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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 *Ashtang hridya*, 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* (A. H. Ut. 16/30-31) 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 and antimicrobial study analysis.

**KEYWORDS:** *Keshamasee, Keshanjana, Shushkakshipaka* and analytical profile.

## INTRODUCTION

The eyes plays a crucial role among the sensory organs and holds deep significance, which emphasizes preserving ocular health and treating diseases at their root. Among the numerous *netra rogas* (eye disorders) described in classical texts, *Shushkakshipaka* is a *sarvagata netra roga*—affecting all parts of the eyeball—as detailed by *Acharya Sushruta* and *Acharya Vagbhata*. Clinically, it closely resembles Computer Vision Syndrome (CVS) or dry eye disease, a modern ocular surface disorder caused by prolonged screen exposure and inadequate tear film stability. As mentioned in *Samhita*(A. H. Ut. 16/30-31) *Keshanjana***,** a traditional *Anjana* preparation made from *Keshamasi (*processed via *putapaka* method) and *goghrita*, in a 1:4 ratio. This formulation is known for its *chakshushya* (eye-nourishing), *ropana* (healing), and *shothahara* (anti-inflammatory) properties, making it suitable for managing *Shushkakshipaka.*

## AIMS AND OBJECTIVES

To analyse the physical, organoleptic character, 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 Dehradun, India.

### Pre-treatment of raw material

Foreign materials were removed from the hairs; after that, the hairs were taken for washing. Hairs were thoroughly washed and were subjected to drying under sunlight for two days.

### Preparation of *Masee*

**Reference:** *A. H. U* 16/30
**Principle:** *Putapaka*
**Equipment:** *Gaja* Puta pits, Cow dung cakes, Weighing machine, earthen pot, mud smeared clothes, glass slab.

The preparation process began by smearing surface hairs with *goghrita* on a glass plate. After thorough mixing, the mixture was placed into an earthen pot, which was then sealed at the junction using alternating layers of mud-soaked cloth. Once the sealing was complete, the pot was allowed to dry fully. It was then subjected to *Putapaka* using the *Gajaputa* method. Following complete combustion, the pot was left to self-cool. After cooling, the resulting *masee* was carefully collected from the inner surface of the pot. The masee was then

transferred to a mortar and pestle and triturated to obtain a fine powder. This powder was subsequently sieved using a mesh 400# (37µm) to ensure uniform particle size.

**Smeared Hair With *Goghrita***

**Prepared Earthen Pot Kept For Drying**

**Prepared *Masee***

**Masee Collected Post 400# Sieving**

**Figure 1: Preparation Of *Masee.***

**Preparation of *Keshnjana***

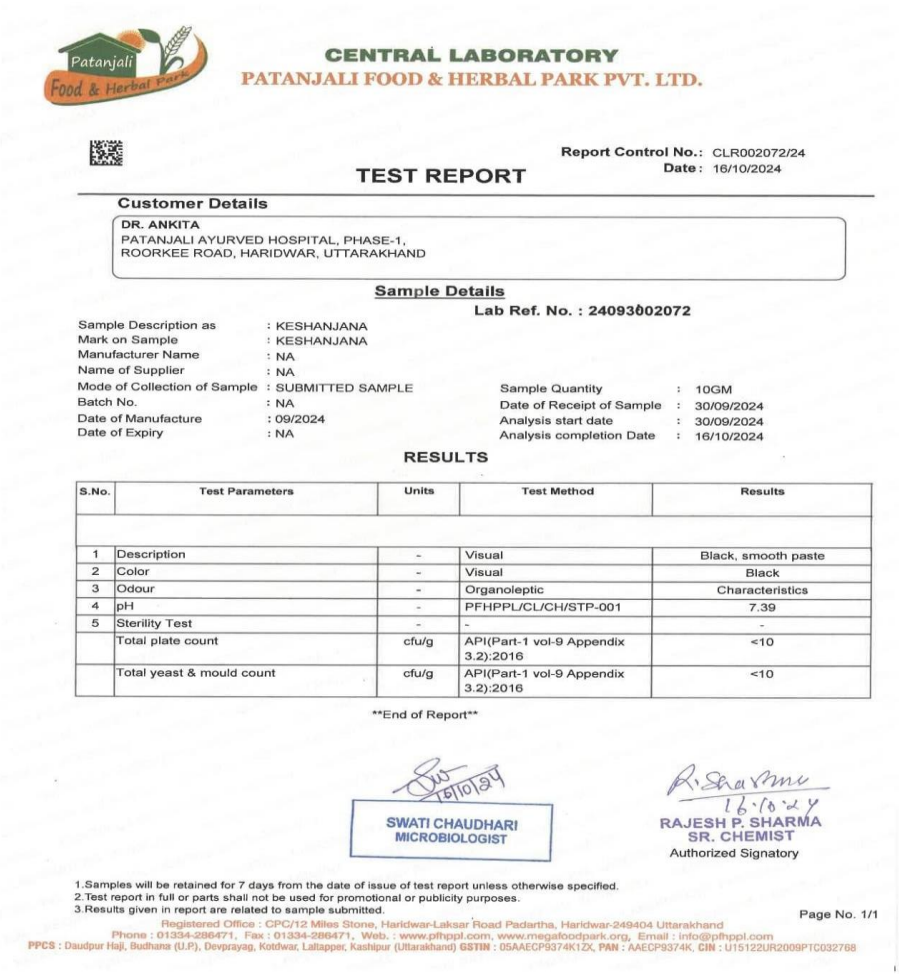
**Ingredient**

1. *Kesh Mashi*
2. *Goghrita*

Initially *Keshnjana* and *Goghrita* in the ratio of 1:2 were taken and triturated for 6 hrs. Then gradually *Goghrita* was added and triturated again upto the formation of uniform mixture.

After complete attrition, the *Keshanjana* was weighed and transferred into an air tight container for further processing.

**Figure 2: Prepared *Keshanjana.***



CENTRAL LABORATORY
PATANJALI FOOD & HERBAL PARK PVT. LTD.

Report Control No.: CLR002072/24
Date: 16/10/2024

TEST REPORT

Customer Details

DR. ANKITA
PATANJALI AYURVED HOSPITAL, PHASE-1,
ROORKEE ROAD, HARIDWAR, UTTARAKHAND

Sample Details

Lab Ref. No. : 24093002072

Sample Description as : KESHANJANA
Mark on Sample : KESHANJANA
Manufacturer Name : NA
Name of Supplier : NA
Mode of Collection of Sample : SUBMITTED SAMPLE
Batch No. : NA
Date of Manufacture : 09/2024
Date of Expiry : NA

Sample Quantity : 10GM
Date of Receipt of Sample : 30/09/2024
Analysis start date : 30/09/2024
Analysis completion Date : 16/10/2024

RESULTS

| S.No. | Test Parameters | Units | Test Method | Results |
|---|---|---|---|---|
| 1 | Description | - | Visual | Black, smooth paste |
| 2 | Color | - | Visual | Black |
| 3 | Odour | - | Organoleptic | Characteristics |
| 4 | pH | - | PFHPPL/CL/CH/STP-001 | 7.39 |
| 5 | Sterility Test | - | - | - |
| | Total plate count | cfu/g | API(Part-1 vol-9 Appendix 3.2):2016 | <10 |
| | Total yeast & mould count | cfu/g | API(Part-1 vol-9 Appendix 3.2):2016 | <10 |

**End of Report**

16/10/24
SWATI CHAUDHARI
MICROBIOLOGIST

16.10.24
RAJESH P. SHARMA
SR. CHEMIST
Authorized Signatory

1.Samples will be retained for 7 days from the date of issue of test report unless otherwise specified.
2.Test report in full or parts shall not be used for promotional or publicity purposes.
3.Results given in report are related to sample submitted.

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**Figure 3: Analytical study.**

## ETHICAL CONSIDERATIONS

The trial has been cleared by communication of decision of institutional Ethics Committee (IEC), PAC/IEC2018/-19/07 Dated-18/03/2020.

## OBSERVATIONS AND RESULT

*Keshanjana* exhibited organoleptic properties such as a blackish-brown color**,** characteristic odour**,** smooth texture**,** and a semi-solid consistency**.** Physicochemical parameters including loss on drying, total ash**,** acid-insoluble ash**,** water-soluble ash**,** and alcohol-soluble extractive values were found to be within normal limits. Microbial analysis revealed that both total microbial count and the presence of pathogens were within acceptable limits**.** Additionally, testing for heavy metals like mercury**,** lead**,** cadmium**,** and arsenic confirmed their levels to be within permissible limits**.** All parameters complied with the standards prescribed in the *Ayurvedic* Pharmacopoeia of India (API), indicating that *Keshanjana* is safe for use in the management of *Shushkakshipaka***.**

**Table 1: Physical Characterisation Description.**

| **Characteristics /Observation** | ***Keshanjana*** |
|---|---|
| Colour | Black |
| Odour | Organoleptic |
| Texture | Smooth |
| Appearance | Semisolid |
| pH | 7.39 |

## MICROBIAL STUDY

| **Microbiology study** | **Results** | **Test method** |
|---|---|---|
| Total Plate Count (TPC) | <10 cfu/g | API (part 1 volume9 Appendix 3.2)2016 |
| Total yeast and mould count | <10 cfu/g | API (part 1 volume9 Appendix 3.2)2016 |

## DISCUSSION

Cow *ghee* is a lipid-rich substance known for its high content of vitamin A, vitamin E, and beta-carotene, all of which play essential roles in maintaining physiological and ocular health. Among these, vitamin A is particularly vital for preserving the integrity of the ocular surface and supporting the function and protection of epithelial tissues throughout the body. In traditional *Ayurvedic* practice, the potency and therapeutic efficacy of ghee are significantly enhanced when it is formulated with specific herbal or mineral constituents, enabling improved absorption and bioavailability of active ingredients. The chemical composition of human hair fibers includes important structural and functional components such as amino acids, keratin, melanin, and proteins. These constituents act synergistically to preserve the physiological function of hair and reflect the broader significance of nutrient delivery to keratinized tissues. In this context, ghee functions as an effective *anupana* (carrier substance) in *Ayurvedic* pharmaceutics, enhancing drug delivery to targeted tissues, including ocular structures. When combined with formulations like *Keshamasee*, ghee facilitates the transport of vital nutrients to ocular tissues, ensuring adequate moisturization, maintaining ocular surface homeostasis, and preventing degenerative conditions that could lead to vision impairment or blindness.

## CONCULSION

The physicochemical evaluation of *Keshanjana* demonstrated formulation-specific characteristics. A thorough investigation, including microscopic analysis, sterility testing and microbiological assessment, was performed in accordance with the guidelines prescribed by the *Ayurvedic* Pharmacopoeia of India (API)**.** All observed values were found to be within the acceptable limits, thereby confirming the safety, purity, and quality of the formulation for therapeutic use.

## ACKNOWLEDGEMENTS

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## FUNDING

Nil.

## CONFLICT OF INTEREST

The author declares no conflict of interest.

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