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Ethnomedicinal Plants Used by the Kanikkars of Tirunelveli District, Tamil Nadu, India to Treat Skin Diseases

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ABSTRACT

This study has been carried out in Chinnamayilaru, Periyamyilaru, region of Agasthiyamalai biosphere, Western Ghats, Tamil Nadu. The dominant tribal group of this region is Kanikkar. The area is famous for its well protected Tiger Reserve (Kalakad-Mundandurai Tiger Reserve). The wild plants found in this region that are used especially for treating skin diseases are enumerated in the present paper. The full results of this study are organized in table form and include the species botanical name, followed by the family and local (Kanikkar) name and a brief note on the plant parts used, method of administration, dosages etc.

Key words: Ethnomedicine, skin diseases, Kanikkar, India.

INTRODUCTION

WHO has estimated that at least 80% of all the global inhabitants rely on traditional systems of medicine for their primary health needs and these systems are largely plant based. Ethnomedicines have received renewed global attention of scientists in India and abroad because of their wide local acceptability, and providing leads to the discovery of new drugs of plant origin. Ethnobiological surveys indicated that about 8000 species of medicinal plants are used as food, medicine, phytochemical, biocides and other products.

Ethnobotanists, all over the world, have been actively working to collect, document and conserve the indigenous medicinal plants. In the last two decades, many reports on medicinal plants have been published from the states of Bihar, Madhya Pradesh, North eastern hill states and Orissa, owing to the large tribal populations of the regions (Patil and Bhaskar, 2006).

The Kanikkars are predominant hill tribes of Agasthiyamalai biosphere, Western Ghats, Tamil Nadu. The members of this community are familiar with several herbs and well versed in using the various herbs to cure various ailments. Their reliance on the herbs for medicinal value has prompted the

present study. Herein an attempt is made to enumerate the medicinal plants used by the Kanikkars as remedies for skin diseases.

METHODOLOGY

With the primary objective of interesting the Kanikkar tribals living in the Agasthiyamalai biosphere, Western Ghats, Tamil Nadu, settlements like Periyamayilaru and Chinnamayilaru were surveyed and the traditional medicines used for various skin diseases were gathered with the help of elderly and experienced individuals practicing indigenous medicines. Information was considered only after confirmation through two or more informants. Based on the information provided by tribals, plant specimens were collected, air-dried and mounted on herbarium sheets and identified by using various floras (Gamble, 1935; Mathew, 1983). Voucher specimens are maintained at the P.G. & Research Department of Botany, V. O. Chidambaram College, Tuticorin, Tamil Nadu (VOCBNO from 3700 to 3758). Confirmation of the identifications was made through the comparison of the specimens with those housed in the herbarium of the Botanical Survey of India (RBI), Southern Circle, Coimbatore, India.

Plants in Table 1 are arranged alphabetical in order of their botanical names, followed by the family and local (Kanikkars) name and a brief note on the plant parts used, mode of administration, dosages etc.

Table 1. List of ethnomedicinal plants collected and documented for skin diseases.

SI. No	Botanical Name	Family	Vernacular name	Habit	Plant part(s) used
1	*Abrus precatorius* L.	Fabaceae	Kundumani	Climber	Root
2	*Abutilon indicum* (L.) Sweet	Malvaceae	Tutti	Shrub	Leaves
3	*Acalypha indica* L.	Euphorbiaceae	Kuppaimeni	Erect herb	Leaves
4	*Aegle marmelos* (L.) Correa	Rutaceae	Vilvam	Thorny tree	Leaves
5	*Aerva lanata* (L.) Juss.ex Schultes	Amaranthaceae	Kannupeelai	Shrub	Whole plant
6	*Amaranthus spinosus* L.	Amaranthaceae	Mullukkirai	Herb	Inflorescence
7	*Andrographis paniculata* (Burm.f.) Wall.ex Nees	Acanthaceae	Nila Vembu, kiriuatlhi	Herb	Leaves
8	*Andrographis rothii* Clarke	Acanthaceae	kaya patchilai	Herb	Epidermal peel of stem
9	*Argemone mexicana* L.	Papavaraceae	Ponnumathai	Herb	Leaves
10	*Aristolochia indica* L.	Aristolochiaceae	Thalaisurulivaer	Erect herb	Vegetative part
11	*Asparagus racemosus* Willd	Asparagaceae	Thanneervittan kizhangu	Climber	Root-tuber & root.
12	*Azadirachta indica* A.Juss	Meliaceae	Veppu	Tree	Leaves & seed oil
13	*Begonia malabarica* Lam.	Begoniaceae	Malaipulichi	Herb	Leaves
14	*Boerhavia diffusa* L.	Nyctiginaceae	Vethalamai	Herb	Leaves
15	*Calotropis gigantea* (L.)	Asclepiadaceae	Erukku	Shrub	Leaves &

	R.Br.				latex
16	*Canthium parviflorum* Lam.	Rubiaceae	Kattikarai	Thorny shrub	Leaves
17	*Cassia alata* L.	Caesalpiniaceae	Yanaithavarai	Shrub	Leaves
18	*Cassia fistula* L.	Caesalpiniaceae	Konnei	Medium sized tree	Leaves
19	*Cassia tora* L.	Caesalpiniaceae	Tagarai	Herb	Root
20	*Cissampelos pareira* L.var hirsuta (Buch-Ham. ex DC)Forman	Menispermaceae	Malaithanki pachilai	Climber	Whole plant
21	*Clerodendrum inerme* (L.) Gaertn	Verbenaceae	Changukuppi	Shrub	Leaves
22	*Clitoria ternatea* L.	Fabaceae	Shangupuspam	Climber	Root & Leaves.
23	*Commelina benghalensis* L.	Commelinaceae	Valaipachai	Herb	Leaves
24	*Curculigo orchioides* Gaertn.	Hypoxidaceae	Nilapanai	Herb	Tuber
25	*Cynodon dactylon* (L.) Pers.	Poaceae	Arugampullu	Herb	Fresh leaves
26	*Datura metel* L.	Solanaceae	Yumattai	Herb	Leaves
27	*Eclipta prostrata* (L) L.	Asteraceae	Karisalankanni	Herb	Leaves
28	*Elephantopus scaber* L.	Asteraceae	Yanaichavattadi	Herb	Leaves & Rhizome
29	*Erythrina variegata* L.	Fabaceae	Mullumurukku	Tree	Leaves
30	*Evolvulus alsinoides* (L.) L	Convolvulaceae	Vishnukarandi	Herb	Whole plant
31	*Ficus benghalensis* L. var. benghalensis	Moraceae	Aal	Tree	Stem Latex
32	*Ficus racemosa* L.f	Moraceae	Atthi	Tree	Stem Latex
33	*Ficus religiosa* L.	Moraceae	Arasu	Tree	Stem Latex
34	*Hemidesmus indicus* (L.) R.Br. var. indicus	Periplocaceae	Nannari	Climber	Root
35	*Hiptage bengalensis* (L.) Kurz.	Malpighiaceae	Mattavirkodi	Shrub	Leaves & flowers
36	*Indigofera tinctoria* L.	Fabaceae	Vannan avuri	Shrub	Whole plant
37	*Ipomoea staphylina* Roem. & Schultes	convolvulaceae	Onaankodi	Climber	Stem latex
38	*Ixora coccinea* L.	Rubiaceae	Idlipoo	Shrub	Flower
39	*Jatropha curcas* L.	Euphorbiaceae	Kaatamanakku	Shrub	Leaves
40	*Justicia adhatoda* L.	Acanthaceae	Adhathodai	Shrub	Leaves
41	*Leucas aspera* (Willd) Link	Lamiaceae	Thumbai	Herb	Flower, Leaves
42	*Mimosa pudica* L.	Mimosaceae	Thottasurungi	Herb	Root, Leaves
43	*Mirabilis jalapa* L.	Nyctaginaceae	Anthimantharai	Herb	Tuber

44	*Mollugo pentaphylla* L.	Molluginaceae	Pappadai	Herb	Whole plant
45	*Morinda pubescens* J.E.Smith var. pubescens	Rubiaceae	Manjanatti	Tree	Fresh leaves
46	*Mukia maderaspatana* (L.) M. Roem	Cucurbitaceae	Kattuvellari	Climber	Leaves.
47	*Ocimum tenuiflorum* L.	Lamiaceae	Tulsi	Herb	Fresh leaves
48	*Phyllanthus emblica* L.	Euphorbiaceae	Nellikai	Tree	Fruits
49	*Piper nigrum* L.	Piperaceae	Nallamilagu	Climber	Leaves
50	*Plumbago zeylanica* L.	Plumbaginaceae	Venkodivete	Woody herbs	Leaves
51	*Pongamia pinnata* (L) Pierre.	Fabaceae	Pongan	Tree	Bark
52	*Rubia cordifolia* L.	Rubiaceae	Koduvilli	Climbing herb	Root
53	*Saraca asoca* (Roxb)Wilde	Caesalpinaceae	Asokam	Tree	Flower
54	*Tephrosia purpurea* (L.)pers.	Fabaceae	Kolingi	Undershrub	Whole plant
55	*Tribulus terrestris* L.	Zygophyllaceae	Sirunerinji	Herb	Fruits
56	*Trichopus zeylanicus* Gaertn.subsp.travancoricus	Dioscoriaceae	Arokyapachilai	Herb	Leaves
57	*Tridax procumbens* L.	Asteraceae	Mookutthielai	Herb	Fresh leaves
58	*Vernonia cinerea* (L.) Less	Asteraeae	Kucharipoo	Herb	Leaves
59	*Wrightia tinctoria* (Roxb.)R.Br.	Apocynaceae	Vetpalai	Tree	Leaves

ENUMERATION

***Abrus precatorius* L.**

The paste prepared from ten grams of root with water is applied externally two times a day for a period of one week to treat dandruff.

***Abutilon indicum* (L.) Sweet**

A handful of the fresh leaves made into a paste with water is externally applied on the skin thrice a day to treat the ringworm infection.

***Acalypha indica* L.**

The paste prepared from ten grams of leaves with water is applied externally two times a day for a period of one week to treat skin diseases.

***Aegle marmelos* (L.) Correa.**

Five to ten grams of leaves are made into paste with a few drops of water. This paste is applied externally on the affected skin twice a day for a period of two to three days to get relief from itches.

***Aerva lanata* (L.) Juss. ex Schultes**

The juice prepared from ten to fifteen grams of whole plant with 150ml of water is taken orally three times a day for a period of two days to reduce eczema.

***Amaranthus spinosus* L.**

The past obtained by grinding twenty grams of the inflorescence is applied on the affected area externally, twice a day for one week to get relief from eczema and other skin diseases.

***Andrographis paniculata* (Burm.f.) Wall. ex Nees**

Ten grams of the fresh leaves made into a paste with water is externally applied twice a day to treat leprosy, scabies and the ringworm infection.

***Andrographis rothii* Clarke**

About fifty grams of fresh epidermal peel of the stem is made into paste with a small quantity of water. This paste is applied externally on the weapon injuries twice a day for five to six days for healing.

***Argemone mexicana* L**

About ten grams of the leaf paste is externally applied once a day to treat the ringworm infection. The clean leaf paste mixed with limewater is applied twice a day on the wounds for healing.

***Aristolochia indica* L.**

The paste prepared from twenty five grams of vegetative part with water is applied externally once in a day for a period of one week to treat dandruff.

***Asparagus racemosus* Willd**

The powder prepared from twenty grams of root tuber and roots of this plant is taken orally with 150ml of goat's milk (or) rice fermented water three times a day for a period of two days to treat lumbago and leucorrhoea.

***Azadirachta indica* A. Juss**

Handful of the leaf paste mixed with the powdered dried rhizome of *Curcuma longa* is externally applied once a day to treat all kinds of skin infection, small pox and chicken pox. The oil extracted from the seeds is externally applied twice a day to treat eczema.

***Begonia malabarica* Lam.**

About ten grams of the leaf paste is externally applied twice a day to treat the ringworm infection.

***Boerhavia diffusa* L.**

A handful of leaves are boiled in coconut oil and the oil extract is externally applied twice a day to treat scabies and the ringworm infection.

***Calotropis giganteа* (L.) R. Br.**

About 10ml of the latex along with rhizomes of *Curcuma longa* and roots of *Aristolochia indica* are boiled in coconut oil and the oil extract is externally applied thrice a day to treat eczema.

***Canthium parviflorum* Lam.**

Handful of the leaf paste is externally applied twice a day to treat scabies and the ringworm infection.

***Cassia alata* L.**

Ten grams of the fresh leaf paste is applied twice a day to treat the ringworm infection.

***Cassia fistula* L.**

The paste prepared from ten grams of leaves with water is applied externally three times a day for a period of three days to treat any injuries.

***Cassia tora* L.**

The juice prepared from ten to fifteen grams of root with 150ml of water is taken orally in empty stomach for a period of two days in a singly dose to get relief from skin diseases.

***Cissampelos pareira* L.var. hirsute (Buch-Ham. ex DC) Forman**

Handful of the whole plant paste is externally applied on the skin daily in the morning hours for a week to treat the ringworm infection.

***Clerodendrum inerme* (L.) Gaertn**

The leaf paste is externally applied once a day for a week to treat psoriasis, scabies and the ringworm infection.

***Clitoria ternatea* L.**

Handful of leaves made into a paste is externally applied a day to treat skin inflammation, scabies and the ringworm infection.

***Commelina benghalensis* L.**

The leaf paste is externally applied twice a day to treat scabies. The leaf paste is also applied on the wounds once a day for healing.

***Curculigo orchioides* Gaertn.**

About ten grams of the fresh or dried root tuber paste is externally applied twice a day to treat the ringworm infection

***Cynodon dactylon* (L.) Pers**

The juice prepared from ten to fifteen grams of fresh leaves with 200ml of low's milk is taken orally twice a day for a period of three days to treat leucorrhoea.

***Datura metel* L.**

The leaves are gently heated on flame and applied on the face once in a day for a week to treat pimples.

***Eclipta prostrata* (L.) L.**

Leaves along with the seeds of *Foeniculum vulgare* are boiled in coconut oil and the oil extract is applied on the head daily in the morning hours for a week to treat dandruff. The leaf paste is used to treat the ringworm infection.

***Elephantopus scaber* L.**

Ten grams of the leaf and rhizome paste are externally applied twice a day for a week to treat the ringworm infection.

***Erythrina variegata* L.**

Ten grams of the fresh leaf paste is externally applied once a day to treat leprosy.

***Evolvulus alsinoides* (L.) L.**

The juice prepared from twenty grams of whole plant with 150ml of goat's milk is taken orally three times a day for a period of three days to reduce body heat and to treat lumbago.

***Ficus benghalensis* L. var. benghalensis**

The stem latex is applied on the cracked feet (fissures in foot) twice a day for a week for healing the cracks in the feet.

***Ficus racemosa* L.f.**

The stem latex is applied on the cracked feet twice a day for a week for healing the affected feet.

***Ficus religiosa* L.**

Applying the stem latex twice a day for a week can heal the fissures in the foot.

***Hemidesmus indicus* (L) R.Br. var. indicus**

Handful of the dried roots are pounded and boiled in 100 ml of coconut oil. Few drops of the oil extract are externally applied twice a day to treat eczema, scabies and the ringworm infection.

***Hiptage bengalensis* (L.) Kurz.**

Twenty grams of leaves and flowers made into a paste with water is externally applied twice a day to treat the ringworm infection.

***Indigofera tinctoria* L.**

The juice prepared from 10g of whole plant with 200ml of Goat's milk is taken orally three times for a period three days to treat leucorrhoea.

***Ipomoea staphylina* Roem. & Schultes**

The stem latex is applied on to the cracked feet (fissures in foot) once in a day at bedtime for a week for healing the cracks.

***Ixora coccinea* L.**

Fifty grams of the dried flowers are boiled in coconut oil and the oil extract is externally applied twice a day to treat eczema.

***Jatropha curcas* L.**

Ten grams of the leaf paste is externally applied twice a day to treat eczema, scabies and the ringworm infection.

***Justicia adhatoda* L.**

Ten grams of the fresh leaves made into a paste is externally applied twice a day for a week to treat scabies and the ringworm infection.

***Leucas aspera* (Willd.) Link.**

Ten grams of the leaf paste is externally applied twice a day to treat the ringworm infection.

***Mimosa pudica* L.**

Ten grams of the leaf paste is externally applied thrice a day to treat eczema. A handful of the entire plant made into a paste is applied on cuts and wounds for healing.

***Mirabilis jalapa* L.**

Ten grams of dried root tuber made into a paste with water is externally applied twice a day to treat the sebaceous cysts and polyps.

***Mollugu pentaphylla* L.**

Twenty grams of the entire fresh plant is made into paste with equal quantity of fresh Turmeric **(***Curcuma longa* L.) and Poolankilangu (*Plectranthus barbatus* Andr.) The paste is applied externally on the body an hour before bath. This practice is followed for ten to fourteen days to get relief from eczema and bad body odour.

Morinda pubescens* J.E. Smith var. *pubescens

Ten grams of fresh leaves, two to three small Onion bulbs (*Allium cepa* L.) and one teaspoon of Turmeric powder (*Curcuma longa* L.) are made into paste. This paste is heated in five to ten ml of coconut oil and the hot paste is applied on the injury caused by weapons once in a day for four to five

days to heal the wounds.

***Mukia maderaspatana* (L.) M. Roem**

Ten grams of the leaf paste is externally applied twice a day to treat scabies and the ringworm infection.

***Ocimum tenuiflorum* L.**

Twenty to thirty grams of fresh leaves are made into paste. This paste is applied on the wound twice a day for a period of four to five days to heal the wound.

***Phyllanthus emblica* L.**

Fifty grams of the dried cotyledons are boiled in coconut oil and the oil extract is externally applied thrice a day to treat scabies.

***Piper nigrum* L.**

Ten grams of the leaf paste is externally applied twice a day to treat the ringworm infection.

***Plumbago Zeylanica* L.**

About ten grams of leaves made into paste is externally applied twice a day to treat eczema, scabies and the ringworm infection.

***Pongamia pinnata* (L.) Pierre**

Hundred grams of the dried bark powder is boiled in 200ml coconut oil and the oil extract is externally applied once a day to treat eczema, psoriasis, rashes, scabies and the ringworm infection.

***Rubia Cordifolia* L.**

Twenty grams of fresh and clean root or twenty grams of fresh tender shoot is made into paste. This paste is applied externally on to weapon injury twice a day for five to six days for healing the injury.

***Saraca asoca* (Roxb.) Wilde**

Fifty grams of the dried flowers and the leaves of *Lawsonia inermis* are boiled in coconut oil and the extract is externally applied twice a day to treat eczema and scabies.

***Tephrosia pupurea* (L.) pers**

The paste of about ten grams of whole plant is applied externally once or twice for three days to treat any injuries.

***Tribulus terrestris* L.**

The juice prepared from ten grams of fruits with 200ml of goat's milk is taken orally two times a day for a period of three days to treat leucorrhoea.

Trichopus zeylanicus* Gaertn. subsp. *travancoricus

Ten grams of the fresh leaves are ground into a paste and externally applied twice a day to treat scabies and the ringworm infection.

***Tridax procumbens* L.**

Ten grams of fresh leaves are made into paste along with a pinch of calcium hydroxide. This paste is externally applied on the eczema affected area (or) on injury made by weapon once in a day for three or four days for complete cure.

***Vernonia cinerea* (L.) Less**

Handful of leaves are pounded and boiled in coconut oil. The oil extract is externally applied thrice a day to treat leprosy and scabies.

***Wrightia tinctoria* (Roxb.) R. Br.**

Hundred grams of leaves are pounded and boiled in 200ml of coconut oil. The red coloured oil is externally applied thrice a day to treat eczema and scabies. The bark paste is used to treat various skin infections.

DISCUSSION

The tribals' knowledge of indigenous uses of native medicinal plants before exodus into the urban areas to join the mainstream life needs to be studied and documented. In the present study 59 medicinal plants were collected and documented. The present study focuses the extensive usage of as many as 59 medicinal plants used by the Kanikkars tribe inhabiting the South – Eastern slope of Western Ghats, Tirunelveli district, Tamil Nadu to treat skin diseases.

As an outcome of the present investigation, 59 plants belonging to 54 genera and 35 families were recorded. Of the recorded plants, 54 were Dicotyledons and 5 belonged to the Monocotyledons. A total of 6 ethnomedicinal plants belonged to the Fabaceae. This was followed by the Rubiaceae, Asteraceae and Caesalpiniaceae (4 plant species each).

As far as plant parts are concerned, the Kanikkars employed almost all parts of the plant in ethnomedicine. In terms of percentage of plant parts used, the percentages are as follows, leaf 58%, root 12%, whole plant 10%, stem latex 8%, flower 7% and root tuber 5%.

The most prevalent forms of administration of medicine are paste (63%). This is followed by decoctions (17%), juice (10%) and stem latex (two plants).

The enumerated 59 plants treat/cure as many as 18 different types of skin diseases. A maximum of 22 plants are use to treat ringworm infection, followed by 12 plants for scabies and eczema, respectively; five plants for injuries, four plants each for leucorrhoea, cracked foot and wounds, respectively. One plant each for treating inflammation, itches, pimples, rashes and sebaceous cysts and polyps. Some researches have reported 13 plants for the treatment of skin diseases (Sharma Laxmikant *et al.*, 2003). Among them some of the species are also used to treat hair disorders. Some workers have also reported 24 important plants, which are commonly used by the tribals in the Sub-Himalayan Tarai Region of Uttarpradesh for the treatment of skin diseases (Ali and singh, 2002). Ayyanar and Ignacimuthu (2005) have reported 15 plants for the treatment of skin diseases.

From this account it is clear that the Kanikkar tribes, like other ancient tribals (Raja Singh, 1971), possess the ability to discern the character of various plants and their beneficial properties. It is interesting to note that such a way of life, particularly with respect to health care practices, has hardly undergone any change even in the present era. The present study shows that the people of the Tirunelveli district have a great diversity of medicinal plants with richethnomedicinal uses, and especially for treating skin diseases.

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