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Research Article

## Herbal Remedies Used to Treat Skin Disorders in Arasankulam Region of Thoothukudi District in Tamil Nadu, India

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### ABSTRACT

As lacking in attention given to the ethnomedicinal plants to be used for the treatment of skin diseases in many areas, an ethnomedicinal study was carried out to enumerate the traditional uses followed to treat skin diseases among the people living in Arasankulam and Kottarakurichi villages located in Thoothukudi district of Tamil Nadu. The medicinal uses of 24 species belonging to 20 families were reported from the study area. Euphorbiaceae was noted as largest families comprising of 3 species each. Herbs (50.0%) were found more in number than other life forms of plants. Leaves (50.0%) were the mostly used plant part to prepare the medicine and paste (61.54%) was the dominant mode to treat the skin ailments. By this research work, it was also noted that a total of 6 plants were used to heal wound, 4 plants for the treatment of cut, 3 plants each to cure boil and eczema, 2 plants to treat heel crack and 1 plant each for abrasion, chicken pox, dandruff, itch, leprosy, lip crack, scabies, skin allergy, small pox and tumor. Further studies on phytochemical and pharmacological aspects of these plants will contribute new dimensions to these medicinal plants.

**Keywords:** Medicinal plants, Skin diseases, Arasankulam region, Thoothukudi district, Tamil Nadu.

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## 1. INTRODUCTION

Skin diseases occur worldwide and account to nearly 34% of all occupational diseases reported. They affect people of all ages from childhood to ageing. Although mortality rates due to skin diseases are relatively low, they influence significantly on the quality of life and are often persistent and are difficult to treat <sup>1</sup>.

Traditional medicinal plant resources have been found to play a vital role in managing skin disorders. They have been employed by the various ethnic people in the treatment of skin ailments in many countries around the world where they contribute significantly in the primary health care of the population <sup>2-7</sup>.

Sequel researches on other traditional uses of medicinal plants have been given sufficient attention, but still lacking much more attention to the ethnobotanical plants to be used for the treatment of skin diseases especially in remote rural areas. Hence, the present study was aimed to document the ethnomedicinal knowledge on plants used in the treatment of skin disorders by the rural people dwelling in Arasankulam region of Thoothukudi district in Tamil Nadu.

## 2. MATERIALS AND METHODS

### 2.1. The study sites

Two villages namely, Arasankulam and Kottarakurichi were selected to conduct the ethnomedicinal survey. They are belonging to Srivaikuntam taluk of Thoothukudi district in Tamil Nadu. Geographically, Arasankulam is lying between 77.5576° E longitude and 8.7087° N latitude, and Kottarakurichi between 78.0205° E longitude and 8.6557° N latitude. The temperature of the study area is about 16 – 40° C and annual rainfall reaches 850 mm. Maximum landmass of both the study sites is covered with agricultural lands.

### 2.2. Methodology

An ethnobotanical survey at Arasankulam and Kottarakurichi villages was carried out from January to February, 2020. The informations on plants used as traditional medicine against various skin diseases were collected through interactions with local inhabitants included medical practitioners. The medicinal property of plant under study was confirmed by at least 4 informants. A total 11 peoples were interviewed during this study and out of 11, 7 persons were men and 4 were women. Interviews

were conducted in Tamil language and the data were transformed into English. The plants were botanically identified by using regional floras<sup>8,9</sup>.

### 3. RESULTS AND DISCUSSION

A total of 11 informants include 7 male (63.64%) and 4 female (36.36%) were interviewed on their knowledge of medicinal plants used to treat skin disorders in the study area. Among them, 7 respondents were belonging to Arasankulam village and 4 to Kottarakurichi village. All the respondents were grouped into three age categories viz., 20–

40 years, 41–60 years and above 60 years and most of them (6 informants, 54.54%) were in the category of 41–60 years. The level of education revealed that 54.54% were educated and about 45.46% of the respondents have no formal education. In related to occupation, each of 5 informants were being as farmers and agricultural laborers respectively (Table 1). By this ethnomedicinal survey, it has been found that the male informants not only practice local traditional medicinal treatment regimens, but also have good knowledge about medicinal plants than female informants.

**Table 1: Demographic data of informants**

Basic characteristics	Number (percent distribution)		
	Male	Female	Total informants
<b>Gender</b>			
Male/Female	7 (63.64)	4 (36.36)	11 (100.0)
<b>Name of village</b>			
Arasankulam	5 (71.42)	2 (50.0)	7 (63.64)
Kottarakurichi	2 (28.58)	2 (50.0)	4 (36.36)
<b>Current age</b>			
21 – 40 years	1 (14.28)	1 (25.0)	2 (18.18)
41 – 60 years	4 (57.14)	2 (50.0)	6 (54.54)
Above 61 years	2 (28.58)	1 (25.0)	3 (27.28)
<b>Educational status</b>			
Literate	5 (71.42)	1 (25.0)	6 (54.54)
Illiterate	2 (28.58)	3 (75.0)	5 (45.46)
<b>Occupation</b>			
Farmer	4 (57.14)	1 (25.0)	5 (45.46)
Agri. Labourer	2 (28.58)	3 (75.0)	5 (45.46)
Govt. Employee	1 (14.28)	0	1 (9.08)

Totally 24 plant species used for the treatment of 16 different skin disorders were recorded in the present survey (Table 2). These disorders include abrasion, boil, burn, chicken pox, cut, dandruff, eczema, heel crack, itch, leprosy, lip crack, scabies, skin allergy, small pox, tumor and wound. The 24 plant species belongs to 20 families, with Euphorbiaceae (3 species) being the most represented

family, followed by Capparidaceae and Mimosaceae (2 species each) and the remaining 17 families were reported with one species each (Fig 1). In case of habits of the plants recorded, herbs were found maximum (12 nos., 50.0%) than trees (8 nos., 33.34%), shrubs (2 nos., 8.33%), and climbers (2 nos., 8.33%) (Fig 2).

**Table 2: List of medicinal plants used for skin disorders in Arasankulam region**

Botanical name	Family	Vernacular name	Habit	Medicinal use(s)
<i>Acacia leucophloea</i> (Roxb.) Willd.	Mimosaceae	Velvaelam	Tree	Stem bark paste is mixed with turmeric powder and applied on cut and wound
<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppaimaeni	Herb	Leaf juice is poured to heal abrasion
				Paste prepared from aerial parts is applied to treat scabies
<i>Aegle marmelos</i> Corr.	Rutaceae	Vilvam	Tree	Leaf paste is applied to treat skin burn
<i>Aristolochia bracteolata</i> Lam.	Aristolochiaceae	Aaduthinnaappaalai	Climber	Leaf paste is applied on head before bathing to get relieve from dandruff
<i>Azadirachta indica</i> A.Juss.	Meliaceae	Vaambu	Tree	Leaf paste is applied to cure itch.
				Leaf paste along with turmeric powder is applied topically on the body to treat small pox and chicken pox
<i>Boerhaavia diffusa</i> L.	Nyctaginaceae	Chaarathi	Herb	Root extract is applied to cure skin allergy
<i>Cadaba fruticosa</i> (L.) Druce.	Capparidaceae	Vizhuthi	Shrub	Stem bark paste is applied on boil and cut
<i>Catharanthus roseus</i> Murr.	Apocynaceae	Nithyakalyaani	Herb	Root paste is applied to treat eczema
<i>Cleome viscosa</i> L.	Capparidaceae	Naaikadugu	Herb	Leaf juice is applied to cure eczema
<i>Cocos nucifera</i> L.	Arecaceae	Thennai	Tree	Oil extracted from the mature fruit flesh is used to treat cut and wound
<i>Croton bonplandianum</i> Baill.	Euphorbiaceae	Vaenappoindu	Herb	Leaf extract is poured on cut and wound
<i>Delonix elata</i> (L.) Gamble	Caesalpiniaceae	Perungondrai	Tree	Flower paste is applied to cure eczema
<i>Euphorbia hirta</i> L.	Euphorbiaceae	Ammaanpacharishi	Herb	Diluted latex applied to treat lip crack
<i>Ficus benghalensis</i> L.	Moraceae	Aalamaram	Tree	Stem latex is applied topically to cure heal heel crack
<i>Heliotropium indicum</i> L.	Boraginaceae	Thealkodukku	Herb	Leaf paste is applied to treat wound
<i>Hemidesmus indicus</i> (L.) R.Br.	Asclepiadaceae	Nannaari	Climber	Root paste is applied to cure skin burn
<i>Justicia adathoda</i> L.	Acanthaceae	Adaathodai	Shrub	Leaf paste is applied for tumor
<i>Mangifera indica</i> L.	Anacardiaceae	Maa	Tree	Latex obtained from leaf is applied to heel crack
<i>Mimosa pudica</i> L.	Mimosaceae	Thottaalsinungi	Herb	Leaf paste is applied to treat burn and wound
<i>Musa paradisiaca</i> L.	Musaceae	Vaazhai	Tree	Exudate obtained from inner stem pour burn
<i>Phyla nodiflora</i> (L.) Greene	Verbenaceae	Poduthalai	Herb	Whole plant extract is pour to treat boil
<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Chithiramoolam	Herb	Entire plant paste is applied to cure leprosy
<i>Sida acuta</i> Burm.f.	Malvaceae	Arivalmanaipoindu	Herb	Leaf paste is applied to heal wound
<i>Tridax procumbens</i> L.	Asteraceae	Vettukkaayathalai	Herb	Leaf paste is applied on boil

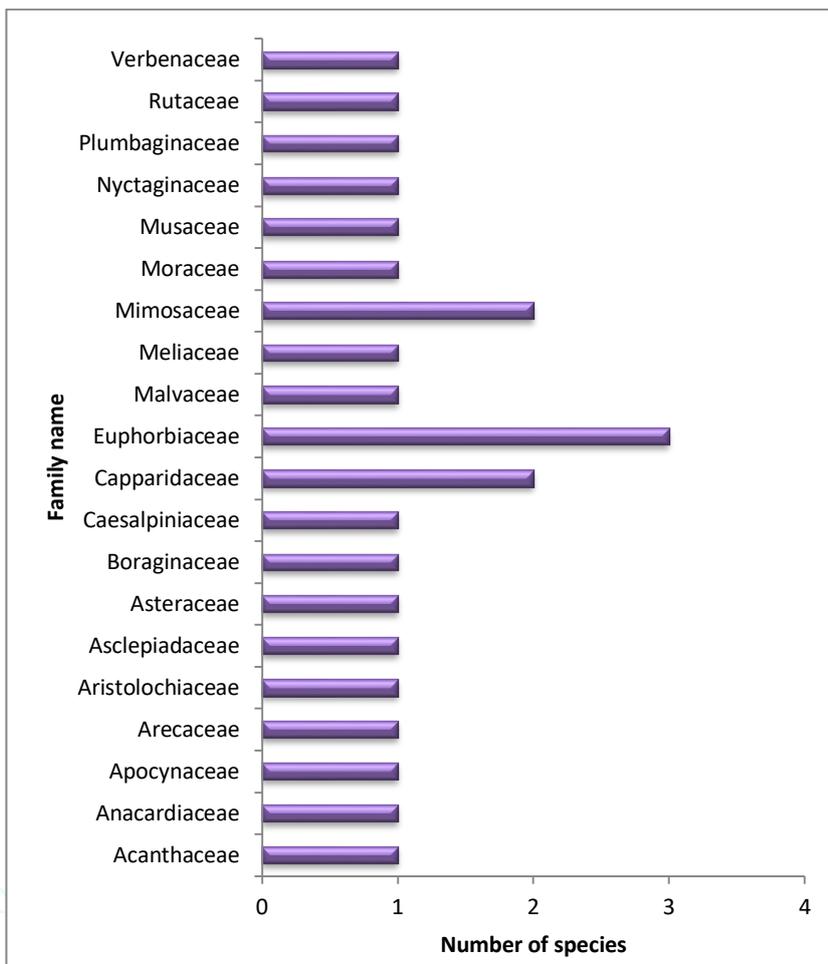


Figure 1: Families with number of species

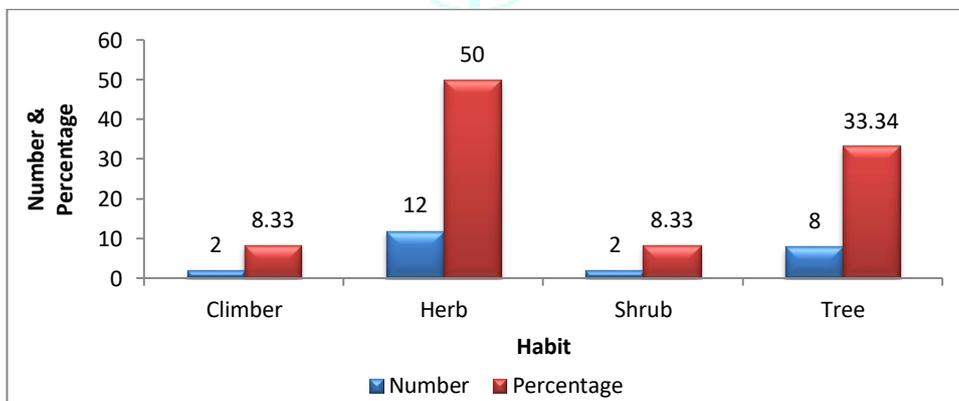


Figure 2: Number and percentage of plants in various habits

The results also shows that leaves (50.0%) were the preferable plant part used to treat skin infections, followed by root and stem (11.54% each) (Fig 3). In most other ethnobotanical studies where plants are used to treat various disorders, the leaves are also the preferable plant part used<sup>10-17</sup>. It was also noted the recorded plant species were prepared in a variety of ways. The plant materials were used as fresh in the preparation of paste (61.54%), extract (11.54%), latex (11.54%), juice (7.7%), exudate (3.84%) and oil (3.84%) (Fig 4). Administration of the different plant parts were mostly (84.62%) applied topically as a paste (Fig 5). The most common treatments in other similar survey conducted in nearby district of present stud area is also confirmed that the use of medicines as pastes in the treatment of skin diseases<sup>18</sup>.

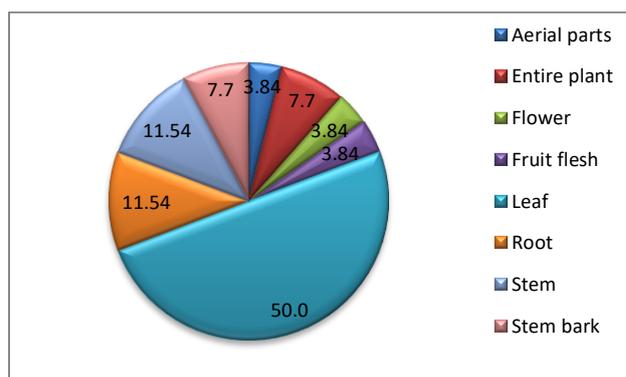


Figure 3: Percentage of plant parts used

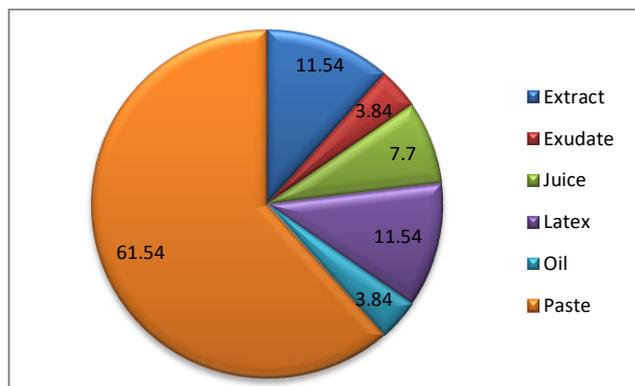


Figure 4: Percentage of mode of medicinal preparation

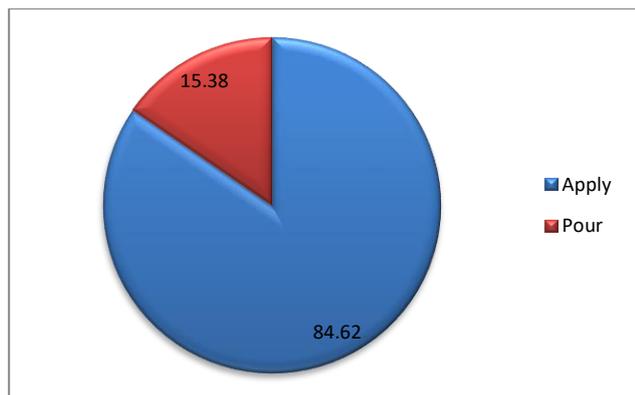


Figure 5: Percentage of mode of medicinal application

The informants mentioned 16 different skin diseases which are treated with different plant-based medication (Fig 6). Among the plants recorded, 6 plants were used to heal wound, 4 plants each to treat burn and cut, 3 plants were prescribed in the treatment of boil and eczema, 2 plants to heal heel crack and each of single species to remaining ailments (Fig 6).

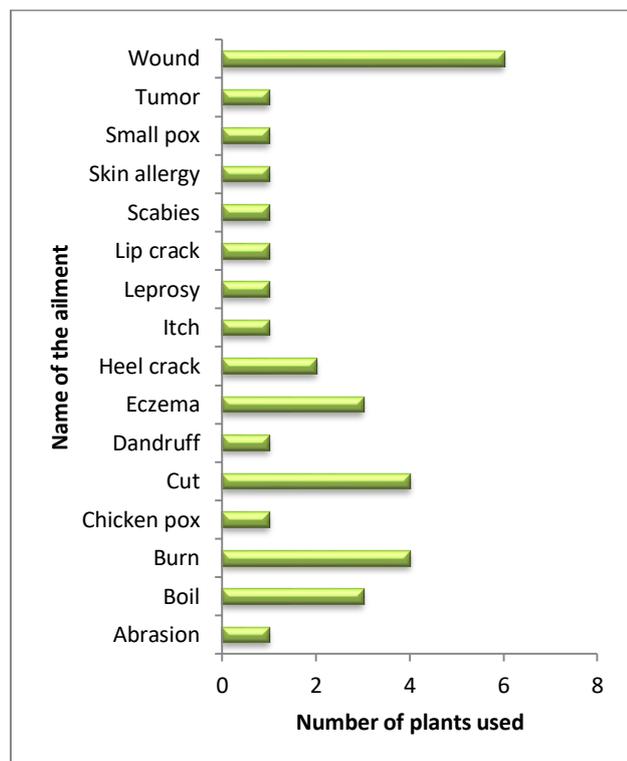


Figure 6: Number of plants used for each skin ailment

It was reported that two common skin disorders are wounds and burns which are likely to happen in rural communities where wood is mostly used as fuel for cooking. A recent survey done in the north eastern state of India revealed that 46 plant species are used exclusively to treat various dermatological problems including wound<sup>3</sup>. Various other studies globally have also reported plant remedies for the treatment of wounds<sup>5,19-21</sup>. The present study is not corresponding with a study done in Kenya<sup>22</sup>, where sores are the most frequently treated skin disease.

#### 4. CONCLUSION

Further studies should be carried out to validate the possible antimicrobial efficacies of these plants against skin relevant pathogens. Additional ethnobotanical survey should be conducted to explore the whole traditional knowledge of rural dwellers of the study area on plants used for the treatment other ailments. Conservation strategies should be carried out on these medicinally important species.

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#### CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

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