

## TO EVALUATE THE EFFICACY OF NIRGUNDI TAILA AND DURVADYA TAILA IN THE MANAGEMENT OF PAMA KUSHTA IN CHILDREN – A COMPARATIVE CLINICAL STUDY

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### ABSTRACT

*Pama Kushta* is a *Kapha pitta* predominant disease having symptoms like *Shweta Aruna Shyava varna Pidakas with Kandu Paridaha, Srava, and Pama Kushta lakshanas* can be correlated with the Scabies symptoms. Scabies is a parasitic skin infestation triggered by the mite *Sarcoptes scabiei* var. *homnis* having symptoms like severe itching with s-shaped thread like greyish to the dark line, Erythematous Papules, Papulo-vesicles, Nodules. *Pama Kushta* with respect to scabies is common in children without sex preponderance and lower socio-economic status so this is called the disease of poverty. It is transmitted through close contact, clothing, and bed linen and has an incubation period of one month in primary infection. Which 23.7% of

Indian children are affected. Classically there are various *Lepas* and *Tailas* mentioned as a *Bahirparimarjana Chikitsa in Pama Kushta*. Among these *Taila* can be applied easily and preserved for a longer duration. *Durvadya Taila* proved to be effective in the management of *Pama Kushta* as per previous research work, In *Bhaishajya Ratnavali* under *Nadivrana Adhikara*, we get the reference of *Nirgundi Taila* application for *Pama Kushta*. Hence effort was made to evaluate the efficacy of *Nirgundi Taila* and *Durvadya Taila* in *Pama Kushta*. The sample size was a minimum of 40 subjects fulfilling the Diagnostic and Inclusion criteria selected and allotted into Groups A and B with 20 subjects each with respect to *Nirgundi*

Taila and Durvadya Taila. The assessment was done on BT (0<sup>th</sup>), on the 5<sup>th</sup> and 10<sup>th</sup> day of treatment, and Follow-up was done on the 15<sup>th</sup> day. Clinical parameters were assessed statistically. *Durvadya Taila* and *Nirgundi Taila* were effective in treating Pama Kushta as an external application in children with a statistically significant  $P < 0.05$ . In comparison between both the groups, there was no statistically significant difference in the effect of treatment with  $P > 0.05$ .

**KEYWORDS:** *Durvadya Taila, Nirgundi Taila, Pama Kushta.*

## INTRODUCTION

In *Ayurvedic* classics, we get various references regarding *Pama Kushta* under *Kshudra Kushta*. *Pama Kushta* is *Kapha pitta* predominant disease having symptoms like *Shweta Aruna Shyava Pidakas with kandu*.<sup>[1]</sup> *Pama Kushta lakshanas* can be correlated with Scabies symptoms.

Scabies is a parasitic skin infestation triggered by the mite *Sarcoptes scabiei var. hominis* having symptoms like severe itching with s-shaped thread like greyish to the dark line, Erythematous Papules, Papulo-vesicles, Nodules.<sup>[2]</sup>

*Pama Kushta* with respect to scabies is common in children without gender preponderance<sup>[3]</sup> and lower socio-economic status so this is called the disease of poverty. It is transmitted through close contact, clothing, and bed linen. Having incubation period of one month in primary infection. Scabies affects hundreds of millions of people worldwide and all races of people. Which 23.7% of Indian children are affected.<sup>[4]</sup>

*Pama Kushta Shodhana, Shamana, and Bahirparimarjana Chikitsa* are mentioned in *Ayurveda*. Classically there are various *Lepas* and *Tailas* mentioned as a *Bahirparimarjana Chikitsa* in *Pama Kushta*. Among these *Taila* can be applied easily and preserved for a longer duration. *Durvadya taila*<sup>[5]</sup> was proved to be effective in the management of *Pama Kushta* as per previous research work, In *Bhaishajya Ratnavali* under *Nadivrana Adhikara*, we get the reference of *Nirgundi taila*<sup>[6]</sup> application for *Pama Kushta*.

## OBJECTIVES

- To evaluate the efficacy of *Nirgundi Taila* in *Pama Kushta*.
- To compare the efficacy of *Nirgundi Taila* with *Durvadya Taila* in *Pama Kushta*.

## MATERIALS AND METHODS

### Source of data

#### Literary source

Classical *Ayurvedic* textbooks, Contemporary books, concerning articles, and scientific databases were referred to in detail for this clinical study.

#### Drug source

All raw drugs are collected from the local market and preparation was done in *Rasashastra* and *Bhaishajya Kalpana* lab of Alva's Ayurveda Medical College, Moodbidri.

#### Sample source

Patients were selected randomly from IPD and OPD of Alva's Ayurveda Medical College, Moodbidri, and other referrals.

## PREPARATION OF MEDICINE

### *Tila taila – Murchana*

#### Ingredients of Murchana of Tila Taila

<i>Manjishta (Rubia cordifolia)</i>	4 Parts
<i>Haritaki (Terminalia chebula)</i>	1 part
<i>Vibhitaki (Terminalia belerica)</i>	1 part
<i>Amalaki (Emblica Officinalis)</i>	1 part
<i>Hriversa (Coleus vettiveroides)</i>	1 part
<i>Haridra (Curcuma longa)</i>	1 part
<i>Musta (Cyperus rotundus)</i>	1 part
<i>Lodhra (Symplocos racemose)</i>	1 part
<i>Kethaki (Pandanus odoratissimus)</i>	1 part
<i>Nyagrodha (Ficus bengalensis)</i>	1 part
<i>Tila (Sesamum indicum)</i>	4 parts
<i>Jala (Water)</i>	16 parts

Take the ingredients (*Kalka dravyas*) numbered 1 to 11 in the composition, dry, powder, and pass-through sieve number 85. Transfer the powdered ingredients to a wet grinder and grind with a sufficient quantity of water to prepare *Kalka* (homogeneous blend). Take *Tila Taila* in a stainless-steel vessel and heat it mildly. Add ingredients of *Kalka*. Stir thoroughly while adding water in a ratio of 1:4. Start heating and constantly check the *Kalka* for the formation of *varti (madhyama pāka)* and observe the boiling mixture for the appearance of froth. Stop heating when the *Kalka* forms a *varti* and the froth emerges. Filter while hot through a muslin cloth and allow to cool.

**Preparation of *Durvadya Taila*****Ingredients of *Durvadya Taila***

<i>Durva Swarasa</i>	16 parts
<i>Tila Taila</i>	4 parts
<i>Durva Kalka</i>	1 part

4 parts of *Murchita Tila Taila* were taken in a vessel. 16 parts of *Durva Swarasa* and *Durva Kalka* 1 part was mixed with *Tila Taila* and *Sneha Paka* is done over *Mridwagni* till total water was evaporated. After attaining *Sneha Siddha Lakshana* vessel was taken out from the fire and filtered in a cloth. After cooling stored in bottles and sealed.

**Preparation of *Nirgundi Taila*****Ingredients of *Nirgundi Taila***

<i>Nirgundi Swarasa</i>	16 parts
<i>Tila Taila</i>	4 parts
<i>Nirgundi Kalka</i>	1 part

4 parts of *Murchita Tila Taila* were taken in a vessel. 16 parts of *Nirgundi Swarasa* and *Nirgundi Kalka* 1 part was mixed with *Tila Taila* and *Sneha Paka* is done over *Mridwagni* till total water was evaporated. After attaining *Sneha Siddha Lakshana* vessel was taken out from the fire and filtered in a cloth. After cooling stored in bottles and sealed.

**METHOD OF COLLECTION OF DATA**

**Sample size:** A minimum of 40 subjects fulfilling the Diagnostic and Inclusion criteria were selected and allotted into Groups A and B with 20 subjects each.

**Design of study:** Open Randomised comparative clinical study.

**Sampling:** Sampling was done using the Lottery method.

**Diagnostic criteria**

Subjects with a minimum of 2 following *Lakshanas*

- *Shyava Aruna varna pidika* (blackhead papules, vesicles).
- *Kandu paridaha* (pruritis).
- *Srava* (secretion).

**Inclusion criteria**

- Subject who fulfilled diagnostic criteria.
- Irrespective of gender, religion, and socioeconomic status.

- Age between 6 to 16 years.

#### Exclusion criteria

- Subjects with any other skin manifestations.
- Subjects with any other systemic disorder.

#### Intervention

<i>Yoga</i>	<i>Nirgundi Taila or Durvadya Taila</i>
Mode of Administration	<i>Bahirparimarjana Chikitsa</i> (External application).
Dose	Q.S.
Duration	Ten Days.
Time	Morning and Evening for an hour followed by hot water wash.

#### Period of observation

- The assessment was done on BT (0<sup>th</sup>), on the 5<sup>th</sup> and 10<sup>th</sup> day of treatment.
- Follow-up was done on the 15<sup>th</sup> day.
- Total duration was 15 Days.

#### Assessment criteria

##### Subjective parameters

- *Kandu paridaha*.
- *srava*.

##### Objective parameters

*Shyava aruna varna pidikas*.

#### Assessment criteria Gradings

<i>Lakshana</i>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>Grade</b>
<i>Kandu Paridaha</i>	No itching	Mild itching	Moderate Itching with a burning sensation	Severe Itching and severe burning sensation	
<i>Srava</i>	No secretion	Mild secretion	Moderate secretion	severe secretion	
<i>Pidaka</i>	No eruption	Eruption in 0-25% of the affected area	Eruption in 25-50% of the affected area	Eruption in 50-75% of the affected area	
<i>Shyava Aruna varna</i>	Normal skin color	Mild changes in skin color	Moderate skin discoloration	Black-headed papules	

### Statistical analysis

Obtained data were analyzed statistically with Wilcoxon Signed-Rank Test and Mann-Whitney Test to test the hypothesis of the study.  $P < 0.05$  was considered statistically significant.

### OBSERVATION

Age	31(77.5%) were 13-16yr age	This may be because of an increase in chances of close contact and lack of hygiene in school-going children (adolescent age) and an increase in sebaceous gland activity i.e., sweating in adolescent age, which helps to growth of parasites.
Gender	24(60%) were males	Boys are having excessive sebaceous secretion and excessive sweating by exposure to sunlight compare to girls.
Religion	35(87.5%) were Hindu religion	Maybe a fact that the study was conducted on Geographical areas dominant in the Hindu religion.
Diet	25(62.5%) were under a mixed diet	Pama Kushta was more common in non-vegetarians because of the high use of oily, fried, and spicy meat. which influences as aggravation Kapha and Pitta dosha in children.
Prakruti	26(65%) were Vatapitta prakruti	Dominance Twak vikaras in Vatapitta prakruti because of Ruksha guna of Vata influences the Twak vikaras, Vyana Vata responsible for sweating and Bhrajaka pitta maintains the body temperature and complexion if these vitiated, affects the texture of skin and temperature of the body, then Ushna and Teekshna guna leads to aggravation Pitta dosha in the body.
Mode of onset of action	31(77.5%) were Acute onset of lesions	This observation explains Pama Kushta is fast spreading and early manifestation of signs and symptoms like severe Itching.

### RESULTS

#### EFFECT OF TREATMENT ON 5<sup>th</sup> DAY

Table no.: Effect of Treatment on 5<sup>th</sup> day in Group A (*Nirgundi Taila*).

Signs & Symptoms	Mean		%	SD	SE	P-Value
	BT	DT				
<i>Kandu Paridaha</i>	2.65	1.4	47	0.55	0.12	$P < 0.001$
<i>Srava</i>	0.3	0.15	50	0.36	0.08	$P > 0.250$
<i>Pidaka</i>	2	1.25	37.5	0.63	0.14	$P < 0.001$
<i>Shyava Aruna Varna</i>	2.3	1.45	36.9	0.58	0.13	$P < 0.001$

There was statistically significant in all the signs and symptoms on the 5<sup>th</sup>-day treatment and all signs and symptoms are  $P < 0.05$ , except *Srava*, which is not statistically significant ( $P > 0.250$ ) on the 5<sup>th</sup>-day treatment.

Table no.: Effect of Treatment on 5<sup>th</sup> day in Group B (*Durvadya Taila*).

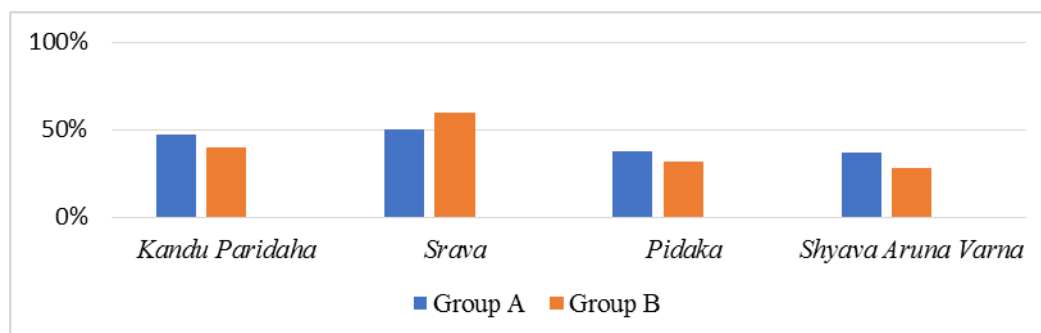
Signs & Symptoms	Mean		%	SD	SE	P-Value
	BT	DT				
<i>Kandu Paridaha</i>	2.5	1.5	40	0.45	0.10	P<0.001
<i>Srava</i>	0.75	0.3	60	0.68	0.15	P<0.016
<i>Pidaka</i>	2	1.36	32	0.59	0.13	P<0.001
<i>Shyava Aruna Varna</i>	2.42	1.73	28	0.58	0.13	P<0.001

There was statistically significant in all the signs and symptoms on the 5<sup>th</sup>-day of treatment and all signs and symptoms are P < 0.05.

Table no.: Comparative Effect of both the Group's Treatment on the 5<sup>th</sup> day.

Signs & Symptoms	MEDIAN		Relief %		P-value	REMARKS
	Group A	Group B	Group A	Group B		
<i>Kandu Paridaha</i>	1.00	1.00	47	40	0.320	NS
<i>Srava</i>	0.00	0.00	50	60	0.248	NS
<i>Pidaka</i>	1.00	1.00	37.5	32	0.515	NS
<i>Shyava Aruna Varna</i>	1.00	1.00	36.9	28	0.356	NS

There was no statistically significant difference in both the Groups in treating signs and symptoms of *Pama Kushta* on the 5<sup>th</sup>-day Treatment with P > 0.05.



## EFFECT OF TREATMENT ON 10<sup>th</sup> DAY

Table no.: Effect of Treatment on 10<sup>th</sup> day in Group A (*Nirgundi Taila*).

Signs & Symptoms	Mean		%	SD	SE	P-Value
	BT	AT				
<i>Kandu Paridaha</i>	2.65	0.50	81	0.88	0.19	P<0.001
<i>Srava</i>	0.3	0.05	83	0.44	0.09	P>0.063
<i>Pidaka</i>	2	0.35	82.5	0.58	0.13	P<0.001
<i>Shyava Aruna Varna</i>	2.3	0.60	73.9	0.80	0.17	P<0.001

There was statistically significant in all the signs and symptoms on the 10<sup>th</sup>-day treatment and



all signs and symptoms are  $P < 0.05$ , except *Srava*, which is not statistically significant but clinically significant ( $P > 0.063$ ) on the 10<sup>th</sup>-day treatment.

**Table no.: Effect of Treatment on 10<sup>th</sup> day in Group B (*Durvadya Taila*).**

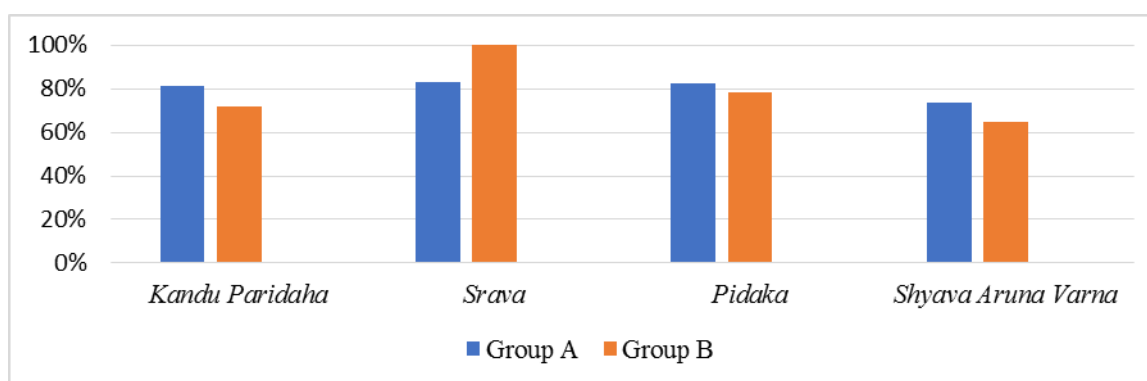
Signs & Symptoms	Mean		%	SD	SE	P-Value
	BT	AT				
<i>Kandu Paridaha</i>	2.5	0.7	72	0.52	0.11	$P < 0.001$
<i>Srava</i>	0.75	0	100	0.91	0.20	$P < 0.004$
<i>Pidaka</i>	2	0.42	78	0.60	0.13	$P < 0.001$
<i>Shyava Aruna Varna</i>	2.42	0.84	65	0.60	0.13	$P < 0.001$

There was statistically significant in all the signs and symptoms on the 10<sup>th</sup>-day of treatment with  $P < 0.05$ .

**Table no.: Comparative Effect of both the Group's Treatment on 10<sup>th</sup> day.**

Signs & Symptoms	MEDIAN		Relief %		P-value	REMARKS
	Group A	Group B	Group A	Group B		
<i>Kandu Paridaha</i>	2.00	2.00	81	72	0.103	NS
<i>Srava</i>	0.00	0.00	83	100	0.139	NS
<i>Pidaka</i>	2.00	1.50	82.5	78	0.456	NS
<i>Shyava Aruna Varna</i>	2.00	2.00	73.5	65	0.674	NS

There was no statistically significant difference in both the Groups in treating signs and symptoms of *Pama Kushta* on the 10<sup>th</sup>-day of Treatment with  $P > 0.05$ .



### Discussion on *Pama Kushta*

*Pama Kushta* is one among the *Kshudra Kushtas* which have *Kapha Pitta* predominant with *Kandu*, *Daha*, *Ruja*, *Srava*, and *Shweta Shyava Aruna Varna-Bahu Anu Sookshma Pidaka*,



especially over *Sphik Pani Kurpara* regions. There are no specific *nidanas* for *Pama Kushta* as mentioned, so *samanya Kushta nidanas* which aggravates *Kapha Pitta dosha* can be considered like *guru ahara*, *atisneha*, *matsya* with *payasa* as *Viruddha ahara*, *Ajeerna*, *Adhyasana*, *Ati anupa mamsa sevana* with *Teekshna* and *Ushna ahara* for a longer duration, this can be considered as *Viprakrista Nidana*. These *Nidanas* aggravate the *Tridoshas* in *Twak* then increase *kledata* in *Twak* i.e., *Dhatu shithilita* causes *Twak vikara* as *Pama Kushta*.

*Pama Kushta* is one among the *Aupasargika vyadhi*, which manifests the disease by *Prasanga*, *Gasrasamsparsa*, *Nishwasa*, *Sahabhajana*, *Sahashayya*, *Sahaasana*, *Vastramalyanulepana*. *Pama Kushta* can be manifest by the infected mother's close contact or either exchanging clothes, bed linen, etc. This can be considered as *Sannikrishta Nidana* for *Pama Kushta*.

*Krimi* also one of the causes for *Pama Kushta*. *Krimi* develops by *mala* of *Medha dhatu* and *Ati atapa sevana* (excessive sunlight exposure) and *Ativyayama* leads to excessive sweating which helps to grow *Krimi* and develops *Pama Kushta*.

By considering above *Nidanas* *Pama Kushta* is manifested by *Kapha Pitta* aggravation along with *Vata dosha*, thus vitiated *Tridosha* does *Sanga* of *Teeryagata siras* and accumulates in *Twak*, *Rakta*, *Lasika*, *Mamsa* then does *Dhatu Shithilata*. This leads manifestation of *Pama Kushta*.

### Discussion on Mode of absorption of *Tila Taila*

*Tila Taila* contains Vitamin E which helps to protect skin cells from damage by environmental factors and its absorption rate is 3 (absorbs the oil through the skin and leaves slightly over the skin) then it reduces the secretions of the Sebaceous gland by maintaining sebum secretion, by this reduces the body temperature of the skin. Thus, excessive sweating and growth of *krimi* can be reduced by the external application of *Tila Taila*.

### Discussion on Mode of action of *Durvadya Taila*

*Durvadya Taila* contains *Durva* and *Tila Taila* having *Madhura*, *Tikta*, *Kashaya pradhana rasa* with *gunas* as *Snigdha*, *Slakshna*, *Vyavayi*, *Vishada*, *Vikasi*, *Laghu* etc, *Sheeta virya pradhana* and does *Kaphapittashamaka*, *Raktapittanashaka*, *Dahagna*, *Snehana*, *Vranaprasadana*, *Triptikara*, *Krimighna*, *Kandughna*.

- *Kandu* is produced due to the increase of *Kapha dosha*, also a *Vridddhi Lakshana* of *Sweda*. But *Acharya Kashyapa* opines that *Kandu* is due to *Ambu Dusti* when *Twak Gata Ambu* gets vitiated predominantly by *Kapha Pradhana Doshas* and *daha* is due to an increase in *pitta dosha*. The relief from *Kandu Paridaha* is seen due to *Kaphapitta nashaka*, *Dahaghna*, *Kandughna* and *Krimighna* property of *Durva* and *Tila Taila*.
- *Srava* occurs due to *Dravyataha Vridddhi* in *Pitta* and this got relief due to *Tikta Kashaya rasa*, *Vishada guna*, *Vranaprasadana*, and *Pittahara* properties of *Durvadya Taila*.
- *Pidaka* occurs when the vitiated *Pitta* localizes in *Twak* and *Rakta* and this was got relief due to *Vranaprasadana*, *Raktapittanashaka*, *Krimighna*, *Kaphapittahara* properties of *Durva* and *Tila Taila*.
- *Shyava Aruna Varna* got relief due to *Twak prasadana*, *Snehana* and *kaphapittahara* properties of *Durvadya Taila*.
- Glycerin which is abundant in *Durva* is used as an insecticide and it is proven as Anti-parasitic, Anti-Inflammatory, Anti-allergic, and Analgesic.

External application of *Durvadya Taila* readily absorbs the deeper layer of the skin, maintains the temperature of the skin, and reduces the excessive sweating and growth of *krimi*.

#### Discussion on Mode of action of *Nirgundi Taila*

*Nirgundi Taila* contains *Nirgundi* and *Tila taila* having *Madhura*, *Tikta*, *Kashaya rasa* with *Snigdha*, *Slakshna*, *Vyavayi*, *Vishada*, *Vikasi*, *Laghu* etc as *guna* and *Sheeta virya pradhana*. Does *Kaphapittashamaka*, *Raktapittanashaka*, *Dahagna*, *Snehana*, *Vranaprasadana*, *Triptikara*, *Krimighna*, *Kandughna*.

- The relief from *Kandu Paridaha* is seen due to *Kaphapitta nashaka*, *Kandughna*, *Dahaghna* and *Krimighna* property of *Nirgundi* and *Tila Taila*.
- The relief from *Srava* is seen due to *Tikta Kashaya rasa*, *Vishada guna*, and *Vranaprasadana* properties of *Nirgundi Taila*.
- *Pidaka* got relief due to *Vranaprasadana*, *Raktapittanashaka*, *Krimighna*, *Kaphapittahara* properties of *Nirgundi* and *Tila Taila*.
- *Shyava Aruna Varna* got relief due to *Twak prasadana*, *Snehana* and *kaphapittahara* properties of *Nirgundi* and *Tila Taila*.
- Terpenin-4-ol which is present in *Nirgundi* and acts as Anti-Parasitic and Larvicidal.

External application of *Nirgundi Taila* readily absorbs the deeper layer of the skin, then reduces the excessive sweating and growth of *Krimi*.

## CONCLUSION

*Pama Kushta* is *Kapha Pitta* predominant *Kshudra Kushta* with *kandu*, *srava*, *daha*, *Shweta shyava aruna varna Pidaka* which are similar to Scabies.

Acute onset of *Pama Kushta* with severe itching especially over intertriginous areas of the body and caused mainly due to *krimi* and *aupasargika nidanas*, so avoiding causative factors and maintenance of hygiene, prevent the spreading of *Pama Kushta* in children. *Vatapitta* and *Kaphapitta prakruti* children were more prone for *Pama Kushta*.

When we come to the prevalence of *Pama Kushta* in Lower Socio-Economic status this study reveals that more common in school going children and hostel staying students, especially in adolescent age irrespective of their family status.

Taila form of medication is good in absorption for skin as an external application and maintains the body temperature to avoid the causative factors such as excessive sweating Taila can be preserved for a long time as shelf life is 3 years [2016 pre-Revised rule G.S.R 789(E)]

*Durvadya Taila* and *Nirgundi Taila* both were effective in treating *Pama Kushta* as an external application in children with a statistically significant result of  $P < 0.05$ .

In comparison between both the groups, there was no statistically significant difference in the effect of treatment with  $P > 0.05$ .

*Durvadya Taila* was proven to be statistically and clinically significant in treating *Pama Kushta* and the trial drug *Nirgundi Taila* was having equal effect as *Durvadya Taila* in treating *Kandu Paridaha*, *Srava*, *Shyava Aruna Varna Pidaka* in *Pama Kushta*.

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**REFERENCES**

1. Agnivesha, Charaka Samhita, edited by Charaka-Chandrika Hindi commentary along with special deliberation, etc. by Dr. Brahmanand Tripathi and a foreword by Dr. Prabhakar Janardan Deshpande, published by Chaukambha Sur Bharati Prakashan Varanasi 2014, Chikitsasthana, chapter-7, sloka 24, Page no.305.
2. Y.P. Munjal, API Textbook of Medicine, vol. 1, 10<sup>th</sup> Edit., Page no.665.
3. [www.cdc.gov/parasites/scabies.html](http://www.cdc.gov/parasites/scabies.html)
4. [www.cdc.gov/parasites/scabies.html](http://www.cdc.gov/parasites/scabies.html)
5. Shri Govind Das, Bhaishajya Ratnavali edited and enlarged by Bhishagratna Shri Brahma Sankar Mishra Vidyotini Hindi Commentary Analysis with Appendixes by Shri Kaviraj Ambika Datta Shastri Ayurvedacharya, published by Chaukambha Prakashan, Edition: Revised 2007, chapter-54, sloka – 270-271, page no.908.
6. Shri Govind Das, Bhaishajya Ratnavali edited and enlarged by Bhishagratna Shri Brahma Sankar Mishra Vidyotini Hindi Commentary Analysis with Appendixes by Shri Kaviraj Ambika Datta Shastri Ayurvedacharya, published by Chaukambha Prakashan, Edition: Revised 2007, chapter-50, sloka 26-27, page no.856.