Sacred Grove Inhabiting Medicinal Plants for Traditional Postpartum Maternal and Newborn Care Practices among the Ethnic Communities of Central Kerala

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Abstract

Ethnic communities have their own unique practices, beliefs and ways of living,always maintaining a harmonious relationship with nature and thishas helped them to remain healthy. On the other hand, urban people who solely depend on synthetic medicines, fast food and other luxurious way of living, faces several health related problems. As far as the health of women is concerned, atmost, care is needed during pre-natal and post-natal period and it play a crucial role in her future healthy wellbeing. It is seen that the health problems found in majority of women are associated with negligence of post-delivery maternal health care. In the present paper, special maternal health care incorporating herbal preparations followed by the ***Malavedar*** tribal community and Pulayar caste of Kerala are enumerated. Right from the day of delivery the care given to the mother and newborn are explained here. Several unique preparations such as ***Vedhuvellam, Marunnukanji, Chethumarunnu*** are explained.

As a part of urbanization, several traditional practices are on the verge of extinction. The mode of mythical and therapeutic uses and conservation practices of these plants by the local people have been recorded from the Sacred groves central Kerala. These are locked information sites, and the secret of herbs and their medicinal uses are known only by the people residing near it.

Malavedar tribal members are seen only in the districts of south Kerala. The Pulaya caste is the dominant Dalit community in Kerala and present in all districts. At present only very few members have the knowledge of various traditional practices followed by their ancestors. As their knowledge is transferred to the successive generations by word of mouth, documentation is highly essential to prevent the extinction of these valuable practices.

Keywords: Ethnic communities, Kerala, Traditional practices, Malavedar tribe, Pulaya caste, Sacred groves.

1. INTRODUCTION

This paper is the outcome of ethnobotanical survey conducted during the period of 2017-2019 among Malavedar tribals and Pulaya caste community and their ethno medicinal practices for postpartum neo-maternal care with reference to the Sacred groves in and around central Kerala districts.

The present study was aimed to document the ethno medicinal practices for the postpartum neo-maternal care carried out by these ethnic communities and their herbal knowledge related to utilization of Sacred grove inhabiting wild flora.Various communities in India follow nature worship based on theirbeliefs to protect all floral and faunal creations of nature. Sacred groves still possesses a great heritage of diverse gene pool of many forest species having socio-religious attachment and possessing medicinal values. These are gradually shrinking in size and number due to anthropogenic activities, climatic conditions, education and literacy to the rural (Trivedi, 1997, Vartak and Gadgil, 1997).The existence of such groves based on the

hereditable socio-religious practices of local tribal groups and their effective utilization of herbal knowledge for various diseases.

Most of their medicinal treatments include the specific formulations of several micro climatic species. So those such species are commonly present in the nearby Sacred groves. Sahu et al. (2013) studied the sacred plants and their ethno botanical importance in Central India. They enumerated a total of thirteen sacred groves and medicinal importance of thirteen genera and thirteen families.

Reproductive tract infections (RTIs) are considered as aserious health problem of women. These infections can cause maternal morbidity and mortality and resulting in the loss of healthy life among women of reproductive age in developing countries. RTIs include endogenous infections and sexually transmitted infections. Along with this, RTIs can have severe consequences like, infertility, ectopic pregnancy, cervical cancer, menstrual disturbances, pregnancy loss, chronic pelvic pain, miscarriage, low birth weight babies (Muula and Geubbels, 2006, Rabiu et al. 2010). Pathogenic organisms that are responsible for RTI's are *Gardnerella vaginalis*, *Mobiluncus sps.*, *Mycoplasma sps.*, *Escherichia coli*, *Staphylococcus aureus*, *Streptococcus pyogens*, *Chlamydia trachomatis*, *Bacteroides*, *Neisseria gonorrhoeae*, *Klebsiella pneumoniae*, *Treponema pallidum*, *Mycoplasma hominis*, *Actinomyces israelii*, *Pseudomona sps.* Besides bacteria, fungi *Candida albicans* and protozoa *Trichomonas vaginalis* are also responsible for RTI.

Present day medical therapy for RTI comprises the use of systemic or topical antibiotic, antifungal, and antiprotozoal preparations and these medications may temporarily reduce infection; they often disrupt the balance of genital bacterial flora (pathogenic and non-pathogenic) and often lead to recurrent infections.Therefore, as complementary to these medications, herbal therapy is gaining popularity in women on account of its lesser side effects and restoration of the normal vaginal flora (Neri et al. 1994).

The postpartum period refers to the first 6 weeks after childbirth. This is also a period of adjustment and healing for mothers. Most new mothers don't return to work for at least the first six weeks after delivery. This allows time to adapt and develop some healthy practices. This time gives mother to get plenty of rest, eat healthy meals and some exercise. During the postpartum period, the mothers body experiences some changes like weight gain, brest engorgement, constipation, pelvic floor changes, sweating, uterine pain and vaginal discharges. All these changes have its own traditional care among these ethnic castes. Some of the microbial infections are also seen after delivery in mothers. Postpartum care among Malavedar tribal group and Pulaya caste of Kerala state is especially continued till present day.

Post natal careis an important thing when thenewborns faces lots of primary difficulties and infections. All new born require essential care to minimize the risk of illness and maximize their growth and development.The neonatal period is the crucial period for child survival. The first 28 days of life is considered as the high risk period. This first month of life is also a foundational period for life long health and development. Among the ethnic groups of India they were practiced the newborn care very well within their limitations to acquire modern medicine. They are fully dependon the ethno botanical knowledge for such purpose.

They continue the sharing of ethnic tradition even after several generations. The primitive rites and rituals of these two ethnic groups are completely conserved within their population. Along with this ancient culture, they preserve the traditional post maternal and neonatal care practices.

This paper is perhaps the first record on the floristic composition and ethanobotanical postpartum practices on the Sacred groves of central Kerala districts. Objectives of the present study are to find the plant diversity in the study area and to know the ethanobotanical practices among these tribal populations.

2. MATERIALS AND METHODS

2.1 Study area

For this ethnobotanical study, Sacred groves inhabited Malavedar tribals and Pulaya castes were selected from Pathanamthitta, Kottayam, Idukki, Ernakulam, Thrissur and Palakkad Districts of central Kerala. (Figure 1.)

Figure 1. Kerala state map with Central Kerala districts

2.2 Data collection

Field studies on the tribal settlements in four districts were undertaken during June 2017 to December 2019. The data collection includes ethno botanical survey, plant collection and herbarium preparation. Plant collection was done by direct visit to nearby areas and Sacred groves of tribal inhabiting areas. The voucher specimens collected from Sacred groves were identified with standard floras (Gamble and Fischer, 1915–1936) and deposited in the Herbarium, St. Teresa's College (Autonomous), Ernakulam.

Most of the information were collected from the elderly people of the community, especially from the elder folk woman and herbalists. Survey was performed using semi-structured open ended questionnaires via a face to face interview. The questionnaire consisted of two parts- photographs of plants and data collection through interviews. The first session is for the assessment of socio-demographic characteristics to collect information about the respondents including their name, age, gender, educational status, occupation, etc. In the second phase of the interview, ethno medicinal information were collected through general conversation and include questions about post-partum neonatal care, myth and believes, medicinal uses of plants in post-partum care among Malavedar and Pulaya caste, part of plant used, mode of preparation and mode of application. All the information received from the respondents were recorded. Personal visits were made to homes, herbalists and indigenous health confinement ladies (*Pettukulippirukar/ Vyattatis*).

3. RESULT AND DISCUSSION

3.1 Socio-demographic characteristics

- **Malavedar:** Also known as Malaivedan, has a population of 12435, with a literacy rate 44.53%.They are found in Thiruvananthapuram, Kollam, Pathanamthitta, Kottayam, Idukki and Ernakulam districts of Kerala. Their main occupation was hunting and collection of forest products, and are economically, socially and in terms of education far away from the mainstream. Malavedar speaks Malayalam and their own tribal tongue.

- **Pulayar:** Also Known as Cherumar or Cheramar with a literacy rate 81.1%. They were the largest Dalit community and inhabited throughout in the state, with a population of 2,638008 (6.78%).

3.2 Sacred groves and its significance for conservation of ethnic knowledge

The legal status and management of sacred groves in the country need to be examined and there is an urgent need to preserve and acknowledge the efforts of the people of this area in preserving these small sacred patches of the forest as local biodiversity (Shashi Kumar, 2004). This present study revealed that two ethnic tribal groups and their traditional post-partum and neonatal care practices associated with Sacred grove dwelling medicinal plants. Most of the tribal groups in Kerala relay and utilize such small patches of evergreen Sacred groves and it's floral diversity for their local herbal therapies. These untouched virgin forests protect many of the valuable medicinal plants and its wild genome. The mystic knowledge of herbal medicine for various diseases that effectively utilizes and transferred to their younger generations in every tribal groups of Kerala. Ethnic treatments are commonly through raw methods; ie, mono or poly herbal treatment with any unprocessed parts of plants is used. Sometimes decoctions are made from various ingredients, which are fermented or boiled.

3.3 Postpartum care methods of Malavedar vtribals and Pulaya caste

Women are expected to rest at home to recuperate from the rigors of giving birth. All the ethnic groups in Kerala believe in the importance of observing the do's and don'ts of confinement for a woman's long term health benefits. There are different treatment systems among Malavedar tribal community and Pulaya caste. Here we discussed about such practices. Both the Malavedar's and Pulaya's complete confinement period is 90 day. It is also called the abstinence period.

During the first 14 days after child birth is the important days to rejuvenate the mother's body through various ethnic treatments. This period is called "*pettukulikalam"*. Traditional nourishing herbal based bath, diet and belly binding practices are the part of this postpartum care period. An elder expert female leads the postpartum care practices in both communities. Some of the important health care practices include:

- **Vedhuvellam (Herbal bath)**

For the postpartum care, they prepare homemade herbal mixes for bath. Turmeric (Curcuma longa) paste is applied on whole body before bath. Herbal bath using boiled herbal leaves, colloquially called among the tribals as ***Vedhuvellam.***

The process of herbal bath (Vedhuvellam) have 2 steps. For the first 3 days, the bark of the tree Karayam (*Lannea coromandelica* Houtt. Merrill.) is wrapped in Kamukinpala (*Areca catechu* L.- flower spathe) and is crushed and boiled in a mud pot and this red colored water is used for bathing. There are several studies that clinically proven the antimicrobial properties of *L. coromandelica.* Protective effect of *L. coromandelica* against three common pathogens such as *Streptococcus pyogens*, *Staphylococcus aureus*, and *Candida albicans* which cause female reproductive tract infection is reported by Jain et al. (2013). Along with this, some of its traditional uses have been investigated including wound healing and antimicrobial activity by Sathish et al. (2010) and Basuri et al. (2011). Hypotensive activity of bark extract (Singh and Singh, 1996) and Zoosporicidal activity (Islam et al. 2002) are also reported. So this traditional method is able to prevent the vaginal microbial infections immediately after delivery.

After this 3 day treatment, upcoming 7 days the mother should bath in the hard decoction made up of leaves of Mayilellu *(Vitex altissima* L. f.). Antibacterial efficiency of different extracts of *V. altissima* provides a scientific basis and validates the traditional use (Sathish et al. 2015). Both these little hot herbal bath warmup their body and replenish their strength.

Pettukuli of Pulaya caste is comparatively similar to Malavedar tribes, because both have the use of *Vedhuvellam*. But some of the contents for making herbal bath water are different in Pulaya caste. The first three days water is boiled with fully ripened crushed petiole of coconut palm and bark of *L. coromandelica*. Sometimes this practice may continue up to seven days. Two times per day is enough.This will help to heal the wounds after delivery. Furthermore, various part of plant contains polyphenols and flavonoids. Polyphenols include tannins like ellagic acid and Gallic acid.In addition to that some other flavonols like physicion, leucocyanidine, and leucodelphidin have been isolated. Moreover, Lannea is used as a cordial to women during lactation. Rai and Lalramnghinglova (2010) reported that Mizoram in India the tree bark is used as an Astringent, in ulcers, sore, leaf is used in swellings, sprains and body pain. Saravanan et al. (2010) also documented for its potential as anti-inflammatory effect.

From the fourth or eighth day, herbal bath of leaves of 9 plants such as *Vitex altissima, Calycopteris floribunda, Clerodendron paniculatum, Piper nigrum, Naraveliya zeylanica, Artocarpus heterophyllus, Mangifera indica, Glycosmis pentaphylla, Ricinus communis* and ripened petiole of *Cocos nucifera.* The boiled hot leaves are used for body heating.The crushed mature stem of *Acasia caesia* is used for body massage.

- **Oil massage**

Oil massage with *Dhanwantharam Kuzhampu* (made of 49 ingredients), commonly called "*Thechukuli". Kuzhampu* is an Ayurvedic massaging oil for curing stretch marks and backache for new mothers after delivary. It have several medicinal properties including anti-rheumatic and anti-inflammatory. This will help to strengthen the tissues.

- **Stomach binding practices**

For the contraction of uterus and flattening of stomach a thick cotton cloth is used to bind the stomach tightly around the body.

- **Marunnukanji**

Along with the stomach binding, drinking of ***Marunnukanji*** carried out for the mother's wellbeing. It is also consumed immediately after delivery, because it helps to prevent the gastrouble problems. The kanji is madeup of ingredients such as Kudampuli (*Garcinia gummi-gutta*),Garlic (*Allium sativu*m), Pepper(*Piper nigrum*), dried red chilli (*Capsicum annum*) and broken rice (*Oryza sativa*).

The *Marunnukanji* of Pulaya caste is entirely different with Malavedars. Rice gruel is mixed with Nilappana (Curculigo orchioides), Muyalcheviyan (*Emilia sonchifolia*), Thruthaval (*Euphorbia hirta*), Kudakan (*Centella asiatica*). It isa complete herbal medicine for wound healing, inflammations and gastrouble problems and will help increase the appetite.

- **Kashayam (Herbal decoctions)**

Malavedar tribal community practiced ancient methods of postpartum care, that include a herbal *Kashyam* for uterus contraction and gastrouble problems. The main contents of this poly-herbal mix are fine sieved powder of Ellarakkari (a smoked charcol dust obtained from the traditional kitchen wall), Ayamodakom (*Trachyspermum roxburghianum*), Kurumulaku (*Piper nigrum*) and Pattacharayam (Aarrack - Fermented homemade distilled drinking solution obtained from *Caryotaurens*). All the ingredients are mixed well, consumed early morning in empty stomach.

Another type *Kashyam* used for curing the back pain after delivery is prepared from the bark of the tree *Vitex altissima.* Itis crushedand boiled in water and after cooling this crude extract is consumed 2 ounces per day along with boiled broken rice soup. It is called ***Vettumarummu*** in tribal language.

- **Other treatments**

Among the Malavedar tribals, they have unique treatment for urinary tract infections. Tender coconut (Karikku – *Cocos nucifera*) water is mixed with arrowroot powder (Koovappodi- *Curcuma neilgherrensis*) and is drink twice a day, that able to reduce the microbial infections and burning sensation during urination. Also they can use the fresh toddy/palm wine of *Caryotaurens.*

3.4 Postnatal care methods of Malavedar tribals and Pulaya caste

Indian postnatal care is based on ancient Ayurveda methods, and the postnatal care of tribal groups on the ancient herbal knowledge of their surrounding flora. Some of the studies revealed that the mothers have followed oil massage for the baby before bath and provided home remedies for the baby. The mothers were applying ashes, soot, powder, or dry cow dung and they exposed their babies to the sunlight when the baby's skin turns yellowish and are applied 'Kajal' on baby's face to prevent bad eye. There is a strong relationship between the demographic variables (caste, religion) and cultural practices and beliefs on newborn care among mothers (Reshma and Sujatha, 2018). A case study was conducted on "new born care practices" among tribal women's of Bhil Tribal population of Gujarat resulted less prevalent practice of

essential newborn care among all cases irrespective of place of delivery and the health care personnel facilitating delivery. Habitual traditional or tribal newborn care methods challenge the practice of prescribed essential newborn care (Shah and Dwivedi, 2013). "Newborn care practices and home-based post-natal newborn care program" at Mewat Haryana by Sinha et al.(2014) explained the Knowledge-practice gaps existed among mothers and poor utilization of reproductive, child health services decreased opportunities for safe practices.

There are ample evidences suggesting a definite link of traditional health care practices with the science of Ayurveda. The feud between tradition and modernity has now become a global scenario.There is an attempt to enlist and throw some light on some traditional health care practices of new born care in Kerala with due emphasis on utility, futility and possible hazards. The study focuses on the scientific facts and rational reasons to promote the beneficial practices eliminating the potential risks associated, if any (Smitha, 2017).

- **Herbal baths**

Unique poly-herbal mix prepared by leaves of six plants are crushed in to the water and heated under sunlight.The leaves of *Coleus aromaticus, glycosmis pentaphylla, Anisomeles indica, Vernonia cinera, Emilia sonchifolia* and *Canthium angustifolium* are used. This light warm water is poured on the head and other body parts of newborns. They believe this practice help to improve the immune power and prevent cold and cough also. In case of Pulaya caste, similar practices are present. The water is warm in the sunlight along with leaves of *Anisomeles indica* and *Plectranthes amboinicus.*

- **Postnatal massage**

The oil massage improves blood circulation and helps baby sleep better. It is best to use homemade coconut oil and refined castor oil on the body parts and head respectively. Also they believe massaging helps to the development of higher nasal bridge.

- **Other treatments**

For the *Karappan* disese (Eczema) of babies up to 1 year old, *Kodinjali* (Tender stem and leaves of *Piper nigrum*) tender leaves and stems boiled in water and this decoction is used for cleaning the crashed skin and bathing of babies also. For the treatment of another skin diseases like wart of babies, whole plant decoction of *Elephantopus scaber* (Anachuvadi) and root of *Desmodium gangeticum* are relevant for bath.

The study of the role of prevalent cultural beliefs and practices, which are influencing home-based newborn care in Hariyana State in India, resulted that traditional knowledge and practices must be considered before developing the scientific neonatal health care intervention strategies. Evaluation of neonatal care practices in a tribal community of Odisha, India in a cultural perspective" resulting prenatal and antenatal practices by qualitative inquiries of 55 mothers who had babies aged <60 days and from 11 traditional birth. Reasons for home deliveries were cited as easy availability of traditional birth attendants and their family preferences. Application of indigenously madesubstances on umbilical stump and skin of the baby,bathing baby immediately after birth, late initiation of breast-feeding and 'Budu practices' were common among them (Pati et al. 2014).Cultural issues, decision of family members and traditional beliefs still play a crucial role in shapingneonatal care practice in tribal communities. Awareness on child care, ethnographic understanding of health seeking behavior of tribal community and mobilization of community by health workers can be useful in improving health status of mothers and new born babies in tribal population.

Table 1: List of Medicinal plants used for Postpartum & Neonatal care among Malavedar tribals and Pulaya community.

Sl. No	Botanical Name	Common Name	Family	Parts used
1.	*Acacia caesia* (L.) Willd.	Incha	Fabaceae	Stem
2.	*Allium sativum* L.	Veluthulli	Amaryllidaceae	Rhizome
3.	*Areca catechu* L.	Kamuku	Arecaceae	Flower spathe
4.	*Artocarpus heterophyllus* Lam.	Plavu	Moraceae	Mature leaves
5.	*Calycopteris floribunda* Lam.	Pullanthi	Combretaceae	Tender leaves

6.	*Canthium angustifolium* Roxb.	Kattukara	Rubiaceae	Tender leaves
7.	*Capsicum annum* L.	Vatalmulaku	Solanaceae	Dried fruit
8.	*Caryota urens* L.	Kalippana	Arecaceae	Fresh sap from inflorescence
9.	*Centella asiatica* L.	Kudakan	Apiaceae	Whole plant
10.	*Clerodendrum infortunatum* L.	Perikilom/Oruveran	Verbenaceae	Mature leaves
11.	*Cocos nucifera* L.	Thengu	Arecaceae	Tender fruit, ripened petiole
12.	*Curculigo orchioides* Gaertn.	Nilappana	Hypoxidaceae	Rhizome
13.	*Curcuma longa* L.	Manjal	Zingiberaceae	Fresh rhizome
14.	*Curcuma neilgherrensis* Wight	Koova	Zingiberaceae	Dried rhizome powder
15.	*Desmodium gangeticum* (L.) DC.	Orila	Fabaceae	Root
16.	*Elephantopus scaber* L.	Anachuvadi	Asteraceae	Whole plant
17.	*Emilia sonchifolia* (L.) DC. in Wight	Muyalcheviyan	Asteraceae	Whole plant
18.	*Euphorbia hirta* L.	Nilappala	Euphorbiaceae	Whole plant
19.	*Garcinia gummi-gutta* L.	Kodampuli	Clusiaceae	Dried fruit
20.	*Glycosmis pentaphylla* (Retz.) DC.	Panal	Rutaceae	Tender leaves
21.	*Lannea coromandelica* Houtt. Merrill.	Karayam/Kalayam	Anacardiaceae	Bark and leaves
22.	*Mangifera indica* L.	Mavu	Anacardiaceae	Mature leaves
23.	*Naraveliya zeylanica* (L.) DC.	Vathakodi	Rananculaceae	Mature leaves
24.	*Oryza sativa* L.	Nellu	Poaceae	Dried fruit
25.	*Piper nigrum* L.	Kurumulaku	Piperaceae	Dried fruit, tender stem and leaves
26.	*Plectranthus amboinicus* (Lour.) Spreng.	Panikoorkka	Lamiaceae	Leaves
27.	*Pogostemon purpurascens* Dalz. in Hook.'s	Poothachedayan	Lamiaceae	Leaves and flower buds
28.	*Ricinus communis*L.	Avanakku	Euphorbiaceae	Seed oil
29.	*Trachyspermum roxburghianum* (DC.) Craib	Ayamodakom	Apiaceae	Herb
30.	*Vernonia cinerea* (L.) Less.	Poovamkurunthal	Asteraceae	Whole plant
31.	*Vitex altissima* L. f	Mayilellu	Verbenaceae	Leaves, stem and bark

4. CONCLUSION

The lack of proper postpartum care to mothers and neonatal care to babies may lead to several problems like anemia, hemorrhage, etc. For the postpartum care, they prepare some homemade herbal mixes for meals and bath. The new mothers are fed wholesome food and herbal tonics to warm their body and replenish their strength. Herbal therapies help to improve the immune system. It provide an extra energy to mothers and new born to overcome their deficiencies through various treatments like Vedhuvellam, Marunukanji, Chethumarunnu and Thechukuli. Bark extracts of *Lannea coromandelica* and *Vitex altissima* have immense potential as antimicrobial and antifungal compounds against microorganisms and they can be used in the treatment of female RTI caused by microorganisms. So the indigenous people utilize the plant very early.The plant requires a huge research yet to be done in support to the traditional claims.

A total of 31 plant species belonging to 20 families were recorded and most of the species are Sacred grove inhabiting plants. This sanctum provides wide range of adaptations and the existence for the rare species also. It is a sustainable resource for local tribal communities to full fill their medicinal needs.Majority of plant species are used for anti-inflammatory, microbial activity, wound healing, astringent, used against gastro-intestinal diseases, stress, neural diseases, skin diseases and hair growth.

Hopefully this work may help the future researchers to adopt the methods of tracking indigenous knowledge of Sacred groves and its preservation. Different postpartum practices of Malavedar and Pulaya community should be unique among Indian maternal and newborn care treatments. Application of locally available natural medicines results their healthy regeneration and transfer of ethnic culture to coming hereditary groups.

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