

Ethnobotanical Studies of Kanies in Mothiramalai, Kilamalai Reserve Forest, Kalial Range, Kanyakumari Forest Division, Tamilnadu

Dr. D. S. Siva Pradeesh(Ph.D. Reg No.10254)¹., Dr.S. Sukumaran¹.,

Dr.S. Jeeva²., Dr.Jenisha. S.R¹

¹Department of Botany, Nesamony Memorial Christian College, Marthandam, Tamil Nadu, India, Pin: 629 165. Affiliated to Manonmaniam Sundaranar University, Tirunelveli.

²Department of Botany, Scott Christian College (Autonomous), Nagercoil, Tamil Nadu, India, Pin: 629 003, Affiliated to Manonmaniam Sundaranar University, Tirunelveli.

Abstract

Medicinal plants have a long-standing history in many indigenous communities and are an integral part for treating various diseases. A total of 48 medicinal plants were collected to treat various types of diseases by the Kani tribes of Mothiramalai. The most dominant family seen in this area was Euphorbiaceae with 5 species. The people residing in this area treat many diseases like antipoisonous bites, hypertension, ulcer, wound healing, cough, throat pain, digestion, head ache, health improvement, gas troubles, swelling and cold, body pain, evil spirit, obesity, vatham, blood purification, joint pain, asthma, vomiting, itching, lactation increase, stupefying fishes, eye diseases, pimples, varmam, immunity improvement, jaundice, kidney stone, urinary calculi, stomach problems and as medicated oil.

Key words: Ethnobotanical, Fencing, Kanies, Kanyakumari, Tribals.

Introduction

Plants have been used in traditional medicine for several thousand years. According to World Health Organization (WHO) about 80% of the world's population depends on traditional system of medicine for their primary health care needs. The knowledge on medicinal plant is passed through oral communication from generation to generation and is still retained by various indigenous groups around the world (Perumal Samy & Ignacimuthu., 1998, 2000). Lack of usual medical transportation and poor economic condition enable the folk people to practice and

inherit another system of medicine to treat various types of diseases (Abijit and Jitendra, 2011). In India total of 427 tribal communities were been recorded. According to 2001 census, Scheduled tribes population in the country is 8.43 crore constituting about 8.2% of total population of the country (Ministry of tribal affairs, (2005-2006) Annual Report).

Kani is a jungle tribe distributed in the mountains of South Travancore (Edgar Thurston, 1909). They use the plants found in their local areas and their knowledge of plants has descended from one generation to another as a domestic practice (Abraham, 1981). The treatment given by the tribals is found to be more effective. They not only treat common ailments but also they are able to treat hepatitis, cancer, poisonous and mental diseases. Nature has blessed the Mothiramalai with a very rich botanical and ethnobotanical wealth that has been exploited continuously by the tribals. As for our knowledge is concerned there is no perfect ethnobotanical survey on the Kani's residing in Mothiramalai. Hence, an attempt has been made to study the ethnobotanical wealth of Mothiramalai.

Methodology

The study was carried out in Mothiramalai, Kilamalai Reserve Forest, Kaliyal Range, Vilavancode Taluk of Kanyakumari District. The district constitute the Southernmost tip of India, with Kerala on the West-North, Tirunelveli in the North-East, Arabian Sea in the South-West, Bay of Bengal in the South-East and Indian Ocean in the South. The climate of this area is moderately humid. Kani tribals are dependent on forest for surviving and they are the lovers of natural forests. They collect honey and plant products from the forests for sale and thus they achieve the aid for making the livelihood. The mainly cultivated crops of this people were tapioca, sweet potatoes, Pepper, Cashew nut and Banana. They celebrates several worships like Karthikai, Koduthi, Koda etc and they prefer both adult and infant marriage.

The ethnobotanical exploration of Kani tribal pockets of Mothiramalai was carried out from August 2018 to January 2020. Various interviews were carried out with several elder and experienced men and women to get information on medicinal plants used by them. Queries were repeatedly made from the head Ramakrishnan Kani (Muttukani) and others. The data were collected and recorded in the field note books and audio cassettes using the tape recorder as mentioned by Jain (2001). The photographs of the selected plant specimens were also taken during the field survey. Polythene bags were used to collect the plant material in fresh conditions

and were brought to the laboratory for identification. Collected plants were identified correctly and confirmed by referring various floras viz. Flora of British India by Hooker (1874), The Flora of Presidency of Madras by Gamble and Fischer (1957), Flora of Tamilnadu by Nair and Henry (1983), and Excursion Flora of Central Tamilnadu by Mathew (1991). Identified plants were confirmed by the herbarium of TBGRI, Palode and Thiruvananthapuram. The plant specimens, their medicinal uses, parts used and ailments for which the particular plant is used have been thoroughly verified by Krithikar and Basu (1975) and Jain (1991).

Result and Discussion

During the present investigation a total of 48 ethnomedicinal plants were collected from kani tribal areas of Mothiramalai to treat various types of diseases. Maximum number of plants belongs to Euphorbiaceae (5 species) which includes *Cinidoscolus chayamonsa* L., *Euphorbia hirta* L., *Mallotus philippensis* L., *Phyllanthus amarus* Schum. & Thom. and *Ricinus communis* L. followed by Asteraceae, Fabaceae, Lamiaceae, and Zingiberaceae with 3 species each, Asclepiadaceae, Menispermaceae, Piperaceae, Solanaceae and Verbenaceae with 2 species each, and 20 families were monospecific. In the collected ethnobotanical plants herbs contributed about 28 species, 13 shrubs, 3 twiners, 2 trees and 2 climbers. They are used in the treatment of diseases such as antipoisonous bites (5 species), Ulcer (4 species each), Hypertension, wound healing, cough and throat pain (3 species each), Digestion, Head ache, Health improvement, gas trouble, Swelling and cold (2 species each), Antibacterial, Body pain, Evil spirit, Obesity, Vatham, Blood purification, Joint pain, Asthma, vomiting, Itching, Lactation increase, stupefying fishes, Eye diseases, Pimples, Varmam, Immunity improvement, Jaundice, Kidney stone, Urinary calculi, Stomach problems and medicated oil (1 species each). Leaves were most commonly used plant part recorded in the study area. In majority of the cases decoction of leaves, stem, fruit and root is drunk or rubbed on the body to cure diseases. Ailments like bodyache, wounds, scabies, boils and skin diseases are treated by external application of the paste. In some cases, combinations of plants are used for best results.

Antipoisonous plants such as *Aristolochia indica*, *Clitoria ternatea*, *Cirnum defixum* and *Kaempferina galanga* were used as medicine to poisonous bites. *Rauvolfia serpentina* has been described to be used as a popular medicinal herb by different tribes against snakebite and insanity (Rao and Shambu, 1981., Pal and Jain, 1998). *Aristolochia indica* has been reported to

keep scares away (Saxena et al., 1981). Due to illegal and excessive exploitation, Populations of some plant species such as *Amorphophallus sylvaticus*, *Rauvolfia serpentina*, *Trichopus zeylanicus* and *Kaempferia galangal* have now become rare, endangered and threatened (Maikhuri et al., 1998).

Table 1. Ethnomedicinal Plants used by the Kanies of Mothiramalai

Sl. No	Botanical Name	Family	Vernacular Name	Common Name	Parts Used	Uses
1	<i>Abrus precatorius</i> L.	Leguminosae	Karumkunimuthu	Rosary pea	Seeds	Take 21 seeds and make a garland. Wearing it protects our body from microorganisms and from some evil spirit and devil activity.
2	<i>Acorus calamus</i> L.	Acoraceae	Vayambu	Sweet Flag	Rhizome	Rhizome powder with a spoon of honey taken orally to cure diarrhoea
3	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Vilvam	Bel	Leaves	Leaves juice taken with honey twice a day for a period of two weeks to cure jaundice
4	<i>Aerva lanata</i> (L.) Juss.	Amaranthaceae	Sirupeelai	Mountain Knot Grass	Flower	Flower juice is given in the morning and night to cure piles
5	<i>Amorphophallus sylvaticus</i> L.	Araceae	Kattuchenai	Elephant Foot Yam	Tuber	Tuber used for manthravatham. Tribals made a hole on the tuber and insert a metal plate and close it. That will make some changes to someone's life and give some bad effect.
6	<i>Ananas comosus</i> (L.) Merr.	Bromeliaceae	Anasippazham	Pineapple	Fruit	Consume fruit along with honey daily to improve digestion and also helps to reduce body weight and obesity.
7	<i>Andrographis paniculata</i> Nees.	Acanthaceae	Kirisath	Kariyat, Creat	Leaves	Fresh tender leaves are collected and ground well and made into a paste. The paste applied on the forehead to treat headache.
8	<i>Anisomeles malabarica</i> (L.) R.Br. ex Sims	Lamiaceae	Peymiratti	Malabar Catmint	Whole plant	Taking bath with a little amount of plant decoction along with the bathing water is used to treat rheumatism

9	<i>Arenga wightii</i> Griff.	Arecaceae	Azhuthumpana	Wight's Sago Palm	Inflorescence	Collected toddy of this palm, consume daily improves body health and strength.
10	<i>Aristolochia indica</i> L.	Aristolochiaceae	Garudakodi	Indian birthwort	Aerial part	This plant is used for the treatment of snakebite. Aerial part of the plant is ground well and made in to paste. This paste is applied on the affected part of the body 3 times a day for 1 week. Before applying this paste the blood is sucked out through the affected part.
11	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Shathavari	Wild Asparagus	Whole plant	Whole plant part boiled in 1 liter water and makes it to half liter. The medicated water is drunk 2 times / day for 7 days to cure stroke.
12	<i>Begonia malabarica</i> Lam.	Begoniaceae	Raktasuri	Malabar Begonia	Stem	Stem paste is applied on the face during night to cure pimples
13	<i>Biophytum sensitivum</i> L. DC.	Oxalidaceae	Manivathai	Little Tree Plant	Leaves	Leaf ground well and made in to fine paste. The paste mixed well with a cup of water and consume twice a day for blood purification.
14	<i>Capsicum annum</i> L.	Solanaceae	Kantharimulagu	Chillie	Fruit	Fruit of this plant is consumed daily along with normal diet to control blood pressure.
15	<i>Cardiospermum helicacebum</i> L.	Sapindaceae	Uzhinja	Balloon Vine	Leaves	Whole plant is ground in to fine paste and mixed with coconut oil. The paste is applied on the affected part to get relief from joint pain.
16	<i>Cassia abbreviata</i> Oliv.	Leguminosae	Mullillathotahvadi	Long Tail Cassia	Root	Root powder is mixed with small amount of sugar. Consumed 1 spoon full with cow's milk (2 times / day) to cure asthma.
17	<i>Centella asiatica</i> (L.) Urban	Apiaceae	Kudangal	Indian Pennywort	Leaf	Leaf paste is mixed with rice kanji water and drunk it (2 times / day) to cure ulcer.
18	<i>Cissampelos pareira</i> L.	Menispermaceae	Malathanki	Velvet leaf	Whole plant	Whole plant is ground well and extracts the juice. Fresh juice is mixed with coconut

						milk and consumed twice a day for relief from varma problem
19	<i>Cissus quadrangularis</i> L.	Vitaceae	Pirandai	Veldt Grape	Leaves, Stem	Leaf and stem is ground well along with small amount of common salt and consumed to cure intestinal ulcers.
20	<i>Citrus medica</i> L.	Rutaceae	Naragam	Citron	Fruits	Fresh juice is mixed with water and a pinch of salt or palm jaggary and consumed to reduce vomiting and to cure gas troubles.
21	<i>Clitoria ternatea</i> L.	Leguminosae	Shankupushpam	Butterfly Pea	Leaves, Flower	Equal part of the leaves and flowers are mixed together and ground into paste and applied on the affected part to cure poisonous bites and poisonous allergy.
22	<i>Cnidocolus aconitifolius</i> (Mill.) I.M.Johnst.	Euphobiaceae	Keerai	Tree spinach	Leaves	Leaf of this plant is cooked and consumed daily along with normal diet to control blood pressure (hypertension).
23	<i>Corchorus olitorius</i> L.	Tiliaceae	Thali	Jew's mallow	Root	Take fresh root and thoroughly washed with water and dried under shade. The dried root is put in 1 liter of water and add sufficient amount of palm sugar + 50ml of coconut milk and boiled well up to the total volume is reduced to half liter. The final volume is divided into 7 equal parts and consumes 1 part / day for 7 days before taking meals to cure varma related problems.
24	<i>Crinum viviparum</i> (Lam.) R.Ansari & V.J.Nair	Amaryllidaceae	Vishanarayani	River Crinum Lily	Bulb	Bulb of this plant is ground well and made in to paste. The paste is rubbed on the poisonous bites to reduce the severity of the poison.
25	<i>Curcuma longa</i> L.	Zingiberaceae	Manjal	Turmeric	Rhizome	Dried rhizome is powdered and mixed with water and applied on the face before taking bath to cure

						pimples and to get shining face.
26	<i>Cymbopogon jarancusa</i> (Jones) Schult.	Poaceae	Vilamicham	Rosha grass	Whole Plant	Taking bath with a little amount of plant decoction along with the bathing water for 12 days is used to treat rheumatism
27	<i>Desmodium gangeticum</i> (L.) DC.	Leguminosae	Valapairy	Sea leaved desmodium	Leaves, Roots	Equal part of leaf and roots are mixed well and dried under shade. Whole dried material is put it in to 100ml of coconut oil and boiled well. After complete boiling it is allowed to cool. The medicated oil is applied to discoloured skin of the baby for original colour of the skin. Dosage 1-2 times / day for 1 week.
28	<i>Elephantopus scaber</i> L.	Asteraceae	Anaichavuttadi	Elephant Foot Yam	Leaves , Flowers	Equal quantities of leaves and flowers are ground in into fine paste and applied on the affected part of the body to cure discoloration of the skin
29	<i>Emilia sonchifolia</i> (L) DC	Asteraceae	muyalcheviyan	Purple sow thistle	Leaves , Flower	Equal part of leaves and flowers are mixed and ground well into fine paste. The fine paste is applied twice a day on the swelling area of the body to reduce the swelling.
30	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Paalpacchai	Asthma weed	Leaves, Flower	Equal amount of leaves and flowers are mixed together and ground it into paste and mixed with coconut milk. The medicated milk is consumed (1/2 cup) twice a day to improve lactation of mothers.
31	<i>Hemidesmus indicus</i> L. Schult.	Asclepiadaceae	Attanari	Indian sarsaarilla	Root	Dried root into fine powder and the root powder mixed with rice flour along with a pinch of common salt and consumed to cure intestinal ulcers.
32	<i>Justicia adhatoda</i> L.	Acanthaceae	Adathoda	Malabar Nut	Leaves	Leaves boiled in water. Taken bath with this

						boiled water relieves body pain.
33	<i>Kaempferia galanga</i> L.	Zingiberaceae	Kaccholam	Aromatic ginger	Whole plant	In most of the tribal houses in the present study area they grow this plant as a green fencing. It is used to repel the poisonous living things enter in to their houses.
34	<i>Leucas aspera</i> Spreng.	Lamiaceae	Thumba	Common leucas	Leaves, Flower	Equal part of the leaf and flowers is mixed well and make into paste. The paste is applied on wound affected part to cure wound and remove the marking due to wounding on the skin.
35	<i>Mallotus philippensis</i> L.	Euphorbiaceae	Narvazhaikurichi	Kaamla tree	Fruits, Leaves	Dried leaf and unripe fruit is milled and powdered it. The powder is applied to the ponds and ditches for stupefying fishes.
36	<i>Mimosa pudica</i> L.	Mimosaceae	Thottavadi	Touch me not	Root	Dried root is powdered. 1 teaspoon of this root powder is mixed with milk and consume 2 times / day to cure asthma.
37	<i>Mollugo pentaphylla</i> L.	Molluginaceae	Pooriki	Five leaved carptweed	Flower, Leaves	Equal part of flower and leaves are mixed well and crushed it well. Extract the juice and applied to eyes (2 drops, 2 times / day) to cure any types of eye diseases.
38	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Karumtulasi	Holy basil	Leaves	Whole plant is boiled well in water and drunk the medicated water daily to improve natural immunity to the body.
39	<i>Ocimum gratissimum</i> L.	Lamiaceae	Ramathulasi	Wild basil	Leaves, Stem	The leaves and stem are boiled in water and take bath in medicated water to cure some skin problems.
40	<i>Parthenium hysterophorus</i> L.	Compositae		Carrot grass	Leaves	Leaves decoction taken in early morning for treating kidney stone
41	<i>Phyllanthus amarus</i> Schum. &	Euphorbiaceae	Kizhanelli	Carry me seed	Whole plant	The whole plant is ground well and makes it to paste and consume

	Thom.					the paste 2 times / day for 3 days to cure jaundice.
42	<i>Piper longum</i> Linn.	Piperaceae	Thripilli	Long Pepper	Seed	Mix equal quantity of thripilli seed and pepper powder along with small amount of water and boil it up to the total volume is reduced to ½ and drunk it (1 time / day) to cure cough, sour throat and gland infection.
43	<i>Piper nigrum</i> L.	Piperaceae	Nallamilagu	Pepper	Leaves, Branches, Seeds	Leaves and branches are boiled in water and take bathing on this water by pregnant women for elevate body pain, seeds are used to treat cold and cough
44	<i>Rauvolfia verticillata</i> (Lour.)Baill.	Apocynaceae	Amalpori	Flowered snake foot	Root	Root paste is applied externally at the bitten part of snake to reduce the effect of the poison (2 times / day).
45	<i>Ricinus communis</i> L.	Eupobiaceae	Kattumanaku	Castor bean plant	Seeds	Oil obtained from the seeds is a major constituent for most of the medicated oil preparation by tribal.
46	<i>Scoparia dulcis</i> L.	Scropulariaceae	Kalluriki	Abraham's sweet broom weed	Leaves, Flower	Equal amount of leaves and flowers is mixed well and ground it well and extract the fresh juice. Consume the fresh leaf extract in empty stomach to expel kidney stones.
47	<i>Solanum torvum</i> Sw.	Solanaceae	Kattuchunda	Turkey berry	Fruit	Fresh fruit is mixed with little amount of pepper powder then ground it well. Consume the paste (1 time / day) to cure throat infection and expelled the cough in the chest part.
48	<i>Tinospora cordifolia</i> (Willd.)	Menispermaceae	Amirthavalli	Gulbel	Whole plant	Whole plant is ground well and mixed with water. The medicated water is consumed daily to improve our health and natural immunity of the body.
49	<i>Trichopus</i>	Trichopodiaceae	Arogyappacha	Agrimom	Leaves	Consume one leaf daily

	<i>zeylanicus</i> Sensu.			y		for improve body health and give younger appearance.
50	<i>Tylophora flexuosa</i> R. Br.	Apocynaceae	Puzhukolli	Indian ipec	Leaves, Stem	The leaves and stem are mixed together and ground it into fine paste. The fine paste is applied on the wound part for expel the worms in the wound regions
51	<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	Varmakandi	Little ironweed	Whole plant	Whole plant is ground well and extracts the juice. Mix the juice with 1 cup of water and drunk it in empty stomach to cure varma problems.
52	<i>Vetiveria zizanioides</i> (L.) Nash.	Poaceae	Ramacham	Khas	Root	Root is put in drinking water and boiled it. Drunk the medicated water to cure stomach disorders and also clear urinary calculi.
53	<i>Vitex negundo</i> L.	Verbenaceae	Notchi	Chaste negundo	Leaves	Leaves are put into water and boil it. The vapour released during the boiling is inhaled for relief cold and headache.
54	<i>Volkameria inermis</i> L.	Lamiaceae	Paruvillamchandi	Glory Bower	Root, Fruit, Leaves	Root paste is mixed with rice powder and small quantity of salt and consumed 2 times / day to cure ulcer.
						Fruit and leaves are mixed and ground well. Paste applied on the affected part to cure wounds.
55	<i>Sphagneticola calendulacea</i> (L.) Pruski	Compositae	Manjal karisalankanni	Chinese wedelia	Whole Plant	Whole plant decoction administered orally 2 or three times to cure cough and cold
56	<i>Zingiber zerumbet</i> L.	Zingiberaceae	Kolinji	Ginger	Rhizome	Rhizome is ground well, collect the extract and add little sugar and then consume it 2 times / day to cure indigestion, gas troubles etc.

Maximum number of plants belongs to Euphorbiaceae (5 species) (Fig.1) which includes *Cinidoscolus aconitifolius* (Mill.) I.M.Johnst., *Euphorbia hirta* L., *Mallotus philippensis* L., *Phyllanthus amarus* Schum. & Thom. and *Ricinus communis* L. followed by Lamiaceae and Leguminosae with 4 species each, Asteraceae and Zingiberaceae with 3 species each,

Acanthaceae, Asclepiadaceae, Compositae, Menispermaceae, Piperaceae, Poaceae, Rutaceae, Solanaceae and Verbenaceae with 2 species each, and 19 families were monospecific. In the collected ethnobotanical plants herbs contributed about 28 species, 11 shrubs, 10 climbers and 7 trees. They are used in the treatment of diseases such as antipoisonous bites, increase immunity, evil spirit, ulcer and throat infection (4 species each), wound, skin problems and varmam (3 species each), head ache, jaundice, rheumatism, gas troubles, and medicated oil (2 species each), blood purifier, body pain, eye disease, diarrhoea, indigestion, joint pain, lactation, obesity, swelling and urinary problems (1 species each). Leaves are most commonly used in the preparation of medicine recorded in the study area (Fig. 2). In majority of the cases paste and decoction of leaves, stem, fruit and root is drunk or rubbed on the body to cure diseases (Fig.3). Ailments like bodyache, wounds, scabies, boils and skin diseases are treated by external application of the paste and internal application predominates over external application.

Fig.1 Top 10 families recorded in the study area

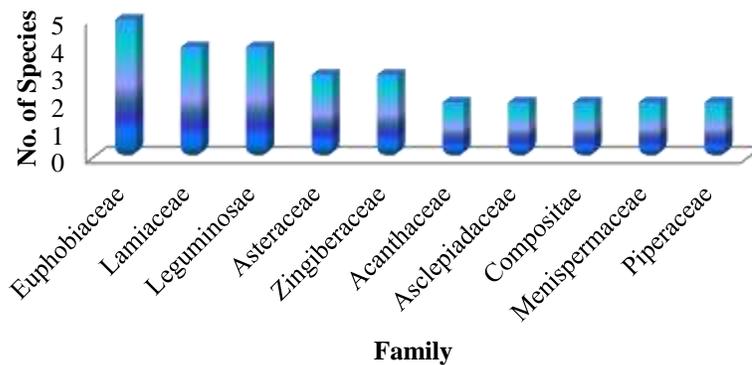


Fig. 2. Plant part used in the treatment of diseases

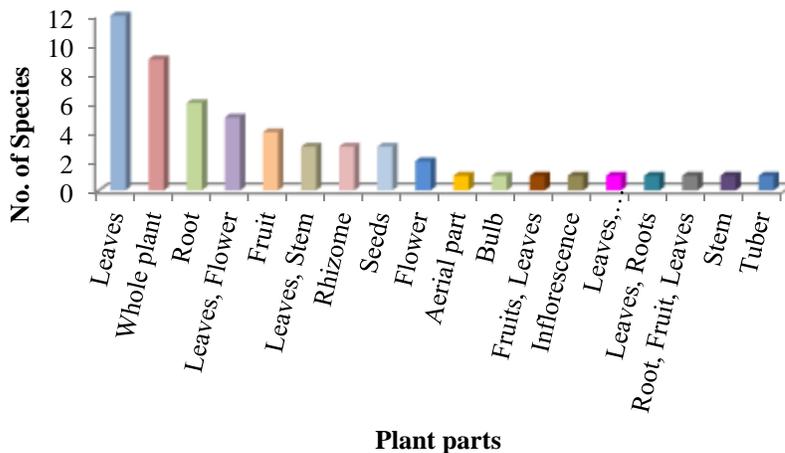
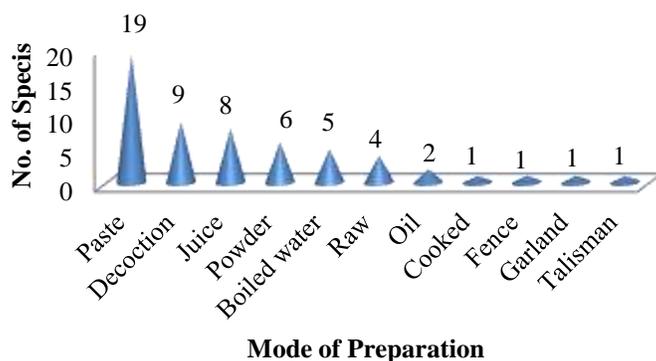
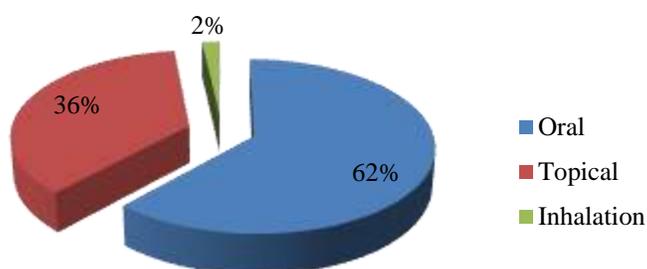


Fig. 3. Mode of Preparation of Medicine**Fig. 4. Mode of administration of medicinal plants**

Amorphophallus sylvaticus L. for piles, *Rauwolfia verticillata* (Lour.) Baill antidote against poisonous bites, *Trichopus zeylanicus* Sensu. to improve stamina. Similar findings had been reported in the earlier studies conducted among the Kani tribes in Keeriparai forest range of Kanyakumari district¹⁵. The medicine is administered mostly with additives like honey or coconut milk or cow milk or rice water. This is due to the fact that different plant parts have various active ingredients^{16,17}. Leaf and fruit of *Mallotus philippensis* L. powder is used for stupefying fishes, and in most of the tribal houses in the present study area they grow *Kaempferia galanga* L. plant as a green fencing to repel the poisonous living things enter in to their houses were the new findings recorded from the study area.

Conclusion

Present investigation was carried out to record the ethnomedicinal plants used by the Kani tribes of Mothiramalai. A decline in the productivity of medicinal plants in the study area suffers the condition of degradation. The most serious threat to medicinal plant wealth indiscriminate is habitat destruction by crop land, grazing and over exploitation. It should be banned with the help of Government trainees / promoters for providing ideas to the tribal people for conservation of medicinal plants and their importance.

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