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PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF *PRIYANGWADI CHURNA*

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ABSTRACT

Introduction-Gingivitis is an inflammation of the marginal gingivae, occurs widely in mouth affecting both children and adults. As per ancient *Ayurvedic* texts the disease can be correlated with *Shitada* which is under the heading of *Dantamoolagata roga*. The sign and symptoms of *Shitada* are spontaneous bleeding from the gums, foul smelling, black soft and sodden gums. *Priyangwadi Churna* is one of the drugs which was mentioned by *Aacharya Sushruta* for *Pratisarana* or *Lepa* in *Shitada*. Till date no published data is available regarding evaluation of *Priyangwadi Churna*. **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; asicular crystal of *Priyangu*, epicarp cell of *Priyangu*, silica deposition of *Musta*, scheloroids of *Vibheetaki*, pitted stone cell of *Haritaki* etc. Preliminary physico-chemical analysis showed that the loss on drying value was found to be 5.35%, pH 3.5, Ash value 6.2, Water soluble extract 38.3% etc. High Performance Thin Layer Chromatography (HPTLC) showed 7 and 4 spots at 254nm and 366nm respectively. **Conclusion**- The present work was carried out to standardize the finished product *Priyangwadi Churna* 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: HPTLC, Pharmacogonosy, *Priyangwadi Churna*, pharmaceutical, *Shitada*.

INTRODUCTION

The main aim of medical science is to provide better health to every human being so as to have a better tomorrow. *Shitada* is described as a *Dantamoolagata roga* in Ayurveda.[1] *Shitada* is a disease in which there is spontaneous bleeding from the gums, foul smelling, black soft and sodden gums starts receding due to vitiated *Kapha* and *Rakta.*[2] *Shitada* is the early stage of periodontal diseases. This occurs due to negligence of oral hygiene, changing life style, habits and addictions. Periodontal disease is widely regarded as the second most common oral disease worldwide after dental decay.[3] In the United States, it is prevalent in 30-50% of the population, but only about 10% have severe forms.[4] The epidemiological studies conducted by American Academy of Periodontology shows that gingivitis of varying severities is nearly universal and it is estimated that over 80% of the world's population suffers from gingivitis.[5] Various local procedures are advocated in the management of *Mukharoga,* among them *Pratisarana* (local application of drug with gentle rubbing) is one.[6] Content of the *Priyangwadi Churna* are *Priyangu*, *Musta*, and *Triphala***[Table1]**. These drugs have anti-bacterial, haemostatic and anti-inflammatory properties. With these properties it not only prevents bleeding but also helps in curing associated infection and inflammation of gums. To maintain the therapeutic activity of the drug standardization is very much necessary. Till date there is no reference regarding evaluation on *Priyangwadi Churna Pratisarana.* In the present study, the formulation is subjected to Pharmacognostical and pharmaceutical analysis. Preliminary organoleptic features and results of microscopy were verified and all the ingredients were proved to be authentic.

MATERIALS AND METHODS

Collection, Identification and Authentication of raw drugs

The raw materials were collected from the pharmacy of Gujarat Ayurved University, Jamnagar. All the raw drugs were identified and authenticated in the Pharmacogonosy Department, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

Preparation of the drug

As specific method of preparation is not mentioned for this drug, it was prepared as per common guidelines described in classics and API for *Churna* formulation. Physico-chemical

and qualitative analysis of the final product were carried out in the pharmaceutical chemistry laboratory of IPGT & RA, Gujarat Ayurved University, Jamnagar under expert guidance.

Pharmacognostical study

The Pharmacognostical study comprises of organoleptic study and microscopic study of finished product.

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 in Pharmacognosy laboratory, I.P.G.T. & R.A., Gujarat Ayurved University, Jamnagar, Gujarat, India.[7]

Microscopic Study

Priyangwadi Churna was powdered and dissolved with water and microscopy of the sample was done without stain and after staining with Phloroglucinol + HCl. Microphotographs of *Priyangwadi Churna* was also taken under Corl-zeiss trinocular microscope.[8]

Physico-chemical analysis

Priyangwadi Churna was analyzed using various standard physico-chemical parameters such as loss on drying, water soluble extract, alcohol soluble extract etc.[9]

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.[10]

RESULTS AND DISCUSSION

Organoleptic characters of *Haridradi Pratisarana*

Organoleptic characters contents of *Priyangwadi Churna* like colour, taste, touch, Odour were recorded and shown in **Table- 2**.

Microscopic Study

Diagnostic characters of *Priyangwadi Churna* under the microscope showed epicarp cells, asicular crystal, oil globules and tanin content of *Priyangu*, lignified scleroids of *Amalakhi*,

lignified scleroids of *Vibheetaki*, pitted stone cell of *Haritaki*, annular vessels of *Musta*, silica deposition of *Musta* etc. All these are showed in **Plate no 1.**

PHARMACEUTICAL EVALUATION

Physico-chemical analysis

Physico-chemical analysis of *Priyangwadi Churna* revealed the value of loss on drying was 5.35%, Ash value 6.32% w/w, water soluble extraction 38.3% Alcohol soluble extraction 32.64%, pH Value 3.5 are 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 7 spots at 254 nm and 4spots at 366 nm with Rf values were recorded which may be responsible for expression of its pharmacological and clinical actions. **Plate 2, Table – 4.**

Table1: Contents of *Priyangavadi Churna*- (Su/Chi/22/12)

Priyangu	*Callicarpa macrophylla* Vahl.	1 part(Flower)
Musta	*Cyperus rotundus* Linn.	1 part(Tuber)
Haritaki	*Terminalia chebula* Retz.	1 Part(Fruits)
Vibheetaki	*Terminalia bellerica* Roxb.	1 part(Fruits)
Amalakhi	*Emblica officinalis* Gaertn.	1Part(Fruits)

Table2. Organoleptic parameters of *Priyangwadi Churna*

Serial no.	Character	Observed
1	Colour	Brown
2	Odour	Slightly aromatic
3	Taste	Strong astringent
4	Touch	Rough, course

Table 3: Physico-chemical analysis of *Priyangwadi Churna*

Serial no.	Test	Result
1	Loss on drying	5.35%w/w
2	Ash value	6.32%w/w
3	Water soluble extract	38.3%w/w
4	Alcohol soluble extract	32.64%w/w
5	pH	3.5

Table 4: HPTLC Study of *Priyangwadi Churna*

Wave Length	Number of spots	Rf values
254nm	7	0.03, 0.32, 0.43, 0.61, 0.70, 0.76, 0.93
366nm	4	0.02, 0.32, 0.62, 0.73

Plate no 1

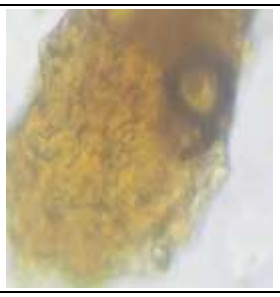
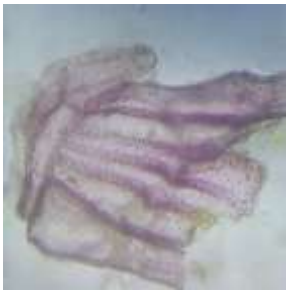
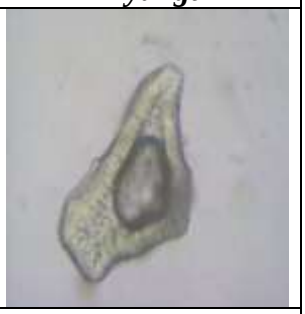
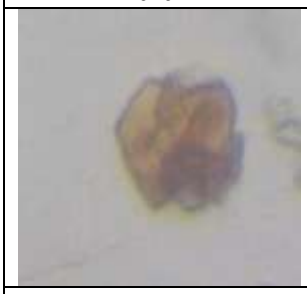
			
Priyangwadi Churna	**Asicular crystal of *Priyangu***	**Epicarp cell of *Priyangu***	**Oil globules of *Priyangu***
			
lignified scleroids of *Amalakhi*	**lignified scleroids of *Vibheetaki***	**Annular vessels of *Musta***	**Pitted stone cell of *Haritaki***
			
Tanin content of *Priyangu*	**Stone cells of *Haritaki***	**Groups of scheleroid of *Amalakhi***	**Starch grains of *Musta***

Plate 2: Densitogram of *Priyangwadi Churna at* 254 nm and 366 nm

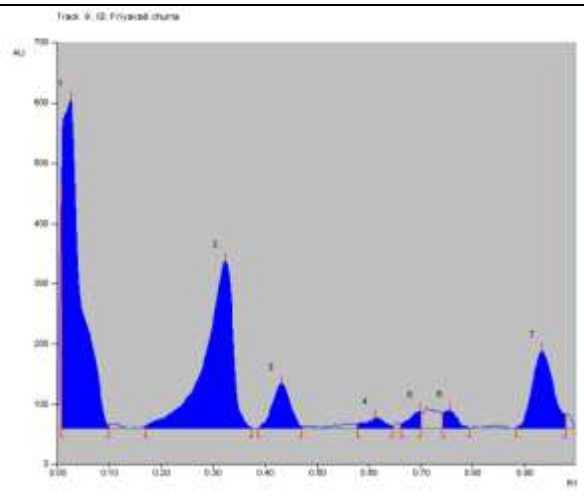
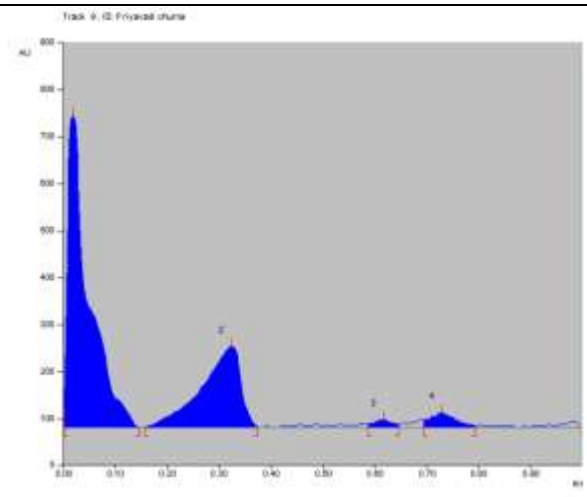
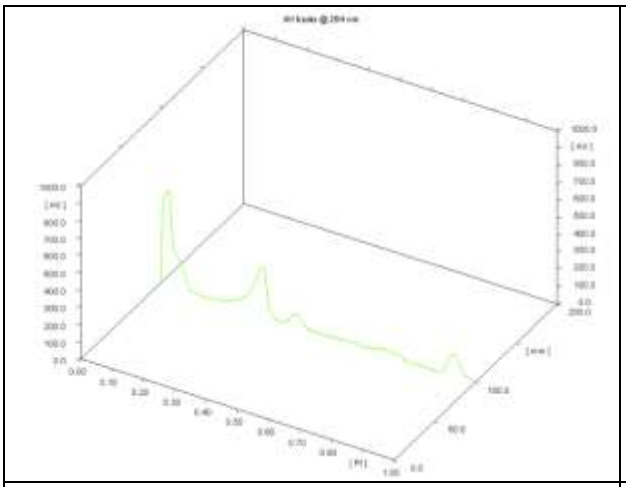
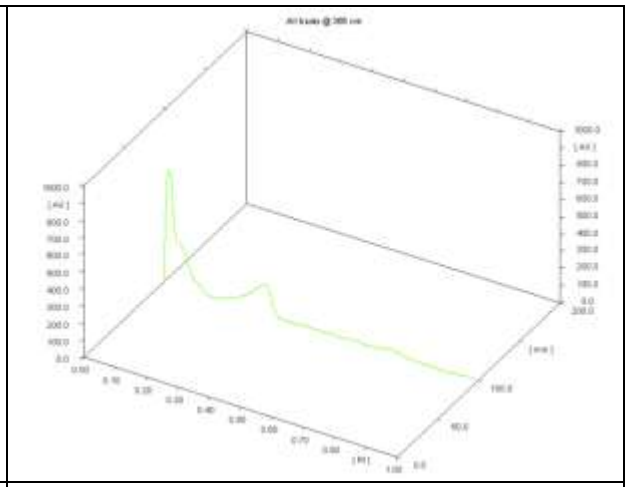
	
Peak display at 254nm	**Peak display at 366 nm**

Plate 3: Three dimensional HPTLC (3D) Densitgram

	
254nm	**366nm**

CONCLUSION

The pharmacognostical and physico chemical analysis of *Priyangwadi Churna* 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. As there is no published pharmacognostical and physico-chemical profiles of *Priyamgwadi Churna* are available 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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