

## Pharmacognostical and Pharmaceutical Evaluation of Kakodumbaradi Lepa in the Management of Shwitra W.S.R to Vitiligo

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**ABSTRACT:** Shwitra is a skin disease mentioned in Ayurveda which is a non-secretory and non-infectious in nature having peculiarity of Nidana, Asadhya lakshana and Chronicity. According to Modern dermatology, Shwitra can be correlated with Vitiligo and Leucoderma. Vitiligo is a progressive disease in which the melanocyte are gradually destroyed causing unpigmented areas on the skin. Kakodumbaradi Lepa is being mentioned by Acharya Charaka in the treatment of Shwitra. This formulation includes Kakodumbara, Bakuchi and Chitraka. These drugs are well proved in the management of the Shwitra and other skin disorder. Pharmacognostical & Analytical study of Kakodumbaradi Lepa has been carried out for the evaluation of its efficacy in the Shwitra. On pharmacognostical study, Stone cells of Kakodumbara, Rhomboidal crystals of Chitraka, Rosette crystals of Kakodumbara, Stone cells of Chitraka, Tenin content of Chitraka, Pitted stone cells of Kakodumbara, Simple starch grains of Kakodumbara, Prismatic crystal of Bakuchi, Oil lobule of Bakuchi, Lignified stone cells of Kakodumbara, Lignified stone cells of Chitraka, Epicarp cells of Bakuchi. Analytic study showed 12 spots at 254nm and 7 spots at 366nm.

**Keywords:** Shwitra, Vitiligo, Kakodumbaradi Lepa

### I. INTRODUCTION

The condition which has white colour vitiated in skin is called "Shwitra". Acharya Charaka opines that the disease is Asadhya as it invades the deeper Dhatu and advocates as not to treat Asadhya variety. But then Acharya Charaka gave some internal medicines and external

medicines for Lepa. According to Acharya Vagbhata, Shwitra has been described much more dangerous than Kushtha because it becomes Asadhya very quickly like a burning home. The disease is long lasting having multiple causative factors according to Ayurveda like Viruddha Ahara, and also the Papkarma done by person which is the resulting in the disease called as Shwitra. There are several disease marked by a lack of pigment in the skin that are grossly referred to as leucoderma, some are caused by inability of melanocytes to produce melanin, while others are caused by melanocytes either not being or being destroyed. Vitiligo is a progressive disease in which the melanocyte are gradually destroyed causing unpigmented areas on the skin. Three hypotheses are prevailing about the etiology of the disease like Self destruction theory, Neurological theory and Autoimmune theory. None of them is satisfactory yet most of scientist has considered Vitiligo as Autoimmune.

The trial formulation named Kakodumbaradi Lepa includes Kakodumbara, Bakuchi and Chitraka. This formulation is being given by Acharya Charaka in the treatment of Shwitra. The drugs which are used are having Katu, Tikta and Kashaya Rasa, Ushna, Laghu, Tikshana Guna and Kushtagna Karma. The Churna of the drugs is mixed with Go-mutra and applied on the affected area. Go-mutra is having the properties like Tikshana, Laghu and Ushna.

### II. MATERIALS AND METHODS

#### Collection of raw drug

All the drugs of Kakodumbaradi Lepa were obtained from Gujarat Ayurved University

Pharmacy and the drugs which were not available from the pharmacy of Gujarat Ayurved University were procured from local market of Jamnagar. The ingredients & parts used in the preparation of the final product are listed in the Table 1.

### Preparation of drug

The raw material of the drugs was powdered in the Pharmacy of Gujarat Ayurved University. The powder of the drugs is mixed with Go-mutra and applied in the affected area.

Sr.no	Name	Latin name	Parts used
1	Kakodumbara	Ficus hispida Linn	Stem bark
2	Chitraka	Plumbago zeylanica Linn	Root
3	Bakuchi	Psoralia corylifolia Linn	Seeds
4	Gomutra	-	-

**Table 1. Kakodumbaradi Lepa (Charaka Samhita)**

### 1) 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

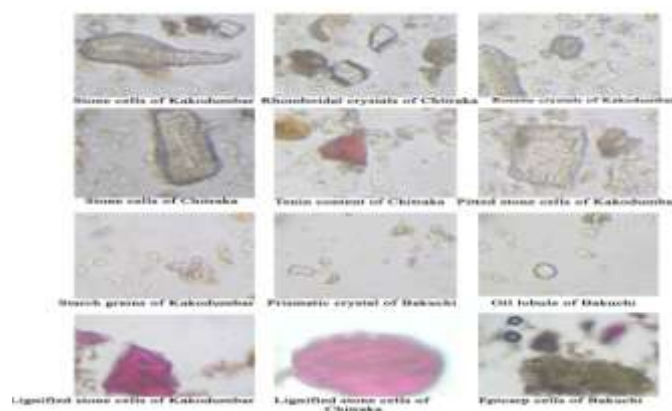
regarding the genuinity of the sample. It is done with the help of Panchagyanendriya Pariksha. Powder characteristics of the sample were identified with the help of Pharmacognosy laboratory, I.P.G.T. & R.A., Gujarat Ayurved University, Jamnagar, Gujarat, India.

**Table no. 2: The organoleptic study of the Kakodumbaradi Lepa are given below:**

1	Colour	Brownish red
2	Odour	Slightly aromatic
3	Taste	Astringent
4	Touch	Fine

#### • Microscopic study

Powder of the drug was studied microscopically and microscopic characters of the powder were drowned.



### 2) Analytical Study

Kakodumbaradi Lepa was analyzed using various standard physico-chemical parameters such as Loss on drying, water soluble extract, alcohol soluble extract, ash value and pH.

**Table No. 3:** Results physico-analytical study of Kakodumbaradi Lepa:

No.	Parameters/ Sample	Virechana Yoga
1.	Loss on drying	8 % w/w
2.	Ash value	11.3 at room temp.
3.	Water soluble extractive	41.7% w/w
4.	Methanol soluble extractive	58.6 % w/w
5.	pH value	6.5

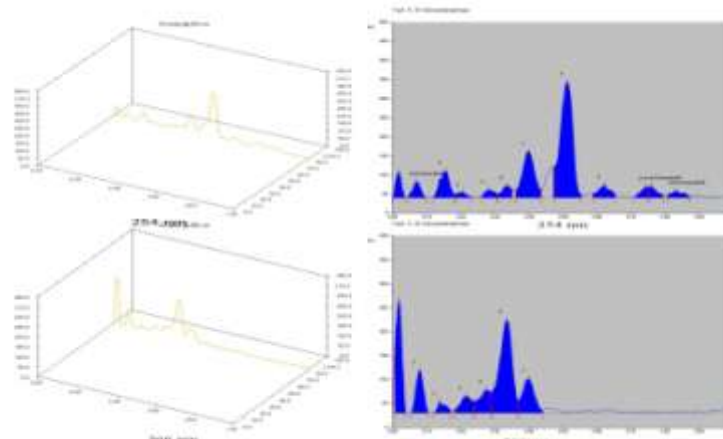
### High Performance Thin Layer Chromatography (HPTLC)

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+ Formic acid (7:2:0.5) solvent system and observed

under visible light. The colour and Rf values of resolved spots were noted.

#### HPTLC Study

Chromatogram shows 12 prominent spots at 254nm with maximum Rf value 0.02, 0.07, 0.16, 0.21, 0.28, 0.34, 0.40, 0.51, 0.62, 0.74, 0.76, 0.83 and 7 spots at 366nm with maximum Rf value 0.02, 0.08, 0.14, 0.22, 0.28, 0.34, 0.40 [Fig.1-2]



**Figure 1:** Densitogram curve of Methanol extract of Ksheera Bala Taila at 254nm and 366 nm

### III. DISCUSSION

Organoleptic evaluation was performed for fine powder of Kakodumbaradi Lepa . The drugs were authenticated and analysed before processing because good quality products mainly dependent upon genuine raw materials. The colour of Lepa is Brownish red because of Bakuchi. The odour is Aromatic . Taste of the formulation is Astringent. Pharmacognostical study reveals authentication of Kakodumbaradi Lepa was cross verified with standard reference API. The Stone cells of Kakodumbara, Rhomboidal crystals of Chitraka, Rosette crystals of Kakodumbara, Stone cells of Chitraka, Tenin content of Chitraka, Pitted stone cells of Kakodumbara, Simple starch grains of Kakodumbara, Prismatic crystal of Bakuchi, Oil lobule of Bakuchi, Lignified stone cells of Kakodumbara, Lignified stone cells of Chitraka, Epicarp cells of Bakuchi. are observed under the

microscope which were used as ingredients. All the physico-chemical parameters i.e. Loss on drying, Ash value, Water soluble extract, Methanol soluble extract and pH value were analyzed and found to be within the normal reference range. The physicochemical analysis showed Loss on drying (8% w/w), Ash value (11.3) at room temperature, ph 6.5 value, water soluble extract is 41.7% w/w and methanol soluble extract is 58.6%w/w HPTLC profile of the methanolic extract of the drug showed 12 spots at 254 nm and 7 spots at 366 nm.

### IV. CONCLUSION

Kakodumbaradi Lepa is mentioned in Ayurvedic text for the management of Shwitra. Study based on various parameters results at conclusion that Kakodumbaradi Lepa is palatable to the patients and have stable shelf life at room

temperature. HPTLC results suggest the presence and incorporation of active constituents of herbal drugs into lipid formulations. For the prospective research, study will be helpful to the establishment of safety profile, efficacy and acceptance of classical formulation.

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