Pharmacognostical and Phytochemical Evaluation of Gutika Anjana - An Ocular Ayurvedic Formulation

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ABSTRACT

*Gutika Anjana* is an important *Ayurvedic* formulation containing *Gairika* (Ochre), *Saindhava* (*Sodii chloridum*), *Pippali* (*Piper longum* Linn.) and *Shunthi* (*Zingiber officinale* Roxb.) as main ingredient. All the constituents are available and prepared according to the reference present in *Sushruta Samhita Uttaratantra Vataabhisyanda Pratishedha*. Till date no work has been carried out to standardize the formulation. Hence the present study was undertaken to standardize the compound *Ayurvedic* formulation through Pharmacognostical and pharmaceutical evaluation. The sample was subjected for various Phytochemical parameters like water soluble extractive (32.8% w/w), alcohol soluble extractive (32.3% w/w), ash value (8.4% w/w), loss on drying (14.25% w/w), the pH (6), HPTLC. The HPTLC, solvent system was Toluene:ethyl acetate (9:1), showed the presence of 11 spots at 254nm and 13 spots at 366nm. Thus the physiochemical and microscopic characters achieved may provide guidelines for standardization of formulation, *Gutika Anjana*.

**Keywords:** *Gutika Anjana*, HPTLC, Pharmacognostical, Physiochemical Evaluation

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INTRODUCTION

Anjana is one of the procedures among the Kriya Kalpa,\textsuperscript{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)\textsuperscript{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.\textsuperscript{3} Abhishyanda is one such condition where Anjana is included in the treatment.\textsuperscript{4} Gutika Anjana is an Ayurvedic herbomineral preparation as mentioned in the 9th chapter of Sushruta Uttaratantra, Vataabhishtyanda Pratishedha Adhaya 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 Vataja Abhishtyanda. Gutika Anjana contains Gairika, Saindhava, Pippali and Shunthi. 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 Gutika Anjana there is a high need in the light of scientific evaluation. But till date there is no scientific evaluation of Gutika Anjana. In the present study the powder formulation of Gutika Anjana 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 Gutika Anjana as per Sushruta samhita

For the present study the drugs of Gutika Anjana were procured from Pharmacy of I.P.G.T. & R.A., Gujarat Ayurved University which was prepared as per the reference of Sushruta Samhita.\textsuperscript{5} The ingredients are mentioned in the Table1.

Table 1: Ingredients of Gutika Anjana

<table>
<thead>
<tr>
<th>No.</th>
<th>Drug</th>
<th>Botanical Name</th>
<th>Part used</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shunthi</td>
<td>Zingiber officinale Roxb.</td>
<td>Rhizome</td>
<td>8 Part</td>
</tr>
<tr>
<td>2</td>
<td>Pippali</td>
<td>Piper longum Linn.</td>
<td>Root</td>
<td>4 Part</td>
</tr>
<tr>
<td>3</td>
<td>Saindhava</td>
<td>Sodii chloridum</td>
<td>-</td>
<td>2 Part</td>
</tr>
<tr>
<td>4</td>
<td>Gairika</td>
<td>Ochre</td>
<td>-</td>
<td>1 Part</td>
</tr>
</tbody>
</table>

The mentioned medicinal drugs were separately pounded and sieved to obtain the fine powder of all drugs. They were mixed together and triturated along with the goat's milk till it attains appropriate
consistency. Then wicks of desired size was rolled. They were dried in shade and preserved in air tight containers.

**Pharmacognostical evaluation**

Various characters like colour, odour, taste and touch are recorded by using sensory organs. Powder microscopy of the finished product was done without stain and after staining with Phloroglucinol+HCl micro photographs were taken under Carl- Zeiss Trinocular microscope attached with camera. By Powder microscopy observed the characters, determined the chemical nature of the cell wall along with the form and chemical nature of the content of the cells.

**Physico-chemical evaluation:**

*Gutika Anjana* was subjected to physicochemical study in order to develop analytical profiles. In this phase following parameter were carried out - Loss on drying at 110°C, pH value, ash value, water soluble extractive, alcohol soluble extractive.

**High Performance Thin Layer Chromatography.**

In HPTLC study of *Gutika Anjana*, methanol extract of *Gutika Anjana* was spotted on pre-coated silica gel GF 60254 Aluminium plate by mean of Camag Linomate V sample applicator fitted with a 100μl Hamilton syringe. The mobile phase 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 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 daylight. Densitogram curve of HPTLC of *Gutika Anjana* is given in figure A and B.

**OBSERVATION & RESULTS**

**PHARMACOGNOSTICAL STUDY**

**Organoleptic Characters:**

Reddish brown in colour, sweetish milk in odour, fine in touch and soft in texture

(Table 2 and Plate No.1)

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Various parameters</th>
<th>Gutika Anjana</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Colour</td>
<td>Reddish brown</td>
</tr>
<tr>
<td>2.</td>
<td>Odour</td>
<td>Sweetish milk</td>
</tr>
<tr>
<td>3.</td>
<td>Touch</td>
<td>Fine</td>
</tr>
<tr>
<td>4.</td>
<td>Texture</td>
<td>Soft</td>
</tr>
</tbody>
</table>
Microscopic Characters of *Gutika Anjana*:
Diagnostic characters showed simple starch grains, fragment of scleriform vessels and fibres olioiresine contant of *Shunthi*, stone cells, epidermal cells and black debris of *Pippali*, black debris of *Gairika* and oil globules of *Aja dugdh.(Plate No.2)

**Physicochemical analysis:**
Results of physicochemical analysis i.e. loss on drying, ash value, water soluble extract, alcohol soluble extract, etc are shown in Table 3.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Various parameters</th>
<th>Gutika Anjana</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>pH</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td>Loss on drying</td>
<td>14.25%w/w</td>
</tr>
<tr>
<td>3.</td>
<td>Water soluble extract</td>
<td>32.8%w/w</td>
</tr>
<tr>
<td>4.</td>
<td>Alcohol soluble extract</td>
<td>32.3%w/w</td>
</tr>
<tr>
<td>5.</td>
<td>Ash value</td>
<td>8.4%w/w</td>
</tr>
</tbody>
</table>

**High performance thin layer chromatography (HPTLC):**
The colour and Rf values of resolved spots of HPTLC were noted. (Table 4) (Plate no. 3)

<table>
<thead>
<tr>
<th>Wavelength</th>
<th>No. of spots</th>
<th>Rf Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>366nm</td>
<td>13</td>
<td>0.01, 0.08, 0.13, 0.36, 0.42, 0.44, 0.48, 0.56, 0.63, 0.67, 0.76, 0.84, 0.94</td>
</tr>
<tr>
<td>254nm</td>
<td>11</td>
<td>0.01, 0.14, 0.21, 0.36, 0.42, 0.48, 0.56, 0.63, 0.67, 0.76, 0.84</td>
</tr>
</tbody>
</table>

Plate 1: Powder of *Gutika Anjana*
Simple starch grain of Shunti
Epidermal cells of Pippali
Oil globules of Milk
Stone cells of Pippali
Scalariform vessels of Shunti
Debrries of Gairika
Fibres of Shunti
Black debrries of Pippali

Plate 2: Powder microscopy of *Gutika Anjana*

Densitogram at 254nm
Densitogram at 366nm

Plate 3 HPTLC of methanolic extract of *Gutika Anjana*
DISCUSSION:
Pharmacognostical evaluation showed that organoleptic characters of the sample was reddish brown in colour, sweetish milk in odour, fine in touch and soft in texture. Sweetish milk odour of sample is due to presence of Ajadugdh which was used for Bhavana of the formulation. Microscopical study showed that presence of simple starch grains, fragment of scleriform vessels and fibres of Shunthi, stone cells, epidermal cells and black debris of Pippali, black debris of Gairika and oil globules of Aja dugdh 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 Gutika Anjana may be useful in similar future research works as till date there is no standard information are available. The HPTLC showed that 11 amd 13 spots at 254nm and 366nm each. Among them 9 spots were of similar Rf at both 254 and 366nm which shows the chemical moieties composition.

CONCLUSION:
Study on Gutika Anjana 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 Gutika Anjana, 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.
5. Sushruta Samhita Uttaranatra Vataabhishyanda Pratishedha(Su.Utt.9/15)