ISSN 2581-6217

World Journal of Pharmaceutical Science & Technology

Journal homepage: www.wjpst.com

Original Research article

Ingredients identification, physico-chemical and hptlc evaluation of *Shatavari Narayana taila*

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Received: 14-08-2020, Revised: 22-08-2020, Accepted: 30-08 -2020

ABSTRACT:-

Background:-*Prajasthapana Churna* 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 Churna*. **Material and Method:-** Study included preparation of *Prajasthapana Churna* following all SOPs using raw drugs, which were previously authenticated. Later, *Prajasthapana Churna* 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 Churna* 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 Churna* 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 Churna.*

Keyword: - HPTLC, *Prajasthapana Churna*, 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* 4th *Adhyaya* 50 *Ganas* are given; one of them is *Prajasthapana Ghana.* 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, Vrishya, Garbhasthapana, Balya, Ushna, Vatanulomana, Tridoshahara* properties *etc.*

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

MATERIALS & 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 done 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. [6][Table No.1]

Table No. 1:- Drvyas of *Prajashapana Churna*

Sr. no	Name of ingredients	*Latin name*	Part used	Proportion
1.	*Endri*	*Citrullus colocynthis* Schrad	*Moola*	All *Dravyas* in equal quantity
2	*Brahmi*	*Bacopa monnieri (*Linn.) Pennell	*Panchanga*	
3	*Shatavirya*	*Cynodon dactylon (*Linn.) Pers.	*Moola*	
4	*Sahastravirya*	*Asparagus racemosus* Willd.	*Moola*	
5	*Amogha*	*Emblica officinalis* Gaertn.	*Phala*	
6	*Avyatha*	*Tinospora cordifolia* (Willd.)	*Kaanda*	

7	*Shiva*	*Terminalia chebula* Retz.	*Moola*	
8	*Arishta*	*Picrorhiza kurroa* Royle ex Benth.	*Moola*	
9	*Vatyapushpi*	*Abutilon indicum (*Linn.) Sweet	*Moola*	
10	*Vishwaksenkranta*	*Callicarpa macrophylla* Vahl	*Phala*	

Pharmaceutical Analysis

Physicochemical parameters

Physicochemical study of sample was carried out by using various physicochemical parameters as mentioned in Ayurvedic Pharmacopeia of India, 2001. *Prajasthapana Churna* used as a sample [8]

Qualitative tests [9]

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

HPTLC [10]

Instrumentation: A CAMAG HPTLC system (Muttenz, 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 F_{254} of 0.2 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 1.2.1. Camag) (Stahl, 1969). The plate was then dipped in sulphuric acid reagent and heated in a hot air oven at 105ºC until the colour of the spots appeared and profile photo was documented under white light.

RESULTS

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

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

Drug name	**Organoleptic characteristic**			
	Colour	**Odour**	**Taste**	**Touch**
Prajasthapana Churna	Creamish Yellow	Characteristics	Characteristics	Fine

Pharmaceutical Study

Prajasthapana Churna was analysed 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 *Churna*. The physicochemical parameter of *Prajasthapana Churna* was shown in table no.3

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

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

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

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

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	Keller Killani Test	+

	Glycosides		
10	Protein	Biuret Test	-
11	Amino Acid	Ninhydrin Test	-
12	Carbohydrates	Molish Test	+

'+' shows present, '-' Shows absent.

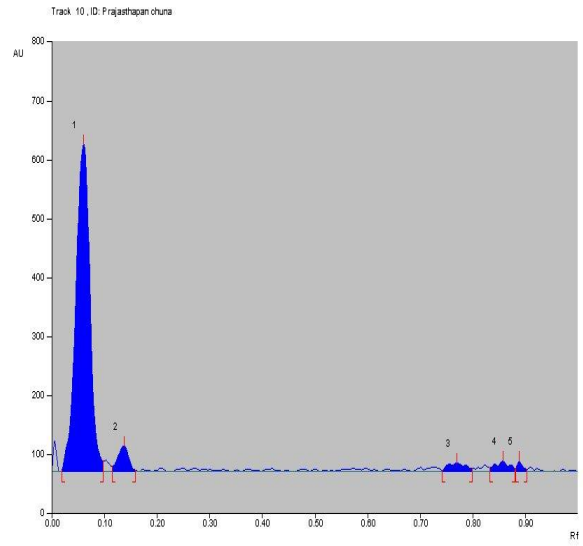
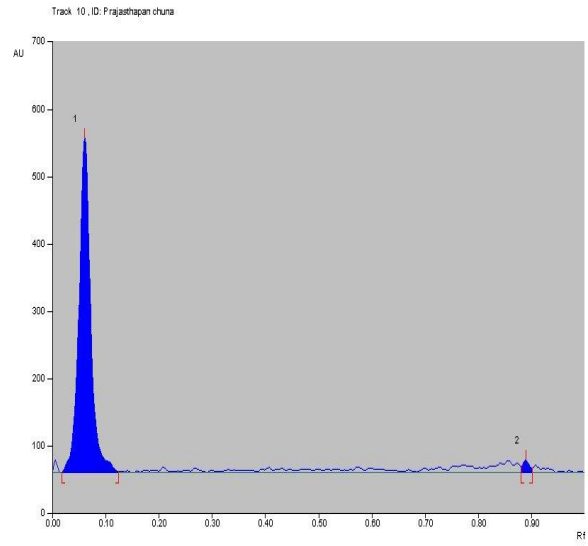
HPTLC Study

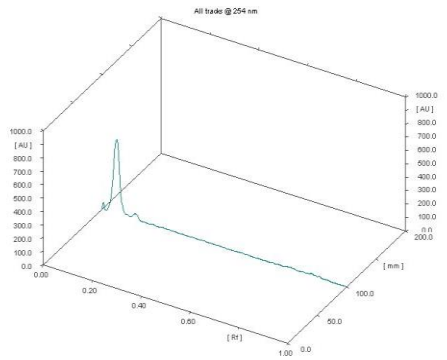
The HPTLC profile of *Prajasthapana Churna* was shown in the table no.5, and Figure 1.

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

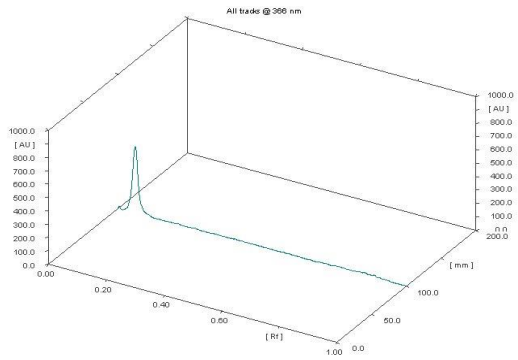
UV-254nm		UV-366nm	
No. of Spot	Rf Value	No. of Spot	Rf Value
1	0.02	1	0.06
2	0.11	2	0.14
3	0.74	3	0.77
4	0.83	4	0.86
5	0.88	5	0.89

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

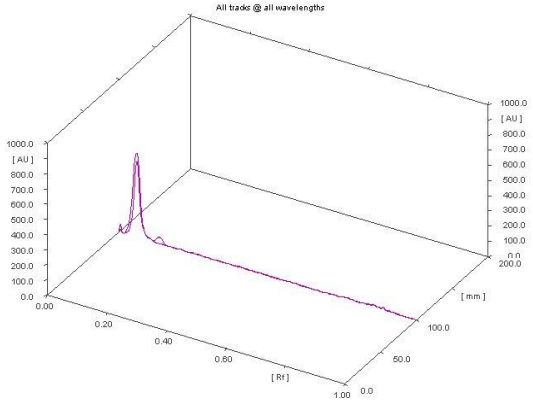
254 nm	**366nm**
	
Peak Display	**Peak Display**



3D Graph



3D Graph



MWL wavelength

DISCUSSION

The pharmaceutical study exposes authentication of individual raw drugs of *Prajasthapana Churna* and it is cross verified in *Ayurvedic* Pharmacopeia of India (API). In physicochemical analysis, organoleptic analysis, physicochemical analysis were 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 Churna* 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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