

Use of *Calotropis procera* (Ait.) R.Br. In Treatment of Eczema: A Pilot Study

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Abstract

The study was conducted for occurrence of eczema and efficacy of herbal drug in Surat and Navsari. The major skin diseases reported during studies include Psoriasis, Eczema, Ringworm, Dandruff, Athlete's foot, other fungal infections and bacterial infections etc. Occurrences of different skin ailments are especially common in the villagers, slum dwellers and farm labourers. The lead obtained from the classical and ethnic literature on the use of *Calotropis procera* (Ait.) R.Br. on Skin diseases. This paper deals with the clinical trials of herbal treatment on eczema. The treatment involved the oral as well as topical preparation. The topical preparation was developed and standardized from *C. procera*. The trials were conducted for nine months. Symptoms and relief were scored and results were analysed. In all, 94 patients have been treated and the result was found encouraging proving the drug efficacy.

Key Words: *Calotropis procera.*, Eczema, Dispensable formulation

Introduction

Classical medicinal claims includes usage of the plant *Calotropis procera* (Ait.) R.Br. in the treatment of diarrhea, dysentery, piles, spondylosis, earache, asthma, rabies, dental caries, spleen dysfunction, elephantiasis, scorpion bite, eye diseases, jaundice, cough, as blood purifier etc. It has been also said to be useful on various skin ailments and other infectious diseases viz. wounds, vaginal infection, leprosy, syphilis, scabies, black scars of face, dandruff, boils etc¹⁻³.

Ethnobotanical lore holds that the plant is useful in various skin diseases viz. boils, sores, scabies, ringworm, eczema⁴⁻¹⁰, for abdominal pain¹¹ and in respiratory disorders¹² etc. Ethnobotanical and classical uses have also been supported by various pharmacological studies. Different plant parts have shown biological activities viz., anti-inflammatory¹³, wound healing¹⁴, antipyretic¹⁵, analgesic¹⁶, antidiarrhoeal¹⁷, antioxidant and antidiabetic¹⁸, antinociceptive¹⁹ and anti-coagulant²⁰. Effect of *C. procera* on dermal fungal infections in clinical studies has also been studied²¹.

Dermatitis (Eczema) is a superficial inflammation of the skin, characterized by vesicles (when acute), redness, swelling, oozing, scabbing, scaling, crusting and usually itching. It is a common non-infective inflammatory response of the skin either against external as well as internal factors or any one of them. Once the skin has been irritated and sensitized with scratching, chemical trauma, climatic strains and psychological stresses keep the process going with the result that dermatitis becomes chronic. The rashes are very itchy, peeling, thickened, sometimes weepy and are typically noted in the creases of joints and about the trunk. The rash may fluctuate both seasonally and over the course of the day. Scratching may lead to bleeding and infection. Blood test reveals increased levels of cells and antibodies associated with allergic reaction in general²².

Author noticed the great prevalence of skin disease in the contemporary society. It appears that the humid atmosphere of south Gujarat perhaps plays a role in the precipitation of these diseases. It was also noticed that the eczema is very difficult to treat. Though *C. procera* is highly hailed in the classic and ethnic literature, for skin ailments including fungal infections, no preparation involving *Calotropis* is available in the market, as far as the authors are aware. This prompted the author to undertake this work. The work involved two major aspects: 1) Development of standard dispensable drug 2) Clinical trial of dispensable medicine.

Materials & Methods:

Preparation of drug:

The patients have been offered topical preparation made from *C. procera* combined with the decoction of famous Ayurved drug *Mahamanjishthadi quath* as oral medication. Plant was collected from the campus of Veer Narmad South Gujarat University Campus for the drug preparation. Voucher specimen (BTS 90.04) has been submitted in the form of Herbarium in Shri Bapalal Vaidya botanical research centre, Surat. For evaluation of effect of *Calotropis* on human skin ailments three different formulations for topical use had been prepared. The preparation of *Arka taila* is described in *Nighantu adarsh*²³. It has been adopted for the preparation with a little modification. *Sesamum* oil was used in place of *Brassica* (Mustard) oil. It had been standardized and named as "Caloil". The formulation has been prepared in three forms: Liniment (Caloil), ointment prepared from the same oil (Caloderm) and a cream prepared by

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emulsifying the caloil with water and the resin of *Shorea robusta* L. (Calocream). The different forms were prepared only for convenience in the application. For excessive dryness and whenever it had been used on scalp the oil preparation (Caloil) had been suggested, for symptoms with burning sensation cream (Calocram) had been suggested and for rest caloderm ointment was suggested. The patients have been advised to take salt free diet and avoid sour items and fermented food.

Mahamanjishthadi quath: The preparation was obtained from the local pharmacy in the forms of coarse powder (*yavakuta*). The patients were advised to prepare a fresh decoction every day in the following way:

Soak 20g of powder in 300ml of water at night. Boil it in the morning on a sim stove till about 75ml liquid is left. Filter the liquid. Divide it in two equal doses and take it twice a day.

Clinical trials:

Clinical trials were carried out with the help of Ayurvedic hospital and an Ayurvedic doctor. Free treatment was offered at Mata Bhagwatidevi Ayurvedic Hospital, Navsari. The patients were treated and kept under observation for about nine months.

The parameters considered in evaluation were; Patient's personal history included the parameters viz. age, sex, food habit, occupation, age of onset, site of onset, duration of the disease, family history, other health problems if any, pretreatment history included: past treatment received if any, duration of the past treatment, response of the disease towards treatment. Along with this, attempt has also been made to find out aggravation factor if any including seasonal or diurnal variation. To assess the present treatment, parameters selected were disease identification, present location of the symptoms, itching, erythema, scaling, thickness, bleeding and the condition of the disease after providing the present treatment. The degree of relief had been classed as different degree of severity considering itching, erythema, bleeding etc. (cf: Table 1, 2, 3). The degree of relief had been classed as different degree of severity. Treatment was analysed on seven points scale as Table 4.

Results and Discussion

Ninety four patients of eczema with prior informed consent were enrolled for the treatment, out of which 78 (82.97%) were male and 16 (17.02%) were female. The age of the patients ranged from 13 to 80 years. The maximum numbers of patients were in the age group of 61-70 (29) and 51-60 (27). Out of 94, 9 patients (9.57%) had abandoned the treatment. The patient's occupation were highly variable including house wife, retired persons, casual labourous, farmers, diamond worker, tailor, business men, fisherman, student, carpenter, mechanic, and white collar service men. Forty one

patients (43.61%) were having mixed type of diet and fifty three (56.38%) were taking vegetarian diet.

The duration for which the patients have been suffering before they approached for the present treatment ranged from one month to thirty years. It was also attempted to ascertain the aggravation factor. It was noted that 71 patients (75.53%) suffered uniformly throughout the period of affection. Ten (10.63%) patients complained of winter as the aggravation factor. Only 1 patient (1.06%) complained of monsoon and 2 patients (2.12%) had complained summer as aggravative factor. The disease was aggravated during night period in 6 patients (6.38%). Two patients (2.12%) had complained full moon day and no moon day as aggravative factor and two patients (2.12%) had complained high tides as aggravative factor. The aggravation was judged as an increase in itching.

The history of the previous treatment revealed that 36 patients (38.29%) did not afford any treatment and had suffered the disease. Four patients (4.25%) underwent only Ayurvedic treatment, 41 patients (43.61%) underwent only allopathic treatment. One patient (1.06%) had tried allopathic and Ayurvedic treatment, 1 (1.06%) had tried allopathic and homoeopathic medicines and 1 (1.06%) had received all the three treatments. Ten patients (10.63%) had tried self medication also. The durations of such treatments varied form 15 days to 21 years.

The response to the previous treatment has also been inquired with the patients. It was noticed that response to the varied treatment was also variable which ranged from no response (16), poor response (16), good response (12) and fair response (7) and occurrence of side effects (2). However, it was noticed that most cases disease was not cured and in some of the cases it kept recurring and hence the present treatment was sought.

The family history to ascertain the susceptibility of a person to the disease was also inquired. Only 9 patients (9.57%) had their family members with similar ailments.

Along with eczema the accompanying disease/complaint were also noted. The other associated problems identified were pain in the whole body, thyroid problem, dysentery, asthma, hydrocele, paralysis, arthritis, irritation in whole body, pyorrhea, renal calculi, acidity, hypertension, diabetes, cardiac problems, constipation etc. Seventy six patients (80.85%) did not show any other complications but eczema.

The lesions had spread in varied places. In some of the patients it had remained restricted to the lower limbs alone (59). In some it had spread to upper limbs, face, isolated symptoms on whole body, vaginal stoma, calf, back, belly, loins, lower abdomen, back and chest. The itching, erythema and bleeding accompany with the eczema. The different patients revealed different intensities of itching, erythema and bleeding.

Itching was absent in 4 (4.25%) patients. Mild itching was noticed in 27 (28.72%) patients. Periodically frequent itching was noticed in 8 (8.51%) patients. Continuous moderate itching was noticed in nineteen patients and

continuous severe itching was noticed in 36 (38.29%) patients.

Bleeding was absent in 43 (45.74%) patients, bleeding with itch was noted in 31 (32.97%) patients, bleeding with cracked skin were noted in 13 (13.82%) patients while bleeding with pus was noted in 7 (7.44%) patients. Mild erythema was noticed in 1 (1.06%) patient, moderate in 14 (14.89%) patients and marked erythema was noted in 46 (48.93%) patients. Hyper pigmentation in which the skin had almost turned to black in colour was noticed in 33 (35.10%) patients.

Results of present treatment:

It had been observed (Fig.1) that complete cure of all the signs and symptoms have been noted in 14 (14.89%) patients, excellent response was noted in 24 (25.53%) patients, good response was found in 33 (35.10%) patients, fair response was noticed in 10 (10.63%) patients. Two (2.12%) patients showed poor response to the treatment and 2 (2.12%) patients exhibited worsened condition because of the treatment.

DISCUSSION:

It was noticed that omission of any one, i.e. oral or topical treatment, does not yield positive result. Both the treatments were found vital for obtaining positive results. Three hundred sixty three patients were reported for various kinds of skin diseases during our clinical trails at Navsari. It was evident that Eczema is prevalent in the area, i.e. Navsari & Surat districts since 25.89% patients were diagnosed with eczema. The other fungal infections (16.80%) are also of common occurrence. It appears that the humid atmosphere of south Gujarat perhaps plays a role in the precipitation of these diseases. No correlation however was noted with the profession or a food habit as far as the contraction of disease is concerned.

It was interesting to note that the fungal disease including eczema aggravated due to varied reasons, like winter, monsoon, summer, nights, full moon night and the high tides. Aggravation was judged from the degree of itching.

About 45.74% of patients of eczema showed bleeding with occasional pus formation and cracks on the skin.

There was no correlation with the family history. No evidence was reported designating this disease as inheritable or proving predisposition of a patient due to the family history. Onset of the eczema had mostly commenced from the limbs with minor itching at sock's gaitor marks. For ladies it began with the itching at waist. One can roughly deduce from the limited observations that skin under pressure and stress causes irritation on release of stress. Person, who can not control the itching, contracts fungal infection leading to eczema and other kinds of fungal affections. This also holds true for the tight underwear leaving marks on loins and buttocks or brassier marks in ladies and spectacle marks in some patients.

The moisture at armpits, testicles, loins and between foot fingers also initiated fungal infections.

Fourteen of eczema (14.89%) patients showed total cure. Whereas 24 (25.55%) of eczema patients showed excellent and good response in the seven point scale devised by us. Patients with improving signs can be seen in the fig.2.

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Table:1 Itching		Table: 2 Erythema		Table: 3 Bleeding	
Severity	Rank given	Severity	Rank given	Severity	Rank given
Absent	0	Absent	0	Absent	0
Mild	1	Some	1	Bleeding on itch	1
Frequent	2	Moderate	2	Bleeding with fissures	2
Moderate	3	Marked	3	Bleeding with Pus	3

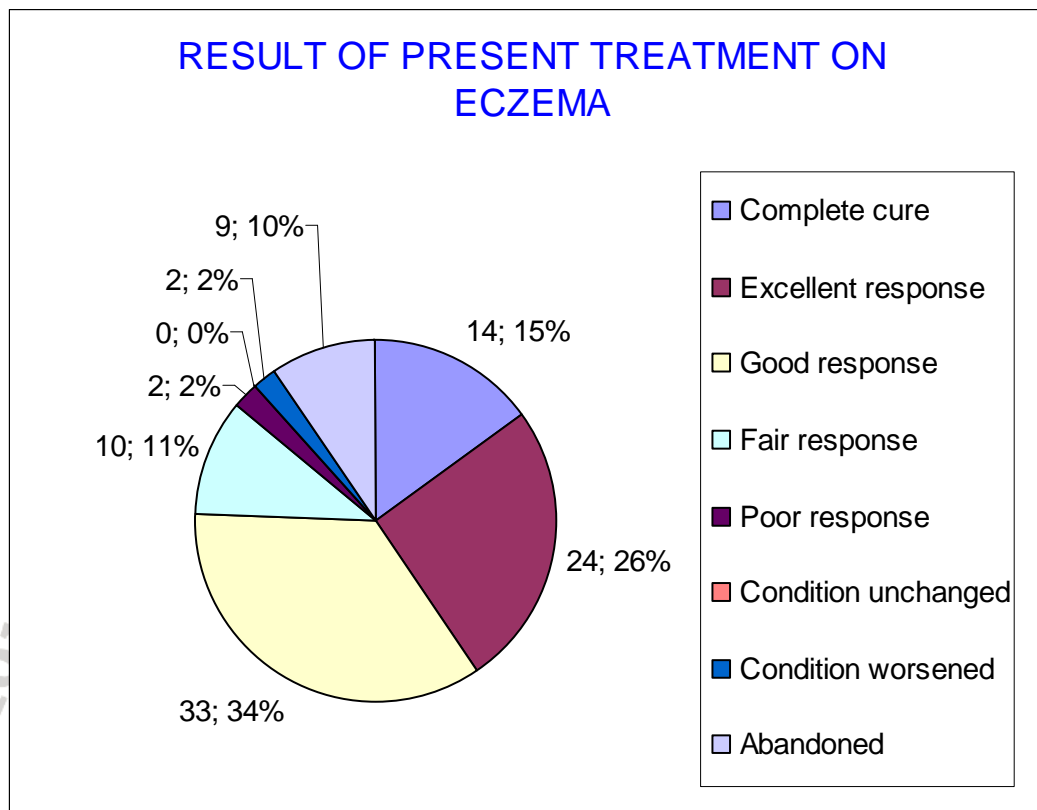


Fig. 1 Result of present treatment on Eczema

Table 4: Seven point scale assessment criteria

Observations about the symptoms	Symptoms present in terms of %	Rank given
Complete cure	No signs/symptoms of the disease	1
Excellent response	>75% improvement	2
Good response	>50-75% improvement	3
Fair response	>25-50% improvement	4
Poor response	≤ 25% improvement	5
Condition unchanged		6
Condition worsened		7



Fig. 2: Improvement observed in patients

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