



Ethnomedicinal Information of Selected Members of *Vitaceae* with Special Reference to Kerala State

Rani Joseph^{1*} and Scaria K. Varghese¹

¹*Department of Botany, St. Berchmans College, Changanassery, Kottayam, Kerala, 686101, India.*

Authors' contributions

This work was carried out in collaboration between both authors. Author RJ designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author SKV managed the analyses of the study and the literature searches. Both authors read and approved the final manuscript.

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ABSTRACT

An ethnobotanical exploration of selected *Vitaceae* members of Kerala state was conducted from September 2014 to December 2018. During the ethnobotanical surveys, personal interviews were conducted with herbal medicine practitioners, traditional healers, elder tribal people and village dwellers. Field studies were conducted at regular intervals in various seasons in different regions of Kerala. Some of the genus belonging *Vitaceae* have ethnomedicinal significance stated by herbal medicine practitioners and elder tribal persons. It is an urgent need for documenting these peculiar plant species before such valuable knowledge becomes inaccessible and extinct.

Keywords: *Ethnomedicine; Kerala; traditional healers; Vitaceae.*

1. INTRODUCTION

India is rich in medicinal plants covering an extensive area with varying environmental

conditions. It has been estimated that out of 15000 higher plants occurring in India, of which 7500 are medicinally important. There are about 2500 plant species that have documented

*Corresponding author: E-mail: ranijose8@gmail.com;



Fig. 1. Study area-Kerala

medicinal value, most of which grow in wild conditions, whereas only a few are cultivated [1]. The traditional use of medicinal plants has been an ancient practice among human populations for a long time with traditional knowledge or information being transferred from generation to generation. Ethnomedicinal surveys are conducted to document the practice of herbal medicine among rural and ethnic communities. Such significant ethnobotanical surveys have gained interest among researchers for highlighting important plant species commonly used in various systems of healthcare. *Vitaceae* members are identified as the most important ethnobotanical species and so suggested for further evaluation to validate them scientifically and hence to use them as a source of pharmaceutical industries. Therefore, validation of medicinal plants, prescribed by the tribal communities and local healers is getting more interest among the researchers of plant-based drugs in recent years [2]. Therefore, it is urgent to explore and document this unique traditional knowledge of the tribals, before it diminishes with the knowledgeable persons. Further, documentation of indigenous and traditional

knowledge from tribal communities is most important for future clinical studies leading to sustainable utilization of natural resources and to face the challenges of biopiracy and patenting indigenous and traditional knowledge by others. Besides the best of our knowledge, no ethnobotanical work of *Vitaceae* has been carried out in this area. Keeping these things in mind present study was proposed to document ethnomedicinal knowledge of traditional healers in Kerala, India.

2. MATERIALS AND METHODS

2.1 Study Area

The ethnobotanical study mainly focused on wild plants of *Vitaceae* used by tribes in Kerala for various medicinal purposes through questionnaires and consultations with very old and knowledgeable tribals. Of the collected plants, twelve species are medicinal. The detailed investigation underlines the potential of ethnobotanical research and needs to document traditional knowledge about the use of medicinal plants for the greater benefit of mankind.

2.2 Data Collection

Field trips ranging from five days in every month of the year of the study. The interviews were conducted in the local language Malayalam. Ethnomedicinal information included with the local name of the particular plant, parts used, medicinal uses, and methods of preparation and mode of administration. The collected ethnomedicinal information was recorded on field notebooks and plants were identified by using the Flora of the Presidency of Madras [3] and Flowering Plants of Kerala [4] etc. The information was collected from the informants through semi-structured open-ended interviews with questionnaires. The medicinal plants used by village people, tribes are arranged alphabetically. The consent of the tribals was taken to share their vast knowledge about *Vitaceae* members, they use to cure various diseases and then their experience in the field of treatment, causes and symptoms of the ailments they treat, average number of patients they treat per year, parts of the plants used and other components added during the combination drug formulations were noted down. This work is mainly based on the documentation of ethnomedicinal, domestic and cultural utilization of some plants by the Kerala state. Field trips were made to villages within the study area. Information regarding the common and other uses of some plant species for various ethnomedicinal and cultural purposes was also investigated. The vernacular name of the described species was also of interest. Standard kinds of literature and floras were consulted for their correct identification. The data obtained were organized and tabulated showing botanical names, common names, vernacular or tribal names, uses and plant parts used. Ethnomedicinal information was gathered from all categories of traditional vaidyas, local healers, elder persons and the person having a thorough knowledge of traditional practices. The ethnobotanical information of *Vitaceae* gathered from one place was confirmed by different communities of village people and tribals in different ethnic groups in different places of investigation.

2.3 Plant Material

All the *Vitaceae* members collected from the field are at the reproductive stage. A field sheet was recorded with the collector's name, vernacular name, local name, and other parameters. The prepared herbarium specimens were dried,

processed, identified systematically and the names were confirmed with the help of standard flora.

2.4 Statistics

The data statistics were done by using the statistical software to evaluate the univariate as well as multivariate statistical analysis.

3. RESULTS AND DISCUSSION

The present study revealed that the tribes of Kerala were using twelve species of medicinally important plants belonging to this family were categorized into different groups. They are shrubs, climbers, etc. These plant species were documented in this study to be used by the tribal community for curing different ailments. Most medicinal plants even today are collected from the forest [5]. The continued commercial exploitation of these plants has destroyed many species in their natural habitat.

Traditional healers are using these plants to cure diseases related to stomach pain, skin diseases, snakebites, wounds, cough, and cold, diabetes, asthma and worms [6]. The plant material is employed in the form of decoctions, extracts, pastes, juice, powder and sometimes in combination with other parts of the same or different plants. During the survey, it was also learned that traditional knowledge regarding ethnomedicine is declining as there is no proper documentation. The knowledge is passed down from generation to generation only through verbal communication. The blooming of the traditional medicine industry results in increasing demand for medicinal plant products. Tribals of Kerala use *Vitaceae* members for various diseases. This work is mainly to protect our future planet and generation there is a need to document this vital information and also create awareness for the biodiversity conservation of this particular area and the proper use of this flora. The diverse pattern of different parts of medicinal plants reflected greater possession of indigenous knowledge regarding their healthcare practices by the people.

The survey revealed that tribal people used various parts of the plants as ethnomedicines. Most of the medicinal plant parts are consumed after processes like macerating, squeezing, grinding, blending, soaking or boiling and some of them are taken as raw. Some plants are applied externally to different body parts for cuts and wounds, scabies, joint pain, piles, skin

diseases and so forth. Different types of preparations were made from ethnomedicinal important plants include decoction, arishtam, powder, oil, paste, and whole plant extract. Some of the species were even used in more than one form of preparation. In this leaves and stem are the predominant plant part utilized in ethnomedicinal treatments. Most of the edible parts used as the leaf, shoot, fruit, etc. Some of the plant parts are directly consumed as fresh. We have concentrated on the major recovery of identifying the plant species having varied local names and their ethnomedicinal uses were recorded and listed (Table 1).

Tribals of Kerala used one or more medicinal plant parts for the preparation of medicine in the treatment of single or multiple ailments [7]. *Cissus quadrangularis* the most commonly used medicinal plant it was attributed to its use in the treatment of various diseases [8]. It is a plant with medicinal properties useful in helminthiasis, anorexia, dyspepsia, colic, flatulence, skin diseases, leprosy, hemorrhage, tumors, chronic ulcers, and swellings. Tribal groups of Kerala like Malayarayan, Ulladans are use roots and stem of *Cissus repanda*. During summer some of the local people suck the juice of the stem. The crushed root of this plant is applied to scorpion

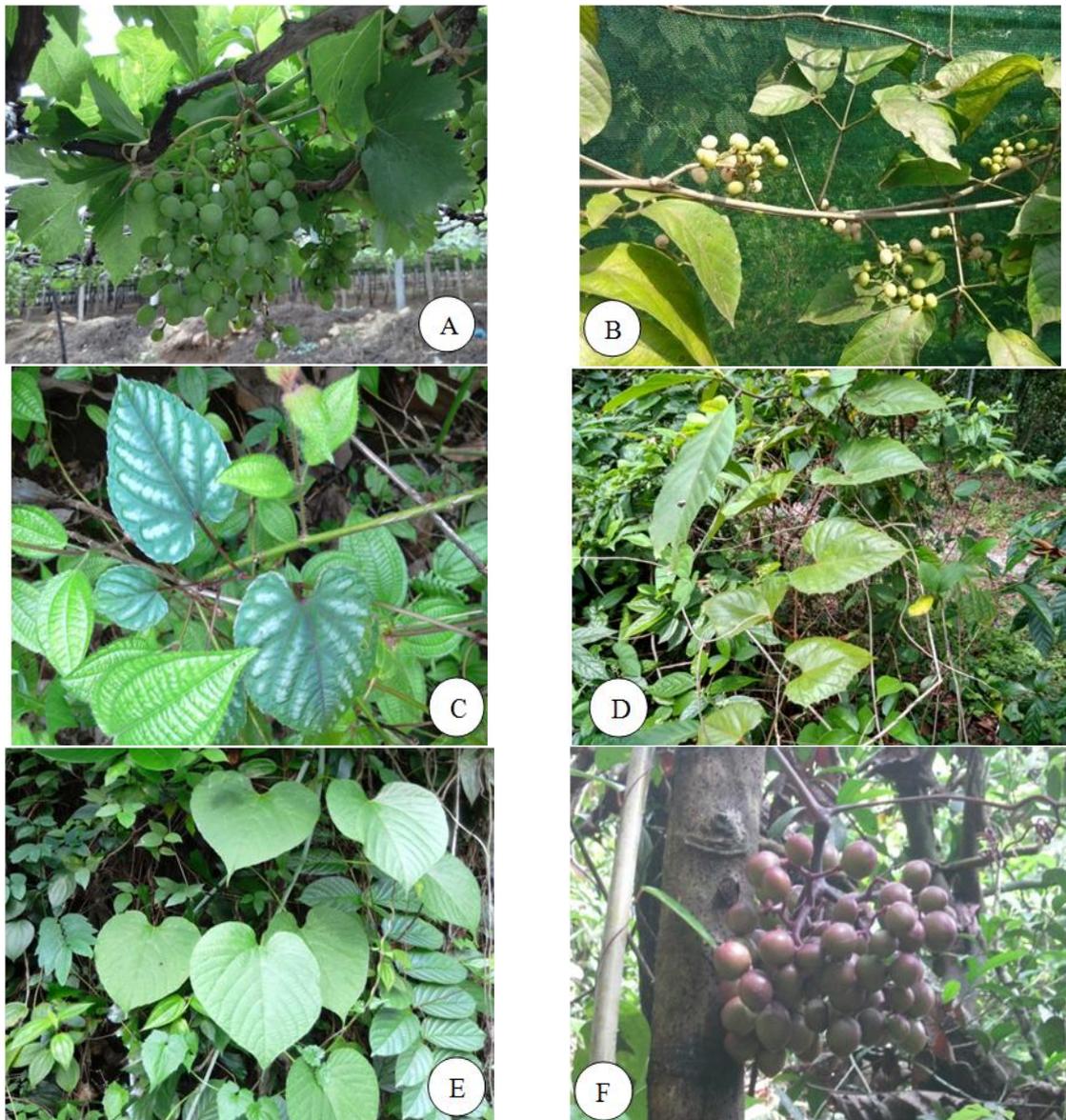


Fig. 2. (A) *Vitis vinifera*, (B) *Cayratia pedata*, (C) *Cissus discolor*, (D) *Ampelocissus indica*, (E) *Cissus latifolia* (F), *Ampelocissus latifolia*

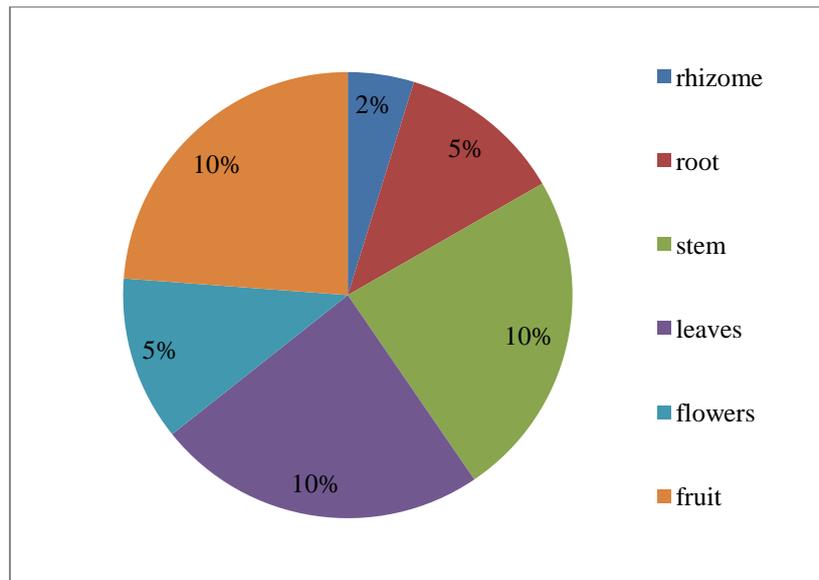


Fig. 3. Ethnomedicinal plants-useful parts

Table 1. Ethnomedicinal information

Sl. no	Botanical name	Habit	Local name	Plant parts used	Ethnomedicinal uses
1	<i>Cissus quadrangularis</i>	Climber	Changalamparanda	Stem	Rheumatism, Snake bite, Joint pain, bone fractures
2	<i>Cissus trilobata</i>	Scandent shrub	Neelachunnambuvalli	Leaves	Wounds, Cuts
3	<i>Cissus discolor</i>	Climber	Aronpuli	Leaves	Stomach troubles, itching sores
4	<i>Cissus repanda</i>	Climber	Panibel	Roots and Stem	Bone fractures, cuts, boils
5	<i>Cissus repens</i>	Climber	Njarala	Roots, Stem	Snakebite, rheumatic pain
6	<i>Tettrastigma leucostaphyllum</i>	Climber	Seenkaikodi	Leaves	Treatment of scabies, boils
7	<i>Tettrastigma sulcatum</i>	Climbing shrub	Palakavalli	Leaves	Treatment of fungal diseases
8	<i>Vitis vinifera</i>	Climber	Munthiri	Fruit	Indigestion, Immunity modulator
9	<i>Ampelocissus latifolia</i>	Climber	Valiyapirappitikka	Rhizome	Kidney, heart diseases, diabetes
10	<i>Ampelocissus indica</i>	Climber	Chembaravalli	Fruit	Anti-inflammatory, diuretic
11	<i>Cayratia pedata</i>	Climber	Velutta sorivalli	Leaves	Wounds, scabies
12	<i>Cayratia trifolia</i>	Climber	Chorivalli	Roots	Ulcer

sting to relieve pains. Paste prepared from the leaf is applied to affected areas to treat bone fracture. The data analysis shows that tribals of Kerala possess a tremendous knowledge of ethnomedicinal plants. A total of twelve plants belongs to this grape family have been recorded in the study area. *Cayratia pedata* found to be a

curing agent for many major ailments such as jaundice, ulcer, fever, etc. *Cayratia pedata* and *Ophiorrhiza mungos* are especially recommended for various forms of tumors. *Cayratia pedata* is an indigenous endangered medicinal herb of south India belonging to the family *Vitaceae*. Traditionally, the leaves of this

plant have been used as a dietary ingredient in the treatment of ulcers and diarrhoea. In Ayurveda the extract from *Cayratia pedata* is used to prepare formulations prescribed to treat microbial infections, ulcers, inflammations and arthritis [9] *Cissus discolor* plant paste is mixed with egg white is applied to the affected portion in the treatment of fractures mainly by Kurichia tribes of Wayanad. Dried fruits of *Vitis vinifera* roasted and salted and taken with milk cures stomachache [10]. Crushed plant parts of *Tetrastigma leucostaphyllum* with castor oil applied overboils. Paste of the plant *Cissus repens* is applied to sloughing and fetid ulcerations, also to boils and small abscess as a maturant. Paste of the roots of *Ampelocissus latifolia*, in little amount of water is used twice daily to cure hair loss. *Ampelocissus lindica*, traditionally used as an anti-inflammatory medicinal plant. It also shows diuretic activity. *Cayratia trifolia*, whole plant is used as diuretic and astringent and is also useful in tumors, neuralgia, splenopathy and treatment of leucorrhoea. Leaf, root and seeds are also used as poultice to ulcers. *Ampelocissus arnotiana* is common among sacred groves in Kerala [11]. The plant paste mixed with coconut oil, is employed as a depurative, aperient and diuretic, and to treat eye diseases and ulcers.

4. CONCLUSION

Traditional tribal knowledge of ethnomedicinal plants in most of the tribal communities is changing because of rapid socio-economic and cultural changes. Documentation of this vast knowledge is extremely valuable for the communities for their future generations and for scientific consideration of wider uses of traditional knowledge in treating various diseases. This ethnobotanical survey in Kerala revealed that there are medicinal plant species that make a significant contribution to the healing of diseases of rural communities. The cheap cost and almost no side effects of these traditional medicinal preparations with these plants make them adaptable by the local communities of Kerala. The richness of this traditional knowledge of medicinal plants points to great potential for future research and the discovery of new potent drugs to cure the diseases. So further scientific assessment of these medicines for phytochemical and clinical studies was also needed. The main ethnobotanical information from tribal groups of Kerala, the significant cause of plant extinction is mainly due to the overexploitation of plants. This study also

contributes to the preservation and enrichment of the gene bank of such ethnomedicinally important species before they lost forever. The observations of the present study showed that traditional medicine plays a very key role among the local healers in Kerala.

CONSENT AND ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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