



## PHARMACOGNOSTICAL AND PHARMACEUTICAL EVALUATION OF SHVETA PALANDU SWARASA BHAVITA YAVANI VATI

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### ABSTRACT

Infertility is defined as the failure to achieve a pregnancy within one year of regular (at least three times per month) unprotected intercourse. Oligozoospermia i.e. sperm count less than 15 million/ml is one of the causes for infertility. According to various research conducted by Carlsan *et al*, between 1938 to 1988; it is relevant that sperm count, has come down from 130 million/ml of semen to 66 million/ml of semen. Now a day's oligozoospermia and infertility are common problems due to disturb daily routine, disturb food habits and mental stress on account of fast life. Shveta Palandu is Vrishya and has been reported to have Aphrodisiac, anti-bacterial, tonic, carminative, properties. Till date no clinical trial and pharmaceutical analysis of Shveta Palandu Swarasa Bhavita Yavani Vati has been carried out, hence in the present study Shveta Palandu Swarasa Bhavita Yavani Vati was subjected to pharmacognostical and pharmaceutical analysis. Pharmacognostical evaluation showed presence of epidermal cells and fibers of Palandu and Stone cells of Yavani. Pharmaceutical evaluation showed loss on drying 13 % w/w, pH 5.5. HPTLC results showed 6 spots at 254 nm and 8 spots at 366 nm.

**Keywords:** Shveta Palandu, Yavani, pharmacognosy, pharmaceutical analysis, oligozoospermia

### INTRODUCTION

Infertility has been considered as a cursed condition and is looked as a medico-social problem. Today mental stress, tobacco and alcohol addiction, pollution, faulty eating and clothing habit, change in culture etc. have endangered reproductive capacity of men, leading oligozoospermia (Ksheena Shukra) and ultimately to infertility. Causes of Oligozoospermia include an obstruction of the normal flow of sperm. According to Sushruta, due to indulgence in various etiological factors, Dushti of Shukravaha Strotas takes place which results in diminution of production of Shukra Dhatu which is also not up to its mark and is ejaculated in low volume<sup>1</sup>. Shveta Palandu is Vrishya<sup>2</sup>, and has been reported to have aphrodisiac, anti bacterial, tonic, carminative, properties. Single use of Palandu may cause Adhmana and Vishtambha. So, to overcome the above demerits and obtain desired action, the traditional combination i.e. Shveta Palandu Bhavita Yavani was selected. Yavani is good carminative, improves the digestion and helps in Vatanulomana. Hence, when used with Palandu, this combination may improve its properties. Though Shveta Palandu is known drug for Shukravaha Sroto Dushti, till date no work has been done to standardise the Shveta Palandu Swarasa Bhavita Yavani through pharmacognostical and Physico- chemical parameters, hence in the present study Shveta Palandu Swarasa Bhavita Yavani Vati was subjected to pharmacognostical and pharmaceutical analysis.

### MATERIAL AND METHODS

#### Collection of the drug

Shveta Palandu Bhavita Yavani Vati ingredients have been collected from the Pharmacy, G.A.U., Jamnagar, India. The ingredients and the part used are given in Table 1.

### Pharmacognostical Evaluation

As per API<sup>3</sup> raw drugs were identified and authenticated by the Pharmacognosy Laboratory. The identification was carried out based on the organoleptic features and powder microscopy of the individual drugs. Later, pharmacognostical evaluation of Shveta Palandu Bhavita Yavani Vati was carried out. Vati was dissolved in small quantity of distilled water, studied under the Carl Zeiss Trinocular microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope.

### Preparation of Shveta Palandu Bhavita Yavani Vati

Shveta Palandu Bhavita Yavani Vati was prepared in the Pharmacy, GAU, Jamnagar, India. For this in the beginning, fine powder of Yavani fruit was made and then six Bhavana of Shveta Palandu Svarasa was given. For each Bhavana, sufficient amount of Shveta Palandu Svarsa was added to the powder of Yavani and was triturated for 6-8 h daily till the Bhavana given to the powder was completely absorbed. On the 6<sup>th</sup> day, Vati was prepared by this powder in the pills machine.

### Physicochemical evaluation

Vati was analyzed using various standard physicochemical parameters such as Loss on drying<sup>4</sup>, PH<sup>5</sup>, water soluble extract<sup>6</sup> and methanol soluble extract<sup>7</sup> as per API at the pharmaceutical chemistry laboratory, IPGT and RA, Jamnagar, India.

### HPTLC study

High performance thin layer chromatography (HPTLC) is a sophisticated and automated form of TLC. H.P.T.L.C is quality assessment tool for the evaluation of botanical materials. It allows for the analysis of a broad number of

compounds both efficiently and cost effectively. Additionally, numerous samples can be run in a single analysis thereby dramatically reducing analytical time. With HPTLC, the same analysis can be viewed using different wave-lengths of light thereby providing a more complete profile of the plant than is typically observed with more specific types of analyses. The details of HPTLC done on alcoholic extract of Shveta Palandu Bhavita Yavani Vati are as follows:

#### Mobile phase

Toluene: Ethyl acetate: Acetic acid (7:2:1) v/v.

#### Chromatographic conditions

Application mode: Camag Linomat V

Development Chamber: Camag Twin trough Chamber.

Plates: Pre coated Silica Gel GF254 Plates

Chamber Saturation: 30 minutes

Development Time: 30 minutes

Scanner: Camag Scanner III

Detection: Deuterium lamp, Tungsten Lamp

Data System: Win cats software

Methanolic extract of finished product was spotted on pre-coated silica gel GF 60254 aluminium plate by means of Camag Linomat V sample applicator fitted with a 100 µL Hamilton syringe. Toluene: Ethyl acetate: Acetic acid (7:2:1) was used as the mobile phase. After development, densitometric scan was performed with a Camag TLC scanner III in reflectance absorbance mode at UV detection as 254 nm and 366 nm under the control of Win CATS Software (V 1.2.1. Camag)<sup>8</sup>.

## RESULTS

### Pharmacognostical Evaluation

#### Organoleptic Character

Weight of each Vati was about 500 mg, Round shape and Size about 0.5 cm, blackish in colour with aromatic odour and Hard to touch. Ingredients of Shveta Palandu Bhavita Yavani Vati are as shown in (Table 1)

#### Microscopical Characters

Diagnostic characters of Vati under the microscope are Epicarp cells of, oil globules, and aluerone grains of Yavani, Epidermal cells of Palandu, Prismatic crystals, tannin content, cluster crystals of Yavani, oil globules of Palandu, Stone cells, lignified fibers of Yavani and fibers of Palandu. (Plate 1, Figure A-K)

#### Preliminary Physico Chemical Parameters

Preliminary Physico Chemical Parameters i.e. weight, hardness, loss on drying etc. were properly studied and results are depicted in the Table 2

#### HPTLC Results

HPTLC Results of Shveta Palandu Yavani Vati showed that 8 spots at 254 nm and 6 spots at 366 nm. Detailed results are depicted in the Table 3

## DISCUSSION

The high concentration of essential oils in Yavani seeds, primarily thymol, gives aroma and flavour. Yavani seeds are also known as digestive, and to relieve gas and bloating and has properties like anti bacterial, carminatives. Hence, when used with Palandu, combination would improve its Strotogamitva. Yavani Seeds Constituents alpha-pinene, beta-pinene, calcium, camphene, carvacrol, chromium, fiber, limonene, thymol. Yavani is very similar to its western relatives in the plant family Apiaceae. Pharmacognostical evaluation showed that the presence of the both drug microscopic characters i.e. Prismatic crystals, tannin content, cluster crystals of Yavani and oil globules, fibers of Palandu. This showed that the good quality of the finished product. The preliminary physicochemical parameters were within the limits.

## CONCLUSION

Preliminary organoleptic features and results of powder microscopy reveal presence of tannin contents, large amount of fibres, oil globules, prismatic crystal, etc. In preliminary physico-chemical analysis, water-soluble and alcohol-soluble extract, pH, and loss on drying were assessed were within the standard range and HPTLC results of Shveta Palandu Yavani Vati showed that 8 spots at 254 nm and 6 spots at 366 nm. As no published information is available on pharmacognostical and physico-chemical profile of Shveta Palandu and Yavani, this preliminary information can be used for reference in future.

Table 1: Ingredients of Shveta Palandu Bhavita Yavani Vati

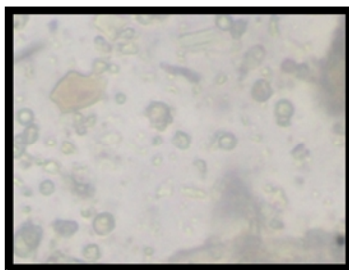
No.	Drug	Latin Name	Part Use
1.	Yavani	<i>Tachyspermum ammi</i> . Linn. (Apeacea)	Fruit
2.	Palandu	<i>Allium cepa</i> . Linn. (Liliacea)	Bulb

Table 2: Preliminary Physico Chemical Parameters of Vati

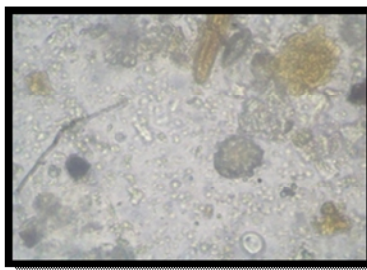
S. No	Test	Results
1.	Uniformity of Tablet	
	A. Highest weight	477 mg
	B. Lowest weight	275 mg
	C. Average Weight	384 mg
2.	Tablet Hardness	3.825 kg/cm
3.	Loss on Drying at 110° C	13 % w/w
4.	Ash Value	7.032 w/w
5.	Water soluble extract	9 % w/w
6.	Methanol extract	25 % w/w
7.	pH	5.5

Table 3: HPTLC Results of Shveta Palandu Yavani Vati

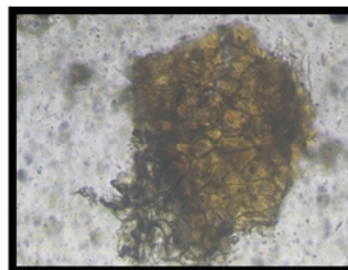
Sample	Detection Condition	No. of spots	Rf value
Shveta Palandu Yavani Vati	254 nm	8	0.01, 0.10, 0.17, 0.23, 0.38, 0.73, 0.76, 0.97.
	366 nm	6	0.01, 0.17, 0.23, 0.26, 0.38, 0.70



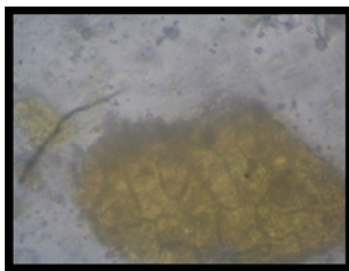
A. Aleurone of Yavani



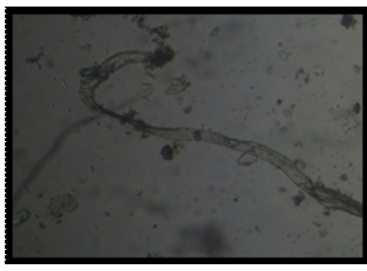
B. Cluster of Yavani



C. Epicarp of Yavani



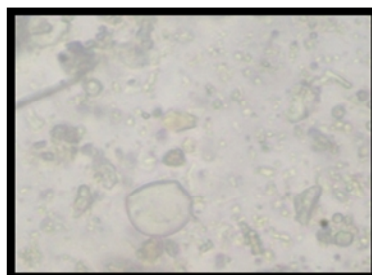
D. Epidermal cells Palandu



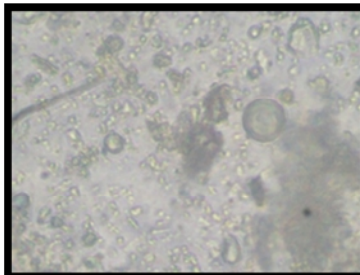
E. Fibers of Palandu



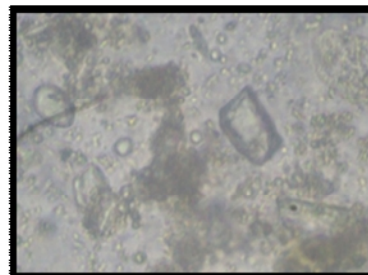
F. Fiber of Yavani



G. Oil content Palandu



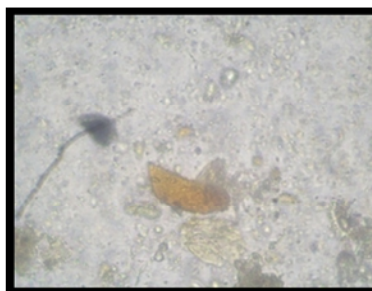
H. Oil content of Yavani



I. Prismatic crystal of Yavani



J. Stone cells of Yavani




K. Tannin of Yavani

**Plate 1: Micro Photographs of Shveta Palandu Swarasa Bhavita Yavani Vati**

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