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Ethnomedicinal plants used by the malayali tribals of Pachamalai hills for wounds

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Abstract

Ethnomedicine is concerned with the cultural interpretations of health, disease and illness and also addresses the health care-seeking process and healing practices. It is interesting to note that the ethnomedicinal uses of plants is one of the most successful criteria used by the pharmaceutical industry in finding new therapeutic agents for the various fields of biomedicine. *This Study was conducted at* Pachaimalai Hills, a low mountain range in the Eastern Ghats. Here Malayali tribals residing at Achinadu (Gonganavalli), Kombai, Perumal Kovil, Thenpuranadu, Vannadu areas. Intensive field ethnomedicinal surveys were conducted in the Pachamalai hills from 2018 to 2020 to document ethnomedicinal plants resources used by Malayali tribals residing in Pachamalai hills settlements. In the present study, totally 26 species belonging to 18 families and 26 genera of ethnomedicinal plants were used by the Malayali tribals of Pachamalai hills specifically for the treatment of wounds. Among habit wise, herbs are the dominant habit form represented by 14 species followed by trees (6 species), shrubs (3 species) and climbing herb, liana and small tree (single species each) respectively. All the documented information on ethnomedicinal plants for wounds used by various tribes from Pachamalai hills were documented. Further, studies have to be carried out to identify the numerous medicinal plants and the most important thing would be to conserve these plants. Dissemination of the knowledge of medicinal property would improve the socioeconomic status of the Malayali tribe.

Keywords: ethnomedicine, tribals, herbal medicine, Eastern Ghats, Pachamalai, wound

Introduction

Ethnomedicine is concerned with the cultural interpretations of health, disease and illness and also addresses the health care-seeking process and healing practices (Pieroni *et al*., 2005) [15]. According to the World Health Organization (WHO, 2003) [17] ethno medicine maintained its popularity in all regions of the developing world and its use is rapidly expanding in the industrialized countries (WHO, 2003) [17], for example, in China traditional herbal preparation account for 30-50% of the total medicinal has consumption. In Ghana, Mali, Nigeria and Zambia, the first line treatment for 60% of children with malaria is the use of herbal medicine. In San Francisco, London and South Africa, 70% of people living with HIV/AIDS use traditional medicine. Today the annual global market for herbal medicine stands at over US $60 billion (WHO, 2003) [17]. Western trained physicians could not ignore the impact of ethnomedicine on their patients. Research interest and activities in the area of ethnomedicine have increased tremendously in the last decade (Williams, 2006) [18]. Since the inception of the discipline, scientific research in ethnomedicine has made important contribution to the understanding of traditional subsistence, medical knowledge and practice.

It is interesting to note that the ethnomedicinal uses of plants is one of the most successful criteria used by the pharmaceutical industry in finding new therapeutic agents for the various fields of biomedicine (Cox and Balick, 1994) [3]. Some outstanding medicinal drugs which have been developed from the ethnomedicinal uses of plants include: vinblastine and vincristine from *Catharanthusroseus* (The periwinkle) used for treating acute lymphoma, acute leukaemiasetc., reserpine from *Rauwolfiaserpentina* (Indian snake root) used for treating hypertension, aspirin from *Salix purpurea* (willow) used for treating inflammation, pain and thrombosis and quinine from *Cinchona pubescens* (cinchona) used for treating malaria. Based on the ethnomedicinal information, a total of 122 compounds were identified and 80% of these compounds were used for the same (or related) ethno medical purposes (Fabricant and Farnsworth, 2001) [5]. Further, it was discovered that these compounds were derived from only 94 species of plants (Farnsworth and Soejarto, 1985) [6]. Hence it is very urgent to document the knowledge on several other plants from indigenous people, the treasurer of plant wealth. With this background the present study deals with the documentation of ethnomedicinal information on plants from the Malayali tribals of Pachamalai hills and presented here with special reference to wounds.

Materials and Methods

Study area

Pachaimalai Hills, also known Green hill (Pachai means green in Tamil), are low mountain range in the Eastern Ghats located between the Salem and Tiruchirappalli districts of Tamil Nadu, South India.It lies between 78.31' East longitude and 11.28' North latitude at an altitude of 2000 to 3000 feet above mean sea level. Temperature is moderately high and the average temperature during summer is 34°C and lesser in winter. Average humidity ranges from 31 to 33% during November to December. Annual rainfall ranges from 850 to 910 mm. Soil is shallow in rocky areas and deeper in valleys with little or no

humus.Vegetation is Scrub jungles mixed with tropical dry evergreen forest and tropical dry deciduous type.

Malayali tribals

Malayali tribals residing at Achinadu (Gonganavalli), Kombai, Perumal Kovil, Thenpuranadu, Vannadu areas of Pachamalai regions performing agricultural practices and also collect tuber, honey and perform fishing operations in the reserve for their sustenance. At present they do not hunt animals.

Ethnomedicinal survey

Intensive field ethnomedicinal surveys were conducted in the Pachamalai hills from 2018 to 2020 to document ethnomedicinal plants resources used by Malayali tribals residing in Pachamalai hills settlements such as Achinadu (Gonganavalli), Kombai, PerumalKovil, Thenpuranadu, Vannadu regions by following the methods of Jain (1981) [12]. The questionnaires were used to obtain information on medicinal plants with their local names, parts used as medicine, mode of preparation and dosage of administration. The species mentioned by the tribes were taxonomically identified. While gathering the information, herbarium specimens were prepared for all the plant species on ethnomedicinal plants available in the study area by following the methods of Jain and Rao (1976) [11] and deposited at the Department of Botany, Mannai Rajagopalaswamy Government Arts College, Mannargudi, for reference. The herbarium specimens were botanically confirmed by using various regional Flora such as Gamble and Fischer (1915-1936) [7], Matthew (1981-1988) [13] while the Flora of Tamil Nadu by Henry *et al.*, (1987 &1989) [8, 9] and Nair and Henry (1983) [14] were used to refer the correct botanical names.

Results and Discussion

In the present study, totally 26 species belonging to 18 families and 26 genera of ethnomedicinal plants were used by the Malayali tribals of Pachamalai hills specifically for the treatment of wounds. Among habit wise, herbs are the dominant habit form represented by 14 species followed by trees (6 species), shrubs (3 species) and climbing herb, liana and small tree (single species each) respectively.

All the documented information on ethnomedicinal plants for wounds used by various tribes from Pachamalai hills were given below alphabetically with binomial, local name, family, herbarium specimen, habit, uses with dosage of preparation, method of administration and recommended diet if any-

***Abrusprecatorius* L. Fabaceae, *Kundumani*, Climbing herb**

- Leaf is made into paste, mixed with coconut oil is applied externally for skin diseases and fresh wounds.

***Acacia leucophloea* (Roxb.) Willd, Mimosaceae, *Velaamaram'*, Tree.**

- Leaf is ground into fine paste is applied externally for cuts and wounds for 3 days.

***Acalyphaindica*L. Euphorbiaceae, *Kuppaimeni*, Herb**

- Leaf is ground into paste, mixed with coconut oil is applied externally for cuts /wounds.

***Achyranthesaspera* L. Amaranthaceae, *Naayurivi*, Herb**

- Leaf paste is made into paste along with coconut oil is applied externally for skin itching, wound healing.
- Leaves crushed by hand to extract the juice and the juice applied for wounds.

***Aerva lanata*(L.) Juss. ex Schultes, Amaranthaceae, *Poolaapoo*, Herb**

- Fresh leaf paste mixed with coconut oil is applied externally on wounds.

***Boerhavia diffusa* L. Nyctaginaceae, *Saranaichedi*, Herb**

- Leaves made into a paste along with coconut oil is applied externally for healing wounds.

***Clausena dentata* (Willd.) M. Roem. Rutaceae, *Kaattukaruveppilai*, Shrub**

- Leaf is made into paste is applied externally on wounds for healing quickly.

***Commelinabenghalensis* L. Commelinaceae, *Kaanaavazhai/ Mayilkaanaa*, Herb**

- Whole plant is boiled with water and filtered the decoction is taken three times a day for 4-5 days to cure ear wounds.

***Coscinium fenestratum* (Gaertn.) Coleb, Menispermaceae, *Maramanjal*, Liana**

- Wood ground into a paste is mixed with coconut oil and is applied on the forehead for quick relief of headache, migraine and also to heal cuts and wounds.

***Datura innoxia* Mill. Solanaceae, *Oomaththai*, Shrub**

- Leaf paste mixed with coconut oil is applied for cuts, wounds, boils and burns.

***Emilia sonchifolia* (L.) DC, Asteraceae, *Arukuruvipacchilai, Muyalchevi*, Herb**

- Fresh leaf paste is applied externally for healing fresh cuts and wounds.

***Euphatoriumodoratum*L. Asteraceae, *Neththichedi*, Herb**

- Fresh Leaf paste is applied externally directly on the wounds for quick healing.

***Ficus racemosa* L. Moraceae, *Aththi*, Tree**

- White milky latex is applied directly on fresh wounds for quick healing.

***Leucas apera* (Willd.) Link, Lamiaceae, *Thumbai*, Herb**

- Leaf made into a paste and mixed with coconut oil is applied externally on wounds.

***Mallotusphilippensis* (Lam.) Muell. Arg, Euphorbiaceae, *Sokkalaamaram*, Tree**

- Leaf made into a paste and mixed with coconut oil is applied externally to stop bleeding from wounds.

***Moringaoleifera* Lam, Moringaceae, *Murungamaram*, Tree.**

- Stem bark and young root ground into a paste along with 5 g salt and apply at throat to cure internal wounds.

***Phyllanthusamarus* Schumach. & Thonn, Euphorbiaceae, *Keezhanelli*, Herb.**

- Leaves boiled with water and the filtered decoction is taken thrice a day for the treatment of fresh wounds or any swollen wounds.

***Ruelliatuberosa* L. Acanthaceae, *'Vedimuthu/ Vettupoondu'*, Herb.**

- Leaves mixed with 2 small onion, ground into a fine paste and applied on the chronic wounds to cure.

***Sida acuta* Burm. f, Malvaceae, *Chinnakurunthoati*, Herb**

- Leaves boiled with water and the filtered decoction is taken thrice a day for the treatment of breaking of wounds or any swollen wounds.

***Solanum torvum* Sw, Solanaceae, *'Sundakachedi/ Sundaangkodi*, Shrub.**

- Leafmade into paste mixed with coconut oil and paste by adding little water and apply it on cuts and wounds to cure.

***Sphaeranthusindicus* L. Asteraceae, *Kottaikarandhai*, Herb**

- Leaf made into paste from one handful of leaves mixed with coconut oil is applied externally for the treatment of skin itching, wounds.

***Tamarindusindica* L. Caesalpiniaceae, *Puliyamaram*, Tree.**

- Stem bark made into a powder and mixed with coconut oil and applied on the wounds for 4 days, till it cures.

***Tridax procumbens*L. Asteraceae, *Vettukayathazhai*, Herb**

- Fresh leaf juice is applied externally as a tincture for fresh burns, cuts and wounds.

***Withaniasomnifera* (L.) Dunal, Solanaceae, *Amukkurachedi*, Herb**

- Root is made into paste by adding a little amount of water and applied it on wounds for 2 times a day to cure.

***Wrightiatinctoria* R.Br., Apocynaceae, *Vepaalaimaram*, Tree**

- Leaves along with 1 piece of onion and 2 pepper, is made into and applied externally to cure the wounds.

***Ximeniaamericana* L, Olacaceae, *Sengaathirimaram*, Small tree**

- Stem bark powder is made into paste by mixing with goat's milk and the paste is applied externally on burn or fresh wounds.

Tribals in the adjacent hills also used these plants for wounds such as *Acacia leucophloea* and *Clausenadentata* used for wounds by the Paliyantribals of Madurai district (Ignacimuthu *et al*., 2006). These species contain valuable chemical substances and are useful to cure wounds. Wound healing involves a complex interaction between epidermal and dermal cells, the extra cellular matrix, controlled angiogenesis and plasma-derived proteins all coordinated by an array of cytokines and growth factors (Bhat *et al*., 2007) [2]. To provide evidence for this present study, most of the plants are used scientifically proved for wound healing activity such as *Tridaxprocumbens* (Babu *et al*., 2003; Nia *et al*., 2003; Udupa *et al*., 1991; Johnson and Gorle, 2012) [1, 16, 4], *Wrightiatinctoria* (Jain and Bari, 2010) [10]. Thus, Tribals in Pachamalai hills have a good knowledge aboutthe use of many plants for wounds and the plants prescribed by tribal healers areeither based on single plant part or acombination of several plant parts. This preliminary effort helped to identify 26 species ofcommonly used plants for wounds.

Further, studies have tobe carried out to identify the numerous medicinal plants and the most important thing would be to conserve these plants. Dissemination of theknowledge of medicinal property would improvethe socioeconomic status of the Malayali tribe.

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