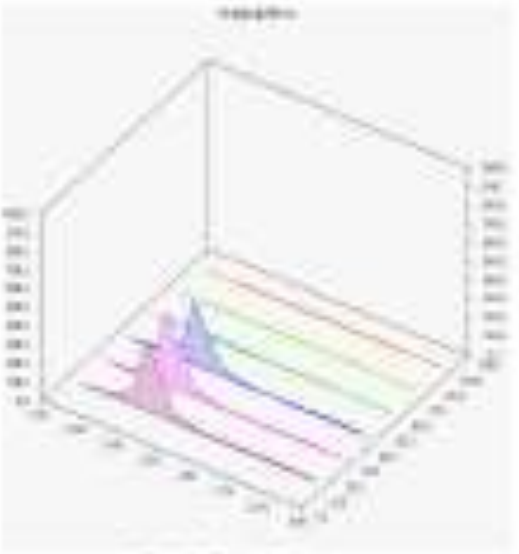


Standard peak

Fig – 5



Standard peak in Sample



Peak Display

Sample from vial 1: Standard	
Result via height	
Substance	R1
std	0.41
Result via area	
Substance	R1
std	0.41
Sample from vial 2: Sample	
Result via height	
Substance	R1
std	0.41
Result via area	
Substance	R1
std	0.41

Summary of calibration
Rf Value of standard

6. RESULTS AND DISSCUSSION

The drug was prepared scientifically into ointment form while working within the parameters of original text. Quality assurance of raw drugs was done following the parameters and standards of A.P.I .The obtained value of Total Ash, Acid insoluble Ash, Water soluble Ash, Alcohol soluble extract were found within normal limit in *Shunthi*, which indicate good quality of *Shunthi*.**Cow milk** used in the preparation was found to be of ph 6.6 and the specific gravity – 1.0028

The S.O.P. followed was:-extraction of oleoresin, preparation of base and mixing the two in desired concentration. In this process the yield of oleo-resin was found to be approximately 0.03%.Base was prepared with hard parrafin 10 gm,Bee wax 15 gm, LLP 35 gm, petroleum jelly 35 gm, cow ghee 5 gm cow milk Q.S. For sterilization Gamma Radiation Technique was followed.

The Analysis of final product was done on various parameters. Physio-chemical standards like particle size(16 μm), melting point(47ºC), pH(6.5) etc were assessed. Study of stability was done showing the drug to be stable for a period of 6 months. The quality assurance through HPTLC was done.It showed Rf values 0.41 thus confirming the presence of shunthi

7. CONCLUSION

Pharmacognostical and physio-chemical evaluation of *Mahoshadha Sarpi Anjana* illustrated the specific characters of this *Ayurvedic* formulation. Physio-chemical profile, HPTLC fingerprint, Stability Test are essential parameter for the quality of formulation. All parameters in this preparation were found within normal limits. On behalf of above findings the formulation of *Mahoshadha Sarpi Anjana* in ointment form is said to be the standard drug and can be used for its theraputical indications and beneficial for quality assurance if used clinically.

8. REFERENCES

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