



## Research Article

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### A CLINICAL STUDY ON EVALUATION OF EFFECT OF KHADIR GHRITA IN EKAKUSHTHA WITH SPECIAL REFERENCE TO PSORIASIS

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#### ABSTRACT

Psoriasis is an autoimmune, non-contagious, dry, inflammatory skin disorder. Many treatment modalities are available, but chances of recurrence are more and reported to have adverse effects. In Ayurveda, Ekakushtha is described under Kshudra Kushtha which is caused due to vitiation of Vata and kaphadosha (body humors). Khadir is one of the best among Kushthaghna drugs (drugs act on dermatological disorders) and can be used in any form. Cow ghee is having Sanskaranuvartan (characteristic enrichment) property. The objective of this study is to evaluate the efficacy of Khadir ghrita in Ekakushtha. It was a single arm clinical study. Total 30 patients have completed the treatment. First Haritaki powder was given with lukewarm water at bedtime for consecutive three days for koshtha shuddhi (bowel cleaning). Then Khadirghrita 10 ml twice a day with lukewarm water was given in the morning and evening. It was also given for local application in sufficient quantity at night. The duration of medication was 30 days. The main outcome measures are the assessment of patient was done on Day 0, 10, 20, and 30 on the basis of PASI score and gradation of itching. In observation, Psoriasis was predominantly found in males and was in all age groups (20-60 years). Maximum number of patients had chronicity up to 4 years. Significant improvement was found in the erythema, induration and itching. PASI score was also reduced significantly. It can be concluded that oral and local application of Khadirghrita is effective in Ekakushtha.

**Keywords:** Psoriasis, Ekakushtha, Kshudra Kushtha, Kushthaghna, Khadir ghrita, PASI score

#### INTRODUCTION

Psoriasis is an autoimmune non-contagious, dry, inflammatory skin disorder.<sup>1</sup> It is characterized by sharp margins, scaly, erythematous plaques that develop in a relatively symmetrical distribution.<sup>1</sup> It is chronic in nature with a tendency to relapse. The prevalence of Psoriasis in India is 0.44% to 2.8%.<sup>2</sup>

The present line of treatment for Psoriasis is not much promising and is reported to have associated adverse effects.<sup>3</sup> In Ayurveda, varieties of skin disorders are documented under 'kushtha' which further categorized as Maha and Kshudra kushtha.<sup>4</sup> Ekakushtha is one of the types of Kshudra kushtha. Bhavaprakash has mentioned its name Ekakushtha because it is the first among Kshudra kushtha.<sup>5</sup> Ekakushtha involves Vata as a pradhan dosha (predominant) and Kapha as an anubandha dosha (associated). 'Matsyashakalopama' (fish like scaling of skin) is a cardinal feature associated with asvedanam (dry), mahavastu<sup>6</sup> (wide lesion) and krishna arunvarna<sup>7</sup> (Reddish-blackish discoloration). These features resemble with the psoriasis characterized by erythro-squamous lesions with different morphological types like vulgaris, guttate, pustular and erythroderma.<sup>8</sup>

Acharya Charak has specifically advised administration of Sarpi (Ghee) in Vata predominant kushtha.<sup>9</sup> In the search of the drugs specified in kushtha, Khadir (*Acacia catechu* Willd.) is found to be the best drug to alleviate skin ailments.<sup>10</sup> It is advised to use in the form of snana (external use), pana-ahar (internal use), prasechana (local application) and dhupana (inhalation).<sup>11</sup> So Khadirghrita was selected for this study.

Need of study - Psoriasis is not life-threatening disease but it threatens the lifestyle of sufferer. It is one of the most maltreated diseases from olden days which continued with the search of a good remedy. Thus, looking at the impact of psoriasis on quality of life, the present study was designed.

#### Aim and objectives

To evaluate the effect of Khadirghrita in Ekakushtha

#### Objectives of the study

To assess the effect of Khadir ghrita in Erythema (redness), induration (thickness of lesion), Scaling and itching

#### MATERIAL AND METHODS

##### Source of Material

##### Source of Patient

Patients were selected from OPD, IPD and specialized camps at Mahatma Gandhi Ayurved College, Hospital and Research centre, Salod (H)

##### Source of Medicine

Cow ghee was procured from Go-Ras Kendra, Wardha and raw Khadir was procured from field. It was identified by Department of Botany, Jankidevi Bajaj science college, Wardha. Khadir ghrita was prepared and Haritaki (*Terminalia chebula Retz*) powder was procured from Rasashala of MGAMC.

**Methodology**

It was a Single arm, Interventional study. It was started after the approval from Institutional ethics committee (reference no. DMIMS (DU)/ IEC/2016-17/3008)

**Inclusion criteria**

- Male or female patients of age group of 20 to 60 years.
- Patients having cardinal features of Ekakushtha i.e. Aswedanam (Dryness of skin), Mahavastu (Thickness of skin), Matsyashaklopamam (Fish like Scaling of skin) and Krushna-arunavarna (Erythema)
- Patient who is willing to participate in the study.

**Exclusion criteria**

- Known Patients of systemic diseases like Diabetes Mellitus, Dyslipidemia, Cancer, AIDS and Tuberculosis.
- Patients of other dermatological infectious conditions.
- Pregnant or lactating women.

**Withdrawal criteria**

- If any side effects are observed during treatment.
- If symptoms are aggravated.
- If patient is not willing to continue the treatment.

**Plan of work**

Patients with the features of Ekakushtha (Psoriasis) were selected for the study. The informed consent was obtained from each patient before participation. Total 33 patients were registered; Out of these, 30 patients have completed the treatment. Before commencement of medication, CBC and RBS were done to exclude any infectious condition and Diabetes mellitus respectively.

**Treatment schedule**

Haritaki powder was given with lukewarm water at night for consecutive three days for koshtha shuddhi (bowel cleaning). The dose was decided as per the koshtha (bowel habits) of patient. Khadirghrita 10 ml twice a day with lukewarm water was given in the morning (7-8 am) and evening (6-7 pm). It was also given for local application in sufficient quantity (as per area of lesion) at night. The duration of medication was 30 days.

**Assessment criteria**

The assessment was done on the basis of PASI Score (Psoriasis Area and Severity Index)<sup>12,13</sup> and gradation of itching on Day 0, 10, 20, and 30.

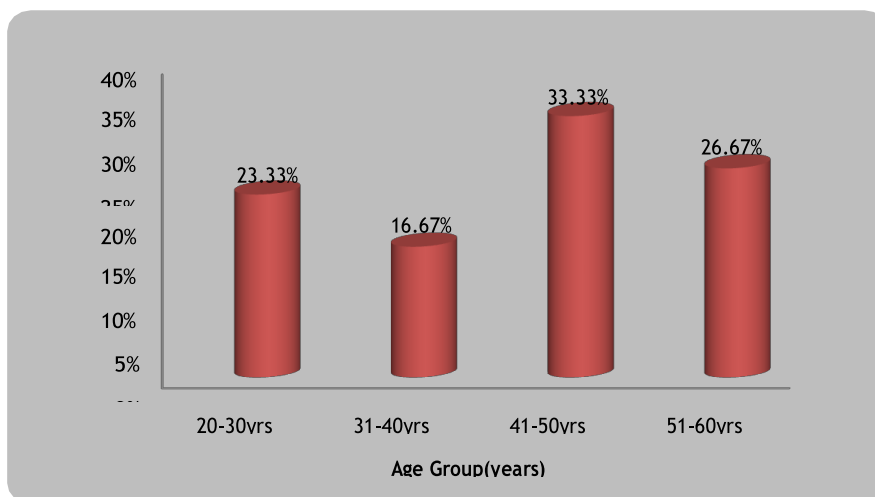
**Table 1: Gradation of Itching**

Itching	Grade
No itching	0
Occasional itching (1-2 times in a day)	1
Frequent itching	2
Continuous itching	3

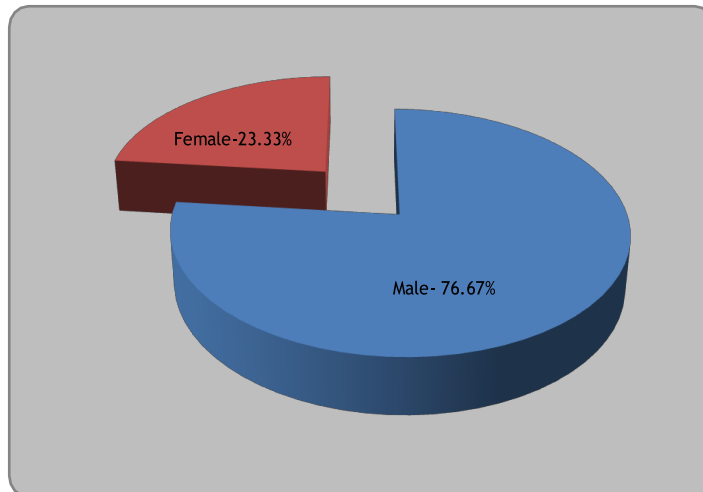
**RESULT**

The data obtained was coded and entered into Microsoft Excel Worksheet. Statistical analysis was done by using descriptive and inferential statistics using student 's paired t-test and software used in the analysis were SPSS 22.0 version and Graph Pad Prism 6.0 version and  $p < 0.05$  is considered as level of significance.

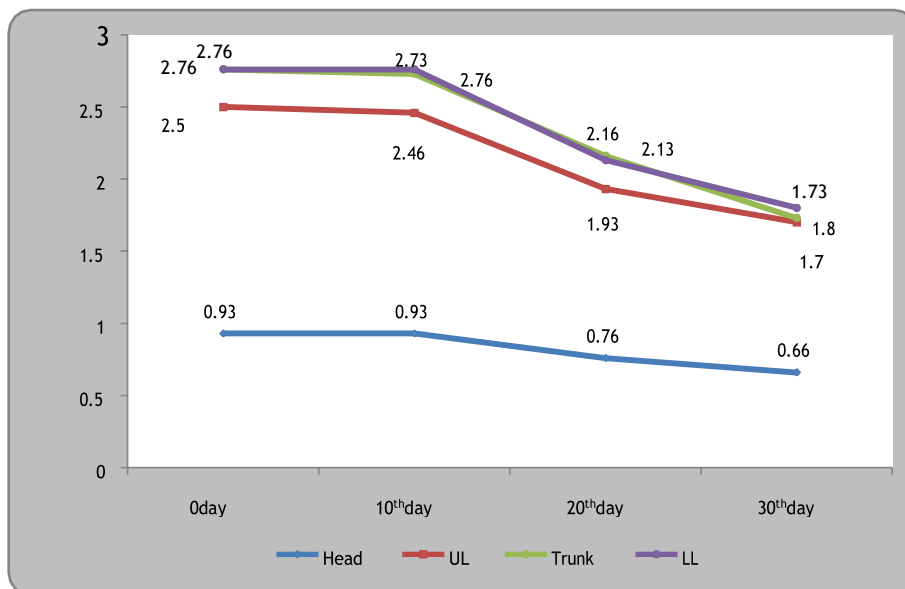
In the age wise distribution of patients, Ekakushtha (Psoriasis) was found in all age group from 20 to 60 years with very small difference. It was predominant (33.33%) in the age group of 41-50 years.



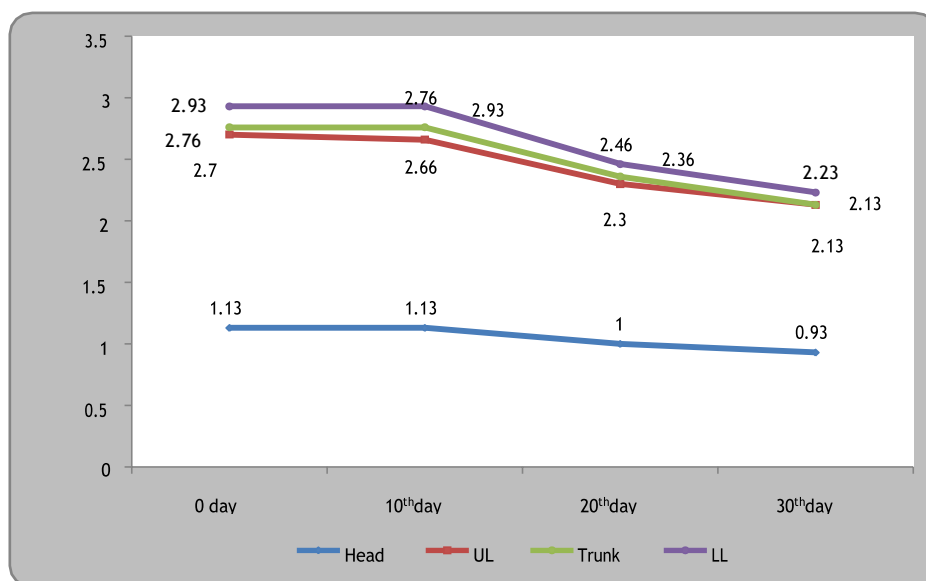
**Graph 1: Age wise distribution of patients**



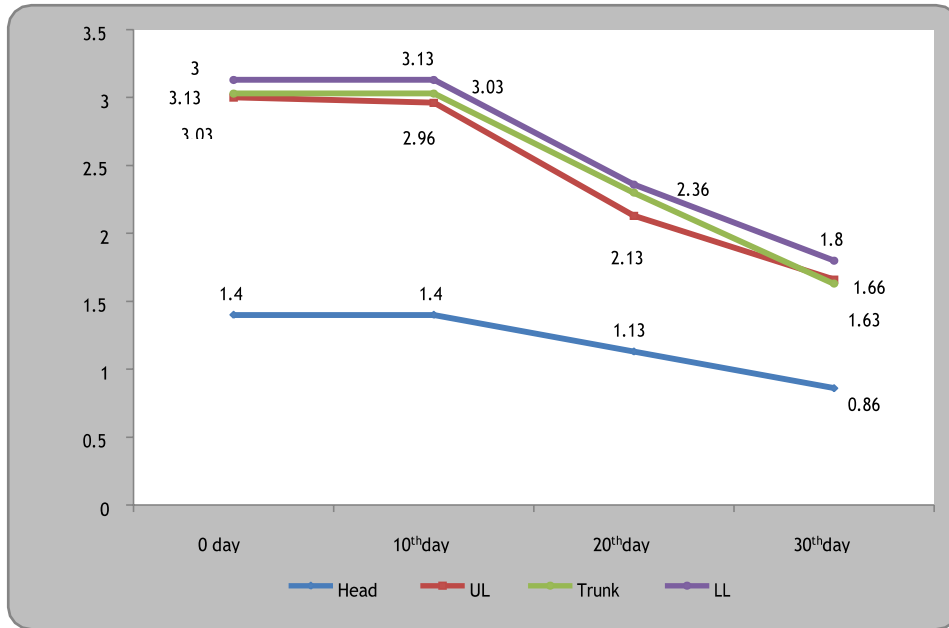
Graph 2: Gender wise distribution of patients



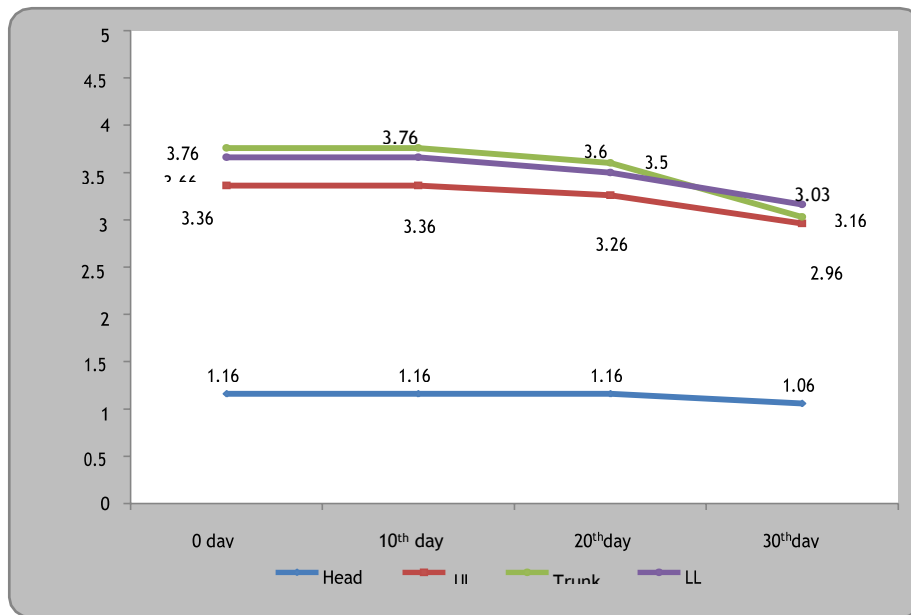
Graph 3: Comparison of Erythema grading with baseline



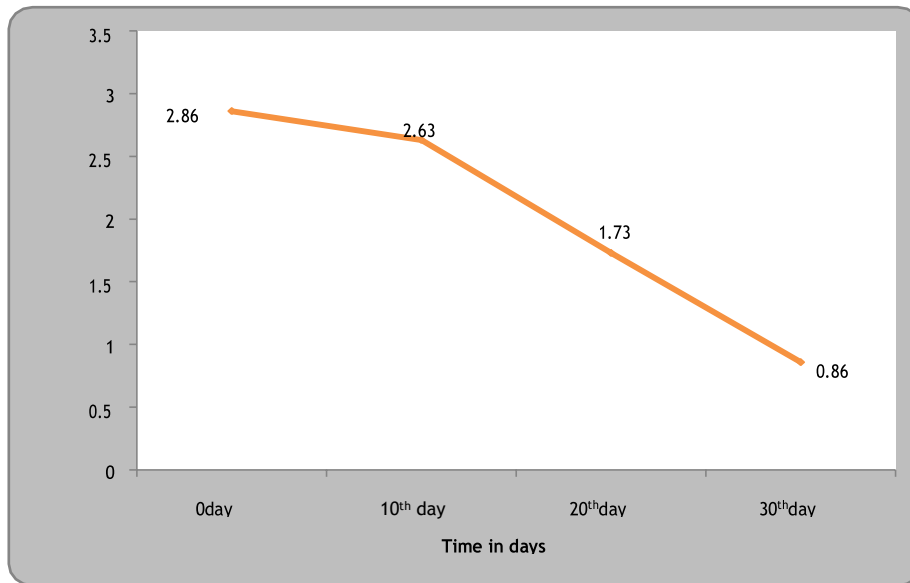
Graph 4: Comparison of Induration grading with baseline



Graph 5: Comparison of Scaling grading with baseline



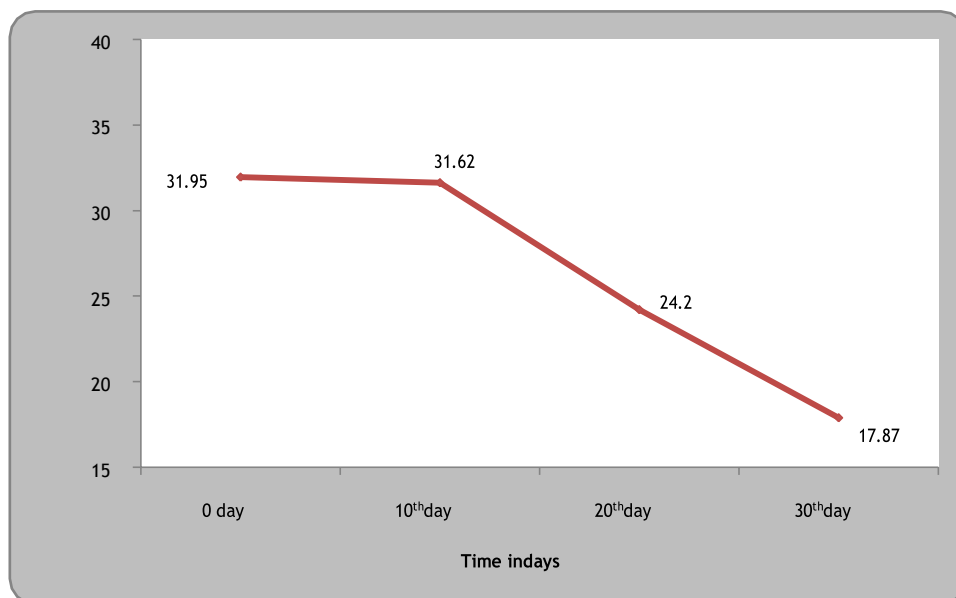
Graph 6: Comparison of Area grading with baseline



Graph 7: Comparison of gradation of Itching with baseline

Table 2: Comparison of PASI score with baseline

PASI	Paired Differences					t	df	p-value
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
0 day - 10 <sup>th</sup> day	0.32	1.09	0.20	-0.08	0.73	1.614	29	0.117, N S
0 day - 20 <sup>th</sup> day	7.74	5.87	1.07	5.55	9.93	7.224	29	0.0001, S
0 day - 30 <sup>th</sup> day	14.07	8.70	1.58	10.82	17.32	8.853	29	0.0001, S



Graph 8: Comparison of PASI score with baseline

## DISCUSSION

In this study, psoriasis was found in all age group from 20 to 60 years. It indicates widespread appearance of Psoriasis. In other previous studies, it was found mostly in third and fourth decade of life.<sup>14,15</sup> It's prevalence in wide age group might be due to significant changes in lifestyle in recent years.

In Gender wise distribution, 76.67 % patients were male. In other studies of India also, male was predominantly affected.<sup>16</sup> The reason behind male predominance could not be ascertained. Significant improvement was found in the erythema. It may be due to its astringent and cold potency and kapha-pitta alleviating property of Khadir. Khadir contains Quercetin and tannins which is reported to regulate cytotoxic T-cells.<sup>17</sup> Quercetin inhibits histamine release and tannin acts as the vasoconstrictor. Hence it is collectively potent to counteract the inflammatory autoimmune reactions.

The induration (Thickness) of lesion as well as scaling was significantly decreased. Thickness and scaling are caused due to vitiation of Kapha dosha. Khadir is kapha alleviating. The area of lesion was not significantly decreased with 30 days of treatment. The duration of treatment might be short. As it is chronic illness; it may require long duration treatment.

There was significant improvement in itching within a very short period. Khadir is having Kandughna (anti-itching) property. In psoriasis, the itching is caused due to intense dryness. Cow ghee has Snigdha (unctuous) property. So the cumulative effect of Kandughna and Snigdha property of Khadir ghritha might be helpful in alleviating itching.

There was significant improvement in Erythema, induration and scaling but the area of lesion was not decreased significantly hence, the percentage of PASI was less. PASI score might have been improved with long duration treatment with Khadir ghritha.

### Probable mode of action of khadir ghritha

Psoriasis is referred as T-cell mediated disease. There is persistent T-lymphocyte activation due to auto-reactivity. It worsens epidermal turnover which results into skin lesions. Catechu is reported to regulate cytotoxic T-cells.<sup>17</sup> It might help in inhibition of T lymphocyte activation causing reduction in lesion thickness.

The skin is a potential target for oxidative injury, as it is continuously exposed to UV radiation and other environmental stresses generating reactive oxygen species (ROS).<sup>18</sup> Inadequate antioxidant protection or excess ROS production creates a condition known as an oxidative stress, contributing to the progression of cutaneous disease disorders.<sup>19</sup>

Antioxidants can protect the epidermis from the events that contribute to epidermal toxicity and diseases. Deficiencies in any of the antioxidant defense system can cause a reduction in the total antioxidant status (TAS).<sup>20</sup>

*In vitro* study conducted by Sameena Alam *et al* demonstrated that the aqueous extract of *Acacia catechu* bark has potential antioxidant and free radical scavenging activity which might be due to the presence of phenolic compounds.<sup>21</sup>

To treat any disease, it is necessary to reach the medicine at cellular level. To facilitate the pharmacological properties of drug at cellular level, proper carrier should be used. Cell membrane has a free passage for lipid and lipid soluble substances. Ghritha has been mentioned as a best sneha in Ayurveda because of its

'Yogvahi' property.<sup>22</sup> Hence the Khadir ghritha might be more effective than only Khadir.

## CONCLUSION

Ekakushtha can be correlated with Psoriasis because of similarity in clinical features. It is frequent in males than females and was found in all age group from 20-60 years. Common area involved was trunk, upper limbs and lower limbs. Significant improvement was found in Erythema, induration, Scaling and Itching.

### Recommendation

This study can be conducted on large number of patients with longer duration of treatment. Further Study can be carried out by using Khadir in a cream or gel base preparation because Khadir ghritha was found to be troublesome in winter season as it becomes thickened.

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