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Exploration and elucidation of various medicinal plants used in the management of dermatological disorders by folklore practitioners of Udupi District, Karnataka, India

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Abstract

Introduction: Ayurveda emphasizes to utilize the flora which is available in and around us for medicinal purpose. It also believes everything is medicinal in nature thus suggests to collect the information about these local medicinal flora from the *Vanavaasi* (Primitive tribes), *Ajapa* (Goatherds), *Avipa* (Shepherds) and *Gopa* (Cowherds). Traditionally the science of healing is taught from one generation to another, which is now kept as a secret. Hence an attempt is made in this direction to collect the information from traditional healers who use locally available plants of their place for skin ailments located in coastal region of Karnataka called Udupi.

Methodology: The information regarding the plant species, their local name, part used, mode of usage along with dosage of the medicinal plants used by them. The data was collected by randomly selecting 24 informers who were from 16 different villages and data is collected using a Self-prepared questionnaire based interviews.

Results and Conclusion: The ethno-medico-botanical survey is documented and it reveals that 27 different plant species belonging to 16 families which were used by the folklore practitioners to successfully prevent and treat various ailments of skin as well as hair.

Keywords: Skin ailments, ethno-medico-botanical survey, folklore practitioners, plant species

Introduction

Ayurveda is the oldest yet scientific medicine, considers every substance is medicinal in nature^[1] and it also suggests to collect the information about the medicinal plants from *ajapa* (Shepherds), *gopa* (Cowherds) and other people who live in forest^[2]. Each and every tribal/ethnic community has its own system of traditional medicine and they utilize natural plant based resources around their habitat for their daily use, as a custom and also for various medicinal purposes.

This knowledge of this folklore tradition is handed down orally from one generation to the other^[3]. The majority of people live in rural areas in India and they rely upon traditional medicines for their healthcare as well their cattle, this is due to strong belief on the traditional medicine and the healers. Lack of primary healthcare centres and transportation facilities also makes them to approach traditional healers. Besides, medicinal plants are easily available natural products, cost-effective with no or negligible side-effects^[4]. The ethno-medico-botanical surveys are always been considered as the main source for new drug discovery. Indian subcontinent excels in plant biodiversity having several medicinal properties. It facilitates traditional healers to develop effective therapies against various ailments. The Udupi districts are among the floristically rich regions in the state of Karnataka^[5].

Skin is the largest organ of the body, accounting for about 15% of the total adult body weight. Skin is a major part of the body contact with the outside world. It performs many vital functions, including protection against external physical, chemical, and biologic assailants, as well as prevention of excess water loss from the body and a role in thermoregulation. The skin is continuous, with the mucous membranes lining the body's surface. As long as skin is intact, this tough, flexible outer covering is remarkably resistant to infection. Because of its exposed state, it is frequently subjected to cuts, punctures, burns, chemical injury, hypersensitivity reactions and insect or tick bites. These skin injuries provide a way for pathogens to enter and infect skin and underlying tissues.

Skin diseases affect people of all ages from neonates to the elderly and constitute one of the five reasons for medical consultation. Skin disorders affect 20-30% of the general population at any one time. It is more prevalent in tropical regions. Socio demographic factors play

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pivotal roles in determining the pattern of skin disease. Although mortality rates for skin diseases are relatively low, they impact significantly on the quality of life and are often persistent and are difficult to treat.

Follow-up research on other traditional uses of medicinal plants, such as for the treatment of gastro-intestinal, respiratory ailments and sexually transmitted infections (STIs) etc. have been given sufficient attention, but still lacking is attention given to the ethno medicinal plants used for skin diseases in remote geographical areas. The aim of the present study was to collect ethno medicinal knowledge from lay people in Udupi district of Karnataka for the application of medicinal plants as a treatment in skin disorders. This is the first survey done in this region which specifically focuses on dermatological ailments.

Materials and methods

The place selected for the study is Udupi district of Karnataka state which is situated between 13°05' N and 13°33' N and 74°41' E and 74°55' E and covers an area of 929 sq. km. The information regarding the plant species, their local name, part used, mode of usage along with dosage of the medicinal plants used by them. The data was collected by randomly selecting 21 informers who were from 16 different villages and data is collected using a Self-prepared questionnaire based interviews.

The data was collected in following ways.

a) Literature survey: Literature survey on different aspects of this study like prevalent dermatological diseases in the selected locality and various medicinal plants used in skin disorders has been carried in library as well as digital library of S.D.M. College of Ayurveda, Kuthpady, Udupi. The literature includes classical Ayurveda books, compiled texts and Regional flora.

b) Interview with folklore practitioners/traditional healers, local inhabitants: The Coastal region of Karnataka was explored during the ethno botanical survey. Survey was conducted in the Udupi district of Karnataka from May–July 2017. Information was collected through investigations and by interviewing the local people during various field trips. Semi-structured interviews with the aid of a questionnaire were used to obtain data including local names of plants, plant parts used in medicinal preparation, therapeutic effects, diseases treated, and method of preparation, method of

administration, dosages, and duration of treatment. Interviews were conducted individually with folklore/traditional medical practitioners. Specific questions based upon self-prepared proforma were used to collect information and the resultant information was recorded in the field book.

c) Field Survey and authentication: Various forest localities, agricultural farms, villages have been visited regularly for the collection of plant specimens. Plants with their local name, binomial name, family, part of plant used and ethno botanical uses are recorded. The plants were collected and later identified by an expert Botanist. Local names were provided in their own language by the traditional physicians. During field visits, photographs of plants have been taken to show habit, habitat, flower, fruit, and other pre-diagnostic characters. From this survey, 27 plant species were identified which belongs to 16 family.

Results

Survey report- The result of the present study demonstrates the persistence of folk medicine for different kinds of skin diseases in Udupi district of Karnataka. (Table no.1)

The present survey study revealed that, the local peoples are using several plants for curing skin diseases. Medicinal plants and their uses reported by the informants in the studied area were tabulated. In the present study information gathered from 24 informants. Among them 16 (14 male and 2 female individuals, aged between 28 and 82 years) are the 'key informants' who gave the information exclusively about the treatment of skin diseases.

The present survey indicates ethno medicinal information of 27 plant species belonging to 16 families. Few of the herbal healers considered their herbal knowledge as traditional secrets and did not easily part with it. Intimate contacts were established with them. The traditional healers were not pressurized to reveal their knowledge and were convinced that the information would be exclusively for academic purpose. Traditional practitioners usually prefer external and internal applications or oral administration of the herbal preparation since the treatment of various types of skin ailments depending on the type and severity of the infection. The external application of the drug is used for all types of skin ailments. Most of the traditional healers recommended oral administration of decoction to purify the blood. Treatments are done with either single plant formulation, combinations of several plants or even with many parts of the same plant.

Table 1: Folk Plants used in skin ailments

SN	Binomial name	Family	Part used	Indications	Mode of usage
1.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Leaf	Ringworm infection	Leaf paste taken orally
2.	<i>Anacardium occidentale</i> L.	Anacardiaceae	Seed oil	Foot crack, corn	The oil from nut applied on the Crack
3.	<i>Anisochilus carnosus</i>	Lamiaceae	Leaf	Finger gap infection	Paste of leaf applied externally
4.	<i>Anisomeles malabarica</i> (L.) O. Ktze.	Lamiaceae	Leaf	Impetigo	Leaf boiled in water and wash the affected area
5.	<i>Briodelia stipularis</i> (L.) Blume.	Euphorbiaceae	Tender leaves	Scabies, Eczema	Application of leaf paste
6.	<i>Getonia floribunda</i> Lam.	Combretaceae	Leaf	Eczema, Wound healing	Decoction of leaf for bathing
7.	<i>Centella asiatica</i> (L.)	Apiaceae	Leaf	Dandruff, Ringworm infection, Boils,	Leaf paste applied externally on scalp
8.	<i>Clitorea ternatea</i>	Fabaceae	Flower	Skin whitening	Flowers ground with water and applied externally
9.	<i>Derris scandens</i> (Roxb.) Benth	Fabaceae	Leaf	Scabies, Impetigo, Anti-inflammatory	Leaf juice boiled with coconut oil and apply in affected area
10.	<i>Erythrina variegata</i> Linn.	Fabaceae	Leaf	Eczema	Grind the leaf and used as Poultice
11.	<i>Flueggea leucopyrus</i> (Roxb. ex Willd.) Voig	Euphorbiaceae	Leaf	Ringworm infection	1. Leaf pasted along with <i>Curcuma longa</i> rhizome applied on the affected area.

					2. Leaf and tender shoot paste applied externally
12.	<i>Glycosmis pentaphylla</i> (Retz.) DC.	Rutaceae	Root	Psoriasis	Root paste applied externally
13.	<i>Hemidesmus indicus</i> (L.) R. Br.	Apocynaceae	Leaf	Eczema	Leaf paste used as poultice
14.	<i>Memecylon randerianum</i> S.M	Melastomataceae	Leaf	Herpes	Paste applied externally and decoction internally.
15.	<i>Oldenlandia umbellata</i> L.	Rubiaceae	Whole plant	Leucoderma, Impetigo	Leaf paste used as poultice
16.	<i>Pavonia odorata</i> Willd.	Malvaceae	Root	Athelets foot disease	Grind the root along with <i>curcuma longa</i> rhizome, <i>Mimosa pudica</i> leaves. Then apply in the affected area
17.	<i>Pergularia daemia</i> (Forssk.) Chiov.	Apocynaceae	Leaf	Eczema, Impetigo	Leaf juice boiled with coconut oil and apply in affected area
18.	<i>Persea macrantha</i> (Nees) Kosterm	Lauraceae	Leaf	Dandruff	Leaf used as a shampoo
19.	<i>Physalis angulate</i> L.	Solanaceae	Leaf	Psoriasis	Leaf juice boiled with coconut oil and apply in the affected area
20.	<i>Plectranthus amboinicus</i> (Lour.)	Lamiaceae	Leaf	Ringworm infection	Leaf gently rubbed on the area
21.	<i>Rhinacanthus nasutus</i> (L.) Kurz, J.	Acanthaceae	Root	Athelets foot disease, Impetigo	Grind the root and made in to a past, mix with curd, then apply
22.	<i>Scleropyrum pentandrum</i>	Santalaceae	Seed oil	Eczema	Seed oil applied externally
23.	<i>Spermacoce latifolia</i> Aubl.	Rubiaceae	Whole plant	Impetigo	Leaf paste used as poultice
24.	<i>Symplocos cochinchinensis</i> (Lour) Var. <i>laurina</i>	Symplocaceae	Bark	For fairness	The bark is made in to a paste and mix with sandal paste and turmeric powder.
25.	<i>Toddalia asiatica</i> (L.) Lam.	Rutaceae	Leaf	Allergic skin rashes	Juice boiled with coconut oil along with <i>Hibiscus rosasinensis</i> leaf and apply
26.	<i>Ventilago madraspatana</i> Gaerh. Fruct	Rhamnaceae	Bark	Tinea infection, Scabies	Fresh juice of bark applied externally
27.	<i>Wrightia tinctoria</i> (Roxb) R.Br.	Apocynaceae	Leaf, leaf oil	Psoriasis, eczema, Ringworm infection	Leaf juice boiled with coconut oil and apply in affected area

Discussion

According to Acharya Susrutha, skin diseases are caused by taking incompatible and unsuitable food, eating during indigestion, suppression of urges, sinful activities and ripening of previous deed. According to him, if disease is located in twak (rasa), cleansing and fasting is used; If it is located in the blood, evacuation, fasting, intake of decoction and bloodletting are useful; if disease being located in muscles cleansing, fasting, intake of decoction, bloodletting, use of aristas, manthas, and prasas are whole some; when the disease reaches the fourth stage (medas) with its effects and qualities, it becomes palliable if the patient has self-control and adequate means. In that case, after evacuation and bloodletting different Ayurvedic preparation like *guggulu*, *khadira*. etc. If it proceeds to the fifth one (asthi and onwards) it become incurable and as such should not be taken up for treatment.

Plants and plant extracts have been used for the treatment of skin disorders for centuries. Also due to increasing resistance to antibiotics to many bacteria, plant extracts and plant compounds are of new interest as antiseptics and antimicrobial agents in dermatology. Traditional medicinal resources especially plants have been found to play a major role in managing skin disorders.

Different parts of medicinal plants were used as medicine by the local traditional healers to treat skin diseases. Among the different plant parts, the leaves were most frequently used for the treatment of diseases. External applications were more preferred and used than the internal consumption of the preparations for the treatment of skin related diseases. It was observed that, most of the remedies consisted of single plant part and more than one method of preparation. The study represents a contribution to the existing knowledge of folk remedies that are in current practice for the treatment of skin diseases amongst the rural population because of their inaccessibility to modern health care centers. However, this mode of application of plants to cure ailments is safe with no

side effects, if taken as per the directions of the Folklore practitioner. It is hoped that, this information will be a useful lead for new drug discovery in Ayurveda. Once the efficacy of these herbal drugs in treating skin diseases is scientifically established, popularization of these remedies can be recommended to the healthcare providers for wider application among the rural mass.

The results of the present study demonstrate the persistence of folk medicine for different kinds of skin diseases in Udupi district of Karnataka.

There is no specific documentation on the traditional treatment method to cure skin diseases in the present study area used by traditional physicians. So the present investigation aimed to highlight the firsthand information on traditional methods to cure skin diseases by traditional physicians of Udupi district of Karnataka.



Amaranthus viridis L.



Anisochilus carnosus



Clitoria ternatea



Anisomeles malabarica (L.)
O. Ktze

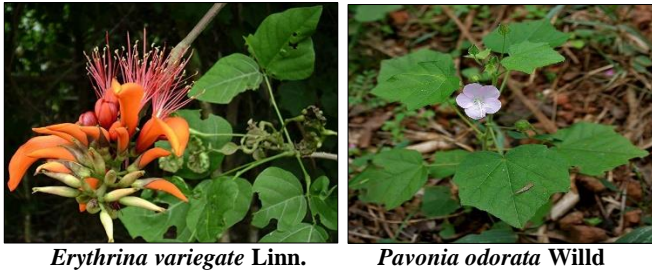


Fig 1: Folk drugs found in udupi district for skin disorders

Conclusion

The objective of the present study was to find out a scientifically unexplored, effective, reliable and non-toxic medicinal plant used for the management of dermatological disorders as well as for cosmetic purposes in Udupi district of Karnataka. As per the survey conducted in this area revealed that, the tribes are using several plants for skin ailments but many of these plants are common to many skin disease. The survey indicated that, the study area has plenty of medicinal plants to treat a wide spectrum of skin diseases.

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