

PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF *SHWASAHARA DASHEMANI CHURNA*

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Abstract

Ayurveda texts have described five types of *Shwasa Roga* and among these five, *Tamaka* is one. *Tamaka Shwasa* is a “*Swatantra*” *Vyadhi*. In *Charaka Samhita*, the group of ten drugs is mentioned for the management of the *Shwasa Roga* named as *Shwasahara Dashemani*.

Methods- Final product was subjected to Pharmacognostical and physico-chemical analysis such as microscopic study, loss on drying, ash value, pH etc. **Results-** Pharmacognostical study showed the presence of contents such as; annular vessels of *Shati*, simple trichome of *Tulsi*, rosels crystal of *Jivanti* etc. Preliminary physico-chemical analysis showed that the loss on drying value was found to be 6.4%, pH 6.3, Ash value 8.9, Water soluble extract 13.4% etc. High Performance Thin Layer Chromatography (HPTLC) showed 4 and 2 spots at 254nm and 366nm respectively.

Conclusion- The present work was carried out to standardize the finished product *Shwasahara Dashemani 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, Pharmacogony, *Shwasahara Dashemani Churna*, pharmaceutical, *Tamaka Shwasa*.

Introduction

Bronchial Asthma is a chronic inflammatory condition of the lung airways resulting in episodic airflow obstruction. The prevalence of Bronchial Asthma an estimated 4 to 7% of the people worldwide.ⁱ As stated by W.H.O, 350 million of global population are suffering from Bronchial Asthma, out of which 1/10th are Indians and the prevalence of asthma is increasing every where. It is one of the most important chronic conditions causing elementary school absenteeism in childhood.^{ii,iii} *Tamaka Shwasa* is a “*Swatantra*” *Vyadhi* i.e. independent disease entity having its own etiological factor, patho-physiology and management. It is mentioned as *Yapya Vyadhi* i.e. a disease of chronic nature in *Charaka Samhita*, while *Sushruta*

considered it as *KrichchraSadhya Vyadhi.Tamaka Shwasa* is basically a disorder of *Praanavaha Srotas* while other *Srotasas* are also vitiated. The parallel disease entity in western medicine to this disorder is Bronchial Asthma. In *Charaka Samhita*, the group of ten drugs is mentioned for the management of the *Shwasa Roga* named as *Shwasahara Dashemani*.^{iv}(Table 1) In the present day practice, among these ten drugs most of the drugs are being used in different combinations. It prevent the attack of asthma due to anti tussive, anti inflammatory, mucolytic property etc. which is very useful to decrease the asthma prevalence. 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 Pharmacognosy 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.^v

Microscopic Study-

Shwasahara Dashemani Churna was powdered and dissolved with water and microscopy of the sample was done without stain and after staining with Phloroglucinol + HCl. Microphotographs of *Shwasahara Dashemani Churna* was also taken under Corl-zeisstrinocular microscope.^{vi}

Physico-chemical analysis

Shwasahara Dashemani Churna was analyzed using various standard physico-chemical parameters such as loss on drying, water soluble extract, alcohol soluble extract etc.^{vii}

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.^{viii}

RESULTS AND DISCUSSION

Organoleptic characters of *Shwasahara Dashemani Churna*

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

Microscopic Study

Diagnostic characters of *Shwasahara Dashemani Churna* under the microscope showed annular vessels of *Shati*, simple Trichome of *Tulsi* Rossels crystal of *Jivanti*, starch grain of *Shati* tannin content of *Agaru* Starch grain of *jivanti*, pitted vessels of *Tulsi* etc. All these are showed in

Plate no 1.

PHARMACEUTICAL EVALUATION

Physico-chemical analysis

Physico-chemical analysis of *Shwasahara dashemani Churna* revealed the value of loss on drying was 6.4%, Ash value 8.9% w/w, water soluble extraction 13.4% Alcohol soluble extraction 8.6, pH Value 6.3 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 4 spots at 254 nm and 2 spots at 366 nm with Rf values were recorded which may be responsible for expression of its pharmacological and clinical actions. **Plate 2, Table – 4**.

CONCLUSION

The pharmacognostical and physico chemical analysis of *Shwasahara Dashemani Churna* confirmed the purity and genuinity of the drug. Further studies may be carried out on it on the basis of observation

made and results of experimental studies. As pharmacognostical and physico-chemical profiles of *Shwasahara Dashemani 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.

Table1. Contents of *Shwasahara Dashemani Churna*-

Sr. No.	Drug name	Scientific name	Part used/ <i>Shushka</i>	Ratio
1	<i>Shati</i>	<i>Hedychiumspicatum</i> .Ham ex smith	<i>Shushkakand</i>	1 part
2	<i>Pushkaramool</i>	<i>Inularacemosa</i> . Hook. F	<i>Moola</i>	1 part
3	<i>Amlavetasa</i>	<i>Rheum emodi</i> . Wall	<i>Patra , Bija</i>	1 part
4	<i>Ela</i>	<i>Elettariacardamomum</i> Maton	<i>Phala</i>	1 part
5	<i>Hingu</i>	<i>Ferula narthex</i> Boiss	<i>Niryasa</i>	1 part
6	<i>Agaru</i>	<i>Acquilariaagallocha</i> Roxb.	<i>Kashtha</i>	1 part
7	<i>Sursa</i>	<i>Ocimum sanctum</i> Linn.	<i>Panchanga</i>	1 part
8	<i>Tamalaki</i>	<i>Phylenthusniruri</i> Linn.	<i>Panchanga</i>	1 part
9	<i>Jivanti</i>	<i>Laptidinia reticulate</i> W & R	<i>Panchanga</i>	1 part
10	<i>Chanda /Shati*</i>	<i>Angelica glauca</i> Edgw.	<i>Moola</i>	1 part

Table2. Organoleptic parameters of *Shwasahara Dashemani Churna*

Serial no.	Character	Observed
1	Colour	Grenish Brown
2	Odour	Characteristic
3	Taste	Bitter
4	Touch	Fine

Table3. Physico-chemical analysis of *Shwasahara Dashemani Churna*

Serial no.	Test	Result
1	Loss on drying	6.4 %w/w
2	Ash value	8.9 %w/w
3	Water soluble extract	13.4 %w/w
4	Alcohol soluble extract	8.6 %w/w
5	pH	6.3

Table 4: HPTLC Study of *Shwasahara Dashemani Churna*

Wave Length	Number of spots	Rf values
254nm	4	0.02, 0.09, 0.25, 0.31
366nm	2	0.02, 0.15

Plate no 1-

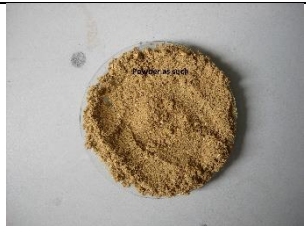
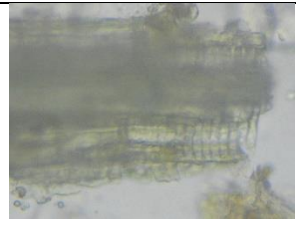

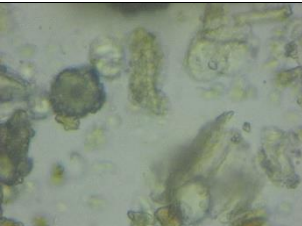
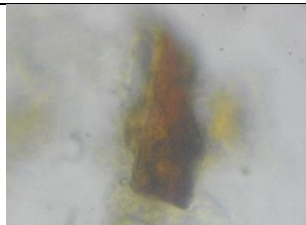
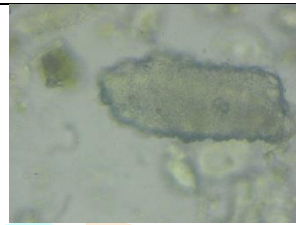
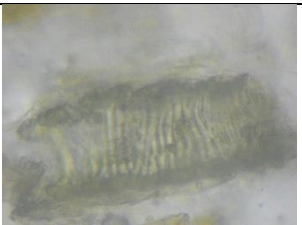
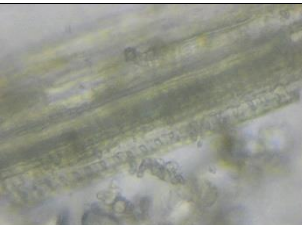
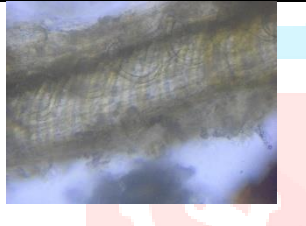
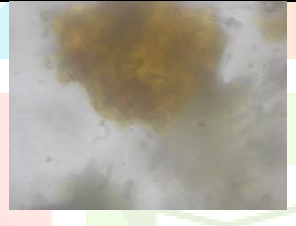
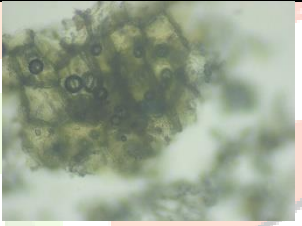

			
<i>Shwasahar Dashemani Churna</i>	Annular vessels of Shati	Simple trichome of Tulsi	Rossels crystal of Jivanti
			
Tanin content of agaru	Black debruy ofela	Skleriform vessels of puskarmoola	Pitted vessels of Bhuamalaki
			
Annular and spiral vessels of Amlavetasa	Brown content of Amlavetasa	Cork cell of Puskarmoola	Lignified fibres of Tulsi

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

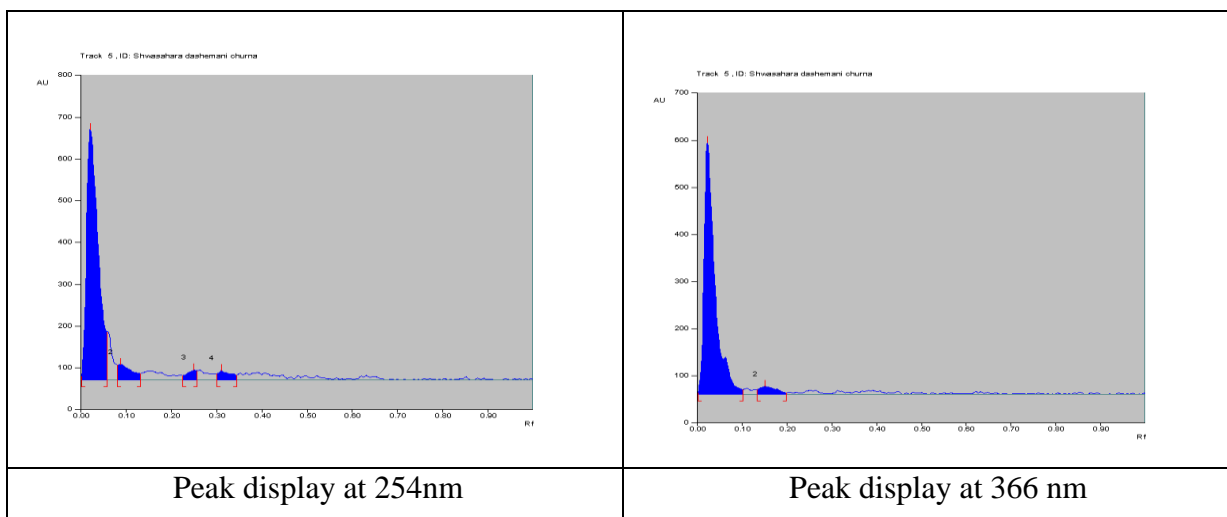
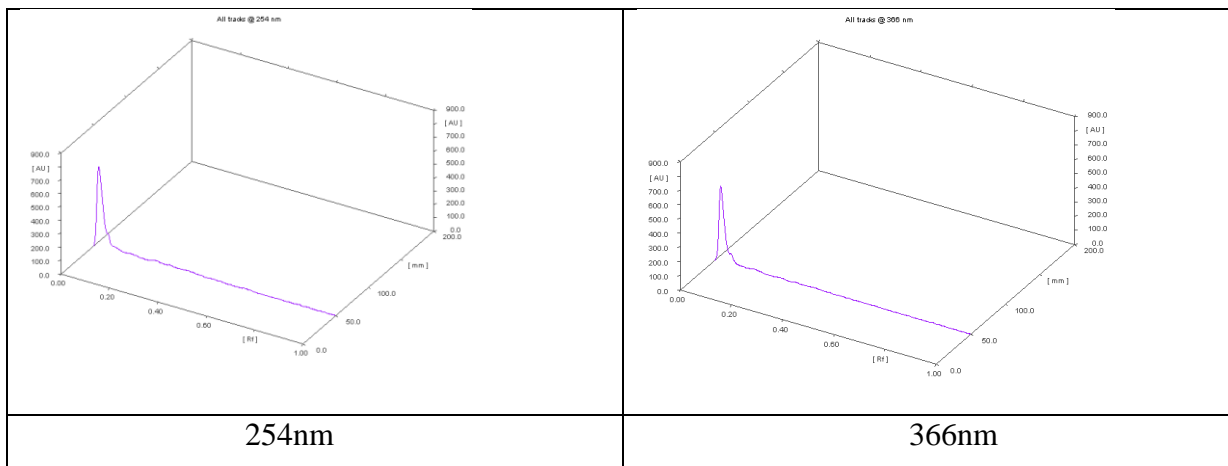


Plate 3: Three dimensional HPTLC (3D) Densitogram**References**

- ⁱ International study of Bronchial Asthma and allergies in childhood (ISAAC). Worldwide variations in the prevalence of Bronchial Asthma symptoms, *EurRespir J* 1998; 12:315-35
- ⁱⁱ Shah JR, AMDEKA YK, Mathur RS. Nationwide variation in prevalence of bronchial asthma – (part of the international study of Bronchial Asthma and allergies in childhood (ISAAC)). *Indian J Med Sci Shwasahara Dashemani Churna* 2000;54:213
- ⁱⁱⁱ Gürkan F, Ece A, Haspolat K, Derman O, Bosnak M, Predictors for multiple hospital admissions in children with Bronchial Asthma, *Can Respir J* 2000;7:163–6.
- ^{iv} Charaka Samhita Sootrasthana 4/37 Page No. 34 EditorYadavjiTrikamji Acharya, Publisher Chaukhambhaorientalia Varanasi Reprint 2011.
- ^v. Trease and Evans, *Pharmacognosy*, 15th Ed., W.B. Sanders Company Ltd., 1996; 569, 570.
- ^{vi}. Wallis TE, *Text book of Pharmacognosy*, 5th Ed., New Delhi: CBSPublishers& Distributors, 2002; 123-132, 210-215.
- ^{vii}. *Ayurvedic Pharmacopoeia of India PDF-1*, Govt. of India, Ministry of health and family welfare, Delhi, 2007; 5, appendix-2.2.9: 214.
- ^{viii}. Stahl E; *Thin-layer chromatography a laboratory hand book*. 2nd edition. Springer-Verlag New York, 1969; 125-133.