



A Comparative Pharmaceutico-Analytical & Clinical Study of Kushtadalanarasa Evam Gandhakadi Yoga W.S.R. to Pama (Scabies)

Abhishek Biswas¹, Pronab Haldar²

¹PG Scholar, Department of RSBK, SAMCH, Indore, Madhya Pradesh, India

²Associate Professor, Department of RSBK, SAMCH, Indore, Madhya Pradesh, India

*Corresponding author Email: Abhishek Biswas

PG Scholar, Department of RSBK, SAMCH, Indore, Madhya Pradesh, India

ABSTRACT

Healthy Skin is the reflection of Healthy Body wherein the affliction of former will not only have an impact on Somatic make-up but also on Psychological and Social aspects of an individual. *Pama* (Scabies) is one among the *Kshudra Kushthas* with *Kapha Pitta*⁵ predominant disorder explained under *Kushtha*. **Though Herbal and Rasoushadhis individually have their own importance in Ayurveda**, but multitude effects of drugs are under consideration now a day and hence a combination of herbo-mineral drugs became more popular and so a compound preparation *Kushthadalanarasa* as internal medicine and *Gandhakadi Yoga* for external application was chosen in group A and compared with the effect of external application *Gandhakadi Yoga* in group B. In present clinical study of 40 patients of *Pama*, result showed statistically significant with $p < 0.01$ in both groups. In Group A there was significant relief in symptoms like *Kandu*, *Thoda*, *Daha*, *Pidika*, *Srava* i.e. 30% completely relief, 35 % moderately improved and 25 % mildly improved compared to Group B with 30 % moderately improved and 50 % were mildly improved in symptoms *Thoda* and *Srava*.

KEYWORDS: *Pama*, *Kushtha* Scabies, *Kushthadalanarasa*, *Gandhakadi Yoga*, Herbo-mineral drugs

INTRODUCTION

Healthy Skin is the reflection of Healthy Body wherein the affliction of former will not only have an impact on Somatic make-up but also on Psychological and Social aspects of an individual. In *Ayurvedic* Classics various skin diseases have been described under the heading of *Kushtha*. “कुष्णाति सर्व वपुः इति कुष्ठम्”.¹

Kushtha is not only a personal problem to the patients, it also creating a lot of social, familial and of course may lead to economic problems to the sufferer. Any disease which spreads all over the body & destroys the skin is known as *Kushtha*. *Kushtha* is one among the *Ashta Mahagada*². The different lesions are broadly classified into two groups namely *Mahakushtha* and *Kshudra Kushtha*³. *Pama* is one among the *Kshudra Kushthas*. The etiology features and treatment of *Pama* (Scabies) is very briefly mentioned under *Kshudra Kushthas*⁴.

Pama is a *Kapha Pitta*⁵ predominant disorder presenting in *Ayurvedic* clinical practice, which may be considered as “Scabies” in contemporary science. Scabies is a highly contagious disease of the skin caused by “*Sarcoptes Scabiei*”⁶. It has a worldwide distribution and affects all ages with no specific gender

predisposition. Scabies is a condition of profound public health interest because certain environment factors such as overcrowding, poor hygiene, delayed treatment of primary cases and lack of public enlightenment are conducive to its spread.

Ayurveda is merely not a medical science but is the way of life. It deals with every aspect of human life. *Ayurvedic* compound formulations are divided into two groups: -

(1) ***Kasthaushadhi***: Predominantly plant drugs are used for preparation.

(2) ***Rasaushadhi***: Predominantly metals and minerals are used for preparation.

Kasthaushadhis and *Rasaushadhis* have their own individual importance in treating the diseases. Though a quick symptomatic relief, palatability of dosage form, easy availability etc. are favourable factors of *Rasoushadhis*.⁷ However, multitude effects of drugs are taken under consideration and hence a combination of herbo-mineral drugs became more popular.

So in the present study a comparative clinical study was done along with pharmaceutical and analytical study. The medicinal formulation *Kushthadalanarasa* as mentioned in *Rasendra Chintamani*⁸ is having the property of *Kushthaghna* and was prepared, analytically tested and was clinically used on the patients with disease *Pama* (Scabies) mentioned under *Kshudra Kushthas*, as internal medicine and for external application another preparation named *Gandhakadi Yoga* mentioned under *Yogaratanakara*⁹ was used in Group A. And to know the better results it was compared with *Gandhakadi Yoga* alone which was used as external application in Group B.

AIMS & OBJECTIVES

The whole study was based on the following aims and objectives,

1. To procure Ingredients of *Kushthadalanarasa* & *Gandhakadi Yoga* from the local market and authenticated.
2. To carry *Shodhan* process of *Parada* & *Gandhaka*.
3. To prepare *Kushthadalanarasa* according to *Rasendra Chintamani* and *Gandhakadi Yoga* mentioned under *Yogaratanakara*.
4. To carry analytical study of *Kushthadalanarasa* & *Gandhakadi Yoga*.
5. To study the clinical efficacy of *Kushthadalanarasa* & *Gandhakadi Yoga* in the selected cases of disease *Pama* (Scabies).

PHARMACEUTICAL PREPARATION

Here in the present study a herbo-mineral drug was used, where the *Shodhana* and *Bhavana* processes were used to prepare the medicinal *Yoga Kushthadalanana Rasa* and *Gandhakadi Yoga*.

The following unit processes were performed in this study –

Preparation of *Kushthadalanana Rasa* & *Gandhakadi Taila*:

- A. Procurement of *Parada* from *Hingula*
 - a. *Hingula Shodhana*
 - b. *Parada Nishkasana*
- B. *Gandhaka Shodhana*
- C. *Choorna* of *Sunthi*
- D. *Choorna* of *Chitraka*
- E. *Choorna* of *Bakuchi*
- F. *Choorna* of *Palasha*

Procedure:

- a. **Prepared *Kajjali***: *Kajjali* was prepared according to the reference of R. T. 6 / 107. *Dviguna Kajjali* was prepared in ratio of 1:2 of *Shuddha Parada* and *Shuddha Gandhaka*.

- b. Added *Choornas* of all herbal drugs in *Kajjali*: *Choornas* of *Shunthi*, *Chitraka*, *Palasha* and *Bakuchi* were added to *Kajjali* & triturated. The colour of *Kajjali* had changed to brownish black – *Kushthadalana Rasa*.
- c. Mix *Sarshapa Taila* and *Gandhaka*, and was triturated till the color changes seen. At the end of the process the mixture turned into creamish yellow oil – *Gandhakadi Yoga*.

ANALYTICAL STUDY

a. Table No. 1: Showing Organoleptic Characters of *Kushthadalana Rasa* & *Gandhakadi Yoga*:

Parameter	<i>Kushthadalana Rasa</i>	<i>Gandhakadi Yoga</i>
Colour	Brownish Black	Creamish yellow
Odour	Characteristic (Burnt cow dung)	Typical of Mustard oil
Taste	Tasteless	-
Appearance / Texture	Amorphous Fine Powder	Viscous liquid

b. Table No. 2: Showing Analytical data of *Kushthadalana Rasa* & *Gandhakadi Yoga*:

SN.	Test	<i>Kushthadalana Rasa</i>	<i>Gandhakadi Yoga</i>
1.	Loss on drying	3.18%(105°C)	1.75%(105°C)
2.	Total ash value	89.70%	-
3.	Acidic insoluble ash	5.55%	-
4.	Water soluble ash	-	-
5	Determination oh pH	5.65 ± 0.10 pH solution	-
6.	Extractive values-		
	(a)Saponification value	-	238.48
	(b)Iodine Value	-	38.07
	(c)Acid value	-	4.26
	(d)Peroxide value	-	2.34
	(e)Ester value	-	234.22
	(f)Refractive index at 30°C	-	1.4678
	(g)Specific gravity	-	0.9094
	(h)Viscosity	-	49.90 cp
7.	Total Mercury	27.51%	-
8.	Total Sulphur	3.25%	-

MATERIALS AND METHODS

1. Selection criteria:

For the clinical study here 40 patients who were diagnosed with *Pama* (Scabies) were selected randomly for the study form OPD & IPD of Shubdeep Ayurved Medical College & Hospital (PG Institute), Indore, irrespective of age, sex, religion etc. and divided into 2 groups with 20 patients in each.

2. Inclusion criteria:

- a. Patients having classical signs and symptoms of *Pama* are included.
- b. Patients between 16 to 60 years of age irrespective of sex and occupation are included.

3. Exclusion criteria:

- a. Other types of *Kustha Vyadhis*.
- b. Patients suffering from any other systemic disorders like Tuberculosis, HIV and Leprosy etc.
- c. Scabies leading to complications such as Eczematous, Secondary streptococcal infection, Urticarial etc.

4. Drug Administrations:

- a. **Group A** - Patients were received *Kusthadalanarasa 2 Ratti* twice daily with *Ghrita & Madhu* in *Vishama* quantity as *Anupana* was administered internally & externally *Gandhakadi Yoga* was given for application on affected part twice daily for 15 days.
- b. **Group B** – Patients were given *Gandhakadi Yoga* for external application for 15 days. Follow up was done after 7 days of treatment. The data was collected before and after treatment.

5. Parameters of the study:

Table No. 3: Showing Subjective Criteria - Patient's Observation ¹⁰

Gradings		
Thoda	No <i>Thoda</i>	0
	Mild <i>Thoda</i> while scratching	1
	Moderate <i>Thoda</i> after scratching (for some time)	2
	Severe <i>Thoda</i> without scratching (disturbing the routine)	3
Kandu	No <i>Kandu</i>	0
	Mild <i>Kandu</i> (itching 1-3 times in a day)	1
	Moderate <i>Kandu</i> (itching 4-5 times in a day)	2
	Severe <i>Kandu</i> (disturbing the routine)	3
Daha	No <i>Daha</i>	0
	Mild <i>Daha</i> while scratching	1
	Moderate <i>Daha</i> after scratching (for some time)	2
	Severe <i>Daha</i> without scratching (disturbing routine)	3
Pidika	No <i>Pidika</i>	0
	< 35% of <i>Pidikas</i> over the body	1
	> 35% to 70% of <i>Pidikas</i> over the body	2
	> 70% of <i>Pidikas</i> over the body	3
Srava	No <i>Srava</i>	0
	Mild <i>Srava</i> while scratching	1
	Moderate <i>Srava</i> after scratching (for some time)	2
	Severe <i>Srava</i> without scratching (disturbing routine)	3

Table No. 4 - Objective Criteria – Lab Investigations:

only for screening		BT	AT	BT	AT	BT	AT
SGPT	S. Cr.	HB%		T&D		Microscopic Burrows	

6. Criteria for total effect of therapy:

For the assessment of the total effect of therapy following categories were taken into considerations.

- i. **Completely Cured:** 0 grading – i.e. complete relief in all the signs and symptoms along with absence of parasites in microscopic examination.
- ii. **Moderate Improvement:** 1-5 grading
- iii. **Mild Improvement:** 6 – 10 grading
- iv. **Unchanged:** 11 – 15 grading

7. Statistical Analysis: t test paired and unpaired were adopted and p value was carried out at P<0.01 significance level.

OBSERVATION

Table No. 5: Showing Distribution of 40 patients of *Pama* based on Ayurvedic signs & symptoms:

<i>Rupa</i>	No. of patients in		Total	Percentage %
	Gr. A	Gr. B		
<i>Kandu</i>	20	20	40	100%
<i>Thoda</i>	15	18	33	82.5%
<i>Daha</i>	18	17	35	87.5%
<i>Pidika</i>	20	20	40	100%
<i>Srava</i>	15	12	27	67.5%

Table No. 6: Showing Distribution of 40 patients of *Pama* based on clinical features (Modern Parameter):

Incidence of		No. of Patients		Total	Percentage (%)
		Gr. A	Gr. B		
<i>Akruti/ Shape</i>	Linear	09	14	23	57.5%
	S-shaped tracts	11	06	17	42.5%
Type of Boil	Rows of small	07	05	12	30%
	Pimple like – Mosquito/ Insect bite	13	15	28	70%
<i>Adhithana / Site</i>	Finger webs / Elbow/ Ventral Wrists	10	09	19	47.5%
	Back	02	02	04	10%
	Buttocks/ External Genitals	03	06	09	22.5%
	Most of the above sites	05	03	08	20%
Extent	Localized	17	15	32	80%
	Generalized	03	05	08	20%
Pattern	Exposed area	15	09	24	60%
	Covered area	05	11	16	40%

RESULTS

Statistical results:

Table No. 7: Showing Effect of *Kushthadalana Rasa & Gandhakadi Yoga* (Group A) on clinical features (According to Ayurveda):

<i>Rupa</i>	Mean		Diff M	N	R % S	Paired 't' test			
	BT	AT				S.D	S.E.M	t	P
<i>Kandu</i>	2.55	1.45	1.1	20	75	0.78	0.17	6.24	≤0.01
<i>Thoda</i>	1.35	0.75	0.6	15	73	0.59	0.13	4.49	≤0.01
<i>Daha</i>	1.4	0.75	0.65	18	66	0.58	0.13	4.95	≤0.01
<i>Pidika</i>	2.15	1.2	0.95	20	70	0.75	0.16	6.16	≤0.01
<i>Srava</i>	1	0.31	0.69	15	80	0.50	0.11	5.34	≤0.01

Result: Statistically Significant in all symptoms

*Diff M- difference in Mean, N- number of patients, R%S- relief score

Table No. 8: Showing effect of Gandhakadi Yoga (Group B) on clinical features (According to Ayurveda):

Rupa	Mean		Diff M	N	R % S	Paired 't' test			
	B.T	A.T				S.D	S.E.M	t	P
<i>Kandu</i>	2.85	2.55	0.3	20	35	0.47	0.10	2.85	≥0.01
<i>Thoda</i>	1.95	1.5	0.45	19	42	0.60	0.13	3.33	≤0.01
<i>Daha</i>	1.75	1.55	0.2	18	11	0.36	0.08	1.71	≥0.01
<i>Pidika</i>	2.4	2.1	0.3	20	25	0.47	0.10	2.85	≥0.01
<i>Srava</i>	1.2	0.6	0.6	17	58	0.68	0.15	3.94	≤0.01

Result: *Kandu, Daha, Pidika* – Statistically Not Significant

Thoda & Srava -Statistically Significant

Table No. 9: Showing Comparison of the overall effect of treatment of 40 Pama patients in both the groups statistically:

Mean		Diff M	N	S.D	S.E.M	't'	P
Gr. A	Gr. B						
3.95	1.9	2.05	40	2.66	0.59	3.61	<0.01

Result-Statistically Significant

Symptom wise relief results:

- **Effect of therapy in Group- A (*Kushthadalana Rasa & Gandhakadi Yoga*):** Showed *Kandu* (75%), *Thoda* (73%), *Daha* (66%), *Pidika* (70%) and *Srava* (80%).
- **Effect of therapy in Group - A Objective Criteria: Microscopic examination:** Out of 20 patients of *Pama* (Scabies) 25% patients persisted the parasites & 75% had no parasites after the therapy.
- **Effect of therapy in Group – B (*Gandhakadi Yoga*):** Showed *Kandu* (35%), *Daha* (11%) and *Pidika* (25%), and shows statistically significant results in other symptoms like *Thoda* (42%) and *Srava* (58%).
- **Effect of therapy in Group – B Objective Criteria: Microscopic examination:** Out of 20 patients of *Pama* (Scabies) 45% patients persisted the parasites & 55% had no parasites after the therapy.
- **Total effect of therapy on 40 patients of Pama:**
In Group A: 6 patients i.e. 30 % were cured completely, 7 patients i.e. 35 % were moderately improved and 5 patients i.e. 25 % remained mildly improved.
In Group B: 0 patients were cured completely, 6 patients i.e. 30 % were moderately improved and 10 patients i.e. 50 % were mildly improved.

DISCUSSION

1. Discussion on *Khalveeya Rasa & selection of Hingulotta Parada:*

It is observed that, the activity of the certain drugs are activated, catalyzed & accelerated by means of combination.

Khalveeya Rasa are combinations of herbal, mineral and animal products and comprises of Mercury, *Hingula*, *Kajjali*, Sulphur etc. as its chief constituents so that, we can have the effect of all collectively in a single formula. These are administered in smaller doses, to get faster relief and combating many ailments by proper *Anupana* and *Sahapana*. The most important aspect is that, it preserves the properties of freshly added *Choorna*, *Swarasa* etc with the help of *Moorchita Parada* i.e. *Kajjali*.

Hingulotta Parada is said to be pure and devoid of *Sapta Kanchuka Dosha* and contains qualities of *Gandha Jeerna Parada*, hence *Hingulottha Parada* is commonly recommended.

2. Discussion on Probable Mode of Action of *Kushthadalana Rasa*:

- For the manifestation of the disease “*Pama*” the ‘*Kapha & Pitta Dosha*’ are the main factors, which contribute the nucleus for the pathogenesis.
- Thus there is need of a drug which mainly acts on *Kapha & Pitta Dosha*.
- All the ingredients in *Kushthadalana Rasa* have the property of *Kushthahara*.
- *Parada & Gandhaka* being the main ingredients in the formulation. *Parada* mainly *Prabhavataha* acts on the *Kushtha Vyadhi* and also it is having *Krimighna* property. *Parada* because of its *Ushna Veerya*; acts on *Kapha Dosha*, it has *Snigdha Guna* so acts on *Pitta Dosha* and *Vata Dosha*, and it is *Shad Rasa Yukta* so it acts on all the *Tridoshas* & mainly it is *Yogavahi* in nature.
- *Gandhaka* has the synonyms as *Kushthahari*, *Pamari*, *Keetaghna*, *Kitari*, *Lekhi* and acts on *Kapha Dosha* and *Srava* by its *Lekhana* property and *Ushna Veerya*. It also has *Kandughna* property. *Gandhaka* also has a very unique quality of acting antagonistic to the toxic effects of *Parada*, though *Parada* acts as antiseptic but because of its corrosive and irritant properties it may damage the skin. According to modern pharmacology of *Gandhaka* is, Sulphur acts as disinfectant and has germicidal action.
- *Shunti* and *Chitraka* act mainly on the digestive system, i.e. the *Samprapti* of the *Kushtha* says the disease is mainly due to the *Agnimandhya* and *Amadosha*. Both the drugs have *Deepana* and *Pachana* property. And also *Shunti* has *Anulomana* property. *Shunti* and *Chitraka* are also having *Kushthahara* property.
- *Palasha* mainly acts on *Kandu* and also on *Krimi*.
- *Bakuchi* acts on *Kapha Dosha* by its *Katu Rasa*, *Ruksha Guna* and *Katu Vipaka* and by *Sheeta Veerya* property it acts on *Pitta Dosha*. It is mainly used in different *Kushtha Vyadhis*.
- As the disease *Pama* mainly is due to the *Krimi* according to the modern perspective also, the drugs act on parasite by their *Krimighna* property.
- Few drugs also have *Sheeta Veerya*, *Madhura Rasa*, *Snigdha Guna* and *Madhura Vipaka* which help in pacifying *Pitta Dosha*. i.e. action on *Daha*, *Pidikas*
- The reduction in symptoms like *Kandu* and *Daha* may help in reducing the *Thoda* also.
- Thus in total this formulation has the capacity to disintegrate the pathogenesis of the disease ‘*Pama*’ and due to its *Krimighna* property and *Kushthahara* property the disease is treated completely.

3. Discussion on Probable Mode of Action of *Gandhakadi Yoga*:

- The other formulation *Gandhakadi Yoga* is also indicated in *Kushtha*. As the synonym of *Gandhaka* is *Pamari* and so it acts on the disease *Pama*, which is mentioned in *Yogaratanakara*.
- Many times a single compound is not sufficient to combat the disease and there is a need of other formulations in combination.
- Skin is an organ which has its name for its beauty and the *Kushtha* is a disease which spoils that beauty. So along with internal medications there is need for some external application, as the skin has the capacity of absorption of medications directly when applied over, *Taila* based external application was chosen to increase the absorption and also *Taila* by its *Snigdha Guna* not allow the skin to dry up.
- So *Gandhakadi Yoga* was taken for the study as a second formulation.
- Other ingredient in the formulation is *Sarshapa Taila*. It acts as base of the formulation. *Sarshapa Taila* also has the property of *Kushthagha*, *Kanduhara*, acts on *Kapha Dosha* and *Vata Dosha* mainly.

CONCLUSION

By the results obtained and by above discussion we can conclude that though the formulations were not used earlier for any of the study based on the values obtained during the clinical study of *Pama* (Scabies) proved that both the formulations had statistically significant results. But in Group B (*Gandhakadi Yoga*) showed marked improvement due to non-significant result in few symptoms. Therefore the Group- A (*Kushthadalana Rasa & Gandhakadi Yoga*) is found to be significantly effective as compared to Group -B (*Gandhakadi Yoga*).

This proves that when formulations work in combination with different properties acting on same system gives good results.

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