Research Article

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ANALYTICAL STUDY OF KESHANJANA: AN AYURVEDIC FORMULATION

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ABSTRACT

Background: Shushkakshipaka (dry eye syndrome) is a sarvagata netraroga (affects all parts of the eye) mentioned by Acharya Sushruta and Acharya Vagbhata. In managing various netraroga, kriyakalpa (therapeutic procedures) plays an important role. Among the netrakriyakalpa, anjana (collyrium) is one of the procedures mentioned by our acharyas. It was extensively and frequently used in ancient times by acharyas, and it had tremendous importance in healthy people and ophthalmic patients. Keshanjana is the drug mentioned in Vagbhata Samhita, and it was prepared by the method described in the Ayurvedic text. Keshanjana is made by using Keshamasee (ash of human scalp hair) and goghrita (cow's ghee), which are mixed in a ratio of 1:4. Keshanjana is indicated for the treatment of Shushkakshipaka in the classical literature of Ayurveda; hence, Present study has been undertaken to develop the analytical profile of Keshanjana according to API and protocol of drug testing of PLIM. Materials and Methods: The Keshanjana was subjected to an organoleptic study, physicochemical evaluation, antimicrobial study and heavy metal analysis. Results: Keshanjana is safe for use as heavy metals were below the acceptable limit and free from pathogenic microbes. Conclusion: This paper presents the analytical study of Keshanjana, which was prepared by following the method mentioned in Vagbhata Samhita.

Keywords: Keshamasee, Keshanjana, Shushkakshipaka and analytical profile.

INTRODUCTION

The eye is an essential symbolic sensory organ. Ayurveda aims to manage health concerns from their root. According to Ayurveda, the eyes are more crucial to human life than any other sense organ. As a result, Ayurveda has extensively covered how to preserve the eyes' health and every condition that affects them. Shushkakshipaka is among the sarvagata netra rogas mentioned by Acharya Sushruta[1] and Acharya Vagbhata[2]. One classification given by Acharya Sushruta for eye diseases is "Diseases affecting all parts of the eyeball", i.e., sarvagata netra roga, including Shushkakshipaka[3]. Shushkakshipaka a very similar to an ocular surface disease, i.e., dry eye syndrome that occurs when tears aren't able to provide adequate moisture. Ingredients of Keshanjana are Keshamasee and goghrita; Keshamasee was prepared by using the principle of putapaka (incineration method)[4], which was mixed with goghrita in the ratio of 1:4 and triturated up to the formation of the uniform mixture. This preparation is indicated for treating Shushkashipaka in Vagbhata Samhita and classical Ayurvedic treatises.

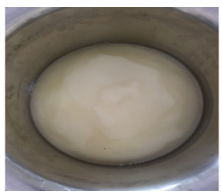
Aims and Objectives: To analyse the physical, organoleptic character, heavy metal content and the microbiological study of the Keshanjana prepared by the classical method.

MATERIALS AND METHODS

Procurement of raw material

Human scalp hairs (kesha) were collected from various saloons in Haridwar, India.

Hairs



Goghrita

Figure 1: Ingredients of Keshanjana

Pre-treatment of raw material

Foreign materials were removed from the hairs; after that, the hairs were taken for washing. Hairs were thoroughly washed with medi spirit (Spirit used for medical purposes). Washed hairs were subjected to drying under sunlight for two days.

Preparation of Masee

On a glass, surface hairs were smeared with goghrita. After adequate mixing, the mixture was divided and kept in an earthen pot, which was covered by another earthen pot and the junction was sealed by an alternate layer of muddy cloth. After that earthen pot was allowed for complete drying, which was then subjected to putapaka in the gajaputa; after burning completely, leave time for self-cooling[5]. After self-cooling, masee was collected from the inside of earthen pots. After that, masee was transferred into mortar and pestle and triturated 24 hours up to the formation of fine powder. The powder was collected and sieved through 120#. The sieved powder was again triturated for 12 hours and passed through markin (madarpath cloth).

Preparation of Keshanjana

The Keshanjana is prepared by using Keshamasee and goghrita[6]. In this process, Keshamasee and goghrita were taken in a ratio of 1:4 and triturated up to the formation of a uniform mixture. After complete attrition, the Keshanjana was weighed and filled into tubes.

Methods of Evaluation of Keshanjana

Keshanjana were evaluated by employing parameters mentioned in Ayurvedic Pharmacopeia of India and protocol of Ayurvedic drug testing of PLIM, Ghaziabad, UP, India[7].

Physicochemical evaluation

The sample was subjected to physicochemical analysis such as loss on drying at 105 ^{0}C, Total fatty matter present and spreadability test. Loss on drying was calculated after placing the 10 g of sample in the tared evaporating dish and drying at 105 ^{0}C for 5 hours. Fat content in the Keshanjana was within the normal range, and spreadability also complied.

Heavy metal analysis

Keshanjana sample tested for the presence of heavy metals such as cadmium (Cd), lead (Pb), mercury (Hg), and arsenic (As). All the metals were present in a safe range.

Microbiological study

Keshanjana was evaluated for the total bacterial count and total fungal count. The plate count method carried out the total bacterial count, which is mentioned in A.P.I, Part II, Vol-I, Appendices 2.4.

Smeared Hairs with Goghrita

Gajaputa

Putapaka

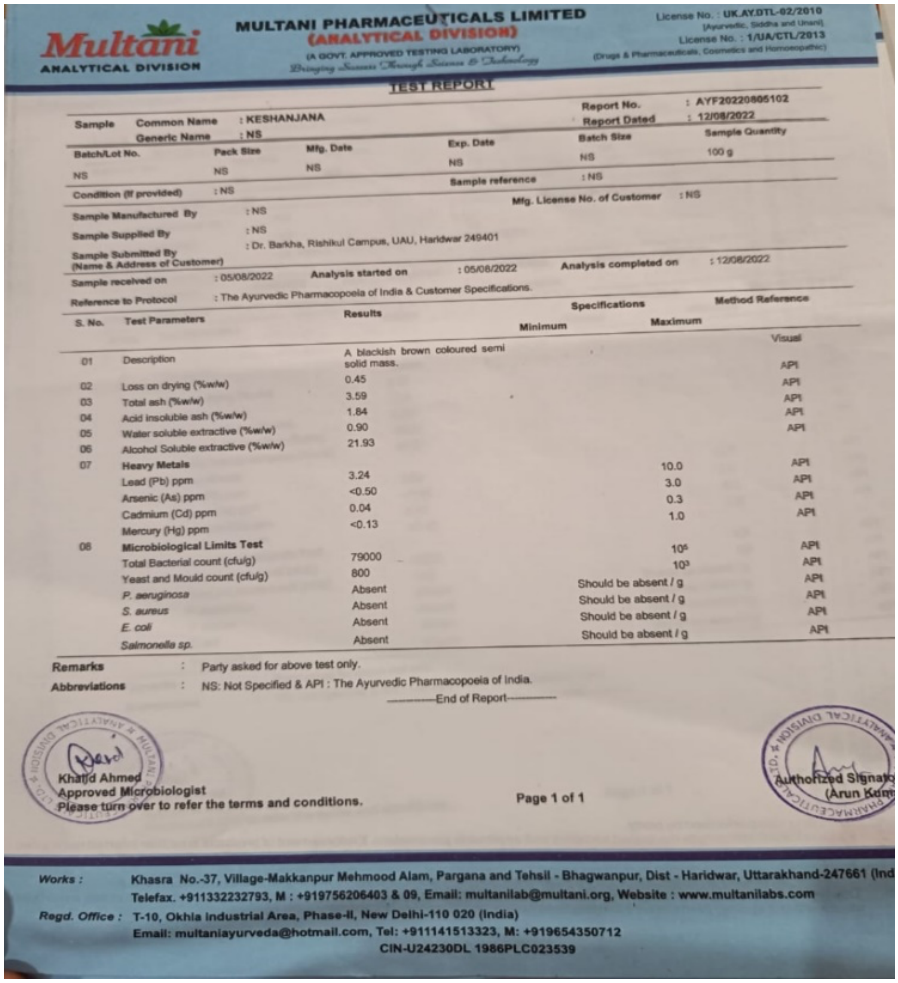
Prepared Masee

Figure 2: Preparation of Keshamasee

Mixing of Goghrita with Masee

Prepared Keshanjana

Figure 3: Preparation of Keshanjana



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TEST REPORT

Sample Common Name : KESHANJANA
Generic Name : NS
Report No. : AYF20220805102
Report Dated : 12/08/2022

Batch/Lot No.	Pack Size	Mfg. Date	Exp. Date	Batch Size	Sample Quantity
NS	NS	NS	NS	NS	100 g

Condition (If provided) : NS
Sample reference : NS
Sample Manufactured By : NS
Mfg. License No. of Customer : NS
Sample Supplied By : NS
Sample Submitted By (Name & Address of Customer) : Dr. Barkha, Rishikul Campus, UAU, Haridwar 249401
Sample received on : 05/08/2022
Analysis started on : 05/08/2022
Analysis completed on : 12/08/2022
Reference to Protocol : The Ayurvedic Pharmacopoeia of India & Customer Specifications.

S. No.	Test Parameters	Results	Specifications Minimum	Specifications Maximum	Method Reference
01	Description	A blackish brown coloured semi solid mass.			Visual
02	Loss on drying (%w/w)	0.45			API
03	Total ash (%w/w)	3.59			API
04	Acid insoluble ash (%w/w)	1.84			API
05	Water soluble extractive (%w/w)	0.90			API
06	Alcohol Soluble extractive (%w/w)	21.93			API
07	Heavy Metals				
	Lead (Pb) ppm	3.24		10.0	API
	Arsenic (As) ppm	<0.50		3.0	API
	Cadmium (Cd) ppm	0.04		0.3	API
	Mercury (Hg) ppm	<0.13		1.0	API
08	Microbiological Limits Test				
	Total Bacterial count (cfu/g)	79000		10^5	API
	Yeast and Mould count (cfu/g)	800		10^3	API
	P. aeruginosa	Absent	Should be absent / g		API
	S. aureus	Absent	Should be absent / g		API
	E. coli	Absent	Should be absent / g		API
	Salmonella sp.	Absent	Should be absent / g		API

Remarks : Party asked for above test only.
Abbreviations : NS: Not Specified & API : The Ayurvedic Pharmacopoeia of India.
----------End of Report----------

Khalid Ahmed
Approved Microbiologist
Please turn over to refer the terms and conditions.
Page 1 of 1
Authorized Signatory (Arun Kumar)

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Figure 4: Analytical study

OBSERVATIONS AND RESULTS

Organoleptic characters of Keshanjana show blackish brown colour, Characteristic in odour, smooth in touch and semi-solid appearance. Physicochemical parameters such as loss on drying, total ash, acid-insoluble ash, water-soluble ash, alcohol soluble extractive values were in a normal range. Determinations of the microorganism of Keshanjana show total microbial count and pathogens in the culture are under the limit. Keshanjana also tested for heavy metals such as mercury, lead, cadmium, and arsenic and were found within the normal range. All the values found were within their normal limits as described in the Ayurvedic Pharmacopoeia of India (API), indicating the drug to be safe for use in the Shushkakshipaka.

Table 1: Physical Characterisation Description

Appearance	Semi-solid
Colour	Blackish brown
Odour	Characteristic
Taste	Characteristic

Table 2: Physicochemical properties

Physicochemical evaluation	Findings
Loss on drying (% w/w)	0.45
Total ash (% w/w)	3.59
Acid insoluble ash (% w/w)	1.84
Water soluble extractive (% w/w)	0.90
Alcohol soluble extractive (% w/w)	21.93

Table 3: Heavy Metals

Heavy metal analysis	Findings
Cadmium (Cd) ppm	0.04
Lead (Pb) ppm	3.24
Mercury (Hg) ppm	<0.13
Arsenic (As) ppm	<0.50

Table 4: Microbiological Analysis

Microbiology study	Findings
Total bacterial count	<10 cfu/g
Total fungal count	<10 cfu/g
Escherichia coli	Absent
Salmonella spp.	Absent
Pseudomonas aeruginosa	Absent
Staphylococcus aureus	Absent

DISCUSSION

Cow ghee contains vitamin A, vitamin E and beta-carotene. Vitamin A sustains ocular surface healthy and body epithelial tissue unharmed. Ghee potency and usefulness are significantly increased when certain specified medications are combined with it in a regulated manner. Essential functional components like amino acids, keratin, melanin, and protein are included in the hair fibre's chemical composition. Various chemical elements in human hair work together to maintain the regular flow of functions. Ghee is thus one of the most significant drug carriers, along with Keshamasee offers vital nutrients to ocular structures, keeping enough moisture and preventing blindness.

Prof. Dr KS Dhiman, titled Standardization and clinical evaluation of Keshanjana, an Ayurvedic formulation in Shushkakshipaka, did the analogue of this study. This study's Keshamasee to goghrita ratio was 1:20. However, the trituration principle remained the same. In this study, Keshamasee ointment was also made in addition to comparing outcomes in dry eye patients[8].

CONCLUSION

The physicochemical evaluation of Keshanjana illustrated the specific characteristics of this preparation. The microscopic features, physio-chemical parameters, sterility, heavy metal testing and microbiological analysis are essential for ensuring the drug's safety and quality. All the readings of the product came out to be within normal range.

REFERENCES

1. Sushruta Samhita of Maharshi Sushruta by Kaviraj Ambika Dutt Shastri part 2 (Uttarakhand)) Shloka (6/26), Reprint edition 2014, Chaukhamba Sanskrit sansthan Varanasi, p. 39.
2. Ashtanga Hridaya Vidhyotini Hindi commentary by Kaviraj Atridev Gupta (uttarsthan)15/16, Reprint edition 2018, Chaukhamba Sanskrit Sansthan Varanasi. p. 684.
3. Sushruta Samhita of Mahrishi Sushruta by Kaviraj Ambika data Shashtri part 2 (Uttarakhand) Shloka (6/4), Reprint edition 2014, Chaukhamba Sanskrit Sansthan Varanasi. p. 33
4. Ashtanga Hridaya Vidhyotini Hindi commentary by Kaviraj Atridev Gupta (uttarsthan) 16/30, Reprint edition 2018, Chaukhamba Sanskrit Sansthan Varanasi, p. 688.
5. Ashtanga Hridaya Vidyotini Hindi commentary by Kaviraj Atridev Gupta (uttarsthan) 16/30, Chaukhamba Sanskrit Sansthan Varanasi. Reprint edition 2018.
6. Ashtanga Hridaya Vidhyotini Hindi commentary by Kaviraj Atridev Gupta (uttarsthan) 16/30, Chaukhamba Sanskrit Sansthan Varanasi. Reprint edition 2018.
7. Anonymous, The Ayurvedic Pharmacopoeia of India. Government of India. Ministry of Health and family welfare. Department of Indian Systems of Medicine and Homoeopathy. Delhi. Part-1. Volume 9, 2016.
8. Dhiman K S. Standardization and clinical evaluation of Keshanjana -An Ayurvedic formulation in Shushkakshipaka (Dry Eye Syndrome). https://ayushportal.nic.in/EMR/CLINICAL_FINAL_REPORT-6.pdf

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