Journal of Applied Pharmaceutical Science Vol. 3 (01), pp. 099-102, January, 2013
Available online at http://www.japsonline.com
DOI: 10.7324/JAPS.2013.30119
ISSN 2231-3354 (cc) BY-NC-SA

A study on ethnomedicinal plants of Kalavai, Vellore District, Tamil Nadu, India

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ARTICLE INFO

Article history:
Received on: 28/10/2012
Revised on: 15/11/2012
Accepted on: 21/11/2012
Available online: 28/01/2013

Key words:
Folklore medicinal plants, Fruit plants, Ornamental plants, Vegetable, Medicinal plants.

ABSTRACT

A qualitative ethanobotanical survey was carried out among the local Irula tribals of Kalavai village, Vellore district, Tamil Nadu, to study the various medicinal plants that are used by the people for the treatment of common ailments such as fever, cold, cough, diabetes, jaundice, diarrhea, rheumatism, snake bite, and headache, in order to evaluate the potential medicinal uses of local plants. 250 respondents were interviewed. A total of 50 species of plants used by the local tribes of Kalavai are described in this study based on questionnaire, interviews and discussions with the local people. Several plants were found to be effective in curing asthma, skin disease, headache, wound healing, cough, cancer, fever, cold, rheumatism, hepatitis, diarrhea, paralysis, dyspepsia, ulcers, dysentery, tumors, some viral infections and scorpion bite. Conservation and cultivation of these plants is essential for sustaing the medicinal and cultural resource of mankind.

INTRODUCTION

During the last few decades, there has been an increase in the study of medicinal plants and their traditional use in different parts of the world (Lev, 2006).

Herbal remedies are considered as the oldest forms of health care known to mankind on this earth. Prior to the development of modern medicine, the traditional systems of medicine that have evolved over the centuries within various communities are still maintained as a great traditional knowledge base in herbal medicines (Mukherjee and Wahil, 2006). Traditionally, this treasure of knowledge has been passed on orally from generation to generation without any written document (Perumal Samy and Ignacimuthu, 2000) and is still retained by various indigenous groups around the world. Traditional folk medicine uses the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to its cultures for maintenance of health. Documenting the indigenous knowledge through ethnobotanical studies is important for the conservation and utilization of biological resources. Ethnobotanical survey has been found to be one of the reliable approaches to drug discovery (Fabricant and Farnsworth, 2001).

Several active compounds have been discovered from plants on the basis of ethnobotanical information and are used directly as patented drugs (Carney *et al*., 1999). As indigenous cultures are closely maintained by the tribal and other forest dwellers throughout the world, the ethnobotanical investigation is a prerequisite for any developmental planning concerned with the welfare of tribals and their environment. It is an urgent necessity to record as quickly as possible all information about plants and the role of tribes in conserving them. The main focus of the present study is to obtain detailed information on the use of plants and their therapeutic practice among Irula tribals of Kalavai Village, Tamil Nadu.

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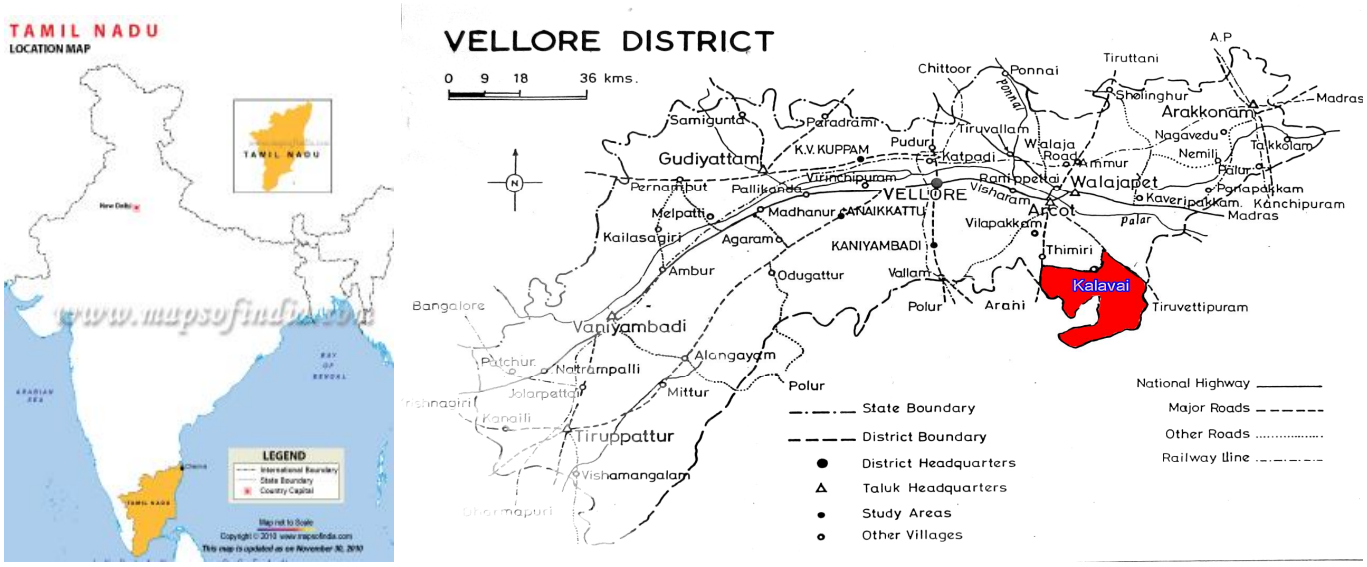

Fig. 1 Location map for the ethnobotanical survey of the folklore medicinal plants in Kalavai.

MATERIALS AND METHODS

An ethnobotanical survey was carried out in Kalavai area, Vellore District, Tamil Nadu (Fig 1). The entire area of Kalavai, with latitude of 12.77 A° N and a longtitude of 79.42 A° E, and an average elevation of 133 meters above the sea level is a populated place located in the state of Tamil Nadu, in India. The area receives an annual rainfall of about 996.7 mm. The minimum and maximum temperature varies between 22.78ºC and 31.11ºC. The ethnobotanical survey was carried out among the local population and a tribe called Irulas living in this area the members of tribal community were interviewed in their residential areas. Field visits were conducted several times.

Ethnobotanical data were collected according to the methodology suggested by (Jain, 2001). The ethnobotanical data were collected using questionnaire, interviews and discussions with the local people. 250 respondents were interviewed; which included males and females, who depend on plant as sources of medicines either for self medication or for treating others. The Flora of Presidency of Madras (Gamble, 1935) and an excursion flora of central Tamilnadu (Matthew, 1991) were used to ascertain the nomenclature of the plant species used for identification and authentication of the plants. Folklore medicinal plants are arranged in alphabetical order in Table 1 which represents their botanical names followed by the family, vernacular name, part used and ailments treated.

RESULTS AND DISCUSSION

The Study is based on the survey of traditional information on the medicinal plants from Kalavai of Vellore district. Presented data are the general results of the ethnobotanical survey conducted from March 2010 to January 2011. The traditional informations regarding the medicinal uses of medicinal plants have been collected and are represented. During the study, it was found that 50 plant species are used as herbal remedy for the treatment of several ailments. Plants of families *Euphorbiaceae* and *Malvaceae* were largely represented (4 species each) followed by *Asteraceae, Lamiaceae, Cucurbitaceae, Moraceae, Fabaceae* and *Solanaceae* (3 sp each). The rest of the families recorded one or two species only. Among them, 42% plants were herbs, 27% tree species, 24% shrubs and 7% climber species (Chart 1). Among the various plant parts used, the leaves represent the major part used with 51%, while the use of others (whole plant - 7%, fruit - 13%, root - 3%, bark - 7%, latex - 5%, seed - 7%, and flower 7%) is relatively low (Chart 2). During this survey the responses were collected from the village herbalists, village dwellers, the herbal medical practitioner, elders and other traditional healers.

Several plants are appreciably effective in curing asthma, skin disease, headache, wound healing, cough, cancer, fever, cold, rheumatism, hepatitis, diarrhea, paralysis, dyspepsia, ulcers, dysentery, tumors, some viral infections and scorpion bite (Table 1). Species such as *Marsilea minuta* L, *Momordica charantia* L and *Syzygium cumini* L are used to cure diabetes. Plants like *Abutilon indicum* and *Azadirachta indica* are used to manage leprosy.

Jaundice is treated effectively with *Eclipta prostrata* and *Phyllanthus amarus*. People also make use of *Aegle marmelos* and *Catharanthus roseus* to treat blood pressure. Few species namely, *Andrographis paniculata, Azadirachta indica, Thespesia populnea* and *Cassia auriculata* are used to treat several kinds of skin ailments. Some medicinal plants namely, *Eucalyptus tereticornis* (Smith), *Eclipta alba* L, *Euphorbia Hirta* L, *Ficus religiosa* L, *Jatropha curcas* L, *Leucas aspera* (Willd) and *Momordica charantia* L are used for various kinds of diseases. Due to the need for more of ethnomedicinal plants and more income local villagers have been motivated for conservation and cultivation of these plants.

Table 1: Medicinal plants used by local people from Kalavai, Vellore district of Tamil Nadu.

S. No	Botanical Name and family	Vernacular Name	Parts used	Ailments treated
01.	*Euphorbia Hirta* Linn. (Euphorbiaceae)	Ammaan pachcharsi	Leaves and fruit	Dysentery, diarrhea and pimples
02.	*Jatropha curcas* Linn. (Euphorbiaceae)	Katta amankku	Bark and latex	Stomach related problems during pregnancy
03.	*Phyllanthus amarus* Linn. (Euphorbiaceae)	Keela nelli	Root and fruit	Liver problems
04.	*Acalypha indica* L (Euphorbiaceae)	Kuppaimeni	Leaves	Eczema and chest pain
05.	*Abutilon indicum* G. Don. (Malvaceae)	Thuthi	Leaves	Ulcer, diarrhoea, rheumatism and leprosy
06.	*Hibiscus rosa-sinensis* L. (Malvaceae)	Semparuththi	Flower	Cleaning hair
07.	Sida cordata (Malvaceae)	Arrival manippundu	Seed	Diarrhoea
08.	*Thespesia populnea* (L.) (Malvaceae)	Poovarasu	Leaves	Skin disease
09.	*Eclipta prostrate* Linn. (Asteraceae)	Manjal karisalanganni	Whole plant	Jaundice
10.	*Eclipta alba* L. (Asteraceae)	Karisalaanganni	Leaves	Hepatitis
11.	*Tridax procumbens* Linn. (Asteraceae)	Mookuthi chedi	Leaves	Wound healings
12.	*Coccinia grandis* (L.) J. Voigt (Cucurbitaceae)	Kovai	Leaves	Jaundice
13.	*Mukia maderaspatans Linn. (Cucurbitaceae)*	Musu musukai	Leaves	Asthma
14.	*Momordica charantia L. (Cucurbitaceae)*	Pavakai	Bark	Diabetes, tumors and some viral infections
15.	*Leucas aspera (Willd). (Lamiaceae)*	Thumbai	Leaves	Cough and cold
16.	*Ocimum americanum, L. (Lamiaceae)*	Naaithulasi	Flower and bark	Stomach upset
17.	*Ocimum sanctum Linn (Lamiaceae)*	Thulasi	Leaves	Cough and cold
18.	*Clitoria ternatea L. (Fabaceae)*	Sangu pushpam	Latex	Eye and headache
19.	*Sesbania grandiflora (L.) Poiret (Fabaceae)*	Agaththi	Leaves	Peptic ulcer
20.	*Vigna mungo (L) Hepper (Fabaceae)*	Ulunthu	Seed	Breast cancer
21.	*Solanum nigrum L. (Solanaceae)*	Mana thakkaali	Seed	Deworming and fever
22.	*Solanum xanthocarpum Schrad (Solanaceae)*	Kandan kattiri	Fruit	Paralysis and dyspepsia
23.	*Solanum trilobatum L. (Solanaceae)*	Thuthuvalai	Leaves and Fruit	Cough and cold
24.	*Ficus retusa Linn. (Moraceae)*	Athi maram	Leaves and fruit	Diabetes, bone fracture; cold and swellings
25.	*Ficus benghalensis L. (Moraceae)*	Alamaram	Leaves	Heel cracks
26.	*Bauhinia tomentosa Linn. (Caesalpiniaceae)*	Mantharai	Leaves	Digestive disorders
27.	*Cassia auriculata L. (Caesalpiniaceae)*	Aavaram poo	Whole plant	Hair, body heat and diabetes
28.	*Aegle marmelos Corr.ex Roxb (Rutaceae)*	Vilvam	Leaves	Diabetes, blood pressure, dysentery and dyspepsia
29.	*Murraya koenigii L. (Rutaceae)*	Karuveppilai	Fruits, leaves & seed	Vomiting, liver problem
30.	*Catharanthus roseus G. Don. (Apocynaceae)*	Nithyakalyani	Whole plant	Diabetes, high blood pressure and cancer
31.	*Nerium oleander (Sol). (Apocynaceae)*	Arali	Fruit edible	Ear pain
32.	*Eucalyptus tereticornis (Smith) (Myrtaceae)*	Thailamaram	Leaves and flower	Coughs, cold and chest pain
33.	*Syzygium cumini Linn. (Myrtaceae)*	Naval palam	Seed	Diabetes
34.	*Ixora coccinea L. (Rubiaceae)*	Idlipoo	Leaves and flower	Liver toxicity
35.	*Morinda tinctoria Roxb. (Rubiaceae)*	Nuna	Leaves	Dysentery
36.	*Achyranthes aspera Linn. (Amaranthaceae)*	Nauruvi	Leaves	Snake bite
37.	*Alternanthera sessilis L. (Amaranthaceae)*	Ponaganikerai	Leaves	Headache, hepatitis and asthma

38.	*Calotropis procera* R.Br (Asclepiadaceae)	Erukku	Latex	Dog bite, scorpion bite and snake bite
39.	*Flacourtia ramontchi 'L'*Herit. (Bixaceae)	Kejalika chedi	Fruit	Body heat
40.	*Carica papaya* L. (Caricaceae)	Pappaali	Leaves	Inflammatory pain
41.	*Opuntia dillenii* (Haw). (Cactaceae)	Sappathikalli	Leaves	Ophthalmic and spasmodic cough
42.	*Lawsonia inermis* L. (Lythraceae)	Maruthani	Leaves	Cooling the body
43.	*Azadirachta indica* (A.Juss). (Meliaceae)	Vaipamaram (Neem)	Bark	Skin disease, malarial fever and leprosy
44.	*Moringa oleifera* (Lam). (Moringaceae)	Murungai	Leaves	Fertility and stomach pain
45.	*Marsilea minuta* L. (Marsileaceae)	Aarakkerai	Leaves	Diabetes
46.	*Cynodon dactylon* (L.) Pers. (Poaceae)	Arugampul	Whole plant	Diabetes, coolness and urinary problem
47.	*Rubus ellipticus* Sm. (Rosaceae)	Vella mulli	Root	Paralysis
48.	*Mimosa pudica* L (Mimosaceae)	Thottasurungi	Leaves	Wounds
49.	*Anisomeles malabarica* L. (Lamiaceae)	Peithumbai	Leaves	Eczema
50.	*Cardiospermum halicacabum* L. (Sapindaceae)	Mudakkaththan	Leaves	Joint pain and rheumatism

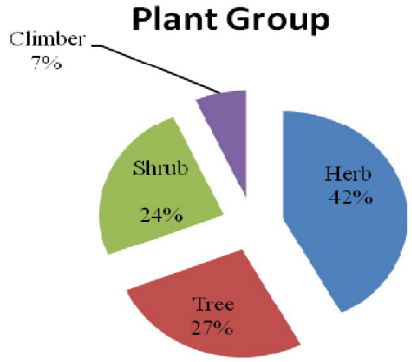

Chart 1: Number of plant groups reported by the present Study.

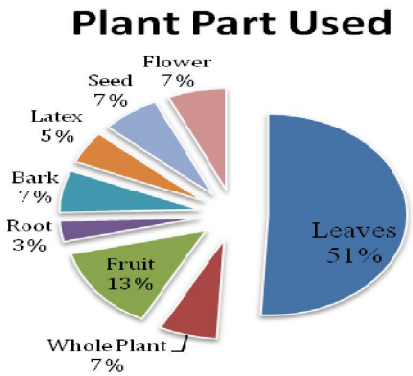

Chart 2: Number of plant parts reported by the present Study.

CONCLUSION

This study provides an ethnobotanical data of the medicinal plants used by the local people to cure different diseases. Moreover, it may promote a practical use of medicinal plants and the focus must be on its pharmacological validation.

ACKNOWLEDGEMENT

Authors are grateful to the people of different localities of Kalavai, Vellore District, for their kind support and co-operation during the study.

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How to cite this article:

A. Natarajan, K.S. Leelavinodh, A.Jayavelu[1], K. Devi B. Senthil Kumar., A study on ethnomedicinal plants of Kalavai, Vellore District, Tamil Nadu, India. J App Pharm Sci. 2013; 3 (01): 099-102.