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PHARMACOGNOSTICAL AND PHARMACEUTICAL EVALUATION OF *BHUNIMBADI VATI*

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ABSTARCT

Irregular dietary habit and over-eating is most found in a child that leads to vitiation of *Agni*. *Grahani* is the *Adhishthana* of *Agni* and *Agni Dushti* is the main reason of the disease. The disease *Grahani Dosha* is very commonly seen in present pediatric practice andit exaggerates to form a critical condition if the proper care is not taken. *BhunimbadiChurna*is indicated in such condition. *Churna*is converted into *Vati*form due to easy palatability in pediatric patients**. Methods**- Final product was subjected to Phrmacognostical and physico-chemical analysis such as microscopic study, loss on drying, ash value, pH etc. **Results**- Phrmacognostical study showed the presence of contents such as;Starch grains and Silica deposition of *Musta*, Stone cells, Crystal fibres of *Kutaja*, Prismatic Crystal, Tannin content of Chitraka, Starch Grains of *Shunthi*, Trichomes of *Bhunimba*, Lignifiedstone cells of *Pippali*, Epicarp cells of *Indrayava*, Black debris and Lignified group of Stone cells of *Maricha*. **Conclusion**- The present work was carried out to standardize the finished product *BhunimbadiVati*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.

KEYWORDS: *GrahaniDosha, BhunimbadiVati,* Pharmacognosy, Pharmaceutics, HPTLC.

INTRODUCTION

*GrahaniDosha*is one of the most common disorder of *Annavaha* and *Purishavahasrotas*. *Mandagni* is considered to be root cause for disease and it plays a very important role in manifestation of *GrahaniDosha*. As per *Acharya Sushruta,Grahani*is the 6th *Pittadhara Kala*

situated between *Amashaya*and *Pakwashaya.*[1] *Acharya Charaka*mentioned it is the part which situatedabove *Nabhi*, it is supported and nourished by strength of *Agni.*[2] *Grahani*digest the food and releases into the next *Ashaya*i.e. *Pakvashaya*. But due toweakening of *Agni* it releases food in undigested form. *Grahani*disease is due to the unhealthy and improper food habits, like continuous intake of such food especially in person with disturbed digestion and cause the disease *Grahani*. Thus, it produces symptoms as *Atisrushta, Atibaddha Mala* (loose/constipated stool), *Trushna*(Thirst), *Arochaka*(tastelessness), *Asyavairasya*(Altered oral taste), *Praseka*(excessive salivation), *ShoonaPadakara*(edema over hands and feets), *AsthiparvaRuk*(pain at phalangeal joint and bone), *Chhardan*(vomiting), *Jwara*(fever), and *LouhagandhiAmlaudgara*[3] (iron pungent odor burps).

Clinicaly IBS shows symptoms like altered abdominal habit, abdominal pain and bloating, feeling of incomplete defecation, passage of mucus.[4] In Ayurveda exact correlation cannot be found of IBS but according to signs and symptoms and pathology of disease we can consider this clinical entity as *GrahaniDushti*. *Agnimandhya* is the main causative factor of *GrahaniDosha*. Thus, drug should administer in *GrahaniDosha* which has *Agnivardhaka* and *DeepanaPachana*properties. *AcharyaCharaka* has mentioned *BhunimbadiVati*[5] in *GrahaniDosha* having 9 ingredients i.e.*Bhunimba, Katuki, Shunthi, Maricha, Pippali, Musta, Indrayava, Chitraka, Kutaja*which have *Agnivardhaka*and *Deepana, Pachana* properties. In the present study, the formulation is subjected to Pharmacognostical and pharmaceutical analysis to standardize the finished product *BhunimbadiVati*in terms of its identity, quality and purity. Preliminary organoleptic features and results of microscopy were verified and all the ingredients were proved to be authentic.

MATERIALS AND METHODS

Drug Material

Raw drug materials were collected from the pharmacy of Gujarat Ayurveda University. The ingredients and the part used are given in table no. 1.

Methods of preparation of *BhunimbadiVati*

All the dried ingredients of *BhunimbadiVati* were taken and first converted into *Churna* (fine powder) was prepared. For the purpose of the binding 10% gum acacia was mixed in this combination. Then this mixture was converted into granules by using the granular machine. Lastly, 500 mg Tablets were made in Tablet making machine.

Pharmacognostical study

Raw drugs were identified and authenticated by the Pharmacognosy laboratory, I.P.G.T&R.A., Jamnagar. The identification was carried out based on the morphological features, organoleptic features and powder microscopy of the individual drug.[5] Later, Pharmacognostical evaluation of the Tablets were carried out. Tablet was dissolved in small quantity of distilled water, filtered through filter paper and studied under the microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope.[6]

Physicochemical Evaluation

*BhunimbadiVati*was analyzed by using standard qualitative and quantitative parameters, HPTLC was carried out after making appropriate solvent system with Methanolic extract of *BhunimbadiVati*at the Pharmaceutical Chemistry lab, I.P.G.T. & R.A. Gujarat Ayurved University, Jamnagar.[78]

OBSERVATION AND RESULTS

Organoleptic Evaluation

Various parameters of the material such as colour, odour, touch and taste of the *BhunimbadiVati*o bserved and recorded. Touch were analyzed with the help of *Darshana, Sparshana, Ghrana and RasanaPareeksha* mentioned in Ayurveda. Results are mentioned in the Table no.2.

Microscopic study

The powder microscopy of*BhunimbadiVati*confirmed the features of Starch grains and Silica deposition of *Musta*, Stone cells, Crystal fibres and Lignified Stone Cells of *Kutaja*, Prismatic Crystal, Tannin content, Stone cells and Lignified pitted stone cells of Chitraka, Starch Grains of *Shunthi*, Starch Grains and Pitted Vesseles of *Katuki*, Trichomes of *Bhunimba,* Stone cells *and* Lignifiedstone cells of *Pippali,* Epicarp cells of *Indrayava*, Stone cells, Black debris and Lignified group of Stone cells of *Maricha*.

Physico-chemical Analysis

Following Physical parameters of*BhunimbadiVati*were analyzed and results are mentioned in the table no.3. Physical analysis like Shape, Size, Weight variation, Hardness, Disintegration time and Uniformity of weight were recorded.

Qualitative analysis

Physico-chemical analyses were carried out by following the parameters. Physico-chemical analysis like loss on drying at 110°C, pH value, ash value, water soluble extractive, methanol soluble extractive[12] were recorded. Results are mentioned in the table no. 4.

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was carried out after making appropriate solvent system with Methanolic extract of *BhunimbadiVati*. On performing HPTLC, visual observed tablet on under UV light showed few spots but on analyzing under densitometer at 254nm and 366nm it resulted into 3 spots respectively. Results of HPTLC are given in Table no 5 anddensitogram is shown in plate 2.

Table no.1: Ingredients of *BhunimbadiVati*.[9]

No.	Drug Name	Botanical Name	*Part to be Used*	Quantity
1	*Bhunimba*	*Andrographispaniculatus*Nees.	*Shushka Kanda*	1 part
2	*Katuki*	*PicrorhizaKurroh*Royle ex Benth.	*ShushkaMula*	1 part
3	*Shunthi*	*Zingiberofficinale*Rosc.	*Shushka Kanda*	1 part
4	*Maricha*	*Piper nigrum*Linn.	*ShushkaPhala*	1 part
5	*Pippali*	*Piper longum*Linn.	*ShushkaPhala*	1 part
6	*Musta*	*Cyperus rotundus* Linn.	*Shushka Kanda*	1 part
7	*Indrayava*	*Holarrhenaantidysenterica*Wall.	*ShushkaBeeja*	1 part
8	*Chitraka*	*Plumbago zeylanicum*Linn.	*ShushkaMula*	2 parts
9	*Kutaja*	*Holarrhenaantidysentrica*Wall.	*ShushkaTwaka*	16 parts

Table no 2: Organoleptic characters of *BhunimbadiVati.*

S.No	Parameter	Result
1	Color	Muddy Brown
2	Odour	Bitter
3	Taste	Bitter Astringent
4	Touch	Hard
5	Form	Vati

Table No 3: Physical analysis of *BhunimbadiVati.*

1	Shape		Round
2	Size		0.7cm
3	Weight Variation		6%
4	Hardness		2 Kg/Cm^2
5	Disintegration Time		29 Minutes
6	Uniformity	Max.(Mg) Wt.	508mg
		Min.(Mg) Wt.	475mg
		Avg.(Mg) Wt	494mg

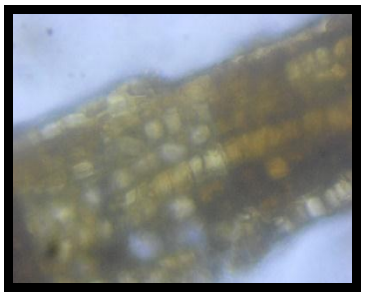
Table 4: Physico-chemical analysis of*BhunimbadiVati.*

S.No	Physicochemical Constants	Bhunimbadi Vati Value
1.	Percentage of loss on drying	7.83%
2.	Percentage of ash content	12%
3	Percentage of alcohol soluble Extract	6.5%
4.	Percentage of water-solubleExtract	2.4%
5	pH	6.5

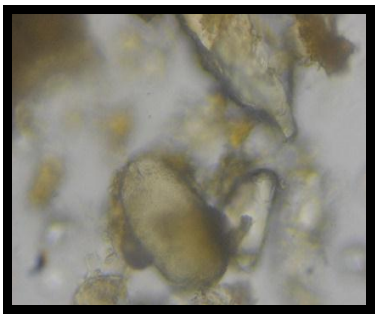
Table 5: Results of HPTLC of*BhunimbadiVati*: Solvent system – Toluene: Ethyl acetate: Acetic Acid (7:2:1).

Wave Lengths	Short UV (254nm)	Long UV (366nm)
No of Spots	7	4
Max. Rf value	0.02, 0.08, 0.13, 0.24, 0.30, 0.50, 0.97	0.02, 0.13, 0.17, 0.50

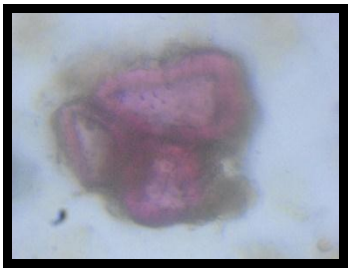
Vati* and *Churna*of*BhunimbadiVati



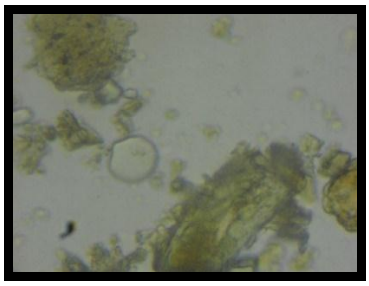
Crystal fibre of Kutaj



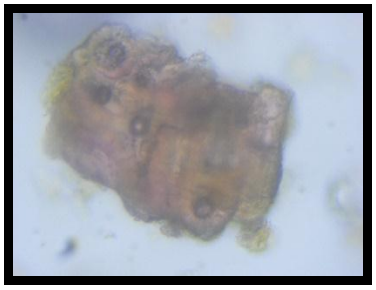
Black debrries of Marich



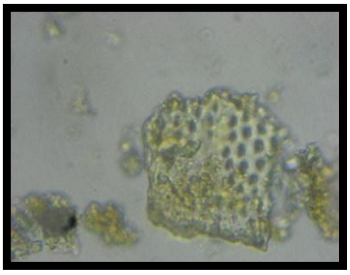
Lignified stone cells of Chitrak



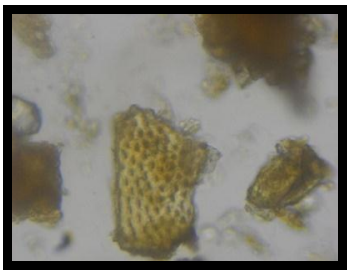
Oil globule of Indrayav



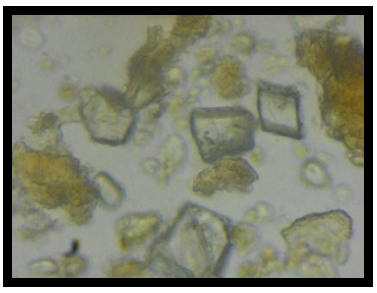
Lignified stone cells of Pippali



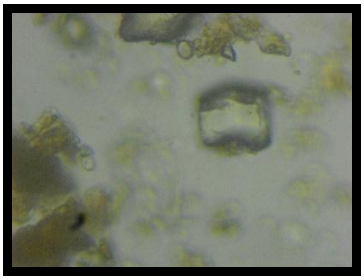
Pitted vessels of Chitrak



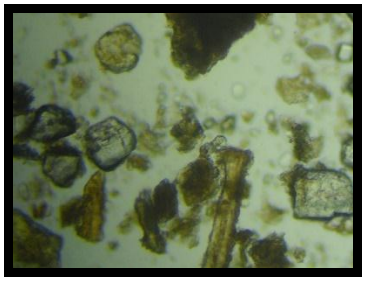
Pitted vessels of Katuki



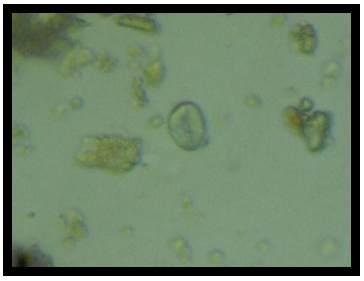
Prismaticcrystal of Chitrak



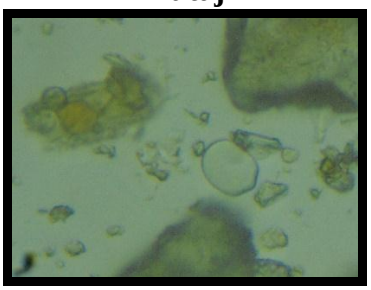
Rhomboidal crystals of Kutaj



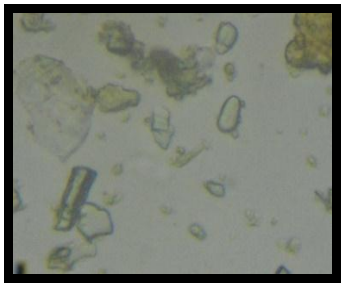
Silica deposition of Musta



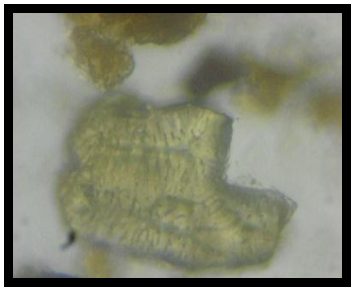
starch grains of Katuki



Starch grains of Musta

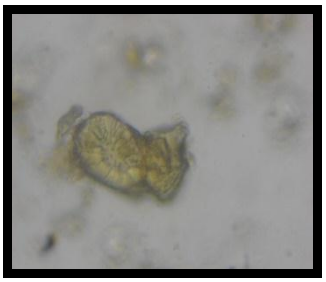


Starch grains of Shunti

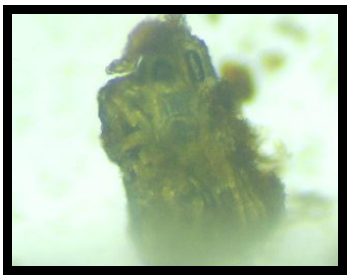


stone cells of Chitrak

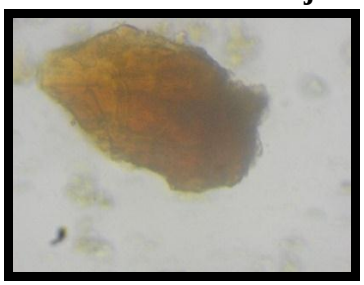
Stone cells of Kutaj



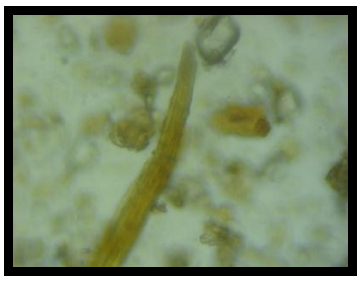
Stone cells of Marich



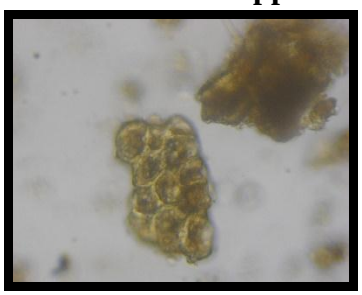
Stone cells of Pippali



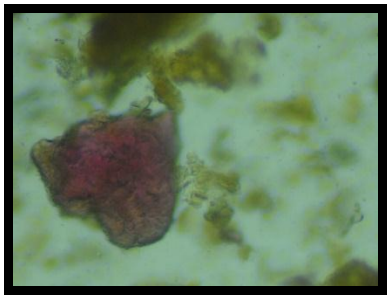
Tannin contant of Chitrak



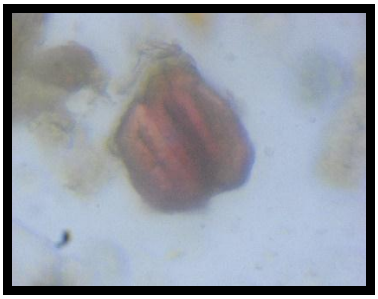
Trichome of Bhunimba



Epicarp cells of Indrayav

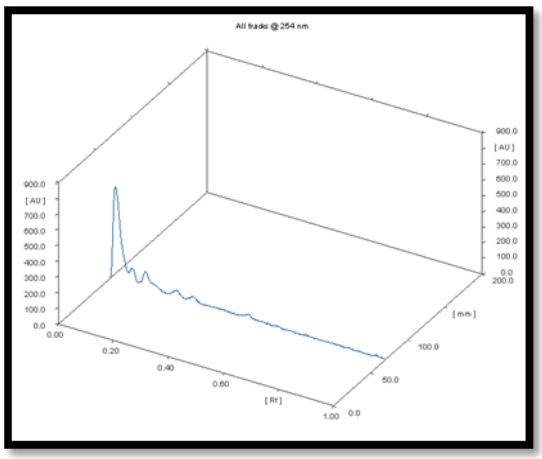


Group of stone cells of*Marich*

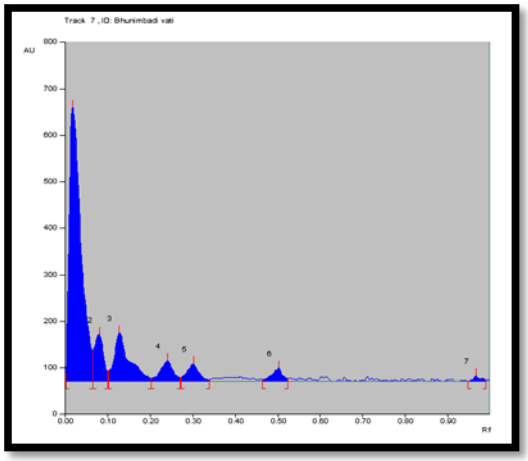


Lignified stione cells of *Kutaj*

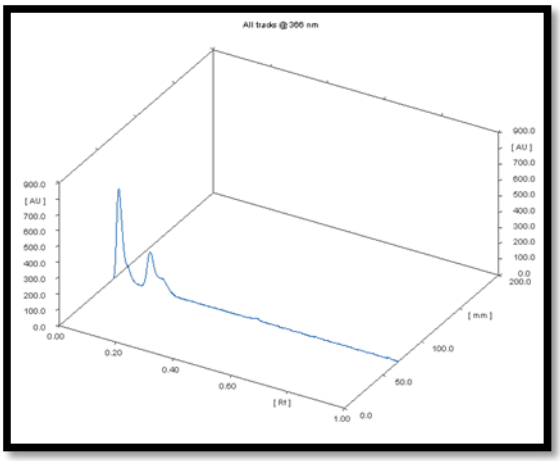
Plate 1: Microscopic characters of*BhunimbadiVati.*



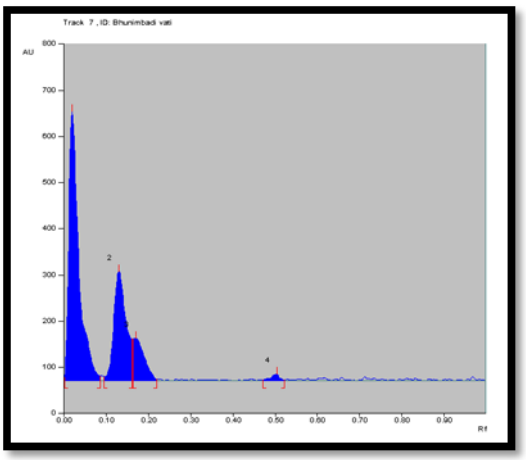
3D Graph: At 254nm



At 254 nm



3D Graph: At 366nm



At366 nm

Figure 2: HPTLC evaluation of *BhunimbadiVati*.

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DISCUSSION

Pharmacognosy and pharmaceutical evaluation of *BhunimbadiVati*was performed which is a potent medicine in the management of*GrahaniDosha*.In physiochemical analysis, Uniformity of Tablets, Hardness of Tablets, Loss on Drying(110° C),Ash Value, Water Soluble Extract, Methanol Soluble Extract, and pH (10% Aqua solution) were assessed. Though the important analysis and investigations are required for the identification of all the active chemical constituents of the test drug to substantiate the clinical efficacy.

CONCLUSION

Pharmacognostical study findings confirm that all characters were found in ingredient drugs of *BhunimbadiVati*. The physicochemical analysis are inferred that the formulation meets maximum qualitative standards and all the parameters discussed here may be used as identifying tools for the quality assessment of *BhunimbadiVati*. Thus, Outcome of the study may be taken as standard references groundwork requisites for the standardization of *BhunimbadiVati* are covered in the current study, additional for the further studies.

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