

Herbal Medicines Used by Traditional Healers in Karambai Village, Tirunelveli District, Tamil Nadu, India

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Abstract

Original Research Article

In our current research, we documented the herbal medicines utilized by traditional healers in Karambai Village, Tirunelveli District, Tamil Nadu, India. Adhering to the ethical guidelines of the International Society of Ethnobotany, we conducted interviews with 20 informants, consisting of 7 men and 13 women aged between 45 and 75. Our study revealed that the traditional healers in Karambai Village used a total of 32 medicinal plants to address various illnesses within the community. It was observed that a variety of plant parts were utilized by the traditional healers. The incorporation of plant materials in traditional medicine has the potential to significantly benefit general healthcare. Moreover, these medicinal plants are perceived as safe and cost-effective, making them viable for integration into primary healthcare in comparison to modern drugs.

Keywords: Herbal medicines; Karambai village; Thoothukudi district; Traditional healers.

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INTRODUCTION

The use of herbal medicine is widespread in both allopathic and traditional systems of medicine around the world. Even those who rely solely on allopathic medicine are likely to use plant-derived drugs, as they account for 20-25% of prescribed medications (Rates, 2001). Over 60% of clinical drugs contain natural compounds or their derivatives. Additionally, more than 120 chemical products/moieties from herbal sources are being used as lifesaving drugs (Yuan *et al.*, 2016). In some Asian and African countries, 80% of the population depends on traditional herbal medicines for primary healthcare. In many developed countries, 70-80% of the population uses complementary or alternative medicines (CAMs), primarily herbal products (Parveen *et al.*, 2020).

Herbal medicines are comprised of natural ingredients such as leaves, flowers, fruits, seeds, stems, wood, bark, roots, and other plant parts. They may also include herbal preparations and finished products that contain plants or plant materials as their primary components, along with active ingredients (WHO, 2019). Knowledge of plant bioactivity has been accumulated through centuries of experimentation by people living in close association with their environment.

Therefore, ethno-directed research is highly valuable in drug discovery and development (Heinrich and Gibbons, 2001).

Based on the aforementioned information, our current research involves the documentation of herbal remedies employed by traditional healers in the Karambai village, Mathavaikuriji (Taluk), and Tirunelveli (District). Our data was gathered from experienced traditional healers in this village who prescribe these remedies for various ailments. However, much of this valuable herbal knowledge is at risk of being lost due to rapid industrialisation and modernisation. As a result, it is imperative to record the medicinal properties of these plants for thorough scientific evaluation before this knowledge is lost forever.

METHODOLOGY

Karambai village is located at 8.8343° N, 77.6504° E in the Mathavaikuriji Panchayat, Tirunelveli District. Field trips were conducted from December 2022 to April 2023. The healers in the village, who had practical knowledge of medicinal plants, were interviewed after obtaining verbal prior informed consent from the participants.

MATERIALS AND METHODS

A total of 20 informants, 7 men and 13 women between the ages of 45 and 75 were chosen based on their knowledge of medicinal plants, which they might use for self-treatment or to help others. Structured interviews were conducted in the participants' local language (Tamil) since most were not formally educated. Prior informed agreement was obtained from each participant before conducting an interview, and ethical guidelines from the International Society of Ethnobotany (2006) were followed.

Using Participatory Rural Appraisal (PRA) techniques, we gathered data on the use of medicinal plants, including the species and parts used, their uses, and how they are prepared (Chambers, 1994). We also collected the local names of the plant species and information on their taxonomic position (family). To authenticate the plant specimens used in herbal recipes, we collected them with the help of respondents and verified them using their local names and standard texts (Gamble and Fischer, 1956; Matthew, 1982; 1983; 1988; Nair and Henry, 1983; Henry *et al.*, 1987; 1989; Sanjappa, 1992).

We collected voucher specimens, processed them, and deposited them at the V.O. Chidambaram College Herbarium in Thoothukudi. We verified the scientific names using the International Plant Names Index (IPNI) database (<http://www.ipni.org>), the Indian Biodiversity Portal (Vattakaven *et al.*, 2016), Plants of the World Online (<http://www.plantsoftheworldonline.org/>), The Plant Lists (<http://www.theplantlist.org/>) and the GRIN Taxonomy site (<http://www.ars-grin.gov/cgi-bin/npgs/html/queries.pl>). The family names were verified using the A.P.G. system IV (APG IV, 2016).

RESULTS

1. Botanical Name: *Abrus precatorius* L.
Local name: Kundu Mani
Family: Fabaceae

The villagers use a decoction made from fresh roots and leaves to treat skin allergies and wounds. Additionally, the root decoction is ingested three times to induce abortion.

2. Botanical name: *Acalypha indica* L.
Local name: Kuppaimeni
Family: Euphorbiaceae

Fresh leaves are ground with salt to make a paste which is then applied externally to the affected area to cure scabies. A suppository made from fresh leaves can be inserted into the rectum of small children suffering from constipation to help induce bowel movement. Additionally, juice prepared from fresh leaves can be applied to caterpillar-infested sores and wounds. The juice obtained from fresh leaves can also be

mixed with lime and onion and applied to alleviate rheumatic arthritis. Furthermore, the juice of the leaves blended with a hint of garlic can be used to eliminate intestinal worms. The leaves, roots, and tender shoots of this plant can be boiled in water to make a decoction which is given to increase the secretion of milk.

3. Botanical name: *Acorus calamus* L.
Local name: Vasambu
Family: Acoraceae

A tiny thread can be inserted through a small opening in the dried rhizome and worn as a necklace to prevent giddiness. The paste made from the rhizome can be used externally to treat skin eruptions and rheumatic pains. Chewing the root can help relieve toothache and remove the taste of tobacco. A decoction made from the root can be taken orally to treat digestive problems and sinusitis.

4. Botanical name: *Justicia adhatoda* L.
Local name: Adatodai
Family: Acanthaceae

Mature leaves can be used as a remedy for various ailments. They are traditionally sun-dried and smoked in a pipe to alleviate asthma. Additionally, the leaves are heated on fire and applied to relieve headaches, rheumatism, and body pain. A paste made with leaves can be applied to treat fractures and sprains. Furthermore, a decoction made from the leaves and roots is used to treat bronchitis, chronic coughs, and breathlessness.

5. Botanical name: *Allium cepa* L.
Local name: Vengayam
Family: Amaryllidaceae

The onion bulb is cut into two pieces and coated with a layer of lime. After 2-3 days, it is given to patients suffering from blood dysentery. In the treatment of colds and coughs, three to four teaspoons of onion juice and honey, mixed in equal proportion, are taken daily. For relief from bleeding piles, about 30 grams of onions are ground with water and 60 grams of sugar is added and taken twice daily. Heated onion juice dropped in the ear relieves earache.

6. Botanical name: *Allium sativum* L.
Local name: Vellaipoondu
Family: Amaryllidaceae

To treat gastric problems, cough, and ulcers, ten grams of fresh bulbs are boiled with cow's milk and made into a paste. The paste is taken orally. To relieve abdominal pain, a paste made from 10g of fresh bulbs and palm candy is consumed. To alleviate sprains, a paste made from 5g of fresh bulbs is externally applied along with salt. Additionally, to prevent asthma, three cloves of garlic boiled in milk are used every night.

7. Botanical name: *Aloe vera* (L.) Burm.f.
Local name: Kathalai
Family: Xanthorrhoeaceae

The pulp of this plant can be taken orally once a day for three to four days to reduce body heat. Additionally, the pulp of the plant's leaf can be taken once a day for about ten days to cure kidney stones. For the treatment of jaundice, the pulp of the leaf is administered with black salt and ginger every morning for ten days. To treat colds and coughs, the juice of the roasted leaf can be taken with honey. The fresh leaves of this plant are used by the people in this village to reduce hair dandruff. The leaf juice can also be taken orally by the villagers to relieve indigestion problems.

8. Botanical name: *Azadirachta indica* A. Juss.
Local name: Vembu
Family: Meliaceae

Fresh neem leaves and bark, dried ginger, garlic, pepper, thippili, betel leaf, kayam, and omam are boiled in water. The filtrate can be used to relieve symptoms of headache, fever, and insect bites. To relieve gastric disorders, mix powder made from shade-dried flowers with hot water and allow it to settle for half an hour. Then take the filtrate orally. For treating worms, soak 25 to 50 grams of the flower in buttermilk, sun-dry the flowers, and powder them. Take this powder twice a day. To reduce pitham, take fresh flowers with pepper and cumin seeds twice a day for a week. Finally, powder the seeds and mix them with honey to take twice a day to treat piles.

9. Botanical name: *Basella alba* L.
Local name: Pasalaikeerai
Family: Basellaceae

The paste made from the tuber can be applied externally on the stomach for three to four days to relieve colic disorders. To cool down the body, the village people take fresh leaves or juice (25-30 grams) twice a day for five to seven days. For a laxative effect, children can be given a single dose of the filtered extract of five grams of fresh stem soaked in ten to fifteen milliliters of water for five or six hours. The roots of this plant can be cooked and used to treat diarrhoea. The flowers are used as an antidote to poisons and a paste made from the root can be applied to swellings.

10. Botanical name: *Carica papaya* L.
Local name: Pappali
Family: Caricaceae

The fruit is used to induce abortion, the latex for skin diseases, and the seeds as a vermifuge.

11. Botanical name: *Citrus limon* (L.) Burm. f.
Local name: Elumichai
Family: Rutaceae

Before bathing, villagers crush fruit on their heads to cool down.

12. Botanical name: *Cynodon dactylon* (L.) Pers.
Local name: Arugam Pillu
Family: Poaceae

To make a remedy for bleeding piles, take two teaspoons of fresh leaves and crush them. Add the crushed leaves to a cup of cow's milk and boil. Filter the mixture and consume it once daily. The herb's juice is used to treat urinary tract infections, dysentery, and diabetes. Fresh grass juice is applied to cuts and wounds. The herb is also used in combination with turmeric to treat skin diseases such as scabies.

13. Botanical name: *Eclipta prostrata* (L.) L.
Local name: Karisilanganni
Family: Asteraceae

The juice of the whole plant, when combined with turmeric, is used to treat jaundice. Additionally, a mixture of leaf juice and honey is commonly used to treat catarrh in infants. Another preparation made from boiling the leaf juice with sesame or coconut oil is used to anoint the head, making the hair black and healthy. The plant can also be rubbed on the gums to alleviate toothache, and when a little oil is mixed with the plant, it can be applied to relieve headaches.

14. Botanical name: *Phyllanthus emblica* L.
Local name: Nelli
Family: Phyllanthaceae

Fruits can be mashed and strained, and the resulting juice can be used as an eye drop to alleviate eye problems. Villagers consume Emblica fruits to encourage urination. Additionally, a decoction made from the leaves, bark, or fruit can be used to treat inflammation and diabetes.

15. Botanical name: *Ferula assa-foetida* L.
Local name: Perungayam
Family: Apiaceae

A dose of half a teaspoon of this powder can help relieve spasms, indigestion, flatulent colic, cholera, whooping cough, and constipation. It is also a common ingredient in many vegetarian and pulp dishes, adding both flavour and aroma while reducing flatulence.

16. Botanical name: *Ficus benghalensis* L.
Local name: Aalamaram
Family: Moraceae

The tender tips of roots, when mixed with ginger, are made into a paste and used as a poultice to heal bone fractures. A decoction made from the roots is used to treat leucorrhoea, while the underground roots

are cut into 10cm lengths, dried, and smoked regularly to relieve pain.

17. Botanical name: *Melia azedarach* L.

Local name: Malaivembu

Family: Meliaceae

The juice extracted from the plant leaves can be used to expel parasitic worms from the body. On the other hand, the oil extracted from the plant's seed can be used as a disinfectant for skin sores, ulcers, rheumatism, and other skin conditions. To treat bleeding piles, people in this village take 5ml of the leaf extract orally three times a day.

18. Botanical name: *Moringa oleifera* Lam.

Local name: Moringa

Family: Moringaceae

The young tree's fresh root is used as a rubefacient (for redness of skin) and vesicant (for tissue blistering). The freshly extracted juice of the root is used to relieve otalgia (ear pain) by pouring it into the ears, and also into the hollow of the tooth in case of dental caries. A paste made from the leaves is applied externally to wounds. To treat jaundice, a paste is made from 15 to 25 grams of fresh leaves, two grams of black pepper, and five grams of garlic bulbs. This paste is taken in the early morning on an empty stomach once a day for three to four days. The leaf decoction (50ml) is used for cough and cold. The fruit can be eaten as a vegetable to alleviate cough, cold, and fever.

19. Botanical name: *Nigella sativa* L.

Local name: Karuncheragam

Family: Ranunculaceae

The seeds of this plant have multiple medicinal uses. They are used for treating bronchitis and rheumatism, increasing milk production in nursing mothers, and aiding digestion. Ground seeds are also used to cure fever, and a mixture of ground seeds and sesame oil is applied to treat skin eruptions.

20. Botanical name: *Ocimum tenuiflorum* L.

Local name: Nalla Thulasi

Family: Lamiaceae

Thulasi extracts are commonly used for treating colds, stomach disorders, and inflammations. To relieve headaches, a paste made from five to ten grams of fresh leaves, along with a small quantity of dry ginger, is applied externally on the forehead. The juice extracted from the leaves is used to treat heart diseases, while a paste made from the leaves can be applied to the eyes to treat boils. Additionally, thulasi leaves can be used as an insect repellent.

21. Botanical name: *Phyllanthus amarus* Schumach. & Thonn.

Local name: Kizhaanelli

Family: Phyllanthaceae

To treat jaundice, take two grams of fresh and cleaned aerial part and make it into juice with 25ml of water. Filter the juice and take it orally twice a day for about seven to ten days, either by itself or with 100ml of cow's milk. For diabetes treatment, prepare a paste from 10g of fresh entire plant and take it orally once a day.

22. Botanical name: *Piper betle* L.

Local name: Vettrilai

Family: Piperaceae

The juice extracted from the leaves is used as an eye drop to cure optic troubles. Its petiole is crushed to extract its essence, which is then given to children to cure indigestion. For ease of urination, the leaf juice is mixed with milk and sweetened before consumption. In case of cough and difficulty in breathing, the leaf is soaked in mustard oil, warmed, and then applied to the chest. It can also be used to treat rheumatism and orchitis. For boils, the leaf is gently warmed until it softens, coated with a layer of castor oil, and then spread over the affected area every 1-2 hours.

23. Botanical name: *Piper longum* L.

Local name: Tippili

Family: Piperaceae

To make a remedy for cough, bronchitis and rheumatism, grind 5 grams of tippili, 10 grams of dry ginger, 5 grams of black pepper, 2 grams of asafoetida, 3 garlic cloves, 1 betel leaf and 5 grams of ajowan in water and boil the mixture. Once the mixture cools down, strain it and consume it. This remedy can also be used for after-childbirth fevers.

24. Botanical name: *Piper nigrum* L.

Local name: Milaku

Family: Piperaceae

Dried ginger, garlic, thippili, vettrilai, vasampu, omam, kayam, and black pepper are boiled in water. The filtered juice is then used to treat headaches, fever, body pain, and problems related to digestion and stomach. To get relief from indigestion and stomach heaviness, people in the village mix pepper powder in buttermilk. The mixture of pepper powder and salt helps prevent bad breath, dental caries, toothache, bleeding, and painful gums. Applying a mixture of pepper powder and clove oil on caries prevents toothache. To alleviate cold in the head, boil 20g of powdered pepper in milk, add a pinch of turmeric, and take it once a day for three days. To treat rheumatic pain, fry a small amount of pepper powder in sesame oil and apply it.

25. Botanical name: *Punica granatum* L.

Local name: Madulai

Family: Lythraceae

The fruit peel is dried, powdered, and mixed with boiled milk to cure diarrhoea and dysentery, taken twice daily in the morning and evening.

26. Botanical name: *Ricinus communis* L.

Local name: Amanakku

Family: Euphorbiaceae

One teaspoon of oil extracted from plant seeds is used as a vermifuge and purgative. The oil can also be used as a coolant in case of sunstroke. Additionally, a paste made from the leaves is used to massage individuals suffering from rheumatism and body swelling.

27. Botanical name: *Solanum virginianum* L.

Local name: Kantankattari

Family: Solanaceae

Cooked fruits can be used to alleviate dry cough. The powder made from the fruit can be mixed with honey and taken orally twice a day to relieve coughing.

28. Botanical name: *Solanum trilobatum* L.

Local name: Tuduvalai

Family: Solanaceae

To relieve ear pain, a few drops of fresh juice extracted from the leaves can be applied to the affected ear. For relief from cough, mix the shade-dried powder of the plant with pepper and honey, and consume it three times a day for two days.

29. Botanical name: *Syzygium aromaticum* (L.) Merr. & Perry

Local name: Kirambu

Family: Myrtaceae

During toothache, a piece of clove can be placed on the affected tooth to alleviate pain.

30. Botanical name: *Trachyspermum ammi* (L.) Sprague ex Turrill

Local name: Omum

Family: Apiaceae

The villagers prepare a medicinal mixture by grinding 5 grams of omum, 10 grams of dry ginger, 5 grams of black pepper, 2 grams of asafoetida, 3 garlic fingers, one betel, and 5 grams of thippili in water and boiling the mixture. Once it cools down, the mixture can be consumed to alleviate cough, bronchitis, indigestion, and rheumatism. It is also known to be effective for postpartum recovery.

31. Botanical name: *Trigonella foenum-graecum* L.

Local name: Venthayam

Family: Fabaceae

The villagers have a recipe for a healthy drink that is made by taking 5 grams of venthayam seeds, 50 grams of raw rice, and 25 grams of boiled rice. These ingredients are soaked together in water for 3 hours, then ground with 100 millilitres of water and boiled. While boiling, 25 grams of palm sugar is added to the mixture. Once the mixture has cooled down, it can be consumed to reduce body temperature during summer and cure vitamin deficiency.

32. Botanical name: *Zingiber officinale* Roscoe

Local name: Ingi

Family: Zingiberaceae

A juice made from the rhizome mixed with lime can be taken once a day for seven days to relieve headaches and stop vomiting. Another juice made from 50g of rhizome can be taken every morning and evening for seven days to lower blood pressure.

DISCUSSION

In our current research, we documented the usage of 32 medicinal plants in Karambai village, Mathavaikuriji (Panchayat), Tirunelveli District. Similarly, Arinathan *et al.*, (2006) recorded 40 medicinal plants used by the people in Kulathur, Thoothukudi district, Tamil Nadu. In our study, the Euphorbiaceae family presented the highest number (4) of plants. Thirupathy *et al.*, (2013) and Rajalakshmi *et al.*, (2019) also found that Euphorbiaceae had the highest number of medicinal plants in their studies.

The medicinal preparation of various plant parts including bark, flowers, rhizomes, roots, leaves, seeds, gum, and whole plants has been used to treat a range of diseases. In this study, we provide a brief overview of the uses of these plant parts in treating ailments such as scabies, cough, constipation, skin diseases, wounds, rheumatic arthritis, intestinal worms, giddiness, skin eruptions, abortion, toothache, blood dysentery, cold, piles, earache, gastric problems, ulcers, abdominal pain, inflamed wounds, kidney stones, jaundice, pitham, blood sugar, flatulence, cholera, bone fraction, leucorrhoea, anthelmintic, dysentery, and for purgative purposes.

CONCLUSION

The research revealed that despite the presence of Western medicine for various ailments, residents of Karambai village, Mathavaikuriji (Panchayat), Tirunelveli District, continue to use traditional medicinal plants to treat conditions such as colds, coughs, fevers, headaches, poison bites, skin diseases, and tooth infections. Skilled practitioners have established positive relationships with patients, resulting in improved healthcare provision. It is crucial to document and preserve this traditional healthcare system.

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Author(s) Contribution

MP documented the ethnobotanical data from the study area. PS compiled the data. VV wrote the manuscript.

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