

STUDY OF THE EFFECT OF TWO FORMULATIONS MADE WITH THE PLANT *LYGODIUM FLEXUOSUM SW.* AS LOCAL APPLICATION IN THE CASES OF **VICHARCHIKA (ECZEMA)**

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Vicharchika (Eczema) is a commonest skin disorder and its present status of treatment is not much satisfactory. An effort has been made to assess the clinical efficacy of two formulations made with the plant *Lygodium flexuosum* as topical application. The paper highlights the innovation of an uncommon plant bearing folklore reputation in to clinical practice. In the cases of wet eczema, the paste of leaves has shown better effect; while in dry eczema the oil boiled with its root has shown better effect and both are highly significant in comparison with placebo treatment.

Introduction

Vicharchika, a type of *Kshudrakustha*, mentioned in Ayurvedic texts which has been simulated with the disease entity

'eczema' or dermatitis of modern dermatology is an allergic and chronic inflammatory disorder of the skin well known for its course of remission and exacerbation. The prevalence of this disease has been reported to be one-third of the total cases of skin diseases (Harrison, 1983 & Behl, 1990) and a satisfactory treatment for its radical cure is still lacking.

The clinical pattern of this disease as described in Ayurvedic texts seems to be divided on the basis of exudation as secretory or dry. While Carak School of Thought described its clinical features as *Sakandu*, *Pidaka*, *Sycava*, *Rakta*, *Vahusrava*, *Praklinna*, *Lasikddya*, *Vrana*, *Vedana*, *Pakavati*, *Visarpanata* etc. the Susruta group of scholars describe those as *Raji*, *Atikandu*, *Saruksa*, *Khara* etc. A series of clinical studies conducted in recent past

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comprising of internal medications, topical applications or *Pancakarma* therapy have showed mild to marked response in both types of eczema. (Pandey, B.N., 1969, Jhope, A.B., 1976 and others).

So with a view to evolve a more simple, cheaper and easily available local application two formulations prepared with the plant *Lygodium flexuosum* Sw. was selected for trial considering its sound-footing reputation in folklore practice as well as its indication in the treatment of wound, ulcer etc. by some modern authors on medicinal plants. (Kirtikar and Basu, 1935, R.N. Chopra, *et. al.* 1956). This is a fern available almost every-where in India, locally called as *Manakadahata* (Monkey's hand) and may be *Rudrajata* in Sanskrit which has been regarded as a controversial drug.

Materials and Methods

The study was conducted at P.G. Department of Kayachikitsa, Gopabandhu Ayurveda Mahavidyalaya, Puri during the period from December 1993 to September, 1994. A total number of 60 cases were

selected by multiphase sampling so as to include 30 (50%) cases of wet eczema and 30 (50%) cases of dry eczema.

Selection of cases : The selection was based on availability of cardinal clinical features like discoloured patches of ill defined border with itching, erythema, lichenification, ulceration and exudation in wet cases and itching, erythema, scaling, ulcers, cracks/fissures in dry cases.

Criterita exclusion : Patients suffering from diabetes mellitus and haemorrhagic diseases were excluded from the trial.

External application was done in group-I to III while in group-IV rice powder in capsule was given. The duration of treatment was 14 consecutive days.

Assessment of the response of therapy

Clinical: In case of wet eczema the degree/ severity of itching, erythema, lesion, ulceration and exudation was noted before and after the treatment. In case of Dry eczema itching, erythema, ulcer, scaling and cracks/fissures were considered for assessment.

Study	Wet eczema cases	Dry eczema cases	Drug used
Group I	10	10	Paste of leaves
Group II	10	10	Oil boiled with its root (oil L.F.)
Group III	5	5	Steroid-neomycin cream
Group IV	5	5	Placebo

Pathological : Total leucocytes count, differential leucocytes count and ESR tests were conducted before and after the treatment.

Classification of results

Cured – If all the signs and symptoms disappear completely.

Partial relief – If the improvement was more than 25% as observed in relief of cardinal signs and symptoms.

No relief – When there is less than 25% relief.

Observations

Among 60 cases of *Vicharchika*, 35 (58.33%) were male and 25 (41.66 %) were females. The highest incidence of 18

(30%) cases were found in the age group of 31-40 years followed by 14 (23.33%) and 13 (21.66%) cases in the age group of 11-22 years and 21-30 respectively (Fig. 1). The chronicity was 1-3 years in maximum number of 30 (50%) cases while 3 (5%) patients were also noted with chronicity beyond 5 years (Fig. II).

The observation on occupation of patients revealed highest number of 16 (26.66%) cases as labourers while equal number of 11 (18.33%) cases were in the group, of service holders, housewives and students. 6 (10%) cases were unemployed persons and 5 (8.33%) cases were businessmen.

The study on addiction of the patients showed that 26 (43.33%) had no any addiction while 22 (36.66%) persons used

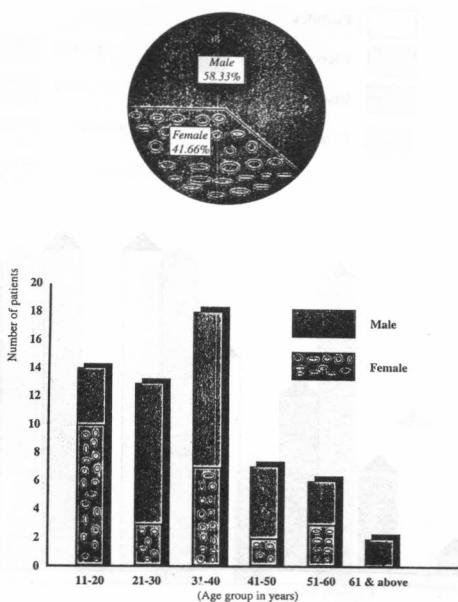


Fig. I : Incidence of Disease compared to Age & Sex

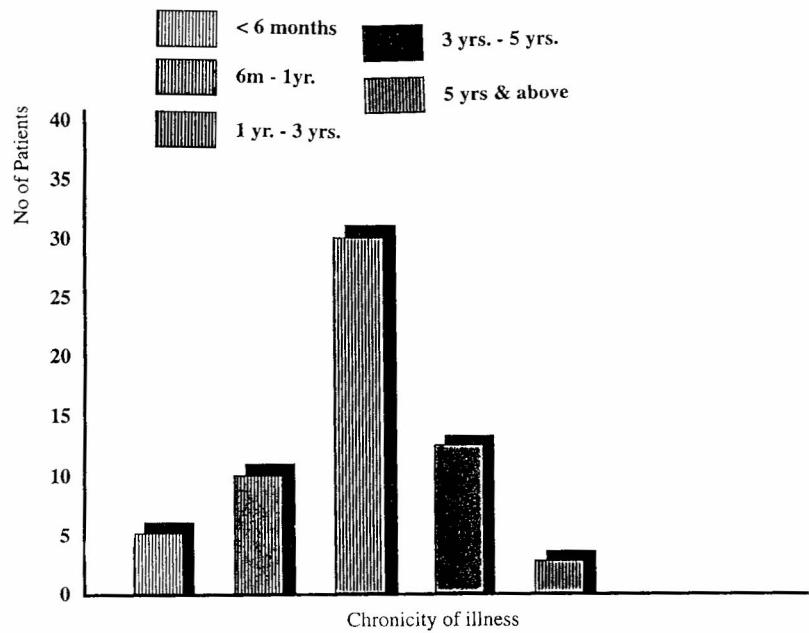


Fig. II : Chronicity of illness in the patients

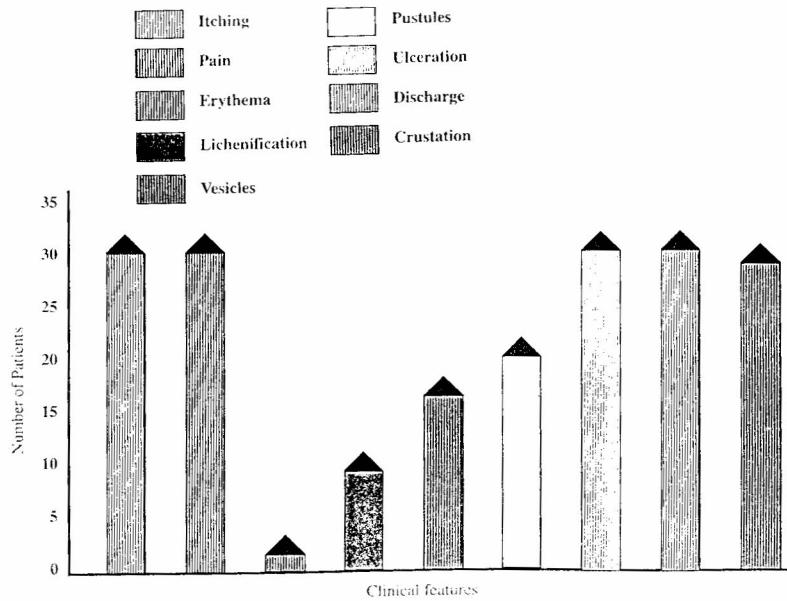


Fig. III : Presentation of clinical features in wet eczema.

to take tea. A number of 15 (25%) cases were addicted with tobacco and 1 (1.66%) each with alcohol and smoking.

The presentation of clinical features in 30 cases of wet eczema showed itching, erythema, ulceration and exudation in all 30 (100%) cases while in some cases there were also pustules, vesicles, crusting, lichenification and pain (Fig. III).

In dry eczema the clinical features enumerated were itching, erythema in all 30 (100%) cases while excoriation, scaling, cracks, lichenification and pain were also there (Fig. IV).

The E.S.R. after first hour in wet eczema was within the range of 16-20 mm. in maximum number of 11 (36.66%) cases

while 6 (20%) each had in the range of 11-15 mm. and more than 25 mm. In dry eczema it was in the range of 11-15 mm. in maximum of 12 (40%) cases while 12 (40%) patients had in the range between 16-20 mm. 3(10%) had within 21-25 mm. and 10 (33.33%) patients had within 10 mm. Only 2(6.66%) had within the range of 21-25 mm. and 5(16.66%) cases had within 10mm.

Regarding the study on eosinophil percentage in patients of wet eczema it was observed that maximum of 17 (56.66%) cases had in the range of 6-10% while 6(20%) patients had in the range of 11-15%, 3(10%) cases had within 16-20% 1(3.33%) each in the range of 21-25 and above 25% range and only 2 (3.33%) had

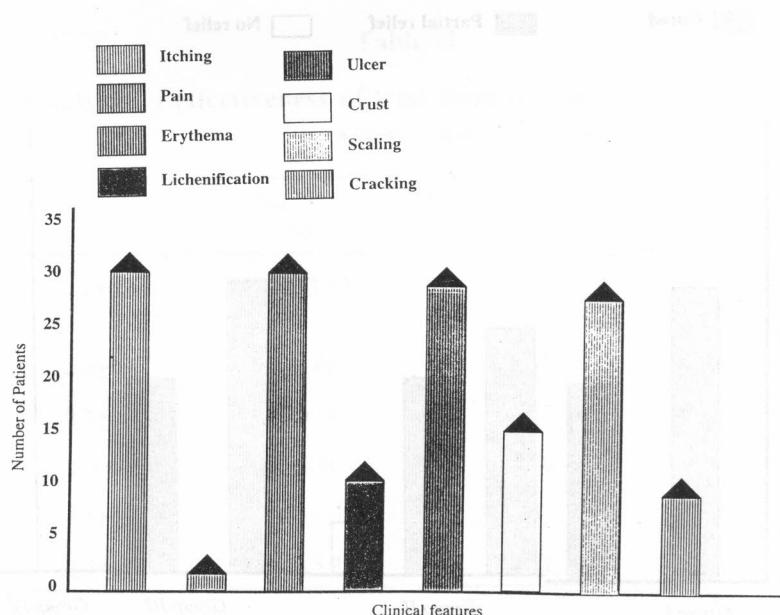


Fig. IV : Presentation of clinical features in dry eczema.

less than 6 % of eosinophil. In cases of dry eczema it was in the range of 6-10% in maximum of 16 (53.33%) cases followed by 9(30%) cases in the range of 11-15% while 1(3.33%) had within 16-20%. Only 5 (16.66%) cases had less than 6% of eosinophil.

Result

The statistical analysis of various findings before and after the treatment especially in treated groups showed significant effect of the drug.

Wet eczema – The over all results in cases of wet eczema showed that out of 10 cases in group-I treated with paste of leaves, 6 (60%) cases were cured and 4(40%) cases had partial relief. Oil L.F. in 10 cases of

group-II showed 5 (50%) cases as cured, 4(40%) as partial relief and 1 (10%) as no relief. In 5 cases of group-III, steroid neomycin ointment showed 3 (60%) as cured and 2 (40%) cases as partial relief. In 5 cases of group - IV with placebo treatment all were classified as no relief (Fig. V & Table I to IV)

Dry eczema – The overall results in cases of dry eczema indicates that out of 10 cases in group-I treated with paste of leaves 4 (40%) were cured, 5 (50%) had partial relief and 1 (10%) patient had no relief. The oil L.F. in 10 cases of group-II showed 7 (70%) cases cured and 3 (30 %) cases as partial relief. In 5 cases of group-III treated with steroid-neomycin cream 2 (40%) were cured and 3 (60%) had partial relief while

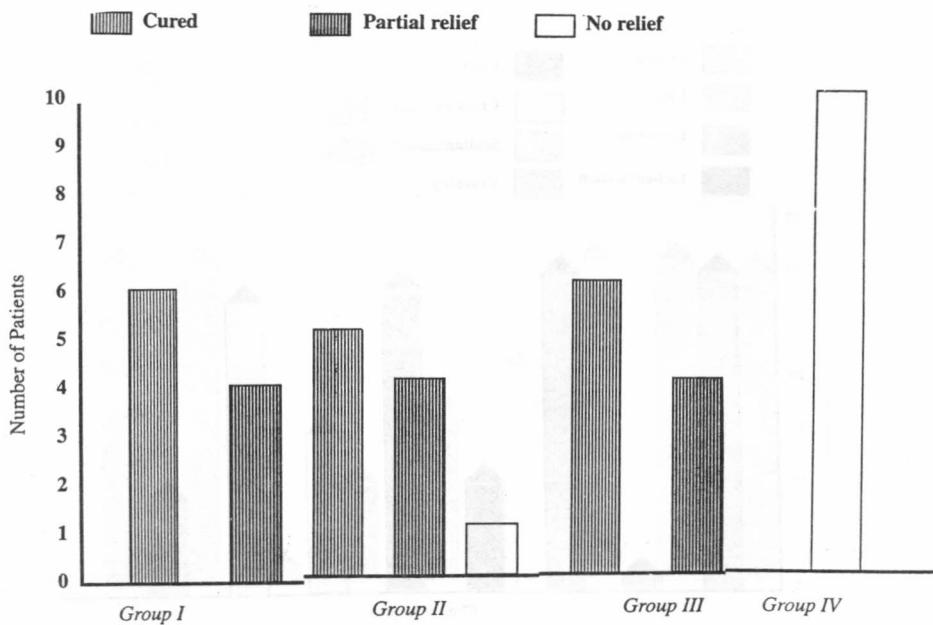


Fig. V : Overall results of treatment in various groups of wet eczema.

Table I**Statistical analysis of effectiveness of trial drug. (group I) to various findings in wet eczema.**

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value	Remark
Itching	2.2±0.4	0.3±0.5	9	8.26	<0.001	highly significant
Erythema	1.9±0.7	0.4±0.49	9	4.84	<0.001	-do-
Ulceration	2.0±0.63	0.3±0.46	9	8.02	<0.001	-do-
Exudation	2.1±0.54	0.3±0.46	9	7.05	<0.001	-do-
Area in cm ²	21.9±8.98	3.82±5.4	9	5.26	<0.001	-do-
E.S.R.	22.08±11.66	13.1±7.21	9	4.16	<0.01	Significant at 1% level

Mean±S.D., 't' 0.001, d.f 9 = 4.78, 't' 0.01 & d.f 9=3.25

Table II**Statistical analysis of effectiveness of trial drug (group II) to various findings in wet eczema.**

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value	Remark
Itching	2.2±0.4	1.63±3.57	9	8.02	<0.001	Highly significant 0.1% level
Erythema	2.0±0.0	0.6±0.66	9	6.32	<0.001	-do-
Ulceration	2.2±0.4	0.5±0.50	9	6.55	<0.001	-do-
Exudation	2.0±0.63	0.5±0.50	9	5.58	<0.001	-do-
Area in cm ²	18.88±2.38	5.48±6.63	9	7.4	<0.001	-do-
E.S.R.	21.1±14.11	14.10±5.33	9	2.11	<0.05	Insignificant

Mean±S.D., 't' 0.001, d.f 9 = 4.78, 't' 0.054 & d.f 9 = 2.26

Table III

Statistical analysis of effectiveness of control drug (group III) to various findings in wet eczema.

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value	Remark
Itching	2.2±0.4	0.4±0.49	4	10.08	<0.001	Highly significant at 0.1% level
Erythema	1.4±0.49	0.4±0.49	4	3.15	<0.05	Significant at 5 % level
Ulceration	2.0±0.63	0.4±0.49	4	6.51	<0.01	Significant at 1 % level
Exudation	1.4±0.49	0.4±0.49	4	--	--	Highly significant
Area in cm ²	13.75±4.14	3.11±3.95	4	8.33	<0.01	Significant at 1 % level
E.S.R.	14.4±2.65	12.4±2.33	4	3.18	<0.05	Significant at 5 % level

Mean±S.D., 't'0.001, d.f.4 = 8.61, 't'0.01, d.f.4 = 4.60, 't'10.05 & d.f.4=2.78.

Table IV

Statistical analysis of effectiveness of control drug (group IV) to various findings in wet eczema.

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value
Itching	1.8±0.4	1.8±0.4	4	--	--
Erythema	2.0±0	2.0±00	4	--	--
Ulceration	1.6±0.49	1.4±0.49	4	0.53	>0.05
Exudation	1.2±0.4	1.0±00	4	0.99	>0.05
Area in cm ²	20.13±2.11	21.02±3.22	4	1.51	>0.10
E.S.R.	15.2±3.7	14.8±4.48	4	0.25	>0.10

Mean±S.D., 't'0.05, d.f.4 = 2.78, 't' 0.10 & d.f. 4 = 2.13

in all the 5 cases of group-IV receiving placebo treatment, the result was no relief (Fig. VI & Table V to VIII).

Toxicity : The trial drugs did not exhibit any toxic effect or dermal adverse drug reaction.

Discussion

Since the disease *Vicharchika* involves complexity in its pathogenesis and manifestation of clinical features, the complete treatment would be administering internal medications alongwith topical applications. Further, a suitable topical application would be that one which possesses anti-allergic property alongwith

anti-inflammatory, antimicrobial and wound-healing activities. In view of the fact that this is a single plant drug and being used only as topical application, the result may be considered as significant. After a report about this drug as bearing significant anti-fertility effect, several chemical analysis of this plant have revealed a number of compounds and active principles like tactoquinone, sitosterol, lygodinolide, tanin, flavonoids etc. (Kaur, S.P., 1983; Achari B., et. al., 1986 & Brambhan, et. al., 1989) among which some are reputed for their anti-inflammatory, antimicrobial and wound-healing activities. Thus the drug seems to possess all the properties to counter-act the process of eczematous reaction.

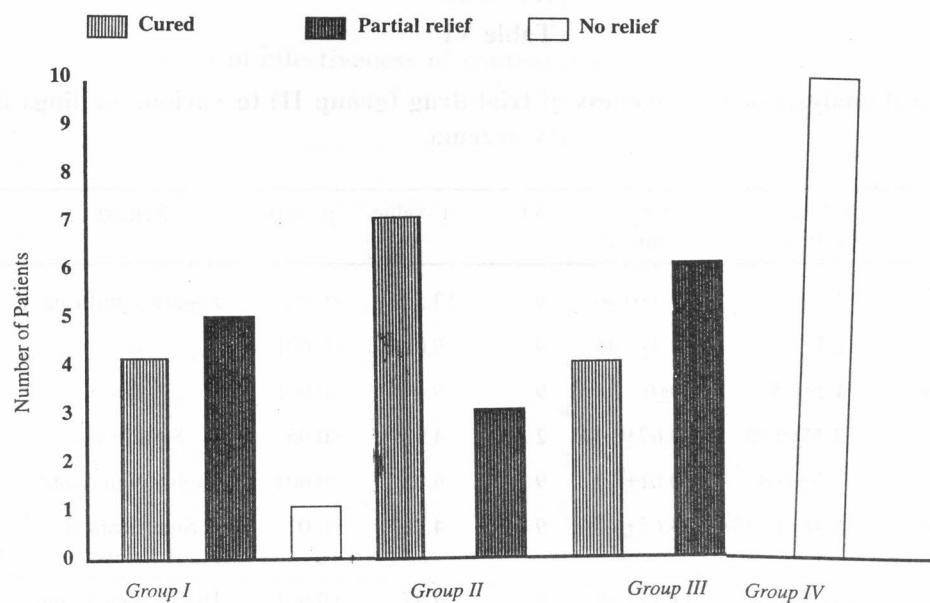


Fig. VI : Results of treatment in various groups of dry eczema.

Table V**Statistical analysis of effectiveness of trial drug (group I) to various findings in dry eczema.**

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value	Remark
Itching	2 \pm 0.45	0.55 \pm 0.68	9	5.16	<0.001	Highly significant
Erythema	2 \pm 0.45	0.8 \pm 0.75	9	4.12	<0.05	Significant at 5% level
Ulceration	1.2 \pm 0.06	0.1 \pm 0.3	9	6.1	<0.001	Highly significant
Cracking	2 \pm 0	0.5 \pm 0.5	3	5.17	<0.001	-do-
Scaling	1.8 \pm 0.4	0.5 \pm 0.67	9	6.13	<0.001	-do-
Area in cm ²	22.27 \pm 5.91	7.36 \pm 6.89	9	5.47	<0.001	-do-
E.S.R.	11.4 \pm 2.69	10.5 \pm 2.94	9	1.49	<0.10	Insignificant

Mean \pm S.D., 't'0.001, d.f. 9=4.78, 't'0.05, d.f.9=2.26, 't'0.10 & d.f. 9=1.83**Table VI****Statistical analysis of effectiveness of trial drug (group II) to various findings in dry eczema.**

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value	Remark
Itching	2.1 \pm 5.4	0.3 \pm 0.46	9	13.54	<0.001	Highly significant
Erythema	2.1 \pm 5.4	0.3 \pm 0.46	9	9.03	<0.001	-do-
Ulceration	1.5 \pm 0.5	0 \pm 0	9	9.44	<0.001	-do-
Cracking	2.33 \pm 0.92	0.67 \pm 0.47	2	4.9	<0.05	Significant
Scaling	1.3 \pm 0.64	0.01 \pm 0.3	9	6.02	<0.001	Highly significant
Area in cm ²	25.48 \pm 13.35	3.65 \pm 5.79	9	4.72	<0.01	Significant at 1 % level
E.S.R.	16.6 \pm 4.2	11.1 \pm 2.62	9	4.97	<0.001	Highly significant

Mean \pm S.D., 't' 0.001, d. f.9=4.78, 't'0.05, d.f.9=2.26 't'0.05 & d.f.9=3.25.

Table VII**Statistical analysis of effectiveness of trial drug (group III modern drug) to various findings in dry eczema.**

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value	Remark
Itching	1.8±0.4	0.6±0.49	4	5.97	<0.01	Significant at 1% level
Erythema	2.4±0.49	0.8±0.75	4	4.03	<0.05	Significant
Ulceration	1.4±0.49	0.4±0.49	--	--	--	Significantly effective
Cracking	1±0	1±0	--	--	--	Not effective
Scaling	1.2±0.75	0.4±0.49	4	3.98	<0.05	Significant at 5% level
Area in cm ²	25.21±6.19	7.77±7.16	4	3.88	<0.05	-do-
E.S.R.	1.2±4.56	10.2±4.4	4	8.96	<0.001	Highly significant

Mean±S.D., 't' 0.01, d. f.4=4.60, 't' 0.05, d. f.4=2.78, 't' 0.001 & d. f. 4 =8.61.

Table VIII**Statistical analysis of effectiveness of control drug (group II placebo)) to various findings in dry eczema.**

Findings	Before treatment	After treatment	d.f.	't'-value	'p'-value
Itching	2.2±0.4	1.8±0.4	4	1.62	>0.10
Erythema	1.8±0.4	1.6±0.49	4	0.81	>0.10
Ulceration	1.2±0.4	1.2±0.4	4	--	--
Cracking	2±0	2±0	4	--	--
Scaling	1.2±0.75	1.2±0.75	4	--	--
Area in cm ²	18.51±3.54	18.56±3.80	4	--	>0.05
E.S.R.	13±2.2.19	13.2±3.24	4	--	>0.10

Mean±S.D., 't'0.10, d. f.4=2.13, 't'0.05 & d. f.4=2.78.

Conclusion

The trial drugs can be used as suitable local application in the treatment of *Vicharchika*. While the paste of leaves can be used by common people in fresh form, the oil can be used pharmaceutically. It highlights further area of a study to try this drug in some other pharmaceutical form; in combination with some other drugs mentioned in the chapter of skin

diseases as well as alongwith internal medications.

Acknowledgement

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हिंदी सारांश

स्थानिक प्रयोग विषय में रुद्रजटा से निर्मित दो औषध योगों का विचर्चिका रोगियों पर अध्ययन का प्रभाव

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विचर्चिका एक अनूर्जताजन्य तथा दीर्घकालिक चर्मरोग है जिसकी चिकित्सा बहुत ही जटिल है। रुद्रजटा (लैगोडियम फ्लेक्सुओसम स्पीट) पादप से निर्मित दो औषधियोगों का स्थानिक प्रयोग चुने हुए ६० रुग्णों पर किया गया। विचर्चिका के शुष्क और स्रावी भेद से तथा विभिन्न वर्गों में विभिन्न प्रकार के औषधियोगों के लाभ का विश्लेषण किया गया है। इस अध्ययन के सांख्यकीय रूप से महत्वपूर्ण परिणाम प्राप्त हुये।