

## INGREDIENTS IDENTIFICATION, PHYSICO-CHEMICAL AND HPTLC EVALUATION OF *PRAJASTHAPANCHOORNA*

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Article Received on  
05 August 2021,

Revised on 26 August 2021,  
Accepted on 16 Sept. 2021

DOI: 10.20959/wjpr202111-21842

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### ABSTRACT

**Background:** *Prajasthapana Choorna* is a combination of herbal drugs having a numerous number of references in Ayurveda classics. But its qualitative data hasn't been explored thoroughly yet. It is mainly useful to treat gynaecological diseases, infertility, repeated abortion and in diseases where according to Ayurveda *Vata* and *Pitta Doshas* are vitiated. **Aim:** To develop pharmaceutical profile of *Prajasthapana Choorna*. **Material and Method:** Study included preparation of *Prajasthapana Choorna* following all SOPs using raw drugs, which were previously authenticated. Later, *Prajasthapana Choorna* was subjected to physicochemical and high performance thin-layer chromatography (HPTLC) analysis as per standard protocols.

**Result and Discussion:** Pharmaceutical analysis showed that the loss on drying value was 0.40%, ash value was 9.56%w/w, water soluble extract was 7.24%, methanol soluble was 10.22%, acid insoluble ash 0.76%, and pH is 4.5. Methanolic extract of *Prajasthapana Choorna* shows presence of alkaloids, flavonoids, phenols, tannin, sugar, steroids, saponin, cardiac glycosides and carbohydrates which can be hypothesized for its estrogenic activity. HPTLC fingerprinting profile of *Prajasthapana Choorna* revealed 5 spots at 254 nm and 5 spots at 366nm. **Conclusion:** The present investigation will be helpful in assessing the pharmacognostical, phytochemical analysis and laying down pharmacopoeial standards for *Prajasthapana Choorna*.

**KEYWORD:** HPTLC, *Prajasthapana Choorna*, Phytochemical, *Prajasthapana Gana*.

## INTRODUCTION

Pharmaceutics is the discipline of pharmacy that deals with the process of turning a new chemical entity (NCE) into a medication to be used safely and effectively by patients. It is also called the science of dosage form design. There are many chemicals with pharmacological properties, but need special measures to help them achieve therapeutically relevant amounts at their sites of action. Pharmaceutics helps relate the formulation of drugs to their delivery and disposition in the body. Pharmaceutics deals with the formulation of a pure drug substance into a dosage form.

In *Charaka Samhita* 4<sup>th</sup> Adhyaya 50 Ganas are given; one of them is *Prajasthapana Ghana*<sup>1</sup>. In *Ashtang Samgraha*, the same drugs are said to be “*Garbhasthapana Gana* (A.Sa.Su 15/48)”. Here, *Praja* means *Garbha*. *Prajopaghatakar Doshas* means the cause, which avoid conception, full term growth of foetus or normal delivery of baby in short, the infertility. *Dravyas* of *Prajasthapana Gana* have *Rasayana*, *Vrushya*, *Garbhasthapana*, *Balya*, *Ushna*, *Vatanulomana*, *Tridoshahara* properties etc.

The Present communication deals with setting a standard pharmaceutical profile of *Prajasthapana Choorna*.

## MATERIALS AND METHOD

### Collection and Authentication of Raw Drugs

All ingredients were procured from the Pharmacy, Gujarat Ayurved University, Jamnagar. The authentication of all the raw drugs was based on the morphological features and organoleptic characters of individual drugs in the pharmacognosy laboratory of IPGT and RA, G.A.U Jamnagar. The API standards were used for authentication. [Table No.1]

**Table No. 1: Drvyas of *Prajashapana Choorna*.**

Sr.No.	Name of ingredients	Latin name	Part used	Proportion
1	<i>Endri</i>	<i>Citrullus colocynthis</i> Schrad	<i>Moola</i>	All <i>Dravyas</i> in equal quantity
2	<i>Brahmi</i>	<i>Bacopa monnieri</i> (Linn.)Pennell	<i>Panchanga</i>	
3	<i>Shataveerya</i>	<i>Cynodon dactylon</i> (Linn.) Pers	<i>Moola</i>	
4	<i>Sahastraveerya</i>	<i>Asparagus racemosus</i> Willd.	<i>Moola</i>	
5	<i>Amogha</i>	<i>Emblica officinalis</i> Gaertn. <i>Tinospora cordifolia</i> (Willd.)	<i>Phala</i>	
6	<i>Avyatha</i>	<i>Tinospora cordifolia</i> (Willd.)	<i>Kanda</i>	
7	<i>Shiva</i>	<i>Terminalia chebula</i> Retz.	<i>Phala</i>	
8	<i>Arishta</i>	<i>Picrorhiza kurroa</i> Royle ex Benth.	<i>Moola</i>	
9	<i>Vatyapushpi</i>	<i>Abutilon indicum</i> (Linn.)Sweet	<i>Moola</i>	
10	<i>Vishvakasenakanta</i>	<i>Callicarpa macrophylla</i> Vahl.	<i>Phala</i>	

## PHARMACEUTICAL ANALYSIS

**Organoleptic characters:** The organoleptic character of Ayurvedic drug is very important and give the general idea regarding the genuineness of the sample.

### Physicochemical parameters<sup>[2,3,4,5,6]</sup>

Physicochemical study of sample was carried out by using various physicochemical parameters as mentioned in Ayurvedic Pharmacopeia of India, 2001. *Prajasthapana Choorna* used as a sample.

### Qualitative tests

Qualitative chemical tests were carried out for identifying various phytoconstituents present in methanolic fractions of *Prajasthapana Choorna*.

### HPTLC<sup>[7,8]</sup>

**Instrumentation:** A CAMAG HPTLC system (Muttensz, Switzerland) equipped with a sample applicator TLC auto sampler 4, twin trough plate development chamber, TLC Scanner 3, win CATS software version 1.4.4. and Hamilton (Reno, Nevada, USA) Syringe.

**HPTLC method:** 5µl of extract was loaded on E. Merck aluminium plate pre coated with silica gel 60 F254 of mm thickness and the plate was developed in Toluene: Ethyl acetate (9:1) in twin trough chamber previously saturated with solvent system. After development densitometric scan was performed with a Camag TLC scanner III in reflectance absorbance mode at 254 and 366 nm under control of Win CATS Software (V Camag) (Stahl, 1969). The plate was then dipped in sulphuric acid reagent and heated in a hot air oven at 105°C until the colour of the spots appeared and profile photo was documented under white light.

## RESULTS

**Organoleptic characters:** Organoleptic characteristics were shown as in Table No. 2

**Table No. 2: Organoleptic characters of *Prajasthapana Choorna*.**

Drug name	Organoleptic characteristic			
	Colour	Odour	Taste	Touch
<i>Prajasthapana Choorna</i>	Brown	Characteristics	Astringent	Smooth

### Physicochemical analysis

*Prajasthapana Choorna* had been analyzed by using various standard physicochemical parameters at the modern pharmaceutical chemistry laboratory, IPGT & RA, Jamnagar. The

pharmaceutical parameters such as water extractive value, alcohol extractive value, pH, total ash, acid-insoluble ash, loss on drying and qualitative test were found within the permissible limits for *Choorna*. The physicochemical parameter of *Prajasthapana Choorna* was shown in Table no.3.

**Table no. 3: Physicochemical parameter of *Prajasthapana Choorna*.**

Sr. No.	Test	Result
1	Loss on Drying	0.40394% w/w
2	Ash Value	9.56284 % w/w
4	Water soluble extract	7.24% w/w
5	Methanol soluble extract	10.22% w/w
6.	pH	4.5

**Qualitative Analysis:** The Results of qualitative test was performed on methanolic extract of *Prajasthapana Choorna* was shown in Table no. 4.

**Table no. 4: Qualitative test of *Prajasthapana Choorna*.**

Sr. No.	Parameter	Test	Methanolic Extract
1	Alkaloids	Dragendroff Test	+
2	Flavonoids	Lead Acetate Test	+
3	Phenols	Lead Acetate Test	+
4	Tannin	Lead Acetate Test	+
5	Sugar	Fehlings Test	+
6	Steroids	Salkowski Test	+
7	Saponin	Foam Test	+
8	Fats And Oils	Filter Paper Test	-
9	Cardiac Glycosides	Keller Killani Test	+
10	Protein	Biuret Test	-
11	Amino Acid	Ninhydrin Test	-
12	Carbohydrates	Molish Test	+

‘+’ shows present, ‘-’ Shows absent.

### HPTLC Study

The HPTLC profile of *Prajasthapana Choorna* - Table no.5, and Figure 1

**Table no. 5: HPTLC profile of *Prajasthapana Choorna*.**

UV-254nm		UV-366nm	
No. of Spot	Rf Value	No. of Spot	Rf Value
1	0.02	1	0.06
2	0.11	2	0.14
3	0.74	3	0.77
4	0.83	4	0.86
5	0.88	5	0.87

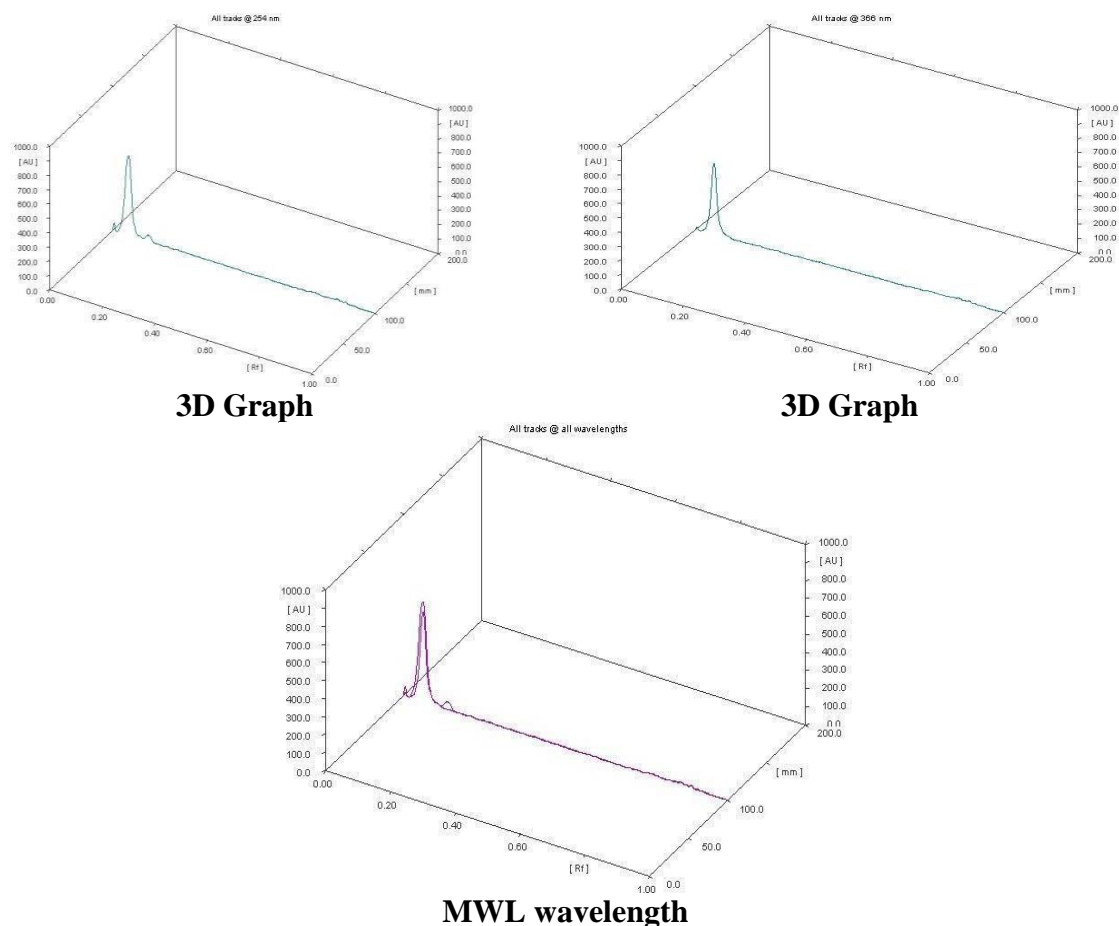


Figure no. 1: HPTLC profile of *Prajasthapana Choorna*.

## DISCUSSION

The pharmaceutical study exposes authentication of individual raw drugs of *Prajasthapana Choorna* and it is cross verified in *Ayurvedic Pharmacopeia of India (API)*. In physicochemical analysis, organoleptic analysis, physicochemical analysis was assessed. In this study, the quality groundwork for the standardization is covered. Additional analysis and investigations are required for the identification of the test drug to substantiate the clinical efficacy.

In this study, *Prajasthapana Choorna* is well separated compact symmetrical bands in favour of chromophore sensitive component (Sterol, phytosterol, stigmasterol etc.) indirectly due to prechromatographic derivatization of oil sample directly. By visualization under short UV there were 5 spots and while under long UV exposure 5 spots.

## CONCLUSION

In today's era most important is given to standardization of drug for assurance of quality. Keeping this aim in mind current study was planned. Physico-chemical and HPTLC studies inferred that the formulation meets the minimum quality standards as reported in the API at a preliminary level. Additional important analysis will be required for the identification of active chemical constituents of the test drug. The inference from this study may be used as reference standard in the further quality control researches.

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