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Pharmacognostical and Phytochemical Evaluation of *Pilla Shukra Nashaka Anjana Varti:* An ocular Ayurvedic Formulations

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ABSTRACT

Pilla Shukra Nashaka Anjana Varti is an important Ayurvedic formulation containing *Haritaki (Terminalia chebula* Retz.*), Amalaki (Emblica officinalis* Gaertn.*), Bibhitaki (Terminalia bellerica* Roxb.*), Katuki (Picrohriza kurroa* Royle. ex Benth), *Pippali* (Piper longum Linn.), *Saindhava* (Sodium chloridum), *Shankhabhasma and Tamra Bhasma*. All the constituents are available and prepared according to the reference present in *Ashtanga Hridaya Uttaratantra*. No any work has been carried out for standardization of *Pilla Shukra Nashaka Anjana Varti* till date. For standardization of this Ayurvedic drug through Pharmacognostical and pharmaceutical evaluation, the present study was done. The sample was given for different phytochemical characters like ash value (34.33%w/w), alcohol soluble extract (55.62% w/w), water soluble extract (45.30% w/w), loss on drying (6.8%w/w), pH (6.5) and HPTLC. The HPTLC, solvent system was Toluene:ethyl acetate (9:1), showed the presence of 8 spots at 254nm and 4 spots at 366nm. Hence physiochemical and microscopic parameter achieved may gives guidelines for standardization of drug, *Pilla Shukra Nashaka Anjana Varti*.

Keywords: HPTLC, Pharmacognostical, Physiochemical Evaluation.

INTRODUCTION

Anjana is one of the procedures among the *Kriya Kalpa* [1], the therapeutic measure mentioned by our *Acharyas*. It was extensively and frequently used in ancient time by *Acharyas* for the treatment of *Netra Rogas* and also it has been advocated in *Dinacharya (Swasthayavrita*) [2] to keep the eyes healthy and free from diseases. It is indicated in chronic stage or when acute condition subsides. After purification of the body by *Snehadi Karmas* when *Doshas* are localised in *Netra*; *Pakva Lakshana* of *Doshas* are seen; mild *Shopha* (congestion), excessive *Kandu* (itching), slimy, mild irritation are present and when patients are suffering from *Kapha*, *Pitta* and *Rakta*, specially in *Vata* predominance - the *Anjana* should be applied [3]. *Praklinnavartma* is one such condition where *Anjana* is included in the treatment [4]. *Pilla Shukra Nashaka Anjana Varti* is an *Ayurvedic* herbomineral preparation as mentioned in the *Ashtanga Hridaya* composed of medicinal plants of different botanical families and one mineral but from Ayurvedic pharmacological point of view having similar properties which are effective in *Praklinnavartma*. *Pilla Shukra Nashaka Anjana Varti* contains *Haritaki*, *Amalaki*, *Bibhitaki*, *Katuki*, *Pippali*, *Saindhava*, *Shankhabhasma and Tamra Bhasma*. Since past many years *Ayurvedic* drugs are getting recognition worldwide. Maintaining the quality of a drug and looking at the effectiveness of the hebomineral formulation of *Pilla Shukra Nashaka Anjana Varti* there is a high need in the light of scientific evaluation. But till date there is no scientific evaluation of *Pilla Shukra Nashaka Anjana Varti*. In the present study the powder formulation of *Pilla Shukra Nashaka Anjana Varti* was subjected to Pharmacognostical (microscopic), HPTLC, and pharmaceutical (evaluation of various physiochemical parameters) evaluation in order to prepare a preliminary profile of the formulation.

MATERIALS AND METHOD

Method of Preparation of *Pilla Shukra Nashaka Anjana Varti* as per *Ashtanga Hridaya.* For the present study the drugs of *Pilla Shukra Nashaka Anjana Varti* were procured from our University Pharmacy which was prepared as per the reference of *Ashtanga Hridaya* [5].

Table 1: Ingredients: *Pilla Shukra Nashaka Anjana Varti*

No.	Drug	Botanical name	Part used	Part
1.	*Haritaki*	*Terminalia chebula* Retz.	Fruit	1
2.	*Bibhitaki*	*Terminalia bellerica* Roxb.	Fruit	1
3.	*Amalaki*	*Emblica officinalis* Gaertn.	Fruit	1
4.	*Pipali*	*Piper longum* Linn.	Fruit	1
5.	*Katuki*	*Picrohriza kurroa* Royle. ex Benth	Root	1
6.	*Shankhnabhi*	*Conch Shell*	--	1
7.	*Tamra Raja*	*Copper powder*	--	1
8.	*Saindhava*	*Rock Salt*	--	1

The mentioned medicinal drugs were separately powdered and sieved to obtain the fine powder of all drugs. They were mixed together and triturated along with the water till it attains appropriate consistency. Then wicks of desired size were rolled. They were dried in shade and sterilized in UV chamber then preserved it securely.

Pharmacognostical Evaluation

Different parameters like colour, smell, taste and touch were taken by special senses [6]. Powder microscopy of the final product was done without stain and after staining with Phloroglucinol+HCL and photographs were taken under Carl-Zeiss Trinocular microscope attached with camera [7]. With the help of powder microscopy, various characters were observed and chemical nature of the cell wall and cell content was determined.

Physico-Chemical Evaluation

Pilla Shukra Nashaka Anjana Varti was subjected to physicochemical study in order to develop analytical profiles. In this phase following parameter were carried out -Loss on drying at 1100C, pH value, ash value, water soluble extractive, alcohol soluble extractive [8].

High Performance Thin Layer Chromatography [9]

In HPTLC study of *Pilla Shukra Nashaka Anjana Varti*, methanol extract of *Pilla Shukra Nashaka Anjana Varti* was spotted on pre-coated silica gel GF 60254 Alumunium plate by mean of Camag Linomate V sample applicator fitted with a 100µl Hamilton syringe. The mobile consisted of Toluene: Ethyl acetate a ratio of 9:1 v/v. After development, densitometric scan was performed with a Camag TLC scanner III in reflectance in absorbance mode at 254 nm and 366 nm under control of Win CATS Software (V1.2.1.Camag). Then, the plate was sprayed with Vanillin Sulphuric acid followed by heating and then visualized in day light.

OBSERVATION AND RESULT

Pharmacognostical study

Organoleptic parameters

Greenish Black in colour, *Triphala* odour, Astrigent bitter in taste, Hard in touch and soft in texture. (Table 2)

Table 2: Organoleptic characters of *Pilla Shukra Nashaka Anjana Varti*

Sr. No.	Characteristics	Results
1	Colour	Greenish Black
2	Odour	*Triphala* smell
3	Taste	Astringent bitter
4	Touch	Hard

Microscopic Characters of *Pilla Shukra Nashaka Anjana Varti*

Diagnostic characters of *Pilla Shukra Nashaka Anjana Varti* were observed under the microscope were epicarp cells, lignified scleroids and pitted stone cells *Haritaki*. Lignified scleroids, stone cell and trichome of *Bibhitaki*. Fibers, scleroids and silica deposition of *Amalaki*. Oil globule and lignified stone cells of *Pippali*. Black debbries of *Tamra Bhasma* and silica deposition of *Saindhava*. (Plate No.2)

Physicochemical study

Outcome of physicochemical study i.e. loss on drying, ash value, water soluble extract, alcohol soluble extract and pH are shown in Table 3.

Table 3: Physico-chemical parameters

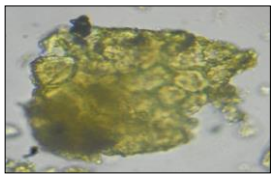
Sr. No.	Parameters	Value
1	Loss on Drying	6.8 % w/w
2	Ash Value	34.33 % w/w
3	Water Soluble Extractive	55.62%% w/w
4	Methanol Soluble Extract ive	45.30 % w/w
5	pH	6.5

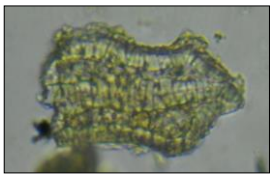
High performance thin layer chromatography (HPTLC)

Rf value and colour of resolved sports of HPTLC were noted. (Table 4) (Plate no. 2)

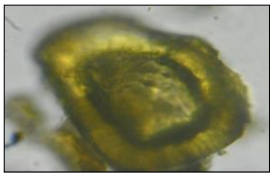
Table 4: Rf values obtained by HPTLC

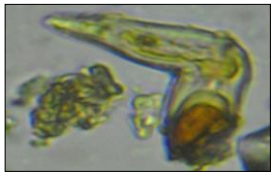
Sample	Wavelength	No. of spots	Rf value
Pilla Shukra Nashaka Anjana Varti	254 nm	8	0.02, 0.12, 0.15, 0.24, 0.30, 0.60, 0.88, 0.98
	366nm	4	0.02, 0.13, 0.60, 0.88.

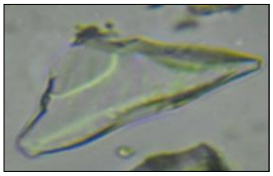

Epicarp cells of Haritaki

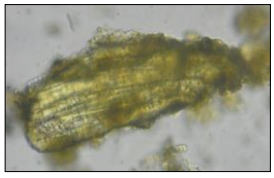

Sleroids of Haritaki


Lignified sleroids of Bibhitaki

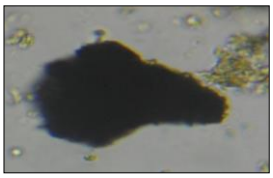

Stone cells of Bibhitaki


Trichome of Bibhitaki

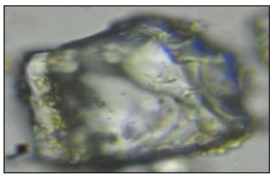

Silica deposition of Amalaki


Scleroids of Amalaki

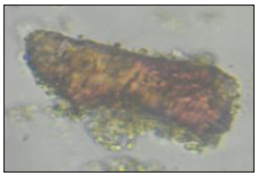

Fibers of Amalaki



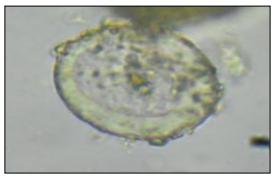
Black deposition of Tamra Bhasma



Silica deposition of Saindhava

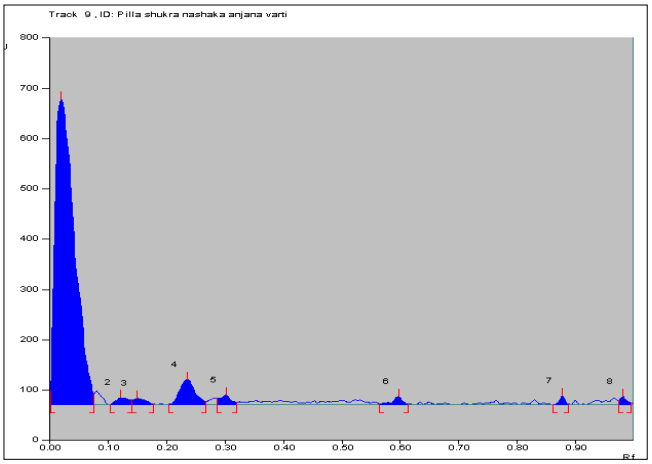


Lignified stone cells of Pippali

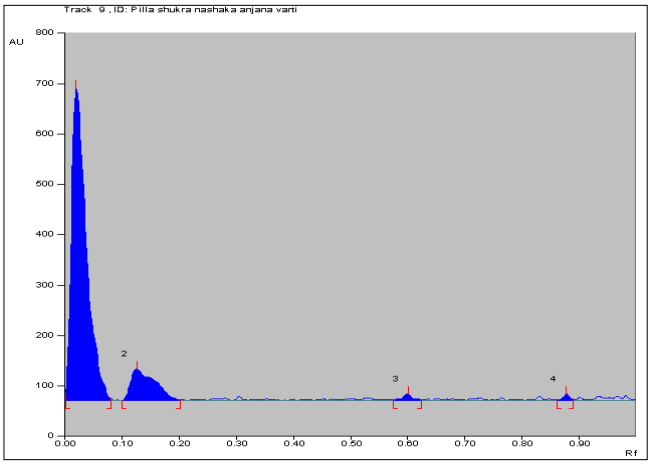


Oil globule of Pippali

Plate 1: Powder microscopic photographs of *Pilla shukra Nashaka Anjana Varti*



Peak display at 254 nm



Peak display at 366 nm

Plate 2: HPTLC of methanolic extract of *Pilla shukra Nashaka Anjana Varti*

DISCUSSION

Pharmacognostical evaluation showed that organoleptic characters of the sample was Greenish Black in colour, *Triphala* odour, Astrigent bitter in taste, Hard in touch and soft in texture. Microscopical study showed that presence of simple epicarp cells, lignified scleroids and pitted stone cells *Haritaki*. Lignified scleroids, stone cell and trichome of *Bibhitaki*. Fibers, scleroids and silica deposition of *Amalaki*. Oil globule and lignified stone cells of *Pippali*. Black debbries of *Tamra Bhasma* and silica deposition of *Saindhava* shows that all the ingredients were present in the finished product and also proven that the purity of the finished product. Physicochemical values obtained in the present research work for *Pilla Shukra Nashaka Anjana Varti* may be useful in similar future research works as till date there is no standard information are available. The HPTLC showed that 8 and 4 spots at 254nm and 366nm each.

CONCLUSION

Study on *Pilla Shukra Nashaka Anjana Varti* is a step towards pharmacognostical, physico-chemical standardisation of poly herbal formulation in Varti form. As there is no published information available on pharmacognostical and physico-chemical profiles of *Pilla Shukra Nashaka Anjana Varti*, this preliminary information can be used for reference in future for similar research works.

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