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Research Article

PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF PARASIKAYAVANYADI CHURNA

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ABSTRACT

Ayurveda has recognized nidra as one of the most important dimensions of health and is an outcome of relax mental and physical state. Parasikayavanyadichurna was formulated to assess its role in the management of insomnia. The present study deals with the standardisation of parasikayavanyadichurna through the pharmacognostical and pharmaceutical standards. Pharmacognostical study contain both macroscopic and microscopic identification of raw drugs which are used for final product of parasikayavanyadichurna . Organoleptic features of coarse powder made out of the crude drugs were within the standard range. The pH valuewas 5.0, water soluble extract 9.6 %w/w, Ethanol soluble extract 11.5 % w/w, ash value 9.39 % w/w and loss on drying was 7.80 % w/w, and average weight of capsule was 430 mg.TLC and HPTLC were carried out after organizing appropriate solvent system in which maximum 5 spots

were distinguished and most of the hR_f values were identical in alcoholic extract. This shows the presence of certain definite constituents in parasikayavanyadichurna and is helpful for the easy separation of these particles.

Keywords: parasikayavanyadichurna, Pharmacognosy, TLC, HPTLC, insomnia.

INTRODUCTION

In olden times, vaidyas used to treat patients on individual basis, and prepare drug according to the requirement of the patient by themselves. But the scenario has changed now; herbal medicines are being manufactured on the large scale in Pharmaceutical units, where manufacturers come across many problems such as availability of good quality raw material, authentication of raw material, availability of standards, proper standardization methodology of single drugs and formulation, quality control parameters.The quality control and quality assurance of herbal drugs still remains a challenge because of the high variability of chemical components involved. At present no official standard are available for the herbal preparation. Manufactures those who are doing some testing of their formulation, have fixed their own parameter, most of them are only preliminary in nature [(1)]

Hence the first important task is to evolve such parameter by which the presence of the entire ingredient can be identified, various chromatographic and Spectrophotometric methods and evaluation of physicochemical properties can be tried to evolve pattern for identifying the presence of different ingredient. Separation of individual components from the herbal mixture is the key step to enable identification and bioactivity evaluation.[(2)]

Here dosage form of final drug was churna and its unpalatable condition and issues of dose fixation over come by form of capsule.

Aims and Objectives:

Pharmacognostical, pharmaceutical and phytochemical analysis of parasikayavanyadichurna for setting a preliminary profile for further references.

MATERIAS AND METHOD

Collection and authentification of raw drugs:

Parasikayavani seeds and Jatamansi rhizome were obtained from Gujarat Ayurved University Pharmacy and freshShankapushpi and fresh fruit of Kushmanda were collected by drug collector from Ahmadabad . The ingredients with botanical source and parts used are mentioned in Table 1.

Pharmacognostical authentication of all the raw drugs was done based on the morphological features, organoleptic characters and powder microscopy of individual drugs. The API standards were used for authentication.[3]

NO	Drug	LATIN NAME	PART USED	PROPORTION
1	Parasikayavani	Hyoscyamusniger Linn	Dried seeds	1/5 part
2	Jatamansi	Nardostachysjatamansi DC	Dried rhizome	1part
3	Shankapushpi	Convolvulus pluricaulisChois	Whole fresh plant	Fresh juice for 7 bhavanas
4	Kushmanda	Benincasahispida Cong	Fresh fruit	Fresh fruit juice for 7 bhavana

Table 1: Ingredients of parasikayavanyadichurna

Pharmacognostical evaluation:

Pharmacognostical analysis of Parasikayavanyadichurna based on Organoleptic characters i.e. color, odor, taste and texture were recorded. Individual drugs were studied under Microscope and they were cross verified with API. Small quantity of Parasikayavanyadichurna dissolved in distilled water and filtered through filter paper and the filtrate is dried and placed on slide, first observed in plane water and then stained with phloglusinole and Conc. HCl for lignified materials. Microscopic studies showed the lignified materials along with other cellular constituents and which was later compared with the findings of individual ingredients of final product . The micro-photographs were taken by using corlzeiss binocular Microscope attached with camera.[3,4,5,6,]

Method of Preparation of Parasikayavanyadichurna :

All the pre authenticated raw drugs (Table 1) were taken for the preparation. 1 part of Jatamansi rhizome and 1/5 part of parasikayavani seeds were griended to a fine powder separately and mixed together thoroughly. Whole plant of freshShankapushpi and fresh fruit pulp of Kushmanda were crushd separately and juices were made. Seven bhavanas were given to the powder by each juice. After that the grinded mixture was kept in the 50°C in a hot air oven for 12 hours. The dried mixture was griended with the help of eletrctricmotar and prepaird fine powder and filled to hard gelatine capsules of 500 mg weight.

Pharmaceutical and Photochemical:

parasikayavanyadichurna was analyzed using various standard physicochemical parameters such as loss on drying, ash value, water soluble extract, Ethanol soluble extract and pHvalue TLC and HPTLC were carried out after making appropriate solvent system with Methanolic extract of parasikayavanyadichurnaasper CCRAS recommendations at the Pharmaceutical chemistry lab, IPGT &

RA.(Table 2)

No	Parameters	Observation
1	Color	Dark brown
2	Odor	Characteristic
3	Taste	Kashaya – Tikta(Astringent- Bitter)
4	Consistency	Solid

Table 2: Organoleptic characters of parasikayavanyadichurna

HPTLC: Methanol extract of parasikayavanyadichurna was spotted on pre coated silica gel GF 60_{254} aluminum plate by means of CamangLinomat V sample applicator fitted with a 100 µL Hamilton syringe. Chloroform: MeOH (9:1) v/v was used as the mobile phase. After development densitometric scan was performed with a Camag T. L. C. scanner III in reflectance absorbance mode at U.V. detection as 254 nm and 366 nm under control of Win CATS Software (V 1.2.1. Camag). Then the plate was sprayed with vanillin sulphuric acid followed by heating and then visualized which showed 5 spots.

OBSERVATION AND RESULTS

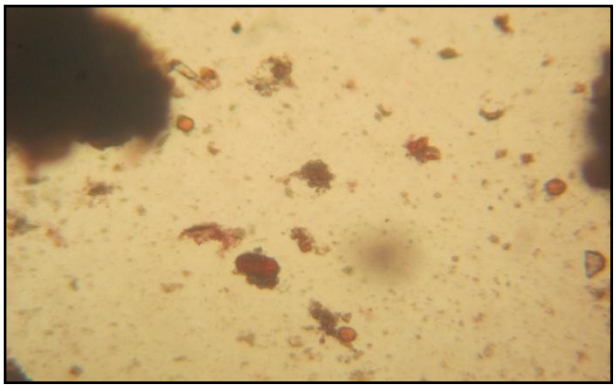
Pharmacognostical Analysis:

Organoleptic Characters: The sample parasikayavanyadichurna was dark brown solid powder with kashaya (astringent) and tikta (bitter) taste and characteristic smell (Table 2).

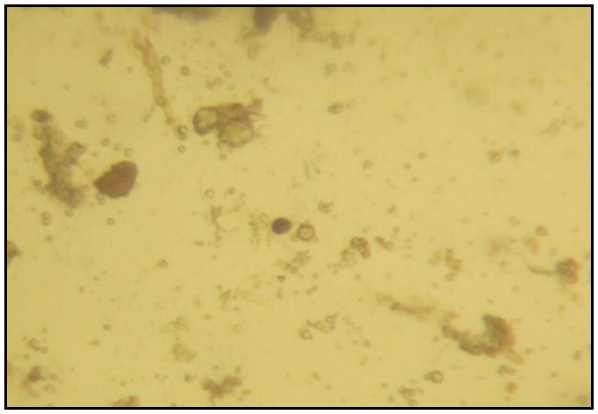
Microscopic Characters: Powder microscopy of final product showed all the characters of individual four drugs of parasikayavanyadichurna. The diagnostic characters are Cluster crystals, oil globules, parenchyma cells, striated walled lignified parenchyma cells and tracheids (pitted) of parasikayavani.Annular vessels, cork cells with stone cells, groupof fibres, reticulate vessels, spiral vessells, starch grains, thick walled paranchyma cells and thin walled paranchyma cells from Jatamansi. Parenchyma cells, polleongrains trichomes, prismatic crystals, group of fibres, spiral xylem vessels and lignifined cork cells of Shankapushi. Spiral vessels with fibres, simple and compound starch grains, prismatic crystals embeded in paranchymal cells, epithelium with stone cells from Kushmanda pulp (Plate 1).

Plate 1:

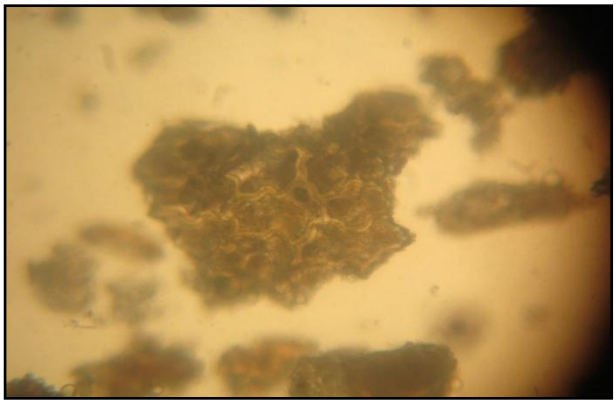
Lignified parenchyma cells of parashikayavani



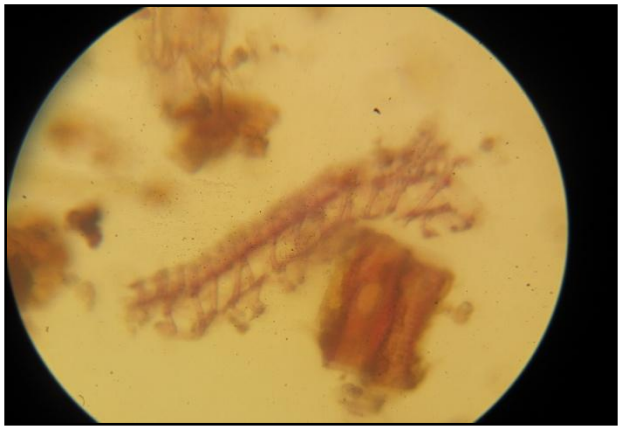
Oil globules of parashikayavani



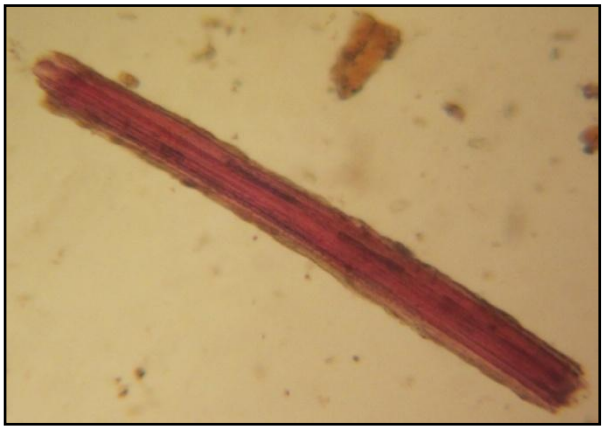
Starch grains &aleurone grains of parashikayavani



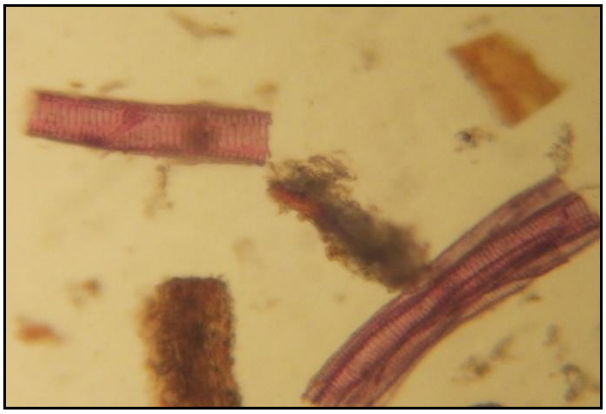
Striated & thick walled ligneifiend parenchyma cells of parashikayavani



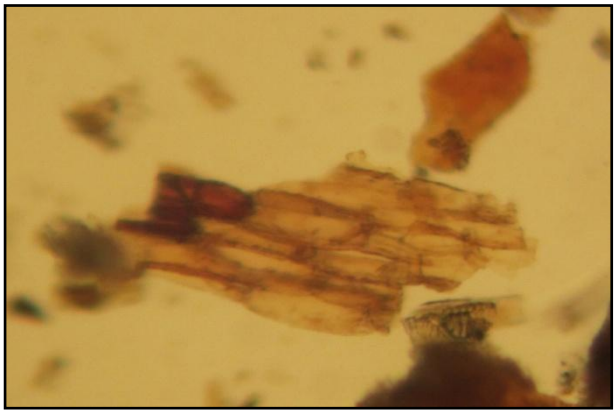
Annular vessel of Jatamansi



Group of fibres of Jatamansi

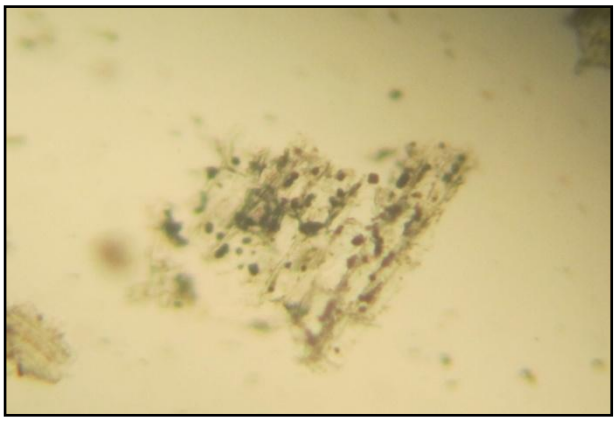


Reticulate vessels of Jatamansi

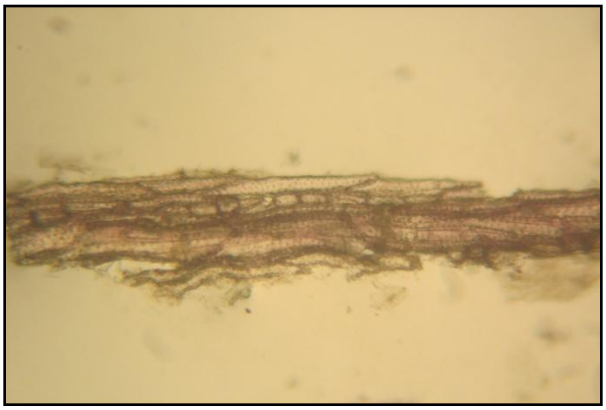


Thick walled parenchyma cells of Jatamansi

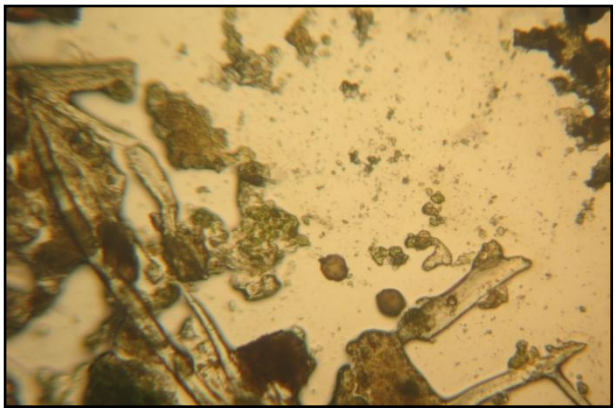
Group of fibres of shankapushpi



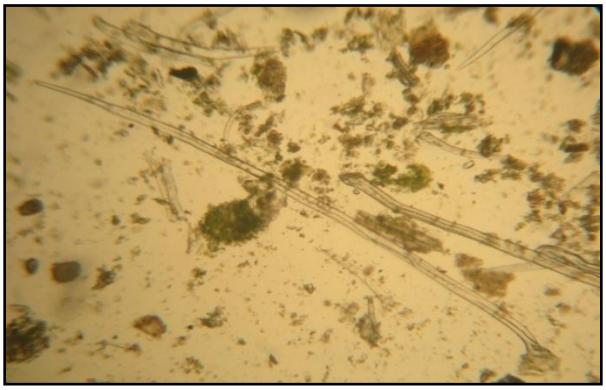
Parenchyma cells embeded with starch grains Shankapushpi



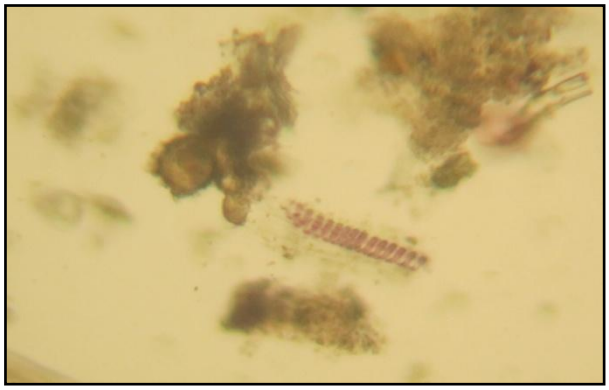
Pitted tracheids of Shankapushpi



Pollen grains of Shankapushpi

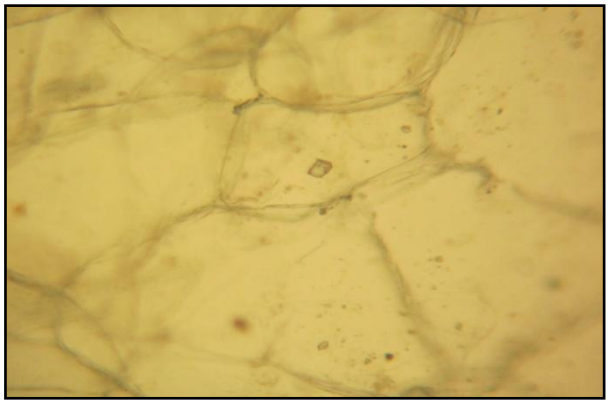


Simple unicellular trichomes of Shankapushpi

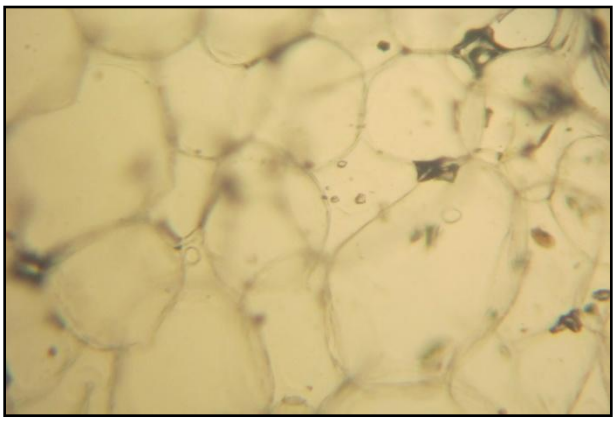


Spiral vessel of Shankapushpi

Pitted stone cells, parenchyma cells & single ayered epidermis of Kushmanda



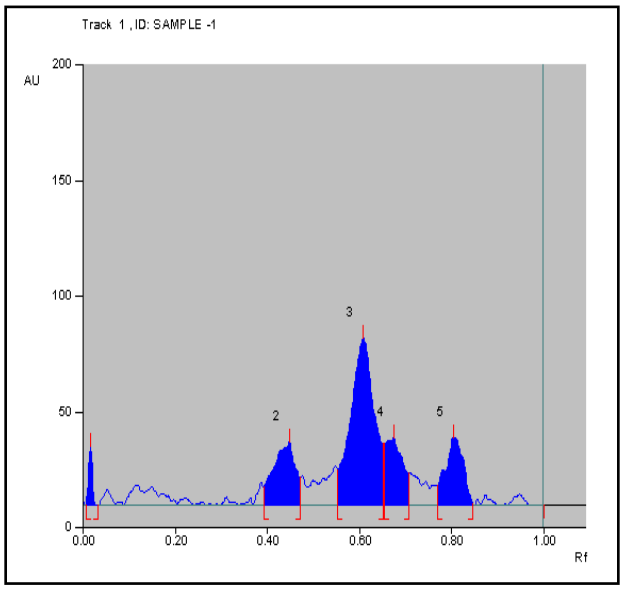
Primatic crystal of Kushmanda



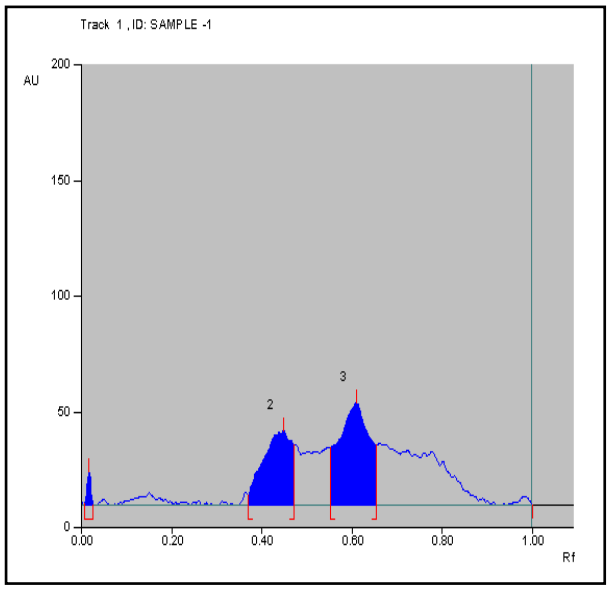
Simple parenchyma cells of Kushmanda

Spiral vessels with fibres of Kushmanda

Plate 2: Densitogram ofParasikayavanyadichurna



Densitogram curve of ethanol extract of Parasikayavanyadichurna at 254 nm



Densitogram curve of ethanol extract of Parasikayavanyadichurna at 366 nm

Pharmaceutical Analysis:

Parasikayavanyadichurna was analyzed using various standard physicochemical parameters at the Pharmaceutical chemistry lab. All the Pharmaceutical parameters such as loss on drying, ash value, water soluble extract, ethanol soluble extract and pHvalue were analysed (Table 3).

No	Test	Result
1	water soluble extract	9.6 %w/w
2	Ethanol soluble extract	11.5 % w/w
3	pH value	5
4	Ash value	9.39 % w/w
5	Loss on drying	7.80 % w/w
6	Average weight of capsule	430mg

Table 3: Physicochemical parameters

Phytochemical Analysis & HPTLC:

HPTLC: On analyzing under densitometer at 254nm, the chromatogram showed 5 peaks with hR_fvalues 13.75, 15, 39.31, 15.94, and 16.08 While at 366nm the chromatogram showed 3 peaks with hR_f values 16.08, 35.53 and 48.39. (Fig.No 01, Table 5,6) When the plate was sprayed with vanillin sulphuric acid followed by heating and then visualized showed 3 peaks with hR_fValues 16.08,48.39, 50.05 (Plate 2 , Table 4).

HPTLC	**SPOTS**	**hR_f Values at 254 nm**
	5	13.75,15,39.31,15.94,16.08
		hR_f Values at 366 nm
	3	16.08,35.53,48.39
		After spray
	3	16.08, 48.39,50.05

Table 4:HPTLC

DISCUSSION

Study on the Parasikayavanyadichurna is a effort towards pharmacognostical and Physico chemical standardization of herbal drugs in powder form. Powder microscopy of parasikayavanyadichurna showed the striking characters of all individual four drugs of final product (Table 3). This confirms the ingredients present in the finished product and there is no major change in the microscopic structure of the raw drugs during the pharmaceutical processes of preparation of powder.

CONCLUSION

Pharmacognostical findings confirm the ingredients present in the parasikayavanyadichurna and raw drugs cross verified with API, no major change in the microscopic structure during the pharmaceutical processes of preparation of churna . The results of this study may be used as the reference standard in further research undertakings of its kind.

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