

Ethnogaecological Investigation of Medicinal Plants used in Natham Taluk, Dindigul, Tamil Nadu, India

Shrinitha T.M.^{1*} and Aruna R.²

¹Research Scholar, Department of Botany,
Thiagarajar College, Madurai (Tamil Nadu), India.

²Assistant Professor, Department of Botany,
Thiagarajar College, Madurai (Tamil Nadu), India.

(Corresponding author: Shrinitha T.M.*)

(Received: 16 March 2023; Revised: 20 April 2023; Accepted: 09 May 2023; Published: 20 June 2023)

(Published by Research Trend)

ABSTRACT: Gynaecological ailments in general have not been perceived as a major health concern due to the negligence of women's healthcare needs. The cultural stigma around the sexual and reproductive health of women was one of the many challenges faced during this study. The present investigation documented the ethnomedicinal plants used to treat the gynaecological ailments by the native people of Natham Taluk in Dindigul District. An intensive ethnobotanical survey resulted in documentation of 92 species spread across 48 families used to treat various gynaecological ailments grouped into 13 categories. Fabaceae (7%), Euphorbiaceae (7%), Apiaceae (5%) were the most dominant families. Herbs (59%) were the most common plant form used for ethnomedicine formulations. Leaves (28%) were mostly used for plant drug preparation. The use of paste (49%) and oral (94%) administration of the drugs prepared from plants were largely used in the study area. Quantitative indices like use value (UV), and informant consensus factor (ICF) were calculated. *Saraca asoca* (Roxb.) Wilde (UV= 2.74), *Azadirachta indica* A. Juss., (UV=2.07), *Hybanthus enneaspermus* (L.) F. Muell. (UV= 2.03) were the most important species as recorded. The result indicated that there is proper sharing of this traditional knowledge amongst people in the study area. This documentation of the important species treating gynaecological ailments can be analysed phytochemically for future studies.

Keywords: Ethno gynaecology, Ethnomedicine, Dindigul, Infertility, Menstrual disorders.

INTRODUCTION

India is a country with huge botanical wealth. Out of the 400 flowering plant families, at least 315 are found in the Indian subcontinent (Sharma, 2003). Plant based remedies are considered to be one of the age-old traditional practices known to mankind since the dawn of civilization (Mukherjee and Wahil 2006). There are various studies and reports across the world indicating the importance of traditional herbal remedies in treating human and animal diseases (McCorkle, 1986). India, being a pioneer is largely dependent on wild harvested plants and plant-based medicine systems like Siddha, Unani, Ayurveda and Homeopathy for its healthcare (Satyavati *et al.*, 1987). At least 2500 species are being used by Indian traditional healers and about 100 of them act as regular source of medicine (Pie, 2001). World Health Organization says that health care of women is crucial. It also reported that ailments like reproductive tract infections, reproductive disorders, postpartum complications are the major health challenge worldwide (WHO, 2007). Also, it has been reported that 18 % of the total global diseases and 32 % of the diseases among women of reproductive age is contributed by sexual and reproductive health problems (Kaingu *et al.*, 2011). Even though there are number of ethnobotanical studies conducted worldwide, very few

of them reported the usage of herbal remedies for gynaecological diseases. Ethno-gynaecology is a new field of study that concentrates on traditional healing of gynaecological ailments like menstrual issues, leucorrhoea, infertility, abortion, postpartum and child birth complications using plant remedies (Rahman, 2014). During the recent times, there were few studies like Balamurugan *et al.* (2018); Rajeswari & Muruges (2019); Singh *et al.* (2019); Abdelhalim and Saleem (2021) that documented the medicinal species used in women's health care. Such plant-based medications served the rural and tribal communities' health care needs before the advent of modern medicine, evolved within their communities and continue to serve them. This study aims to report the herbal remedies used by the rural communities for gynaecological ailments in Natham Taluk of Dindigul district, Tamil Nadu.

MATERIAL AND METHODS

A. Study Area

Dindigul is one of the 38 districts of Tamil Nadu located at the latitude of 10.4747° N, and longitude of 77.8367° E (Fig. 1). It is surrounded by Eastern Ghats which is rich in vegetation and biodiversity. The average temperature of this region is about 25° C to 37° C. This district receives an annual rainfall of 700 mm to

about 1600 mm. The population of study area Natham Taluk is primarily dependent on Mango cultivation, Cattle rearing, Medicinal Plants collection for their livelihood.

B. Survey, Data Collection and Identification

To identify the herbalists with rich traditional knowledge, several visits were made to the study area. Semi structured interviews were conducted with the herbalists and medicinal plant collectors who were willing to share their knowledge in gynaecological health care.

Around 15 field visits were made in Natham Taluk of Dindigul District. The data was collected and documented through field visits, surveys, questionnaires and semi – structured interviews (Martin, 2004). The semi structured interviews was conducted in the vernacular language Tamil. The ethnobotanical data was collected using the methodology suggested (Jain, 2000). A total of 27 informants (that includes traditional healers and midwives) were identified and their traditional knowledge was recorded. They were interviewed on information like local names of the plants, diseases treated, the parts used, mode of preparation and administration and dosage of the drug. The plants collected were identified using the Flora of the Presidency of Madras (Gamble, 2017) and Flora of Central Tamilnadu (Matthew, 1991) with the help of taxonomists. Some of the plants were collected and identified with the help of the traditional healers by going for forest walks with them and the remaining plants were identified through literature review. Plant photographs were taken and voucher specimens collected for herbarium preparation will be deposited in the PG and Research Department of Botany, Thiagarajar College, Madurai after the completion of this research.

C. Data Analysis

The data collected in this study were qualitative in nature. Therefore, ethnobotanical data were analysed using quantitative indices like, UV, FUV and ICF using the following formulae in Microsoft excel.

Use Value (UV). The Use Value (UV) of a species gives the relative importance of plants known locally. It was calculated using the following formula (Albuquerque *et al.*, 2006; Rossato *et al.*, 1999).

$$UV = \sum \frac{U_i}{N}$$

Where, U_i is the number of use reports mentioned by each informant (i)

N is the total number informants interviewed.

Informant Consensus Factor (ICF): The informant consensus factor (ICF) was used to test the homogeneity of knowledge among the plant users of the study area (Trotter and Logan 1986). It is sometimes referred to as Informant agreement ratio (IAR) or Fic.

$$ICF = \frac{Nur - Nt}{Nur - 1}$$

Where, Nur = number of use-reports for a particular

ailment category

Nt = the number of taxa used for a particular ailment category by all informants.

ICF values ranges from 0 to 1. If the values are closer to 0, it means a large number of taxa have been used for one ailment category but the informants disagree on the taxa. Meanwhile, if the values are closer to 1, only few taxa have been used by the informants and they agree with each other on its usage (Gazzaneo *et al.*, 2005).

Jaccard Index (JI). Jaccard index was used to compare with the previously collected data from neighbouring regions. JI is calculated using the following formulae:

$$JI = \frac{c \times 100}{a + b - c}$$

Where, a is the number of species of the area A, b is the number of species of the area B, and c is the number of species common to both A and B (Gonzalez-Tejero *et al.*, 2008).

RESULTS AND DISCUSSION

Table 1 depicts the botanical names of the medicinal plants, habit, local names, family, mode of preparation, route of administration, parts used, condition of parts used. Table 2 represents the ailment categories and their ICF values. Table 3 and Table 4 depict the Use values of the taxa and Jaccard Index values between different studies respectively. Fabaceae (9%) occupies the largest family in the study area contributing about 8 species for gynaecological ailments (Table 3) (Fig. 2). The family Fabaceae is known for its highest number of species spread across the world than any other plant family. These results are in line with the results obtained in the other ethnobotanical studies (Ajesh & Kumuthakalavalli 2012; Rahman, 2014; Balamurugan *et al.*, 2018; Ranjani *et al.*, 2023). Menorrhagia – 23% (Excess bleeding during periods) is the major ailment category that has the largest number of remedies i.e., 22 remedies using 30 medicinal plants, followed by 17 remedies using 21 ethno-gynaecological plants for Leucorrhoea (18%) (Fig. 3). It reveals that Menorrhagia and Leucorrhoea are the most prevalent gynaecology – related ailments in the study area.

The herbs (59%) were the most used by the local population for treating gynaecological ailments than shrubs or trees (Fig. 4). In similar ethno-gynaecological and ethnobotanical plant studies, across the world, herbs were mostly used for ethno medicine preparation (Bhatia *et al.*, 2015; Rahman, 2014; Adnan *et al.*, 2015; Rajeswari & Muruges 2019). It was observed that leaves (28%) were the most used part for drug preparation, followed by seeds (11%), fruits (10%) (Fig. 5). Earlier ethno-gynaecological studies also reported the usage of leaves for ethno medicine preparation (Bussman and Glenn 2010; Razafindraibe *et al.*, 2013; Sadeghi *et al.*, 2014; Laddimath and Rao 2016; Yemele *et al.*, 2015; Singh *et al.*, 2019).

The preference of leaves over any other plant parts could be due to its availability throughout the year, easy collection without destructing the whole plant (Yinegar *et al.*, 2007).

Paste (49%) was the most employed mode of

administration of the drug (Fig. 6). Paste was usually made with adjuncts like milk, water or oil. Other reports on ethno gynaecological studies also reported paste as the most common mode of administration of drug (Telefo *et al.*, 2011). Oral mode (94%) of administration was largely used in the study area as shown in Fig. 7. Bussman and Glenn (2010); Bhatia *et al.* (2015); Sadeghi *et al.* (2014); Aruna *et al.* (2015); Balamurugan *et al.* (2018); Rajeswari & Murugesh (2019) were some of the reports with similar results. Most drug preparation were made using fresh medicinal plant parts (63%) (Fig. 8). Bussman and Glenn in 2010 also reported that fresh parts of medicinal plants were used rather than dried parts. Also, single drug formulations were more common than any other combination formulations in the study area.

Ailment categories and their ICF values: The gynaecological ailments were categorized into 13 types. They were represented in the Table 2 and Fig. 9. In the present study, the ICF values ranged from 0.60 to 0.95 per ailment categories. The ailment category with the highest ICF value from informants were oligomenorrhoea (0.95) and contraceptive (0.95), followed by amenorrhoea (0.92), lactation (0.92) and low ICF values for the category utero – vaginal issues (0.60). High ICF values indicate reliability of informants on the use of medicinal plant species. The informant agreement values also indicated that the people in the study area share their traditional knowledge of the medicinal plant species necessary to treat the most common ailments.

Use value: To determine the relative importance of the recorded medicinal plants, use value UV was calculated based on the informants use reports for each species (Zenderland *et al.*, 2019). The use value ranged from 0.03 to 2.74. The present study revealed that *Saraca asoca* (Roxb.) Wilde (UV= 2.74) exhibited the highest UV, followed by *Azadirachta indica* A. Juss., (UV=2.07) *Hybanthus enneaspermus* (L.) F. Muell. (UV= 2.03). *Saraca asoca* (Roxb.) Wilde have been used as an important herbal medicine across the world for various gynaecological ailments. It has been used to treat menorrhagia, leucorrhoea, dysmenorrhoea, oligomenorrhoea and also used as an uterine tonic (Rakesh *et al.*, 2010; Rahman, 2014). *Azadirachta indica* A. Juss., one of the most prominent herbal medicine has been largely used for treating a number of gynaecological problems like infertility (Das *et al.*, 2015, Rajeswari & Murugesh 2019) and it is also one of the commonly used contraceptives (Rakesh *et al.*, 2010; Gupta & Solanki 2013). *Hybanthus enneaspermus* (L.) F. Muell. have been recorded as a treatment for cough and body pain (Muthu *et al.*, 2006, Sukumaran *et al.*, 2020).

These are the species that were cited by a large number of informants in the study area. Higher the UV, higher its uses as reported by the informants. These species must be conserved since they are under higher threat as they are mostly preferred by the local medicinal plant collectors and also due to their higher demand in the

local markets. Specifically, *Saraca asoca* (Roxb.) Wilde which has been assessed as vulnerable species (VU) and *Azadirachta indica* A. Juss., which belongs to the category of Least Concern (LC), according to IUCN red list (1998). Therefore, this species which is already undergoing slow decline (Barstow and Deepu 2018) must be conserved efficiently in order to overcome the ill effects created by the demand in medicinal plant markets.

The present study was compared with other ethnobotanical studies that have been already done in the neighbouring areas of the same district (Kottaimuthu, 2008; Alagesaboopathi, 2012; Sivasangari *et al.*, 2014; Xavier *et al.*, 2018). Table 4 illustrates the number of common medicinal plants between the current study and other earlier studies in the neighbouring regions. The Jaccard index (JI) calculated between the current study and earlier studies ranged from 6.84 to 22.99. From the above results, *Gymnema sylvestris* (Retz.) R.Br. ex Sm., *Aristolochia indica* L., *Asparagus racemosus* Wild. Correa, *Hemidesmus indicus* (L.) R. Br. ex Schult. *Phyllanthus emblica* L. were the most common medicinal plants in the study area and the neighbouring regions. Even though the objectives of the studies differ, there were considerable similarities in usage of certain plants. There were earlier records of gynaecological usage of certain medicinal plants that are also recorded in the present study. *Asparagus racemosus* Wild has been often used to induce lactation (Kottaimuthu, 2008). *Gymnema sylvestris* (Retz.) R.Br. ex Sm. has been used to activate the uterus. There have been records of usage of *Ficus benghalensis* L., and *Hemidesmus indicus* (L.) R. Br. ex Schult. to treat leucorrhoea, *Aloe vera* (L.) Burm.f., *Sesamum indicum* L. have been used by the locals to treat amenorrhoea, *Saraca asoca* (Roxb.) Wilde, *Ficus benghalensis* L., for the treatment of menorrhagia, *Aristolochia bracteolata* Lam., *Carica papaya* L., *Boerhaavia diffusa* L. have been used as abortifacients and *Hibiscus rosa-sinensis* L. has been used for expulsion of placenta (Sivasangari *et al.*, 2014).

Among the 93 recorded medicinal species, a significant number of species 56 has been mentioned in the official Siddha pharmacopoeia and Ayurveda (2016) pharmacopoeia of India. Many of the species recorded in this study were earlier documented for similar or different gynaecological and medicinal uses across the world. *Abrus precatorius* L. have been utilized as a contraceptive, abortifacient and for relieving pain during delivery, *Ricinus communis* L. for infertility, dysmenorrhoea, menorrhagia, amenorrhoea, contraceptive (Rakesh *et al.*, 2010; Gupta & Solanki 2013). *Aloe vera* (L.) Burm.f. for menorrhagia, oligomenorrhoea, amenorrhoea, vaginal inflammations (Ososki *et al.*, 2002; Rakesh *et al.*, 2010) *Cynodon dactylon* (L.) Pers. – ovarian cysts, dysmenorrhoea, amenorrhoea, leucorrhoea (34, Bussmann and Glenn 2010; Razafindraibe *et al.*, 2013; Rahman, 2014; Das *et al.*, 2015).

Table 1: List of Medicinal plants used in the Study Area Natham Taluk for gynaecological health issues.

Sr. No.	Botanical Name	Family	Habit*	Local Name	Parts Used	Condition*	Mode/ Route of Administration*	Ailments Treated/ Gynaecological Uses
Single plant herbal formulation								
1.	<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	H	Thuthi	Leaves	F	Paste/O	Leucorrhoea
2.	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	T	Vilvam	Leaves	F	Paste/O	Menorrhagia
3.	<i>Aerva lanata</i> (L.) Juss.	Amaranthaceae	H	Sirupeelai	Root	F	Decoction/O	Utero -vaginal issues
4.	<i>Aristolochia bracteolata</i> Lam.	Aristolochiaceae	H	Aadutheendapaalai	Seed	D	Powder/O	Amenorrhoea Dysmenorrhoea
5.	<i>Aristolochia indica</i> L.	Aristolochiaceae	H	Perumaranthukodi	Root	F	Decoction/O	Irregular Periods
6.	<i>Asparagus racemosus</i> Wild.	Asparagaceae	H	Thaneervittan kilangu	Tuber	F	Paste/O	Menorrhagia
7.	<i>Asystasia gangetica</i> (L.) T.Anderson	Acanthaceae	H	Silanthi nayagam	Leaves	D	Powder/O	Utero-vaginal issues
8.	<i>Azadirachta indica</i> A.Juss.,	Meliaceae	T	Vembu	Red Bark	D	Decoction/O	Contraceptive
9.	<i>Azima tetracantha</i> Lam.	Salvadoraceae	S	Sanganilai	Root	F	Paste/O	Abortifacient
10.	<i>Baccopa monnieri</i> (L.) Pennel.	Scrophulariaceae	H	Brahmi	Whole plant	F	Paste/O	Leucorrhoea
11.	<i>Carica papaya</i> L.	Caricaceae	T	Pappaali	Fruits	F	Raw/ O	Abortifacient
					Unripe fruits	F	Cooked/O	Lactation
12.	<i>Caesalpinia bonduc</i> (L.)Roxb.	Fabaceae	T	Kalarchikkai	Seed	D	Powder/O	Irregular Periods
13.	<i>Carissa carandas</i> L.	Apocynaceae	S	Kala	Root	F	Decoction/O	Post-partum
14.	<i>Centella asiatica</i> (L.) Urban.	Apiaceae	H	Vallarai	Leaves	F	Paste/O	Leucorrhoea
					Leaves	D	Powder/O	Amenorrhoea
15.	<i>Cissus quadrangularis</i> L.	Vitaceae	H	Pirandai	Whole plant	F	Paste/O	Amenorrhoea Dysmenorrhoea
16.	<i>Citrus limon</i> (L.) Osbeck	Rutaceae	T	Elumicchai	Leaves	F	Extract/O	Leucorrhoea
17.	<i>Cleome viscosa</i> L.	Capparidaceae	H	Naavelai	Seed	F	Paste/O	Irregular Periods
					Seed	F	Paste/O	Menorrhagia
18.	<i>Convolvulus gemellus</i> . L.	Convolvulaceae	H	Thaali keerai	Leaves	F	Paste/O	Lactation
19.	<i>Erythrina variegata</i> L.	Fabaceae	T	Kalyana Murungai	Leaves	F	Juice/O	Dysmenorrhoea
20.	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	H	Paalperukki	Leaves	F	Paste/O	Lactation
21.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	H	Amman Pacharisi	Leaves & Flower	F	Paste/ O	Leucorrhoea
					Leaves	D	Powder/O	Infertility
					Flowers	F	Paste/O	Lactation
22.	<i>Feronia elephantum</i> Corr.	Rutaceae	T	Vila	Resin	D	Powder/T	Utero- vaginal issues
					Resin	D	Powder/O	Menorrhagia
23.	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex Sm.	Apocynaceae	S	Sirukurinjan	Leaves	F	Paste/O	Postpartum
24.	<i>Hemidesmus indicus</i> (L.) R. Br. ex Schult.	Apocyanaceae	H	Nannari	Root	F	Decoction/O	Leucorrhoea
25.	<i>Hybanthus enneaspermus</i> (L.) F. Muell.	Violaceae	H	Orithal thamarai	Whole plant	F	Raw/O	Menorrhagia
					Leaves	F	Raw/O	Leucorrhoea
26.	<i>Orthosiphon stamineus</i> Benth.	Lamiaceae	H	Kulumittan	Whole plant	F	Paste/O	Lactation
27.	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	H	Thumbai	Leaves	F	Paste/O	Irregular periods
28.	<i>Maduca longifolia</i> (L.) JF Macbr.	Sapotaceae	T	Iluppai	Leaves	F	Warm compress/T	Lactation
29.	<i>Marsilea minuta</i> L.	Marsileaceae	H	Aara keerai	Whole plant	F	Paste/O	Reduces lactation
30.	<i>Melia azedarach</i> L.	Meliaceae	T	Malai Vembu	Seeds	D	Powder/O	Amenorrhoea
31.	<i>Musa paradisiaca</i> L.	Musaceae	S	Vaalai	Flowers	F	Juice/O	Menorrhagia
32.	<i>Lannea coromandelica</i> (Houtt.) Merr.	Anacardiaceae	T	Odhiyam	Bark	D	Decoction/O	Menorrhagia
33.	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	T	Nelli	Fruit	D	Powder/O	Menorrhagia
34.	<i>Piper nigrum</i> L.	Piperaceae	H	Milagu	Fruits	D	Decoction/O	Dysmenorrhoea
35.	<i>Piper betle</i> L.	Piperaceae	H	Vettilai	Leaves	F	Cooked/T	Reduce lactation
36.	<i>Pongamia pinnata</i> (L.) Pierre	Fabaceae	T	Pungai	Young leaves	F	Paste/O	Leucorrhoea
37.	<i>Punica granatum</i> L.	Lythraceae	T	Maaadhulai	Root bark, Bark,	D	Decoction/O	Infertility

					Seed			
38.	<i>Santalum album</i> L.	Santalaceae	T	Santhanam	Timber	F	Paste/O	Leucorrhoea
39.	<i>Saraca asoca</i> (Roxb.) Wilde	Fabaceae	T	Asoka	Bark & Flower	F	Paste/O	Leucorrhoea
					Bark	D	Decoction/O	Menorrhagia
40.	<i>Sesamum inidcum</i> L.	Pedaliaceae	H	Ellu	Leaves/ Seeds	F	Paste/O	Abortifacient
41.	<i>Sesbania sesban</i> (L.)Merr. var. <i>bicolor</i>	Fabaceae	S	Karunchembai/ Sithahathi	Seeds	F	Paste/O	Menorrhagia
42.	<i>Solanum americanum</i> Mill.	Solanaceae	H	Manathakkali	Leaves	F	Decoction/O	Leucorrhoea
43.	<i>Spermacoce articularis</i> L.f.	Rubiaceae	H	Nathaichoori	Root	F	Paste/O	Lactation Pregnancy Leucorrhoea
					Leaves Seed	F F	Juice/O Paste/O	
44.	<i>Syzygium aromaticum</i> (L.) Merr. & Perry	Myrtaceae	T	Kirambu	Flower bud	D	Powder/O	Dysmenorrhoea
45.	<i>Thespesia populnea</i> (L.) Sol. Ex Correa	Malvaceae	T	Poovarasu	Bark	D	Powdered/O	Contraceptive
46.	<i>Tragia involucrata</i> L.	Euphorbiaceae	H	Senthathi	Leaves	F	Juice/O	Pregnancy
47.	<i>Trigonella foenum- graecum</i> L.	Apiaceae	H	Venthayam	Seeds	D	Paste/O	Lactation
48.	<i>Tylophora indica</i> (Burm. f.) Merr.	Apocynaceae	S	Kodippalai	Leaves & bulbs	F	Paste/ O	Leucorrhoea
49.	<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	T	Ilanthai	Bark	D	Decoction/O	Menorrhagia
Poly herbal formulation								
50.	<i>Achyranthes aspera</i> L. <i>Cuminum cyminum</i> L.	Amaranthaceae	H	Nayuruvi Seeragam	Whole plant Seeds	F	Paste/O	Menorrhagia
		Apiaceae	H			D		
51.	<i>Azima tetracantha</i> Lam. <i>Acalypha indica</i> L.	Salvadoraceae	S	Sanganilai Kuppaimeni	Leaves Leaves	F	Decoction/O	Postpartum
		Euphorbiaceae	H			F		
52.	<i>Centella asiatica</i> (L.) Urban. <i>Pergularia daemia</i> (Forsskal) Chiov.	Apiceae	H	Vallarai Veliparuthi	Leaves Leaves	F	Paste/O	Menorrhagia
		Apocyanaceae	H			F		
53.	<i>Citrus limon</i> (L.) Osbeck <i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	T	Elumichai Karuveppilai	Root Root	D	Powder/O	Pregnancy
		Rutaceae	S			D		
54.	<i>Cocos nucifera</i> L. <i>Pongamia pinnata</i> (L.)Pierre	Arecaceae	T	Thengai Pungai	Fruit Root	F	Paste/O	Leucorrhoea
		Fabaceae	T			F		
55.	<i>Crateva religiosa</i> G.Forst. <i>Allium sativum</i> L.	Capparaceae	T	Maavilangam Vellaipoondu	Bark Bulb	F	Paste/O	Pregnancy
		Amaryllidaceae	H			D		
56.	<i>Cynodon dactylon</i> (L.) Pers. <i>Punica granatum</i> L.	Poaceae	H	Arugam Maadhulai	Whole plant Leaves	F	Decoction/O	Menorrhagia
		Lythraceae	T			F		
57.	<i>Datura metel</i> L. <i>Sesamum indicum</i> L.	Solanaceae	S	Oomathai Ellu	Leaves Leaves	F	Raw/T	Reduce lactation and pain
		Pedaliaceae	H			F		
58.	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex Sm. <i>Carissa carandas</i> L.	Apocynaceae	S	Sirukurinjan Kala	Leaves Leaves	F	Paste/O	Menorrhagia
		Apocynaceae	S			F		
59.	<i>Orthosiphon stamineus</i> Benth. <i>Allium cepa</i> L.	Acanthaceae	H	Kulumittan Chinna vengayam	Whole plant Bulb	F	Paste/O	Leucorrhoea
		Amaryllidaceae	H			F		
60.	<i>Leucas aspera</i> (Willd.) Link <i>Pergularia daemia</i> (Forsskal) Chiov.	Lamiaceae	H	Thumbai Veliparuthi	Leaves Leaves	F	Paste/O	Irregular periods
		Apocyanaceae	H			F		
61.	<i>Moringa oleifera</i> Lam. <i>Cuminum cyminum</i> L.	Moringaceae	T	Murungai Jeeragam	Leaves Seeds	F	Extract/O	Dysmenorrhoea
		Apiaceae	H			D		
62.	<i>Pergularia daemia</i> (Forsskal) Chiov. <i>Allium cepa</i> L.	Apocyanaceae	H	Veliparuthi Chinna vengayam	Leaves Bulb	F	Paste/O	Irregular periods
		Amaryllidaceae	H			F		
63.	<i>Phyla nodiflora</i> (L.) Greene <i>Cuminum cyminum</i> L.	Verbenaceae	H	Poduthalai Sombu	Leaves Seeds	F	Paste/O	Leucorrhoea
		Apiaceae	H			D		
64.	<i>Ricinus communis</i> L. <i>Jatropha curcas</i> L.	Euphorbiaceae	S	Aamanakku Kaatu aamanakku	Leaves Leaves	F	Raw/T	Lactation
		Euphorbiaceae	S			F		
65.	<i>Saraca asoca</i> (Roxb.) Wilde <i>Punica granatum</i> L.	Fabaceae	T	Asoka Maadhulai	Bark Root bark, Fruit Peel	D	Decoction/O	Infertility
		Lythraceae	T			D		
66.	<i>Saraca asoca</i> (Roxb.) Wilde <i>Ficus benghalensis</i> L.	Fabaceae	T	Asoka Aala	Root Bark	D	Powder/O	Menorrhagia
		Moraceae	T			D		
67.	<i>Senna alexandriana</i> Mill. <i>Capsicum annum</i> L.	Fabaceae	S	Nilavaagai Milagai	Leaves Fruits	F	Paste/O	Infertility
		Solanaceae	H			F		
68.	<i>Zingiber officinale</i> Roscoe <i>Acalypha indica</i> L.	Zingiberaceae	H	Ingi Kuppaimeni	Rhizome Leaves- 7	F	Extract/O	Dysmenorrhoea
		Euphorbiaceae	H			F		
69.	<i>Aloe vera</i> (L.) Burm.f. <i>Allium sativum</i> L. <i>Piper nigrum</i> L.	Xanthorrhoeaceae	H	Katraalai Poondu Milagu	Root Bulb Fruits	F	Decoction/O	Pregnancy
		Amaryllidaceae	H			D		
		Piperaceae	H			D		
70.	<i>Andrographis paniculata</i> (Burm.f.) Nees <i>Azadirachta indica</i> A.Juss.,	Acanthaceae	H	Nilavembu Vembu Malai vembu	Leaves Leaves Leaves	F	Paste/O	Menorrhagia
		Meliaceae	T			F		
		Meliaceae	T			F		

	<i>Melia azederach</i> L.							
71.	<i>Commelina benghalensis</i> L. <i>Saraca asoca</i> (Roxb.) <i>Cynodon dactylon</i> Pers.,	Commelinaceae Fabaceae Poaceae	H T H	Kana vazhai Asoka Arugam	Whole plant Bark Whole plant	F D F	Paste/O	Menorrhagia
72.	<i>Evolvulus alsinoides</i> (L.) L. <i>Hybanthus enneaspermus</i> (L.) F. Muell. <i>Phyllanthus niruri</i> L.	Convolvulaceae Violaceae Phyllanthaceae	H H H	Vishnukaranthai Orithal thamarai Keelanelli	Whole plant Whole plant Whole plant	F F F	Paste/O	Leucorrhoea
73.	<i>Ficus benghalensis</i> L. <i>Saraca asoca</i> (Roxb.) Wilde <i>Mangifera indica</i> L.	Moraceae Fabaceae Anacardiaceae	T T T	Aththi Asoka Ma	Bark Bark Bark	D D D	Decoction/O	Menorrhagia
74.	<i>Garcinia gummi-gutta</i> (L.) Robs. <i>Curcuma longa</i> L. <i>Eclipta prostrata</i> (L.) L.	Clusiaceae Zingiberaceae Asteraceae	T H H	Panampuli Manjal Vellai karisalankanni	Fruit Rhizome Whole plant	F D F	Paste/O	Uterovaginal issues
75.	<i>Hibiscus rosa-sinensis</i> L. <i>Ziziphus jujuba</i> Mill. <i>Punica granatum</i> L.	Malvaceae Rhamnaceae Lythraceae	S T T	Sembaruthi Ilanthai Maathulai	Root bark Root bark Root bark	D D D	Powder/O	Menorrhagia
76.	<i>Hybanthus enneaspermus</i> (L.) F. Muell. <i>Phyllanthus niruri</i> L. <i>Pedaliium murex</i> L.	Violaceae Phyllanthaceae Pedaliaceae	H H H	Orithal thamarai Keelanelli Aanai nerunji	Whole plant Whole plant Whole plant	F F F	Paste/O	Leucorrhoea
77.	<i>Indigofera aspalathoides</i> Vahl ex DC. <i>Andrographis paniculata</i> (Burm.f.) Nees <i>Azadirachta indica</i> A.Juss.,	Fabaceae Acanthaceae Meliaceae	S H T	Sevanam Nilavembu Vembu	Flowers Flowers Flowers	F F F	Paste/O	Infertility
78.	<i>Jasminum grandiflorum</i> L. <i>Cocos nucifera</i> L. <i>Secale cereale</i> L.	Oleaceae Arecaceae Poaceae	H T H	Malligai Thengai Kambu	Flowers Fruit Seeds	F F D	Paste/T	Reduce lactation
79.	<i>Phyllanthus niruri</i> L. <i>Saraca asoca</i> (Roxb.) Wilde <i>Ficus benghalensis</i> L.	Phyllanthaceae Fabaceae Moraceae	H T T	Keelanelli Asoka Aal	Root Bark Bark	D D D	Powder/O	Menorrhagia
80.	<i>Zingiber officinale</i> Roscoe <i>Piper longum</i> L. <i>Cassya filiformis</i> L.	Zingiberaceae Piperaceae Lauraceae	H H H	Sukku Thippili Verilla kotran	Rhizome Fruits Whole plant	D D F	Paste/O	Post-partum
81.	<i>Ziziphus jujuba</i> Mill. <i>Piper nigrum</i> L. <i>Allium sativum</i> L.	Rhamnaceae Piperaceae Amaryllidaceae	T H H	Ilanthai Milagu Poondu	Leaves - handful Fruits Bulb - 3	F D F	Paste/O	Infertility
82.	<i>Anethum graveolens</i> L. <i>Carum carvi</i> L. <i>Coscinium fenestratum</i> (Gaertn.) Colebr. <i>Cuminum cyminum</i> L.	Apiaceae Apiaceae Menispermaceae Apiaceae	H H T H	Sathakuppai Karunjeeragam Maramanjai Jeeragam	Seeds Seeds Rhizome Seeds	D D D D	Powder/O	Utero -Vaginal issues
83.	<i>Enicostema axillare</i> subsp. (Lam.) A.Raynal <i>Piper nigrum</i> L. <i>Zingiber officinale</i> Roscoe <i>Cuminum cyminum</i> L.	Gentianaceae Piperaceae Zingiberaceae Apiaceae	H H H H	Vellarugu Milagu Milagu Inji Jeeragam	Whole plant Fruits Rhizome Seeds	F D F D	Decoction/O	Menorrhagia
84.	<i>Ocimum tenuiflorum</i> L. <i>Elettaria cardamomum</i> (L.) Maton <i>Piper nigrum</i> L. <i>Syzygium aromaticum</i> (L.) Merr. & Perry	Lamiaceae Zingiberaceae Piperaceae Myrtaceae	H H H T	Thulasi Elakkai Milagu Kirambu	Leaves Fruits Fruits Flower buds	F D D D	Decoction/O	Abortifacient
85.	<i>Abrus precatorius</i> L. <i>Boerhaavia diffusa</i> L. <i>Solanum virginianum</i> L. <i>Allium sativum</i> L. <i>Piper longum</i> L. <i>Piper nigrum</i> L. <i>Ocimum tenuiflorum</i> L.	Fabaceae Nyctaginaceae Solanaceae Amaryllidaceae Piperaceae Piperaceae Lamiaceae	T H H H H H H	Venkundrinmani Mookirattai Kandankathri Poondu Thippili Milagu Thulasi	Root Root Root Bulb Fruits Fruits Leaves	F F F D D D F	Paste/O	Infertility

Habit*: H – Herb, S – Shrub, T – Tree; Condition: F – Fresh, D – Dried; Route of Administration: O – Oral, T – Topical

Table 2: Informant Consensus Factor.

Sr. No.	Category	List of Plants and number of use reports per species	Nt*	Nur*	ICF*
1.	Abortifacient – preparation that induces abortion	<i>Carica papaya</i> L. (20), <i>Azima tetraacantha</i> Lam. (7), { <i>Ocimum tenuiflorum</i> L., <i>Elettaria cardamomum</i> (L.) Maton <i>Piper nigrum</i> L., <i>Syzygium aromaticum</i> (L.)} – (4), <i>Sesamum indicum</i> L. (22)	7	53	0.88
2.	Amenorrhoea - Absence of menstruation, often defined as missing one or more menstrual periods.	<i>Centella asiatica</i> (L.) (13), <i>Melia azedarach</i> L. (7), <i>Cissus quadrangularis</i> L. (3), <i>Aristolochia bracteolata</i> Lam. (18)	4	41	0.92
3.	Contraceptive – drug preparation intended to prevent pregnancy	<i>Azadirachta indica</i> A. Juss., (16), <i>Thespesia populnea</i> (L.) (9)	2	25	0.95
4.	Dysmenorrhoea - severe and frequent menstrual cramps and pain during menstrual period	<i>Aristolochia bracteolata</i> Lam. (18), <i>Cissus quadrangularis</i> L. (3), <i>Erythrina variegata</i> L. (5), { <i>Moringa oleifera</i> Lam., <i>Cuminum cyminum</i> L.} – 4, { <i>Zingiber officinale</i> Roscoe and <i>Acalypha indica</i> L.} – 12, <i>Syzygium aromaticum</i> (L.) Merr. & Perry (21), <i>Piper nigrum</i> L. (15)	9	78	0.89
5.	Infertility – inability to conceive children	<i>Euphorbia hirta</i> L. (8), <i>Punica granatum</i> L. (12), { <i>Saraca asoca</i> (Roxb.) Wilde and <i>Punica granatum</i> L.} – 18, { <i>Senna alexandriana</i> Mill. and <i>Capsicum annum</i> L.} - 14, { <i>Indigofera aspalathoides</i> Vahl ex DC., <i>Andrographis paniculata</i> (Burm.f.) Nees, and <i>Azadirachta indica</i> A. Juss.,} - 21, { <i>Ziziphus jujuba</i> Mill., <i>Piper nigrum</i> L. and <i>Allium sativum</i> L.} – 3, { <i>Abrus precatorius</i> L., <i>Boerhaavia diffusa</i> L., <i>Solanum virginianum</i> L., <i>Allium sativum</i> L., <i>Piper longum</i> L., <i>Piper nigrum</i> L. <i>Ocimum tenuiflorum</i> L.} – 1	16	77	0.80
6.	Oligomenorrhoea – Irregular Periods	<i>Aristolochia indica</i> L. (13), <i>Caesalpinia bonduca</i> (L.) Roxb (27), <i>Cleome viscosa</i> L. (22), <i>Leucas aspera</i> (Willd.) Link (19), { <i>Leucas aspera</i> (Willd.) Link and <i>Pergularia daemia</i> (Forsskal) Chiov.} – 24 { <i>Pergularia daemia</i> (Forsskal) Chiov. and <i>Allium cepa</i> L.} - 18	6	123	0.95
7.	Lactation – to induce lactation in young mothers	<i>Carica papaya</i> L. (11), <i>Convolvulus gemellus</i> L. (8), <i>Euphorbia heterophylla</i> L. (25), <i>Euphorbia hirta</i> L. (14), <i>Orthosiphon stamineus</i> Benth. L. (17), <i>Maduca longifolia</i> (L.) JF Macbr. (9), <i>Spermacoce articularis</i> L.f. (12), <i>Trigonella foenum-graecum</i> L. (27), { <i>Ricinus communis</i> L. and <i>Jatropha curcas</i> L.} – 3	10	126	0.92
8.	Leucorrhoea - flow of a whitish, yellowish, or greenish discharge from the vagina of the female	<i>Abutilon indicum</i> (L.) (10), <i>Baccopa monnieri</i> (L.) Pennel. (5), <i>Centella asiatica</i> (L.) Urban. (11), <i>Citrus limon</i> (L.) Osbeck (5), <i>Euphorbia hirta</i> L. (14), <i>Hemidesmus indicus</i> (L.) R. Br. ex Schult. (18), <i>Hybanthus enneaspermus</i> (L.) F. (27), <i>Pongamia pinnata</i> (L.) Pierre (18), <i>Santalum album</i> L. (4), <i>Saraca asoca</i> (Roxb.) (13), <i>Solanum americanum</i> Mill. (7), <i>Spermacoce articularis</i> L.f. (12), <i>Tylophora indica</i> (Burm. f.) Merr. (4), { <i>Cocos nucifera</i> L. and <i>Pongamia pinnata</i> (L.) Pierre} – 9, { <i>Orthosiphon stamineus</i> Benth. L. and <i>Allium cepa</i> L.} – 17, { <i>Phyllanthus nodiflora</i> (L.) Greene and <i>Cuminum cyminum</i> L.} -5, { <i>Evolvulus alsinoides</i> (L.) L., <i>Hybanthus enneaspermus</i> (L.) F. Muell. and <i>Phyllanthus niruri</i> L.} – 6, { <i>Hybanthus enneaspermus</i> (L.) F. Muell., <i>Phyllanthus niruri</i> L. and <i>Petalium murex</i> L.} - 3	21	188	0.89
9.	Menorrhagia – abnormally heavy bleeding during menstrual cycle	<i>Aegle marmelos</i> (L.) (9), <i>Asparagus racemosus</i> Wild. (12), <i>Cleome viscosa</i> L. (8), <i>Feronia elephantum</i> Corr. (2), <i>Hybanthus enneaspermus</i> (L.) F. Muell. (19), <i>Musa paradisiaca</i> L. (8), <i>Lannea coromandelica</i> (Houtt.) Merr. (16), <i>Saraca asoca</i> (Roxb.) (21), <i>Sesbania sesban</i> (L.) Merr. var. <i>bicolor</i> (6), <i>Ziziphus jujuba</i> Mill. (5), <i>Phyllanthus emblica</i> L. (3), { <i>Achyranthes aspera</i> L. and <i>Cuminum cyminum</i> L.} – 9, { <i>Centella asiatica</i> (L.) Urban. and <i>Pergularia daemia</i> (Forsskal) Chiov.} – 11, { <i>Cynodon dactylon</i> (L.) Pers and <i>Punica granatum</i> L.} – 7, { <i>Gymnema sylvestre</i> (Retz.) R.Br. ex Sm. and <i>Carissa carandas</i> L.} – 3, { <i>Saraca asoca</i> (Roxb.) Wilde and <i>Ficus benghalensis</i> L.} – 15, { <i>Andrographis paniculata</i> (Burm.f.) Nees, <i>Azadirachta indica</i> A. Juss., and <i>Melia azedarach</i> L.} - 19 { <i>Commelina benghalensis</i> L., <i>Saraca asoca</i> (Roxb.) and <i>Cynodon dactylon</i> Pers.,} – 2, { <i>Ficus benghalensis</i> L., <i>Saraca asoca</i> (Roxb.) Wilde and <i>Mangifera indica</i> L.} – 1, { <i>Hibiscus rosa-sinensis</i> L., <i>Ziziphus jujuba</i> Mill. and <i>Punica granatum</i> L.} – 5, { <i>Phyllanthus niruri</i> L., <i>Saraca asoca</i> (Roxb.) Wilde and <i>Ficus benghalensis</i> L.} – 4, { <i>Encostema axillare</i> subsp. (Lam.) A. Raynal, <i>Piper nigrum</i> L., <i>Zingiber officinale</i> Roscoe and <i>Cuminum cyminum</i> L.} - 1	30	186	0.84
10.	Post-partum – issues like pain, first periods	<i>Carissa carandas</i> L. (7), <i>Gymnema sylvestre</i> (Retz.) R.Br. ex Sm. (2), { <i>Azima tetraacantha</i> Lam. and <i>Acalypha indica</i> L.} – 5, { <i>Zingiber officinale</i> Roscoe, <i>Piper longum</i> L. and <i>Cassia filiformis</i> L.} - 3	7	17	0.62
11.	Pregnancy – issues like gastritis, pain during gestation	{ <i>Citrus limon</i> (L.) Osbeck and <i>Murraya koenigii</i> (L.) Spreng.} – 4, <i>Spermacoce articularis</i> L.f. (2), <i>Tragia involucrata</i> L. (2), { <i>Crateva religiosa</i> G. Forst. and <i>Allium sativum</i> L.} - 5, { <i>Aloe vera</i> (L.) Burm.f., <i>Allium sativum</i> L. and <i>Piper nigrum</i> L.} -9	8	22	0.66
12.	Reduce lactation - to reduce lactation in young mothers	<i>Marsilea minuta</i> L. (15), { <i>Datura metel</i> L. and <i>Sesamum indicum</i> L.} – 5, { <i>Jasminum grandiflorum</i> L., <i>Cocos nucifera</i> L. and <i>Secale cereale</i> L.} – 7, <i>Piper betle</i> L. (3)	7	30	0.79
13.	Utero -Vaginal issues – issues like vaginal wounds, utero-vaginal prolapse	<i>Aerva lanata</i> (L.) Juss. (15), { <i>Garcinia gummi-gutta</i> (L.) Robs., <i>Curcuma longa</i> L. and <i>Eclipta prostrata</i> (L.) L.} – 3 { <i>Anethum graveolens</i> L., <i>Carum carvi</i> L., <i>Cuminum cyminum</i> L. and <i>Coscinium fenestratum</i> (Gaertn.) Colebr} – 1, <i>Asystasia gangetica</i> (L.) T. Anderson (2), <i>Feronia elephantum</i> Corr. (3)	10	24	0.60

*Nt – Number of taxa; Nur – Number of use reports; ICF – Informant Consensus Factor

Table 3: Use Value.

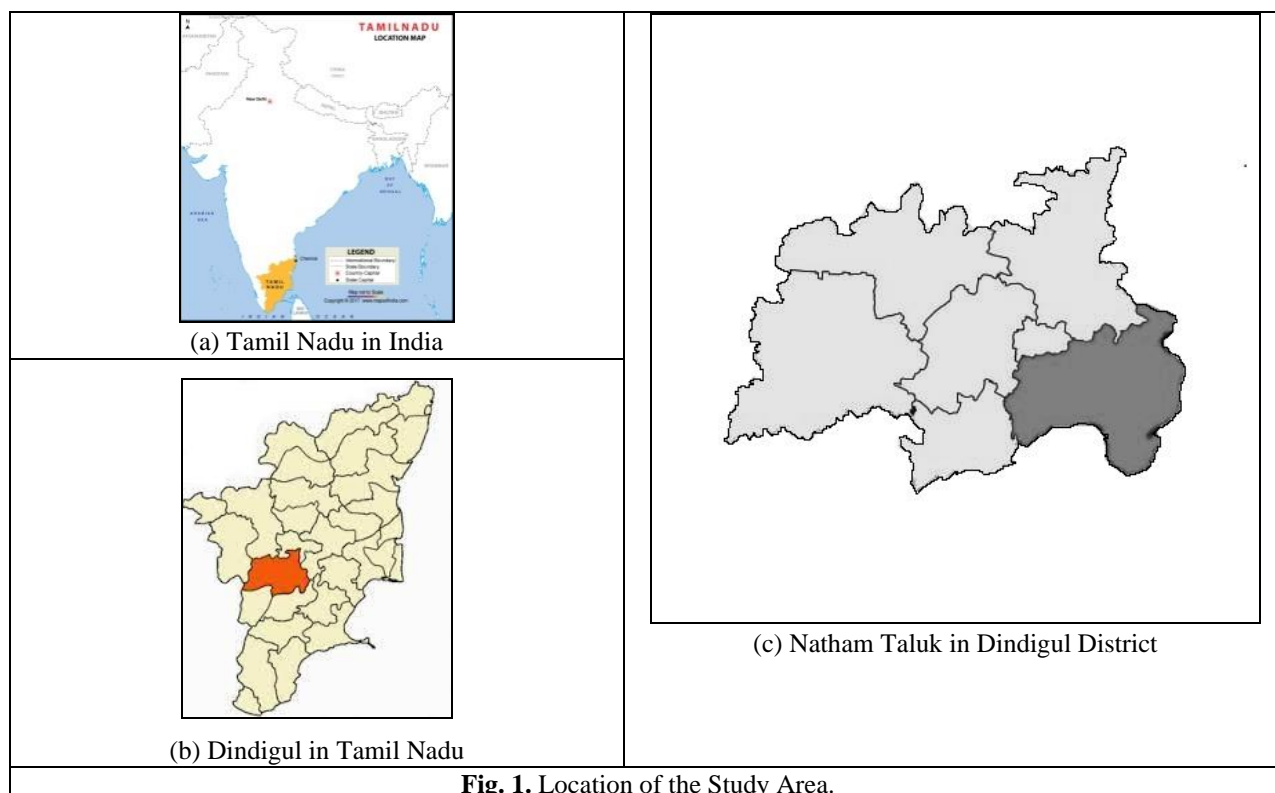
Voucher Number	Species	Use Report (UR)	N*	Use value (UVs)
2022- 013	<i>Abrus precatorius</i> L.	1	27	0.03
2022- 025	<i>Abutilon indicum</i> (L.) Sweet	10	27	0.37
2022- 001	<i>Acalypha indica</i> L.	17	27	0.62
2022- 006	<i>Achyranthes aspera</i> L.	9	27	0.33
2022- 050	<i>Aegle marmelos</i> (L.) Correa	9	27	0.33
2022- 020	<i>Aerva lanata</i> (L.) Juss.	15	27	0.55
2022- 035	<i>Allium cepa</i> L.	35	27	1.29
2022- 036	<i>Allium sativum</i> L.	18	27	0.66
2022- 017	<i>Aloe vera</i> (L.) Burm.f.	9	27	0.33
2022- 049	<i>Andrographis paniculata</i> (Burm.f.) Nees	40	27	1.48
2022- 057	<i>Anethum graveolens</i> L.	1	27	0.03
2022- 022	<i>Aristolochia bracteolata</i> Lam.	18	27	0.66
2022- 077	<i>Aristolochia indica</i> L.	13	27	0.48
2022- 091	<i>Asparagus racemosus</i> Wild.	12	27	0.44
2022- 123	<i>Asystasia gangetica</i> (L.) T. Anderson	2	27	0.07
2022- 009	<i>Azadirachta indica</i> A. Juss.,	56	27	2.07
2022- 041	<i>Azima tetracantha</i> Lam.	12	27	0.44
2022- 012	<i>Baccopa momieri</i> (L.) Pennel.	5	27	0.18
2022- 066	<i>Boerhaavia diffusa</i> L.	1	27	0.03
2022- 083	<i>Caesalpinia bonduc</i> (L.) Roxb.	27	27	1
2022- 071	<i>Capsicum annum</i> L.	14	27	0.51
2022- 005	<i>Carica papaya</i> L.	31	27	1.14
2022- 107	<i>Carissa carandas</i> L.	10	27	0.37
2022- 113	<i>Carum carvi</i> L.	1	27	0.03
2022- 062	<i>Cassitha filiformis</i> L.	3	27	0.11
2022- 044	<i>Centella asiatica</i> (L.) Urban.	35	27	1.29
2022- 092	<i>Cissus quadrangularis</i> L.	6	27	0.22
2022- 075	<i>Citrus limon</i> (L.) Osbeck	9	27	0.33
2022- 048	<i>Cleome viscosa</i> L.	30	27	1.11
2022- 073	<i>Cocos nucifera</i> L.	16	27	0.59
2022- 119	<i>Commelina benghalensis</i> L.	2	27	0.07
2022- 121	<i>Convolvulus gemellus</i> L.	8	27	0.29
2022- 099	<i>Coscinium fenestratum</i> (Gaertn.) Colebr.	1	27	0.03
2022- 032	<i>Crateva religiosa</i> G.Forst.	5	27	0.18
2022- 098	<i>Cuminum cyminum</i> L.	20	27	0.74
2022- 056	<i>Curcuma longa</i> L.	3	27	0.11
2022- 076	<i>Cynodon dactylon</i> (L.) Pers.	9	27	0.33
2022- 008	<i>Datura metel</i> L.	5	27	0.18
2022- 039	<i>Eclipta prostrata</i> (L.) L.	3	27	0.11
2022- 093	<i>Elettaria cardamomum</i> (L.) Maton	4	27	0.14
2022- 085	<i>Enicostema axillare subsp.</i> (Lam.) A. Raynal	1	27	0.33
2022- 110	<i>Erythrina variegata</i> L.	5	27	0.18
2022- 122	<i>Euphorbia heterophylla</i> L.	25	27	0.92
2022- 046	<i>Euphorbia hirta</i> L.	36	27	1.33
2022- 004	<i>Evolvulus alsinoides</i> (L.) L.	6	27	0.22
2022- 010	<i>Feronia elephantum</i> Corr.	5	27	0.18
2022- 055	<i>Ficus benghalensis</i> L.	20	27	0.24
2022- 059	<i>Garcinia gummi-gutta</i> (L.) Robs.	3	27	0.11
2022- 079	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex Sm.	5	27	0.18
2022- 082	<i>Hemidesmus indicus</i> (L.) R. Br. ex Schult.	18	27	0.66
2022- 086	<i>Hibiscus rosa-sinensis</i> L.	5	27	0.18
2022- 007	<i>Hybanthus enneaspermus</i> (L.) F. Muell.	55	27	2.03
2022- 095	<i>Indigofera aspalathoides</i> Vahl ex DC.	21	27	0.77
2022- 103	<i>Jasminum grandiflorum</i> L.	7	27	0.25
2022- 072	<i>Jatropha curcas</i> L.	3	27	0.11
2022- 045	<i>Orthosiphon stamineus</i> Benth. L.	34	27	1.25
2022- 051	<i>Lannea coromandelica</i> (Houtt.) Merr.	16	27	0.59
2022- 014	<i>Leucas aspera</i> (Willd.) Link	43	27	1.59
2022- 027	<i>Maduca longifolia</i> (L.) JFMacbr.	9	27	0.33
2022- 031	<i>Mangifera indica</i> L.	1	27	0.03
2022- 061	<i>Marsilea minuta</i> L.	15	27	0.55
2022- 034	<i>Melia azedarach</i> L.	26	27	0.96
2022- 047	<i>Moringa oleifera</i> Lam.	4	27	0.14
2022- 042	<i>Murraya koenigii</i> (L.) Spreng.	4	27	0.14
2022- 052	<i>Musa paradisiaca</i> L.	8	27	0.29
2022- 011	<i>Ocimum tenuiflorum</i> L.	5	27	0.18
2022- 096	<i>Pedaliium murex</i> L.	3	27	0.11

2022- 037	<i>Pergularia daemia</i> (Forsskal) Chiov.	53	27	1.96
2022- 019	<i>Phyla nodiflora</i> (L.) Greene	5	27	0.18
2022- 053	<i>Phyllanthus niruri</i> L.	13	27	0.48
2022- 021	<i>Phyllanthus emblica</i> L.	3	27	0.11
2022- 040	<i>Piper betle</i> L.	3	27	0.11
2022- 069	<i>Piper longum</i> L.	4	27	0.14
2022- 015	<i>Piper nigrum</i> L.	51	27	1.88
2022- 043	<i>Pongamia pinnata</i> (L.) Pierre	27	27	1
2022- 023	<i>Punica granatum</i> L.	42	27	1.55
2022- 054	<i>Riccinus communis</i> L.	3	27	0.11
2022- 016	<i>Santalum album</i> L.	4	27	0.14
2022- 033	<i>Saraca asoca</i> (Roxb.) Wilde	74	27	2.74
2022- 038	<i>Secale cereale</i> L.	7	27	0.25
2022- 058	<i>Senna alexandriana</i> Mill.	14	27	0.51
2022- 024	<i>Sesamum indicum</i> L.	27	27	1
2022- 078	<i>Sesbania sesban</i> (L.) Merr. Var. bicolor	6	27	0.22
2022- 094	<i>Solanum americanum</i> Mill.	7	27	0.25
2022- 097	<i>Solanum virginianum</i> L.	1	27	0.03
2022- 018	<i>Spermacoce articularis</i> L.f.	26	27	0.96
2022- 116	<i>Syzygium aromaticum</i> (L.) Merr. & L.M. Perry	25	27	0.92
2022- 109	<i>Thespesia populnea</i> (L.) Sol. Ex Correa	9	27	0.33
2022- 100	<i>Tragia involucrata</i> L.	2	27	0.07
2022- 114	<i>Trigonella foenum- graecum</i> L.	27	27	1
2022- 108	<i>Tylophora indica</i> (Burm. f.) Merr.	4	27	0.14
2022- 115	<i>Zingiber officinale</i> Roscoe	16	27	0.59
2022- 111	<i>Ziziphus jujuba</i> Mill.	13	27	0.48

*N – Total number of Informants

Table 4: Comparison between the ethnobotanical study in Natham Taluk and those recorded in previously conducted ethnobotanical field studies in the same district.

Study area	Year of study	Number of species recorded	Number of common species	Jaccard Index	Reference
Karandamalai, Dindigul	2008	63	10	6.84	Kottaimuthu (2008)
Sirumalai, Dindigul	2008	44	17	15.83	Alagesabopathi (2012)
Thoppampatti, Dindigul	2014	139	45	22.99	Sivasangari <i>et al.</i> (2014)
Pachalur Hills	2013	30	10	8.84	Xavier <i>et al.</i> (2018)



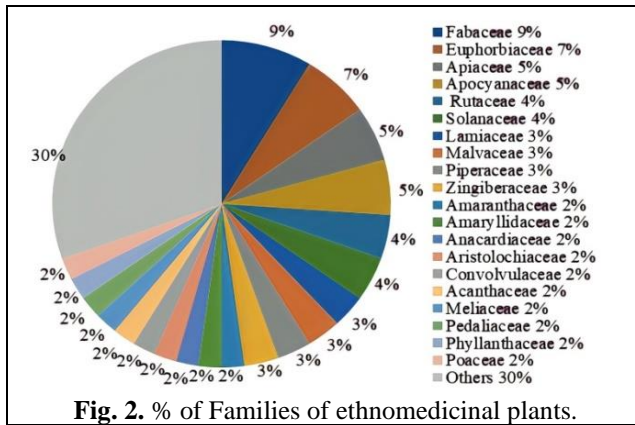


Fig. 2. % of Families of ethnomedicinal plants.

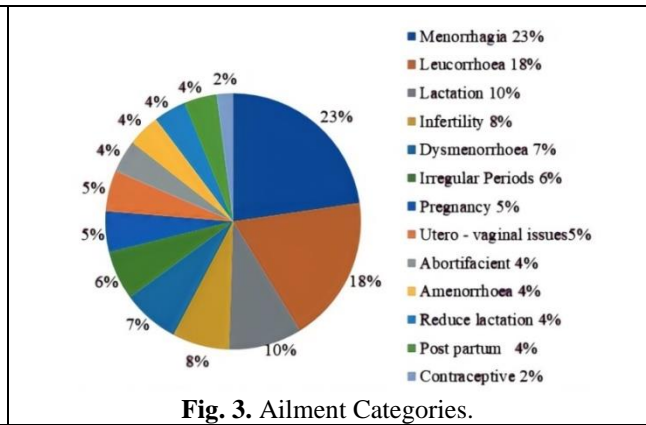


Fig. 3. Ailment Categories.

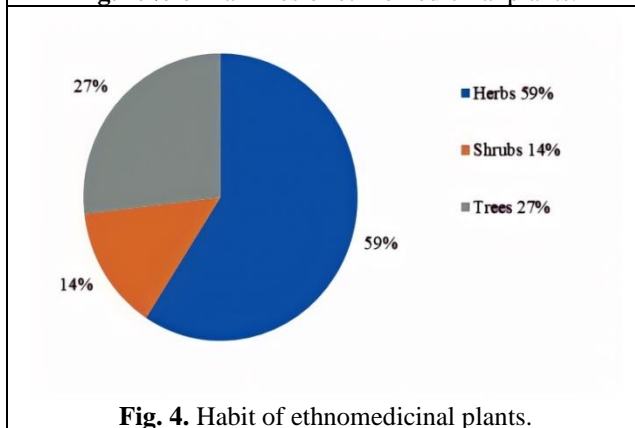


Fig. 4. Habit of ethnomedicinal plants.

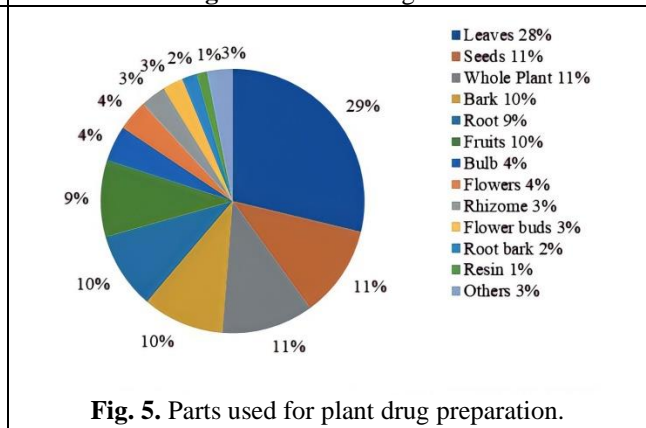


Fig. 5. Parts used for plant drug preparation.

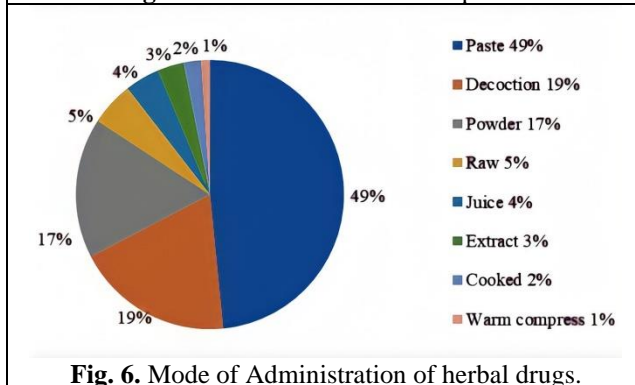


Fig. 6. Mode of Administration of herbal drugs.

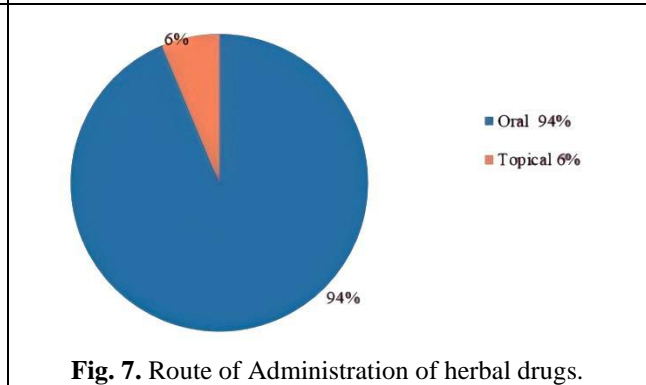


Fig. 7. Route of Administration of herbal drugs.

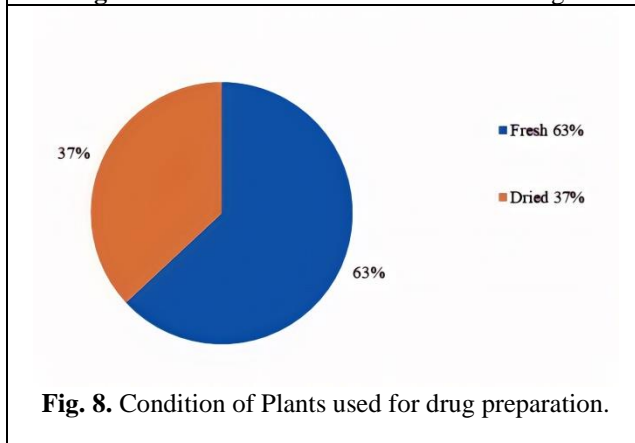


Fig. 8. Condition of Plants used for drug preparation.

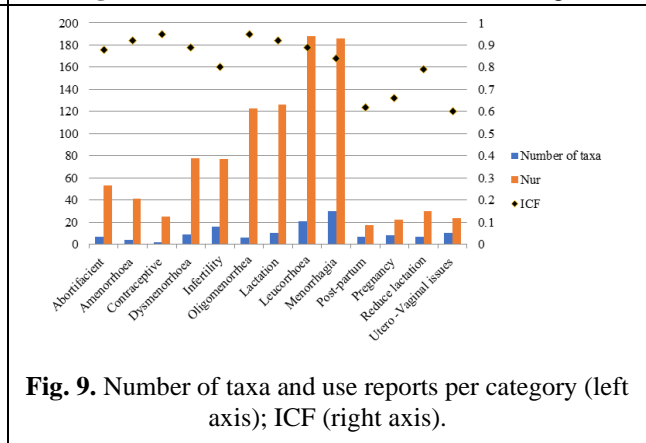


Fig. 9. Number of taxa and use reports per category (left axis); ICF (right axis).

CONCLUSIONS

The present study reported a total of 93 medicinal plant species belonging to 48 families that were used to treat various gynaecological ailments belonging to 13 ailment categories through 92 ethno-gynaecological remedies. Fabaceae, Euphorbiaceae, Apiaceae were the

most dominant families. Herbs were the most common plant form used; leaves were mostly used for plant drug preparation. The use of paste and oral administration of the drugs prepared from plants were largely used in the study area. Quantitative indices like use value (UV) and informant consensus factor (ICF) were calculated. *Saraca asoca* (Roxb.) Wilde, *Azadirachta indica* A.

Juss., (LC) *Hybanthus enneaspermus* (L.) F. Muell. were the most important species as indicated by the UV values. The ICF values of certain species were higher which indicates that there is proper sharing of traditional knowledge of most common plants amongst people in the study area. Hence it is necessary to conserve this depleting indigenous knowledge as it could help us in identifying the pharmacological potential of medicinal plants.

FUTURE SCOPE

The present study helped in identification of locally important medicinal plant species that are used to treat gynaecological ailments thereby playing an important role in the rural women's health care. These species will be further analysed phytochemically and pharmacognostically in order to isolate active compounds that can be used for drug discovery.

Author contributions. Shrinitha T. M. collected the data, Contributed data or analysis tools, Performed the analysis, Wrote the paper. Aruna R. Conceived and designed the analysis.

Conflict of Interest. None.

Acknowledgement. We would like to acknowledge the herbalists who consented to share their traditional knowledge with us for this study.

REFERENCES

Abdelhalim, A. & Saleem, N. (2021). Medicinal plants used for women's healthcare in Al-Madinah Al-Munawarah, Saudi Arabia. *Indian J. Tradit. Knowl.*, 20(1), 132-140.

Adnan, M. A., Tariq, S., Mussarat, S., Begum, N. M. & Abd Elsalam Ullah, R. (2015). Ethnognynaecological Assessment of Medicinal Plants in Pashtun's Tribal Society. *BioMed Res. Int.*

Ajesh, T. P. & Kumuthakalavalli, R. (2012). Ethnic herbal practices for gynaecological disorders from Urali tribes of Idukki district of Kerala, India. *Int. J. Pharm. Life Sci.*, 3(12), 2213-2219.

Alagesaboopathi, C. (2012). Ethnobotanical studies on useful plants of Sirumalai Hills of Eastern Ghats, Dindigul District of Tamilnadu, Southern India. *Int. J. Biosci.*, 2 (2), 77-84.

Albuquerque, U. P., Lucena, R. F. P., Monteiro, J. M., Florentino, A. T. N. & Almeida, C. F. C. B. R. (2006). Evaluating two quantitative ethnobotanical techniques. *Ethnobot. Res. Appl.*, 4, 51 - 60.

Aruna, R., Nithyapriya, J., Ramachandran, V. S., Gopakumar, K. & Ramaswamy, R. S. (2015). A Study on the Sustainable Utilization of Edible Plants by Irular Tribes of Anaikatty, Western Ghats, India. *Res. J. Pharmacogn. Phytochem.*, 7(2), 95.

Balamurugan, S., Vijayakumar, S., Prabhu, S., & Morvin Yabesh, J. E. (2018). Traditional plants used for the treatment of gynaecological disorders in Vedaranyam taluk, South India - An ethnomedicinal survey. *J. Tradit. Complement. Med.*, 8, 308 - 323.

Barstow, M. & Deepu, M. (2018). *Azadirachta indica*. The IUCN red list of threatened species.

Bhatia, H., Sharma, Y. P., Manhas, R. K. & Kumar, K. (2015). Traditional phyto-remedies for the treatment of

menstrual disorders in district Udhampur, Jammu Kashmir, India. *J. Ethnopharmacol.*, 160, 202-210.

Bussmann, R. W. & Glenn, A. (2010). Medicinal plants used in Northern Peru for reproductive problems and female health. *J. Ethnobiol. Ethnomed.*, 6, 30.

Das, D. C., Sinha, N. K. & Das, M. (2015). The Use of Medicinal Plants for the Treatment of Gynaecological Disorders in the Eastern Parts of India. *Indian J. Obstet. Gynaecol.*, 2(1), 16-27.

Gamble, J. S. (2017). *Flora of the Presidency of Madras*. Mahendra Pal Singh Publications, Dehradun, 3, 2017.

Gazzaneo, L. R. S., Lucena, R. F. P. & Albuquerque, U. P. (2005). Knowledge and use of medicinal plants by local specialists in a region of Atlantic Forest in the state of Pernambuco. *J. Ethnobiol. Ethnomed.*, 1(9).

Gonzalez-Tejero, M. R., Casares-Porcel, M., Sanchez-Rojas, C. P., Ramiro-Gutierrez, J. M., Molero-Mesa, J., Pieroni, A., Giusti, M.E., Censori, E., de Pasquale, C., Della, A., Paraskeva-Hadjichambi, D., Hadjichambis, A., Houmani, Z., El-Demerdash, M., El-Zayat, M., Hmamouchi, M. & Eljohrig, S. (2008). Medicinal plants in the Mediterranean area: synthesis of the results of the project Rubia. *J. Ethnopharmacol.*, 116, 341-357.

Gupta, U. & Solanki, H. (2013). Herbal folk remedies used in treatment of Gynecological disorders by tribals of Simalwara Region, Dungarpur, Rajasthan. *Int. J. Pure Appl. Sci. Technol.*, 17(1), 100-107.

Jain, S. K. (2000). Plants in Indian ethno-veterinary medicine, status and prospects. *Indian J. Vet. Med.*, 201-11.

Kaingu, C. K., Oduma, J. A., & Kanui, T. I. (2011). Practices of traditional birth attendants in Machakos District, Kenya. *J. Ethnopharmacol.*, 137(1), 495-502.

Kottaimuthu, R. (2008). Ethnobotany of the Valaiyans of Karandamalai, Dindigul District, Tamil Nadu, India. *Ethnobot. Leaflet.*, 12, 195-203.

Laddimath, A. & Rao, S. (2016). Herbal medicine used to treat primary infertility in women by traditional practitioners of Vijayapur (Bijapur) district of Karnataka, India. *Int. Lett. Nat. Sci.*, 50, 27-32.

Martin, G. (2004). *Ethnobotany. A methods manual People and plants conservation series*, WWF, London, UK: Earthscan Publications.

Matthew, K. M. (1991). *An Excursion Flora of Central Tamil Nadu*, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, India.

McCorkle, C. M. (1986). An Introduction to ethnoveterinary research and development. *J. Ethnoboil.*, 6, 129-140.

Mukherjee, P. K. & Wahil, A. (2006). Integrated approaches towards drug development from Ayurveda and other systems of medicine. *J. Ethnopharmacol.*, 103, 25-35.

Muthu, C., Ayyanar, M., Raja, M. & Ignacimuthu, S. (2006). Medicinal plants used by traditional healers in Kancheepuram District of Tamil Nadu, India. *J. Ethnobiol. Ethnomed.*, 2(43).

Ososki, A. L., Lohr, P., Reiff, M., Balick, M.J., Kronenberg, F., Fugh-Berman, A. & Bonnie O'Connor. (2002). Ethnobotanical literature survey of medicinal plants in the Dominican Republic used for women's health conditions. *J. Ethnopharmacol.*, 79, 285-298.

Pie, S. J. (2001). *Ethnomedicinal Approaches of Traditional Medicine Studies: Some Experiences from Asia*. *Pharm. Biol.*, 39, 74 -79.

- Rahman, A. H. M. M. (2014). Ethno-gynecological study of traditional medicinal plants used by santals of Joypurhat district, Bangladesh. *J. Biomed. Biotechnol.*, 2(1), 10-13.
- Rajeswari, R. & Muruges, S. (2019). Ethnogaecological Disorders of Medicinal Plants Used by Tribal People in Gedamalai, Namakkal District, Southern Eastern Ghats, Tamilnadu. *Int. J. Pharm Sci Res.*, 10(12), 5559-5564.
- Rakesh, T., Dwivedi, S. N. & Sumeet, D. (2010). Ethno-medicinal plants used to treat gynecological disorders by tribal people of Madhya Pradesh, India. *Int. J. Pharm. Life Sci.*, 1(3), 160-169.
- Ranjani, N., Kannan, R., Kokila, D. & Bhuvanewari, V. (2023). Ethnobotanical Survey of Medicinal Plants used by Malayali Tribes in Palamalai Hills Salem District, Tamil Nadu, India. *Biological Forum – An International Journal*, 15(1), 222-229.
- Razafindraibe, M., Kuhlman, A. R., Rabarison, H., Rakotoarimanana, V., Rajeriarison, C., Rakotoarivelo, N., Randrianarivony, T., Rakotoarivony, F., Ludovic, R., Randrianasolo, A. & Bussmann, R. W. (2013). Medicinal plants used by women from Agnalazaha littoral forest (Southeastern Madagascar). *J. Ethnobiol. Ethnomed.*, 9(73).
- Rossato, S. C., Leitao-Filho, H. D. F. & Begossi, A. (1999). Ethnobotany of Caiçaras of the Atlantic forest coast (Brazil). *Econ. Bot.*, 53(4), 387–395.
- Sadeghi, Z., Kuestani, K., Abdollahi, V. & Mahmood, A. (2014). Ethnopharmacological studies of indigenous medicinal plants of Saravan region, Baluchistan, Iran. *J. Ethnopharmacol.*, 153, 111-118.
- Saraca asoca*, (1998). CAMP Workshops on Medicinal Plants, India. The IUCN Red List of Threatened Species 1998: e.T34623A9879360.
- Satyavati, G. V., Gupta, A. K. & Tandon, N. (1987). Medicinal Plants of India, Indian Council of Medical Research, New Delhi.
- Sharma, R. (2003). Medicinal Plants of India – An Encyclopedia, Daya Publishing House, New Delhi.
- Singh, V., Bhattacharjya, D. K. and Gogoi, J. (2019). Phytomedicines for female infertility in Barpeta District of Assam, India. *Pleione.*, 13(1), 82 – 89.
- Sivasankari, B., Anandharajan, M. & Gunasekaran, P. (2014). An ethnobotanical study of indigenous knowledge on medicinal plants used by the village peoples of Thoppampatti, Dindigul district, Tamilnadu, India. *J. Ethnopharmacol.*, 153, 408–423.
- Sukumaran, S., Sujin, R. M., Geetha, V. S. & Jeeva, S. (2020). Ethnobotanical study of medicinal plants used by the Kani tribes of Pechiparai Hills, Western Ghats, India. *Acta Ecol. Sin.*, 41(1).
- Telefo, P. B., Lienou, L. L. & Yemele, M. D. (2011). Ethnopharmacological survey of plants used for the treatment of female infertility in Baham. Cameroon. *J. Ethnopharmacol.*, 136, 178–187.
- The Ayurvedic Pharmacopoeia of India, (2016). first ed. Pharmacopoeia Commission For Indian Medicine & Homoeopathy, Ghaziabad.
- The Siddha Pharmacopoeia of India, first ed. Government Of India Ministry of Health and Family Welfare Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (Ayush).
- Trotter, R. & Logan, M. (1986). Informant consensus: new approach for identifying potentially effective medicinal plants in: Indigenous Medicine and Diet: Behavioural Approaches, Redgrave Publishers, New York, 91-112.
- World Health Organization (2007). Sexually transmitted infections factsheet. Geneva.
- Xavier, T. F., Bastin, A. A. & Auxilia, A. (2018). Ethnomedicinal survey on plants used by Paliyar Tribes in Pachalur Hills, Eastern Ghats of Tamil Nadu, South India. *World J. Pharm. Res.*, 7(6), 423-458.
- Yemele, M. D., Telefo, P. B., Lienou, L. L., Tagne, S. R., Fodouop, C. S. P., Goka, C. S., Lemfack, M. C., & Moundipa, F. P. (2015). Ethnobotanical survey of medicinal plants used for pregnant women's health conditions in Menoua division -West Cameroon. *J. Ethnopharmacol.*, 160, 14–31.
- Yinegar, H., Kelbessa, E., Bekele, T. & Lulekal, E. (2007). Ethnoveterinary medicinal plants in Bale Mountains National Park, Ethiopia. *J. Ethnopharmacol.*, 112, 55 – 70.
- Zenderland, J., Hart, R., Bussmann, R. W., Zambrana, N. Y., Sikharulidze, S. & Kikvidze, Z. (2019). The use of “Use Value”: quantifying importance in ethnobotany. *Econ. Bot.*, 73(3), 293–303.

How to cite this article: Shrinitha T.M. and Aruna R. (2023). Ethnogaecological Investigation of Medicinal Plants used in Natham Taluk, Dindigul, Tamil Nadu, India. *Biological Forum – An International Journal*, 15(6): 243-254.