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Ethnomedicines used by Kaniyakaran tribes in Kaniyakumari district- Southern Western Ghats of Tamil Nadu, India

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ABSTRACT

A survey was carried out among the Kani tribals in Kaniyakumari district- Southern Western Ghats, of Tamil Nadu, India. Traditional uses of 62 plant species belonging to 34 families are described under this study. In this communication, the informations got from the rural inhabitant were compared with the already existing literature. The medicinal plants were mostly used to cure asthma, rheumatoid arthritis, skin and sex related diseases. The medicinal plants used by people are arranged alphabetically followed by Botanical name, family, Voucher specimen number, Local name, Part used, mode of preparation.

INTRODUCTION

The art of herbal healing has very deep root in Indian culture and folklore. Medicinal plants have been playing an important role for the survival of the ethnic communities, who live in remote villages and forests. Traditional folk medicine, which is mostly undocumented, has been handed down orally from one generation to another. Large sections of the Indian population still rely on traditional herbal medicine (Dubey *et al*., 2004). Even today, most of the forest tribals are depending on local traditional healing systems for their primary health care. Their reliability on healing plants is still more for the people inhabitating the deep forest of Western Ghats in India, where it is difficult for them to get modern medical facilities for their day to day problems. Medicinal plants attracted considerable global interests in recent years. Due to various human activities such as deforestation and other developmental activities, both natural vegetation and traditional culture in India are fast declining. There is an urgent need to document all ethnobotanical knowledge available with different ethnic and folklore communities before their traditional culture is completely lost. Ethnobotanical knowledge has been documented from various part of Indian sub-continent. (Das and Tag, 2006; Singh 2004). In Tamil Nadu state ethnomedical value of plants in possession of various tribals and rural communities for treating various diseases and disorders has been done to some extent (Anandan and Veluchamy, 1986; Viswanathan, 2004; Ignacimuthu *et al.*, 2006). A perusal of these reports suggested that the ethnobotanical survey in Tamil Nadu is incomplete and traditional herbal healing knowledge of a large number of folk communities need documentation. There is no previous report in the records of ethnobotanical knowledge from Kaniyakaran tribes of Kaniyakumari district forest of Tamil Nadu. An attempt has therefore been made to collect and document the folk knowledge from tribals, local herbal healers and knowledgeable elder people of different castes and communities residing in certain forest area of Kaniyakumari wildlife forest.

Study area and ethnic people

The study was conducted during 2012(25 days) and in 2013 (25 days) by the researcher, guide and Survey team of Department of Plant biology and Biotechnology, Gurunanak College Vellacheri, Chennai, to collect information about medicinal plants used by traditional healers in the southern

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Western Ghats of Kaniyakumati district, Tamil Nadu. The district lies between 77° 15' and 77° 36' of the eastern longitudes and 8° 03' and 8° 35' of the northern latitudes. The District is bound by Tirunelveli District on the North and East, by South East Gulf of Mannar by South and the South West the boundaries are the Indian Ocean and the Arabian Sea by West and North West is bounded by Kerala. It was aimed to collect information about medicinal plants used by folk healers in the Southern - Western Ghats of Kaniyakumati district, Tamil Nadu. The rich forests of this district form the catchment area for more than 7 rivers and 9 dams, and form the back-bone of the irrigation network and provide drinking water for Kanyakumari, Tirunelveli and Tuticorin districts in south Tamil Nadu. The ethnomedicinal information was gathered from the indigenous people of the study area called Kani or Kanikaran, one of the oldest groups of the branch of ethnic people in South India. Kanikars are the only endemic tribal community settled in the hilly tracks of Kanyakumari District in Tamil Nadu. The word "Kanikaran" means hereditary proprietor of the land (Thurston 1975). They comprises 927 families and more than 4228 people distributed in 48 settlements (Raj 2001). They reside in remote and inaccessible forest areas and practice indigenous phototherapy to treat common ailments. During the course of exploration of ethnomedicinal plants information has been gathered from the healers inhabiting the forest areas who have sound knowledge of herbal remedies. For many decades, the tribal community has a traditionally self managed system of folk medicine and primary healthcare mainly based on herbal remedies. In kanniyakumari the kani tribals inhabited the villages of konjanr, kodayar, Kodithurai or Kani kudiiruppu, Keeripari, olakiaruvi, veerapuli and Mramalai, The knowledge about medicinal plants is rather specialized and is limited to a few members in the community who are recognized as 'Vaidhyar' (also known as medicine men, informant and traditional healer). Traditional healers commonly begin their training as children or teenagers working as assistants to their mothers, fathers and to other relatives who are recognized healers. After having trained for a number of years, the apprentice will be ceremonially granted the authority to use a given treatment. This individual will be recognized by others in their culture as having mystical power to heal, as well as having the power to train others in the use of medicinal plants.

METERIALS AND METHODS

A preliminary survey of kani tribal villages in Kanyakumari district revealed that local communities used herbal medicine for their healthcare extensively. Frequent field surveys were made in Kanyakumari district. Each area was visited twice in different seasons in 2012-2013. Ethnobotanical data (local names, part used, mode of preparation, medicinal uses) were collected through interviews and discussion with the tribal practitioners in and around the study area. Data were also collected through questionnaires in their local language (Tamil). Informations were collected through interview with seven persons aged between 40-80, who had traditional knowledge of plants. In addition to the vernacular names, questions were also asked about each plant prescribed, such as part of the plant used, medical uses, detailed information about mode of preparation (i.e., decoction, paste, pills, powder and juice); from the usage either fresh or dried and mixtures of other plants used as ingredients were also collected. The claims were compared with available important works on Indian ethnobotany and medicinal plants such as Jain (1991); Kirtikar and Basu (2001); Nadkarni (1954). The medicinal plants were identified (local names), photographed and sample specimens were collected for the preparation of herbarium documentation. The Flora of Presidency of Madras (Gamble 1935) and The Flora of Tamil Nadu Carnatic (Matthew 1983) were used to ascertain the nomenclature. The voucher specimens were deposited in the herbarium at Department of Plant biology and Biotechnology, Gurunanak College Vellacheri, Chennai,

RESULT

Kanyakumari district Wild life forest has a variety of medicinal plants which are used by Kani tribes for their primary health care. The present study identified tribal healers using 62 species of ethnomedicinal plants distributed in 56 genera belonging to 34 families to treat various diseases. The result of the survey presented in table-1, in which the plants are arranged alphabetically by botanical names for each species. The following ethnobotanical information were provided; Botanical names, Family name, Voucher specimen numbers, Local names, Part used, mode of preparation , route of administration, ethnomedicinal uses and major chemical constituents according to the informations collected. The mostly used plant parts among the tribals are fruit and leaves followed by seeds, root, bark, whole plant, flowers, stem, rhizome, bulb and gum. These are commonly occurring and medicinally important plants used to treat various diseases like asthma, skin diseases, sex related problems, rheumatism, hepatitis, diabetic, piles, ulcers, poisonous bites and wound healing etc,. This is consistent with other general observations which have been reported earlier in relation to medicinal plants studies by the Indian system of medicines like Siddha, Ayurvedha and Unani (Kirtikar and Basu 1999., Anonymous, 1997., Asolkar et al 1992). Different types of preparation made from medicinally important plants include decoction, juice, powder, paste, oil and plant extract. Drugs are prescribed either single or in a combination of more than one plant / parts of same or different plants to the people suffering from various diseases. In Kanyakumari district, the local herbal healers and elder people rich in traditional knowledge depend on the natural resources of the area. Most of them still consider traditional herbal knowledge as traditional secrets. But, through repeated contacts, and discussions, they shared their traditional herbal knowledge. Medicinal plants play an important role in providing knowledge to the researchers in the field of ethno botany and ethnopharmacology. The observation of present study shows that traditional medicine plays a significant role in the life of tribal people.

Table. 1: Ethnomedical plants, Local name, Mode of preparation and used in Kaniyakumari Wild life forest, Tamil Nadu, India.

S.No	Botanical Name Family Name Voucher Specimen Number	Local Name	Part used , Mode of preparation and Ethnomedicinal uses
1	*Aegle marmelos* (L.) Corr. / Rutaceae/ GNC-CH: 9568	Vilvam	Powdered fruit pulp (20g) orally given with hot water daily to asthma, Leaves smoke inhaled to reduce asthma pain
2	*Aerva lanata* (L.) A.Juss ex Schult./ Amaranthaceae/ GNC-CH : 9427	Siru poolai	Leaf dissolved in water at over night, It is filtered and of from this 100 ml orally given in case calculi
3	*Alangium salvifolium* (L.f.) Wang. / Alangiaceae/ GNC-CH:9348	Azhingil	Leaf powder (10g) is orally given with hot water to treat diabetes.
4	*Allium cepa* L./ Liliaceae/GNC-CH: 9432	Vengaiyam	Extract of bulb (20-30 ml) is orally given to treat patient suffering from asthma.
5	*Alpinia galanga* Sw/ Zingiberaceae / GNC-CH: 9539	Sitharathai	Powder of rhizome (20 g) orally given with hot water to reduce hypnotic patients.
6	*Anona squamosa* L. / Anonaceae / GNC-CH: 9433	Annachi	Seed powder (10g) orally given with hot water to induce abortion.
7	*Argemone mexicana* L. / Papavaraceae / GNC-CH:9178	Pramathundu	Root paste externally applied for skin rashes.
8	*Aristolochia indica* L./ Aristolochiaceae /GNC-CH: 9506	Perumarunthu	Root decoction (100ml) is orally given for piles.
9	*Asparagus racemosus* Willd./ Liliaceae /GNC-CH:9263	Sathvarai	Root powder (20 g) orally given with cow milk daily in case of spermatorrhoea.
10	*Barleria prionitis* L./ Acanthaceae / GNC-CH: 9128	Rose-Mullu gida	Leaf juice (40-50ml) orally given to cure urinary irritation.
11	*Bauhinia purpurea* L./ Caeselpiniaceae/ GNC-CH: 9526	Manthari	Powdered Bark is made in to paste with Castor oil and applied externally for bone fracture
12	*Bauhinia varigate* L./ Caesalpiniaceae/GNC-CH:9376	Segapu Manthari	Dried Stem exudates (10 g) mixed with powdered flowers buds is prescribed to treat piles.
13	*Biophytum sensitivum* (Linn.) DC./ Oxalidaceae/ 9358	Mukkuthi	Whole plant decoction is orally given early morning for fever.
14	*Buchanania lanzan* Spr./ Anacardiaceae /GNC-CH: 9484	Kattuma	Powdered stem bark (10 g) orally given with hot water in case of rheumatic pain.
15	*Butea monosperma* (Lam.)/Kuntze/ Papilionaceae GNC-CH: 9440	Palasu	Flower paste externally applied to rheumatic swelling
16	*Caesalpinia bonduc* (L.) Roxb./ Caesalpiniaceae/ GNC-CH:9357	Kazachaikai	Roasted seed powder (20 g) is orally given daily twice daily for diabetic patients.
17	*Cardiospermum halicacabum* L./ Sapindaceae/ GNC-CH:9255	Mudakathan	Leaf smoke inhaled to reduce asthma pain.
18	*Cardiospermum canescens* Wa/ Sapindaceae /GNC-CH: 9169	Mudakathan	leaf extract (50-100 ml) is given orally in rheumatic pain.
19	*Cinnamomum wighti* Meissn/ Lauraceae /GNC-CH:9314	Elavangam	Bark decoction (100 ml) is given orally for expectorant.
20	*Cissus quadrangularis* L./ Vitaceae /GNC-CH: 9429	Perandai	Stem paste is orally given daily after food to regularize menstruation.
21	*Citrus limon* (L.) Burm / Rutaceae /GNC-CH: 9465	Elumichai	Fruit juice (50 ml) is mixed with (10 ml) honey in hot water and given on empty stomach to reduce obesity.
22	*Clitoria ternatea* L./ Papilionaceae /GNC-CH:9231	Sangupushapam	Fruit paste is applied externally on insects and scorpion bites.
23	*Coccinia grandis* (L.) Voigt/ Cucurbitaceae / GNC-CH: 9217	Kovai	powdered root (10 g) is given orally with hot water in case of diabetic.
24	*Cuscuta reflexa* Roxb. / Cuscutaceae /GNC-CH:9177	Oattuchedi	plant extract (100ml) is orally given daily for liver diseases and hepatitis.
25	*Eclipta alba* L. /Asteraceae/ GNC-CH:9394	Karisalamkani	Leaf extract (10-20 ml) is given with cow milk for jaundice
26	*Euphorbia hirta* L./ Euphorbiaceae/ GNC-CH:9387	Ammanpachai	Smoke of powdered plant (in cigarette form) is inhaled to reduce asthmatic pain.
27	*Ficus racemosa* L./ Moraceae/ GNC-CH: 9573	Aathi	Fruit is soaked in honey for 15 days and taken orally in male weakness.
28	*Helicteres isora* L./ Sterculiaceae/GNC-CH:9223	Edampoori	Seed (3 nos.) are soaked in 100ml coconut oil and applied on hair to reduce hair fall.
29	*Hygrophila auriculata* (Schum.) Heine/ Acanthaceae/ GNC-CH: 9220	Neermulli	Seed powder (10-15g) orally given with cow milk in male sexual debility.
30	*Jatropha curcus* L. / Euphorbiaceae /GNC-CH:9179	Kattu amanaku	leaf powder (10g) mixed with 5g black pepper powder is boiled in 100ml water and orally given daily twice to cure leucorrhoea.
31	*Leucas cephalotes* (Koen.ex Roth) Spr / Lamiaceae/GNC-CH:9293	Kasithumbai	Leaves paste made with turmeric is applied externally to treat dermatitis.
32	*Limonia acidissima* L./ Rutaceae/GNC-CH: 9222	Vilam	Fruit decoction (100 ml) is given orally for breathing trouble.
33	*Mirabilis jalapa* L./ Nyctaginaceae/ GNC-CH:9281	Anthimallegai	Root paste with castor oil is applied externally as spasmolytic.
34	*Mucuna pruriens* Bak/ Papilionaceae/ GNC-CH:9362	Poonaikali	Seed powder (10 g) is given orally with cow milk in case of impotency.
35	*Nelumbo nucifera* Gaertner./ Nelumbonaceae/GNC-CH:9256	Thamarai	Rhizome extract (50 ml) mixed with(10 ml) 'Neem oil' oil given orally in bleeding piles.

36	*Nerium indicum* Mill./ Apocynaceae/GNC-CH:9405	Manjal arali	Root paste mixed with 'Neem oil' is applied externally to treat leprosy.
37	*Phyllanthus amaras* L./ Euphorbiaceae/ GNC-CH:9379	Kella nelli	Plant Juice (100 ml) is orally given in case of jaundice.
38	*Plantago ovata* Forsk/ Plantaginaceae /GNC-CH:9202	Sitherai Moolam	Seed decoction (60-80ml) is given to women in morning to prevent abortion.
39	*Pongamia pinnata* L./ Papilionaceae/GNC-CH: 9119	Pongan	Seed paste with turmeric powder is applied externally to treat scabies.
40	*Pterocarpus marsupium* Roxb/ Papilionaceae/ GNC-CH: 9129	Vengai	Bark paste used as tooth powder cure mouth ulcers.
41	*Randia dumetorum* (Retz) Poir/ Rubiaceae/ GNC-CH: 9117	Karai	Fruit paste is applied externally to cure leach-bite and itching.
42	*Rauvolfia serpentina* (L.) Benth ex kurz./ Apocynaceae /GNC-CH: 9535	Sarbagandha	Root decoction (100ml) orally given in case of poisonous bite.
43	*Ricinus communis* L./ Euphorbiaceae/ GNC-CH: 9143	Amanaku	Seed oil (10 ml) is given orally for constipation.
44	*Rubia cordifolia* L./Rubiaceae/ GNC-CH: 9444	Manjiti	Root and fruit (in Equal quantity) is orally given with hot water to treat epilepsy.
45	*Ruta graveolens* L./ Rutaceae/GNC-CH: 9538	Aruvathamchedi	Leaf extract (50 ml) boiled in (100 ml) castor oil is cooled and applied externally on aaaaffected parts for rheumatic pain.
46	*Sapindus mukorossi Gaertn./* Sapindaceae /GNC-CH:9221	Poovan-kottai	Fruit powder made into pills (2g) with Neem oil given orally to victim of rabies.
47	*Semecarpus anacardium* L.f/ Anacardiaceae/GNC-CH: 9559	Sarankottai	Fruit powder (10 g) is given orally with hot water daily for the treatment of arthritis.
48	*Solanum nigrum* L./ Solanaceae/ GNC-CH:9228	Manithakali	Leaf extract (50 ml) is given orally to treat intestinal ulcers.
49	*Solanum virginianum* Burm.f/ Solanaceae/ GNC-CH: 9173	Kandankathiri	Fruit powder is used as tooth powder in tooth ache and swelling.
50	*Sphaeranthus indicus* L./Asteraceae/GNC-CH: 9491	Kottaikaranthai	Plant smoke is inhaled as cigarette in case of painful asthma.
51	*Strychnos nux-vomica* L./ Loganiaceae/ GNC-CH:9399	Eatti	Seed paste is applied externally to treat facial paralysis.
52	*Syzygium cumini* (L) Skeels/ Myrtaceae /GNC-CH: 9148	Naval	Fruit juice (100 ml) orally given for liver diseases.
53	*Tamarindus indica* L./ Papilionaceae/ GNC-CH: 9423	Pulli	Leaf juice is given orally for bleeding piles.
54	*Tephrosia purpurea* (L.) Pers./ Papilionaceae/GNC-CH:9368	Vallaichedi	Smoke of Leaves is inhaled as cigarette to overcome asthma pain.
55	*Terminalia arjuna* (DC)W&A/ Combretaceae/GNC-CH:	Vellamaruthu	Bark decoction (100 ml) is given orally to check cardiac problems.
56	*Terminalia bellirica* (Gaert) Roxb. / Combretaceae/ GNC-CH: 9498	Thani	Fruit decoction (50 ml) is orally given to check diarrhea.
57	*Terminalia chebula* Retz / Combretaceae/ GNC-CH:9351	Kadukai	Decoction of fruit (100 ml) orally given to treat asthma.
58	*Terminalia crenulata* Roth/ Combretaceae /GNC-CH: 9135	Karumaruthu	Seed oil externally applied to cure rheumatic pain. The oil is also used against dandruff.
59	*Tinospora cordifolia* (Willd.) Hook.f.& Thomson/ Menispermaceae/GNC-CH: 9426	Senthil Kodi	Stem extract is applied externally to reduce joint pain.
60	*Tribulus terrestris* L./ Zygophyllaceae/ GNC-CH:9410	Nerunjil	Seed decoction (100 ml) is orally given in case of urinary infection and irritation.
61	*Withania somnifera* Dunal./ Solanaceae/ GNC-CH: 9540	Amukera	Root powder (20g) is orally given with hot water to improve sexual vigor.
62	*Wrightia tinctoria* (Roxb.) R.Br./Apocynaceae/ GNC-CH: 9529	veppalai	Leaf extract (50 ml) boiled in coconut oil (100ml) and applied externally to cure psoriasis.

DISCUSSION

The study of ethnomedicinal system and herbal medicinal as therapeutic agent is a paramount importance in addressing health problems of traditional communities and third world countries as well as industrialized societies. Previous reports on the ethnobotany of different district in Tamil Nadu, and adjoining areas provide evidence for the presence of numerous ethno medicinal plants used by various tribal communities (Henry and Swaminathan 1981; Rajendran and Hendry 1994; Ramachandran and Manian 1991). But, so far no systematic ethnobotanical survey has been made in this area, except the documentation of medicinal plants used by the tribes like Siddis and Gowlis. The therapeutic uses of herbal drugs and drug preparations differ from one region to the other. For example, people in different villages in India, exclusively used *Andrographis paniculata* Wall ex Ness for curing malarial fever and snakebite, headache, dysentery, diarrhea, ulcers and fever (Das and Tag. 2006; Nayak et al., 2004; Vidhyrthy and Gupta., 2004). However, tribals of Kanyakumari used *Andrographis paniculata* Wall ex Ness to treat skin allergies. The traditional knowledge about utilization of local plant species is vital in alternate health care system as well as for the self sustenance of local population. High costs coupled with numerous side effects of synthetic drugs

are forcing people to depend on the locally available herbal medicine for their health care needs.

CONCLUSION

The present study revealed that traditional medicines are still in common use by the Kani tribal communities in the area explored. Thus study ascertains the value of a great number of plants used in tribal medicine for various diseases which could be of considerable interest in the development of new drugs. The collected data show that majority of the medicines are taken orally and most of the reported preparations are obtained from a single plant; Mixtures are used rarely in other parts of the country and the use of mixtures of the plant species in treating particular ailments is fairly common in this area. Generally, the people of the study area still have strong belief in the efficacy and success of herbal medicine. The results of the present study provide evidence that medicinal plants continue to play an important role in the health care system of Kani tribal community. Finally to conclude, this research article will attract the attention of ethnobotanist, phytochemist and pharmacologist for their critical investigation of medicinal plants present in the region of Kanyakumari district, Tamil Nadu, India.

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