



## Ethnopharmacological Investigations of Argemone Mexicana for Psoriasis Management using Molecular Techniques.

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### KEYWORDS

Argemone Mexicana,  
Autoimmune disease,  
Environmental,  
psoriasis, Adverse  
event

### Abstract

**Objective:** Psoriasis's an autoimmune disease, which is causing the body to attack itself. It'll be in the 30 to 65 age group. This disease affects over 100 million people in the world. The aim of the study is to provide more efficient and safer treatment for patients with this disease.

**Methods:** In a random selection of individuals from Hyderabad, Telangana. the potential study has been conducted. Patients with psoriasis of different ages were randomly selected and formulation made with the plant extract was applied twice a day externally on the marks for 3-4 months.

### Result:

We've looked at around a dozen patients in each city of Hyderabad. Physical examination and their past illnesses and health history have confirmed this condition. This study was used for 6 months, during which cream has been applied on the area concerned 2 times a day. It was found that the marks disappeared completely in about 8 of the 12866.6%) patients in Hyderabad, and in another 2 of the 12866.6%) patients there was a mild response and 2 of the 12866.6%) patients had a mild response. of them showed no response to the formulation. Whereas in Hyderabad around 6 of 12(50%) showed complete cure, 4 of 12(33.3%) with mild response and 2 of 12(16.6%) with no response to the drug. No side effects were observed in any of the age groups.

### Conclusion:

Utilising a compound derived from argemone Mexicana leaves reduced psoriasis. Patients across all age groups reacted to this formulation in varied ways. Younger patients and those whose sickness had just recently begun to manifest responded very well to the treatment. Greater favourable response was observed in Warangal than in Hyderabad, indicating that environmental variables can influence illness management and therapy. However, no adverse effects were observed in any of the age groups or cities,



indicating that the extract is safe to use and may even be beneficial unless the patient has a history of plant allergies.

## INTRODUCTION

In India, psoriasis is a prevalent tropical neglected disease with over 10 million cases reported annually. It results in dry, itchy, or painful areas on the skin as well as a fast accumulation of cells there. Psoriasis is a chronic illness that can last for years; thus, a lifetime lab test is necessary. Treatments for psoriasis include light therapy, occlusion, steroid creams, and oral drugs such as biologics. Psoriasis may be broadly classified into five types: erythrodermic, guttate, inverted, pustular, and plaque.

Based on the patient's symptoms, psoriasis is diagnosed; however, in those with darker skin, the patches may have a purple tint. This location on the skin can cause psoriatic skin abnormalities, also known as the "Koebner phenomenon." In recent times, the global incidence of adult psoriasis has varied between 0.53% and 13.43%. One important biomarker of acute-phase systemic inflammation and future risk for vascular disease is C-reactive protein (CRP). The high level of CRP, which is used to predict inflammation in a variety of disorders, including psoriasis, can be used to identify it. It was discovered that as the number of metabolic syndrome symptoms rises, so does the CRP level. It is said that psoriasis is a multisystem chronic illness associated with several co-morbidities, such as obesity. Obesity is a relevant risk factor for the development and complication onset of non-communicable diseases.

**Signs and Symptoms:** Sometimes psoriasis cause itching on the affected part of the skin, nails, and scalp

which is referred to Plaque Psoriasis which is most common Psoriasis, treatment may not scientifically prove but management is possible which is totally depends upon patient past records or medical history. The goals of treatment are very few, less severe flare-ups. Light therapy: If the rash is more widespread, may treat it with ultraviolet light.

**Biologic drugs:** Another kind of systemic drug also target your immune system. Biologic drugs used to treat psoriasis include adalimumab (Humira), etanercept (Enbrel), Brodalumab (Siliq), guselkumab (Tremfya), infliximab (Remicade), ixekizumab (Taltz), secukinumab (Cosentyx), and ustekinumab (Stelara). They're given either by a shot or through a vein in the arm. They have affect on specific type of immune cell or keep certain proteins from causing inflammation. But these drugs can make it harder to fight infection.

**Systemic drugs:** plaque psoriasis may need medicines that work throughout the body. They calm the immune system or make skin cells grow more slowly. But they cause serious side effects, such as depression, aggressive thoughts, liver problems, or a higher risk of skin cancer.

**Plaque psoriasis:** Tropical treatments especially cream are first preference it helps to reduce skin inflammation and minimize cell growth in skin example includes Vitamin A, Vitamin D, Corticosteroid, etc. Salicylic acid and coal tar also used in the management of psoriasis and few Natural ingredients for smooth itch like Aloe vera gel etc. Topical emollients that put on after a shower or bath can help keep the skin moist.



Figure 1.1 Psoriasis on sole of foot



Figure 1.2 Psoriasis on Palms



Psoriasis Vulgaris (which is also known as chronic stationary psoriasis or plaque-like psoriasis) is the most common form and affects 85%–90% of people with psoriasis. Plaque psoriasis is typically appeared as raised areas of inflamed skin covered with silvery white scaly skin. These areas are called plaques and are most commonly found on the elbows, knees, scalp, and back.

Psoriasis can affect the nails and produces a variety of changes in the appearance of finger and toenails which occurs in 40–45% of people with psoriasis affecting the skin and has a lifetime incidence of 80–90% in those with psoriatic arthritis. These changes include dent in the nails (i.e., pinhead-sized depressions) in the nails is seen in 70% with nail psoriasis.

## BACKGROUND

Plants are being used in traditional medicine for several thousand years. The knowledge of medicinal plants has been collected since many centuries based on different medicinal systems like (Ayurveda, Unani, and Siddha). It has been reported that traditional healers in India use 2500 plants species of plants and 100 species of plants serve as regular and continuing sources of medicine. In the last few decades, there has been increased interest in the study of medicinal plants and their traditional use in different parts of the world documenting the indigenous knowledge by ethno botanical studies is an important

aspect for the conservation and utilization of biological resources. The important thing is the World Health Organization (WHO) shows that as many as 80% of the World's people depends on traditional medicine for their preliminary health care needs. Major parts of the world's population in developing countries still relay plants for their primary healthcare systems to treat Psoriasis.

The Ethno pharmacological is the Ethno pharmacology (occasionally also called ethno pharmacy) is a related study of ethnic groups and their use of drugs. It is undoubtedly linked to medicinal plant use, ethno botany, as this is the main delivery of pharmaceuticals. It deals with the study of the pharmaceutical means considered in relation to the cultural contexts of their use, for example, Argemone Mexicana is used in Plaque and guttate Psoriasis. Ethno medicinal Plant Argemone Mexicana used for the treatment of Psoriasis diseases.

### The botanical name, family name & Plant characters

- Argemone Mexicana L. Papaveraceae Prickly, annuals, flowers bright yellow, fruits prickly with blackish-brown seeds.

**Local name, English name & Plant photo** - Mexican poppy, Mexican Prickly Poppy, Flowering thistle, Sathyanashi (Hindi) **The name Sathyanashi is given because of its ability to successfully treat and cure diseases.**

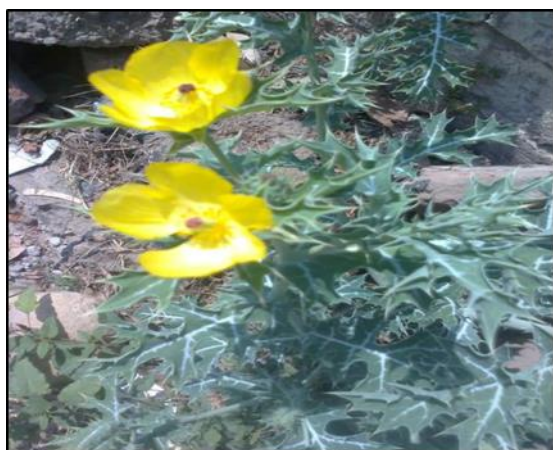


Figure 1.3

**Tribes name** - Meena & Gurjar, Bhil etc.

**Plant parts used & mode of use** - Fresh plant sap and paste of root powder applied externally



Figures 1.4

**Districts/ Area-** Telangana, (Warangal, Hyderabad)

**Remarks** - Very effective in plaque and guttate Psoriasis.



## 2.0 EXPERIMENTAL:

### 2.1 OBJECTIVE SELECTION OF ARGEMONE MEXICANA

1. To provide treatment that is natural with least side effects
2. To provide a better and effective treatment for the skin diseases like psoriasis.

3. Regulate a cost effective treatment.
4. To provide a treatment with less time duration.
5. To reduce the cost of treatment.
6. To increase the quality of life of the patient
7. To provide treatment this can easily be used by everyone.

### PHYTOCHEMICAL PROPERTIES OF ARGEMONE MEXICANA:

**Table 1:** physiochemical components of argemone Mexicana based on different plant parts.

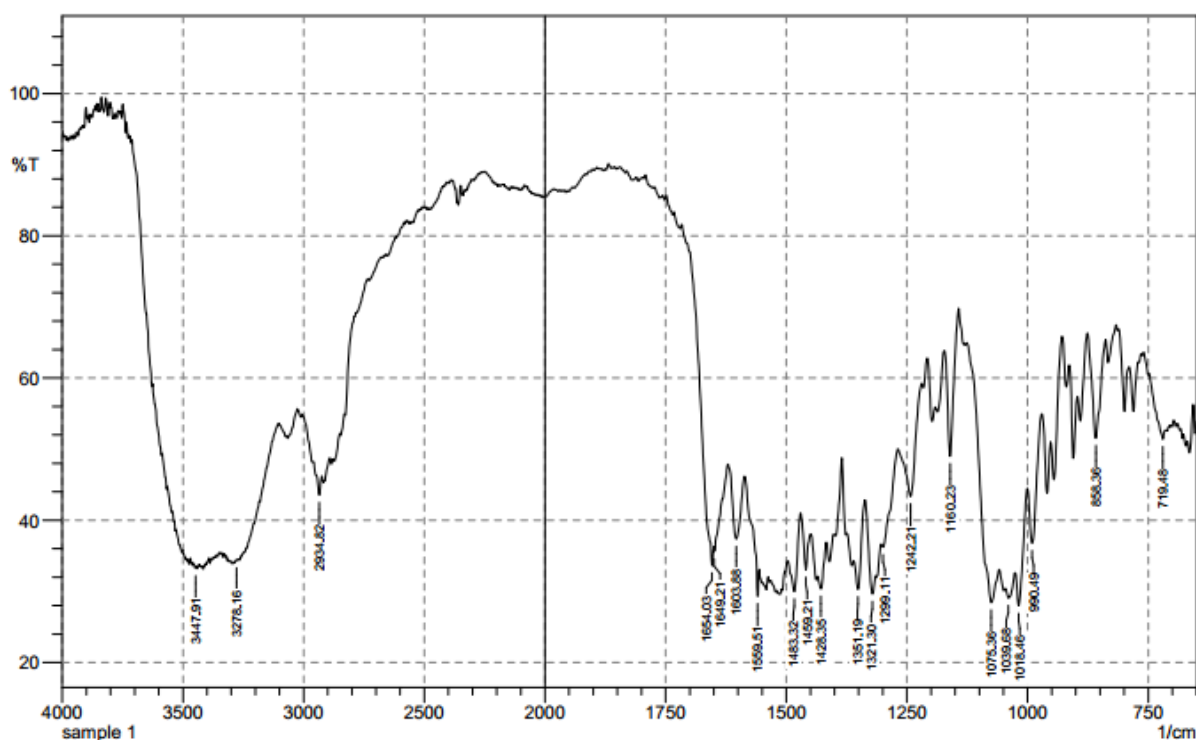
COMPOUND	PLANT PART
Dehydrocheilanthifoline	Whole plants
Jatrorrhizine	Whole plants
Dehydrocorydalmine	Whole plants
Columbamine	Whole plants
Coptisine	Whole plants
Argemexicaine A	Whole plants
Argemexicaine B	Whole plants
Muramine	Whole plants
Oxyhydrastinine	Whole plants
Chelerythrine	Whole plants
Thalifoline	Whole plants
Dihydrocoptisine	Whole plant
Sanguinarine	Seeds
Dihydrosanguiranine	Seeds
Berberine	Apigeal parts, seeds
Pancorine	Aerial parts
Dihydropalmatine hydroxide	Seeds
Protopine	Apigeal parts, seeds
(-)-Argemonine	Plant resins
Dihydrochelerythrine	Tissues

### PARAMETERS:

- 1) Polaration of the scales.
- 2) Appearance of the scales.
- 3) Immunohistopathology.
- 4) Histopathology (skin).
- 5) Percentage % scales reduction.

### MATERIALS AND METHODS

Material was collected from previous reviews and also from patient's previous history and lab reports.  
IR graph of Thiocolchicoside



### STUDY DESIGN

This is the prospective study on randomly selected samples from patient of different age over a period of 5-6 months using analysis as a tool.

The Research will be conducted in KMR Research Lab, Uttarakhand India .

### COLLECTION OF DATA

1. The data is being collected from the previous reviews and is analysed and then the experimentation will begin.
2. Data from the disease's patients.
3. Psoriasis Samples from various areas of Warangal, Hyderabad India.

### INCLUSION CRITERIA

1. Patients with skin infections.
2. Patients with chronic diseases.
3. Patient requiring for long term therapy.
4. Patient of every age group.
5. Patients with recurrent hygiene routine.

### EXCLUSION CRITERIA

1. Patients from some other district.
2. Patients with some other similar condition other than psoriasis.

3. Patients enrolling after this 6 months study.

### MANAGEMENT OF PLAQUE PSORIASIS :( A new approach)

#### FORMULATION OF CREAM 20 MG USING EXTERNALLY IN MANAGEMENT OF PLAQUE PSORIASIS

**Materials required** – salicylic acid, aloe vera gel, distilled water, argemone Mexicana.

#### Procedure –

5% Salicylic acid, 5 Mg Aloe vera gel, Distilled water, Prepared Thick gel from root Argemone mexicana as per followed standard Guideline of Indian Pharmacopoeia Commission.

**Dosing and dosage form** – Twice a days, externally applied on marks.

**Side Effects** – There are no side-effects observed in 3 months study.

Although it has not been clinically proven cure of psoriasis but this formulation helps in its management and minimizes the psoriasis in its early stage.



**Follow up evaluation:**

The patients should follow up after every 2 months to see whether the condition is being repeated or not. In this physical examination, examination of the skin and blood samples is to be collected to get the appropriate results.

**RESULTS & DISCUSSIONS:**

The present study documented an Argemone Mexicana plant commonly used by the indigenous people of *Telangana* as anti-psoriatic. The findings documented in Figure 1.3 to Figure 1.4 and for easy identification of used plants, their photographs have also been given. Hence, this research proves that Argemone Mexicana can be used in the management and treatment of psoriasis in a more effective way and with minimum side effect at a minimal cost to the patient.

In the duration of 6 months from May 2023 to Nov 2023 a total of 24 patients were enrolled in the study (i.e., 12 from Hyderabad, 12 from Warangal) and were of different age groups. More patients were of the middle age group from 16-24 years of age. The summary of the patients enrolled are confidential we have added in supplement date will provide upon request

**Clinical response:**

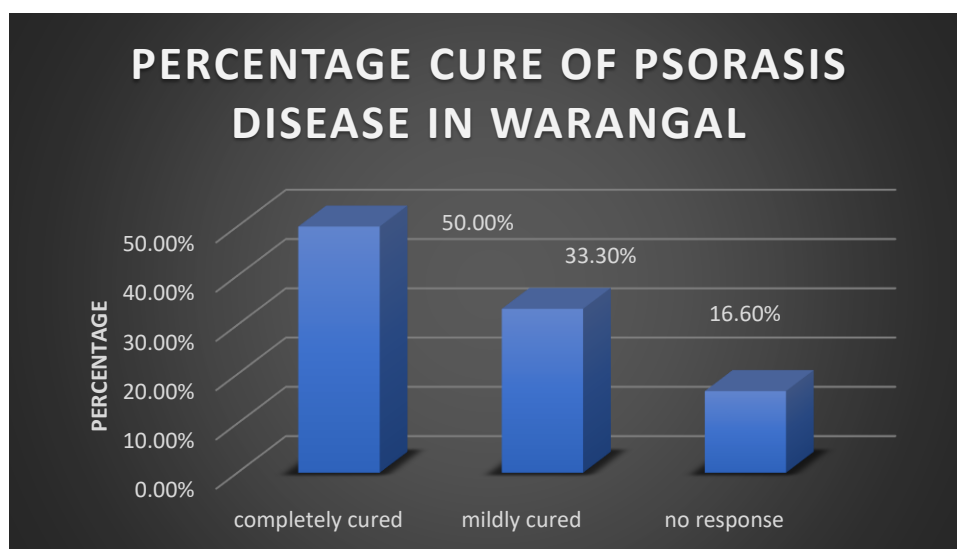
When this formulation was applied to the patient the outcomes were markedly slow in Hyderabad than in Warangal because of the environmental factors of each place. In Warangal the condition (psoriasis) in 35% of the diseased people got cured with in a period of 5 weeks and other 30% in 6 weeks. The others with serious type of condition took a long time to cure the disease but no any kind of side effect was observed in the patients. However, in Hyderabad it took a long time for the patients to cure the disease around 20% of the people started recovery within 3 weeks and 30% in 7 weeks, 20% of them in 8 weeks and others were recovering very slowly.

It was found that in Warangal about 8 of 12(66.6%) patients the marks were completely disappeared and in other 2 of 12(16.6%) patients showed mild response and 2 of 12(16.6%) of them showed no response to the formulation. Whereas in Hyderabad around 6 of 12(50%) showed complete cure, 4 of 12(33.3%) with mild response and 2 of 12(16.6%) with no response to the drug this is shown in table 3. No side effects were observed in any of the age groups.

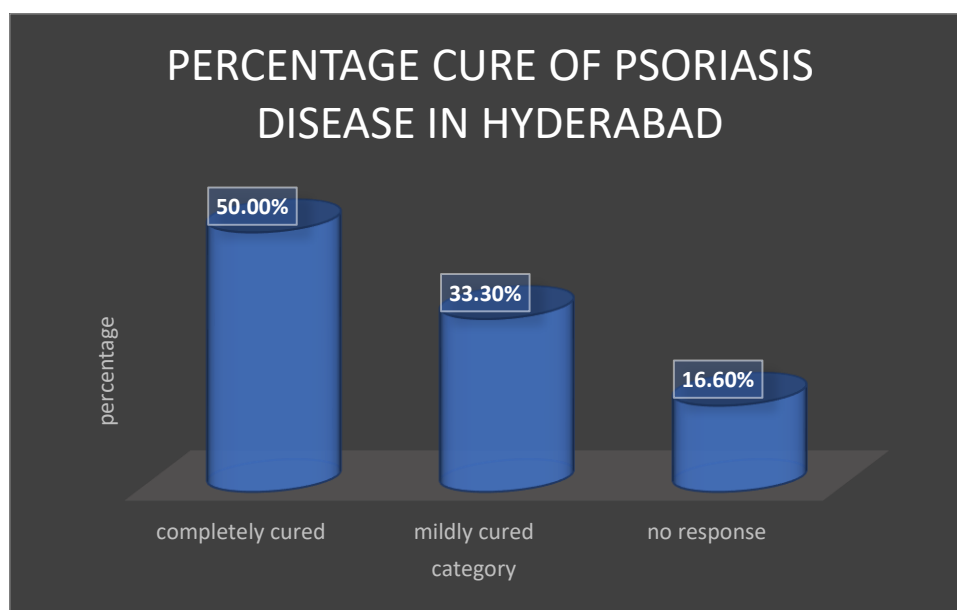
**Table 3:** percentage of cure in patients based on 2 different areas.

	Study in Warangal (n=12)		Study in Hyderabad (n=12)	
	No	%	No	%
<b>Completely cured</b>	8	66.6%	6	50%
<b>Mildly cured</b>	2	16.6%	4	33.3%
<b>No response</b>	2	16.6%	2	16.6%

Graph 1 and graph 2 shows percentage cure of disease in Warangal and Hyderabad based on category respectively.



**Graph 1:** this shows the percentage cure of Psoriasis disease in Hyderabad area



**Graph 2:** percentage cure of disease in Hyderabad.

## CONCLUSION

Psoriasis is an autoimmune condition which results in the body attacking itself. It occurs in the age group of 14 to  $\geq 65$  years. The average age is 28 years. More than 10 million cases per year in India are being recorded. Tropical treatments especially cream are first preference it helps to reduce skin inflammation and minimize cell growth in skin example includes Vitamin A, Vitamin D, Corticosteroid, etc. Natural medicines such as herbal medicines are a safer mode of therapy because of its

presumed lack of adverse/ side effects. The value of medicinal plants as herbal remedies is being lost due to lacking of awareness, and deforestation. There are more than 19 Types of Natural medicine Plant including Argemone Mexicana, Adiantum incisum, Adiantaceae, Aloe vera, Annona squamosa L, Aristolochia bracteolata, Cannabis sativus, Capsicum, Cassia auriculata, Holoptelea integrifolia, Momordica charantia, Ocimum canum, etc are helpful in the management of Six Different types of Psoriasis Naturally. first Government Or state government should



implement take immediate action to Preserve the knowledge of medicinal Plants species and herbal remedies for the overcome of side effects it is very essential and it also helps in Homeopathic, Unani, Ayurveda, Siddha, and Allopathic Formulations.

Psoriasis was reduced by the use of the product extracted from the leaf's of argemone Mexicana. The patients of different age groups showed different response to this formulation. The patients of younger age and patients with recent stage of development of the disease showed highly positive response to the medication. High amount of positive response was shown in the areas of Warangal than Hyderabad this shows environmental factors also effect the treatment and management of the disease. But no side effects were shown in any of the cities and in any of the age groups which shows that the extract is safer use and even effective unless the patient has any allergic history from the plant.

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All authors, Contributed equally towards writing, data collection, design of manuscript.

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