

PHARMACO THERAPEUTIC EVALUATION OF PUTIKADI LEPA W. S. R. TO  
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## ABSTRACT

Leucoderma or vitiligo is a distressful skin disease and the word Leucoderma means 'to have white skin'. There would be a gradual loss of pigment called melanin from the dermal layers that results into white patches. **Aims and Objectives:** Therapeutic evaluation of the powder leaves of *Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum* on switra as a preparation of lepa. **Materials and Methods:** In the present study, 30 patient of Vitiligo (Switra) were selected from the OPD, P.G. Department of Dravyaguna Vigyana of Dr. S.R.R.A.U. Jodhpur, voluntarily all the symptoms of shwitra roga (vitiligo) as described in ayurveda and modern dermatology were incorporated in the history sheet proforma used for the purpose. **Statistical Analysis:** was done with help of Instate Graph Pad software 3.1 using Wilcoxon matched-pairs signed ranks test and Mann-Whitney test. **Results:** The overall 7.4038% relief were noted with P value less 0.02453. The statistical analyses conclude improvement to be *Very Significant*. **Conclusion:** The therapy in the form of lepa i.e Putikadi Lepa is a safe and effective in the management of Vitiligo (Switra).

**KEYWORDS:** Putikadi Lepa, Vitiligo (Switra), *Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum*.

## INTRODUCTION

In ayurveda all most all the skin disorders have been described under chapter "Kustha Rogadhikara", "Kshudra Rogadhikara" mainly and in a scattered way with other diseases also. Various types of skin disorder described in modern sciences can be cover up under the eighteen types of Kustha Roga in which seven types of Mahakustha and eleven types of Kshudra Kustha. The word kushtha means disfiguration of the body which can be denoted for Switra Roga also.

Vitiligo or Leucoderma is an acquired de-pigmentation of the skin that is very common with a worldwide preponderance. Leucoderma or vitiligo is a distressful skin disease and the word Leucoderma means 'to have white skin'. There would be a gradual loss of pigment called melanin from the dermal layers that results into white patches. These patches look bad, especially in persons having dark complexions. Leucoderma can occur at any age, person and in any kind of skins.

Charaka opines that the disease is incurable as it invades deep Dhatu.<sup>[1]</sup> *Switra* is a type of Kilasa where Dosha invades to deepest Dhatu i.e. Meda. So *Switra* is more incurable in compare to Daruna and Aruna. Acharyas did

not mention the treatment of Asadhya variety but Charaka has mentioned the treatment by the name of *Switra* and has not mentioned the treatment of Daruna and Charuna. It is not accordance with the rules of text that not describing the treatment of Sadhya Vyadhi and mentioning the treatment of Asadhya Vyadhi.

Sushruta used the term Kilasa to describe the Nidana and Samprapti of the disease but while described the treatment in Chikitsa Sthana, he used the word *Switra*.<sup>[2]</sup>

## MATERIALS AND METHODS

## Aims and Objectives

Switra (vitiligo) is now widely recognized as one of the common depigmentary disorder of the skin, exerts its effects not only in body but also onto the mind. It is a well-defined depigmented patch, progressive in nature due unknown etiologies. Shvitra is associated with changes in bhrajaka pitta, located in skin.

The present research work was undertaken with following objectives.

Therapeutic evaluation of the powder leaves of *Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia*

*neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum* on switra as a preparation of lepa.

### Selection of Patient

In the present study, 30 patient of shvitra (vitiligo) were selected from the OPD, P.G. Department of Dravyaguna Vigyana of Dr. S. R. R. A. U. Jodhpur, voluntarily all the symptoms of shwitra roga (vitiligo) as described in ayurveda and modern dermatology were incorporated in the history sheet proforma used for the purpose.

### Inclusion Criteria

- The patients between the age group of 10 to 60 years in either sex presenting with clinical features of switra roga.
- Prediagnosed patient of *switra*.
- All the patients were examined and assessed by detailed case history, thorough clinical examination

and relevant laboratory investigations to establish the final diagnosis of shwitra roga (vitiligo).

### Exclusion Criteria

- Patients of age below 10 years and above 60 years of either sex.
- Chronicity of *switra* more than 6 years.
- Patients having severe other chronic disease.
- Patients who were drug addict.
- Patients undergoing any drug therapy / associated therapy (i.e. chemotherapy etc).
- Pregnant women and lactating mother.

### Discontinuation criteria

Some patients were discontinued from the clinical trial since they did not report for regular follow up during clinical trial due to any reasons during the trial period. No patients were discontinued due to hypersensitivity of trial drug.

**Putikadi Lepa<sup>[3]</sup> and its contents:** दृ पूतीकार्कस्नु इ नरेन्द्रदुमाणां मूत्रैः पिष्टाः पल्लवाः सौमनाञ्च । लेपः श्वित्रं हन्ति दद्रूर्वणाञ्च दुष्टान्यर्षास्येष नाडीव्रणाञ्च ॥ (सु.चि. 9/40).

Sl. no.	Sanskrit name	Latin name	Parts used	Quantity
1	Putika	<i>Holoptelia integrifolia</i>	Patra	1 part
2	Madar	<i>Calotropis procera</i>	Patra	1 part
3	Sehunda	<i>Euphorbia neriifolia</i>	Patra	1 part
4	Devadaru	<i>Cedrus devdaru</i>	Patra	1 part
5	Amaltas	<i>Cassia fistula</i>	Patra	1 part
6	Jati	<i>Jasminum grandiflorum</i>	Patra	1 part
7	Gaumutra (cow urine)	-	-	Quantity sufficient.

### Method of Preparation of Putikadi Lepa

Above mentioned contents of *lepa* was taken in equal ratio. Leaves of *Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum* are to be powdered and mix with the cow urine & the paste is made and stored. This drug may be prepared in pharmacy of DSRRAU, Jodhpur.

**Mode of application-** Lepa is to be applied twice in a day just over the spot, for 60 days.

### Administration of Drug

- 30 Clinically diagnosed and registered patients of *switra* were selected voluntarily.
- 30 patients was given local application of *Putikadi Lepa* with gaumutra (*Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum*) twice in a day, for 60 days.

### Criteria of Assessment

Patients registered for the clinical trial were screened for their demographic profile for age, sex, religion, occupation, marital status, family history, their socioeconomic status, nature of their job, addiction, dietary habits and assessment of their sharirika and manasa prakriti etc.

Following parameter were adopted during the trial and follow up studies of each patient to assessing the impact of treatment produced-

1. Subjective improvement
2. Clinical assessment
  - a. Symptomatic improvement
  - b. Scoring pattern – rules of nine
3. Laboratories parameter
4. Photographic changes

1. **Subjective improvement:** Patient registered for the trial were specifically asked for any changes in their clinical manifestations and growing feeling of well-being produced by the drug if any, under trial.

## 2. Clinical assessment

**Symptomatic improvement:** The basis of assessment of each sig and symptom studied are as follows-<sup>[4]</sup>

<b>1. Grading for the color of the lesions.</b>	<b>Score</b>
• Normal colour of the skin	0
• Light reddish colour of patches(aruna varna)	1
• Reddish colour of the patches (tamra varna)	2
• Whitish colour of the patches (shweta varna)	3
• Some patches are reddish some whitish or other colour(mixed)	4
<b>2. Grading for the surface of the lesion</b>	<b>Score</b>
• Normal surface of affected skin on touch.	0
• Roughness of affected skin lesion.	1
• Smoothness of the affected skin lesion.	2
• No secretion on the affected part of skin.	3
• Secretary lesion on skin (Sravayukta)	4
<b>3. Grading for the margins of the lesions.</b>	<b>Score</b>
• No clear demarcations on affected skin and normal skin.	0
• Margins of the lesions are macular.	1
• Very clear demarcation or thin elevation of margin of patches	2
• Dry, rough and thick margins of lesions.	3
• Inflammatory margins of patches.	4
<b>4. Grading for the hair colour of the lesions.</b>	<b>Score</b>
• Normal blackish colour.	0
• Blackish to brownish colour.	1
• Total brown colour.	2
• Brownish to whitish colour.	3
• Complete white colour.	4
<b>5. Grading for the size of the lesions.</b>	<b>Score</b>
• Less than 10cm of patches	1
• Size of patches varies between 10-15cm.	2
• Size of patches varies from 15-20cm.	3
• Size of the patches more than 20cm	4
<b>6. Grading for the number of lesions.</b>	<b>Score</b>
• Number of patches varies between 1 - 4	1
• Number of patches varies between 5 - 8	2
• Number of patches varies between 9 - 12	3
• Number of patches more than 12	4
<b>7. Burning sensation or intolerance of heat.</b>	<b>Score</b>
• No feeling of burning at site of patches.	0
• Experience of burning or heat over conc. of mind on the patches.	1
• feeling of mild burning at site of patches.	2
• Intolerance of heat due to direct exposure of patches on sunlight.	3
• Severe itching sensation which requires medicine	4
<b>8. Grading for the Itching (kandu).</b>	<b>Score</b>
• No itching at all.	0
• Occasional itching.	1
• Itching at site of patches when exposed to sunlight.	2
• Frequent itching but no disturbance in sleep & req medicines.	3
• Severe itching which affect the sleep	4
<b>9. Grading for percentage (%) of affected skin lesion (white patches)</b>	<b>Score</b>
• % of white patches range between 1-25 %.	1
• % of white patches range between 26-50 %.	2
• % of white patches range between 51-75 %.	3
• % of white patches range between 76-100 %.	4
<b>10. Grading for pin point bleeding (raktata)</b>	<b>Score</b>
• Absent.	0
• Mild redness.	1
• Moderate redness.	2

- Dark reddish color. 3
- Redness with capillary secretion. 4

### Clinical Assessment of Results

Assessment of the patients done with help of following criteria:

1. Initial assessment : before the commencement of treatment (pre-trial)
2. Second assessment: after 4 week of commencement of trial i.e first follow up
3. Third assessment : after 6 week of commencement of trial i.e second follow up
4. Final assessment: after the completion of trial i.e. post-trial.

#### A. Overall assessment was made according to the % relief in symptoms after therapy

1. Complete relief: More than 70% relief in the signs and symptoms of shwitra roga (vitiligo)
2. Maximum improvement : more than 50 % relief in signs and symptoms of shwitra roga (vitiligo)
3. Moderate improvement: up to 50% improvement or improvement between 25-50 % in clinical feature of shwitra roga (vitiligo)
4. Mild improvement: improvement up to 25% in clinical features of shwitra roga (vitiligo)
5. No improvement: no changes in signs and symptoms.

#### B. Assessment of involvement of body surface area (rule of nine)

For assessment of the involved body body surface area of the lesion, the "Rule of Nine" described in the forensic medicine was used. The whole body was scored as per the "Rule of Nine".

**Table 1: Showing the involved body surface area as rule of nine.**

S. No.	Involved Body Parts	Percentage
1.	Head , neck & face	09%
2.	Thorax (dorsal & ventral)	18%
3.	Abdomen (dorsal & ventral)	18%
4.	Right upper limb	09%
5.	Left upper limb	09%
6	Right lower limb	18%
7	Left lower limb	18%
8	Perineal parts	01%

#### Objective Parameter –

Following investigations will be assessed for objective parameter-

##### A. Laboratory investigations-

- Hemoglobin (Hb)- gm/dl
- Total leukocyte count (TLC)- /mm<sup>3</sup>
- Differential Leukocyte Count (DLC)- (%)
- Erythrocyte Sedimentation Rate (ESR)- mm/hr
- Fasting Blood Sugar (FBS)- mg %

- Post parandial blood sugar (PPBS)- mg %
- SGPT, SGOT

#### B. Urine test: Routine and microscopic examination

**Photographic changes:** Colored photographs of lesion will be taken before and after the trial period of patient,

#### Statistical analysis

Various observations made and results obtained were computed statistically to find out the significance of the values obtained and various conclusions were drawn accordingly. Following formulations were used for statistical purpose-

#### Calculations

Following statistical formulas were applied to obtain results

1. Mean (m) =  $X/n$ , X = quantity of values, n = Number of values.
2. Standard deviation (SD) =  $\sqrt{\frac{\sum X^2 - (\sum X)^2}{n-1}}$
3. Standard Error (SE) = SD / n
4. Paired 't' test (Intra group comparison)  
t = Mean of difference/SE of difference (Degree of freedom = n – 1)
5. Unpaired 't' test (inter group comparison)  
 $t = \frac{m_1 - m_2}{\sqrt{SE_1^2 + SE_2^2}}$  (degree of freedom = n<sub>1</sub>+n<sub>2</sub> - 2)  
'p' values will be checked against 't' values by the provided chart.
6. For the symptoms Wilcoxon signed rank matched pair t test has been used.

Parent's Consent / Child Assent A voluntary, signed witnessed informed consent / assent was obtained from the participant / parent's / Guardians prior to the start of clinical trial. (Annexure- III). IEC Approval Clinical study was approved by DRC, order no....SR NO DSRRAU/17/349

#### OBSERVATION AND RESULTS

For this objective 30 patient were registered in a specialized research proforma. Various observations made during the present trial are as follows:

**Incidence of Percentage of Body Surface Area****Table 2: Showing the incidence of percentage of body surface area in 30 cases of switra.**

Sl. no.	% of body surface area	No of patients	Percentage %
1.	1-25	19	63.33
2.	26-50	10	33.33
3.	51-75	01	3.33
4.	76-100	00	00
	Total	30	100.00

Above table indicates that maximum number of patients had 1-25% involvement of the total body surface area i.e 19 (63.33%) followed by 10 (33.33%) patients which had 26-50% involvement of body surface area and one

from 51-75 percent. The criteria for calculation of involved body surface area was adopted from the "Wallace rule of Nine".

**Incidence of Distribution of White Patches in Shadanga Sharira****Table 3: Showing the incidence of distribution of white patches in shadanga sharira in 30 registered cases of Switra.**

Sl. no.	Part of sharira	No of patients	Percentage %
1.	Upper Extremities	17	56.66
2.	Lower Extremities	22	73.33
3.	Trunk and thorax	16	53.33
4.	Head and neck	25	83.33

Distribution of switra Roga in Shadanga sharira revealed that 25 (83.33%) patients had white patches on most exposed parts of body surface i.e head neck and face region, 22 (73.33%) patients had white patches on their

lower extremities. 17 (56.66%) patients had white patches on their upper extremities and 16 patients had white patches on their trunk and thorax region of the body.

**Laboratory Profile****Table 4: Range of Haemoglobin Value in gm % in 30 patients of switra.**

Sl. No.	Hb value in gm%	No. of patients	Percentage
	8-10 gm%	7	23.33 %
	Above 10 gm%	23	76.66 %
	Total	30	100%

In this series, the Hb value was estimated in gm in all the 30 patient of switra. 23 patient i.e 76.66% showed the

value of Hb above 10 gms and remaining 7 patient i.e 23.33% , showed in between 8-10 gms.

**Table 5: Finding of biochemical investigation in 30 patient of switra.**

Sl. No.	Biochemical reports	No. of patients	Percentage
1	Changes in FBS	0	0%
2	Changes is PPBS	0	0%
3	Changes in SGPT	4	13.33%
4	Changes in serum TSH (^)	5	16.66%
5	No Change	21	70%
	Total	30	100%

Biochemical investigation were carried out in total 30 cases. It is evident from above table that 21 patient i.e (70 %), there were no change. In very few patient (5 patient) i.e 16.66%, there were alteration in serum SGPT & Serum TSH. Blood sugar was carried out to exclude

diabetes mellitus, as the disease may create trouble while healing of blister if appears in the normal course of treatment. Those patients who had positive blood sugar were barred from the study.

**Table 6: Urine examination in 30 patient of switra.**

Urine report		No of patients	Percentage %
Normal		25	83.33
Changes in chemical exam	Albumin	0	0
	Sugar	0	0
Changes in microscopic examination	RBC	0	0
	Epithelial cell	3	10
	Pus cell	2	6.66
	crystal	0	0
Total		30	100

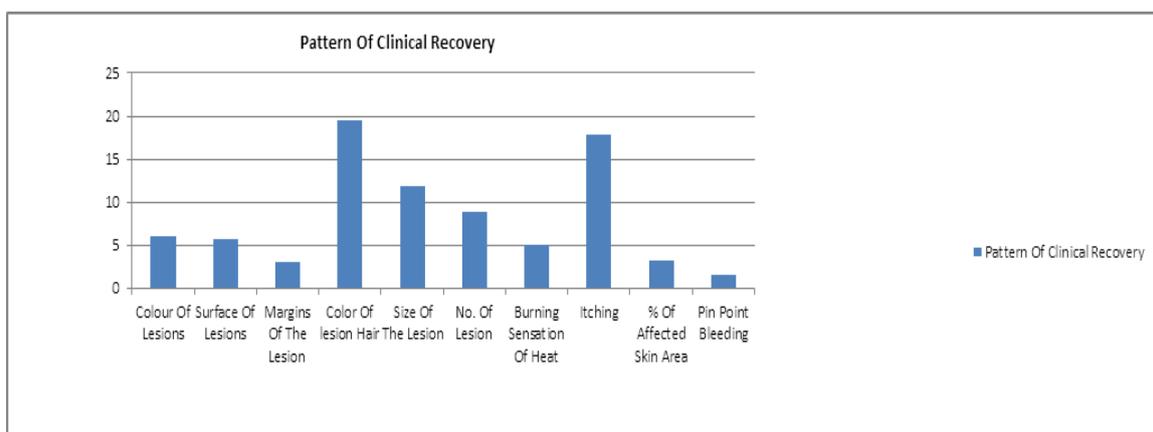
In the present study, it was found that in 25 patients i.e 83.33%, there have been no abnormalities in urine examination. In 3 patient i.e 10% changes in epithelial

cell was observed, while in 2 patient i.e 6.66% it was seen that there were changes in Pus cell.

**Showing Pattern of Clinical Recovery in 30 Patients of Switra Roga (Vitiligo) Treated With Putikadi Lepa**

**Table 7: Showing Pattern of Clinical Recovery in 30 Patients of Switra Roga (Vitiligo) Treated With Putikadi Lepa.**

Sl. No.	Obsevation	Mean		Mean diff	% relief	SD±	SE±	P-value	t	Result
		BtT	AT							
1	Colour Of Lesions	2.733	2.567	0.1667	6.099	0.3790	0.06920	<0.0226	2.408	S
2	Surface Of Lesions	2.900	2.733	0.1667	5.7483	0.4611	0.08419	<0.0573	1.980	QS
3	Margins Of The Lesion	2.133	2.067	0.06667	3.1256	0.2537	0.04632	<0.1608	1.439	N.S
4	Colour Of The Hair Of The Lesion	1.200	0.9667	0.2333	19.441	0.4302	0.07854	<0.0059	2.971	S
5	Size Of The Lesion	2.233	1.967	0.2667	11.943	0.5208	0.09509	<0.0089	2.804	VS
6	Number Of Lesion	2.233	2.033	0.2000	8.9566	0.4842	0.08841	<0.0314	2.262	S
7	Burning Sensation Of Heat	2.600	2.467	0.1333	5.1269	0.3457	0.06312	<0.0434	2.112	S
8	Itching	1.500	1.233	0.2667	17.78	0.4498	0.08212	<0.0029	3.247	S
9	Percentage Of Affected Skin Area	2.033	1.967	0.06667	3.2194	0.2537	0.04632	<0.1608	1.439	N.S
10	Pin Point Bleeding	2.000	1.967	0.03333	1.6665	0.1826	0.03333	<0.3256	1.000	N.S



**FIG 1: Showing the incidence of percentage of body surface area in 30 registered cases of Switra kusta (vitiligo)**

**Showing Over All Relief / Improvement In 30 Patients Switra Roga After The Treatment**

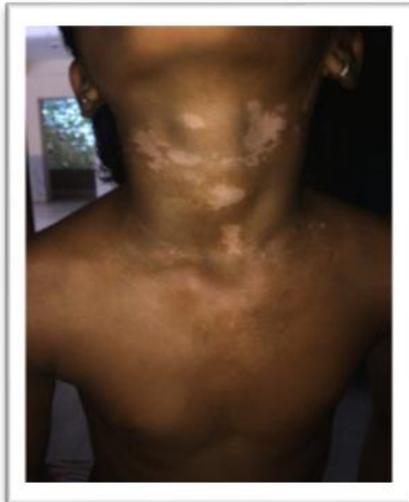
Sl. No.	Mean		Mean diff	% relief	SD±	SE±	P- value	t- value	Results
	BT	AT							
1	2.157	1.997	0.1597	7.4038%	0.07758	0.02453	<0.010	6.242	S

The overall 7.4038% relief were noted with P value less 0.02453. The statistical analysis conclude improvement to be *Very Significant*.

**Photographic Changes**



**Figure 1: Before Treatment.**



**Figure 1.1: After Treatment.**

**Plate 1: Showing Recovery in White Patches Of Switra after Treatment Locally.**



**Figure 2: Before Treatment.**



**Figure 2.1: After Treatment.**

**Plate 2: Showing Recovery In Margin Of The Lesion Of Switra After Treatment Locally.**



**Figure 3: Before Treatment.**



**Figure 3.1: After Treatment.**

**Plate 3: Showing Recovery In White Patches and Margin Of Lesion Of Switra After Treatment Locally.**



Figure 2: Before Treatment.



Figure 5: After Treatment.

Plate 5: Showing Recovery In Surface Lesion & Color Of Lesion Of Switra After Treatment Locally.



Figure 3: After Treatment.

Plate 4: Showing Mild Recovery in White Patches & Margin of Lesion of Switra After Treatment Locally.



Figure 6: Before Treatment.



Figure 4: Before Treatment.



Figure 7: After Treatment.

Plate 6: Showing Recovery in Number of Lesion and Color of Lesion of Switra after Treatment Locally.

## DISCUSSION

As discussed earlier, the current research project has been undertaken with following objectives -

- To collect & compile the literature of *Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum*.
- To compile the literature of vitiligo as described in ayurvedic text and modern text.
- Pharmacognostic study of *Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum*
- Therapeutic evaluation of the powder leaves of *Holoptelia integrifolia*, *Calotropis procera*, *Euphorbia neriifolia*, *Cedrus deodara*, *Cassia fistula* & *Jasminum grandiflorum* on switra as a preparation of lepa

Considering various aspects of pathogenesis (Samprapti) of Switra several drugs were planned to be screened but ultimately on the basis of their pharmacological properties proposed formulations Putikadi lepa for local application were selected as the management of Switra Roga (Vitiligo) thus the present project was launched.

In the present study, 30 patient of shvitra (vitiligo) were selected from the OPD, P.G. Department of Dravyaguna Vigyana of Dr. S.R.R.A.U. Jodhpur, voluntarily. All the symptoms of Switra roga (vitiligo) as described in ayurveda and modern dermatology were incorporated in the history sheet proforma used for the purpose.

**Mode of application-** *Putikadi Lepa* thus obtained is applied twice in a day just over the spot, for 30 days.

All the patients were recommended dietary restrictions as per the descriptions available in the Ayurvedic classics during the course of the therapy.

- Maximum number of patients had 1-25% involvement of the total body surface area i.e 19 (63.33%) followed by 10 (33.33%) patients which had 26-50% involvement of body surface area and one from 51-75 percent. The criteria for calculation of involved body surface area was adopted from the "Wallace rule of Nine"
- The incidence of distribution of white patches in shadanga sharira in 30 registered cases of Switra revealed that 25 (83.33%) patients had white patches on most exposed parts of body surface i.e head neck and face region, 22 (73.33%) patients had white patches on their lower extremities. 17 (56.66%) patients had white patches on their upper extremities and 16 patients had white patches on their trunk and thorax region of the body.
- The Hb% value was estimated in gm in all the 30 patient of Switra. 23 patient i.e 76.66% showed the value of Hb above 10 gms and remaining 7 patient i.e 23.33%, showed in between 8-10 gms.
- Biochemical investigations were carried out in total 30 cases. It is evident from above table that 21 patient i.e (70 %), there were no change. In very few

patient (5 patient) i.e 16.66%, there were alteration in serum SGPT & Serum TSH. Blood sugar was carried out to exclude diabetes mellitus, as the disease may create trouble while healing of blister if appears in the normal course of treatment. Those patients who had positive blood sugar were barred from the study

- In the present study, it was found that in 25 patients i.e 83.33%, there have been no abnormalities in urine examination. In 3 patient i.e 10% changes in epithelial cell was observed, while in 2 patient i.e 6.66% it was seen that there were changes in Pus cell.
- The clinical evaluation of Putikadi lepa in a series of patients of Switra Roga (Vitiligo) registered have shown significant improvement in the symptoms of color of lesions, surface of lesions, color of hair, size of the lesion, burning sensation of heat, itching after the course of therapy.
- Few patients complained that mild local irritations after the local application of Putikadi lepa on exposure to direct sun light. They were advised to reduce the time of exposure to sunlight from 10-30 minutes to 5-10 minutes, which produces significant relief in local irritation over the affected parts.
- Not much complications or side effects were reported by the patients of this except one patient who complained severe blisters formation on skin after application of Putikadi lepa locally. He was advised to apply butter on the blisters as *Alepa* and stop the use of putikadi lepa which produced significant improvement to subside the blisters. Although according to Acharya Charaka formation of blister is a very good sign in the recovery of the Switra Roga. He has advised to prick the blisters and advocated the intake of *Kakodumbaradi Kwatha* in morning for 15 days.

**Overall average clinical improvement was 6.099% (t=2.408, p<0.0226), which is statistically significant**

Coloured photographs of Vitiligo lesions were taken before and after the therapy of each patient. On the basis of involvement of body surface area by Switra Roga (Vitiligo), reduction in the area of the lesions in patients was significant,

The compound drug Putikadi Lepa is good remedy for the management of Switra because it not only imparts the symptomatic improvement in the depigmentation of skin but possesses the capacity of normalization of Bhrajaka Pitta by Stimulating its proper functioning at cellular level and produces the homeostasis of Tridoshas and Dhatus.

**Probable Mode of Actions of Switra Roga in the management of Switra (Vitiligo)**

Under the influence of long wave length ultraviolet rays of sunlight the various elements of putikadi lepa may initiate the secretion of tyrosinase enzyme activity to enhance the melanin formation. Fitzpatrick TB and Lerner

AB showed that free sulphhydryl groups present in the epidermal tissue binds the copper element required for the function of tyrosinase and initiate the melanin formation.

Putikadi lepa can stimulate the proper functioning of Bhrajaka Pitta and play major role in the repigmentation of white patches. Ushna, tikshna, sara, sukshma guna of various constituents of putikadi lepa improve its permeability which remove the stanika sotavarodha and sanga, activate the Bhrajaka pitta, bring haemostasis in doshas and dhatus and ultimately breaks the chain of samprapti of Switra (vitiligo) effectively.

Constituent of putikadi lepa contains various chemical like glycoside,  $\beta$ -amyrin, cardenolids, calotropin, calotropagenin, rhein and its glucoside sennoside A& B, salicylic acid and alkaloid jasminine, protein, essential amino acids, coloring matter etc. The various elements of Putikadi lepa may acts as chemical and physical stimulant to the cells of melanin, it increases the membrane permeability.

After local application of Putikadi lepa, when the affected area of skin exposed to sun light, the ultraviolet rays of sunlight also produces various chemical which are also mitogenic to melanogenesis.

The cow urine used in the preparation of Putikadi lepa contains a large number of various elements it produces hydration of skin and improves the activity of the lepa.

Therefore on the basis of above discussion, it can be said that Putikadi lepa work on the root cause of the diseases and Switra (vitiligo) effectively.

Current study has been undertaken on very small number of patients of switra with limited resources and time. It is recommended that this project should be conducted on a larger series of patients with longer duration of treatment schedule on more scientific and clear cut parameters to reach concrete conclusions. However, present study has opened new vistas of research in this field.

## SUMMARY AND CONCLUSION

Material and methods consist of selection of selection of patients, exclusion and inclusion criteris, inform consent, some laboratory tests, diagnosis of Switra through subjective , objective findings and photography, grading of different scores , grouping of patients, trial drugs, duration and follow up and assessment of response along with the study design.

In the present series of cases of Vitiligo (switra) were treated with *Putikadi Lepa* for 60 days and results were assessed through changes in color, size, site, & number of patches etc.

Few interesting observation were found in 30 cases of Switra and are innumerated as below:-

- 30% patients were between the age group of 31-40 years
- Switra roga (vitiligo) is more common in males i.e 23 patients (76.66%)
- 93.33% patients belonged to *Hinduism*
- 20% patients were students followed house wife (16.66%).
- 60% patients belong to rural area.
- 36.66% patients were educated upto primary level.
- 60% patients were married.
- 83.33% patients were vegetarian
- 60% patients chronic type of onset of disease
- 83.33 % patients incidence of Hereditary occurrence
- 56.66% patients had addiction to tea and coffee.
- 76.66% cases of *Switra* had normal sleep pattern.
- 53.33% cases were of *Madhyam* type of *Kostha*.
- 73.33% of cases of switra had *Samagni*.
- 73.33% cases were of *Rajasika prakriti*.
- 76.66% cases were found to be suffering from *Prakriti Sama Samavaya*.
- 83.33% patients were of *Madhyama* type of *Samhanana*
- 86.66% patient reported *Sarva Rasa Satmya*.
- 76.66% patients had *Madhayama* type of *Satva*.
- 73.33% patients were *Madhyama* type of *Abhyavarana Shakti*.
- 73.33% patients showed *Madhyama* type of *Jarana Shakti*.
- 56.66% cases had *Madhyama Vyayama Shakti*.

Therapeutic trial was conducted in 30 patient of Switra. The effect of treatment was assessed through changes in *Color, Surface of Lesions, Colour of the Hair of the Lesion, Margins of the Lesion, Size of the Lesion, Size of the Lesion Burning Sensation of Heat, Itching, and Percentage of Affected Skin Area & Pin Point Bleeding*.

Thus, it may be concluded that present study on Putikadi Lepa in treatment of Switra has been conducted entirely from a new way. It has been observed that Vitiligo (Switra) is gradually increasing day by day. The trial treatment appears to be potentially useful as well as safe. Further extensive studies are suggested.

## REFERENCES

1. Acharya Agnivesha, Charaka Samhita Utrarddha Vidhyotani Hindi vyakhya by Pt. Kashinath Pandey, Dr. Gorahknath Chaturvedi, Chaukhambha Bharti Akadami, Varanasi reprint, Chisakitssthana, 2011; 7/173-174: 274.
2. Shusruta samhita Ayurvedatvasandipika Hindi vyakhya by Kaviraj Dr.Ambikadutt Shastri, Chaukhambha Sanskrit sansthana, Varanasi, print, Nidanaasthana, 2014; 5/17: 322.

3. Shusruta samhita edited by Vaidya Yadavaji Trikamji, Chaukhambha subharati prakashan, Varanasi print chikitsa sthan, 2010; 9/40: 67.
4. Dr. parshuram singh yadav, thesis, clinical evaluation of shwitrari vati and shwitrari taila (both kalpita yoga) in the management of shwitra roga w.s.r. vitiligo, NIA, Jaipur, 2017.