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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* (*Sodium 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 Uttarantra Vataabhisyaanda 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*,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 *Abhishyanda* is one such condition where *Anjana* is included in the treatment.⁴ *Gutika Anjana* is an Ayurvedic herbomineral preparation as mentioned in the 9th chapter of *Sushruta Uttarantra*, *Vataabhishyanda 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 Abhishyanda*. *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*.⁵ The ingredients are mentioned in the Table1.

Table 1: Ingredients of *Gutika Anjana*

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

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.⁶ 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.⁷ 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 110⁰C, pH value, ash value, water soluble extractive, alcohol soluble extractive.⁸

High Performance Thin Layer Chromatography.⁹

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 2: Organoleptic characters of *Gutika Anjana*:

Sr. No	Various parameters	<i>Gutika Anjana</i>
1.	Colour	Reddish brown
2.	Odour	Sweetish milk
3.	Touch	Fine
4.	Texture	Soft

Microscopic Characters of *Gutika Anjana*:

Diagnostic characters showed simple starch grains, fragment of scleriform vessels and fibres oliosine 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 3: Physico-chemical parameters:

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

High performance thin layer chromatography (HPTLC):

The colour and Rf values of resolved spots of HPTLC were noted. (Table 4) (Plate no. 3)

Table 4: Rf values obtained by HPTLC

<i>Gutika Anjana</i>		
Wavelength	No. of spots	Rf Value
366nm	13	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
254nm	11	0.01, 0.14, 0.21, 0.36, 0.42, 0.48, 0.56, 0.63, 0.67, 0.76, 0.84



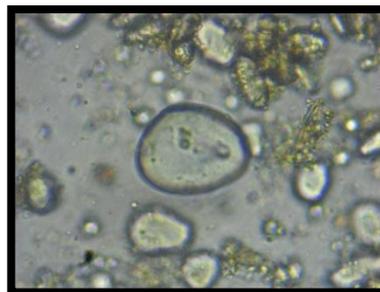
Plate 1: Powder of *Gutika Anjana*



Simple starch grain of Shunti



Epidermal cells of Pippali



Oil globules of Milk



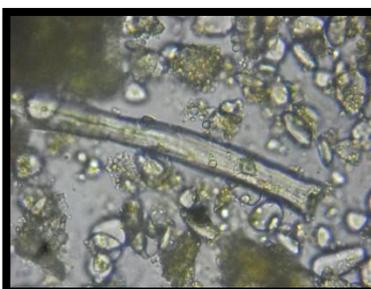
Stone cells of Pippali



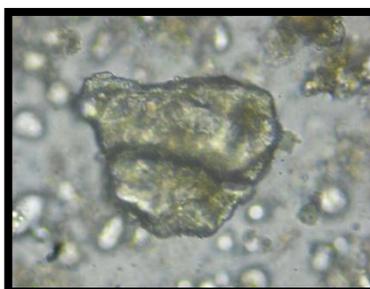
Scalariform vessels of Shunti



Debrries of Gairika

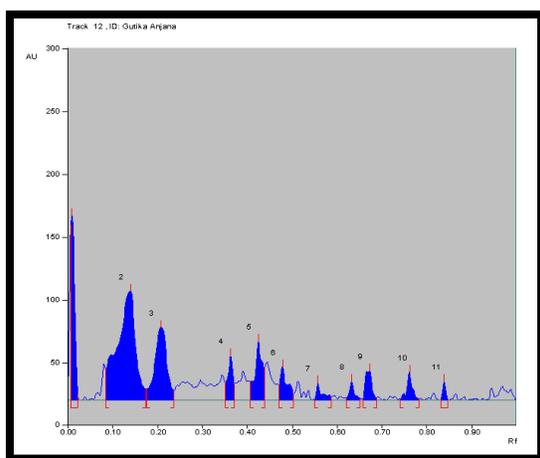


Fibres of Shunti

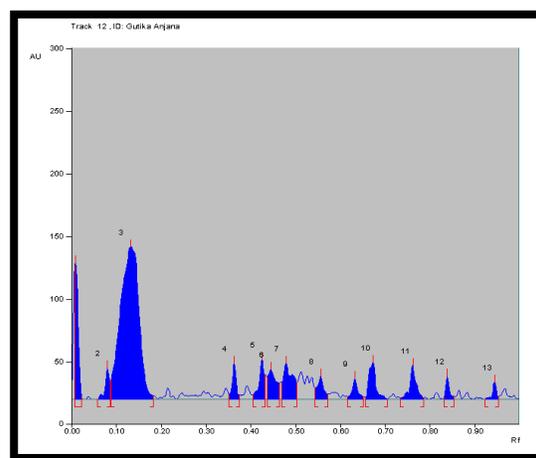


Black debris of Pippali

Plate 2: Powder microscopy of *Gutika Anjana*

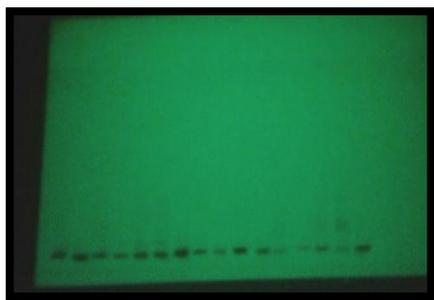


Densitogram at 254nm

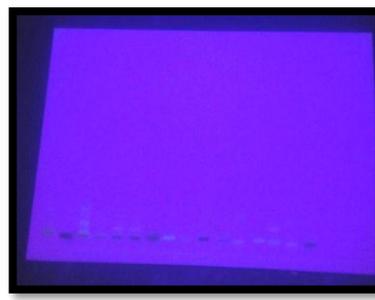


Densitogram at 366nm

Plate 3 HPTLC of methanolic extract of *Gutika Anjana*



At 254nm



At 366nm

Plate 4 HPTLC plates 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 and 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.

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