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"CLINICAL STUDY OF *KRIMIMUDGARARASA* IN *UDARAKRIMI* *(Ascarislumbricoides,Enterobiusvermicularis,Necatoramericanus)"*

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ABSTRACT:

According to World Health Organization (WHO) globally there are 1221-1472 million cases of *Ascariasis,* and 740-1300 million cases of *Necatoramericanus* infestation. In *Āyurveda* many herbo-mineral preparations were used, a potent, safe, minimal dose preparation needed in the present era. *Krimimudgararasa* is mentioned in many classics as effective remedy. This study to be comprised of scientific documentation of the clinical efficacy of *Krimimudgararasa in Udarakrimi,* for duration of 7days. Clinical study was conducted in 30 children, whose stool examination showed presence of ova/cyst. It was open label study with pre and post test design where in children were assigned to single group.125mg of *Krimimudgararasa* was administered mixing with honey as *anupana* once daily for a period of 7 days. Initial assessment was done before starting the study followed by review on 4th, 8th and follow up assessment on 30th day. The progress and response to the treatment were observed with subjective and objective parameters. The data obtained were assessed by applying statistical scoring system The study illustrated remarkable efficacy of the *Krimimudgararasa* in *Udarakrimi* with a highly significant improvement in most of the assessment criteria in the duration of 7 days. Absence of pin worms was noted in stool examination in 7 days and markable deduction in the number of ova/cyst of round worm and hook worm were noted, hundred percentage reliefs was noted in *Gudakaṇḍu* in 7 days. The medication showed no untoward effects during the trial. *Kajjali* synergistically acts with the herbal ingredients, makes the preparation effective in minimal dose.

KEY WORDS:*Herbo-mineral Krimimudgararasa, Udarkrimi, Anupana ,Gudakaṇḍu*

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INTRODUCTION

The parasite derives all benefits like food and shelter from association and the host may either not be harmed or may suffer the consequences of this association, a parasite disease. *Krimiroga* is one of the most common diseases found in children.Intestinal parasites have been considered a major public health problem throughout the world [WHO, 1967, Wahdan, 1983, Mc Laren, 1984]. In our country this problem is more important because it adversely affects the nutritional status of a person but neglected due to poor socio-economic status. It affects the children more frequently than adults (CCRAS, 1987)[1].Number of incidence runs into millions and in tropical-countries like ours, percentage of affected cases is estimated to exceed 80% as large number of cases affected with *Krimiroga* is asymptomatic. *Krimis* are the unsuspected and undetected villains responsible for exposing the victims to a large number of diseases by robbing them of their hard earned nutrients, thus lowering their body defense. Hookworm, sucks 0.4 ml of blood per worm per day, thereby cause anemia and makes them physically weak, and remains unhealthy throughout their life span. Ascarial obstructive jaundice, Ascarial intestinal obstruction, Ascarial encephalopathy are some of the most serious complications of the diseases which do occur, fortunately in a small number of cases. In *Āyurveda* many herbo-mineral preparations were used, a potent, safe, minimal dose preparation needed in the present era. *Krimimudgararasa* is mentioned in many classics as effective remedy. The drugs in *Krimimudgararasa* are *Parada, Gandaka ,Ajamoda,Vidanga Kupilu ,Palashabeeja* which are *Kaṭu-Tikta rasa, Laghu, Rukṣa, Tikṣana guna, Uṣṇa virya, Kaṭu vipaka* and *Krimighna* in *Karma.* This study to be comprised of Scientific documentation of the clinical efficacy of *Krimimudgararasa (Herbo- mineral preparation)*in*Udarakrimi(Ascarislumbricoides,Enterobiusvermicularis,Necatoramericanus),* for a duration of 7days.

Disease Review

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Intestinal helminthic infestation is one of the most common causes of chronic illness in the developing countries. In our country this problem is equally significant, it affect the children more frequently than adult. Helminthic infections are more prevalent among school children aged 5 to15 yrs. Ascaris related clinical disease is restricted to subjects with heavy worm load, and an estimated 1.2 to 2 million such cases, with 20,000 deaths, occur in endemic areas per year [2].The hookworm infestation is a leading cause of iron deficiency anemia[3], whipworm infestation in children causes growth retardation and anemia, while heavy infestation with both round worm and whip worm cause protein energy malnutrition[4]. Our *Ācharyas* like *Caraka Suśruta* and *Vāgbhaṭṭa* etc had knowledge of *Krimi*. *Ayurvedic* literature explains it as *Sahaja* and *Vaikarik krimi* which is again classified in to *Bahya* and *Abhayantara krimi. Abhayantara krimi*[5] are classified as *Purishaja, Shleshamaja*, and *Raktaja krimi. Antraja krimi* in present context refers to *Vaikarik krimi* residing in intestinal tract. The parasitic infection is classified into three types as per modern medical science viz. Protozoal, Helminthic and Arthropodal.

Drug Review

In all classic text of *Rasaśastra Krimimudgararasa*[6]is indicated for the treatment of intestinal worms and *Agni dēpana* occur within three days .The ingredients of this combination are *Krimighna* drug which may helps to paralyse or kill the worms and other ingredient were also *Krimighna* property. *Pārada* and *Gandhaka* act as catalyst. The drugs in *Krimimudgararasa* are *parada, Gandaka , Ajamoda ,Vidanga Kupilu ,Palashabeeja* which are *Kaṭu-Tikta rasa, Laghu, Rukṣa, Tikṣana guna, Uṣṇa virya, Kaṭu vipaka* and *Krimighna* in *Karma.*

MATERIALS AND METHODS

Pharmaceutical Study

Krimimudgararasa were prepared in Rasa shastra and Bhaiṣajya Lab in Amrita School of Ayurveda, Kollam as per textual reference. *Samanya śodhana of Pārada* [7] *were* done with *sudha curna , lasuna* and *saindhava lavana* . *Shodana of gandhaka*[8] were done in milk .*Kupilu sodhana*[9] were done with

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milk in *pottali* method. *Kajjali* were prepared .Other ingredients were made into *churna* , which were sieved in no 85 mesh size sieve. Mixture all the ingredients one by one and triturated well. 210 gm of Blackish and fine powdered *Krimimudgararasa* were obtained and filled in the capsule. Total 56 days were taken for the preparation of medicine

Table no1

Pharmaceutical preparation of *Krimimudgararasa*

INGREDIENTS	BOTANICAL NAME	PART USED	QUANTITY
Shudda parada	*Purified mercury*	As such	1 parts
Shudda gandhaka	*Purified sulpher*	As such	2 parts
Ajamoda	*Apium leptophyllum*	Dried fruits	3 parts
Vidanga	*Embelia ribes*	Dried matured fruits	4 parts
Shudda kupilu Beeja Majja	*Strychnous nuxvomica*	Dried Endosperm	5 parts
Palasha beeja	*Butea monosperma*	Dried seeds	6 parts

Clinical study

Clinical study was conducted in 30 children, whose stool examination showed presence of ova/cyst. It was open label study with pre and post test design where in children were assigned to single group.125mg of *Krimimudgararasa* was administered mixing with honey as *anupana* once daily for a period of 7 days. Initial assessment was done before starting the study followed by review on 4^{th},8^{th} and follow up assessment on 30^{th} day. The progress and response to the treatment were observed with subjective and objective parameters. The data obtained were assessed by applying statistical scoring system

Criteria for the Assessment:

- Stool free from the ova/cyst after proper pathological examination after completion of treatment.
- Absence of clinical signs and symptoms of *Krimiroga.*

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Cured or uncured was decided on the basis of following two points.

Cured:

- Complete relief in the initial chief complaints of the patient along with the positive improvement (100% relief in signs and symptoms).
- Complete microscopic absence of ova / cyst in Stool confirmed by Stool examination.

Marked Relief:

- More than 60% relief in sign and symptom
- Complete Microscopic absence of ova/cyst in Stool.

Moderate Relief:

- 30-59% relief in sign and symptoms.
- Complete Microscopic absence of ova/cyst in Stool.

Unchanged (No relief):

- Presence of Ova/Cyst/Worm in the Stool examination after the treatment.

OBSERVATION AND RESULTS

During the period of drug administration no any adverse effect of drug were observed and were palatable to all the patients. On statistical analysis of gathered data, following observations were made.

Effect of therapy based on assessment criteria

Table No 2
Response Rate With Respect To *Jwara*

	Jwara				Paired comparison	Wilcoxon signed rank test	
	Absent		Mild grade			z	p
		%	N	%			
BT	19	63.3	11	36.7	BT-AT3rd	2.121	0.034
After 3rd day	25	83.3	5	16.7	AT3rd - AT7th	1.342	0.180
After 7th day	28	93.3	2	6.7	BT-AT7th	3.000	0.003

Table No 3
Response Rate With Respect To *Vivarṇatha*

	Vivarnatha			Paired comparison	Wilcoxon signed rank test
	Absent	Only on face	Any half of the body		

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	N	%	N	%	N	%		z	p
BT	19	63.3	7	23.3	4	13	BT-AT3rd	3.051	0.002
After3rdday	26	86.7	4	13.3	0	0	AT3rd - AT7th	1.414	0.157
After7thday	28	93.3	2	6.7	0	0	BT-AT7th	3.127	0.002

Table No 4
Response Rate With Respect To *Udaraśula*

	Udaraśula								Paired comparison	Wilcoxon signed rank test	
	Absent		Mild		Moderate		Severe				
	N	%	N	%	N	%	N	%		z	p
BT	19	63.3	9	30.0	1	3	1	3	BT-AT3rd	2.646	.008
After 3rd day	25	83.3	3	10.0	2	7	0	0	AT3rd - AT7th	2.121	.034
After 7th day	29	96.7	1	3.3	0	0	0	0	BT-AT7th	3.127	.002

Table No 5
Response Rate With Respect To *Sadana*

	Sadana								Paired comparison	Wilcoxon signed rank test	
	Absent		Mild		Moderate		Severe				
	N	%	N	%	N	%	N	%		z	p
BT	9	30.0	21	70.0	0	0	0	0	BT-AT3rd	2.828	.005
After 3rd day	17	56.7	13	43.3	0	0	0	0	AT3rd - AT7th	3.162	.002
After 7th day	27	90.0	3	10.0	0	0	0	0	BT-AT7th	4.243	.000

Table No 6
Response Rate With Respect To *Baktadweśa*

	Baktadweśa								Paired comparison	Wilcoxon signed rank test	
	Good		Moderate		Poor		No				
	N	%	N	%	N	%	N	%		z	p
BT	4	13.3	21	70.0	5	17	0	0	BT-AT3rd	4.523	.000
After 3rd day	24	80.0	5	16.7	1	3	0	0	AT3rd - AT7th	2.449	.014
After 7th day	29	96.7	1	3.3	0	0	0	0	BT-AT7th	4.817	.000

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Table No 7
Response Rate With Respect To *Atisara*

	Atisara								Paired comparison	Wilcoxon signed rank test	
	Absent		Mild		Moderate		Severe				
	N	%	N	%	N	%	N	%		z	p
BT	21	70.0	8	26.7	1	3	0	0	BT-AT3rd	1.732	.083
After 3rd day	23	76.7	7	23.3	0	0	0	0	AT3rd - AT7th	2.236	.025
After 7th day	28	93.3	2	6.7	0	0	0	0	BT-AT7th	2.53	.011

Table No 8
Response Rate With Respect To *Āsya Samsravam*

	ĀsyaSamsravam								Paired comparison	Wilcoxon signed rank test	
	Absent		Ocassional		Only in night		Day & Night				
	N	%	N	%	N	%	N	%		z	p
BT	25	83.3	3	10.0	1	3	1	3	BT-AT3rd	2.121	.034
After 3rdday	29	96.7	0	0.0	1	3	0	0	AT3rd - AT7th	1	.317
After 7th day	29	96.7	1	3.3	0	0	0	0	BT-AT7th	2.07	.038

Table No 9
Response Rate With Respect To *Ānaha*

	Ānaha								Paired comparison	Wilcoxon signed rank test	
	Absent		Mild		Moderate		Severe				
	N	%	N	%	N	%	N	%		z	p
BT	16	53.3	13	43.3	1	3	0	0	BT-AT3rd	2.646	.008
After 3rd day	22	73.3	8	26.7	0	0	0	0	AT3rd - AT7th	1	.317
After 7th day	23	76.7	7	23.3	0	0	0	0	BT-AT7th	2.828	.005

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Table No 10
Response Rate With Respect To *Āṅgamarda*

	Āṅgamarda								Paired comparison	Wilcoxon signed rank test	
	Absent		Mild		Moderate		Severe				
	N	%	N	%	N	%	N	%		z	p
BT	24	80.0	5	16.7	1	3	0	0	BT-AT3rd	1.414	.157
After 3rd day	25	83.3	5	16.7	0	0	0	0	AT3rd - AT7th	1.732	.083
After 7th day	28	93.3	2	6.7	0	0	0	0	BT-AT7th	1.89	.059

Table No 11
Response Rate With Respect To *Gudakaṇḍu*

	Gudakaṇḍu								Paired comparison	Wilcoxon signed rank test	
	Absent		Mild		Moderate		Severe				
	N	%	N	%	N	%	N	%		z	p
BT	5	16.7	11	36.7	10	33	4	13	BT-AT3rd	3.66	<0.001
After 3rd day	12	40.0	15	50.0	3	10	0	0	AT3rd - AT7th	4.001	<0.001
After 7th day	30	100.0	0	0.0	0	0	0	0	BT-AT7th	4.453	<0.001

Table No12
Response Rate With Respect To *Chardi*

	Chardi								Paired comparison	Wilcoxon signed rank test	
	Absent		Mild		Moderate		Severe				
	N	%	N	%	N	%	N	%		z	p
BT	24	80.0	3	10.0	3	10	0	0	BT-AT3rd	1.732	.083
After 3rd day	25	83.3	4	13.3	1	3	0	0	AT3rd - AT7th	1.414	.157
After 7th day	26	86.7	4	13.3	0	0	0	0	BT-AT7th	2.236	.025

Table No 13

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Response Rate With Respect To *Purīśabheda*

	Purīśabheda								Paired comparison	Wilcoxon signed rank test	
	Unformed		Semisolid		Watery with stool mass		Watery				
	N	%	N	%	N	%	N	%		z	p
BT	20	66.7	6	20.0	3	10	1	3	BT-AT3rd	2	.0466
After 3rd day	22	73.3	5	16.7	3	10	0	0	AT3rd - AT7th	1.342	.180
After 7th day	24	80.0	4	13.3	2	7	0	0	BT-AT7th	2.121	.034

Table No 14
Response Rate With Respect To Round Worm

	Round Worm								Paired comparison	Wilcoxon signed rank test	
	Absent		0-1		2-3		Numerous				
	N	%	N	%	N	%	N	%		z	p
BT	6	20.0	12	40.0	11	37	1	3	BT-AT3rd	4.123	<0.001
After3rd day	15	50.0	10	33.3	5	17	0	0	AT3rd - AT7th	3.578	<0.001
After7th day	29	96.7	1	3.3	0	0	0	0	BT-AT7th	4.417	<0.001

Table No 15
Response Rate With Respect To Hook Worm

	Hook Worm								Paired comparison	Wilcoxon signed rank test	
	Absent		0 to1		2 to3		Numerous				
	N	%	N	%	N	%	N	%		z	p
BT	21	70.0	8	26.7	1	3	0	0	BT-AT3rd	1.414	.157
After 3rd day	23	76.6	6	20.0	1	3	0	0	AT3rd - AT7th	2	.046
After 7th day	26	86.7	4	13.3	0	0	0	0	BT-AT7th	2.449	.014

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Table No 16
Response Rate With Respect To Pin Worm

	Pin Worm								Paired comparison	Wilcoxon signed rank test	
	Absent		0 to1		2 to3		Numerous				
	N	%	N	%	N	%	N	%		Z	p
BT	5	16.7	19	63.3	5	17	1	3	BT-AT3rd	2.938	.003
After 3rd day	17	56.7	11	36.7	2	7	0	0	AT3rd - AT7th	3.419	.001
After7thday	30	100.0	0	0.0	0	0	0	0	BT-AT7th	4.622	0.001

Table no 17
Overall effect on symptoms.

	N	Total symptoms score		Paired comparison	Paired Differences		Paired t test	
		Mean	SD		Mean	SD	t	P
BT	30	9.27	2.98	BT-AT3rd	4.63	2.01	12.636	<0.001
After 3rd day	30	4.63	2.28	AT3rd - AT7th	3.37	1.50	12.320	<0.001
After 7th day	30	1.27	1.23	BT-AT7th	8.00	2.45	17.889	<0.001

Comparing over all symptoms the change in BT to AT 7th day was highly significant (P<0.001).

Graph No 1:Overall effect on symptoms

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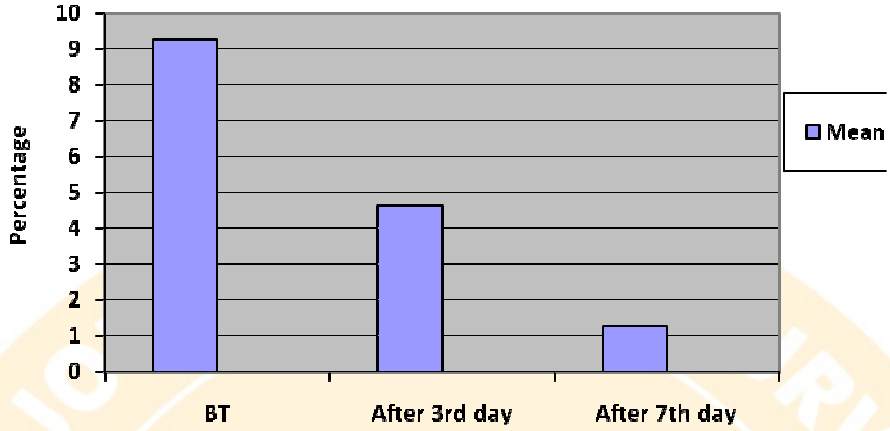

Table No 18
Overall effect of therapy on the base of assessment criteria
(Based on sign and symptoms and Stool report].

Result	Percentage
Cured	46.66
Markedly improved	40
Unchanged	13.33

Despite the improvement in signs and symptoms, the Ova/Cyst was present in Stool examination after treatment in 13.33% of patients and it was decided to consider them as unchanged. In 40% of patients the Stool report after treatment didn't show the presence of worms. There was marked improvement as for the signs and symptoms are considered. In 46.66% of patients the Stool report even after repeated examinations didn't show the presence of any worms. On the other hand, there was total absence of signs and symptoms after treatment. So these are considered under cured category.

Discussion

Krimiroga hampers the growth and development of the child, decreases immunity and creates many allergic phenomena and cause recurrent cough and cold and other systemic diseases.

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There are numerous herbal and herbo-mineral compound formulations, advised in the management of *Krimiroga* in classics which possess their own therapeutic values. *Krimimudgararasa* was chosen to study though antihelminthic activity of *Krimimudgararasa* was chosen to study the *Krimighna* property of compound, mentioned in *Bhaiśajya Ratnavali*.The present clinical study was planned in a single group (30 children), aimed to assess the clinical efficacy of trial drug with the aid of microscopic findings of intestinal parasites, ova/cyst in stool and to evaluate the trial drug effect in 7days

Microscopic Stool Examination: Round worm were present in 80% of cases before treatment. After 3rd day of the treatment 62.5% of cases were cured. After 7th day of treatment 95% of cases were cured. After 7th day out of 24 patients 23 were completely free from roundworm with P<0.001 value showing highly significant effect of *Krimimudgararasa*. Hook worm were present in 29.7% of cases before treatment. After 3rd of the treatment 23% of cases were not cured. After 7th day 13.3% of cases were not cured. After 7th day out of 9 patients 5 were completely free from hookworm with P=0.014 value showing highly significant effect of *Krimimudgararasa.* Pin worm were present in 83.3% of cases before treatment. After 3rd of the treatment 43.7% cases not cured. After 7th day 100% were completely cured. After 7th day out of 25 patients all were completely free from Pin Worm with P<0.001 value showing highly significant effect of *Krimimudgararasa*.

Assessment criteriea:*Jwara* was present in 36.7% of cases before treatment. After 3rd day, of the treatment 16.7% of cases were not cured. After 7th day, 6.7% of cases were not cured.

After 7th day, out of 11 patients 9 were completely free from *Jwara* with P=0.003 value showing highly significant effect of *Krimimudgararasa. Vivarṇata* were present any half of the body in 36.3.3% before treatment. After 3rd day of the treatment, 13.3% of cases were not cured. After 7th day of treatment, 6.7% of cases were not cured. After 7th day

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out of11 patients 9 were completely free from *Vivarṇata* with P=0.002 value showing highly significant effect of *Krimimudgararasa*. *Udara Śula* were present in 36% of cases before treatment. After 3rd day of the treatment 17% of cases were not cured. After 7th day of treatment 3.3% of cases were

not cured. After 7th day out of 11 patients 10 were completely free from *Udara Śula* with

P=0.002 value showing highly significant effect of *Krimimudgararasa*.*Sadana* was present in 70% of cases before treatment. After 3rd day of the treatment 43.3% of cases were not cured. After 7th day of treatment, 10% of cases were not cured. After 7th day out 21 patients 18 completely free from *Sadana* with P=0.0001 value showing highly significant effect of *Krimimudgararasa.Bhaktadwēṣa* were present in 87% of cases before treatment. After 3rd day of the treatment 16.7% of cases were not cured. After 7th day of treatment, 3.3% of cases were not cured. After 7th day out of 26 patients 25 were completely free from *Bhaktadwēṣa* with P=0.0001 value showing highly significant effect of *Krimimudgararasa*. This is the

effect of *Dēpana* and *Pacana* property of all the ingredients. *Atisara* were present in 29.7% and of cases before treatment. After 3rd day of the treatment, 23.3% of cases were not cured. After 7th day of treatment,6.7% of cases were not cured. After 7th day out of 9 patients 7 were completely free from *Atisara* with P=0.011 value showing highly significant effect of *Krimimudgararasa*. *Āsyasamsravam* were present in 22% of cases, of cases before treatment. After 3rd day of the treatment, 3% of cases were not cured only in night. After 7th day of treatment, 3.3% of cases were not cured. After 7th day out of 5 patients 4 were completely

free from *Āsyasamsravam* with P=0.038 value showing significant effect of *Krimimudgararasa*. *Ānaha* were present in 46.3% of cases before treatment. After 3rd day of the

treatment, 26.7%of cases were not cured. After 7th day treatment, 23.3% of cases were

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not cured. After 7th day out 14 patients 7 were completely free from *Ānaha* with P=0.005

value showing significant effect of *Krimimudgararasa*. *Āṅgamarda* were present mild in 19.7% of cases before treatment. After 3rd day of the treatment 16.7% of cases were not cured. After 7th day of treatment 6.7% of cases were not cured. After 7th day out of 6 patients 4 were completely free from Āṅgamarda with P=0.059 values showing no significant effect of *Krimimudgara rasa*.*Gudakaṇḍu* were present in 82.7% of cases before treatment. After 3rd of the treatment, 60% of cases were not cured. After 7th day 100% were completely cured. After 7th day out of 25 patients all were completely free from *Gudakaṇḍu* with P<0.0001 value

showing highly significant effect of *Krimimudgararasa.Chardi* were present in 40% of cases before treatment. After 3rd day of the treatment, 16.3% of cases were not cured. After 7th day of the treatment, 13.3% of cases were not cured. After 7th day out of 6 patients 2 were completely free from *chardi* with P=0.025 value showing significant effect of *Krimimudgararasa.*

Puriṣabhēda were present in 33% of cases before treatment. After 3rd of the treatment 26.7% of cases were not cured. After 7th day 20.3% of cases were not cured. After 7th day out of 10 patients 4 were completely free from *Puriṣabhēda* with P=0.034 value showing significant effect of *Krimimudgar rasa*.

Probable Mode Of Action:Pharmacodynamic Profile Of *Krimimudgararasa*

Krimimudgararasa is the *kharaliya* preparation. The ingredients of this combination is *Pārada* , *Gandhaka, Ajāmoda, Viḍanga ,Kupīlu* and *Palāsha Bīja* has properties like *Kaṭu* and *Tikta rasa*, *Laghu, Rukṣa, Tikshana guna, Uṣṇa virya, Kaṭu vipaka* all are antagonist with *Kapha Doṣa.* Ingriedents of the compound were *Vata Kapha Śamana* property and as *Krimiroga* is *Vata Kapha* dominant diseae, the drug combination helps to relieves the symptoms of *Krimi roga* . *Viḍanga* is *Kaṭu Tikta rasa ,Kaṭu vipaka* and *Krimighna.Ajāmoda* having the property

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of *Anulomana*, helps to expel the worms from them intestinal tract. *Kupīlu* correct the *koṣta śaitilyatha* which helps in expulsions of worms. *Palāsha Bīja* is the main drug which having *krimghna* property as per *Bhavamishra*. Laxative action of *Palāsha* helps in the easy expulsion of worms. Palasonin (acetone (C6 H22 O6) inhibited the glucose up take and depleted the

glycogen content in the presence of glucose, indicating that palasonin affects the energy generating mechanism of parasite. It also significantly increased lactic acid suggesting inhibiting of ATP production. The results indicating the palasonin may act via either inhibiting of Energy metabolism and / or alteration the motoractivity of parasite[10].Tikta rasa and Agni Pradipaka Karma correct the status of Agni. Kajjali holistically and synergistically acts with the herbal ingrdients. This proves that there is an immediate action of the drug on the krimis.

CONCLUSION

In micro scopic stool examination shows statistically highly significant in ova/cyst of *Pin Worm, Round Worm.* Significant in ova/cyst of *Hook Worm.Krimimudgararasa* statistically shows highly significant improvement in *Jwara ,Sadana, Bhaktadwēṣa, Gudakaṇḍu,* and all other symptoms except *Āṅgamarda* were statistically significant in the duration of 7 days .

The trial drug *Krimimudgararasa* showed statistically highly significant especially in the symptoms of *Gudakaṇḍu*. It was hundred percentages effective. *Bhaktadwēṣa* had improved within three day. *Krimimudgararasa* showed more effect in *Pin Worm* compared with *Round Worm* and *Hook Worm*. It completely eliminates *Pin Worm* within 7 days and partially *Round Worm* and *Hook Worm*. During the clinical study observed that, the trial drug is free from side effects or toxic effect. *Krimimudgararasa* a herbo-mineral preparation has shown antihelminthic action in 7 days and it controls all other general symptoms of *Krimi*roga. Black sulphide of mercury holistically and synergistically acts with the herbal ingrdients. Herbal drugs

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along with *kajjali* makes the preparation act fast, even in minimal dose

Limitation of study

- Sample of 30 children.
- Duration of study is short.

Suggestion for further research

- Pharmacological action of the drug can be carried out for further research.
- Study can be carried out on large sample with hematological parameters.
- Study can be carried out for a large period with longer follow up.
- Long term toxicity study can be conducted.

REFERENCES

1. R.S.Satoskar,Nirmala N Rege, S D Bhandarkar.Pharmacology and Pharmacotherapeutics, twenty second edition,Popular Prakashan,Mumbai ,2011 chapeter 59 page 804.

2.Khuroo M S Ascariasis Gastroenterol Clin North Am. 1996 Sep; 25(3):553-77.

3. Crompton DW, Whitehead RR Hookworm Infections and Human Iron Metabolism. 1993107 Suppl:S 137-45.

4.McDonaldGS,HourihaneDO.Ectopic *Ent erobiusvermicularis. Gut*. 1972;13(8):62 1–626. [PubMed]

5.Shastri K. N., Pandey G.S., Yadavjee T., editor Charak Samhita with Vidyotini Hindi Commentary Part-I, Vimana sthana, Vyadhitrupiyam vimaniya 7/9, 8th ed. Chaukhambha Sanskrit Sansthan, Varanasi, 2005; 611

6. Sri Govind dasa virachita Bhaishajya rathnavali,Chaukambha prakashan,Varanasi,9th ED.2008, 11 chapter, page 366.

7. Pranacharya sri sadanantha , Rasatarangini, kasinathasastri., Hindi Commentary, Motilal Banarasidas, Delhi, 11 edition 2012 5th taranga page no 79.

8. Pranacharya sri sadanantha , Rasatarangini, kasinathasastri., Hindi Commentary, Motilal Banarasidas, Delhi, 11 edition 2012 8th taranga page no 176

9. Pranacharya sri sadanantha , Rasatarangini, kasinathasastri., Hindi Commentary, Motilal Banarasidas, Delhi, 11 edition 2012 6th taranga page no 679

10.Prashanth D, et al, 2001. Anthelmintic activity of *Butea monosperma, Fitoterapia, Volume 72, Issue 4, May 2001,Pages 421-422.*

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