



STANDARDIZATION OF DARVYADI EYE OINTMENT: AN AYURVEDIC FORMULATION

[Gunjan Sharma](#)¹, [Archana Gairola](#)², [Priyanka Chauhan](#)³, [Arun Kumar](#)⁴

¹HOD, ²P.G. Scholar, ³Assistant Professor, ⁴Assistant Professor,
Shalaky Tantra Department, Rishikul Campus, Uttarakhand Ayurved University, Haridwar, Uttarakhand, India

Corresponding Author: archigairola123@gmail.com

<https://doi.org/10.46607/iamj1408092020>

(Published online: September 2020)

Open Access

© International Ayurvedic Medical Journal, India 2020

Article Received: 26/08/2020 - Peer Reviewed: 08/09/2020 - Accepted for Publication: 08/09/2020



ABSTRACT

Darvyadi Raskriya is a combination of herbal drugs mentioned in *Ayurvedic* classic *Sharangdhar Samhita*. The formulation is believed to cure ocular complaints like *Netra Daha*, *Ashru*, *raag* and *Ruja* if prepared following appropriate methods. **Material and Methods:** For making the application of drug more convenient present study has been undertaken with the aim to modify *Darvyadi Raskriya* into ointment form and to develop the physicochemical profile of the final product. This form was designed in two steps viz. preparation of *Ghana Satva* from decoction of herbal drugs and mixing powdered *Satva* with *Goghrit* and paraffin wax used as a base for attaining the final product. The prepared drug was evaluated for organoleptic study, physicochemical study, pH value and also the product was subjected for microbial contamination test. It was tested in analytical laboratory and results were documented. **Result and Discussion:** The result shows the organoleptic character and sterility of the product. **Conclusion:** *Darvyadi Raskriya* ointment was prepared by following the method described in *Sharangdhar Samhita*. This paper presents the analytical study of the formulation.

Keywords: *Darvyadi Raskriya*, analytical, organoleptic, sterility

INTRODUCTION

Anjana is a procedure of applying medicinal pastes or powders to the internal surface of lower lid margin from *Kaneenika* to *Apanga sandhi* either by using fingertip or the applicator called *anjana shalaka*. It has been classified into *Churnanjana* (fine powder), *Gutikanjana* (tablet rubbed in appropriate solution) and *Raskriya* (semisolid form) according to the *swaroop* or nature of drug.¹ *Raskriya* is semi solid aqueous extraction of drug which is prepared by reducing decoction till it becomes thicker. It is considered to contain all the active principles as that of the whole drug.² *Darvyadi Raskriya* is a formulation prepared of *Daruharidra*, *Patol*, *Yashtimadhu*, *Nimb*, *Padmak*, *Utpal*, *Prapaundrik* all in equal amounts and is indicated in *Daha* (burning sensation in eyes), *Ashru* (watering from eyes), *Raag* (redness in eyes) and *Ruja* (pain or irritation in eyes).³ Almost all the drugs in the formulation have *chakshushya* properties i.e. they are beneficial for eyes and improves eyesight. *Daruharidra*, the chief component of the formulation has been quoted as “*netrakarnaasyaroganut*” i.e. pacifies disease of eyes,

ear and mouth.⁴ *Yashtimadhu* is also a content of the formulation which apart from having *rasayan* properties has also been called *chakshushya* by *acharya bhavprakash*.⁵ This paper presents the analytical study of the formulation, which may serve as supporting literature for future studies and to maintain standard quality of the formulation.

Aim and Objectives

- To prepare *Darvyadi Raskriya* in the form of eye ointment.
- To find out the sterility test and physicochemical tests of *Darvyadi ointment* prepared by classical and modified methods.
- To analyze the physical or organoleptic character of the prepared drug.

Material and Methods

Collection of raw materials

The raw drugs for the study were procured from the Hansa Pharmacy Premnagar Ashram, Haridwar Uttarakhand. (Figure 1-6). The final product was prepared in the Hansa Pharmacy Premnagar Ashram, Haridwar Uttarakhand.

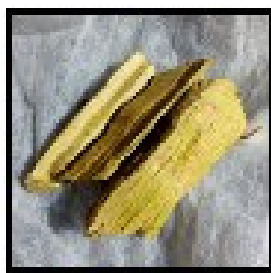


Figure 1: *Barberis aristata*



Figure 2: *Glycyrrhiza glabra*



Figure 3: *Prunus prudium*



Figure 4: *Nelumbo nucifera*

Figure 5: *Trichosanthes dioica*Figure 6: *Azadirachta indica*Table 1: Contents of *Darvyadi Raskriya*

Sr. No.	Drug Name	Botanical Name	Family	Part Used	Ratio
1.	<i>Darvi</i>	<i>Berberis aristata</i>	Berberidaceae	Root	1500gms
2.	<i>Patol</i>	<i>Trichosanthes dioica</i>	Cucurbitaceae	Leaf	1500gm
3.	<i>Yashtimadhu</i>	<i>Glycyrrhiza glabra</i>	Fabaceae	Root	1500gms
4.	<i>Utpal (substituted with Kamal Pushpa)</i>	<i>Nelumbo nucifera</i>	Nymphaeaceae	Flower	1500gms
5.	<i>Prapaundrik (substituted with Kamal Pushpa)</i>	<i>Nelumbo nucifera</i>	Nymphaeaceae	Flower	1500gms
6.	<i>Padmak</i>	<i>Prunus cerasoides</i>	Rosaceae	Stem	1500gms
7.	<i>Nimb</i>	<i>Azadirachta indica</i>	Meliaceae	Stem bark	1500gms

Method of preparation of *Darvyadi ointment*

The *Darvyadi ointment* was prepared by classical method of *Ghana satva*. For the preparation of *Ghana satva yavkoot* of all the raw herbal drugs i.e. *Daruharidra*, *Patol*, *Yashtimadhu*, *Nimb*, *Padmak*, *Utpal* (substituted with *kamal pushpa*), *Prapaundrik* (substituted with *kamal pushpa*) were taken in equal amount (1500gms each) in dry form and was kept in 4 times of water (42 liters) for overnight (approx. 8 hours) and then decoction was prepared till it reduced to $\frac{1}{4}$ of total quantity. This part of decoction was

filtered and subjected to boil again till it became thicker⁶. After obtaining the *Ghana satva* it was kept into tray drier at 35-40 degree Celsius until completely dry and then was powdered. Obtained powdered was sieved through mesh no. 120 and then mixed with base of ointment prepared by mixing *Goghrit* and paraffin wax mixed in ratio 2:1. Drug to base ratio was kept as 3:2 for obtaining desired semi solid consistency. Final product was then packed in sterile ointment tubes of 5ml each.



Fig. 7. Procedure of preparing Darvyadi Ointment

Analytical Study: Observations

Prepared final product (*Darvyadi* Ointment) was analyzed by employing various analytical parameters.

Physical Characterization Description or Organoleptic study

Organoleptic characteristics for various sensory characters like appearance, color, taste, odour etc. were carefully noted down (table no. II).

Table 2: Physical characterization Description

Appearance	A Blackish coloured semisolid mass
Colour	Dark brown
Odour	Characteristic
Taste	Characteristic

pH value: pH was determined by using Digital pH meter. One gram of ointment was dissolved in 100 ml of distilled water and stored for 2 hours and the measurement of pH came out to be 5.0 which is weakly acidic.

Physicochemical Analysis: Sample was subjected for physicochemical analysis such as Loss on drying

at 105-degree Celsius, Total fatty matter present and spreadability test. Loss on drying was calculated after placing the 10g of sample in the tared evaporating dish, drying at 105 C for 5 hours. Fat content present in the ointment was found to be of normal range and spreadability also complied (table no. III)

Table 3: Physicochemical properties

Loss on drying at 105 (%w/w)	10.02
Total fatty matter (%w/w)	24.44
Spreadability	Complies

Sterility Test: Sterility test was done by the method mentioned under IP 2007, Vol-2, which shows that the drug was tested, was sterile.

Heavy Metal Test: Spectrometry of the sample was also carried out for the presence of heavy metals such

as cadmium (Cd), lead (Pb), mercury (Hg), arsenic (As). All the metals were present in the ointment in safe range (table no. IV).

Table 4: Heavy Metals

Lead (Pb) ppm	3.5
Arsenic (As) ppm	0.65
Cadmium (Cd) ppm	0.06
Mercury (Hg) ppm	0.22

Microbial Analysis: Darvyadi anjana was evaluated for total bacterial count and total fungal count. Total bacterial count was carried out by plate count method, which is mentioned in A.P.I, Part II, Vol-I, Appendices-2.4 (table no. V)

Table 5: Microbiological Analysis

Total bacterial count (cfu/g)*	<10
Total fungal count	<10
E.coli	Absent
Salmonella sp.	Absent
P.aeruginosa	Absent
S. aureus	Absent

RESULTS AND DISCUSSION

Pharmacognostical Analysis organoleptic evaluation of the final product was performed. The *Darvyadi raskriya* has been prepared in ointment form for the first time for making the application easy and accessible. The final product obtained appeared blackish brown in colour with bitter taste. The obtained value of pH, microbial count limits and heavy metal limits all were found within normal limits in the ointment and sterility also complied. As the product is prepared to be used directly on eyes these are major factors that will ensure safety while applying the product. The product was found to be weakly acidic so it would not cause any harm as tears rapidly neutralizes excess hydrogen ions. Low microbial count and sterility will ensure that using the

product on eyes would not be responsible for any secondary infections. Ointment was also tested for fat content, spreadability and how much loss occurs while drying the product. All the readings of the product came out to be within normal range. Spreadability will ensure that product is easy to drag without causing any greater friction or rubbing. As the product has been prepared using cow ghee, and Ghana satva extract it will be having more contact time with the eye and will be absorbed more rapidly by the epithelial cells. This indicates good quality of the product and may be responsible for its pharmacological and clinical actions.

CONCLUSION

Pharmacognostical evaluation of *Daryvyadi* ointment illustrated the specific characters of this preparation. The microscopic features, physio-chemical parameters, sterility, heavy metal testing and microbiological analysis are essential parameters for ensuring safety and quality of the drug. All parameters of *Daryvyadi* ointment were found within normal range and may be used for standardization and quality evaluation of the drug for future scholars.

REFERENCES

1. Maharishi Sushrut, Sushrut Samhita Uttartantra, Ayurved Tatva Sandipika commentary by Shri Ambika Dutta Shastri, Varanasi, Chaukhambha Sanskrit Sansthan, reprint edition (2012), 99 p.
2. Krishna, Murali & Sangu, Pavan Kumar & Deevi, Venkata. An Enlightenment On Rasakriya Kalpana. IJAM [Internet], 2010 Jul-Sept [cited 2020 Aug 23];

Available from URL : <https://www.ijam.co.in/index.php/ijam/article/view/30>

3. Sharangdhar, Sharangdhar Samhita Madhyam khand, Jiwanprada commentary of Dr. Smt. Shailaja Shrivastava, Varanasi Chaukhamba orientalia. Reprint edition (2017), 208 p.
4. ShriBhavMishra, BhavPrakash Nighantu, Vidyotini hindi commentary of Misra Sri Brahmasankara, Varanasi, Chaukhamba Bharati Academy, reprint edition (2004), 119 p.
5. ShriBhav Mishra, Bhav Prakash Nighantu (Indian Material Medica) of Prof. K. C Chunekar, Varanasi, Chaukhamba Bharati Academy, reprint edition (2013), 62 p.
6. Sharangdhar, Sharangdhar Samhita Madhyam khand, Jiwanprada commentary of Dr. Smt. Shailaja Shrivastava, Varanasi Chaukhamba orientalia. Reprint edition (2017), 502 p.

Figure 8: Analytical Report

Sample		Common Name	DARVYADIANJAN		Report No.	AYR20200118107	
Batch/lot No.		Peak Size	Mfg. Date	Exp. Date	Report Date	Batch Size	Sample Quantity
NS		NS	NS	NS	03/02/2020	100 g	
Condition (if provided)		INS	Sample reference		INS		
Sample Manufactured By		INS		Mfg. License No. of Customer			
Sample Supplied By		INS					
Sample Submitted By (Name & Address of Customer)		Dr. Archana, PG Scholar UAU, Ritikul Ayurvedic Campus, Haidwar (U.K.)					
Sample received on		18/01/2020		Analysis started on		18/01/2020	
Reference to Protocol		In-house Specifications.					
S. No.	Test Parameters	Results	Minimum	Maximum	Method Reference		
01	Description	Brown colour semi solid mass.					
02	pH	9.00			API		
03	Total fatty matter (%w/w)	24.44			API		
04	Loss on drying at 100°C (%w/w)	10.02			API		
05	Spreadability	Complies			API		
06	Sterility test	Complies	To Comply		API		
07	Heavy Metals						
	Lead (Pb) ppm	3.5		10.0	API		
	Arsenic (As) ppm	0.85		3.0	API		
	Cadmium (Cd) ppm	0.06		0.3	API		
	Mercury (Hg) ppm	0.22		1.0	API		
08	Microbiological Limits Test						
	Total Bacterial count (cfu/g)	<10		10 ⁶	API		
	Total Fungal count (cfu/g)	<10		10 ⁶	API		
	<i>E. coli</i>	Absent		Should be absent / g	API		
	<i>Salmonella sp.</i>	Absent		Should be absent / g	API		
	<i>P. aeruginosa</i>	Absent		Should be absent / g	API		
	<i>S. aureus</i>	Absent		Should be absent / g	API		

Remarks : Party asked for above test only.
Abbreviations : NS: Not Specified, INS: In-house Specifications & API: The Ayurvedic Pharmacopoeia of India.

End of Report

Please turn over to refer the terms and conditions. Page 1 of 1

Authorized Signatory (Rohan Pratap Singh)

Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Archana Gairola et al: Standardization Of Darvyadi Eye Ointment: An Ayurvedic Formulation. International Ayurvedic Medical Journal {online} 2020 {cited September, 2020} Available from: http://www.iamj.in/posts/images/upload/4385_4390.pdf