



Analytical Study of *Yoganjana* Ointment: An Ayurvedic Formulation

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ABSTRACT: *Anjana* is an Ayurvedic medicinal formulation that is used in “*Sampakvadasha*” condition.¹ *Anjana* also known as collyrium is a topical application of drug in the form of smooth paste into the conjunctival fornices with an applicator. Although *Anjanas* are meant for eye diseases yet it has wide application in systemic diseases too. *Anjana* is used when the acute inflammatory features subside and the clinical feature of each dosha become manifested and localized in the eye. *Anjana* preparation are compound drugs prepared out of metal, minerals, herbs and animal materials. Generally Arsenic, Antimony, Lead and Tin compounds are frequently prescribed. Dosage and duration are aptly prescribed to avoid noncompliance. Disposal of the drug is very minimal so the tissue contact time is more; absorption is maximum thus bioavailability is naturally more. Probably, it acts as subconjunctival injection, permeability is also possible through the sclera and enters into the systemic circulation and may act on posterior segmental disorders of the eye. The metals in *Anjana* preparation having larger molecular weight do not cross the blood aqueous barrier when administered systematically. The treatment plan of *Praklinna Vartma* mentioned in *Sushruta Samhita* includes *Yoganjana* along with other ocular therapeutic procedures. *Yoganjana* is an Ayurvedic formulation mentioned in *Sushruta Samhita* used to treat *Vartmagata* disease namely *Praklinna Vartma*. Keeping all the points, this study has been undertaken with the aim to modify *Yoganjana* in ointment form. The *Anjana* was prepared through “*Ghana Satva Kalpana*”.

KEYWORDS: *Yoganjana*, Analytical Study, *Praklinna Vartma*, Seborrhoeic Blepharitis.

INTRODUCTION

Sushruta Samhita has defined *Praklinna Vartma* in Chapter 3 Of *Uttartantra* as follows: When externally the lids become swollen and painless, while on the inner surface they become moist and associated with discharge, itching and pricking pain, then it is called *Klinna Vartma*.² It is a *Pilla roga* according to *Chakshushyena Acharya*. The treatment plan of *Praklinna Vartma* according to *Sushruta Samhita* says that after doing *Antaha* and *Bahya Sanshodhana* of body through different procedures such as *Snehana*, *Swedana*, *Virechana*, *Shirovirechana* and *Raktamokshana*, patient is treated with *Seka*, *Aschyotana*, *Anjana*, *Nasya* and *Dhoompana*.³ *Yoganjana* has also been mentioned as a drug of choice in *Praklinna Vartma* in *Sushruta Samhita*.⁴ According to *Sharangdhara Samhita*, in *Netra Prasadana Vidhi Adhyaya*, Ch 13. In *Ashtang*

Hridaya, Acharya has mentioned that daily use of *Sauveeranjana* is beneficial to the eyes.⁵ Based on signs and symptoms, it has been correlated with Seborrhoeic blepharitis. Anjana is a medicinal preparation and is one among the five *kriyakalpas* (therapeutic procedures) mentioned by *Acharya Sushruta*.⁶ It has also been mentioned in *Swasthavritta* as a part of *Dincharya*. Ocular complaints like burning sensation, itching, debris in the eyes and stickiness of eyes, pain remains at bay by the use of *Anjana*.⁷ It makes the eyes tolerable to wind and sunrays. Daily use of *Anjana* keeps away all the *Netrarogas*.⁸ Keeping all these points into consideration, *Yoganjana* was selected for present study.

AIMS AND OBJECTIVES:

1. To analyse the organoleptic character of the *Yoganjana*.
2. To analyse physiochemical properties of *Yoganjana* formulation prepared by classical method.

MATERIAL AND METHODS

Collection of raw drugs: The raw drugs for the study were acquired from Local market. The final product i.e. *Yoganjana* was prepared in the Anamika Pharmacy Sidcul, Haridwar, Uttarakhand.



Kasisa



Rasanjana



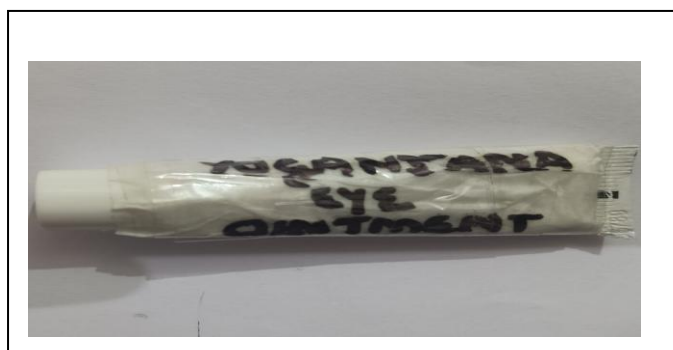
Samudraphena



Jatipushpa



Honey



Yoganjana eye ointment

METHOD OF PREPARATION OF YOGANJANA EYE OINTMENT

Yoganjana was prepared as ointment by classical method of “*Ghana Satva*” . All the herbal drug contents were taken in equal ratio. *Shodhana* of *Kasisa* was carried out by dipping it in *Bhringraja* and *Maarana* by giving *Bhaavana* of *Snuhi Patra Swarasa*. Then *Shodhana* of *Samudraphena* was carried out using *Nimbu Swarasa*. *Shodhana* of *Rasanjana* was also done by *Bhringraja Swarasa* according to the classics. All the contents were taken together and decoction was prepared in eight times of water till it remains ¼ th of it. Then the decoction was filtered and again boiled till it became thicker. Then the *ghana satva* was dried in a tray drier at 35-40⁰ C temperature and then powdered drug was filtered with 120 number sieve mesh and mixed well , emulsified with linolein wax and honey and then the packaging was done in sterile ointment tubes.

Table 1. *Yoganjana* and their proportion.

Drug	Latin name/ Family name	Rasa	Guna	Virya/Vipaka	Part used	Sthanika Karma	Ratio
<i>Kasisa</i>	Ferrous Sulphate	Tikta, Amla	Laghu, Ruksha	Ushna, Katu	-	Netryam, Atikanduhara	1
<i>Samudraphena</i>	Cuttle fish bone	Kashaya	Ruksha	Sheeta, Katu	-	Chakshushya	1
<i>Jatipushpa</i>	<i>Jasminum officinale</i>	Tikta, Kashaya	Laghu, Snigdha, Mridu	Ushna, Katu	Pushpa	Shothhara, Vedanasthapana	1
<i>Rasanjana</i>	<i>Berberis aristata</i>	Tikta, Kashaya	Laghu, Ruksha	Ushna, Katu	-	Netrayoh paramam hitam	1
<i>Makshika</i>	Honey	Kashaya, Madhura	Guru, Sheeta	Madhura	-	Shothahara	1

Analytical Study: Prepared final product i.e *Yoganjana* was analysed by applying various analytical parameters.

Organoleptic study or Physical characterisation description: Organoleptic characteristics are given below:

Table 2. Physical characterisation description of *Yoganjana*.

PARAMETERS	RESULT	LIMIT AS PER API
Description	Greyish black coloured ointment	NA
Odour	Characteristic	NA

Physiochemical Analysis: The physio-chemical analysis is as follows:

Table 3. Physiochemical analysis of *Yoganjana*.

Rancidity	Not Rancid	NA
Total acidity	0.07	NA
Acid Value	11.78	NA
Peroxide Value	2.19	NA
Total fat	92.59%	NA
Moisture analysis by KF	0.48%	NA
Thermal stability	Stable	NA

Instrumental Analysis: The instrumental analysis is as follows:

Table 4. Instrumental analysis and HPTLC fingerprinting report of *Yoganjana* .

Spreadability (Force)	604.68g	NA
Application Mode	CAMAG Linomat 5-Applicator	
Filtering system	Whatman filter paper No. 1	
Stationary phase	MERCK – TLC/HPTLC Silica Gel 60 F ₂₅₄ On Al sheets	
Application (Y- axis) start position	10mm	
Development end position	80mm from plate base	
Sample application volume	8micro L	
Distance between tracks	0mm	
Development mode	CAMAG TLC Twin Trough Chamber	
Chamber saturation time	30 min	
Mobile phase (MP)	Toluene: Ethyl acetate: Formic acid (7:3:0.1v/v)	
Visualisation	@254nm, 366nm and @540nm	
Spray reagent	Anisaldehyde- Sulphuric acid reagent	
Derivatization mode	CAMAG- Dip tank for about 1 min	
Drying mode, temp and time	TLC Plate Heater Pre heated at 100 ± 5 ⁰ for 3 minutes	

Heavy metal analysis: The heavy metal analysis is given below:

Table 5. Heavy metal analysis of *Yoganjana*.

Lead	0.706ppm	NMT 10ppm
Cadmium	0.028ppm	NMT 0.3ppm
Mercury	0.664ppm	NMT 3ppm
Arsenic	1.547ppm	NMT 1ppm

Microbiological analysis: The microbiological analysis is given below:

Table 6. Microbiological analysis of *Yoganjana*.

Total microbial plate count	55cfu/g	10 ⁵ cfu/g
Total yeast and mould count	Absent	10 ³ cfu/g
Staphylococcus aureus	Absent	Absent/g
Salmonella species	Absent	Absent/g
Pseudomonas aeruginosa	Absent	Absent/g
Escheria coli	Absent	Absent/g



Yoganajana Eye Ointment		Report Date	02-08-2024
		Sample ID	AD/24/211
Name of Scholar	Dr. Shruti, Risikul State Ayurvedic PG College, Haridwar, Uttarakhand.		

CERTIFICATE OF ANALYSIS			
Sr. No.	Parameters	Result	Limit as per API
ORGANOLEPTIC ANALYSIS			
1	Description	Greyish black coloured ointment	NA
2	Odour	Characteristic	NA
PHYSICO-CHEMICAL ANALYSIS			
1	Rancidity	Not rancid	NA
2	Total Acidity	0.07	NA
3	Acid Value	11.78	NA
4	Peroxide Value	2.19	NA
5	Total Fat	92.59 %	NA
6	Moisture Analysis by KF	0.48 %	NA
7	Thermal Stability	Stable	NA
INSTRUMENTAL ANALYSIS			
1	Spreadability (Force)	604.68 g	NA
2	HPTLC Fingerprinting	Reports attached	NA
HEAVY METAL ANALYSIS			
1	Lead	0.706 ppm	NMT 10 ppm
2	Cadmium	0.028 ppm	NMT 0.3 ppm
3	Arsenic	1.547 ppm	NMT 3 ppm
4	Mercury	0.664 ppm	NMT 1 ppm
MICROBIOLOGICAL ANALYSIS			
1	Total Microbial Plate Count (TPC)	55 cfu/g	10 ⁵ cfu/g
2	Total Yeast & Mould Count (TYMC)	Absent	10 ³ cfu/g
3	<i>Staphylococcus aureus</i>	Absent	Absent/g
4	<i>Salmonella sp.</i>	Absent	Absent/g
5	<i>Pseudomonas aeruginosa</i>	Absent	Absent/g
6	<i>Escherichia coli</i>	Absent	Absent/g
Kew-Word: API – Ayurvedic Pharmacopoeia of India; % - Percentage w/w, ppm - Parts per millions, NA – Not applicable, ND - Not detected, cfu/g – Colony forming unit per gram.			

Analyzed by

Approved by

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Analytical Report from Vasu Research Centre

RESULTS AND DISCUSSIONS:

Pharmacognostic analysis showed that the organoleptic characters of the sample were greyish black in colour and semi solid in appearance. The analytical study deals with both the physical and chemical properties of the drug prepared. Microbiological analysis and heavy metal test were also found in the normal range shows the aseptic nature of *Yoganajana* eye ointment. All values were found in their normal range as derived in API. ⁹

CONCLUSION

Pharmacognostic and physiochemical evaluation of *Yoganjana* eye ointment illustrated specific characteristics. It is the first time when pharmaceutical and analytical profile of *Yoganjana* eye ointment was established. All parameters used for standardisation and quality evaluation of *Yoganjana* eye ointment were within normal limits.

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