

Research Article

Pharmacognostical and Pharmaceutical Evaluation of *Devdarvyadi Vati*-A Compound Ayurvedic Formulation

Vhora Maleka¹, Patel KS², Harisha CR³, Rajagopala S⁴, Shukla VJ⁵

¹MD Scholar, Department of Kaumarbhritya, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurveda University, Jamnagar.

²Professor & Head Department of Kaumarbhritya, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurveda University, Jamnagar.

³Head, Pharmacognosy Lab. Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurveda University, Jamnagar.

⁴Assistant Professor, Department of Kaumarbhritya, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurveda University, Jamnagar.

⁵Head, Pharmaceutical Chemistry Lab, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurveda University, Jamnagar.

***Corresponding author**

Dr. MalekaVhora,

Email: maleka23vhora@gmail.com

Abstract: Childhood period is a crucial stage for rapid growth and development. All the phases of growth and development are easily affected by unfavorable conditions like use of contaminated foods and water, faulty food habits etc. In day to day practice, pediatricians come across with good number of patients suffering from diseases related to gastrointestinal tract i.e. loss of appetite, abdominal pain, vomiting, bowel disturbances (diarrhea, constipation) etc. If these problems are ignored, they lead to malnutrition and its complications. The changed lifestyle is responsible for vitiation of *Agni*, improper *Agni* especially *Mandagni* results in *Grahani Dosha*, which is a precursor stage of malabsorption syndrome. *Devdarvyadi Churna* is indicated in such condition. *Devdarvyadi Churna* converted into *Vati* form due to easy palatability in pediatric patients and drugs were selected in the present study. The present work was carried out to standardize the finished product *Devdarvyadi Vati* to conform its identity, quality and purity. The pharmacognostical work reveals that presence of lignified fibers of *Devadaru* (*Cedrusdeodara* (Roxb.) Loud), starch with oiliores in content of *Vacha* (*Acoruscalamus* Linn.), starch grain in *Musta* (*Cyperusrotundus* Linn.), starch with oiliores in content of *Shunthi* (*Zingiberofficinale* Roscoe), prismatic crystal of *Ativisha* (*Aconitum heterophyllum* Wall. ex Royal), epicarpe cells of *Haritaki* (*Terminalia chebula* Retz.) were observed microscopically. Organoleptic features of coarse powder made out of the crude drugs were within the standard range as per mention in classic. The pH value of *Devdarvyadi Vati* is 4, Water soluble extract is 11.07% w/w, Loss on drying is 5.73 % w/w and High Performance Thin Layer Chromatography (HPTLC) at 254nm and 366nm resulted into 5 and 6 spots respectively..

Keywords: *Grahani Dosha*, *Devdarvyadi Vati*, HPTLC, Pharmacognosy, Pharmaceutics.

INTRODUCTION

Food is the factor which sustains and supports the *Deha Dhatus* (tissue elements) etc, but it depends upon *Agni* (Digestive fire) for proper Digestion and then only development of *Rasa, Raktadi Dhatus* occurs [1]. If *Agni* becomes normal, digestion of food become proper and *Rasadi Dhatus* gets proper nutrition and the *Sara* of the *Saptadhatu* is potent, thus the occurrence of diseases is prevented. Intake of *Ahita Ahara* is responsible for vitiation of *Agni*. Functionally weak *Agni* cause improper digestion of ingested food which leads to *Grahani Dosha*. *Grahani* is the *Adhithana* (Seat) of *Agni* (Digestive fire) [2] and *Agnidushti* (Functional derangement of digestive fire) is the main

reason to develop the disease. In Ayurveda, conditions like *Udara Shula* (abdominal pain), *Ajeerna* (indigestion), *Aruchi* (anorexia), *Adhmana* (distended abdomen), *Muhurbaddha Muhurshithila Malapravrutti* (irregular bowel habits) have been described under *Grahani Roga*. As *Grahani Dosha* is a precursor stage of *Grahani Roga*, the symptoms of *Grahani Roga* are found in *Grahani Dosha* too, but in lesser severity. The disease *Grahani Dosh* is very commonly seen in present pediatric practice due to the faulty food habit of children and aggravates to form a critical condition like *Grahani Dosha*. There are various herbal and herbo-mineral formulations mentioned in Ayurveda classics for the management of *Grahani*

Dosha. The present work was carried out to standardize and evaluate the pharmacognostical as well as analyze the physico-chemical properties of *Devdarvyadi Vati*.

MATERIALS AND METHODS:

Drug Material:

Raw drug materials were collected from the pharmacy of Gujarat Ayurveda University. The ingredients and the part used are given in table 1.

Pharmacognostical evaluation:

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 morphological features, organoleptic features and powder microscopy of the individual drugs[3]. Later, Pharmacognostical evaluation of the *Vati* was carried out. *Vati* dissolved in small quantity of distilled water, filtered through filter paper and studied under the microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope[4].

Methods of Preparation of the *Devdarvyadi Vati*:

All the dried ingredients were taken and First converted into *Churna*(fine powder) was prepared. For the purpose of the binding 10%, gum acacia was mixed in this combination. Then this mixture was converted in to granules by using the granular machine. Lastly, 500 mg tablets were made in tablet making machine.

Physicochemical evaluation:

Devdarvyadi Vati was analyzed by using standard qualitative and quantitative parameters, HPTLC was carried out after making appropriate

solvent system with Methanolic extract of *Devdarvyadi Vati* at the Pharmaceutical Chemistry lab, I.P.G.T. & R.A. Gujarat Ayurveda University, Jamnagar[5,6]

OBSERVATION AND RESULTS

Organoleptic study:

Organoleptic features of *Devdarvyadi Vati* are described in Table-2.

Microscopic study:

The diagnostic powder microscopic characters of *Devdarvyadi Vati* showed that fibre passing through medullary rays and lignified fibre of *Devadaru* with seave elements, olioeresin content and starch grains of *Vacha*,starch grain and fragment of annular vessels of *Musta*, starch grains and olioeresin content of *Shunthi*, prismatic crystals and parenchyma cells with tannin of *Ativisha*and epicarp cells and lignified scheloroids of *Haritaki*.Plate1[A to L].

Physico-chemical Parameters:

Physico- chemical Parameters of the *Vati* like uniformity, loss on drying were all found to be within the normal range. The water soluble extract and methanol soluble extract values were found to be 11.7 % w/w and 10.2 % w/w respectively. The details are tabulated in Table-3

HPTLC study results:

On performing HPTLC, visual observation under UV light showed few spots but on analysing under densitometer much more was observed and at 254nm the chromatogram showed 5 peaks and at 366nm the chromatogram showed 6 peaks described in Table-4, Plate 2.

Table -1: Ingredients of *Devdarvyadi Vati*

DRUGS	BOTANICAL NAME	PART USE	QTY.
<i>Devdaru</i>	<i>Cedrusdeodara</i> (Roxb.) Loud	<i>Kandsara</i>	1 part
<i>Vacha</i>	<i>Acoruscalamus</i> Linn.	<i>Mula</i>	1 part
<i>Musta</i>	<i>Cyperusrotundus</i> Linn.	<i>Kanda</i> (Rhizome)	1 part
<i>Shunthi</i>	<i>Zingiberofficinale</i> Roscoe.	<i>Kanda</i> (Rhizome)	1 part
<i>Ativisha</i>	<i>Aconitum heterophyllum</i> Wall.ex Royal	<i>Kanda</i> (Rhizome)	1 part
<i>Haritaki</i>	<i>Terminaliachebula</i> Retz.	<i>Phala</i>	1 part

Table-2: Organolaptic Characters of *Devdarvyadi Vati*:

No	Parameters	Observation
1	Colour	Greyish brown
2	Odour	Aromatic
3	Taste	Astringent
4	Touch	Hard

Table-3: Physico-Chemical Parameters of *Devdarvyadi Vati*:

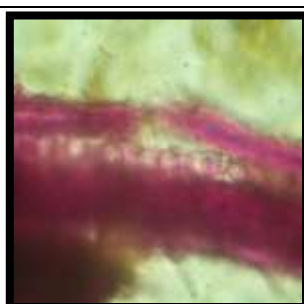
Uniformity of Tab. Highest:	640 mg
Lowest:	481 mg
Average:	584 mg
Hardness of Tab.	3.374 kg/cm ²
Loss on Drying(110 C)	5.379% w/w
Ash Value	0.134% w/w
Water Soluble Extract	11.7% w/w
Methanol Soluble Extract	10.2% w/w
pH (5% Aqua solution)	4.0

Table-4: Showing Results of HPTLC of *Devdarvyadi Vati*:

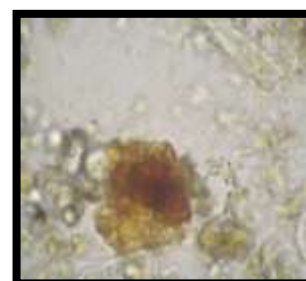
Extract	Solvent system	Wavelengths	Spots	Max. Rf value
Methanol	Toluene:Ethylacetate: Acetic Acid (7:2:1) V/V	254 nm	5	0.05,0.29,0.46,0.60,0.80
		366 nm	6	0.05,0.29,0.49,0.60,0.81,0.85



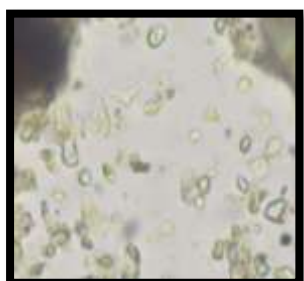
[A] Fibre passing through medullary rays of *Devdaru*



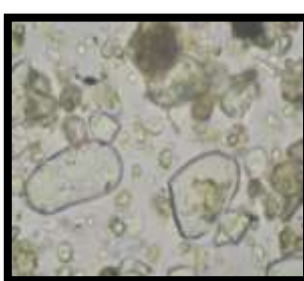
[B] Lignified fibre of *Devdaru* with seave elements



[C] Olio-resin content of *Vacha*



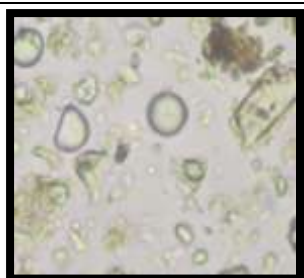
[D] Starch grains of *Vacha*



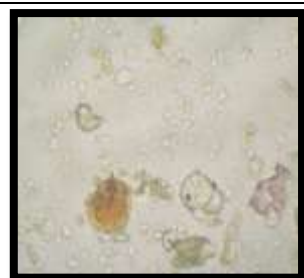
[E] Starch Grain of *Musta*



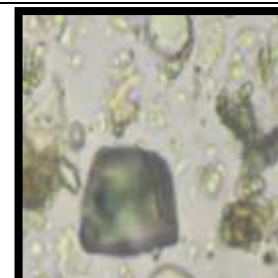
[F] Fragment of annular vessels of *Musta*



[G] Starch grains of *Shunthi*



[H] Olio-resin content of *Shunthi*



[I] Prismatic crystals of *Ativisha*

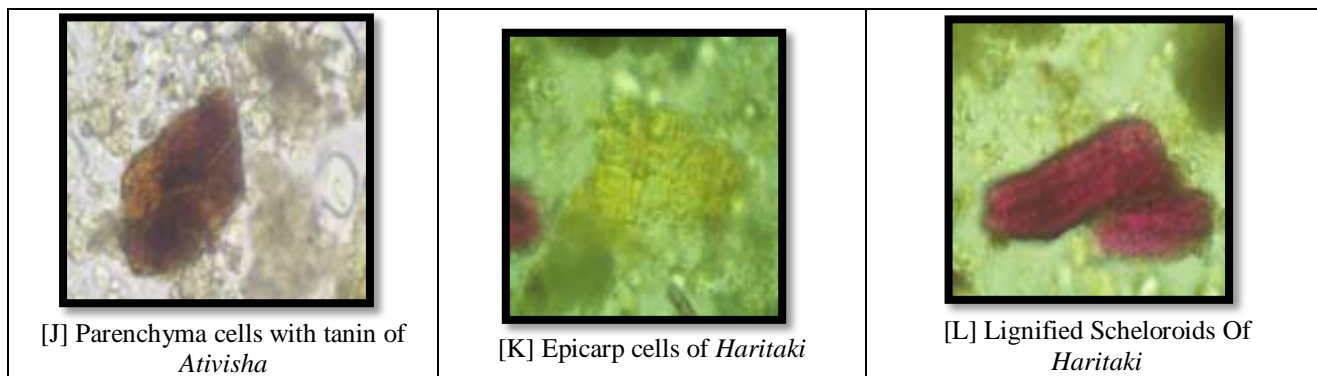
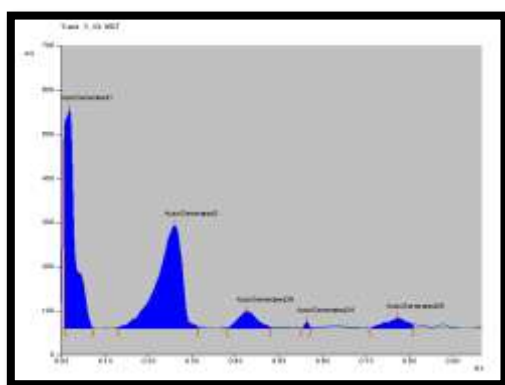
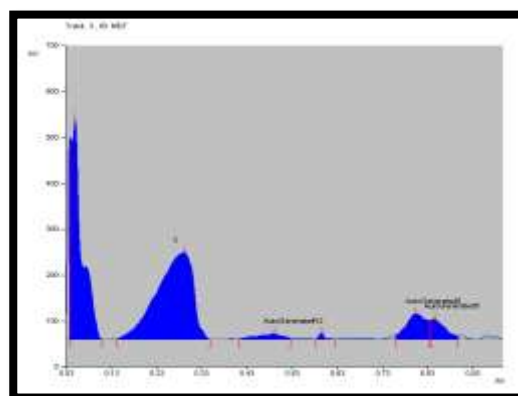


Plate 1: Microphotographs of *Devdarvyadi Vati*:



Devdarvyadi Vati at 254 nm



Devdarvyadi Vati at 366 nm

PLATE-2: Photographs of HPTLC of *Devdarvyadi Vati*:

DISCUSSION

Pharmacognosy and phytochemical evaluation of *Devdarvyadi Vati* was performed which is a potent medicine in the management of *Grahani Dosh*. Preliminary Organoleptic features and results of powder microscopy shows the ingredients which were used confirming the quality of *Vati*. All the ingredients were proved to be authentic and compared with the parameters mentioned in Ayurvedic Pharmacopeia of India (API). In physicochemical analysis, Uniformity of Tablets, Hardness of Tablets, Loss on Drying (110°C), Ash Value, Water Soluble Extract, Methanol Soluble Extract, and pH (5% Aqua solution) were assessed. Though the groundwork requisites for the standardization of *Devdarvyadi Vati* are covered in the current study, additional important analysis and investigations are required for the identification of all the active chemical constituents of the test drug to substantiate the clinical efficacy.

CONCLUSION

All the basic SOP requirement carried out and *Devdarvyadi Vati* fulfill all the requirements. Thus

outcome of the study may be taken as standard references for the further studies.

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