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S Sarguna Sundaram
Research, Department of
Botany, Saraswathi Narayanan
College, Perungudi, Madurai,
Tamil Nadu, India

K Suresh
Research, Department of
Botany, Saraswathi Narayanan
College, Perungudi, Madurai,
Tamil Nadu, India

Hepatoprotective effect of medicinal plants used by traditional healers in Alagar hills of Madurai district, Tamil Nadu, India

S Sarguna Sundaram and K Suresh

Abstract

The study was carried out to investigate medicinal plants used as Hepatoprotective in Alagar Hills of Madurai District, Tamil Nadu, India. It has been shown that 27 medicinal plants of 16 families used by traditional healer to cure Hepatomegaly. The Traditional knowledge of people who have been using the native plants for the preparation of drugs and methods of their administration along with doses were recorded, Collected through questionnaire as well as informal personal interviews during field trips. The practical knowledge of people in herbal medicines reveals that they are capable of treating Liver diseases.

Keywords: hepatoprotective, traditional knowledge, medicinal plants

1. Introduction

The use of plants to alleviate human suffering is as old as the evolution of human suffering. As many as 4000 plants are collectively mentioned in these early works. India also possesses a great heritage of other ancient systems of medicine such as Ayurveda, Siddha, Unani and Homeopathy. Nearly 2500 Species of plants are used in one way or other by some of these systems. In addition to these traditional systems, these also exist in india a vast knowledge of tribal and folk medicine which utilize around 7500 species of plants as medicinal.

According to the World Health Organization, over 80% of the world's populations rely upon such traditional plant based systems of medicine to provide them with primary health care (Calixto, 2005) [1]. During the last few decades, there has been an increased interest in the study of medicinal plants and their traditional use in different parts of the world. The traditional uses of plants and plant products are the bases for human survival on the earth. The traditional healers are dwindling in number and there is a great danger of traditional knowledge disappearing soon. Wild economic plants constitute of large portion of food consumed by local inhabitant in tribal and hilly areas (Maheswari, 1988; Maheswari, 1990). Increase in population and the awareness of side effects of several synthetic drugs have encouraged the usage of traditional medicine in developing countries. Hence, there is no need to promote the usage of traditional medicine (Lampert *et al.* 1997). Enlargement of liver (hepatomegaly) can occur due to increased accumulation of blood in liver, inflammation, pathogenic infection, cysts and increased size of hepatocytes, infiltrative disorders or microhepatic causes. Increased ammonia level in brain causes hepatic encephalopathy. When normal hepatic parenchyma is replaced by fibrosis or regenerative nodules, cirrhosis is formed. This may occur due to alcoholism or viral hepatitis. The findings of the present investigation was made to record the Utilization of medicinal plants used as hepatoprotective.

2. Experimental Methods

2.1 Geographical details of the study sites

The study area of Alagar hills has a tropical forest cover which extend from Alagar kovil in the south to Natham in the north. The Alagar hills lies approximately 77°30 and 78°20 longitude and 10°05'-10°09' latitude.

2.2 Weather details

As all the study sites selected for this present investigation were located within the distance of 10 km in total, there is no any fluctuations in temperature and rainfall of the study sites. The temperature of the study area ranges from 20° C during winter and about 39° C during summer. The average rainfall reaches 700 mm per year.

Correspondence

S Sarguna Sundaram
Research, Department of
Botany, Saraswathi Narayanan
College, Perungudi, Madurai,
Tamil Nadu, India

2.3 Interview with informants

In order to document the Traditional knowledge of the Medicinal plants presented in selected study sites as Ethno medicine by the local inhabitants of Alagar hills, an extensive survey was carried out in Alagar hills from April 2014 to December, 2016. A standard method was followed to collect the valuable information on Ethno medicine [4]. The informants interviewed numbered 20 (11 Male, 9Female) which include Traditional healers, Villagers and old aged people who had strong links with traditional practices. The age of the informants was ranged 40-70.

2.4 Botanical identification of plants

All the medicinal plants recorded during the field visits were botanically identified by referring Flora of Tamil Nadu Carnatic [5] and An Excursion Flora of Central Tamil Nadu, India [6].

3. Materials and Methods

3.1 Study area

The study area of Alagar hills has a tropical forest cover which extend from Alagar Kovil in the south to Natham in the north. The Alagar hills lies approximately 77°30 and 78°20 longitude and 10°05'-10°09' latitude. The area of investigation consist of dry deciduous forest, deciduous thorn forest, evergreen and grasslands. The native plants used for the preparation of crude drugs and their administrations along with doses were recorded through field trips. Information on medicinal plants was obtained from the formers, healers and old aged people with the help of questionnaire and through open interviews. Hepatomegaly and its symptoms were properly identified by farmers and Traditional healers.

3.2 Results and Discussion

The Details of collected plants with their scientific name, family, local name, parts used, Diseases Cured are presented in (Table 1).

Table 1: The details of collected plants with their scientific name, family, local name, parts used, Diseases cured

S. No	Binomial Name	Family	Local Name (Tamil)	Uses/Curing Diseases
1	<i>Acalypha indica</i> L.	Euphorbiaceae	<i>Kuppaimeni</i>	Crushed leaves are used as Hepatoprotective
2	<i>Achyranthes aspera</i> L.	Amaranthaceae	<i>Naayuruvi</i>	Whole plant juice is given orally for liver enlargement
3	<i>Adathoda vasica</i> Nees	Acanthaceae	<i>Adhatoda</i>	Extraction of leaves are used to cure Liver enlargement
6	<i>Aegle marmelos</i> corr.	Rutaceae	<i>Vilvam</i>	Leaf Powder is used as Hepatoprotective
7	<i>Allium cepa</i> L.	Liliaceae	<i>Vengayam</i>	Bulb Extract is used as Hepatoprotective
8	<i>Aloe vera</i> (L). <i>Burn. f</i>	Liliaceae	<i>Katthalai</i>	Leaves of Aloe vera used as Liver stimulant and in Liver Enlargement
9	<i>Amaranthus spinosus</i> L.	Amaranthaceae	<i>Mullukkirai</i>	Extract of Whole plant is used for Jaundice and Liver Enlargement.
10	<i>Anacardium occidentale</i> L.	Anacardiaceae	<i>Andimaparuppu</i>	Fruit juice is used for liver enlargement
11.	<i>Andrographis paniculata</i> Nees	Acanthaceae	<i>Nilavembu</i>	Extract of plant leaves used for Hepatomegaly
12.	<i>Aristolochia bracteolata</i> Lam.	Aristolochiaceae	<i>Adu thinnappalai</i>	Root paste is used for liver enlargement
13.	<i>Azadirachta indica</i> A.juss	Meliaceae	<i>Vembu</i>	Seed oil is used for hepatomegaly
14.	<i>Carica papaya</i> L.	Caricaceae	<i>Pappali</i>	Seed oil is used to treat Liver Enlargement
15.	<i>Cissus quadrangularis</i> L.	Vitaceae	<i>Pirandai</i>	Stem extract used for hepatoprotection
16.	<i>Citrus limon</i> (L). <i>Burm.f.</i>	Rutaceae	<i>Narthangaai</i>	Consumption of lemon is associated with liver health
17.	<i>Coriandrum sativum</i> L.	Apiaceae	<i>Kothamalli</i>	An essential oil from ripe fruit of <i>Coriandrum sativum</i> is used to treat an enlarged Liver
18.	<i>Datura metal</i> L.	Solanaceae	<i>oomatham</i>	Unripe fruit is used to treat hepatomegaly
19.	<i>Eclipta prostrate</i> L.	Asteraceae	<i>Karisalanganni</i>	Extract obtained from leaves are used to protect Liver
20.	<i>Ficus bengalensis</i> L.	Moraceae	<i>Aalamaram</i>	Leaves are used as hepatoprotective
21.	<i>Gloriosa superba</i> L.	Liliaceae	<i>Kanthal</i>	Leaves are used as Hepatoprotective
22.	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex	Asclepiadaceae	<i>Sirukurinchan</i>	Leaf juice is used as Liver enlargement
23.	<i>Hemidesmus indicus</i> (L.) R.Br	Asclepidaceae	<i>Nannari</i>	Extraction of root is used as Hepatoprotective
24.	<i>Mangifera indica</i> Linn.	Anacardiaceae	<i>Mamaram</i>	Fruit juice is used for liver protection
25.	<i>Justicia adathoda</i> L.	Acanthaceae	<i>Adathodai</i>	Leaves and flowers are used as Hepatoprotective
26.	<i>Lawsonia inermis</i> L.	Lythraceae	<i>Maruthani</i>	Stem bark and Root powder used for liver protection.
27.	<i>Withania somnifera</i> L.	Solanaceae	<i>Amukkara</i>	Extraction of root improves liver diseases.



Fig 1: Alagar hills

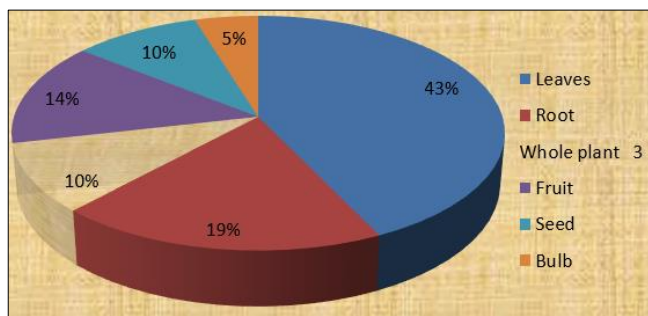


Fig 2: Percentage of Different parts of the plants used for Hepato protection.

The present study enumerated that there are 27 medicinal plant belonging to 16 families. It is more evident that the plant species belonging to the family Asclepidaceae, Liliaceae, Amaranthaceae Solanaceae, Anacardiaceae, Acanthaceae are maximum population than any other plant species. Different parts of Medicinal plants such as Leaves, Stembark, Leaf juice, root, Unripe fruit, Fruit, and seed are being used for Liver protection. The Leaves of medicinal plants such as *Acalypha indica*, *Adathoda vasica*, *Aegle marmelos*, *Aloe vera*, *Andrographis paniculata*, *Ficus bengalensis*, *Gloriosa superba*, *Gymnems sylvestre* and *Justicia adathoda* are used to Liver problems. Roots of Medicinal plants such as *Aristolochia bracteolata*, *Hemidesmus indicus*, *Lawsonia inermis*, *Withania somnifera* used as hepato protective.

4. Conclusion

Traditional medicine particularly medicinal plants playing Major role in maintain in rural and Remote areas. The trends of using traditionally available medicinal plants were found more in upper age class in both gender as compared to younger generation. Indigenous remedies are typically made from plant preparations, some plants are used to treat one disease while the others used in as mixtures. Utilization of such medicine along with conventional drug surely put more values to promote health or cure diseases in the better way.

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