

Pharmacognostical and Pharmaceutical Evaluation of *Saralaadi Dhoomapana Varti* - A Herbal Formulation for *Pratishyaya*

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ABSTRACT:-

BACKGROUND : *Dhoomapana* (inhalation of medicated fumes) is an important procedure explained in Ayurveda classics while describing the treatments of *Uthamanga* especially in diseases of the nose and respiratory tracts. *Dhoomapana* is beneficial in reducing the *Leena Dosha* and *Srava* from the *Srothas*. In this study, *Saralaadi Dhoomapana Varti* which is explained for *Dhoomapana* in *Nasagata Roga* (diseases of nose) is taken. **AIM**: To analyze the raw drug authentication, pharmacognostical and physicochemical parameters of *Saralaadi Dhoomapana Varti*. **MATERIALS AND METHODS**: The identification, authentication and powder microscopy of raw drugs were done in the Pharmacognosy Laboratory, Institute for Teaching and Research in Ayurveda (ITRA), Gujarat Ayurved University (GAU), Jamnagar, Gujarat, India. The study includes the organoleptic and microscopic characteristics. Physico-chemical parameters and high-performance thin layer chromatography (HPTLC) studies carried out at pharmaceutical laboratory, ITRA, GAU, Jamnagar, Gujarat, India. **RESULTS** : The pharmacognostical evaluation of *Saralaadi Dhoomapana Varti* showed cluster crystal of *Trivrita*, annular vessels of *Apamarga*, lignified fibres of *Devdaru*, rhomboidal crystal of *Danti*, acicular crystals of *Ingudi* etc. Physico-chemical analyses were carried out by the following parameters like, pH value which is noted as 9, ash values found as 42.54 % w/w, acid insoluble ash was 11.47 % w/w, water-soluble extract was 46.05% w/w, methanol-soluble extract found to be 32.42% w/w, loss on drying values 10.54% w/w. High performance thin layer chromatography at 254 and 366 nm resulted into 6 and 3 spots before and after spray respectively. **CONCLUSION**: Raw drug identification and authentication has been done and evaluation of physicochemical parameters has been carried out.

KEYWORDS: *Saralaadi Dhoomapana Varti*, Pharmacognosy, Pharmaceutics, HPTLC.

1. INTRODUCTION :

Dhoomapana (inhalation of medicated fumes) is an important procedure explained in Ayurveda classics while describing the treatments of *Uthamanga* especially in diseases of the nose and respiratory tracts. It is also mentioned as a part of *Dinacharya* (daily regimes) for a healthy individual. It is described in *Samhitas* that diseases of organs located above the shoulders due to kapha and vatha predominance will not develop by practicing *Dhoomapana*.¹

Saralaadi Dhoomapana Varti is a herbal formulation explained in the context of *Nasa Roga Chikitsa* in *Susrutha Samhita Utharatantra*.² The trial compound has only five contents, which are *Trivrita*, *Apamarga*, *Devadaru*, *Danti* and *Ingudi*. All the contents are easily available. It is one of the formulation which has therapeutic action on the vitiated kapha Dosha. *Pratishyaya* is a *Vatha Kapha* predominant condition where *Nirharana* of vitiated *Kapha Dosha* is the main line of treatment. *Nasya* is the prime *Sodhana Chikitsa* to be adopted in these conditions and *Dhoomapana* is said to be a *Paschat Karma* of the same³. Here all the drugs of this *Varti* possess *Ushna Veerya*. The fumes coming from this *Varti* may help in reducing the *Utklishta Dosha* in *Pratishyaya*. The pharmacological action of a drug depends on the proper identification of its raw drugs and active ingredients present in it. Thus the present study is an attempt on this regard to make a standard parameters for *Dhoomapana Varti* formulation.

2. MATERIALS AND METHODS :

Collection of raw materials

Raw drugs were collected from the pharmacy of Gujarat Ayurved University. All the ingredients except *Ingudi* were procured in dry form. The ingredients and the part used are given in table no.[1]

Method of Preparation (*Saralaadi Dhoomapana Varti*)

All the dry ingredients like *Trivrit*, *Apamarga*, *Devadaru* and *Danti* were powdered and strained through a fine mesh. Raw *Ingudi* fruits were grinded well and made in to paste with its pulp. All dry and wet ingredients were mixed well and fine paste made out of these. Hollow plastic straws were collected and the fine paste of drugs were coated and covered over the whole length of the straw and allowed it to dry in shade. After proper drying the straws were removed out and dried further. All the prepared *Varti* were stored in air tight containers in separate plastic covers.

Pharmacognostical study

Raw drugs were identified and authenticated by the Pharmacognosy laboratory, I.P.G.T&R.A., Jamnagar. The identification was carried out based on the organoleptic features and morphological features. The microscopic study of the drugs was carried out under the microscope attached with camera, with stain and without stain⁴. The microphotographs were also taken under the microscope.

Physicochemical Evaluation

Saralaadi Dhoomapana Varti was analyzed by using standard qualitative and quantitative parameters, HPTLC was carried out after making appropriate solvent system with Methanolic extract of *Saralaadi Dhoomapana Varti* at Pharmaceutical Chemistry lab, I.P.G.T. & R.A. Gujarat Ayurveda University, Jamnagar.

3. OBSERVATION AND RESULTS :

Various parameters of the material such as colour, odour, touch and taste of *Saralaadi Dhoomapana Varti* were observed and recorded. This includes *Panchendriya Pareeksha* mentioned in Ayurveda except *Sabda Pareeksha* and those were carried out. Results were mentioned in the Table no.(2).

Microscopic study

The powder microscopy of *Saralaadi Dhoomapana Varti* confirmed the presence of Cluster crystals, Pitted vessels and Starch grains of *Trivrita*, Acicular crystals, Brown content, Epicarp cells, Mesocarp cells and Scleroids of *Ingudi*. Annular vessels, Fibres, Rosette crystal and Simple trichome of *Apamarga* was noted. Lignified fibres, Prismatic crystal and Rhomboidal crystals of *Devdaru* observed. Rhomboidal crystals and Stone cells of *Danti* were also noted. (Plate No.1).

Physico-chemical Analysis

Physico-chemical analyses were carried out by the following parameters like, pH value which is noted as 9, ash values - 42.54 % w/w, acid insoluble ash value - 11.47 % w/w, water-soluble extract - 46.05% w/w, methanol-soluble extract - 32.42% w/w, loss on drying values - 10.54% w/w,. Results are mentioned in the table no. [3].

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was carried out after making appropriate solvent system with Methanolic extract of *Saralaadi Dhoomapana Varti*. On performing HPTLC, visual observation of extract under UV light showed few spots but on analyzing under densitometer at 254 nm and 366 nm it resulted into 6 and 3 spots respectively. Results of HPTLC are given in Table no. [4] and densitogram is shown in plate 2.

Table No:1 ingredients and parts used

Sr.no	Ingredients	Latin name	Part used
1	<i>Trivrita</i>	<i>Operculina turpethum Silva Manso</i>	Root
2	<i>Apamarga</i>	<i>Achyranthus aspera Linn.</i>	Plant
3	<i>Devadaru</i>	<i>Cedrus deodara Roxb.</i>	Heart wood
4	<i>Danti</i>	<i>Baliospermum montanum Muel-Arg.</i>	Root
5	<i>Ingudi</i>	<i>Balanites roxburghii Planch.</i>	Fruit

Table No: 2 organoleptic evaluation

Sr. No.	Characters	Observed
1	Colour	Greyish to buff colour
2	Odour	Bitter odour

3	Taste	Bitter astringent
4	Touch	Fine

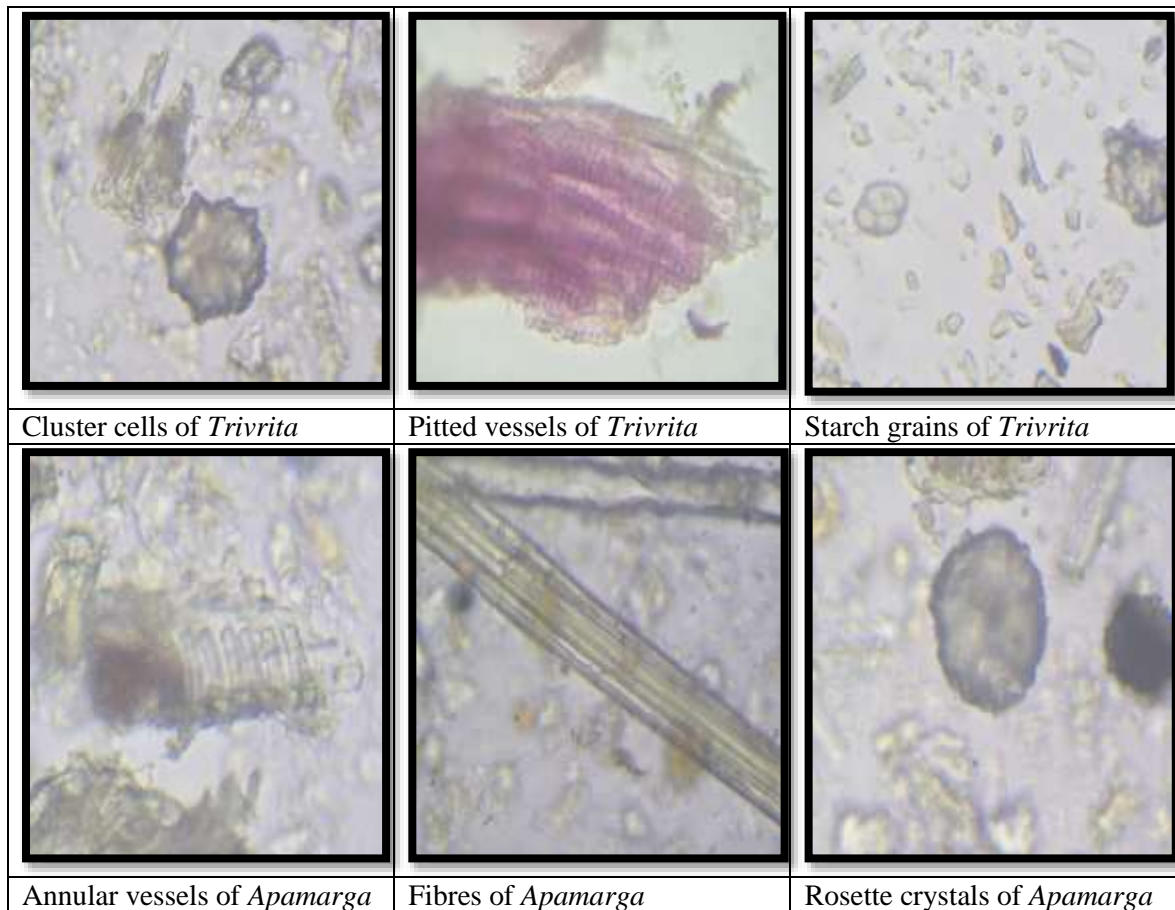
Table No: 3 physico chemical evaluation

S.NO.	Analytical Parameters	<i>Saralaadi Dhoomapana Varti</i>
1.	Loss On Drying	10.54% w/w
2.	Ash Value	42.54% w/w
3.	Water Soluble Extract	46.05% w/w
4.	Methanol Soluble Extract	32.42% w/w
5.	pH (By pH Paper)	9
6.	Acid insoluble Ash	11.47% w/w

Table No:4 Results of HPTLC of *Saralaadi Dhoomapana Varti*

Sr. No.	Samples	Conditions	No. Of Spots	Rf
2	<i>Saralaadi Dhoomapana Varti</i>	Short UV– 254 nm	6	0.05,0.23 ,0.63,0.67,0.92,0.96
		Long UV– 366 Nm	3	0.05,0.63,0.96

Plate No. 1: Microscopic Study of Raw Drugs Of *Saralaadi Dhoomapana Varti*




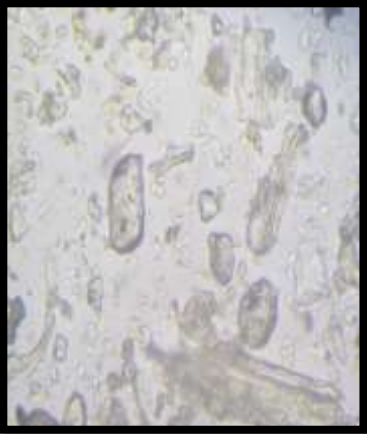


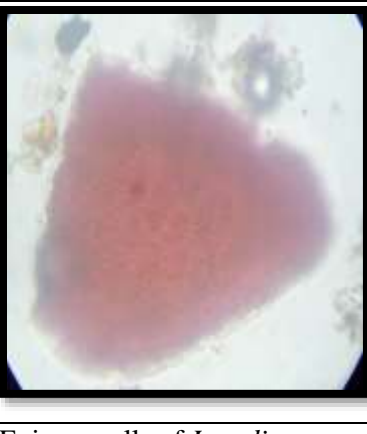
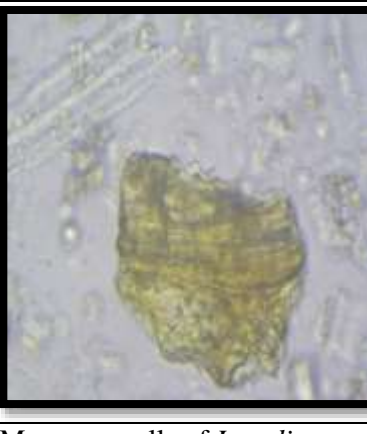

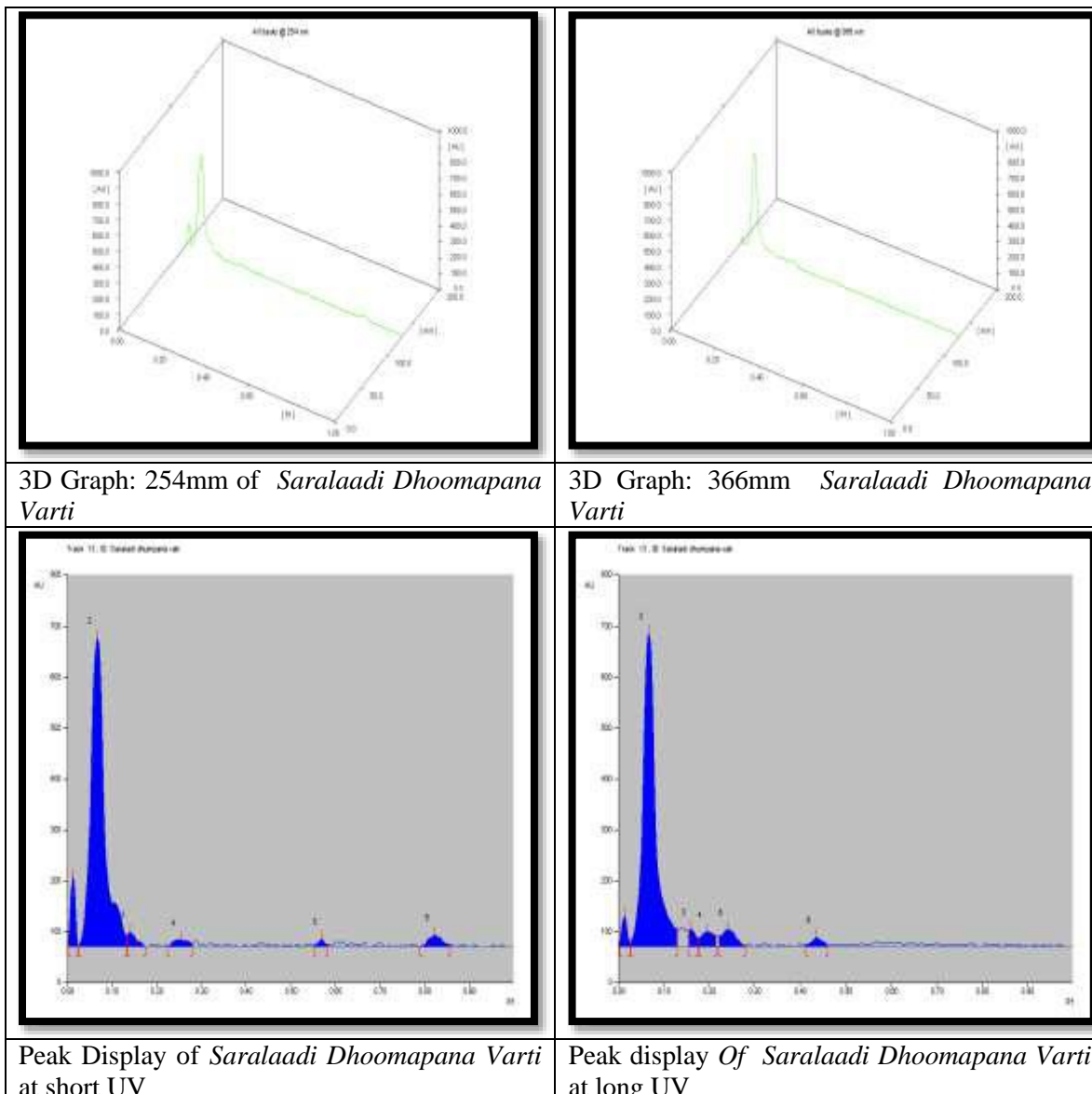
		
Lignified fibres of <i>Devdaru</i>	Prismatic crystal of <i>Devdaru</i>	Rhomboidal crystal of <i>Devdaru</i>
		
Rhomboidal crystal of <i>Danti</i>	Stone cells of <i>Danti</i>	Brown content of <i>Ingudi</i>
		
Epicarp cells of <i>Ingudi</i>	Mesocarp cells of <i>Ingudi</i>	Scleroids of <i>Ingudi</i>

Plate No. 2: HPTLC Evaluation of *Saralaadi Dhoomapana Varti*



3D Graph: 254nm of *Saralaadi Dhoomapana Varti*

3D Graph: 366nm *Saralaadi Dhoomapana Varti*

Peak Display of *Saralaadi Dhoomapana Varti* at short UV

Peak display Of *Saralaadi Dhoomapana Varti* at long UV

4. DISCUSSION :

The therapeutical procedure *Dhoomapana* has significant role in *Kapha Vatha Pradhana 'Jatru Urdhwa' Roga*. In infective upper respiratory tract diseases, microorganisms colonizes in the naso pharyngeal spaces. Alteration in the circumstances of the growth of pathogens can be acquired by the administration of *Dhoomapana* through nasal route. Inhalation of medicated fumes found to be target specific and ensure cure of the diseases immediately. Pharmacognosy and pharmaceutical evaluation of *Saralaadi Dhoomapana Varti* was performed which could be a effective medicine in the management of *Pratishyaya*. Morphological and histological identification of the drug was carried out to prevent the adulteration of the drugs. In physicochemical analysis; ash values are helpful in authenticating the quality and purity of crude drugs, especially in powder form. The objective of making the ashes of raw drugs is to remove all traces of organic matter. Water soluble and methanol soluble extract values are useful for determining the crude drugs and it gives an idea about the nature of the chemical constituents present. HPTLC is a chromatographic method which separate the ingredients of a formulation. So it is a best method to detect number of active elements contained in a formulation which determines the pharmacological action of a drug. Here the results of HPTLC showed that 6 spots and 3 spots at 254nm and 366nm respectively.

5. CONCLUSION :

Pharmacognostical study confirms that all characters were found in ingredient drugs of *Saralaadi Dhoomapana Varti*. The physicochemical analysis inferred that the formulation meets maximum qualitative standards and parameters. Thus Outcome of the study may be taken as standard references for the further studies.

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