Research Article

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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 (Picrorhiza kurroa Royle. ex Benth.), Pippali (Piper longum Linn.), Saindhava (Sodium chloridum), Shankhhasmasa 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 (Swasthayavritta) [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]. Prakrinnavartma 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 Prakrinnavartma. Pilla Shukra Nashaka Anjana Varti contains Haritaki, Amalaki, Bibhitaki, Katuki, Pippali, Saindhava, Shankhhabhasma 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 herbomineral 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].
The Journal of Phytopharmacology

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

<table>
<thead>
<tr>
<th>No.</th>
<th>Drug</th>
<th>Botanical name</th>
<th>Part used</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Haritaki</td>
<td>Terminalia chebula Retz.</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Bibhitaki</td>
<td>Terminalia bellerica Roxb.</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Amalaki</td>
<td>Emblica officinalis Gaertn.</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Pipali</td>
<td>Piper longum Linn.</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Katuki</td>
<td>Picrohiza kurroa Royle. ex Benth.</td>
<td>Root</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Shankhahbhi</td>
<td>Conch Shell</td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Tamra Raja</td>
<td>Copper powder</td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>Saindhava</td>
<td>Rock Salt</td>
<td>--</td>
<td>1</td>
</tr>
</tbody>
</table>

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 1100°C, pH value, ash value, water soluble extractive, alcohol soluble extractive [8].

**High Performance Thin Layer Chromatography (HPTLC)**

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 Aluminium plate by mean of Camag Linomat 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, Astringent bitter in taste, Hard in touch and soft in texture. (Table 2)

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

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Characteristics</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Colour</td>
<td>Greenish Black</td>
</tr>
<tr>
<td>2</td>
<td>Odour</td>
<td><em>Triphala</em> smell</td>
</tr>
<tr>
<td>3</td>
<td>Taste</td>
<td>Astringent bitter</td>
</tr>
<tr>
<td>4</td>
<td>Touch</td>
<td>Hard</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameters</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Loss on Drying</td>
<td>6.8 % w/w</td>
</tr>
<tr>
<td>2</td>
<td>Ash Value</td>
<td>34.33 % w/w</td>
</tr>
<tr>
<td>3</td>
<td>Water Soluble Extractive</td>
<td>55.62% w/w</td>
</tr>
<tr>
<td>4</td>
<td>Methanol Soluble Extractive</td>
<td>45.30 % w/w</td>
</tr>
<tr>
<td>5</td>
<td>pH</td>
<td>6.5</td>
</tr>
</tbody>
</table>

**Table 4: Rf values obtained by HPTLC**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Wavelength</th>
<th>No. of spots</th>
<th>Rf value</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pilla Shukra</em></td>
<td>254 nm</td>
<td>8</td>
<td>0.02, 0.12, 0.15, 0.24, 0.30, 0.60, 0.88, 0.98</td>
</tr>
<tr>
<td><em>Nashaka Anjana</em></td>
<td>366nm</td>
<td>4</td>
<td>0.02, 0.13, 0.60, 0.88</td>
</tr>
</tbody>
</table>

**Plate (No.2)**

- Epicarp cells of *Haritaki*
- Scleroids of *Haritaki*
- Lignified scleroids of *Bibhitaki*
- Stone cells of *Bibhitaki*
- Trichome of *Bibhitaki*
- Silica deposition of *Amalaki*
The Journal of Phytopharmacology

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, Astringent 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.

REFERENCES

4. Gadanigraha, 3rd chap/4-5, by Dr Indradev tripathi.

HOW TO CITE THIS ARTICLE