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Medicinal plants used for the treatment of skin diseases by Kurumba tribes of Nilgiri District, Tamilnadu

Divya Bharathi G[1], Vishnu Kumar S[2], Saradha M[1*], Pugalenthi M[2], Sami Durai P[3]

[1]*Department of Botany, Nirmala College for Women, Coimbatore – 641 018*
[2]*Department of Botany, Government Arts College (Autonomous), Coimbatore- 641018*
[3]*Department of Botany, Bharathiyar University, Coimbatore- 641046*

ABSTRACT

The present study was initiated with an aim to document the medicinal plants used for the treatment of skin diseases used by the Kurumba tribes of Nilgiri district. During the study selected study area was visited frequently and information was collected through semi directive, open ended interview among the informants of Kurumba tribes. The details on vernacular name of the plant, mode of diagnosis, disease they treat, usage of plants, mode of application were collected. The plants were identified and deposited at the herbaria of Nirmala College for Women, Coimbatore. A total of 27 plant species belonging to 21 families have been documented in the present study. The collected medicinal herbs are used for treatment of various skin diseases such as insect bite fever, dandruff, impetigo, psoriasis, vitiligo, urticuria, scabies, rashes, lesions, measles and chicken pox, napkin dermatitis, pruritus, dermatitis, eczema, excoriation, burnt wound and skin cancer etc., Different plant parts were used for curing the skin disease such as shoot, root, leaves, rhizomes, whole plants. The study thus underlines the potentials of the ethno-botanical research and the need for the documentation of traditional pertaining ecological knowledge.

Key words: Dandruff, Kurumba tribes, medicinal plants, skin cancer.

I. INTRODUCTION

Skin is the largest organ in the human body it acts as the first line of defense covering the body [1]. It is protective barrier against damage of internal tissues from various agents such as trauma, ultra violet light, temperature, toxins, fungal and bacteria [2]. India is one of the largest producer of medicinal plants and is rightly called the botanical garden of the world as it is sitting in the gold mine of well recorded and traditionally well practiced of herbal medicine. About 17,000 species of Indian flora about 7,500 species of higher plants are reported to possess a medicinal value and in other countries is projected about 7% and 13% [3]. Some of the pathogens and environmental conditions may cause problems such as eczema, leucoderma, wounds, and itching [4].

Any weakness at the skin becomes a great handicap for a person in the society, because it has a visible pathology. In Sri Lanka the only available measures of disease frequency related to skin disorders are from hospital-based clinic studies. They reflect only the patterns of clinic attendance, and the actual prevalence of skin diseases in the community is unknown [5]. Generally, people that suffer from dermatoses can be divided into “stress responders”, who believe that stress affects their disorder and “non-stress responders”, who see no association between their disease and emotional stress. Systemic therapies, including cytotoxic agents, retinoids and biological [6].

Traditional medicinal plants have been identified only by their regular practicing and healing these have shown ways in discoveries of new drugs that are cost effective and are safe compared to synthetic drug [7]. Many plants are still to be explored for their medicinal activities. Most of the known medicines are still a restriction to many traditional healers since they convey information only by words to the next generation and still most of their information is still lost [8]. In light of these facts the present study focused on documentation of medicinal plants used for the treatment of skin diseases but the kurumba tribes of Nilgiri District, Tamilnadu. Previously, ethnobotanical studies, related to dermatological problems have also been conducted in different countries on the use of plants to treat various skin diseases [9, 10, 11, 12 and 13].

II. METHODOLOGY

Study Area:

The Nilgiris derives its name from the words ‘neel’ (blue) and ‘giri’ (mountain). It is also unknown whether this name comes from the blue smoky haze given off by the Eucalyptus trees that cover the area, or because of the Kurunji flower, which blooms every twelve years giving the slopes a bluish tinge. The mountain range is situated at an elevation of 900 to 2636 meters above MSL and at the junction of the two Ghat ranges of the Sayadri Hills, the Nilgiris district provides a fascinating natural view. Aadarly area is situated in Coonoor taluk of Nilgiris district 900 to 930 meters above mean sea level. The place is large thick forest area which in habits wild animals such as black panther, Bison, wild boar, etc. In view of

conserving the traditional knowledge an attempt has been made to study the ethanobotanical aspect of Aadarly area in Coonoor.

Kurumba tribes:

The Kurumba are ethnic group of people who lives in the Nilgiris Hills.There are seven major Kurumba groups: the Alu (milk) Kurumba, Palu (milk) Kurumba, Betta (hill) Kurumba, Jenu (honey) Kurumba, Mullu (net) Kurumba, Urali (village) Kurumba and Mudugas. Each group is regarded as a separate ethinic group. The kurumbas have been hunters and gatherers. They forage a variety of food from the forest and hunted and trapped birds and animals. They lived in rock shelters and caves and grew bananas, mangoes and jack fruits in forest gardens. Deforestation had driven them out of their traditional villages into the plains, where they work in tea and coffee plantation. These people build their houses with stones and red soil.

Data Collection

The present investigation was carried out from Aadarly area of Nilgiri district to get information from the tribal practitioners and also to cross check the information provided by them during the earlier visits. The survey was conducted during May 2018- to November 2018. The medicinal plants growing in natural habitats of Aadarly forest was collected, identified and authenticated with the help of valid references [14 and 15]. At the same time plant species were collected and herbarium sheets were prepared by traditional method and were deposited in Department of Botany, Nirmala College for Women Coimbatore. The details on vernacular name of the plant, usage of plants and mode of administration were collected from the tribal practitioners through direct interviews and oral conversations. The tribal practitioners had a sound knowledge about the medicinal plants that treat skin diseases around their place to treat the common diseases in family and neighborhood.

III. RESULT AND DISCUSSION

Documentation of Indigenous Ethanomedicinal knowledge

Nilgiri biosphere reserve is an International Biosphere Reserve in the Western Ghats with very high diversity of flora and fauna. There have been many works carried out in the Nilgiri Hills. In the present study a total of 27 plants belonging to 21 families have been collected and information was gathered from the Kurumba tribes inhabiting in the area. The dominant families are in ascending order Euphorbiaceae (4), Eleocarpaceae and Apocynaceae (2) and Fabaceae, Amaranthaceae, Asphodelaceae, Acanthaceae, Papaveraceae, Meliaceae, Apocynaceae, Apiaceae, Areaceae, Commelinaceae, Zingiberaceae, Poaceae, Solanaceae, Asteraceae, Moraceae, Piperaceae, Rubiaceae, Rutaceae (1). Amoung the genera *Eleocarpus* (2) and other genera were represented with single species (Table 1).

Plants used in treatment of various Skin diseases

In the present study more than a single plant used for same ailment for example *Andrographis paniculata, Murdannia lanuginose, Commelina bengalensis, Exacum wightianum, Rubia cordifolia* used to treat insect Bite, *Eclipta alba, Wrightia tinctoria* for Dandruff, *Cymbopogon citrates, Azadirachta indica* for impetigo, *Acalypha indica, Ricinus communis* for Psoriasis, *Eleocarpus variablis, Ficus bengalensis* for Vitiligo, *Euphorbia hirta* for Wart, *Datura metel* for Vasculitis, *Eleocarpus munroni* for Urticuria, *Aloe vera* for Dry skin, *Peperomia tetraphylla* for Scabies, *Argemone mexicana* for Rashes, *Abrus percatorius* for Lesions, *Curcuma longa* for Measles and Chicken pox, *Cocos nucifera* for Napkin dermatitis, Pruritus, *Ruta graveolans* for Dermatitis, *Achyranthes aspera for* Eczema, *Centella asiatica* for Excoriation, *Jatropha curcas* for Burnt wound and *Catharanthus roseus* for Cancer. The documentation of wild plants for the treatment of dermatosis has been done and documented about 23 skin disease treating plants the work was focused on bioecological and phytotherapheutic properties of wild medicinal plants [16]. Ayurveda has obtained a strong proof of treating skin diseases naturally of which medicinal value of 149 plants and mode of treatment as per ayurvedic classic has been recorded [17].

Method of preparation and mode of administration of plants

The preparation and usage of plant parts were categorized as Powder and raw (6), Crushed (5), grinded and boiled (3), paste (2) and decoction and heated (1) (Table 1). The plants were collected during drought season for powder since these plants are said to have more effect and scientifically the plants produce more secondary metabolites during stress condition. The plants were crushed with stones and the extract is applied on the affected area. The paste is prepared by grinding the leaf with water and the well grinded material is applied on the affected area. Decoctions were prepared by boiling the plants in water and the water level reduce to about required amount. The leaves are heated in flame and kept in the affected area. Tribes have obtained traditional knowledge based on the trial and error method were they have clearly standardized the mode of usage, The documentation of ethnic knowledge of Irula tribes inhabiting in Bolampatty valley, Southern Western Ghats, India they prepare medicines in the form of powder, decoction, paste and juice . It is observed that it is used for more than one form of preparation[18]. The authors have investigated 9 rural communities in Ovia north in local governance area, Edo state. A total of41 plants belonging to 29 families were documented different plant parts are used for the study such as leaves, stem, bark, seed, root, fruits and flowers [19].

Ingredients added

The medicines were prepared by the Kurumba tribal healers use more than one plants and other ingredients such as mustard oil, coconut oil, turmeric to improve the tolerability and medicinal property for certain remedies (Table 2). The present findings were supported in which Honey and Goat milk is used while intake of prepared medicine in powder forms. Oral medicines are prepared mostly using water, goat milk, breast milk and honey based on the needs [20].

IV Conclusion

The tribes in Addarly area in Coonoor have been using numerous medicinal plants for therapeutic purpose since immemorial times. The people depend on these medicinal herbs for the treatment of various skin diseases such as Insect Bite fever, Dandruff, Impetigo, Psoriasis, Vitiligo, Urticuria, Scabies, Rashes, Lesions, Measles and Chicken pox, Napkin dermatitis, Pruritus, Dermatitis, Eczema, Excoriation, Burnt wound and Cancer etc., these plants are used readily as on when needed and so there is need for documentation and conservation of such Medicinal plants.

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Table 1. Plants used for the treatment of skin diseases by Kurumba tribes of Nilgiri District

S. No	Binomial Name	Family	Tamil Name	Parts used	Preparation methods	Mode of preparation	Diseases cured
1	*Abrus precatorius* L.	Fabaceae	Gundumani	Leaves	Crushed	Leaves are crushed mixed with coconut oil and heated	Lesions
2	*Acalypha indica* L.	Euphorbiaceae	Kuppaimeni	Leaves	Crushed	Leaves are crushed with turmeric	Psoriasis
3	*Achyranthes aspera* L.	Amaranthaceae	Nai uruvi	Leaves	Paste	Leaf paste is applied over night	Eczema
4	*Aloe vera* (L.) Burm.f.	Asphodelaceae	Sothu katralai	Pulp	Raw	Applied directly on skin and scalp	Skin dryness
5	*Andrographis paniculata* (Burm. fil.) Nees	Acanthaceae	Nila vembu	Leaves	Decoction	Leaf decoction is given for 3 days in empty stomach	Insect Bites
6	*Argemone subfusiformis* G. B. Ownbey	Papaveraceae	Brahmathadu	Latex	Raw	Latex is applied in the skin rashed one hour before bath.	Rashes
7	*Azadirachta indica* A. Juss.	Meliaceae	Vembu	Leaf	Paste	Leaf and turmeric are grinded together and applied on pox blisters	Impetigo and Miliaria
8	*Catharanthus roseus* (L.) G. Don	Apocynaceae	Nithya kalyani	Flower	Boiled	Flowers petals are boiled and intaken every day to cure skin cancer in basic stage	Cancer
9	*Centella asiatica* (L.) Urb.	Apiaceae	Vallarai	Whole plant	Boiled	The whole plant is boiled in water and taken in 2 hrs interval	Excoriation
10	*Cocos nucifera* L.	Areaceae	Thennai	Oil	Grinded	Oil is applied on wounds	Napkin dermatitis, Pruritus.
11	*Commelina benghalensis* L.	Commelinaceae	Kerina	Shoot	Crushed	The plant is crushed and applied on insect sting	Bites
12	*Curcuma longa* L.	Zingiberaceae	Manjal	Rhizome	Powder	Rhizome powder is used in regular bath	Measles and Chicken pox
13	*Cymbopogon citratus* (DC.) Stapf	Poaceae	Elumachai pul	Leaves	Crushed	The leaves are crushed and the extract is applied on fungal infections	Impetigo
14	*Datura metel* L.	Solanaceae	Ummathai	Seeds	Powder	Seeds are dried powdered and mixed with mustard oil and applied three times a day	Vasculitis
15	*Eclipta alba* (L.) Hassk.	Asteraceae	Karisalankanni	Leaves	Boiled	The leaves of *Eclipta alba*, *Hibiscus* flowers, orange peel, fenugreek seeds are heated in coconut oil till the colour change. The oil is regularly applied	Dandruff
16	*Elaeocarpus munronii* (Wl.) Masters	Eleocarpaceae	Nari Bikki	Fruit	Raw	The fruits are intaken to cure skin sores	Urticuria
17	*Elaeocarpus variabilis* Zmarzty	Eleocarpaceae	Bikki	Fruit	Raw	The fruits are intaken to cure white skin diseases	Vitiligo

18	*Euphorbia hirta* L.	Euphorbiaceae	Amman pacchai aruci	Latex	Raw	The lates is applied to get rid of scars	Wart
19	*Exacum wightianum* Arn.	Gentinaceae		Leaves	Crushed	The leaves are crushed and applied on bites.	Bites
20	*Ficus benghalensis* L.	Moraceae	Aalamaram	Bark	Powder	Bark powder is mixed with honey and intaken.	Vitiligo
21	*Jatropha curcas* L.	Euphorbiaceae	Kattu ammanakku	Leaves	Heated	The leaves are slightly heated over flame and places on burnt wounds	Burnt wound
22	*Murdannia spirata* (L.) G.Brückn.	Commelinaceae	Valai pullu	Stem	Raw	The watery slime is applied on insect bites	Insect bite
23	*Peperomia tetraphylla* L.	Piperaceae	Othu chedi	Whole plant	Grinded	Whole plant is grinded with turmeric and applied on skin to cure scabies.	Scabies
24	*Ricinus communis* L.	Euphorbiaceae	Ammanakku	Seed	Grinded	Seed oil is applied on skin.	Psoriasis
25	*Rubia cordifolia* L.	Rubiaceae	Pambu vada	Stem	Powder	Dried stem powder is mixed with honey and intaken for insect bite	Bites
26	*Ruta graveolens* L.	Rutaceae	Aruvatham pachai	Leaves	Powder	Leaf powder is mixed with green gram flour, turmeric and used in baby bath	Dermatitis
27	*Wrightia tinctoria* (Roxb.) R. Br.	Apocynaceae	Paalai	Leaves	Powder	The leaf powder is mixed with coconut oil and applied on scalp	Dandruff

Table 2. Plants used for the treatment of skin diseases

S.No	Binomial Name	Plants added for medicinal preparation	Ingredients added
1	*Abrus percatorius* L.	-	Coconut oil
2	*Acalypha indica* L.	Turmeric	-
3	*Azadirachta indica* A. Juss.	Turmeric	-
4	*Eclipta alba*(L.) Hassk.	Hibiscus, orange peel, fenugreek	Coconut oil
5	*Peperomia tetraphylla* L.	Turmeric	-
6	*Rubia cordifolia* L.	-	Honey
7	*Ruta graveolans* L.	Green gram and turmeric	-
8	*Wrightia tinctoria*(Roxb.) R. Br.	-	Coconut oil