



Survey and documentation of medicinal plants related to women related health issues

Sridharshini S¹, Kailash R¹, Vigneshwaran M¹, Pradhusha R¹, Thenmozhi K^{2*}, Vimal Priya S³

¹UG Student, Department of Botany, Kongunadu Arts and Science College Coimbatore, Tamil Nadu, India

²Assistant Professor, Department of Botany, Kongunadu Arts and Science College Coimbatore, Tamil Nadu, India

³Ph. D Scholar, Department of Botany, Kongunadu Arts and Science College Coimbatore, Tamil Nadu, India

Abstract

A survey was conducted in various areas of Karumandurai (11.8261° N latitude and 78.6271° E longitude) from the Eastern sector of Salem district, Tamil Nadu, Anaikatti (11.1048° N latitude and 76.7683° E longitude) from the Southern sector of Coimbatore District and Shakespeare (12° 58' 12.00" N latitude and 75° 46' 48.00" E longitude) from the south western sector of Hassan District, Karnataka provided information on medicinal uses of women related health problems were conducted between November 2021 and May 2022, resulting in the provision of information on 50 plant species. People used these species from 34 different families. The study found that women use a wide variety of remedies for a variety of problems and disorders related to women's health, including fertility, inducing labor, as galactagogues, treatment of menstrual problems, antimicrobial infections, white discharge, gonorrhoea, and syphilis.

Keywords: medicinal plant, fertility, ethnic value, menstrual problem

Introduction

Every household employs some form of traditional medicine and plants to treat various ailments. Traditional medicine consists of therapeutic aspects of medicinal plants and knowledge passed down through generations within folkloric claims made before the advent of modern medicine. However, Indigenous medicinal knowledge is typically passed down orally from generation to generation through a community, family, and individuals. Traditional medicine was a collection of indigenous medicinal practices that existed in India prior to the introduction of allopathic or western medicine. India is endowed with a plethora of medicinal and aromatic plants. In India, over 7500 medicinal plant species are grown. Medicinal plants relieve human suffering and store a variety of chemicals and drugs with minimal or no side effects. They are frequently found as secondary metabolites with various complex chemical substances of varying composition, which are generally classified as alkaloids, glycosides, corticosteroids, essential oils, terpenes, and so on (Balakrishna *et.al.*, 2011) [3].

Medicinal plants have been used all over the world, but their widespread use has been limited to China, India, Japan, Pakistan, Sri Lanka, Thailand, and a few African countries. Developed nations are also encouraging the use of plant-based natural medicinal products in their healthcare systems. Healthcare regulation encourages the use of cutting-edge technology and scientific evidence to promote medicinal plants and their associated products. (Vimal Priya *et.al.*, 2023) [38].

Pharmacology has evolved over years as a scientific discipline that describes the effects of biologically active chemicals and the molecular mechanisms by which the drugs can cause biological effects. In the broadest sense, pharmacology is the study of how chemical agents, both natural and synthetic (i.e., drugs) affect biological systems. Pharmacological studies can determine the effects of chemical agents upon subcellular, systemic, physiological or

behavioural processes; focus on the treatment and prevention of diseases; or deal with the potential hazardous effects of pesticides and herbicides. Pharmacology is often described as a bridge science because it incorporates knowledge and skills from a number of basic science disciplines including physiology, biochemistry and cell and molecular biology. Pharmacologists are able to 'translate' such knowledge into the rational development of therapeutics. As a result of their multidisciplinary approach, pharmacologists are able to offer a unique perspective in using plant-based drug sources for the treatment of various dreadful diseases.

Documentation of indigenous knowledge about utilization of medicinal plants is important for a plethora of reasons. Firstly, it ensures that indigenous culture heritage is preserved from being lost for the use of both present and future generations. Studies have indicated that indigenous knowledge about herbal medicine is continuously being lost through factors such as acculturation and biodiversity loss. Secondly, through further research such as phytochemical, biochemical, pharmacological and clinical studies information on indigenous herbal medicines can lead to the discovery of new bioactive agents for the treatment of various ailments. Despite the recent interest in molecular modelling, combinatorial chemistry, and other synthetic chemistry techniques by pharmaceutical companies and funding organizations, natural products, and particularly medicinal plants, remain an important source of new drugs, novel drug leads, and new chemical entities (NCEs). Thirdly, biodiversity conservation can be enhanced when information about plants that are harvested and utilized in the management of ailments within particular areas are available. For biodiversity conservation, it is also imperative to know what quantities of plant materials are harvested, not only for home consumption but also for trade. Commercial trade often stimulates extensive wild-collection, which often have negative effects on medicinal plant population sizes

and recovery after harvesting. On the other hand, the trade and marketing of herbal medicine creates employment for thousands of people. For these reasons, the harvest should be documented and sustainable so this can continue to be a profitable resource for future generations.

Herbal remedies are so popular in India that the government has established a separate department AYUSH under the Ministry of Health and Family Welfare. The Government of India established the National Medicinal Plant Board in the year 2000 to deal with the herbal medicinal system. Abortion, menstruation problems, menopausal syndrome, morning sickness, leucorrhoea, infertility, delivery issues, and female reproductive system-related health issues, including uterus, vagina, and ovaries, have all received special attention. The current study aimed to investigate and gain knowledge on medicinal plants used, specifically in relation to various women's health issues.

Therefore, the present study was carried out to document medicinal plants with great potential to cure women related issues and the major objective of the present study were

- To collect information about the binomial and vernacular names of medicinal plants used to cure women related health issues.
- To recognize the therapeutic aspects of medicinal plants and the plant parts used against women related diseases and illness.
- To review the phytochemical and pharmacological effects of medicinal plants described in the study.

Materials and methods

The documented data represented in the present study are an outcome of periodic field survey carried out during November 2021 to May 2022 to places in and around study area. The relevant information for study were collected extensively by field survey.

In study areas, interview were conducted in local languages Tamil and Kannada. Detail information on medicinal plants, including both plant parts used in several medicinal practice and related indigenous knowledge were collected. Detail information on medicinal plants, including both plant parts used in several medicinal practice and related indigenous knowledge were collected by interviewing with local habitants of the study area, mainly elderly and knowledgeable persons. The respondents are of varying age, i.e. starting from 19 to 85. Most of respondents are engaged in several occupations like education, agriculture, wage labour, job, business, etc. However, some respondents are engaged in Ayurvedic treatment using medicinal plants. Each plants presented were provided with botanical nomenclature followed by author citation and synonyms. The vernacular names were given in Tamil along with their medicinal uses. The taxonomic description, medicinal as well as ethnobotanical information, phytochemical and pharmacological data were collected referring standard articles and presented in Table 1

Study area

The present survey and documentation of medicinal plants on women related health problems were conducted at the study areas of Karumandurai (11.8261° N latitude and 78.6271° E longitude) from the Eastern sector of Salem district, Tamilnadu, Anaikatti (11.1048° N latitude and 76.7683° E longitude) from the Southern sector of Coimbatore District and Sakleshpura (12° 58' 12.00" N

latitude and 75° 46' 48.00" E longitude) from the south western sector of Hassan District, Karnataka.

The ecoregions of South western Ghats moist deciduous forests are found along the slopes of the Anakatti hills of Tamil Nadu (2,695m-Elevation). South of Palghat Gap is the mountain pass which divides it from the Nilgiri mountains. Anakatti village is located in taluk of North Coimbatore district, Tamilnadu. Karumandurai is a biggest village panchayath in Kalrayan Hills situated in Salem district, Tamil Nadu. The Kalrayan Hills range as 400 m in altitude is Deciduous Forest, high altitude stunted Evergreen Forest. The hills extending Northeast boundary between the Salem and Kallakuruchi districts of Tamilnadu (609.6-914.4m-Elevation). Sakleshpur or Sakleshpura is a hill station town in Hassan District, Karnataka(949m-Elevation). It is a beautiful town located in Western Ghats on Bangalore-Mangalore Highway.

Results

The present investigation was under taken during November 2021 to May 2022 and it has resulted in providing information about 50 plant species. These species belonging to 34 families were utilized by people. In the present study, it was observed that Karumandurai of Salem district, Tamilnadu. Annaikatti, coimbatore district, Tamilnadu, Sakleshpura, Hassan district, Karnataka., collect the plant from surrounding forest areas. They widely use many plants as edible such as *Beta vulgaris* (Plate-I.a), *Annona muricata* (Plate-I.e), *Centella asiatica* (Plate-I.f), *Carissa carandas* (Plate-I.h), *Carica papaya* (Plate-II.c), *Momordica charantia* (Plate-II.e), *Benincasa hispida* (Plate-II.f), *Ficus Carica* (Plate-IV.g), *Musa paradisiaca* (Plate-IV.h), *Psidium gujava* (Plate-V.a), *Daucus carota* (Plate-I.g), *Allium sativum* (Plate-I.d), *Alternanthera sessilis* (Plate-I.b), *Zingiber officinale* (Plate-VI.e), used as food. *Adhatoda vasica* (Plate-I.a), *Aristolochia indica* (Plate-I.i), *Aloe vera* (Plate-II.a), *Crateva religiosa* (Plate-II.b), *Crotolaria verrucosa* (Plate-II.d), *Euphorbia hirta* (Plate-II.g), *Ricinus communis* (Plate-II.h), *Medicago sativa* (Plate-II.i), *Abrus precatorius* (Plate-III.a), *Indigofera tinctoria* (Plate-III.b), *Trigonella foenum graecum*(Plate-III.c), *Saraca asoca*(Plate-III.d), *Salvia officinalis* (Plate-III.e), *Vitex negundo* (Plate-III.f), *Ocimum canum* (Plate-III.g), *Oscimum basilicum* (Plate-III.h), *Cinnamon verum* (Plate-III.i), *Lawsonia inermis* (Plate- IV.a), *Hibiscus rosasinensis* (Plate-IV.b), *Helicteres isora* (Plate-IV.c), *Abutilon indicum* (Plate-IV.d), *Melia dubia* (Plate-IV.e), *Cyclos peltata* (Plate-IV.f), *Myristica dactyloides* (Plate-IV.i), *Boerhavia diffusa* (Plate-V.b), *Petalium murex* (Plate-V.c), *Bridelia retusa* (Plate- V.d), *Nigella sativa* (Plate-V.e), *Psydrax umbellata* (Plate-V.f), *Benkara malabarica* (Plate- V.g), *Chloroxylon swietenia* (Plate-V.i), *Cardiospermum halicacabum* (Plate-VI.a), *Smilax zeylanica* (Plate-VI.b), *Urtica dioica* (Plate-VI.c), *Curcuma longa* (Plate-VI.d) used as medicine.

Among the medicinal plant families represented, Fabaceae registered the dominant Family followed as Lamiaceae, Malvaceae, Rubiaceae, Cucurbitaceae, Apiaceae etc., Among the use of various parts investigated, majority of plants has its medicinal value in its leaves, followed by fruit, root, bark, seed and rhizome were used for the treatment of ailments such as menstrual disorders, Lactation, leucorrhoea, gynecological disease etc.,The species like *Beta vulgaris*

(Plate-I.c), *Allium sativum* (Plate-I.d), *Annona muricata* (Plate-I.e), *Daucus carota* (Plate-I.g), *Carissa caranda* (Plate-I.h), *Aloe vera* (Plate-II.a), *Carica papaya* (Plate-II.c), *Momordica charantia* (Plate-II.e), *Ricinus communis* (Plate-II.h), *Ocimum basilicum* (Plate-III.h), *Cinnamon verum* (Plate-III.i), *Hibiscus rosasinensis* (Plate-IV.b), *Ficus*

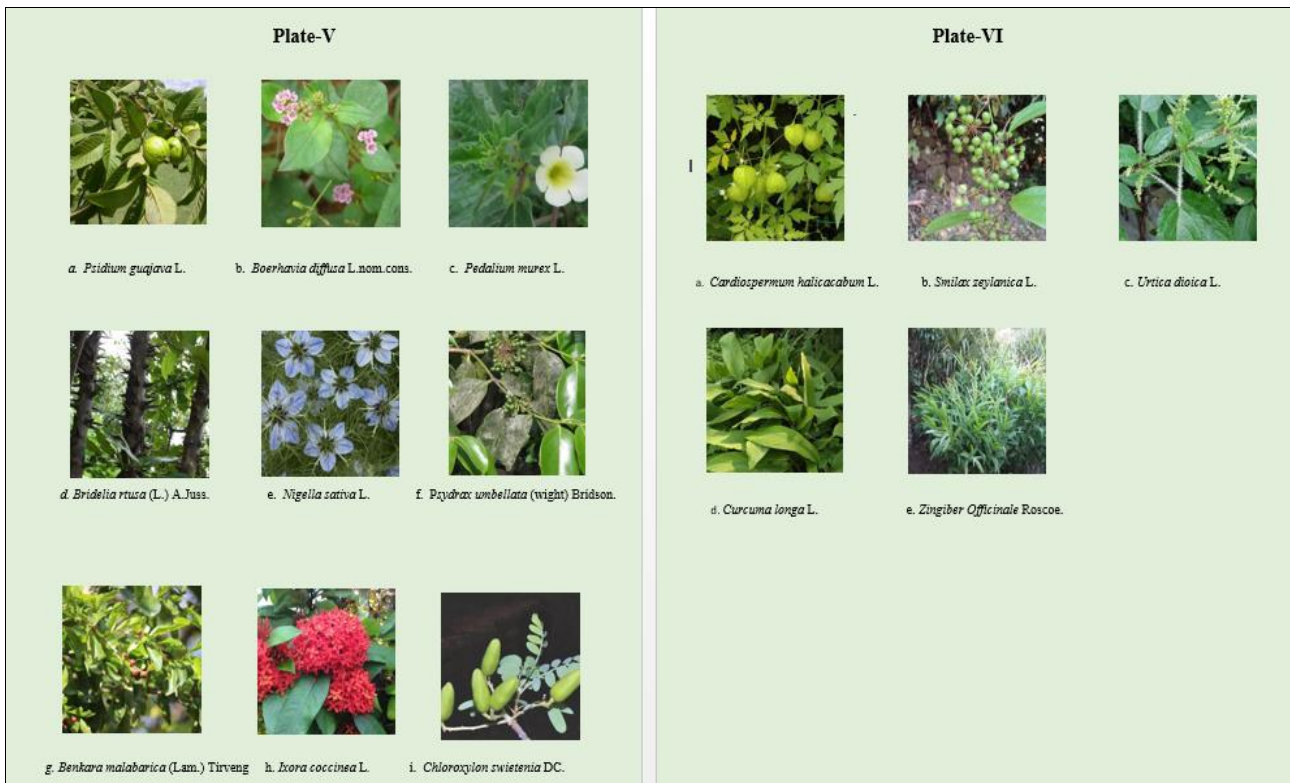
carica (Plate-IV.g), *Musa paradisiaca* (Plate-IV.h), *Myristica dactyloides* (Plate-IV.i), *Psidium guajava* (Plate-V.a), *Benincasa hispida* (Plate-II.f), *Curcuma longa* (Plate-VI.d), *Zingiber officinale* (Plate-VI.e) were cultivated by farmers economically.

Table 1: List of medicinal plants and their potential against various women ailments

S.NO	Botanical name	Family	Vernacular name	Habit	Part Used	Ailments
1	<i>Justicia adhatoda</i> L.	Acanthaceae	Aada thodai	Shrub	Leaves	Easy Childbirth
2	<i>Alternanthera sessilis</i> (L.) R.Br.ex.DC.	Amaranthaceae	Ponnan kanni	Herb	Whole Plant	Lactation
3	<i>Beta vulgaris</i> L.	Amaranthaceae	Sugar beet	Herb	Rhizome	BP Maintain During Delivery
4	<i>Allium sativum</i> L.	Amayllidaceae	Poondur	Herb	Stem	Lactation
5	<i>Annona muricata</i> L.	Annonaceae	mullseetha	Tree	Fruits	To Treat Breast Cancer
6	<i>Centella asiatica</i> L.	Apiaceae	Vallarai	Herb	Whole Plant	Gynecological Diseases
7	<i>Daucus carota</i> L.	Apiaceae	karatu kazhangu	Herb	Root	Lactation
8	<i>Carissa carandas</i> L.	Apocynaceae	Kilaakkaai	Shrub	Fruits	Menstrual Disorder- Irregular Menstruation
9	<i>Aristolochia indica</i> L.	Aristolochiaceae	Kozhikkundus	Twiner	Root,Leaves	Menstrual Disorder- Irregular Menstruation
10	<i>Aloe vera</i> (L.) Burm.f.	Asphodelaceae	Kathazhai	Herb	Fleshy Leaves	Menstrual Cycle
11	<i>Crateva religiosa</i> G.Forst.	Capparaceae	Marvilingam	Tree	Leaves	To Reduce Pain During Delivery
12	<i>Carica papaya</i> L.	Caricaceae	Pappali	Tree	Fruits	To Clean Uterus
13	<i>Momordica charantia</i> L.	Cucurbitaceae	Paagarkaai	Climber	Fruits	Menstrual Disorder- Irregular Menstruation
14	<i>Benincasa hispida</i> (Thunb) Cogn	Cucurbitaceae	pusani	Climber	Flower, Fruit	Vulvodynia
15	<i>Euphorbia hirta</i> L.	Euphorbiaceae	chithrapaladai	Herb	Leaves	Lactation
16	<i>Ricinus communis</i> L.	Euphorbiaceae	Aamanakku	Shrub	Leaves	Lactation
17	<i>Crotalaria verrucose</i> L.	Fabaceae	kilu kulippai	Annual	Leaves	Reduce Stomach Pain Duringmenstrual Cycle
18	<i>Madicago sativa</i>	Fabaceae	Kuthirai masaal	Herb	Seed	Lactation
19	<i>Abrus precatorius</i> L.	Fabaceae	Gundumani	Climber	Seed	Lactation
20	<i>Indigofera tinctoria</i> L.	Fabaceae	Avuri	Shrub	Leaves	Leucorrhoea
21	<i>Trigonella foenum graecum</i> L.	Fabaceae	venthayam	Herb	Leaves,Seed	Lactation, Relieving Menstrual Cramps
22	<i>Saraca asoca</i> (Roxb.) Willd.	Fabaceae	Ashokamaram	Tree	Bark	Menorrhagia
23	<i>Salvia officinalis</i> L.	Lamiaceae	Semaikarpura ilai	Herb	Leaves	Increase Fertility
24	<i>Vitex negundo</i> L.	Lamiaceae	Karunochi	Shrub	Leaves	Menstrual Disorder- Irregular Menstruation, Fibrocystic Breast Disease
25	<i>Ocimum canum</i> Sims.	Lamiaceae	Naaithulasi	Herb	Leaves	Leucorrhoea
26	<i>Ocimum basilicum</i> L.	Lamiaceae	Tirunirupachi	Herb	Leaves	Promote Labor Pain
27	<i>Cinnamon verum</i> J. Presl.	Lauraceae	Lavangpattai	Tree	Bark	Amenorhea
28	<i>Lawsonia inermis</i> L.	Lythraceae	Maruthani	Shrub	Leaves, Fruit	To Promote Menstrual Flow
29	<i>Hibiscus rosa sinensis</i> L.	Malvaceae	Sembaruthi	Shrub	Flower	Leucorrhoea
30	<i>Helicteres isora</i> L.	Malvaceae	Idamburi	Shrub	Fruits	Leucorrhoea
31	<i>Abutilon indicum</i> (Link)Sweet.	Malvaceae	Thuthi	Shrub	Whole Plant	Vaginal Infection
32	<i>Melia dubia</i> Cav.	Meliaceae	Malai venbu	Tree	Leaves	Menstrual Disorder- Irregular Menstruation
33	<i>Cyclea peltata</i> Hook. fil. &Thoms.	Menispermaceae	Padavalli	Climbing Shrub	Root,Leaves	Menstrual Disorder- Irregular Menstruation
34	<i>Ficus carica</i> L.	Moraceae	Aththi pazham	Tree	Fruits	Improve Fertility
35	<i>Musa paradisiaca</i> L.	Musaceae	Vaazha	Hierba	Flower	Menstrual Disorder- Irregular Menstruation
36	<i>Myristica dactyloides</i> Gaertn	Myristicaceae	Kattu jadhika	Tree	Whole Plant	Leucorrhoea
37	<i>Psidium guajava</i> L.	Myrtaceae	koyyaa	Shrub	Leaves, Fruit	Reduce Pain Intensity Of Menstrual Cramp
38	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Mukkaratai sari	Herb	Whole Plant	Leucorrhoea
39	<i>Pedaliium murex</i> L.	Pedaliaceae	aanainerinji	Annual Herb	Entire Plant	Menstrual Disorder- Irregular Menstruation
40	<i>Bridelia rutusa</i> (L.) A.Juss.	Phyllanthaceae	Mullu vengai	Tree	Stem Bark	Menstrual Disorder- Irregular Menstruation
41	<i>Nigella sativa</i> L.	Ranunculaceae	Karunjeegam	Annual	Seed	Menstrual Disorder- Irregular Menstruation
42	<i>Psydraxumbellata</i> (wight) Bridson	Rubiaceae	Nallamantharam	Tree	Whole Plant	Easy Delivery
43	<i>Benkara malabarica</i> (Lam.) Tirveng	Rubiaceae	Paparamullu	Shrub	Stem Bark	Uterus Related Problem,Syphilis
44	<i>Ixora coccinea</i> L.	Rubiaceae	idly poo	Shrub	Flower	Leucorrhoea
45	<i>Chioroxylon swietenia</i> (Roxb.) DC	Rutaceae	Purasu	Tree	Bark,Leaves	Menstrual Disorder- Irregular Menstruation

46	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	mudakaththaan	Climber	Leaves	Stomach Pain During Menstruation
47	<i>Smilax zeylanica</i> L.	Smilacaceae	Katramarai	Climber	Root,Leaves	Treatment Of Syphilis,Gonorrhea
48	<i>Urtica dioica</i> L.	Urticaceae	Sendhatti	Herb	Leaves,Stem	Improve Fertility
49	<i>Curcuma longa</i> L.	Zingiberaceae	Manjal	Herb	Rhizome	Vulvodynia, Menstrual Disorder Irregular Mensuration
50	<i>Zingiber Officinale</i> Roscoe.	Zingiberaceae	Inji	Herb	Rhizome	Relieving Menstrual Cramps





Discussion

As a result of discussion, it is documented that 34 families of angiosperms as herbs, shrubs, climbers and trees. It was analysed that the dominant families are Fabaceae and Lamiaceae. It was documented that various parts of the plant is used, and it is as follows leaf (24), root (5), fruits (10), bark (5), seed (5), stem (4), flower (3), whole plant (7) and rhizome(3). It can be observed that majority of plants has its medicinal value in its leaves, followed by fruit, whole plant, root, bark, seed and rhizome. It was analysed that majority of traditional plants is used to treat menstrual related ailments. Plants are taken before and after pregnancy which aids for easy delivery and Milk production after childbirth. Few plants has anticancer properties which helps to treat breast cancer, which is becoming popular these days. These plants can be used to reduce the risk of breast cancer. Majority of modern medicines used to treat women ailments comes with their own side effects which can be reduced using these traditional medicines. Some of plants are used as paste to apply externally to treat vaginal infections caused by fungus and bacteria. These plants are effective because of their antifungal and antibacterial properties. Herbal medicines has been widely practised from the ancient period throughout the world. Herbal drugs obtained from plants are believed to be much safer for the treatment of various diseases. The tribal and rural populations of India to a large extent depend on medicinal plant for not only to meet their healthcare needs by self-medication, but also for their stocks (Ganesan *et al.*, 2006)^[11]

The ethnomedicinal plants were distributed in 34 families. Among them dominant families are Fabaceae (6 species), followed by Lamiaceae (4 species), malvaceae (3 species), and they were represented in (Table.2). The were found to be used in different forms such as decoctions, paste, juice, etc., Among the utilization of plant materials 24 are leaves, 9 are fruits, 5 are barks, 5 are roots, 4 are seeds and 3 are rhizome (Graph 2). These results were accordance with the

reports of S. Balamurugan *et al.* (2018). The present study documented the plants viz., *Curcuma longa* (plate-VI.d), *Zingiber Officinale* (plate-VI.e), *Bridelia retusa* (plate-V.d), *Nigella sativa* (plate-V.e), *Psychotria umbellata* (plate-V.f), *Cardiospermum halicacabum* (plate-VI.a), *Crotalaria verruoasa* (plate-II.d), *Momordica charantia* (plate-II.e), *Carissa carandas* (plate-I.h), *Salvia officinalis* (plate-III.e), *Melia dubia* (plate-IV.e), *Musa paradisiaca* (plate-IV.h), were used to regulate menstrual cycle.

The plants such as *Alternanthera sessilis*(plate-I.b), *Allium sativum*(plate-I.d), *Daucus carota* (plate-I.g), *Ricinus communis* (plate-II.h), *Medicago sativa* (plate-II.i), *Abrus precatorius* (plate-III.a), *Trigonella foenum graecum* (plate-III.c) were used for lactation. The plants *Cyperus rotundus* (plate-II.g), *Indigofera tinctoria* (plate-III.b), *Ocimum canum* (plate-III.g), *Helicteres isora* (plate-IV.c), *Hibiscus rosa sinensis* (plate-IV.b), *Myristica dactyloides* (plate-IV.i), *Boerhavia diffusa* (plate-V.b), were used to control leucorrhoea. Similar reports has been intensively investigated by Jansirani Ponaih *et al.*, (2018). The medicinal plants have been used to cure disease. The plants still constitute the major source of drug in modern as well as traditional medicines. The bioactive substance in plants provided secondary metabolites. Its active constituents would be helpful in treating various kinds of disease.

Table 2: Analysis of dominant families of medicinal plants

S. No	Family	No. of species
1	Amaranthaceae	2
2	Apiaceae	2
3	Cucurbitaceae	2
4	Euphorbiaceae	2
5	Fabaceae	6
6	Lamiaceae	4
7	Malvaceae	3
8	Rubiaceae	3
9	Zingiberaceae	2

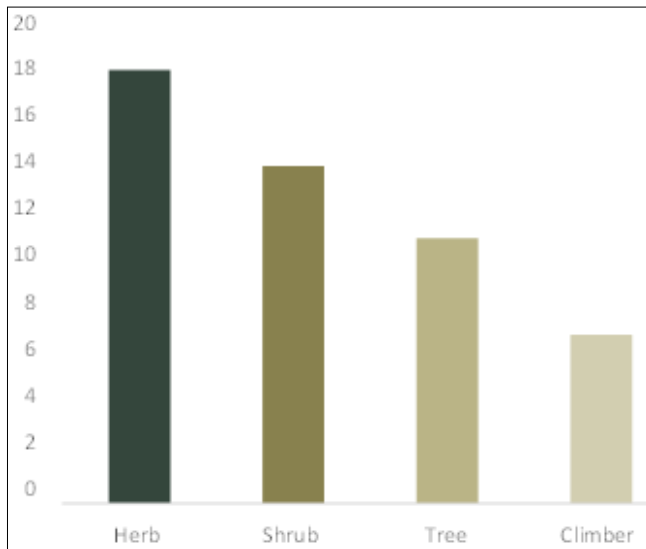


Fig 2: Life form analysis of medicinal plants of study area

Summary and conclusion

Nowadays, we can see increase in the number of women in the labour force; public health practitioners, workers and scientists are starting to include women's concerns in their occupational health activities. They are also prone to various diseases. Women, all over the world, have relatively greater access to herbal products, especially from the kitchen, due to our socio-economic construct and traditions of our societies. Women from the all social classes, rely on herbal products for their cosmetic and wellness needs. Thus, it should not be difficult to induce women to use plant and their parts for treatments and as a preventive agent. Moreover, for the women who are hesitant to undertake health checkups for gynaecological problems or have lack of access to healthcare in their areas, herbal medicine can be a good alternative.

Data about traditional uses of medicinal plants for female healthcare were collected through traditional methods. A total of 50 medicinal plant species from 34 different families have been documented as being used for female healthcare. Different methods of preparation of the medicinal remedy were prescribed usually as maceration or decoction of one plant or as a mixture of two or more plant species with an average dose of two glasses per day. Literatures confirm the use of most of these plants in the treatment of women's gynaecological problems. The present study indicates usage of a wide range of remedies by women for the treatment of several complications and problems associated with women's health issues.

There is a clear need for ethnobotanical research to document plant use and in particular to focus on traditionally ignored subjects such as women's health care. These traditions are common and widespread in Southeast Asia and form the core of primary women's healthcare in many rural areas. There are some most commonly used edible plants such as *Allium sativum*, *Carica papaya*, *Alternanthera sessilis*, *Beta vulgaris*, *Annona muricata*, *Centella asiatica*, *Carissa carandas*, *Psidium guajava* among the plants documented for women health care needs.

The persistent use of traditional medicines by women is indicative of the importance of ethnobotanical research for maintaining traditional resources and in particular to focus on used species for women's health care. The study showed that a wide range of remedies are used by women for many

problems and disorders associated with women's health issues including fertility, inducing labor, as galactagogues, treatment of menstrual problems, antimicrobial infections, white discharge, gonorrhoea syphilis.

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