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PHARMACOGNOSTICAL & PHARMACEUTICAL EVALUATION OF *RASAYANA GRANULES*

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ABSTRACT

Pregnancy and giving birth to a healthy progeny fulfills the beauty of woman's life. It is a period of immense joy coupled with excitement. During pregnancy fetus is totally dependent on the mother for nutrition. There may be a chance of nutrient deficiency to the fetus ultimately results in miscarriages. Abortion is a frustrating event which has its own claws over the social, psychological, familial, economic, marital and physiological well being of a woman It needs early interventions. *Rasayana* drugs are endowed with *Shita, Madhura, Drava qualities* will be more effective in continuing the pregnancy resulting in a healthy progeny without any untoward effects. use of *Rasayana granules acts* as a supportive for pregnancy, fetal development & proper organogenesis during embryonic stage. The present work was carried out to standardize the finished product *Rasayan Granules* in terms of its identity, quality and purity. Pharmacognostical and Physico-chemical observations revealed the specific characters of all active constituents used in the preparation. The Pharmaceutical analysis showed that the loss on drying value was 3.80%, pH Value 7.5, Acid insoluble Ash value2.80%. HPTLC study of *Rasayan Granules* revealed 5 spots at 254 nm and 3 spots on 366 nm.

KEYWORDS: Rasayana, pregnancy, pharmacognosy, pharmaceutical analysis.

INTRODUCTION

First trimester of pregnancy is the most crucial period to the baby's development. It is the embryonic stage of fetus, during this period all the structures are in minute form, from which

all the systems develop later on. So anything wrong during this stage is most hazardous for baby in future. In 2013 according to the WHO standards there are 2,93,000 pregnancy loss reported globally. Among this 75% are the first trimester loss mainly of the hormonal causes, 20% chromosomal/cytogenetical abnormalities, 20% immunological causes, manifested as maternal bleeding per vagina, raised B.P and infections.[1] Average gestational age when abortion occurs is 9.5 weeks. It needs early supportive interventions. The hormone therapy which commonly used found to be expensive and has its own side effects and too. The first trimester of pregnancy lasts from conception until 12 weeks gestation.[2]

Rasayan granules is an *Anubhoot yoga* prepared for the early pregnancy in the pharmacy of Gujarat Ayurveda University.

The Rasayan granules have the following contents in equal proportion *Bala Amalaki, Draksha, Stavari, Gudoochi, Jevanti and Arjuna with* Sugar candy as the sweetening agent. The raw materials procured from the pharmacy itself.

Acharya susruta indicates *sheeta snigha* and *madhura praya ahara* for *garbhini* and *ksheeram* is *jeevaneeya* and *pathya* for *garbhini* in all times.[3]

The nourishment is provided through the medium of food. In this regard it is important to note that right from the moment of a fertilized ovum, it establishes contact with the mother's nutrient medium first through osmosis and then by placental circulation flow as essence from maternal nutrition.

MATERIALS AND METHODS

Collection, Identification and Authentification of raw drugs

The raw materials were collected from the pharmacy of Gujarat Ayurved University, Jamnagar.

The raw drug *Bala, Amalaki, Draksha, Stavari, Gudoochi, Jevanti and Arjuna* was identified and authenticated in the Pharmaconosy Department, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

Pharmacognostical study

The Pharmacognostical study comprises of organoleptic study and microscopic study of finished product, *Rasayan granules.*

Organoleptic Study

The Organoleptic characters of Ayurvedic drugs are very important and give the general idea regarding the genuinity of the sample. Organoleptic parameters like Taste, Colour, odour and touch were scientifically studied.[4]

Microscopic Study

Rasayana granules was powdered and dissolved with water and microscopy of the sample was done without stain and after staining with Phloroglucinol + HCl. Microphotographs of *Haridradi Pratisarana* was also taken under Corl-zeiss trinocular microscope.[5]

Physico-chemical analysis

Rasayana granules was analyzed using various standard physico-chemical parameters such as loss on drying, water soluble extract, alcohol soluble extract etc.[6]

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was performed as per the guideline provided by API. Methanolic extract of drug sample was used for the spotting. HPTLC was performed using Toluene+ Ethylacetate+ Acetic acid (7:2:1) solvent system and observed under visible light. The colour and Rf values of resolved spots were noted.[7]

RESULTS AND DISCUSSION

Organoleptic characters of *Rasayana granules*

Organoleptic characters contents of *Rasayan granules* like colour, taste, touch, Odour were recorded and shown in Table.

Microscopic Study

Diagnostic characters of *Rasayan granules* under the microscope showed Stone cells of Jeevanti. Border pitted vessels of guduchi. Rosette crystals of Arjuna. Cluster crystals of Arjuna. Starch grains of guduchi. Stellate trichome of Bala. Micro rosett crystals of draksha. Starch grains with hilum of Jeevanti. Stone cells of Arjuna. Anular vessels of Satavari. Rhomboid crystals of Jeevanti. Pitted vassels of Bala. Acicular crystals of Satavari. Tanin contents of Arjun. Rhaphides of Satavari. Simple trichomes of Bala. Rosette crystals of Arjuna, Mesocarp cells of Amalaki, Silica deposition of Amalaki. Septate fibers of Bala. Stone cells of Arjuna, Spirate vessels of Bala. Stone cells of Jeevanti. Lignified stone cells of Arjun.

Pharmaceutical Evaluation

Physico-chemical Tests

Physico-chemical analysis of *Rasayan granules* revealed the value of loss on drying was 3.80%, Ash value 2.% w/w, water soluble extraction 81.4% Alchohol soluble extraction 24.04%, pH value 7.5 and shown in Table – 3.

HPTLC Study

The chromatographic study (HPTLC) was carried out under 254 and 366 nm UV to establish fingerprinting profile. It showed spots at 254 nm and at 366 nm with Rf values were recorded which may be responsible for expression of its pharmacological and clinical actions.

Table: 1 Ingredients of *Rasayan granules(Anubhoot yog)*.

Name of drugs	Latin name	Part used	Ratio
Guduchi	*Tinospora cordifolia(*Wild*)*	*Kanda*	1
Amalaki	*Embelica officinalis* Gaertn	*Shushka Phala*	1
Jeevanti	*Leptadenia reticulate(*Retz.*)*	*Panchanga*	1
Shatavari	*Asparagus racemosus* Wild	*Moola*	1
Bala	*Sida cordifolia* Linn.	*Moola*	1
Draksha	*Vitis vinifera* Linn	*Shushka Phala*	1
Arjuna	*Terminalia arjuna(*Roxb.ex DC*)*	*Kanda twak*	1
Sita	-	-	As required

Table: 2 Organoleptic characters of *Rasayan granules.*

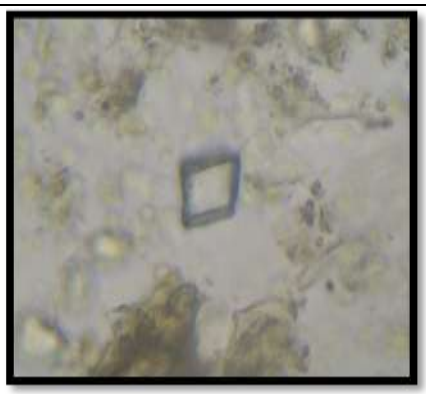
Sl no:	character	Observation
1	Colour	Light brown
2	Odour	Characteristic
3	Taste	Astringent followed by Sweet then Astringent again
4	Touch	Granular

Table: 3 Pharmaseutical Evaluation of *Rasayan Granules.*

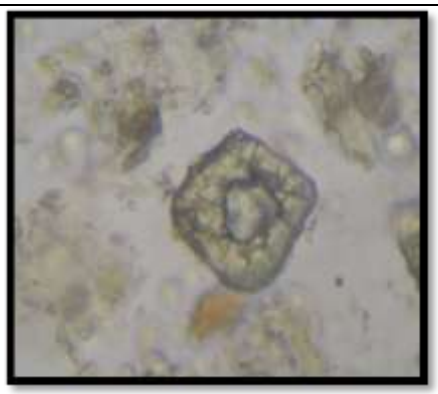
Sl no:	Test	Result w/w
1	Loss on drying	3.8%
2	Ash value	2.80%
3	Water solusble extract	8.14%
4	Alcohol soluable extract	24.04%
5	pH	7.5

Table: 4 HPTLC Study of *Rasayan Granules.*

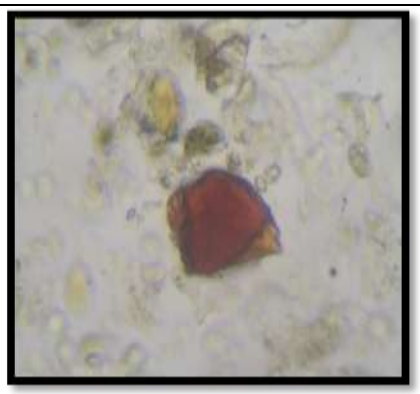
Wave length	No.of spots	Rf value
254	6	.03, .30, .44, .64, .79, .94
366	3	.03, .64, .75



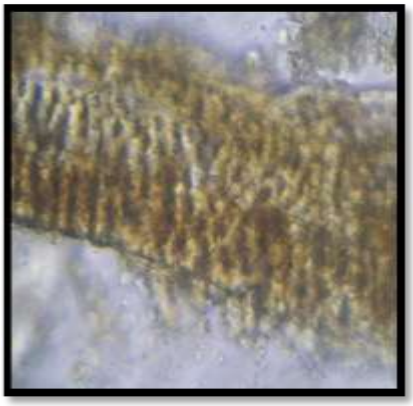
1.Prismatic crystal of Jeevanti.



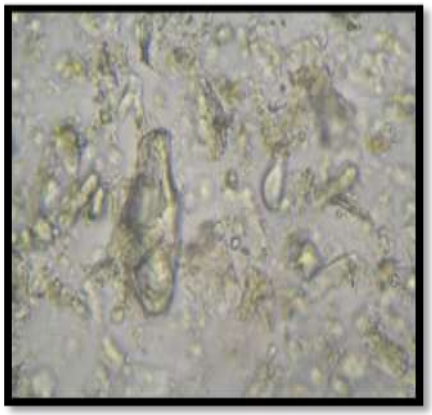
2.Stone cells of Jeevanthi.



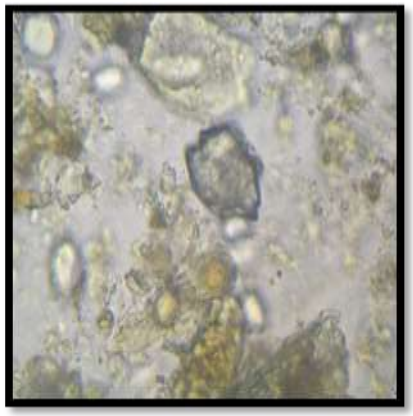
3.Brown content of Draksha.



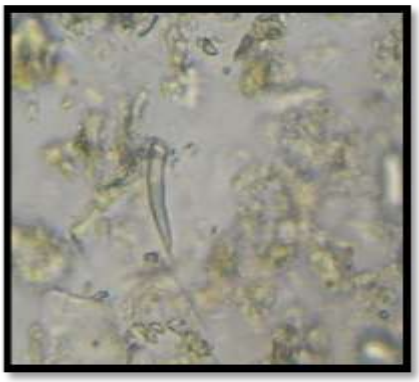
4.Pitted vessels of Jeevanti.



5.Chollenchyma cells of Guduchi.



6.Silica deposition of Amalaki.



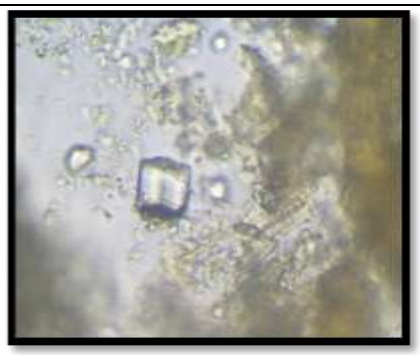
10Simple trichome of Bala.

11Septate fibres of Bala.

12Border pitted vessels of Guduchi.

7.Stone cells of Arjuna.

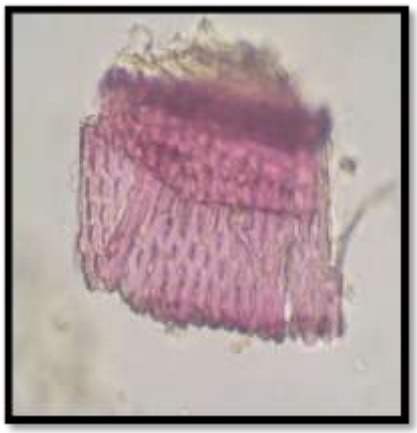
8.Stone cells of Jeevanti.



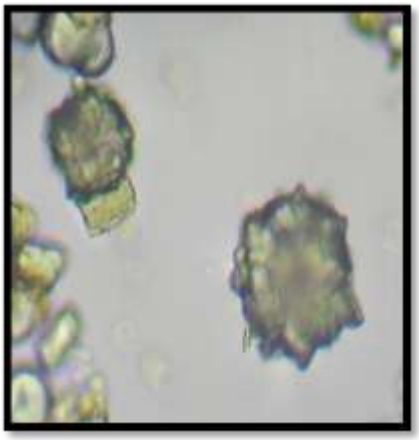
9.Rhomboidal crystal of Jeevanti.

10.Lignified fibre of Jeevanti.

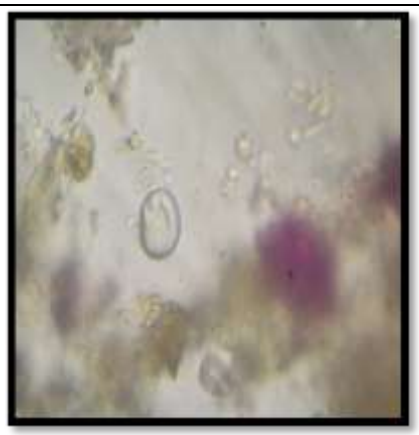
11.Chollenchyma cells of Guduchi.



12Pitted vessels of Jeevanti.



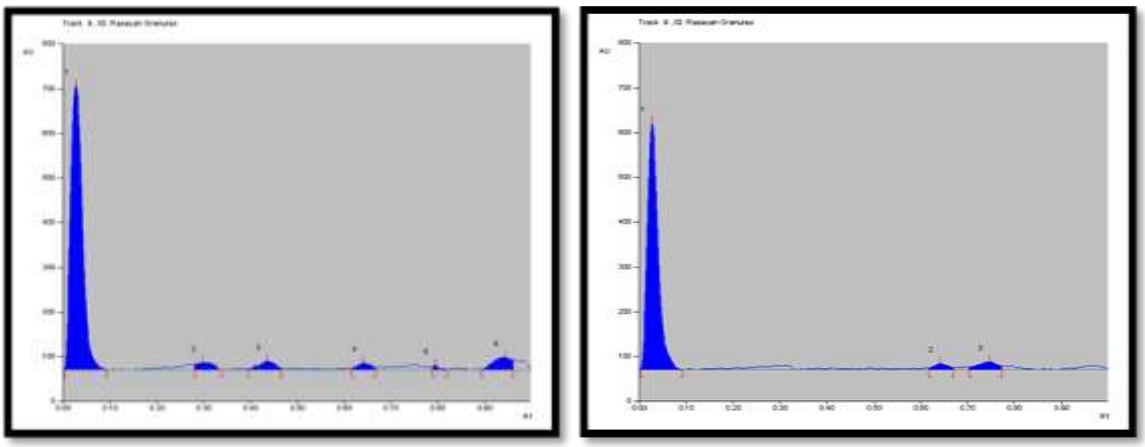
13.Rosette crystals of Arjuna.



14.Starch grain with hilum of Jeevanti.

15.Stellate trichome of Bala.

Plate 1: Microphotographs of *Rasayan granules.*



254 nm **366nm**

Plate 2: Densitogram of *Rasayan granules at* 254 nm and 366 nm.

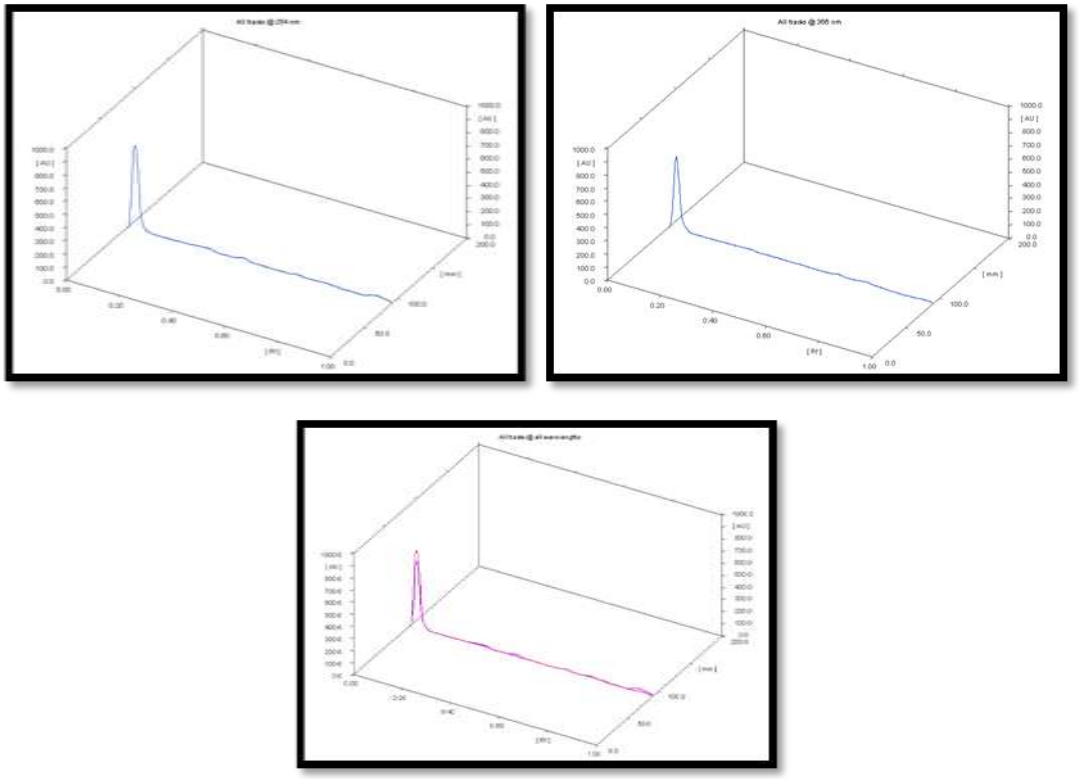


Plate 3: Three dimensional HPTLC (3D) Densitgram.

CONCLUSION

Quality control of formulation given in pregnancy is very much necessary to assess its safety, purity and universal acceptability. Standardization is a measurement for ensuring the quality control enabling the reproducibility of the formulation. The pharmacognostical and physico chemical analysis of *Rasayan granules* confirmed the purity and genuinety of the drug. Further studies may be carried out on it on the basis of observation made and results of experimental studies. This study may be beneficial for future researchers and can be used as a reference standard in the further quality control researchers.

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