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Documentation and validation of ethnic treatments for Psoriasis

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Abstract
Psoriasis is a common chronic inflammatory skin condition where skin develops areas that become thick and covered with silvery scales. Millions of people in the world have psoriasis. Person of any age may develop the disease. It is the result of a disordered immune system. Causes of psoriasis are not fully understood. Conditions accompanying worsening of the disease include chronic infections, stress, and changes in season and climate. No cure is available for psoriasis, but various medical treatments can help to control the symptoms. Information of monoherbal and polyherbal ethnic treatments for psoriasis was collected from the local herbal healers. Of these, one polyherbal treatment was selected for validation studies. In all 10 simple follow-up case studies were made to know the efficacy of the herbal treatment. It was found that available ethnic treatment is efficient, cost-effective and reliable.

Key Words: Psoriasis, Ethnic Treatment, Validation, Warud

Introduction

Psoriasis is a common chronic inflammatory skin condition (dermatosis) where the skin develops areas that become thick, covered with silvery scales. Psoriasis is a common problem, and millions of people in the world suffer from it. Person of any age can develop the disease. It is the result of disordered immune system. Human skin forms the first guard line of the body. Origin of inflammatory skin diseases is linked to over stimulation of T-lymphocytes. T-cells then direct skin to 'heal' a non-existent injury. Psoriasis is genetically determined inflammatory skin disease. It is characterized by red, scaly and raised patches. Psoriasis occurs when the immune system sends faulty signals resulting into speeding up of the Skin Cell Cycle (Azfar & Gelfand, 2002, Rout *et al.*, 2017). The causes of psoriasis are not fully understood. Acute disease conditions include chronic infections and stress. No cure is available for psoriasis. Various treatments can help to control the symptoms. Psoriasis has become an important thrust area of scientific studies due to its severe effect on the quality of life, expensive treatment, toxicity and/or side effects of available medication (Krueger *et al.*, 2001, Rout *et al.*, 2017).

Psoriasis is sometimes associated with arthritis, myopathy, enteropathy, spondylitic heart disease or AIDS. Clinically, psoriasis most frequently affects the skin of the elbow, knees, scalp, lumbosacral areas, intergluteal cleft and glans penis. Most typical lesion is a well demarcated, pink to salmon colored plaque covered by loosely adherent silver white scales. Psoriasis can be one cause of total body erythema and scaling known as erythroderma. Nail changes occur in 30% of cases of psoriasis (Shaikh *et al.*, 2012; Sindhu *et al.*, 2009). The disease affects 2-4% of the general population (Parisi *et al.*, 2013). Conditions accompanying worsening of the disease include chronic infections, stress, and changes in season and climate (Prieto-Pérez *et al.*, 2013). No cure is available for psoriasis, but various treatments can help to control the symptoms (Weller *et al.*, 2008).

Classification of Psoriasis

There are several forms of psoriasis. Some of the most common type are: (1) Non-pustular psoriasis; (2) Pustular psoriasis; (3) Psoriatic arthritis.

(1) **Non-Pustular Psoriasis**

a) Plaque psoriasis: Skin lesions are red at the base and covered by silvery scales.
b) Guttate psoriasis: Small, drop-shaped lesions appear on the trunk, limbs, and scalp.Guttate

psoriasis is most often triggered by upper respiratory infections (for example, a sore throat caused by streptococcal bacteria).

c) Inverse psoriasis: Smooth, red patches occur in the folds of the skin near the genitals, under the breasts, or in the armpits. The symptoms may be worsened byfriction and sweating.

d) Erythrodermic psoriasis: Widespread reddening and scaling of the skin may be a reaction to severe sunburn or consumption of corticosteroids (cortisone) or other medications. It can also be caused by a prolonged period of increased activity of psoriasis that is poorly controlled.

(2) **Pustular Psoriasis**

Blisters of non-infectious pus appear on the skin. Attacks of pustular psoriasis may be triggered by medications, infections, stress, or exposure to certain chemicals. It is of two types:

a) Generalized (Universalis)

b) Localized (of palms & soles): Psoriasis on palm of hands is called palmar psoriasis, and on soles of feet is called plantar psoriasis.

(3) **Psoriatic Arthritis**

Joint inflammation that produces symptoms of arthritis in patients who have or are susceptible to psoriasis.

Many plants species are commonly used to treat skin diseases such as eczema and psoriasis. Herbal treatments are generally perceived as effective and have few side effects. Research on herbal drugs in terms of controlled clinical trials in humans is still limited (Zari & Zari, 2015). *Senna tora* L. has been used traditionally for the treatment of psoriasis and other skin diseases (Anonymous, 1992; Warrier *et al.*, 1997). Ethanol extract and isolated flavonoids of *Senna tora* leaves showed significant reduction in total epidermal thickness (Vijayalaxmi & Geetha, 2014). Roots of *Argemone mexicana* L. are also used in the treatment of skin diseases (Verma *et al.*, 2016). Screening is essential to reduce any potentially harmful side effects on human skin and health. This will open new areas for research in therapeutic medicine (Zari & Zari, 2015). Leaves of *Lawsonia inermis* L. are ground with root, bark and leaves of *Cipadessa buccifera* (Roth.) Miq. and applied topically (Sivarajani & Ramakrishnan, 2012). Leaves of *Wrightia tinctoria* (Roxb.) R. Br. and coconut oil paste is applied twice a day (Mughal *et al.*, 2013). Polyphenols isolated from herbs could be a more effective and specific therapy for the treatment of skin diseases (Young *et al.*, 2008). Use of medicinal plants is the most common form of traditional medication worldwide. Scientific evaluation of medicinal plants will help in the integration of modern and traditional medicine (WHO, 2005).

Materials and Methods

Documentation

Ethnobotanical survey of Warud taluka (Dist. Amravati) was carried out during 2010-2016. Total 145 plant species used medicinally, and the mode of use were noted. Informant names with important personal details were listed. Field visits were made with vaidus to collect the plants. Identifications were done with the help of standard floras. For recent valid nomenclature 'The Plant List' (http://www.theplantlist.org/) was referred, local names and voucher specimen number given. Name and village of informant is given in bracket for each drug. Specimens are deposited in the herbarium of Govt. Vidarbha Institute of Science and Humanities, Amravati. Seven monoherbal and equal number of polyherbal treatments were found to be frequently used for the treatment of psoriasis in Warud taluka.

Case Studies

One polyherbal treatment was selected for validation studies. Consent form was prepared with the help of registered medical practitioner. Only those patients were considered who were willing to give the consent without any condition or hesitation. Before taking consent the proper counseling of concerned person was done regarding the disease for which he/she was taking the treatment and need to keep record at particular time intervals. Consent form was also prepared for medicine men. The most important fact mentioned in the consent form was that his formulations will not be disclosed to any other person who can take the disadvantage of his knowledge and secondly, he will not face any medico-legal situation. However, these are not clinical trials but are simple case follow-up. Also, the disease selected is not fatal. Case studies were carried out under the supervision of registered medical practitioner. Type of psoriasis was also determined by him only.

Result and Discussion

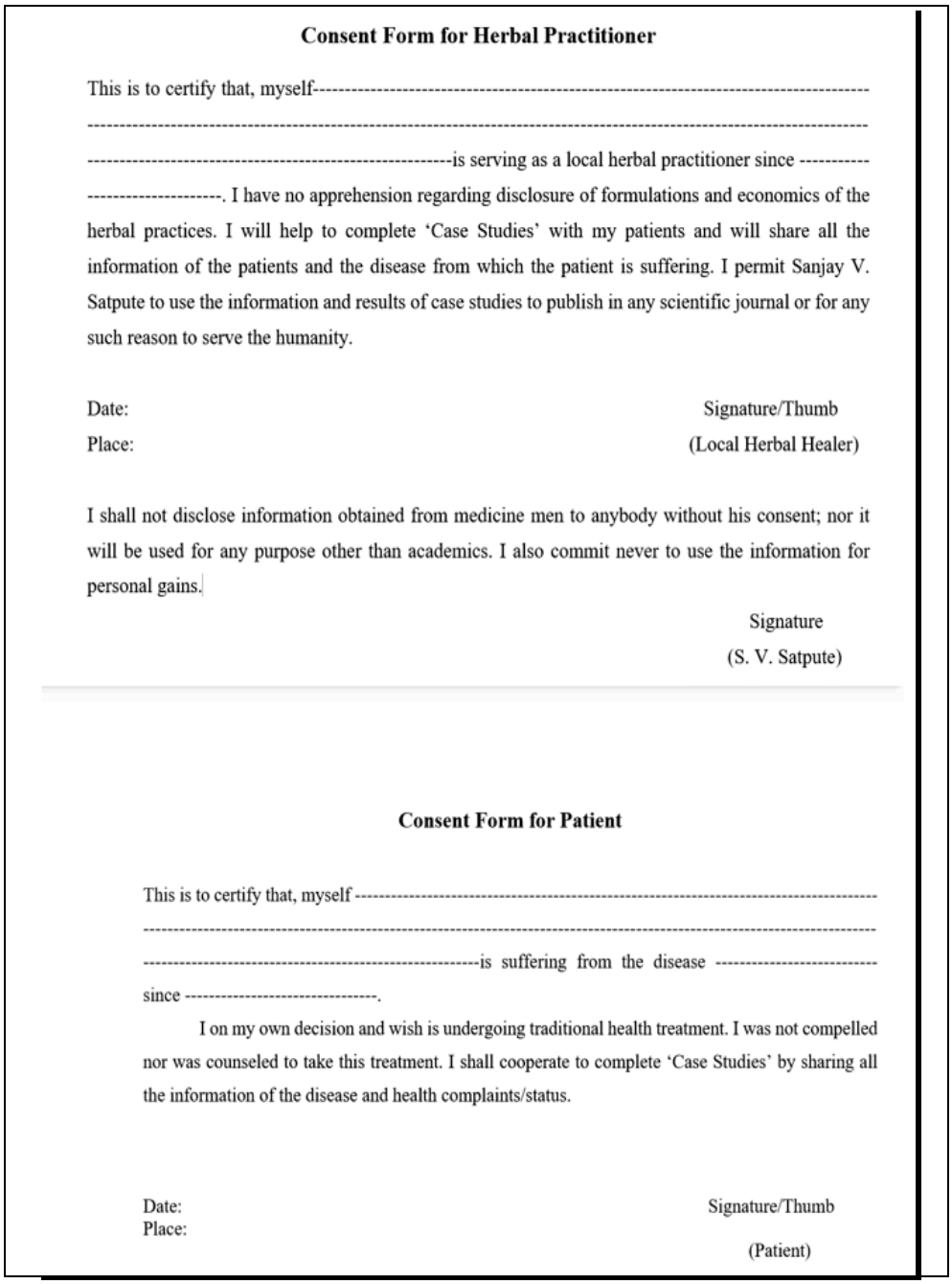
Seven polyherbal formulations, using 29 plant species, for the treatment of different types of psoriasisare prescribed. Seven plant species are used by local herbal healers in monoherbal treatments. To avoid the repetition local name, botanical name, family and voucher specimen number of the plants used in treatments are given in tabular form (Table: 1).

A) Monoherbal Treatments

1) 'Gorakhchinch': Fresh stem bark paste, prepared in water, is applied externally (Ravi Janrao Malve, Rawala).

2) 'Ankol': 2 gm root powder is given, with 50 ml cow-milk, twice a day for 7-days (Ravi Janrao Malve, Rawala).

3) 'Kakbhilai': 10 ml root or leaf juice and cow ghee 10 ml is mixed together. Mixture is given in the morning, on empty stomach, till relief (Ravi Janrao Malve, Rawala).



Consent Form for Herbal Practitioner

This is to certify that, myself----------

----------is serving as a local herbal practitioner since ----------
----------. I have no apprehension regarding disclosure of formulations and economics of the herbal practices. I will help to complete 'Case Studies' with my patients and will share all the information of the patients and the disease from which the patient is suffering. I permit Sanjay V. Satpute to use the information and results of case studies to publish in any scientific journal or for any such reason to serve the humanity.

Date: Signature/Thumb
Place: (Local Herbal Healer)

I shall not disclose information obtained from medicine men to anybody without his consent; nor it will be used for any purpose other than academics. I also commit never to use the information for personal gains.

Signature
(S. V. Satpute)

Consent Form for Patient

This is to certify that, myself ----------

----------is suffering from the disease ----------
since ----------.

I on my own decision and wish is undergoing traditional health treatment. I was not compelled nor was counseled to take this treatment. I shall cooperate to complete 'Case Studies' by sharing all the information of the disease and health complaints/status.

Date: Signature/Thumb
Place:
(Patient)

4) 'Varna-Varni': ½ kg leaves are boiled in 500 ml water; water is reduced to 400 ml by boiling. 20 ml extract is given twice a day till relief (Informant: Gajanan Lakshmanrao Raut, Shendurjanaghat).
5) 'Kala Potya Ankol': Stem bark powder is mixed with coconut oil and the mixture is applied (Informant: Yankatrao Wahane, Rawala).
6) 'Pangara': Stem bark paste is applied till complete relief (Ravi Janrao Malve, Rawala).
7) 'Kad': Stem bark paste is applied, at bedtime, till complete relief (Informant: Ravi Janrao Malve, Rawala).

B) Polyherbal Treatments

1) 1 Kg whole plants of 'Nay, Nad' are shade dried and then fried in 250 gm ghee, powdered. Stem bark and leaf powder of 'Varna-Varni'is fried in cow ghee. 100 gm of this powder is mixed thoroughly with 1 Kg powder of 'Nay'. 2-3 gm mixture is given twice a day on empty stomach till relief. In late stage of psoriasis, the dose is increased (Informant: Manoharrao Kurve, Warud).
2) 10 gm powder each of 'Kakbhilai' root, 'Tetu' root, 'Kala Potya Ankol' stem bark and 'Ankol'stem bark is mixed with 50 gm seed flour of 'Jawar'. Some water is added to the mixture and tablets, of ½-gm each, are prepared. One tablet is given twice a day till relief (Informant: Yankatrao Wahane, Rawala).
3) 50 gm wood powder of 'Chandan' and 50 gm seed powder of 'Palas' are mixed, and paste is prepared by adding 100 ml fruit juice of 'Limbu'. Paste is applied on

psoriasis (Informant: Ramesh Krushnaji Khode, Warud).

4) 20 gm roots,from each plant, of 'Chitrak', 'Anantmul', 'Noshottar', and 'Jangli Adrak', 20 gm dried branches of 'Pipali', 25 gm bark of 'Kunbhi', 25 gm stem bark and 50 gm seeds of 'Motha Kuda', 25 gm dried branches of 'Manjistha', 25 gm seeds of 'Kusali Gavat', 50 gm leaves of 'Bhuineem', 20 gm stem bark and 20 gm roots of 'Karanj', 20 gm fruits of 'Awla', 20 gm fruits of 'Hirda' are powdered together and filtered through clean cloth. ½-teaspoonful cloth filtered powder is given twice a day for 7-days (Informant: Ravi Janrao Malve, Rawala).
5) 100 gm whole plant powder of 'Nirgundi' is mixed in 200 ml seed oil of 'Karanj'; mixture is kept in a glass bottle for 3-4 days in sunlight and applied on psoriasis (Informant: Ravi Janrao Malve, Rawala).
6) 100 gm powder of 'Gorakhmundi' floral heads is mixed in 200 ml 'Karanj' seed oil. Mixture is kept in a glass bottle for 3-4 days in sunlightand applied on affected area (Informant: Sheshrao Hamane, Shendurjanaghat).
7) 100 gm fresh stem bark of 'Kusum' is boiled in 200 ml seed oil of 'Karanj'.Oil is reduced to half by boiling. Cool and strained oil is applied (Informant: Ravi Janrao Malve, Rawala).

Dietary Restrictions

Non-veg, alcoholic drinks; sore, very hot and heat producing food items; rice, brinjal, potato is not allowed for the entire life. Water stored in earthen pot for drinking is recommended. In case of polyherbal treatment No. 02, only Dal (black salt added) and 'Jawar' chapati is allowed to eat throughout the treatment. In case of married persons, sexual contact is not allowed throughout the treatment period.

Case Study

Polyherbal Treatment No. 01 from documentation was selected for further study. In all 10 case studies were made; of these 4 patients had plaque psoriasis, 2 guttate psoriasis, 1 pustular psoriasis, 1 severe generalized psoriasis (Universalis) and 2 erythrodermic psoriasis. Age of the patients ranged from 28-90 yrs. and period of suffering from 1 year to 5 years. In general relief from itching was produced with 15 days of treatment and at the end of month most of the symptoms disappeared but blackening of affected parts was observed. Reappearance of normal colour of skin takes comparatively longer period. Observations are given in Table 2.

Table 1

S.N.	Local Name	Botanical Name	Voucher Number
1	Gorakhchinch	*Adansonia digitata* L. (Malvaceae)	Voucher No. SVS103
2	Ankol	*Alangium salvifolium* (L. f.) Wang. (Cornaceae)	Voucher No. SVS106
3	Nirgundi	*Alectra parasitica* A. Rich. (Scrophulariaceae)	Voucher No. SVS108
4	Bhuineem	*Andrographis paniculata* (Burm. f.) Nees (Acanthaceae)	Voucher No. SVS249
5	Kakbhilai	*Argemone mexicana* L. (Papaveraceae)	Voucher No. SVS111
6	KusaliGavat	*Aristida adscensionis* L. (Poaceae)	Voucher No. SVS251
7	Palas	*Butea monosperma* (Lam.) Taub. (Fabaceae)	Voucher No. SVS254
8	Kumbhi	*Careya arborea* Roxb. (Lecythidaceae)	Voucher No. SVS129
9	Limbu	*Citrus limon* (L.) Osbeck (Rutaceae)	Voucher No. SVS255
10	Varna-Varni	*Crateva magna* (Lour.) DC. (Capparaceae)	Voucher No. SVS150
11	JangliAdrak	*Costus speciosus* (J. Koenig.) Sm. (Costaceae)	Voucher No. SVS149
12	Kala PotyaAnkol	*Drypetes roxburghii* (Wall.) Hurus. (Putranjivaceae)	Voucher No. SVS162
13	Pangara	*Erythrina variegata* L. (Fabaceae)	Voucher No. SVS168
14	Nay, Nad	*Enicostemma littorale* Blume (Gentianaceae)	Voucher No. SVS167
15	Anant-Mul	*Hemidesmus indicus* (L.) R. Br. ex Schult. (Apocynaceae)	Voucher No. SVS257
16	Motha Kuda	*Holarrhena pubescens* Wall. ex G. Don (Apocynaceae)	Voucher No. SVS184
17	Karanj	*Milletia pinnata* (L.) Panigrahi (Fabaceae)	Voucher No. SVS247
18	Nishottar	*Operculina turpethum* (L.) Silva Manso. (Convolvulaceae)	Voucher No. SVS210
19	Tetu	*Oroxylum indicum* (L.) Kurz (Bignoniaceae)	Voucher No. SVS212
20	Awla	*Phyllanthus emblica* L. (Phyllanthaceae)	Voucher No. SVS 250
21	Pipali	*Piper longum* L. (Piperaceae)	Voucher No. SVS256
22	Chitrak	*Plumbago zeylanica* L. (Plumbaginaceae)	Voucher No. SVS218
23	Manjistha	*Rubia cordifolia* L. (Rubiaceae)	Voucher No. SVS252
24	Chandan	*Santalum album* L. (Santalaceae)	Voucher No. SVS224
25	Kusum	*Schleichera oleosa* (Lour.) Merr. (Sapindaceae)	Voucher No. SVS226
26	Jawar	*Sorghum miliiforme* (Hack.) Snowden (Poaceae)	Voucher No. SVS246
27	Gorakhmundi	*Sphaeranthus indicus* L. (Asteraceae)	Voucher No. SVS233
28	Kad	*Sterculia urens* Roxb. (Malvaceae)	Voucher No. SVS235
29	Hirda	*Terminalia chebula* Retz. (Combretaceae)	Voucher No. SVS 248

1. Before Treatment

1.After Treatment of one month

2. Before Treament

2.After treatment of 45 days

3. Before Treatment

3. After Treatment of one month

4. Before Treatment

4. After treatment of 15 days

Table 2.

S.N.	Name & Age of Patient	Type of Psoriasis and Period of Suffering	Observations				Post Treatment General Observations
			Before Treatment	After Treatment			
				15 days	30 days	45 days	
1	Sau. Jijabai S. Shende, 45 yrs.	Guttate Psoriasis, 3 yrs.	Reddish spots with itching	Relief from itching	Spots turned black, no itching	Complete relief	Relief with loss of acidity
2	Mr. Sudhakar Waghmare, 30 yrs.	Plaque Psoriasis, 2½ yrs.	Spots with itching and silvery scales	Relief from itching and scales	Complete relief	-	Relief with loss of gases and acidity
3	Mr. Prabhakar K. Bodhe, 40 yrs.	Plaque Psoriasis, 3 yrs.	Reddish spots with silvery scales	Spots turned black, no scales & itching	Complete relief	-	Relief with sound sleep
4	Sau. Shashikala Kosare, 45 yrs.	Severe General Psoriasis-Universalis, 3-4 yrs.	Spots with lot of scales and itching	Relief from itching	Relief from scales and itching	Complete relief	Relief with sound sleep
5	Mr. Ramdas T. Dhadase, 52 yrs.	Erythrodermic Psoriasis, 4-5 yrs.	Thick black layer of warty skin with itching	Relief from itching, warty layer disappeared	Skin reddish but soft, no itching	Skin turned black and smooth	Relief with weight loss
6	Smt. Manjulabai T. Dhadase, 90 yrs.	Plaque Psoriasis, 4-5 yrs.	Spots with itching and silvery scales	Relief from itching	Relief from itching and scales	Skin turned black and smooth.	Relief with loss of arthritic pain
7	Mr. Vasantrao S. Harle, 45 yrs.	Pustular Psoriasis, 3-4 yrs.	Warty spots with scales and itching	Relief from itching	Spots turned smooth, no itching	Relief from itching and scales	Relief with sound sleep
8	Mr. Yogesh Ganorkar, 40 yrs.	Erythrodermic Psoriasis, 3-4 yrs.	Black layer of warty skin on both legswith itching and pus	Relief from itching and pus	Skin turned smooth and black, no scales	Complete relief	Relief with weight loss
9	Mr. Sachin Zade, 30 yrs.	Plaque Psoriasis, 1 yr.	Spots on body parts with itching and scales	Relief from itching and scales	Skin turned smooth, complete relief	-	Relief with sound sleep
10	Mr. Vikram Kiran Nimbolkar, 28 yrs.	Guttate Psoriasis, 2 yrs.	Thick warty spot sprayed on right legwith itching and scales	Relief from itching and scales	Skin turned black and smooth	-	Relief with loss of acidity

Case studies were carried out for following types of psoriasis, viz.-guttate, plaque, erythrodermic, pustular and universalis. Depending on the response of patient, time taken for each step may vary. Response of age group between 25-40 yrs. was more positive than older age group. Also, response of patients depends on the period of suffering. Patients suffering from 1-3 yrs. showed quick positive response than patients suffering from more than 3 yrs. Early response to ethnic medicine treatment was observed in patients following strict dietary and other restrictions. Most of the restrictions need to be followed for the entire life. Recurrence of psoriasis was observed in the persons who did not follow the restrictions after cure. Weight loss (in overweight patients), sound sleep, feeling fresh, loss of acidity and gases was also observed in patients during the treatment. This is additional positive benefit provided by the drug. Worth mentioning fact is that same formulation is effective on different types of psoriasis.

The wealth of information preserved as unwritten rural folk knowledge is slowly fading and oral tradition of passing knowledge from generation to generation is decreasing. Proper use of medicinal plants is a necessity. Ethnobotanical survey is important to transmit traditional knowledge to future generations and to suggest new plant species which may require further pharmacological and phytochemical investigations. Scientific evaluation of medicinal plants will help in the integration of modern and traditional medicine. Screening is essential to reduce any potentially harmful side effects on human skin and health. This will open new areas for research in therapeutic medicine.

Conclusion

In case of Ayurveda, people are now actively conducting clinical trials to establish the authenticity of Ayurvedic medicines. In fact, Ayurveda has been practiced in India since ages and has stood the test of time. The efficacy and safety of Ayurvedic drugs is proved one through clinical experiences over not only hundreds but thousands of years. However, for global acceptance there is need to assess the efficacy of these drugs through scientific clinical research. Same needs to be done for ethnic treatment to get acceptance from modern medical field to restore the lost dignity of traditional knowledge. It was found that available ethnic treatment for psoriasis is efficient, cost-effective, reliable and providing additional health benefits.

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