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ETHNOBOTANICAL REPORT OF WILD FLOWERS USED BY KANI TRIBES OF SOUTHERN WESTERN GHATS OF TAMIL NADU-INDIA

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ABSTRACT

In India, thousands of flower species have been used as food and medicine in folk and Indian system of Medicine. Flowers are an integral part of our lives and are associated with the most poignant moments of human experiences like celebrations or grieving. Flowers are playing an important role in our day to day life directly or indirectly which act most significant role in the pollination. They have been an integral part of human beings since ancient times for various purposes like ornamental, decorations, medicine, nutrients/foods, during religious rites, to pray gods, culinary preparations, essential oils, and in beauty care products etc. An ethno pharmacological survey was carried out among the ethnic groups (Kani) in the southern Western Ghats of Tamil Nadu and traditionally used 33 plant species belonging to 21 families and 30 genera are described under this study. In This communication, the informations recieved from the tribal were compared with already existing literature on ethnopharmacology of India. The documented ethnomedicinal flowers are used for various ailments either singly or in combination with other drugs. The unani medicinal plants used by kanis are arranged alphabetically followed by the Botanical name, Family name, Voucher specimen no, Unani name, Local name, Mode of application are discussed. Moreover life form of medicinally used flowers is 14 herbs, 12 trees and 7 shrubs are recorded and status of flowers is 26 in commonly available 6 are rare and one is sporadic in the study area. The traditional use of flowers in treating various ailments is a common practice among the tribal communities, depending on the socio-economic conditions of the people. The multiple uses of these flowers suggest to further investigation regarding phytochemical analysis and pharmaceutical applications.

KEY WORDS: Ethnobotany, Kani tribes, Southern Western Ghats, Wild Flowers.

INTRODUCTION

Flowers are playing an important role in our day to day life directly or indirectly. Flowers are the sexual reproductive parts of the plants. They have been an integral part of human beings since ancient times for various purposes like ornamental, decorations, medicine (fresh, distillates, decoction and powdered form), nutrients/foods (fresh garnishes, dried, in cocktails, canned sugar), during religious rites, to pray gods, culinary preparations, essential oils, and in beauty care products etc.. The traditional primary health care system in India is embodied in a

'people's health culture'. This culture is based on very effective and sound, region-specific health practices involving 8,000 species of plants across the country where flowers play a prominent role among them. For several centuries medical practitioners have long been acknowledged the therapeutic properties of certain flowers. Flowers are matchless ornaments to the nature Queen. They are not only a source of beauty and delicacy but also fountain heads of health and joy. The kingdom of flowers is very vast as we can categorize them in general into four main classes depending upon the purpose for which they are

grown, i.e. ornamental, commercial, medicinal and vegetable or edible flowers. Flower therapy uses essential oils, flower waters, flower juice, flower petals (fresh and dried), and aroma to heal mind and body. Because of medicinal properties of flowers, modern medicines use flower extracts. The significance of flowers are evaluated from the aspect of potential health benefits concerning mainly the influence of color, odour and flavour components in relation to antioxidant activity, scavenging activity of reactive oxygen radicals and against cancer [1].

Historically apart from medicinal usage, flowers also used for edible purposes too, for example in ancient Rome, various species of Roses were used in cooking of different kinds of puree and omelets; in medieval France *Calendula officinalis* in preparation of salads; saffron (*Crocus sativus*) as flavoring agent; *Viola odorata* for coloring of sugar, syrups and various potions; *Borago officinalis* and Roses as aromatic enhancers of pastry and dandelion (*Taraxacum officinale*) flowers for preparation of drinks and salads in Europe [1]. Flowers are an integral part of our lives and are associated with the most poignant moments of human experiences like celebrations or grieving. [2]. They are used not just for their aesthetic sense but also for nutritive and medicinal properties also.

Out of the total 4, 22,000 flowering plants reported from the world, more than 50,000 plants are used for medicinal purposes. In India, more than 43% of the total flowering plants are reported to be of medicinal importance [3]. Utilization of plants for medicinal purposes in India has been documented in ancient Indian literature. Extensive information is available about flowers from the Indian literature like *Vrukshayurveda*. In Indian traditional systems of Medicine *Ayurveda*, *Siddha*, *Unani* and *Homoeopathy* system (prevalent mostly in South India), flowers are used in the treatment of various ailments.

Flowers are directly eaten as petals or made as juice decoction, tincture or mixing them with some other ingredients and then administered. Different formulations of flowers are used as Juice, Powder, Syrup, *Arka* (Distilled extract), scents, soups etc. [4]. Popular flower vegetable includes cauliflower; expensive spices like saffron, cloves are also derived from flowers. The kingdom of flowers is very vast. In general, flowers can be categorized into four main classes depending on the purpose for which they are grown i.e. Ornamental flowers, Commercial flowers, Medicinal flowers and Kitchen/Vegetable flowers [5].

Hence the present study was made to list out the naturally growing wild flowers were collected from forest areas to identification by the indigenous community kani tribes from Southern Western Ghats of Kanniyakumari and Thirunelveli district of Tamil Nadu for food and medicine, and to conserve those plants for their future generations. A perusal of these reports suggested that the ethnopharmacological survey in Southern Western Ghats 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 ethnopharmacological knowledge of wild flowers used for various ailments from kani tribals of Southern Western Ghats. 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 Southern Western Ghats of Kanniyakumari and Thirunelveli district of Tamil Nadu.

Objective of this study was to interact with local traditional healers, tribal's and document their knowledge on medicinal uses of flowers.

To collect scientific information and identify the flowers used by the Kani tribal and rural people of the study area.

A large number of flowers are still unexplored regarding their uses as food and medicine. So one of the objectives of the present work was preparation of a report on flowers used as nonformal food and medicinal resources by the Kani tribal and rural people of Kanniyakumari and Thirunelveli district of Southern Western Ghats of Tamil Nadu.

To provide status and conservation strategies of the flower yielding plant in order to conserve the plants which are endangered, vanishing or in the verge of extinction.

METHODOLOGY

Study area and ethnic people:

The study was conducted during 2008 (25 days) and in 2011(25 days) by the research team of Survey of medicinal plants unit, Regional Research Institute of Unani Medicine under the CCRUM (Ministry of AYUSH) New Delhi, to collect information on medicinally used flowers by traditional healers in the southern Western Ghats of Kaniyakumari and Thirunelveli district, Tamil Nadu (Map-1). The kanniyakumari 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. The kani tribals inhabited the villages of konjanr, kodayar, Kodithurai or Kani kudiiruppu, Keeripari, olakiaruvi, veerapuli and Maramalai.

The rich forests of this district form the catchment area for more than 7 rivers and 9 dams, and form the backbone 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. They reside in remote and inaccessible forest areas and practice

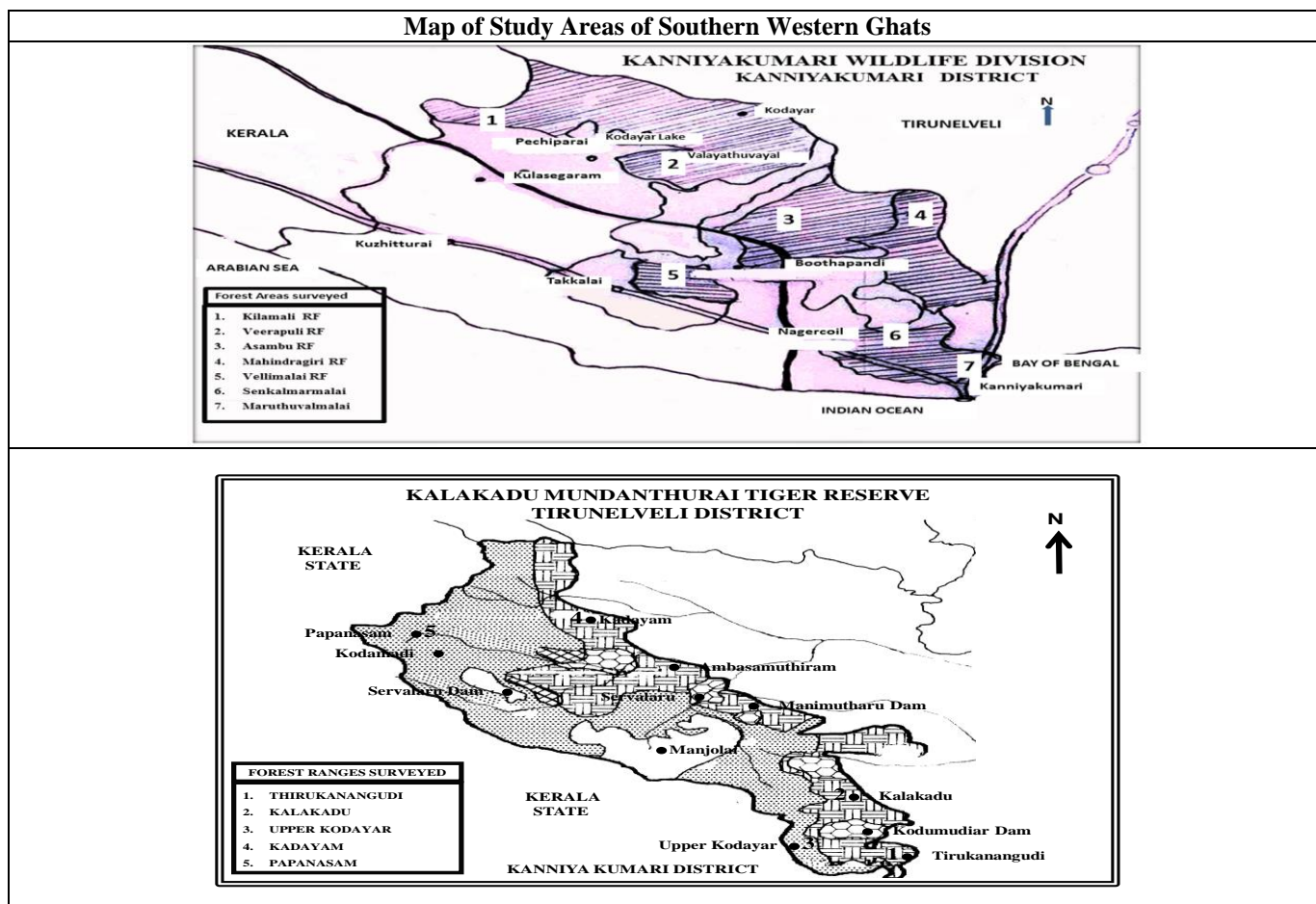
indigenous phytotherapy to treat common ailments. During the course of exploration of ethnomedicinal plants information has been gathered from the healers inhabiting the forest areas who have sound knowledge of herbal remedies. For many decades, the tribal community has a traditionally self managed system of folk medicine and primary healthcare mainly based on herbal remedies.

Tirunelveli district is Southernmost district of Tamil Nadu state located between 8°05' and 9°30' north latitude and 77°05' and 78°25' east longitude. The district was bounded by Virudhunagar District to the North, by Thiruvananthapuram, Kollam and Pathanamthitta districts in the West, by Kanyakumari district in the South and Thoothukudi district in the east are the border areas of tirunelveli district and it covers about 6823 square kilometres land area. The district is also irrigated by several rivers originating in the Western Ghats, such as Pachaiyar river which flows in to the perennial Thamiraparani river, Pachaiyar river, which flows into the perennial Tambaraparani and Manimuthar rivers which also provides irrigation for agriculture and power generation through many dams and reservoirs.

The Ethnobotanical survey was conducted in Nambi Koil, Moormadam and Kodumudiyeru, Forest

Areas in Thirukanangudi Range, Sengaltheri and South Veeraganallur Forest Areas in Kalakadu Range, Chinnakuttriyar Dam, Vinchipoint, Manjolai Lower slope Forest Areas in Upper Kodayar Range, Arivaltheeti Forest Area in Kadayam Range, Papanasam Forest Area in Papanasam Range. All the Forest Areas are mainly occupied by rural inhabitant but in Mundanthurai range of Periyamaiyalaru Kanikudil and Servallaru Kanikudil Forest Areas are occupied by Kani or Kaniyakaran tribal communities.

The knowledge about medicinal plants is rather specialized and is limited to a few members in the kani 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.



Data collection

The ethnomedicinal information was collected through general conversations with traditional healers and questionnaires were used to gather their knowledge. Details of medicinally used flowers, mode of treatment, methods of preparation and types of administration were documented by interacting with them as well as through direct observations. The information got from the tribals was recorded in field notebooks, ethnobotanical data collecting proforma sheet and compared with the previously reported literatures [6, 7, 8]. The collected flowering plants species were identified by the local people with their vernacular names, photographed and sample specimens were collected for the preparation of herbarium. The Flora of Presidency of Madras [9] and The Flora of Tamil Nadu Carnatic [10] were used to ascertain the nomenclature. The voucher specimens were deposited in the herbarium at Regional Research Institute of Unani Medicine, Chennai.

RESULT AND DISCUSSION

The art of herbal healing has very deep root in Indian culture and folklore. Medicinal plants have been playing an important role in the survival at the ethnic communities, who lives 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. Even today in most of the forest tribal are depending on local traditional healing systems for their primary health care. Their reliability on only healing plants is still more for the Kani tribal people inhabiting the deep forest of Southern Western Ghats of Tamil Nadu in India, where it is difficult for them to get modern medical facilities for their day to day problems. So keeping all this things in mind, the present study was taken into account. The paper focus on the flowers used by kani tribals and rural peoples of Study area.

Kani tribes live in southern Western Ghats of Kannyakumari and Tirunelveli district of Tamil Nadu. These hills have a variety of medicinal plants and their flowers which are used by the Kani tribals for their primary healthcare. The present study identified that Kani traditional healers used 33 species of flowers ethnomedicinally (distributed in 30 genera belonging to 21 families) to treat various diseases such as dry cough, menstrual disorders, piles, Viral fever, Kidney stone, Joint pain, Jaundice, Skin diseases, Contraceptive purpose etc., (Table-1). Moreover life forms of medicinally used flowers are 14 herbs, 12 trees and 7 shrubs are recorded and statuses of flowers are 26 in commonly available 6 are rare and one is sporadic in the study area.

The following plants flowers are used for various ailments they are *Aerva lanata* (L.) Juss. (Bisheri buti) used for menstrual disorders, *Althaea officinalis* L. (Gul-e-Khatmi) used for dry cough. *Anogeissus latifolia* (DC.)

Wallich ex Guill. & Perr. (Gul-e-Dhawa) used for Piles, *Areca catechu* L. (Gul-e-Fufal) used for Menstrual disorders, *Azadirachta indica* A. Juss. (Neeb, Neem) used for viral fever, *Borago officinalis* L. (Gul-e-Gaozaban) used for kidney stone, *Butea monosperma* (Lam.) Taub. (Gul-e-Tesu) used for joint pain, *Calotropis gigantea* (L.) R. Br. (Madar) used dry cough, *Carthamus tinctorius* L. used for fever, *Cassia auriculata* L. (Tarwar) used for contraceptive purpose, *Chrysanthemum indicum* L. (Gul-e-Dawoodi) used for skin diseases. *Hibiscus rosa-sinensis* L. (Gurhal) used for hair tonic, *Ipomoea bona-nox* L. (Gul-e-Chandni) used for eczema. *Jasminum grandiflorum* L. (Shagufa Yasmin) used for chest pain, *Lawsonia inermis* L. (Gul-e-Hina) used for hair growth and good sleep, *Madhuca longifolia* (J.Konig) J.F.Macbr. (Gul-e-Mahuwa) used for cough, *Matricaria chamomilla* L. (Gul-e-Baboona) used for inflammation, *Mimusops elengi* L. (Gul-e-Mulsari) used for menstrual disorders, *Mirabilis jalapa* L. (Gul-e-Abbas) used for inflammation, *Moringa oleifera* Lam. (Sahajana) used for for chololith, *Nymphaea alba* L. (Gul-e-Nilofer) used for leucorrhoea, *Pentapetes phoenicea* L. (Gul-e-Dopaharya) Used for tumours, *Plumbago zeylanica* L. (Sheetraj Hindi) used for headache, *Pterocarpus marsupium* Roxb. (Gul-e-Bijasar) used for chronic fever, *Punica granatum* L. (Gul-e-Anar Farsi) used for asthma pain, *Rosa alba* L. (Gul-e-Sewti) used for chest pain, *Rosa damascena* Mill. (Gul-e-Ward) used for skin irritation, *Sphaeranthus indicus* L. (Gul-e-Mundi) used for Cough and Skin disease, *Syzygium aromaticum* (L.) Merr. et Perry. (Gul-e-Qaranfal) used for gastric ulcer, *Syzygium cumini* (L.) Skeels (Gul-e-Jamun) used for contraceptive purpose, *Syzygium jambos* L. (Alston) (Gul-e Gulab Jamun) used for Jaundice, *Toona ciliata* M.Roem. (Gul-e-Tun) used for irregular menstruation.

This is consistent with other general observations which have been reported and recorded earlier in relation to medicinal uses of flowers studies by the Indian system of medicines like Siddha, Ayurvedha and Unani [11, 12, 13]. Most of the flowers, mainly used as food, also have medicinal importance. Many flowers are used for skin and hair care. Essential oils impart benefits in perfumery, shine or conditioning effects [14]. In India, thousands of flower species have been used as food and medicine in folk, ayurvedic, unani, siddha and other systems recorded since 1000 BC [15, 16].

Antioxidant activities of indigenous foods and plant medicines that are necessary for health culture as well as economic stability of village people are being explored in different parts of the globe. Village people, women and children gather the flowers and deciduous petals as food; and also a number of flower species consumed by them. Flowers are rich in phenolic compounds and have antioxidant potential. Among floral whorls, corolla is generally deciduous. Collection of deciduous petals rich in phenolic compounds is an eco-friendly practice and better than incineration in forests.

Table 1. List of Ethnobotanical Report of Wild Flowers Used by Kani Tribes of Southern Western Ghats of Tamil Nadu-INDIA

| S.No | Botanical name/ Family name / Voucher Specimen no: | Local Name | Unani Name | Ethnopharmacological Uses | Remarks | Status |
|------|--|----------------|------------------------|--|---------|--------|
| 1 | <i>Aerva lanata</i> (L.) Juss. Amaranthaceae/ RRIUM-CH:12342 | Pooli poo | Bisheri buti | 10ml flowers decoction orally given for Menstrual disorders. | Herb | C |
| 2 | <i>Althaea officinalis</i> L./ Malvaceae/ RRIUM-CH: 9921 | Semaituthi | Gul-e-Khatmi | 50-100ml decoction orally given for dry cough. | Herb | C |
| 3 | <i>Anogeissus latifolia</i> (DC.) Wallich ex Guill. & Perr. / Combretaceae/ RRIUM-CH: 12335 | Vekkali | Gul-e-Dhawa | Flowers powder with neem oil made into 5g pills and daily 2 pills orally given for Piles. | Tree | C |
| 4 | <i>Areca catechu</i> L./ arecaceae/ RRIUM-CH: 9856 | Paku/Adika | Gul-e-Fufal | 100-150ml decoction orally given for Menstrual disorders. | Tree | C |
| 5 | <i>Azadirachta indica</i> A. Juss. / Meliaceae/ RRIUM-CH: 9107 | Vambu | Neeb, Neem | 30-50ml extract orally given viral fever. | Tree | C |
| 6 | <i>Borago officinalis</i> L. /Boraginaceae/ RRIUM-CH:9955 | Kallutaitumapi | Gul-e-Gaozaban | 100ml decoction orally given for kidney stone. | Herb | R |
| 7 | <i>Butea monosperma</i> (Lam.) Taub. / Fabaceae/ RRIUM-CH: 9673 | Porasu | Gul-e-Tesu | Pastes externally apply on joint for joint pain. | Tree | C |
| 8 | <i>Calotropis gigantean</i> (L.) R. Br./ Asclepiadaceae/ RRIUM-CH:12319 | Eruku | Madar | Dried flowers smoke inhaled for reduce dry cough. | Shrub | C |
| 9 | <i>Carthamus tinctorius</i> L. Asteraceae/ RRIUM-CH:10027 | Kusumbu chedi | Gul-e-Ma'safar /Qurtum | 100ml decoction orally given for fever. | Herb | R |
| 10 | <i>Cassia auriculata</i> L./ Caesalpiniaceae/ RRIUM-CH:12273 | Avaram | Tarwar | Flowers are crushed and mixed with water and 50-100ml taken orally for contraceptive purpose. | Shrub | C |
| 11 | <i>Chrysanthemum indicum</i> L./ Asteraceae/ RRIUM-CH: 12385 | Chamandi | Gul-e-Dawoodi | Paste externally apply for skin diseases. | Herb | C |
| 12 | <i>Hibiscus rosa-sinensis</i> L. Malvaceae/ RRIUM-CH: 11768 | Semparuthi | Gurhal | Flowers soaked in coconut oil then apply as hair tonic | Shrub | C |
| 13 | <i>Ipomoea bona-nox</i> L./ Convolvulaceae/ RRIUM-CH:13257 | Naganamukkorai | Gul-e-Chandni | Flower paste externally apply for eczema. | Twiner | R |
| 14 | <i>Jasminum grandiflorum</i> L. / Oleaceae/ RRIUM-CH:10579 | Kattumalligai | Shagufa Yasmin | Flowers bundle kept in around to chest for chest pain. | Shrub | C |
| 15 | <i>Lawsonia inermis</i> L./ Lythraceae/ RRIUM-CH: 9950 | maruthani | Gul-e-Hina | Flowers soaked in coconut oil for 15 days the oil is apply on hair for hair growth. Flowers bundle kept in bed at night to good | Shrub | C |

| | | | | sleep. | | |
|----|--|-----------------|------------------|--|-------|---|
| 16 | <i>Madhuca longifolia</i> (J.Konig) J.F.Macbr./ Sapotaceae/ RRIUM-CH:10634 | Elupai | Gul-e-Mahuwa | 100ml flower decoction orally given for cough. | Tree | C |
| 17 | <i>Matricaria chamomilla</i> L./Asteraceae/ RRIUM-CH: 10200 | Mukuthi poo | Gul-e-Baboona | Flowers paste externally apply for inflammation. | Herb | R |
| 18 | <i>Mimusops elengi</i> L. / Sapotaceae/ RRIUM-CH: 8651 | Magizhampoo | Gul-e-Mulsari | 100-150ml flowers decoction orally given for menstrual disorders. | Tree | C |
| 19 | <i>Mirabilis jalapa</i> L./ Nyctaginaceae/RRIUM-CH: 12496 | Andhi Mandarai | Gul-e-Abbas | Flowers paste externally applied for inflammation. | Herb | C |
| 20 | <i>Moringa oleifera</i> Lam./ Moringaceae/ RRIUM-CH:10021 | Murungai | Sahajana | Flowers soaked in honey for 15 days then daily 10g orally given for chololith. | Tree | C |
| 21 | <i>Nymphaea alba</i> L./ Nymphaeaceae/ RRIUM-CH:12757 | Thamarai | Gul-e-Nilofer | Flowers petals soaked in jackery for leucorrhoea | Herb | C |
| 22 | <i>Pentapetes phoenicea</i> L./ Malvaceae/ RRIUM-CH: 11853 | Nagappu | Gul-e-Dopaharya | Flowers paste externally applied on tumour for emollient in tumours. | Herb | R |
| 23 | <i>Plumbago zeylanica</i> L./ Plumbaginaceae/ RRIUM-CH:12324 | Kodiveli | Sheetraj Hindi | Flowers paste externally applied with coconut oil on forehead for headache. | Herb | C |
| 24 | <i>Pterocarpus marsupium</i> Roxb. / Fabaceae/ RRIUM-CH:9078 | Vangai | Gul-e-Bijasar | 100ml flowers decoction orally given for chronic fever | Tree | S |
| 25 | <i>Punica granatum</i> L. / Punicaceae/ RRIUM-CH:9011 | Madhulai | Gul-e-Anar Farsi | Flowers petal smoke inhaled to reduce asthma pain. | Shrub | C |
| 26 | <i>Rosa alba</i> L. / Rosaceae / RRIUM-CH:8957 | Vellairoja | Gul-e-Sewti | Flowers petal soaked in honey for 15 days then 5-10g orally taken chest pain. | Herb | C |
| 27 | <i>Rosa damascena</i> Mill./Rosaceae/ RRIUM-CH:8942 | Rojappu | Gul-e-Ward | Petals pastes externally apply for skin irritation. | Herb | C |
| 28 | <i>Sphaeranthus indicus</i> L./ Asteraceae/ RRIUM-CH:12505 | Kottaikaranthai | Gul-e-Mundi | 1. Flowers head made in to paste and apply externally for Skin disease. 2. 50-100ml decoction of flowers head orally given for Cough. | Herb | C |
| 29 | <i>Syzygium aromaticum</i> (L.) Merr. et Perry./ Myrtaceae/ RRIUM-CH:12558 | Kirambu | Gul-e-Qaranfal | Dried flowers powder 5g orally given with hot water for gastric ulcer. | Tree | C |
| 30 | <i>Syzygium cumini</i> (L.) Skeels/ Myrtaceae/ RRIUM-CH:11393 | Naval | Gul-e-Jamun | 100ml decoction of flowers orally given to reduced sperm count for contraceptive purpose. | Tree | C |
| 31 | <i>Syzygium jambos</i> L. | jambu | Gul-e | 50-100ml flowers extract | Tree | R |

| | | | | | | |
|----|--|-----------------|--------------------|--|------|---|
| | (Alston) / Myrtaceae/ RRIUM-CH:11241 | | Gulab Jamun | orally given for Jaundice | | |
| 32 | <i>Toona ciliata</i> M.Roem./ Meliaceae/ RRIUM-CH: 12544 | Madhakari Vambu | Gul-e-Tun | 100 ml decoction of flowers orally given for irregular menstruation. | Tree | C |
| 33 | <i>Viola odorata</i> L. /Violaceae/ RRIUM-CH: /8861 | Orilai thamarai | Gul-e- Banafsha | 50-100ml decoction orally given for jaundice. | Herb | R |

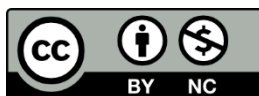
CONCLUSION

Flowers are playing an important role in our day to day life directly or indirectly. From the time immemorial, flowers have been used as a restorative agent for variety of ailments. They are the natural drugs used to regain the alterations made in normal physiological system by foreign organisms or by any malfunctioning of the body. It is very essential to have a proper documentation of medicinally used flowers and their potential for the improvement of health and hygiene through an ecofriendly

system. The available literature regarding the pharmacological properties of these flowers are very impressive. This study enriches our knowledge regarding the therapeutic value of the flowers used by Kani tribal as medicine. Hence, importance to the potentiality of ethnomedicinal studies may be given in future aspects as these can provide a very effective strategy for the discovery of useful drugs and medicinally active compounds from flowers.

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