

**PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF  
GOKSHURADI VATI - AN AYURVEDIC HERBAL FORMULATION FOR  
THE MANAGEMENT OF KSHINASHUKRA (OLIGOSPERMIA)**

**<sup>1</sup>\*Digvijay Patil, <sup>2</sup>Charmi Mehta and <sup>3</sup>Harisha C. R.**

<sup>1</sup><sup>3rd</sup> Year MD Scholar, Department of Kayachikitsa, Institute of Teaching and Research in Ayurveda (ITRA), Opp. B Division Police Station, Near Reliance Mall, Gurudwara Road Jamnagar, Gujarat, India- 361008.

<sup>2</sup>Lecturer, Department of Kayachikitsa Institute of Teaching and Research in Ayurveda (ITRA), Opp. B Division Police Station, Near Reliance Mall, Gurudwara Road Jamnagar, Gujarat, India- 361008.

<sup>3</sup>Pharmacognosy Laboratory, Institute of Teaching and research in Ayurveda (ITRA), Opp. B Division Police Station, Near Reliance Mall, Gurudwara Road Jamnagar, Gujarat, India- 361008.

Article Received on  
25 February 2025,

Revised on 18 March 2025,  
Accepted on 07 April 2025

DOI: 10.20959/wjpr20258-36275



**\*Corresponding Author**

**Dr. Digvijay Patil**

<sup>3rd</sup> Year MD Scholar,  
Department of Kayachikitsa,  
Institute of Teaching and  
Research in Ayurveda  
(ITRA), Opp. B Division  
Police Station, Near  
Reliance Mall, Gurudwara  
Road Jamnagar, Gujarat,  
India- 361008.

**ABSTRACT**

**Background:** *Gokshuradi Vati* is mentioned by Acharya Vagbhat in *Rasayan vidhi Addhyaya (Uttartantra)* and also it is *Vrishya*. So for initialization of standardization and assurance of the quality of herbal compounds pharmacognostical and pharmaceutical analysis should be done. **Methods:** *Gokshuradi Vati* were subjected to microscopic evaluation for pharmacognostical and physicochemical analysis like Loss on drying, total ash, water soluble extract, alcohol soluble extract and pH value. **Results:** Pharmacognostical study showed the presence of certain identifying characters of all the ingredients of *Gokshuradi Vati*. As per the preliminary physicochemical analysis, loss on drying percentage of the *Gokshuradi Vati* was 2.25%w/w, pH value was 6, total ash value was 19.50%w/w, Water soluble extractive was 104.70%w/w and Methanol soluble extractive was 14.31%w/w. **Conclusions:** Pharmacognostical and physico-chemical observations revealed the specific characteristics of all active constituents of *Gokshuradi Vati* confirmed the purity and genuinity of the drug.

**KEYWORDS:** *Gokshuradi Vati*, *Kshinashukra*, Pharmacognosy, Pharmaceutical analysis.

## INTRODUCTION

*Kshinashukra* is variety of *Shukradushti* eventually leading to infertility and the same in biomedicine is referred as oligospermia. As per Ayurveda, oligospermia can be co-related with *Kshinashukra*. Though none of standard Ayurvedic text have mentioned about the count of sperm or motility of sperm but it mentioned the quality of semen in the form of *Shudha Shukra Lakshana*.<sup>[1]</sup> Oligospermia refers to semen with a low concentration of sperm and is a common cause in male infertility. Often semen with a decreased sperm concentration may also show significant abnormalities in sperm morphology and motility. The term Oligospermia is defined as sperm count.<sup>[2]</sup>

In classics, *Ashtang Hridaya* have said *Gokshuradi Vati*<sup>[3]</sup> is *Vrishya* and has been reported to have Aphrodisiac, anti-bacterial, carminative properties.

In the case of internal administration of herbal drug, it should be safe, effective and free from adulteration, with appropriate quantity and ingredients. It is difficult to identify the herbal drug in dry or powdered form. So, it is a need of time to set proper parameters for standardization of herbal drugs. Pharmacognostical studies reveal plant identification and set parameters for standardization which can be done in the case of herbal traditional medicine. Generally, the physiochemical analytical study of drugs helps to interpret the pharmacokinetics and pharmacodynamics involved. With the help of physiochemical analytical studies, it is possible to standardize the drug and differentiate the adulterants. It is necessity of time in the field of Ayurveda to go for quality control of the raw drugs as well as final products using modern parameters which provides credibility to Ayurvedic medicines and also help in the globalization of Ayurveda. Hence to evaluate the Authenticity of *Gokshuradi Vati* through various pharmacognostical procedures, and to develop the pharmacognostical and phytochemical profile of *Gokshuradi Vati* the present study was carried out.

## MATERIALS AND METHOD

Collection, identification and authentication of raw drugs. The raw materials were procured from the pharmacy of ITRA Jamnagar, authentic source and the raw drugs were identified and authenticated in the pharmacognosy laboratory of Institute of teaching and research in

Ayurveda, Ministry of Ayush, Gov. Of India, Jamnagar. The ingredients and part used of *Gokshuradi Vati* are given in Table 1.

**Table No. 1: Ingredients Of *Gokshuradi Vati*.<sup>[4]</sup>**

Sr.No	Drug	Botanical Name	Family	Part Used	Proportion
1	<i>Gokshura</i>	<i>Tribulus terrestris</i> Linn	Zygophyllaceae	Seed	1 Part
2	<i>Ikshurak</i>	<i>Asteracantha longifolia</i> Nees	Acanthaceae	Seed	1 Part
3	<i>Masha</i>	<i>Phaseolus mungo</i> Linn	Leguminosae	Seed	1 Part
4	<i>Atmagupta</i>	<i>Mucuna prurita</i> Hook Linn	Fabaceae	Seed	1 Part
5	<i>Shatavari</i>	<i>Asparagus racemosus</i> Wild	Liliaceae	Root	1 Part

## METHOD OF PREPARATION

### GOKSHURADI VATI

The coarse powder of *Gokshura*, *Ikshurak*, *Masha*, *Atmagupta*, *Shatavari* will be prepared in the pharmacy, ITRA, Jamnagar. These will be stored under aseptic and good hygienic conditions. All drugs will be taken in equal quantities and mixed with one *Bhavana* of water that had been left to dry and then used to make of *Vati* form. This *Vati* will be provided to patients in a sachet with written instructions in the vernacular language.

## PHARMACOGNOSTICAL STUDY

The pharmacognostical study was divided in to organoleptic study and microscopic study of the finished product.

### ORGANOLEPTIC STUDY

The genuinity of the polyherbal formulation can be fined with organoleptic characters of the given sample. Organoleptic parameters comprises of color, odor, taste and touch of *Gokshuradi Vati* which was scientifically studied as per the standard references.

### MICROSCOPIC STUDY

*Gokshuradi Vati* ingredients was taken in powder form and dissolved with water and microscopy of the sample was done without stain and after staining with phloroglucinol and HCl. Microphotographs of all ingredients *Gokshuradi Vati* were also taken under Corl-zeisstrinocular microscope.<sup>[5]</sup>

## PHYSICO-CHEMICAL ANALYSIS

With the help of various standard physico-chemical parameters of *Gokshuradi Vati* was analyzed. The common parameters mentioned for *Vati* in Ayurvedic Pharmacopeia of India, and CCRAS, guidelines are loss on drying, total ash, water soluble extract, alcohol soluble extract and pH value.

## OBSERVATION AND RESULTS

The initial purpose of the study was to confirm the authenticity the drugs used in preparation *Gokshuradi Vati*. For this, all ingredients was subjected to organoleptic and microscopic evaluations to confirm the genuineness of all the raw drugs. Later after the preparation of formulation, pharmacognostical evaluation was carried out. Organoleptic evaluation organoleptic features like color; odor and taste of *Gokshuradi Vati* were recorded and are placed in Table 2 and 3.

**Table 2: Organoleptic Characters of *Gokshuradi Vati*.**

Parameter	Observation
Colour	Muddy Brown
Odour	Slight Aromatic
Teste	Bitter
Touch	Slight Hard

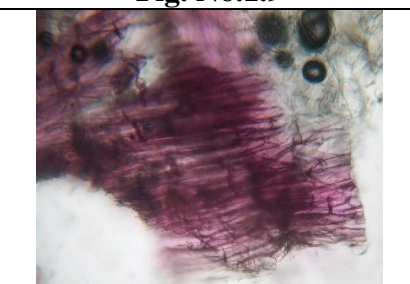
## MICROSCOPIC EVALUATION

Microscopic evaluation was conducted by dissolving the ingredients of *Gokshuradi Vati* in the distilled water and studied under microscope for the presence of characteristics of ingredient drugs.

**Table 3: Microscopic Evaluation.**

Fig.No. 1.1: Crystal of <i>Gokshura</i>	Fig.No. 1.8: Fiber of <i>Kapikachu</i>
Fig.No. 1.2: Lignified fiber of <i>Gokshura</i>	Fig.No. 1.9: Starch grains of <i>Kapikachu</i>
Fig.No. 1.3: Lignified stone of <i>Gokshura</i>	Fig.No. 1.10: Stone cell of <i>Kapikachu</i>
Fig.No. 1.4: Pitted vessels of <i>Ikshurak</i>	Fig.No. 1.11: Acicular- <i>Shatavari</i>
Fig.No. 1.5: Prismatic crystals of <i>Ikshurak</i>	Fig.No. 1.12: Lig Cork of <i>Shatavari</i>
Fig.No. 1.6: Fragment of P. Parenchyma cell of <i>Masha</i>	Fig.No. 1.13: Simple fiber of <i>Shatavari</i>
Fig.No. 1.7: Prismatic crystal of <i>Masha</i>	



**Fig.No. 1.1****Fig. No. 1.2****Fig. No. 1.3****Fig. No.1.4****Fig. No.1.5****Fig. No.1.6****Fig. No.1.7****Fig. No.1.8****Fig. No.1.9****Fig. No.1.10****Fig. No.1.11****Fig. No.1.12****Fig. No.1.13**

## DISCUSSION

Study on *Gokshuradi Vati* was a step towards pharmacognostical and pharmaceutical standardization of the drug. The pharmacognostical study revealed the presence of the diagnostic characters of *Gokshuradi Vati* like are. The diagnostic characters are

This confirms the presence of all ingredients of raw drugs in the final product and there is no major change in the microscopic structure of raw drug during the pharmaceutical process of preparation of final product, this showed the genuinity of the final product. All the physico-chemical parameters loss on drying percentage of the *Gokshuradi Vati* was 2.25%w/w, pH value was 6, total ash value was 19.50%w/w, Water soluble extractive was 104.70%w/w and Methanol soluble extractive was 14.31%w/w. Were analyzed and found to be in normal referential range.

## CONCLUSION

The pharmacognostical and physico-chemical analysis of *Gokshuradi Vati* confirmed the purity and genuinity of the drug. As no standard fingerprint is available for this formulation, an attempt has been made to evolve pharmacognostical and physico-chemical profiles of *Gokshuradi Vati*. Information acquired from this study may be beneficial for further research work and can be used as a reference standard for quality control researches.

**FUNDING:** No funding sources.

**CONFLICT OF INTEREST:** None.

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