NAAS Score: 4.11; IC Value: 74.82; UGC-India Approved
The Journal of Phytopharmacology 2018; 7(2): 212-215
Online at: www.phytopharmajournal.com

Research Article

ISSN 2320-480X
JPHYTO 2018; 7(2): 212-215
March- April
Received: 01-03-2018
Accepted: 10-04-2018

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Ingredient identification and phytochemical evaluation of *Shalmali kantaka* cream

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ABSTRACT

Background: In any system of medicine the drug identification is the most essential task prior to any treatment plan. In Ayurved it has more significance as there are various plants available with similar characteristics but different mode of actions. Hence the correct identification of raw drugs becomes mandatory. Taking all these points into consideration *Shalmali Kantaka* Cream is selected in the present study. This formulation is not exactly mentioned anywhere in the texts but *Acharya Chakradatta* mentioned application of *Shalmali* and *Payasa* as *Mukh kanti Vardhak lepa* in *kshudra Roga Adhyaya*. So, the *Shalmali Kantaka* Cream is the modified formulation. **Material & Methods:** The present study was aimed at setting up a standard profile of *Shalmali kantaka* cream which was prepared using pharmacognostically authenticated raw drugs followed by subjecting it to detailed Pharmacognostical and physicochemical analysis as per standard protocol. **Result & conclusion:** The observations were systematically recorded. Pharmacognostical findings of raw drug i.e. Oil globules, Lignified fibres, stone cells, tannin content, Rossett crystals, lignified stone cell etc. Phytochemical results show that loss on drying was 0.84% w/w, Iodine value 42.34. HPTLC result shows 12 spots at 254 nm and 8 spots at 366 nm. Study confirm the authentication of ingredients present in the finished product which support the intended action of the formulation in *Twak Prasadana.*

Keywords: *Kshudra, Adhyaya, Mukh kanti, Vardhak,* Phytochemical.

INTRODUCTION

In any system of medicine the drug identification is the most essential task prior to any treatment plan. In Ayurved it has more significance as there are various plants available with similar characteristics but different pharmaceutical properties and therapeutic actions. To provide authentic raw material, their analysis through Pharmacognostical parameters is obligatory. A good medic aims at not only curing the disease but also on the safety aspect of the patient which is exactly the aim of Ayurveda science. Also it is mentioned that those who examine well prior to any assignment are intellectual [1].

Ayurvedic system of medicine has become significantly more popular in past few years all over the globe because of its unique fundaments which emphasize on both prevention and disease cure. It has been estimated that 70-80% of world's population relies on traditional healthcare. Identification is the process of recognition or genuine entity of individuals, even they may be plants or herbal drugs or any living organism. Identification has turned so important because of commercial aspects. Intentionally or unintentionally adulteration has been a part of trading.

Drugs are the means by which a Physician restores the equilibrium of body [2]. They are termed as '*Karan'* '*Upakarana'* [3] in Ayurvedic literatures. *Pareeksha* is the word mostly used in *Samhita for* the analysis. *Acharyas* have given a great importance to *Pareeksha* as the concept is scattered all over the texts. Acc. to *Acharya Charaka* one should treat after proper diagnosis of the disease; to which *Chakrapani* has commented that the *Aushadh* should also be well examined before its administration by the patient [4]. The physician who follows these instructions as mentioned said to be a good physician. Hence, correct identification of raw drugs becomes obligatory.

Shalmali is one of the very valuable Ayurvedic herb used in various formulations. It holds great properties like *Sheetala* (Coolant), *Grahi (*Absorbent*), Vrushya* (Aphrodisiac), *Dahanut* (Relieves burning sensation). Also mentioned by *Acharya Charaka* in *Pureesha virajniya*, *Shonitasthapana*, *Vedanasthapana Mahakashaya*, *Kashayaskanda* and by *Acharya Sushruta* in *Priyangvadi Gana.*

Shalmali Kantaka Cream is selected in the present study. This formulation is not exactly mentioned anywhere in the texts but *Acharya Chakradatta* mentioned application of *Shalmali* and *Payasa* as *Mukh*

kanti Vardhak lepa in *kshudra Roga Adhyaya* [5]. *Shalmali Kantaka* cream is the modified formulation of *Mukh kanti Vardhak lepa* to improve its applicability on the skin. The present study was aimed at setting up a standard profile of *Shalmali kantaka* cream.

MATERIALS AND METHODS

Collection of Raw Drugs

The raw drug for the preparation of S*halmali Kantaka* cream was collected from natural habitat, the forest area of district Dang Gujarat.

Selection of drug

Trial drug is herbal formulation in the form of Cream, extensively used for skin complexion as *Shalmali* holds great properties that nourishes the skin [6] also Milk and *Tila Taila* has their own attributes which enhances the product efficacy.

Preparation of Drug

The finished product was prepared in R.S.B.K dept. of I.P.G.T. & R.A., Gujarat Ayurved University, Jamnagar. Ingredients, part used and ratio of the drugs are given in Table-1.

Method of preparation of *Shalmali Kantaka* Cream

Drug form is modified for better and easy applicability. Raw *Shalmali Kantaka* was dried out and powdered (coarse) in the Pharmacy. *Kwatha* is prepared first as per the *Kwatha Vidhi*. To this *Kwatha*, required amount of *Tila Taila* and *Payasa wa*s added, *Taila* was prepared according to the *Taila Paka Vidhi* [7]. To the obtained *Taila*, 900gm Aerosil was added to prepare the cream. The obtained cream was filled into tubes and sealed.

Pharmacognostical Evaluation

As per API raw drug used in formulation was identified and authenticated by the Pharmacognosy department. The identification was carried out based on the morphological, organoleptic features and microscopy of the raw drugs. Microphotographs were taken by using Carl-Zeiss Trinocular microscope [8].

Pharmaceutical Evaluation

Following parameters were analysed for different Physico-chemical parameters [9] by standard methods at the pharmaceutical chemistry lab, IPGT& RA, Jamnagar.

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was performed as per the guideline provided by API. Hexanolic extract of drug sample was used for the spotting. HPTLC [10] was performed using Petrolium ether+ Diethyl ether + Acetic acid (9:1:0.1) solvent system, spray reagent 5% sulphuric acid and observed under visible light. The colour and R_f values of resolved spots were noted. Analytical study showed 12 spots at 254 nm and 8 spots at 366 nm.

Physico-chemical Parameters [11]

Physico-chemical parameters i.e. Water-soluble Extract, Methanol-soluble Extract, pH (5% solution), Ash Value, Loss on drying are carried out as per standard methods.

RESULTS AND DISCUSSION

Pharmacognostical study

Organoleptic findings

Organoleptic findings of *Shalmali Kantaka* Powder are given in Table -2

Diagnostic characters of *Shalmali Kantaka* under the microscope are cluster crystals, oil globules, simple starch grains, compound starch grains, prismatic crystals with brown content, silica deposition, acicular crystals, tannin content, stone cells, rosette crystals, lignified stone cells, lignified cork and simple lignified fibres Plate no.1

Pharmaceutical Evaluation

Physico-Chemical parameters of *Shalmali Kantaka* Cream like specific gravity at room, Acid value, Refractive index at Room temperature, Iodine value, Loss on drying all were found to be within the normal range. Details are given in Table-3

HPTLC was carried out after organizing appropriate solvent system in which maximum 12 spots were distinguished at 254 nm and 8 spots at 366 nm. Results are depicted in the Table No.4 plate no. 2 and 3.

Table 1: Contents of *Shalmali Kantaka* cream

S. No.	Contents	Latin Name	Part Used	Part
1.	*Shalmali*	*Salmalia malbarica* Scott & endl.	Prickles	10 Kg
2.	*Payasa*			16 litre
3.	*Til Taila*	*Sesamum indicum* linn		4 litre

Table 2: Organoleptic Characters of *Shalmali Kantaka* powder

S No.	Parameters	Result
1.	Colour	Reddish Brown
2.	Odour	Characteristic
3.	Touch	Fine Course
4.	Taste	Astringent, Slightly Bitter

Table 3: Results of the drug analysis on physico-chemical parameters

S No.	Parameters	Result
1.	Loss on drying at 110˚c	0.84% w/w
2.	Acid Value	2.75
3.	Iodine value	42.34
4.	Specific gravity at room temp.	.92
5.	R.I at room temp.	1.5

Table 4: Results of HPTLC of *Shalmali Kantak*a cream

Frequency	No. of Spots	Max. R_f
Short UV (254 nm)	12	0.04,0.09,0.13,0.15,0.26,0.38,0.47,0.49,0.51,0.67, 0.82,0.95
Long UV (366 nm)	8	0.02,0.04,0.13,0.49,0.51,0.83,0.94,0.95

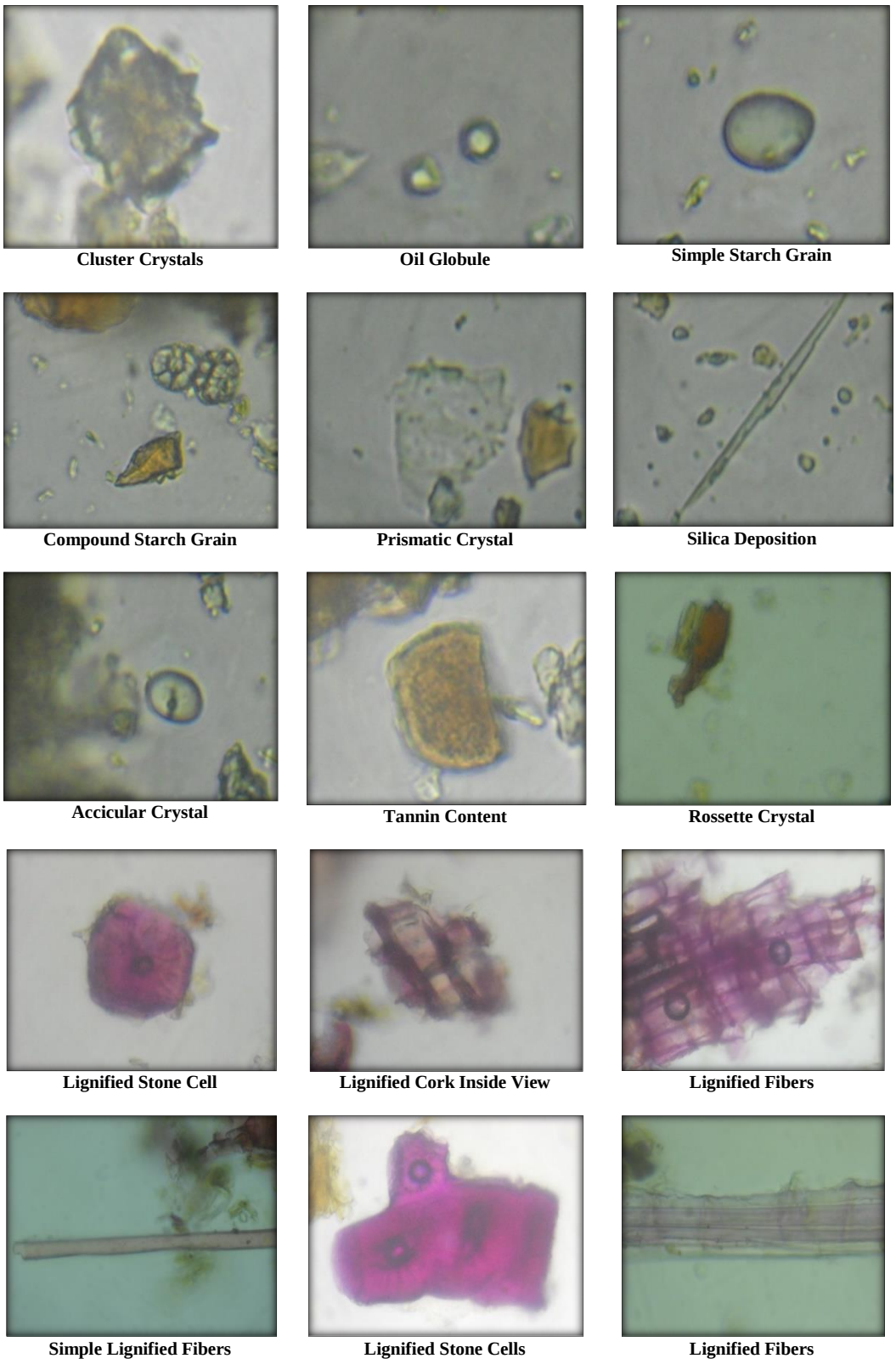

Plate 1: Microphotographs of *Shalmali Kantaka*

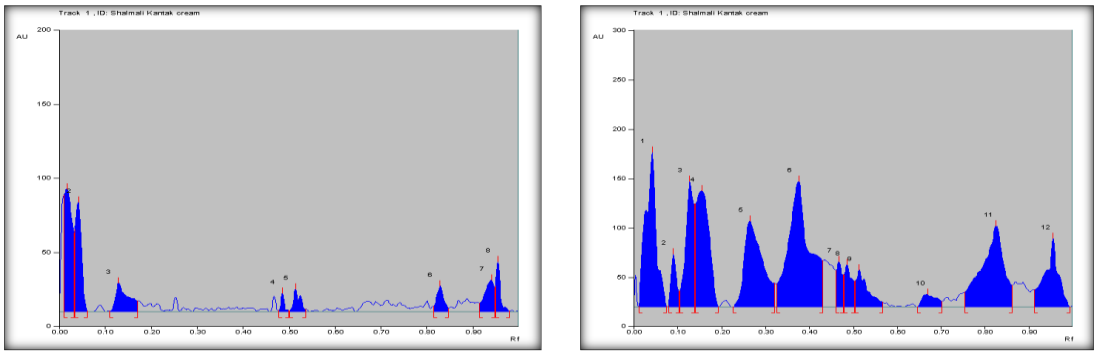

Plate 2: H.P.T.L.C of *Shalmali kantaka* at 254 and 366nm

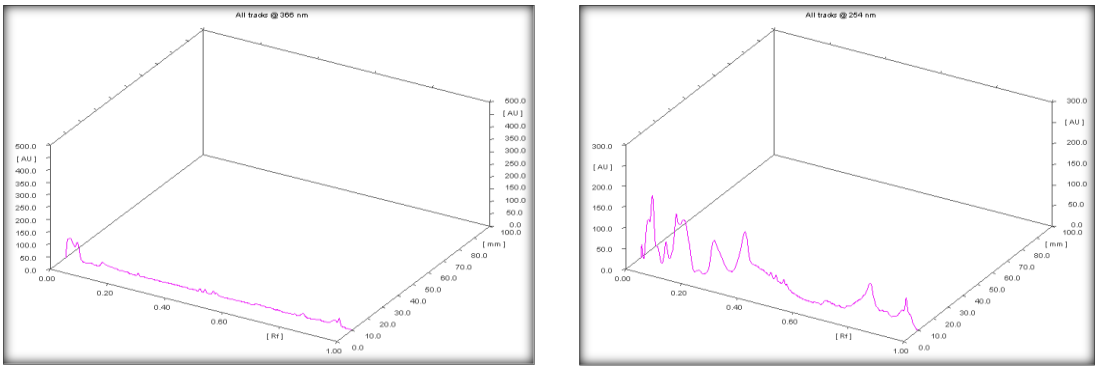

Plate 3: HPTLC 3-D graph of *Shalmali Kantaka* at 254 and 366 nm

CONCLUSSION

Pharmacognostical findings confirm the ingredients of *Shalmali kantaka* cream and there is no major change in the microscopic structure of the drug during the pharmaceutical processes of preparation of drug. *Shalmali kantaka* cream is derived from the *Shalmali kantaka Kwatha* which is useful in daily practice in skin diseases and also has easy applicability as it is in cream form. On the other hand *Shalmali kantaka* possess properties like *Kshaya, Laghu, Snigdha, Madhur Pittasranashani*. *Tila Taila* is *Madhura, Kashaya, Tikta Rasa, Guru, Snigdha, Vikasi, Vyavayi Guna, Vatahara, Tvachya. Dugdha* is *Madhura, Snigdha* and *Shita.* These properties of the ingredients make the formulation suitable for *Twak Prasadana.* The results of this study may be used as the reference standard in further research undertakings of its kind.

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HOW TO CITE THIS ARTICLE

Verma R, Kushal A, Vyas VDHA, Harisha CR, Shukla VJ. Ingredient identification and phytochemical evaluation of *Shalmali kantaka* cream. J Phytopharmacol 2018; 7(2):212-215.