

A survey on ethnomedicinal plants used for menstrual disorders in Kerala

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There are distinct biological and gender related differences between man and woman. Because of their special reproductive role, women are at risk of some distinctly gender related disorders. A survey of ethnomedicinal plants used in the rural areas of Kerala gave valuable ethnomedico-botanical information regarding plants used for menstrual disorders. The present study enumerates 19 plant species against Menorrhagia, 26 plant species against Dysmenorrhoea, 25 plant species against Oligomenorrhoea, 5 plant species against Hypomenorrhoea, 4 plant species for Amenorrhoea and 18 plant species which can be included in food during menstrual cycle.

Keywords: Medicinal plants, Menstrual disorder, Menorrhagia, Oligomenorrhoea, Hypomenorrhoea, Dysmenorrhoea, Amenorrhoea

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India is gifted with immense faunal and floral diversity. India is 10th among the plant rich countries of the world and 4th among the Asian countries. Traditional communities and rural folk are the real custodians of the knowledge of medicinally important plants and animals. Most of the knowledge accumulated by the traditional communities and rural people on medicinal plants and animals is unknown to the modern scientific community. Biodiversity, all over the world is facing the threat of depletion because of over exploitation. As an interdisciplinary science, ethnobotany is, therefore, in a position to preserve the wealth of traditional knowledge that indigenous people possess concerning the flora and fauna. This includes their knowledge on the utilization and maintenance of different types of plant resources on a long term basis without damaging or destroying their habitat. Hence, maximum effort should be made to document and integrate traditional knowledge and its associated biodiversity.

Women play multiple roles such as mother, daughter, wife, home maker and wage-earner which can be physically and mentally quite tasking.

Menstruation is the simple process of shedding the old uterine lining to make the way for new ones. Most of the women will experience in the neighborhood of 400 menstrual cycles in their child bearing lifetime. Millions of women across the globe suffer from several menstrual problems. Several investigators have studied the role of ethnomedicinal plants in women's health and reproductive health problems¹⁻⁹. In this communication, we wish to report ethnomedicinal plants used by the traditional communities and rural folk for problems associated with menstrual disorders.

Methodology

Frequent field visits were conducted to selected Gramapanchayats of fourteen districts of Kerala state (three Grama Panchayats from each district) and informations were gathered about traditional knowledge on medicinal plants used for menstrual disorders and the modes of preparation and administration of the drugs. Personal interviews were carried out with the help of a preplanned schedule and data sheets. Prior informed consents were obtained from the informants prior to the collection of the data. Questionnaires were used for data collection which

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included name of the informant, age, place, local name of the plant, family, specificity in collecting useful parts, detailed method of drug preparation, specificity of dosage, restrictions/precautions if any and administration. Photographs were also taken for identification. The plants are enumerated alphabetically beginning with Latin names followed by family, local name, part used and medicinal uses. A detailed description about preparation, administration, and application of the drug are also given.

Enumeration

The plant species are enumerated according to different menstrual disorders. The local name of the plant is followed by binomials, family, plant parts used, mode of preparation and application.

Menorrhagia (Excess bleeding)

Menorrhagia is an abnormally heavy and prolonged menstrual period at regular intervals. Causes may be due to abnormal blood clotting, disruption of normal hormonal regulation of periods or disorders of the endometrial lining of the uterus. Depending upon the cause, it may be associated with abnormally painful periods (Table 1).

Amenorrhoea (Absence of menstrual cycle)

Amenorrhoea is the absence or suppression of a menstrual period in a woman of reproductive age either temporary or on a permanent basis. It can be classified as primary and secondary Amenorrhoea. Primary amenorrhoea occurs when menstruation has not started by the age of sixteen. Secondary amenorrhoea occurs when menstruation has begun but has stopped. Amenorrhoea can be caused by any number of changes in the organs, glands and hormones involved in menstruation (Table 2).

Hypomenorrhoea (Scanty menstruation)

Hypomenorrhoea is a condition in which a person suffers from very scanty bleeding during her menstrual periods. The duration of the menstrual period may also become shortened as a consequence of this problem. Women suffering from this problem commonly experience only vaginal spotting during their periods. It is the reverse of the more common problem of excessive menstrual discharge faced by many women. In some women, the problem may be hereditary and in a few cases, the problem results from the fact that the area of the surface within the

reproductive tract from which bleeding takes place during the menstrual period is itself restricted. However, if there is some irregularity in the hormonal activities in the ovaries, chances are that the person would experience irregular periods rather than scanty flow of blood during the periods (Table 3).

Oligomenorrhoea (Irregular menstrual cycle)

Most women experience some sort of irregularity in their menstrual cycle. Oligomenorrhoea is infrequent (or, in occasional usage, very light or irregular) menstruation. More strictly, it is menstrual periods occurring at intervals of greater than 35 days, with only four to nine periods in a year. The duration of such events may vary. The condition can be caused by a number of disorders including Graves's disease, thyrotoxicosis or a pituitary tumor. The list of signs and symptoms mentioned in various sources for Oligomenorrhoea includes short menstrual period, infrequent menstrual period, very light menstrual period, etc (Table 4).

Dysmenorrhoea (Painful menstruation)

Dysmenorrhoea is a medical condition characterized by severe uterine pain during menstruation. While most women experience minor pain during menstruation, dysmenorrhoea is diagnosed when the pain is so severe as to limit normal activities, or require medication. Dysmenorrhoea can feature different kinds of pain, including sharp, throbbing, dull, nauseating, burning, or shooting pain. In addition to the abdomen and back pain, symptoms may include nausea, vomiting, sweating, dizziness, diarrhea, etc (Table 5).

Special food preparations for women

As women of childbearing age go through menstruation, overall nutrition is an important issue. During the menstrual cycle, women go through a lot of change in their body due to the hormonal surges. It is good to keep a check on the kind of food that they take during this time to reduce the discomfort that one feels. In our traditional system of medicine and folk medicine a lot of preparations have been advised to reduce the disorders. To regulate hormones and maintain a healthy body, it is important to eat healthy foods throughout the menstrual cycle and not just during menstrual period. Eating right may help to avoid various menstrual disorders. Premenstrual Syndrome, or PMS, is a condition that afflict many women. Foods that may help to relieve some symptoms include complex carbohydrates and high-

Table 1-Medicinal plants used for Menorrhagia

Botanical name	Local name	Family	Parts used	Preparation and application
<i>Adhatoda vasica</i> Nees.	<i>Adalodakam</i>	Acanthaceae	Leaves	Fresh leaves are crushed and one teaspoon full of expressed juice is mixed with jaggery. Taken twice daily for 15 days.
<i>Aegle marmelos</i> (L.) Corr.Serr.	<i>Kuvalam</i>	Rutaceae	Leaves	Fresh leaves are ground and made in the form of paste and one teaspoon of paste is mixed in one glass of warm water and taken once in early morning in empty stomach for 7 days.
<i>Asparagus racemosus</i> Willd.	<i>Sathavari</i>	Liliaceae	Tuberous root	Fresh tuberous roots are crushed and 4 tea spoon full of expressed juice is mixed with sugar and taken 30 minutes before food for 7 days.
<i>Desmodium triflorum</i> (L.) DC	<i>Cherupulladi</i>	Fabaceae	Whole plant	Fresh leaves are crushed and one teaspoon full expressed juice is mixed with one tea spoon of honey. Taken twice daily for 3 days.
<i>Ficus hispida</i> L. f.	<i>Erumanakku</i>	Moraceae	Latex	Five drops of latex is mixed in one tea spoon of honey and taken once daily in the morning in empty stomach followed by 1-2 glasses of boiled cow's milk.
<i>Garcinia gummi-gutta</i> (L.) Roxb.	<i>Kudampuli</i> <i>Chukku</i>	Clusiaceae Zingiberaceae	Fruit Dried rhizome	All the ingredients are boiled in water and made in the form of decoction. Taken 10 ml thrice daily for 7 days.
<i>Zingiber officinale</i> Rosc.	<i>Veluthulli</i>	Liliaceae	Bulb	
<i>Allium sativum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	
<i>Sesamum indicum</i> L.				
<i>Hibiscus rosa-sinensis</i> L.	<i>Chemparuthi</i>	Malvaceae	Flower	Fresh flowers are boiled in cow's milk and concentrated. Taken once daily for 3 days.
<i>Holarrhena pubescens</i> (Buch.- Ham.) Wall. ex G. Don.	<i>Kudakapala</i>	Apocyanaceae	Root	Fresh root is crushed after peeling and 5 ml of expressed juice is taken twice a day for 7 days.
<i>Ichnocarpus frutescens</i> (L.)R. Br.	<i>Palvalli</i>	Apocynaceae	Tender leaves	Fresh tender leaves are ground with curd and taken once daily in the morning for 7 days.
<i>Michelia champaca</i> L.	<i>Chambakam</i>	Magnoliaceae	Root bark	Fresh root bark is ground and made in the form of paste. One tea spoon full of paste is taken in the morning and evening for 2-3 days.
<i>Mimosa pudica</i> L.	<i>Thottavadi</i>	Mimosaceae	Tender leaves	Fresh leaves are ground well and made in the form of paste. The paste is mixed in 20 ml of curd and taken twice daily for 14 days.
<i>Phyllanthus amarus</i> Schum.& Thonn.	<i>Keezharnelli</i>	Euphorbiaceae	Whole plant	Fresh whole plant is ground and made in to a paste. The paste is mixed in butter milk and half a glass is taken once daily for 3 days.
<i>Saraca asoca</i> (Roxb.) de Wilde.	<i>Asokam</i>	Caesalpiniaceae	Leaves	Fresh tender leaves are crushed and 5 ml of expressed juice is mixed with jaggery and taken twice daily for 7 days.
<i>Trachyspermum ammi</i> (L.) Spargue	<i>Ayamodakam</i>	Apiaceae	Seed	Boiled and made in the form of decoction. Taken along with jaggery for 2 weeks.
<i>Ziziphus rugosa</i> Lam.	<i>Thodalimullu</i>	Rhamnaceae	Leaves	Both ingredients are ground and mixed with lemon juice and made in the form of small tablets. 2 tablets are taken twice daily for 7 days.
<i>Piper betle</i> L.	<i>Vettila</i>	Piperaceae	Leaves	

Table 2-Medicinal plants used for Amenorrhoea

Botanical name	Local name	Family	Parts used	Preparation and application
<i>Carica papaya</i> L.	<i>Kaplanga</i>	Caricaceae	Fruit	Unripe fruits are sliced after peeling and cooked along with ground coconut kernel, green chilly, onion and sufficient quantity of salt. Taken along with rice.
<i>Cynodon dactylon</i> (L.) Pers.	<i>Karuka</i>	Poaceae	Whole plant	Fresh plant parts are ground and mixed in rice soup and taken
<i>Tamarindus indica</i> L.	<i>Puli</i>	Caesalpiniaceae	Root bark	Root bark is rubbed in cow's milk and taken
<i>Vitex negundo</i> L.	<i>Karinochi</i>	Verbenaceae	Root	Fresh roots are crushed and cooked along with rice in the form of porridge and taken daily to start menstrual cycle

Table 3-Medicinal plants used for Hypomenorrhoea

Botanical name	Local name	Family	Parts used	Preparation and Application
<i>Aloe vera</i> (L.) Burm. f.	<i>Katarvazha</i>	Liliaceae	Leaves	Fresh leaves are crushed and 3 tea spoons of pulp is mixed with equal quantity of honey and taken
<i>Cynodon dactylon</i> (L.) Pers.	<i>Karuka</i>	Poaceae	Whole plant	Fresh whole plant is ground and made in the form of paste. 4 tea spoon of paste is mixed in ½ glass water and taken in the morning in empty stomach for 3 days
<i>Phyllanthus emblica</i> L.	<i>Nellikka</i>	Euphorbiaceae	Fruit	Fresh fruits are crushed and 5ml of expressed juice is mixed with one tea spoon of honey and taken twice daily for 7 days.
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	Seeds are pounded in to fine powder. 3 Tea spoons full powder are mixed with jaggery. Taken in the morning in empty stomach followed by one glass of water for three days.
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	Sesame oil and egg white is mixed well and taken orally

Table 4-Medicinal plants used for Oligomenorrhoea

Botanical name	Local name	Family	Parts used	Preparation and Application
<i>Aloe vera</i> (L.) Burm.f.	<i>Katarvazha</i>	Liliaceae	Leaves	Expressed juice along with garlic (fried in ghee) is mixed in melted jaggery and boiled and concentrated in the form of 'Lehyam'. Taken 2 tea spoon twice daily for 7 days against menstrual disorder
<i>Prunus persica</i> (L.) Batsch.	<i>Badaam</i>	Rosaceae	Seed	6-8 numbers of crushed almonds, half tea spoon of powdered sesame seed, one cup of milk is mixed with one egg yolk and one tea spoon of honey. Taken once a day against delay in menstruation.
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	Fresh leaves are ground and made in the form of small balls along with jaggery and taken during bath in pond.
<i>Azadirachta indica</i> A. Juss.	<i>Veppu</i>	Meliaceae	Leaves	Fresh whole plant is crushed and expressed juice is taken along with cow's milk.
<i>Bacopa monnieri</i> (L.) Pennell.	<i>Brehmi</i>	Scrophulariaceae	Whole plant	All the ingredients are sliced and boiled in water and made in the form of decoction.
<i>Boerhavia diffusa</i> L.	<i>Thamizhama</i>	Nyctaginaceae	Root	Taken 10 ml along with sugar candy in the morning in empty stomach for 7 days.
<i>Strobilanthes ciliatus</i> Nees	<i>Karimkurinji</i>	Acanthaceae	Root	
<i>Aegle marmelos</i> (L.) Corr. Serr.	<i>Kuvalam</i>	Rutaceae	Root	
	<i>Munja</i>	Verbenaceae	Root	
<i>Premna latifolia</i> Roxb.	<i>Chukku</i>	Zingiberaceae	Rhizome	
<i>Zingiber officinale</i> Rosc.	<i>Muthira</i>	Fabaceae	Seed	
<i>Vigna unguiculata</i> (L.) Walp.	<i>Avanaku</i>	Euphorbiaceae	Root	
<i>Ricinus communis</i> L.				

(Contd.)

Table 4-Medicinal plants used for Oligomenorrhoea - (*Contd.*)

Botanical name	Local name	Family	Parts used	Preparation and Application
<i>Carica papaya</i> L.	<i>Kaplanga</i>	Caricaceae	Fruit	Unripened fruits are crushed and expressed juice is taken one ounce for three days.
<i>Cissampelos pareira</i> L.	<i>Malathangi</i>	Menispermaceae	Leaves	Fresh leaves, ground and made in the form of paste, is cooked along with rice in the form of porridge. To this jaggery is added and taken.
<i>Cissus quadrangularis</i> L.	<i>Changalam paranda</i>	Vitaceae	Stem	Expressed juice is mixed with equal quantity of honey and is taken twice daily for 7 days
<i>Hibiscus rosa-sinensis</i> L.	<i>Chembarathi</i>	Malvaceae	Flower	Fresh flowers are boiled in cow's milk, concentrated and taken once daily for 3 days. Fresh flowers and jaggery are kept layer by layer in a vessel. After 21 days filtrate is taken along with honey (one tea spoon) thrice daily for 21 days. Fresh flowers are ground and made in the form of paste. Taken in empty stomach for 7 days. Fresh flowers are dried in sun light and pounded. Taken 1 tea spoon twice daily for 7 days against irregular menstruation.
<i>Saraca asoca</i> (Roxb.) de Wilde	<i>Asokam</i>	Caesalpiniaceae	Bark	Fresh bark, 60 g, is crushed and prepared in the form of decoction and taken 40 ml twice daily for 4 days
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	Seeds are soaked in water and germinated seeds are taken.
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	Seeds of sessam are boiled in water and prepared in the form of decoction. All the other ingredients are pounded and mixed with jaggery and ghee. Taken two tea spoons twice daily for 21 days.
<i>Zingiber officinale</i> Rosc.	<i>Chukku</i>	Zingiberaceae	Rhizome	
<i>Piper nigrum</i> L.	<i>Kurumulaku</i>	Piperaceae	Seed	
<i>Piper longum</i> L.	<i>Thippalli</i>	Piperaceae	Spike	
<i>Clerodendrum serratum</i> (L.) Moon	<i>Cherutheku</i>	Verbinaceae	Root	
<i>Tamarindus indica</i> L.	<i>Puli</i>	Caesalpiniaceae	Root bark	Fresh root bark is ground and boiled in cow's milk and taken twice daily for 3 days
<i>Withania somnifera</i> (L.) Dunal.	<i>Amukkuram</i>	Solanaceae	Seed	Seeds are pounded and cooked along with rice. Made in the form of porridge and taken at bed time.

Table 5-Medicinal plants used for Dysmenorrhoea

Botanical name	Local name	Family	Parts used	Preparation and Application
<i>Aloe vera</i> (L.) Burm. f.	<i>Kattarvazha</i>	Liliaceae	Leaves	Expressed juice is taken along with honey against painful menstruation
<i>Carica papaya</i> L.	<i>Kaplanga</i>	Caricaceae	Fruit	Fresh fruits are crushed and expressed juice is taken for 10 days.
<i>Cinnamomum zeylanicum</i> Blume.	<i>Elavangam</i>	Lauraceae	Bark	Two gm of each ingredient are boiled in 250 ml coriander water and one ounce filtrate is taken frequently.
<i>Syzygium aromaticum</i> (L.) Merr. & Perry.	<i>Grampoo</i>	Myrtaceae	Bud	
<i>Zingiber officinale</i> Rosc.	<i>Chukku</i>	Zingiberaceae	Dried rhizome	
<i>Cocos nucifera</i> L.	<i>Thengu</i>	Arecaceae	Tender leaf	Fresh tender leaves are ground along with jaggery and taken.
<i>Curculigo orchioides</i> Gaertn.	<i>Nilappana</i>	Hypoxidaceae	Rhizome	Fresh rhizomes are crushed and 5 ml of expressed juice is taken three times daily for 3 days.

(*Contd.*)

Table 5-Medicinal plants used for Dysmenorrhoea – (Contd.)

Botanical name	Local name	Family	Parts used	Preparation and Application
<i>Ferula asafoetida</i> L.	<i>Palkayam</i>	Apiaceae	Latex	Five gm of asafoetida is mixed with breast milk and taken (Stomachache)
<i>Hibiscus rosa-sinensis</i> L.	<i>Chemparuthi</i>	Malvaceae	Flower	Taken as such
<i>Moringa oleifera</i> Lam.	<i>Muringa</i>	Moringaceae	Leaves	Expressed juice of fresh leaves (10 ml) is taken against menstrual pain
<i>Murraya koenigii</i> (L.) Spreng.	<i>Kariveppila</i>	Rutaceae	Leaves	All are crushed and expressed juice is taken
<i>Zingiber officinale</i> Rosc.	<i>Inchi</i>	Zingiberaceae	Rhizome	
<i>Zingiber officinale</i> Rosc.	<i>Cheriyulli</i>	Liliaceae	Bulbs	
<i>Allium sativum</i> L.				
<i>Punica granatum</i> L.	<i>Mathalam</i>	Punicaceae	Fruit	Expressed juice is taken
<i>Saraca asoca</i> (Roxb.) de Wilde	<i>Asokam</i>	Caesalpiniaceae	Bark	Made in the form of decoction. Taken 10 ml thrice daily for 3 days. Fresh bark is cooked in water along with rice in the form of porridge and taken once a day for 21 days. Boiled in water and taken as a drink
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	Dried and powdered seeds are boiled in water and taken twice daily against painful menstruation
<i>Symplocos cochinchinensis</i> (Lour.) Moore ssp. <i>laurina</i>	<i>Pachotitholi</i>	Symplocaceae	Bark	All ingredients are made in the form of decoction. Taken 10 ml thrice a day for 3 days
<i>Aegle marmelos</i> (L.) Corr. Serr.	<i>Kuvalam</i>	Rutaceae	Root	
<i>Aegle marmelos</i> (L.) Corr. Serr.	<i>Erattimadhuram</i>	Fabaceae	Leaves	
<i>Glycyrrhiza glabra</i> L.	<i>Cheruthekku</i>	Verbinaceae	Root	
<i>Clerodendrum serratum</i> (L.) Moon	<i>Ellu</i>	Pedaliaceae	Seed	
<i>Sesamum indicum</i> L.				
<i>Terminalia chebula</i> Retz.	<i>Kadukka</i>	Combretaceae	Dried fruit	All the ingredients are dried and pounded. Taken 2 tea spoons along with jaggery.
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	<i>Thannikka</i>	Combretaceae	Dried fruit	
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	<i>Nellikka</i>	Euphorbiaceae	Dried fruit	
<i>Phyllanthus emblica</i> L.				
<i>Terminalia chebula</i> Retz.	<i>Kadukka</i>	Combretaceae	Fruit	All ingredients are dried and pounded and mixed in honey and taken.
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	<i>Thannikka</i>	Combretaceae	Fruit	
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	<i>Nellikka</i>	Euphorbiaceae	Fruit	
<i>Phyllanthus emblica</i> L.	<i>Manjal</i>	Zingiberaceae	Rhizome	
<i>Curcuma longa</i> L.				
<i>Trichosanthes cucumerina</i> L.	<i>Katu padavalam</i>	Cucurbitaceae	Leaves Stem	Fresh leaves are sliced and boiled in water and made in the form of decoction. Taken 10 ml thrice a day for 7 days
<i>Trigonella foenum-graecum</i> L.	<i>Uluva</i>	Fabaceae	Seed	Seeds are boiled in water and taken as a drink
<i>Trigonella foenum-graecum</i> L.	<i>Uluva</i>	Fabaceae	Seed	Powdered seed is mixed with ghee and given to young girls
<i>Trigonella foenum-graecum</i> L.	<i>Uluva</i>	Fabaceae	Seed	Roasted and boiled in water and taken against menstrual pain
<i>Trigonella foenum-graecum</i> L.	<i>Uluva</i>	Fabaceae	Seed	Made in the form of decoction, mixed with honey and taken
<i>Trigonella foenum-graecum</i> L.	<i>Uluva</i>	Poaceae	Seed	One tea spoon of powdered seed is taken against menstrual pain

calcium foods, plenty of fresh fruits and vegetables, whole-grain products, non-fat dairy products, lean fish, and poultry. Drinking plenty of water is also useful (Table 6).

Results and discussion

Fourty seven informants (female 29, male 18) were interviewed for the data collection. Their age ranged

from 45-85 years. Prior informed consent was obtained from all the informants. As a result of the survey information on 80 formulations involving 67 species of plants were gathered from the informants. These plants belonged to 37 families. There were 9 species from Fabaceae, 3 species each from Verbinaceae, Poaceae, Piperaceae, Apiaceae, Liliaceae and Euphorbiaceae. The

Table 6-Medicinal plants used for special food preparations

Botanical name	Local name	Family	Parts used	Preparation and Application
<i>Bambusa arundinacea</i> (Retz.)Willd.	<i>Mulamkoomb</i>	Poaceae	Tender leaves	Sliced fresh leaves after detoxification is cooked along with ground coconut, green chilly, onion and sufficient quantity of salt. Seasoned with mustard, this is called 'Thoran'(a vegetable dry preparation.
<i>Curcuma longa</i> L	<i>Manjal</i>	Zingiberaceae	Rhizome	Fresh rhizome is crushed and mixed in the porridge and taken during first menstrual cycle
<i>Oryza sativa</i> L.	<i>Ari</i>	Poaceae	Seed	Fresh rhizome is crushed and expressed juice is cooked with rice and added coconut peeling and sufficient quantity of salt, in the form of 'manjakanji', given during the time of first menstrual period.
<i>Curcuma longa</i> L.	<i>Manjal</i>	Zingiberaceae	Rhizome	Expressed juice is taken
<i>Oryza sativa</i> L.	<i>Ari</i>	Poaceae	Seed	Fresh leaves are cooked along with ground coconut, green chilli, onion and sufficient quantity of salt. Seasoned with mustard and called 'Thoran'(a vegetable dry preparation.
<i>Cocos nucifera</i> L.	<i>Thenga</i>	Arecaceae	Kernel	Ripened fruits are cooked in steam and taken
<i>Daucus carota</i> L.	<i>Carrot</i>	Apiaceae	Rhizome	Sliced and cooked along with egg and sugar
<i>Moringa oleifera</i> Lam.	<i>Muringa</i>	Moringaceae	Tender leaves	Fresh fruits and jaggery are kept in an air tight vessel layer by layer. After 41 days crushed and expressed juice is sieved and taken one tea spoon twice daily.
<i>Musa paradisiaca</i> L.	<i>Nenthra pazham</i>	Musaceae	Fruit	Cooked rice is seasoned with mustard and taken during first menstrual cycle
<i>Musa paradisiaca</i> L.	<i>Nenthra pazham</i>	Musaceae	Fruit	All ingredients are roasted, powdered and mixed with jaggery and taken during first menstrual cycle
<i>Phyllanthus emblica</i> L.	<i>Nellikka</i>	Euphorbiaceae	Fruit	Pounded raw rice is cooked along with coconut kernel and concentrated. Given during first menstrual cycle
<i>Oryza sativa</i> L.	<i>Ari</i>	Poaceae	Seeds	Roasted, powdered and taken along with jaggery
<i>Oryza sativa</i> L.	<i>Ari</i>	Poaceae	Seeds	All ingredients are roasted and pounded.
<i>Cicer arietinum</i> L.	<i>Kadala</i>	Fabaceae	Seeds	Given within 15 days after first menstrual cycle
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Padaliaceae	Seeds	
<i>Oryza sativa</i> L.	<i>Nellu</i>	Poaceae	Seed	
<i>Cocos nucifera</i> L.	<i>Thengu</i>	Arecaceae	Kernel	
<i>Vigna mungo</i> (L.) Hepper	<i>Uzhunnu</i>	Fabaceae	Seed	
<i>Vigna radiata</i> (L.) wilczek	<i>Payar</i>	Fabaceae	Seed	
<i>Vigna unguiculata</i> (L.) Walp.	<i>Muthira</i>	Poaceae	Seed	
<i>Cicer arietinum</i> L.	<i>Kadala</i>	Fabaceae	Seed	
<i>Phaseolus vulgaris</i> L.	<i>Van payar</i>	Fabaceae	Seed	
<i>Arachis hypogaea</i> L.	<i>Nelakadala</i>	Fabaceae	Seed	
<i>Oryza sativa</i> L.	<i>Aval</i>	Poaceae	Seed	
<i>Sesamum indicum</i> L.	<i>Ellu</i>	Pedaliaceae	Seed	
<i>Vigna unguiculata</i> (L.) Walp.	<i>Muthira</i>	Fabaceae	Seed	Seeds are boiled in water concentrated and taken

families Combretaceae, Caesalpiniaceae, Rutaceae, Acanthaceae, Apocyanaceae and Zingiberaceae were represented by two species each. Rest of the families are represented by one species each. The enumeration contains 15 formulations for Menorrhagia, 4 formulations for Amenorrhoea, 5 formulations for Hypomenorrhoea, 17 formulations for Oligomenorrhoea, 25 formulations for Dysmenorrhoea and 14 formulations for special food for women.

Some of the plants in the present study have been well recognized by classical Indian Systems of Medicine such as Ayurveda for treatment of various menstrual disorders. Among these, wellknown plants are *Aegle marmelos*, *Saraca asoca*, *Carica papaya*, *Emblica officinalis*, *Hibiscus rosa sinensis* etc. However, a number of new informations have been gathered during the present study regarding the ethnomedical use of plants for menstrual disorders.

Conclusion

The present study lists 67 plant species belonging to 37 families used by the traditional healers in the rural areas of Kerala for menstrual disorders. Apart from a few well known plants listed above, very little information is available in literature on the use of majority of these plants for menstrual disorders. Hence, detailed chemical and pharmacological investigations are necessary to verify the ethnomedical claims on these plants.

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