

MEDICINAL PLANTS USED FOR THE TREATMENT OF LIVER DISEASES BY MALAYALI TRIBES IN SHEVAROY HILLS, SALEM DISTRICT, TAMILNADU, INDIA.

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ABSTRACT

An ethnobotanical survey was carried out to perceive the medicinal plants utilized by the Malayali tribes of Shevaroy Hills, Tamilnadu is for the curing of several diseases. The author noted a some plants utilized in the treatment of liver disorders in Shevaroy Hills of Salem district, Tamilnadu. The indigenous Malayali tribal communities are still put into usage the ancient regular medications and their applications. The systematic survey and several field visits were conducted in Shevaroy Hills for ethnomedicinal investigation and curing of livers ailments, which were utilized by the Malayali tribal populace. As part of knowledge accumulated, the data was collected from the village herbalists, village dwellers, local medicine men, herbal practitioners and local herbal doctors and other experienced

persons, the procedure and period, the plant part of collection, dosage and time were also noted. The study revealed first time report of some potentialities twenty five plant species familiarly utilized in the manage of liver ailments.

KEYWORDS: Shevaroy Hills, Liver diseases, Malayali tribes, Ethnomedicine, Tamilnadu.

INTRODUCTION

The Shevaroy are as major hill range at the Southern - most point of the Eastern Ghats, Tamilnadu, India, between 11°45' and 11°55' N and 78°10' and 78°20'E and covers an area of 470km². The attitude ranges from 400 to 1600 m. The Shevaroy are wealthy in archean charnockites with a few belts of granite geniss. The highest temperature ranges between in 25°C and 30°C summer and the minimum between winter 13°C and 16°C. While humidity

ranges from 65% to 87% during the same time interval. South West and North East monsoons contribute rain and the average rainfall is 1750 mm. The vegetation varies considerably with altitude. The base of the hill range is composed entirely of scrub vegetation (400-700 m); deciduous forest occur between 800 and 1200 m, semi-evergreen forests between 1300 and 1600 m where the vegetation is fairly undisturbed, particularly at Sanyasi hills.

Etnomedicinal survey was conducted in various parts of Eastern Ghats of Tamilnadu and worthiness information on the usages of plants as ethnomedicine has been documented.^[1,2,3,4,5,6,7,8,9] A few studies on ethnomedicinal usages of plants in the forest of Shevaroy Hills and its adjoining regions were available.^[10,11] The present research report on the information collected from Malayali tribals on the plants utilized for treatment of liver ailments in Shevaroy Hills of Tamilnadu, India.

Liver diseases are health related problems which are on high today. Liver diseases remain one of the alarming health problems. In the absence of reliable liver protective drugs in allopathic medical practices, herbs play a role in the management of various liver disorders. The liver is the largest glandular organ in the body, and has more functions than any other human organ. A person's whole blood supply passes through the liver several times a day. The liver has a pivotal role in human metabolism. Liver produces and secretes bile, it also produces prothrombin and fibrinogen, both blood clotting factors, and heparin, a mucopolysaccharide sulfuric acid ester that helps keep blood from clotting within the circulatory system. The liver converts sugar into glycogen. Liver ailments have become one of the major causes of morbidity and mortality in man and animals all over globe and hepatotoxicity due to drugs appears to be the most common contributing factor.^[12]

Among the several ailments that can affect the liver the most common is 'viral hepatitis' (Inflammation of liver caused by viral infection). Hepatitis can be caused by drugs, viruses, bacteria, parasites, mushrooms like amoebas or giardiasis. About 20,000 deaths found every year due to liver diseases. The use of natural remedies for the treatment of liver disorders has a long history and medicinal plants and their derivatives are still used all over the world in one form or the other for this purpose. Scientific evaluation of plants has often shown that active principles in these are responsible for therapeutic success. A great number of medicinal plants have been tested and found to contain active principles with curative properties against a type of ailments.^[13] Liver protective plants contain a kind of flavonoids, phenols, lignans,

essential oil, carotinoids, monoterpenes, lipids, xanthenes and organic acids.^[14] Modern experience has shown that plant drugs are relatively non-toxic, safe and even free from alarming side effects.^[15]

Some of the commonly known disorders are viral hepatitis, alcohol liver disease, non-alcoholic fatty liver disease, autoimmune liver disease, metabolic liver disease, drug induced liver injury, gallstones, etc. Because of the importance of drug induced hepatotoxicity in clinical medicine, researchers and regulators have vigorously pursued basic knowledge about hepatotoxicity, including types and mechanisms, with the circumstances under which hepatic injury occurs, and measures to reduce the occurrence of this untoward side effect of drugs used for therapeutic purpose.^[16]

MATERIALS AND METHODS

Wide field visits for ethnobotanical study were undertaken during June 2013 to April 2014 in Shevaroy Hills of Salem district of Tamilnadu. Information are based on personal contact and observation and interview with local herbal practitioners, village herbalists, village dwellers, medicine men, herbal doctors, experienced persons and their traditional healers of the research area.^[17] A total of 30 tribal medicinal practitioners were identified as they have wealthy information on ethnomedicinal plants.

Each of the plant material was assigned field book number and noted as to scientific name, family, botanical description, vernacular name (Tamil), part used, mode of drug preparation, plan of application, dosage and time were reported and medicinal uses, plant parts that were identified as having utilize in ethnobotany were collected and compressed plant species collected were identified by local floras.^[18,19] The voucher specimens were deposited in the Herbarium of Department of Botany, Government Arts College (Autonomous), Salem, Tamilnadu for future reference.

ENUMERATION

The plant species are arranged in alphabetical series. The enumeration of plants contains botanical name, family name, botanical description, vernacular name (Tamil). The medicinal usages are characterized with details such as the part(s) used singly, combination with other ingredients or mixed with other plants, plan of preparation and method of administration were carefully documented in the field.

1. *Aegle marmelos* (L.) Corr. Serr.

Family: Rutaceae

Large deciduous tree. Bark brownish grey. Leaves upto 15.7 cm long: leaflets elliptic. Flowers Yellowish, berries 5.2-10.5 cm in diameter, pulpy.

Vernacular name: *Vilvam*

Medicinal uses: The leaf juice 50ml mixed with cow's milk used to cure jaundice.

2. *Andrographis affinis* Nees.

Family: Acanthaceae

Perennial, much-branched undershrub. Leaves elliptic-lanceolate. Flowers pale with purple streaks. Seeds 4-8. Ovoid, hard, pale-brown.

Vernacular name: *Kodikkurundhu, Keeripparandai.*

Medicinal uses: Leaf paste mixed with cow's milk used in liver ailments. Leaf extract 50 ml. with mixed with Buffalo curd given internally a day for one week to cure jaundice.

3. *Andrographis alata* (Vahl.) Nees

Family: Acanthaceae

Perennial erect undershrub, root stock woody. Leaves broadly ovate-elliptic. Flowers purplish lines. Capsule oblong, acute. Seeds 6-15, ovoid, glabrous, hard, pale-brown.

Vernacular name: *Periyanangai*

Medicinal uses: Leaf extract 25 ml. mixed with hot water is given orally twice a day for seven to ten days in jaundice.

4. *Andrographis lineata* Nees.

Family: Acanthaceae

Perennial erect herb. Prominent root stock. Leaves oblong. Flowers white with purplish blotches. Capsule linear oblong, acute. Seeds 6-12, ovoid, pale-brown.

Vernacular name: *Periyanangai*

Medicinal uses: Root paste (25 gram) given along with cow's milk for four to six days to treat enlargement of liver. Leaf juice 50 ml mixed with cow's milk and taken orally twice a day for 5 days in liver diseases.

5. *Andrographis macrobotrys* Nees.

Family: Acanthaceae

Perennial herb. Leaves lanceolate, glandular hairy. Flowers pink with dark purple. Capsule glabrous. Seeds 6-8, ovoid, pale-brown.

Medicinal uses: Fresh leaf juice is given orally thrice a day for one week to treat liver disorders. The root powder mixed with goat's milk and taken orally to treat jaundice.

6. *Andrographis neesiana* Wight.

Family: Acanthaceae

An erect perennial herb. Leaves elliptic. Flowers brownish purple. Capsule oblong. Seeds 6-10, ovoid, hard, pale-brown.

Medicinal uses: Fresh leaf ground with water and the paste is given orally to cure jaundice.

7. *Andrographis ovata* C.B. Clarke

Family: Acanthaceae

Perennial robust herb. Leaves ovate. Flowers pink. Seeds 6-10, hard, pale-brown.

Medicinal uses: Leaf extract (25 ml) mixed with common salt and *Piper nigrum* (black pepper) three times a day for seven days to treat liver ailments.

8. *Andrographis paniculata* Nees.

Family: Acanthaceae

Perennial erect several branched herb. Root-stock and roots semi woody. Leaves linear obovate. Flowers white with scarlet markings. Capsule linear-oblong, acute at both ends. Seeds 6-12, pale-brown, glabrous.

Vernacular name: *Siriyangai, Periyangai, Nilavembu.*

Medicinal uses: The decoction of the whole plant mixed with goat's milk is given two times a day for seven to ten days for jaundice and liver complaints.

9. *Andrographis serpyllifolia* Wight.

Family: Acanthaceae

Perennial prostrate herb. Leaves glabrous. Flowers pale with purple blotches. Seeds 4-8, ovoid. Pale-brown.

Vernacular name: *Kaatuppooraankodi, Siyankodi, Thutuppoondi.*

Medicinal uses: Decoction of the leaf juice 50 ml mixed with cow's milk and drink to treat liver related stomach pain.

10. *Argemone mexicana* L.

Family: Papaveraceae

A strong glabrous, branching annual herb with yellow juice and showy yellow flowers. Leaves simple, sessile. Fruits are capsule. Seeds many globose.

Vernacular name: *Perammathandu*

Medicinal uses: Seed powder is taken with hot water internally twice a day for one week to treat jaundice.

11. *Azadirachta indica* A. Juss.

Family: Meliaceae

A tree, 14-19 meters in height, leaves are compound each comprising 5-15 leaflets. Flowers white and fragrant. Fruits are green, turning yellow on ripening, elongated seeds, brown seed coat.

Vernacular name: *Vembu*

Medicinal uses: Decoction of the bark mixed with sugar is given internally in jaundice.

12. *Boerhavia diffusa* L.

Family: Nyctaginaceae

A perennial diffuse herb. Leaves simple opposite. Flowers pale rose coloured, small. Fruits highly viscid. One seeded.

Vernacular name: *Mukkurattai*

Medicinal uses: The root powder mixed with cow's milk is used in jaundice.

13. *Cassia fistula* L.

Family: Caesalpinaceae

A moderate sized deciduous tree. Leaves are compound, with 4-8 pairs of opposite leaflets. Flowers yellow, long drooping racemes. Pod cylindrical and pulpy. Seeds light brown, hard and shiny.

Vernacular name: *Konnai*

Medicinal uses: Powdered flower is used to cure liver ailments.

14. *Clome viscosa* L.

Family: Capparidaceae

An annual sticky herb with a strong penetrating odour, leaves obovate to lanceolate, flowers yellow in colour and long slender pods containing many seeds. Seeds reddish brown in colour.

Vernacular name: *Naaivelai*.

Medicinal uses: Fresh leaf juice mixed with hot water is used in jaundice.

15. *Eclipta alba* (L.) Hassk.

Family: Asteraceae

A perennial herb. Leaves opposite, simple. Flowers yellow in axillary or terminal head. Stamens 5, achenes oblong, hairy above.

Vernacular name: *Majalkarisalankanni*

Medicinal uses: Decoction of leaves mixed with hot water used in liver disorders.

16. *Eclipta prostrata* L.

Family: Asteraceae

An erect prostrate herb. Leaves, opposite, simple and lanceolate. Flowers white in axillary or terminal head, achenes oblong, hairy above.

Vernacular name: *Karisalankanni*

Medicinal uses: Leaf juice mixed with cow's milk is given internally twice a day for one week to cure jaundice.

17. *Emblica officinalis* Geartn.

Family: Euphorbiaceae

A small to medium sized deciduous tree. Leaves are simple, subsessile, Flowers are greenish yellow, Fruits globose, fleshy, pale yellow, quite smooth and hard on appearance, with six vertical stripes.

Vernacular Name: *Nelli*

Medicinal Uses: Fruit is consumed orally to control jaundice.

18. *Leucas aspera* (Willd.) Link.

Family: Lamiaceae

An annual, branched, herb erecting to a height a height of 15-50 cm. Leaves are sub-sessile or shortly petiolate flowers white, sessile small in dense terminal or axillary whorls. Fruit nutlets, oblong brown, smooth, innerface angular and outer face rounded.

Vernacular name: *Thumbai*

Medicinal uses: Fresh leaf juice is taken with water orally thrice a day for five days to liver diseases.

19. *Pergularia daemia* (Forrshk.) Chiov.

Family: Asclepiadaceae

A slender, fetid - smelling perennial climber, leaves opposite broadly ovate, flowers greenish - yellow or dull white tinged with purple. Fruits lanceolate, long pointed seeds are pubescent, broadly ovate.

Vernacular name: *Vealiparuthi*

Medicinal uses: The leaf juice is mixed with cow's milk and drink to treat jaundice and liver problems.

20. *Phyllanthus amarus* Schu. & Thoun.

Family: Euphorbiaceae

An erect annul herb: Leaves simple, entire, obtuse at apex. Flowers are green in colour, in axillary fascicles. Capsules globose. Seeds triangular, light brown. Fruits tiny.

Vernacular Name: *Kellanelli*

Medicinal Uses: Decoction of the whole plant mixed with cow's milk and taken two times a day for one week to manage jaundice and liver complaints.

21. *Polygala arvensis* Wind.

Family: Polygalaceae

Erect herb. Leaves obovate, linear - lanceolate. Flowers are tiny, yellow, capsule ovoid, seeds oblong pilose, strophiole 3- appendiculate.

Vernacular Name: *Milakunankai*

Medicinal uses: Decoction of the whole plant is given internally twice a day for one week to cure liver disorders.

22. *Pterocarpus marsupium* Roxb.

Family: Fabaceae

A medium tree. Leaves compound. Flowers are fragrant and yellowish in terminal panicles. Fruits are pods. 1-2 hard seeds.

Vernacular Name: *Vengai*

Medicinal uses: Decoction of the bark is taken as liver tonic.

23. *Pterocarpus santalinus* L

Family: Fabaceae

Tree, leaves three - foliolate. Flowers yellow. Pods unequally orbicular, seeds 1-2, Kidney - shaped reddish brown.

Vernacular name: *Semmaram, Chandana vengai*

Medicinal uses: Decoction of the bark is given orally twice a day for 5 days in jaundice.

24. *Solanum nigrum* L.

Family: Solanaceae

A herb, or short - lived perennial herb sometimes purple green. Leaves ovate to heart shaped. Flowers greenish to whitish.

Vernacular name: *Manathakali*

Medicinal uses: The leaf juice mixed with *Piper nigrum* (black pepper) and drink to treat liver ailments.

25. *Vitex negundo* L.

Family: Verbinaceae

A small tree, bark thin, grey. Leaves grey - pubescent. Flowers lavender to blue, Drupe slightly ribbed, gland - dotted.

Vernacular name: *Notchi*

Medicinal uses: Decoction of the flowers is given internally twice a day for five days in liver complaints.

RESULTS AND DISCUSSION

In this research 25 species belonging to 15 families of medicinal plants used in liver disease have been documented and enumerated alphabetically with their scientific names, family, botanical description, vernacular name(s), part(s) used, method of application, dosage and duration were recorded. Acanthaceae is represented by the maximum number of species (8 Spp), followed by Fabaceae, Euphorbiaceae and Asteraceae with 2 species each and the rest with one species each. The plant part(s) highly utilized are leaves (56%), bark (12%), whole plant (8%), root (8%), flower (8%), fruits (4%), and seeds (4%) [Fig. 1].

All the 25 plants are used in the treatment of liver ailments in Shevaroy Hills of Salem District, Tamilnadu, India. *Phyllanthus amarus* (*Keelanelli*) which is largely distributed all

over the country and has been used in the treatment of jaundice for a long period of time. The uses of *Kellanelli* as jaundice have scientific evidence.^[20, 21]

Andrographis paniculata which is locally known as *Siriyanangai*, *Nilavembu*, *Periyanangai* has very potential activity against hepatoprotective.^[22, 23] *Andrographis lineata* which is locally recognized as *Periyanangai* has a very activity against hepatoprotective.^[24, 25]

Eclipta alba which is locally called *Manjalkarisalankanni* has a very worthy activity against hepatoprotective.^[26] From this study it is clear that the plants used in the treatment of liver diseases in Shevaroy Hills of Tamilnadu, India.

The utilizes of the plants viz., *Andrographis affinis*, *Andrograpis alata*, *Andrograpis ovata*, *Andrographis macrobotrys* for jaundice, *Andrographis neesiana* for liver ailments, *Andrographis serpyllifolia* for stomach pain are new record for the state because available knowledge signifies that such species have not been recorded previously and such species must be give due attention for protection and conservation of these valuable plants for future generations.

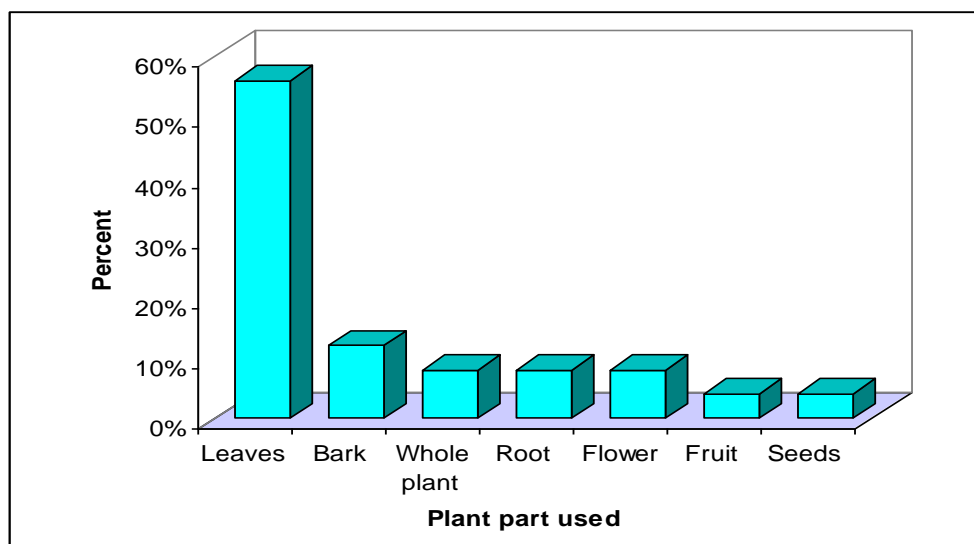


Figure 1: Percent distribution of plant parts used to treat liver diseases in the study areas.

CONCLUSION

This research reveals that medicinal plants still performance a necessary role in the liver diseases of Malayali tribal community. In some scope, the present investigation deals with correlation between reported uses of some medicinal plants to their scientific confirmation.

Thus the present investigation has revealed the authenticity of traditional information and uses of few medicinal plants for their curing of liver diseases.

So the unexplored medicinal plants utilized in the manage of liver diseases deemed necessary scientific evidence in terms of phytoconstituents and pharmacology to rationalize their utilization. These investigations may also provide relevant knowledge to the phrmacologists in screening and evaluation of phytochemicals of several liver disorders.

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