



ISSN (E): 2320-3862
ISSN (P): 2394-0530
NAAS Rating: 3.53
JMPS 2019; 7(4): 250-253
© 2019 JMPS
Received: 01-05-2019
Accepted: 03-06-2019

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

S Prasanna Sundaram
Department of Economics, Arul
Anandar College, Karumathur,
Madurai, Tamil Nadu, India

Traditional knowledge of medicinal plants used to treat kidney related diseases in selected areas of Madurai district, Tamil Nadu, India

S Sarguna Sundaram, K Suresh and S Prasanna Sundaram

Abstract

Traditional knowledge includes types of knowledge about traditional technologies of subsistence, Midwifery, Ethnobotany, and Ecological Knowledge, Traditional medicine, Celestial navigation, Ethnoastronomy, climate and Others. The present investigation mainly focused on Traditional knowledge of Medicinal plants used to treat kidney related diseases in selected areas of Madurai District. It has been shown that 33 medicinal plants belonging to 23 families used to cure Kidney related diseases. The ancestral 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 curing Kidney diseases.

Keywords: Traditional knowledge, kidney diseases, Madurai district

1. Introduction

Kidney disease can affect your body's ability to clean your blood, filter extra water out of your blood, and help control your blood pressure. It can also affect red blood cell production and vitamin D metabolism needed for bone health. When kidneys are damaged, waste products and fluid can build up in our body. That can cause swelling in your ankles, nausea, weakness, poor sleep, and shortness of breath. Without treatment, the damage can get worse and our kidneys may eventually stop working. That's serious, and it can be life-threatening.

Plants have been used for medicinal purposes long before prehistoric period. Ancient Unani manuscripts Egyptian papyrus and Chinese writings described the use of herbs. Evidence exist that Unani Hakims, Indian Vaids and European and Mediterranean cultures were using herbs for over 4000 years as medicine. Indigenous cultures such as Rome, Egypt, Iran, Africa and America used herbs in their healing rituals, while other developed traditional medical systems such as Unani, Ayurveda and Chinese Medicine in which herbal therapies were used systematically.

Traditional systems of medicine continue to be widely practised on many accounts. Population rise, inadequate supply of drugs, prohibitive cost of treatments, side effects of several synthetic drugs and development of resistance to currently used drugs for infectious diseases have led to increased emphasis on the use of plant materials as a source of medicines for a wide variety of human ailments.

Among ancient civilisations, India has been known to be rich repository of medicinal plants. The forest in India is the principal repository of large number of medicinal and aromatic plants, which are largely collected as raw materials for manufacture of drugs and perfumery products. About 8,000 herbal remedies have been codified in AYUSH systems in INDIA. Ayurveda, Unani, Siddha and Folk (tribal) medicines are the major systems of indigenous medicines. Among these systems, Ayurveda and Unani Medicine are most developed and widely practised in India.

Recently, WHO (World Health Organization) estimated that 80 percent of people worldwide rely on herbal medicines for some aspect of their primary health care needs. According to WHO, around 21,000 plant species have the potential for being used as medicinal plants. As per data available over three-quarters of the world population relies mainly on plants and plant extracts for their health care needs. More than 30% of the entire plant species, at one time or other were used for medicinal purposes. It has been estimated, that in developed

Correspondence

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

countries such as United States, plant drugs constitute as much as 25% of the total drugs, while in fast developing countries such as India and China, the contribution is as much as 80%. Thus, the economic importance of medicinal plants is much more to countries such as India than to rest of the world. These countries provide two third of the plants used in modern system of medicine and the health care system of rural population depend on indigenous systems of medicine. Treatment with medicinal plants is considered very safe as there is no or minimal side effects. These remedies are in sync with nature, which is the biggest advantage. The golden fact is that, use of herbal treatments is independent of any age groups and the sexes. In the present study reveals that Traditional uses of medicinal plants for kidney related diseases.

2. Experimental Methods

2.1 details of the study sites

Madurai is located at 9.93°N 78.12°E. It has an average elevation of 101 metres. The city of Madurai lies on the flat and fertile plain of the river Vaigai, which runs in the northwest-southeast direction through the city, dividing it into two almost equal halves. The Sirumalai and Nagamalai hills lie to the north and west of Madurai. Madurai lies southeast of the western-Ghats, and the surrounding region occupies the plains of South India and contains several mountain spurs. The soil type in central Madurai is predominantly clay loam, while red loam and black cotton types are widely prevalent in the outer fringes of the city.

2.2 Interview with informants

An extensive Survey was carried out in Madurai from September 2016-December 2016. The number of informants

interviewed 17(12Male, 5Female). The information of this study was collected through questionnaire method from the villagers, elderly persons, traditional healers who are residing areas of the study to collect data on medicinal plants commonly used by them. This include different common human ailments, their occurrence, symptoms, regular mode of treatment including herbal ones, plants and plant parts used for the treatment.

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. Results and Discussion

The Details of collected plants are enumerated with their scientific name, family, local name, parts used, Diseases Cured were presented in the present study enumerated that there are 33 medicinal plant belonging to 23 families. It is more evident that the plant species belonging to the family Arecaceae, Liliaceae, Amaranthaceae, Solanaceae, Euphorbiaceae, are maximum population than any other plant species. Different parts of Medicinal plants such as Leaves, Stem, Leaf juice, Root, Fruit, and seed are being used for treating Kidney diseases. The Leaves of medicinal plants such as *Aegle marmelos*, *Alternanthera sessilis*, *Azadirachta indica*, *Amaranthus spinosus*, *Anacardium occidentale*, *Bacopa monnieri*, *Bryophyllum pinnatum*, *Eclipta prostrate*, *Carica papaya* and *Coriandrum sativum* are used to treat Renal diseases.

Table 1: Number of Informants in selected areas their age, education and occupation in Table 2.

S. NO	Binomial name	Family	Local name (Tamil)	Parts used	Mode of preparation
1.	<i>Abutilon indicum</i> (L.)	Malvaceae	Thuthi	Root	Root powder used as Nephroprotective
2.	<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppai meni	Root extract	Root Extract used as Kidney Protective
3.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Nayuruvi	Whole plant Extract	Whole plant extract used for Diuretic and Kidney stones
4.	<i>Acorus calamus</i> L.	Araceae	Vasambu	Rhizome and Root	Extract of Root and Rhizome used for kidney troubles
5.	<i>Aegle marmelos</i> L.	Rutaceae	Vilvam	Leaf extract	The ground leaves can be used to treat kidney problem
6.	<i>Allium cepa</i> L.	Liliaceae	Vengayam	Dried bulb	Onion Juice can reduce the defects of Kidney problem
7.	<i>Alternanthera sessilis</i> (L.) r.Br.ex DC	Amaranthaceae	Ponnanganni	Leaves	Leaf extract used to treat Urinary tract infection and Kidney troubles
8.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Mullukkeerai	Leaves	Leaf extract used for Renal failure
9.	<i>Anacardium occidentale</i> L.	Anacardiaceae	Mundiri	Leaves and Stem bark	Leaf extract lower the risk of kidney stone
10.	<i>Anisomeles malabarica</i> (L.) R.Br. ex Sm	Lamiaceae	Peyimiratti	Whole plant	Whole plant extract used as nephroprotective
11.	<i>Argemone Mexicana</i> L.	Papavaraceae	Pramma thandu	Seed	Seed oil urinary tract infection
12.	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Vembu	Leaves	Leaves Decoction used for Renal injury
13.	<i>Bacopa monnieri</i> (L.) Pennell.	Scrophulariaceae	Brahmi	Leaves	Leaf extract used as Hepatoprotective
14.	<i>Bryophyllum pinnatum</i> (Lam.) oken	Crassulaceae	Ranakalli	Leaves	Daily intake of leaf extract and Raw leaf for Reducing Calcium Oxalate crystal in Kidney
15.	<i>Borassus flabellifer</i> L.	Arecaceae	Panai	Fruit	Fruit improves kidney function
16.	<i>Capsicum annum</i> L.	Solanaceae	Milagai	Fruit	Raw fruit is used for Reducing Kidney stone
17.	<i>Canna indica</i> L.	Cannaceae	Kalvaalai	Root	Root extract used as Diuretic
18.	<i>Carica papaya</i> L.	Caricaceae	Pappali	Leaf extract, Fruit	Fruit and Leaf extract improves renal function
19.	<i>Cassia auriculata</i> L.	Caesalpinaceae	Aavaarai	Root	Root extract used as Nephroprotective and Renal injury

20.	<i>Cissus quadrangularis</i> L.	Vitaceae	pirandai	Stem	Stem extract used for Diabetic kidney disease.
21.	<i>Citrullus colocynthis</i> schrad.	Cucurbitaceae	Kumatti	Pulp	Pulp extract is used for kidney damage
22.	<i>Citrus limon</i> (L.) Burm.f.	Rutaceae	Elummichai	Fruits	Lemon juice is used for Dehydration and Reducing kidney stone
23.	<i>Cocos nucifera</i> L.	Arecaceae	Thennai	Fruits	Coconut water is used for kidney damage.
24.	<i>Coriandrum sativum</i> L.	Apiaceae	Kothumalli	Leaf extract	Leaf juice is used for Kidney damage
25.	<i>Cucurbita pepo</i> L.	Cucurbitaceae	Parangi	Seed	Seed is used to prevent Renal failure
26.	<i>Cyperus rotundus</i> L.	Cyperaceae	Korai	Rhizome	Dried and Powdered Rhizome is used for Removing Renal calculi and Renal diseases
27.	<i>Datura metal</i> L.	Solanaceae	Omathai	Fruit	Fruit is used for Kidney damage
28.	<i>Eclipta prostrata</i> (L.)	Asteraceae	Karisilankanni	Aerial parts	Leaf extract is used as Nephroprotective and Kidney disorder
29.	<i>Phyllanthus niruri</i> L.	Euphorbiaceae	Keela nelli	Leaves	Leaf extract used as powerful medicine for Kidney stone
30.	<i>Pedaliium murex</i> (L.)	pedaliaceae	Aanai Nerunji	Leaves and Stem	Extract of leaves and stem used to treat kidney stone, Kidney damage.
31.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Nerunjil	Whole plant extract	Whole plant extract used for Kidney stone.
32.	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Amukkara	Fruit	Fruit powder is used for Kidney stone
33.	<i>Zingiber officinale</i> (L.) H. Karst	Liliaceae	Zingiberaceae	Tuber	Extract of Rhizome is used for Renal failure

Table 2: Number and Percent (in parenthesis) distribution of Households and Herbalist healers based on their basic characteristics

Basic characteristics	Households			Herbalist healers			Total informants		
	Male (n = 9)	Female (n = 4)	Total (n = 13)	Male (n = 3)	Female (n = 1)	Total (n = 4)	Male (n = 12)	Female (n = 5)	Total (n = 17)
Current age									
< 40 years	1 (11.12)	0	1 (7.70)	0	0	0	1 (8.33)	0	1 (5.88)
40 – 60 years	4 (44.44)	3 (75.0)	7 (53.84)	1 (33.33)	0	1 (25.0)	5 (41.67)	3 (60.0)	8 (47.06)
> 60 years	4 (44.44)	1 (25.0)	5 (38.46)	2 (66.67)	1 (100)	3 (75.0)	6 (50.0)	2 (40.0)	8 (47.06)
Age at becoming healers									
20 – 30 years	-	-	-	0	0	0	0	0	0
Above 30 years	-	-	-	3 (100)	1 (100)	4 (100)	3 (100)	1 (100)	4 (100)
Education									
Literate	2 (22.22)	1 (75.0)	3 (23.08)	0	0	0	2 (16.67)	1 (20.0)	3 (17.64)
Illiterate	7 (77.78)	3 (25.0)	10 (76.92)	3 (100)	1 (100)	4 (100)	10 (83.33)	4 (50.0)	14 (82.36)
Occupation									
Farmer	2 (22.22)	0	2 (15.38)	-	-	-	2 (16.67)	0	2 (11.77)
Grazier	4 (44.44)	2 (50.0)	6 (46.16)	-	-	-	4 (33.33)	2 (40.0)	6 (35.29)
Agri. Labourer	3 (33.34)	2 (50.0)	5 (38.46)	-	-	-	3 (25.0)	2 (40.0)	5 (29.41)
Therapist	-	-	-	3 (100)	1 (100)	4 (100)	3 (25.0)	1 (20.0)	4 (23.53)

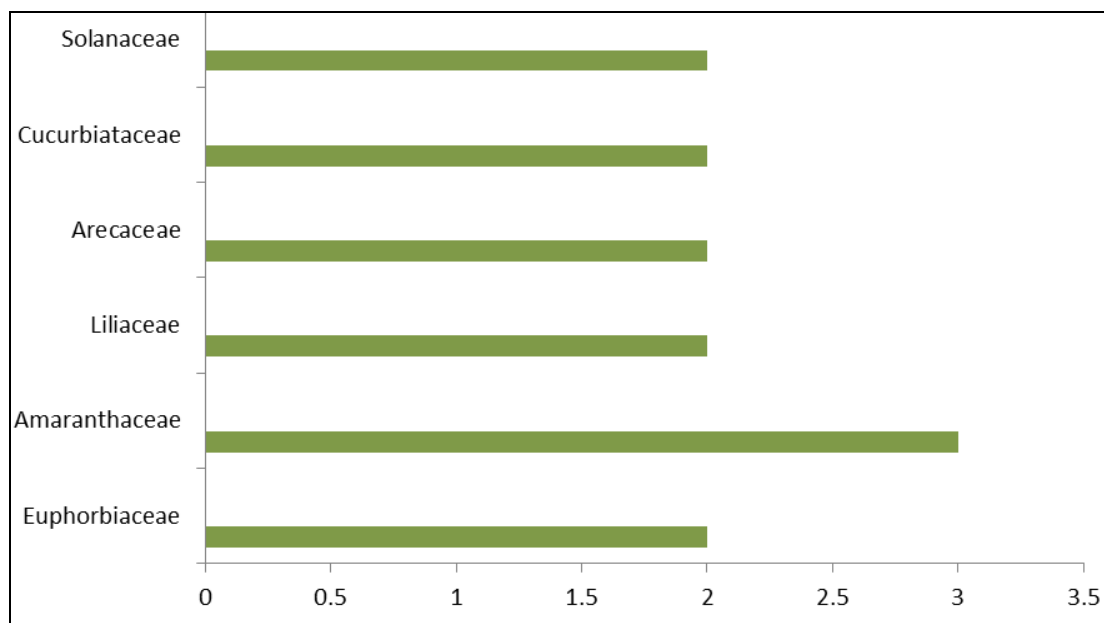


Fig 1: Dominant Families with Number of plant species used to treat renal diseases

Conclusion

Parts of Medicinal plants which includes such as Leaf, stem and Root is mainly involved in preparation of kidney diseases. Medicinal plants can be symbolically very important to people. They can be held in special religious, nationalistic or ideological esteem. This can be advantageous for conservation efforts, given that it is an acknowledgement, well rooted in culture, of the worth of a sizeable proportion of the world's flora. Many of the threats to medicinal plant species are similar to those causing endangerment to plant diversity generally. The most serious proximate threats generally are habitat loss, habitat degradation and over-harvesting. Conservation and New harvesting methodologies should be necessary to medicinal plants from Extinction.

Acknowledgement

The authors are grateful to the informants and rural people for their kind support and giving valuable data on ethno medicinal plants during our field visits.

References

- Ahmed S, Hasan MM, Mahmood ZA. Antiuro lithiatic plants in different countries and cultures. *Journal of Pharmacognosy and Phytochemistry*. 2016; 5(1):102-115.
- Ahmed S, Hasan MM, Mahmood ZA. Antiuro lithiatic plants: Multidimensional pharmacology. *Journal of Pharmacognosy and Phytochemistry*. 2016; 5(2):4-24.
- Ahmed S, Hasan MM, Mahmood ZA. *In vitro* urolithiasis models: An evaluation of prophylactic management against kidney stones. *Journal of Pharmacognosy and Phytochemistry*. 2016; 5(3):28-35.
- Beghalia M, Ghalem S, Allali H, Belouatek A, Marouf A. Inhibition of calcium oxalate monohydrate crystal growth using Algerian medicinal plants. *Journal of Medicinal Plants Research*. 2008; 2(3):66-70.
- Agarwal SK, Srivastava RK. Chronic kidney disease in India: Challenges and solutions. *Nephron Clin. Pract.* 2009; 111(3):c197-c203.
- Kalantar-Zadeh K, Amin AN. Toward more accurate detection and risk stratification of chronic kidney disease. *JAMA*. 2012; 307(18):1976-1977.
- Schwenger V, Mussig C, Hergesell O, Zeier M, Ritz E. Incidence and clinical characteristics of renal insufficiency in diabetic patients. *Dtsch. Med. Wochenschr.* 2001; 126(47):1322-1326.
- Zhao Y, Denner L, Haidacher SJ, LeJeune WS, Tilton RG. Comprehensive analysis of the mouse renal cortex using two-dimensional HPLC--tandem mass spectrometry. *Proteome Sci.* 2008; 6(15):1-15.
- Gupta MC, Trilok C. A critical review on commonly used herbal drugs in CKD. *J Med. Plant Stud.* 2015; 3(4):44-47.
- Baig RM, Gillani WS, Sulaiman SA, Krishna RD, Narayanan K. Epidemiology of diabetic nephropathy in the poor patients from rural south-east India. *Int. J Nutr. Food Sci.* 2011; 4(1):53-61.
- Fioretto P, Mauer M. Histopathology of diabetic nephropathy. *Semin. Nephrol.* 2007; 27(2):195-207.
- Sheela N, Jose MA, Sathyamurthy D, Kumar BN. Effect of silymarin on streptozotocin-nicotinamide-induced Type 2 diabetic nephropathy in rats. *Iran. J Kidney Dis.* 2013; 7(2):117-123.
- Kanwar YS, Wada J, Sun L, Xie P, Wallner EI, Chen S, *et al.* Diabetic nephropathy: Mechanisms of renal disease progression. *Exp. Biol. Med.* 2008; 233(1):4-11.
- Mason RM, Wahab NA. Extracellular matrix metabolism in diabetic nephropathy. *J Am. Soc. Nephrol.* 2003; 14(5):1358-1373.
- Khan SR. Animal models of kidney stone formation: An analysis. *World J Urol.* 1997; 15(4):236-243.
- Marangella M, Vitale C, Bagnis C, Petrarulo M, Tricerri A. Use of drugs for nephrolithiasis. *Clin. Cases Miner. Bone Metab.* 2008; 5(2):131-134.
- Butterweek V, Khan SR. Herbal Medicines in the Management of Urolithiasis: Alternative or Complementary? *Planta Med.* 2009; 75(10):1095-1103.
- Wang XM, Guan SH, Liu RX, Sun JH, Liang Y, Yang M *et al.* HPLC determination of four triterpenoids in rat urine after oral administration of total triterpenoids from *Ganoderma lucidum*. *J Pharm. Biomed. Anal.* 2007; 43(3):1185-1190.
- Nakagawa T, Goto H, Hikiami H, Yokozawa T, Shibahara N, Shimada Y. Protective effects of keishibukuryogan on the kidney of spontaneously diabetic WBN/Kob rats. *J Ethnopharmacol.* 2007; 110(2):311-317.
- Movaliyaa V, Khamarb D, Setty MM. Nephroprotective activity of aqueous extract of *Aerva Javanica* roots in cisplatin-induced renal toxicity in rats. *Pharmacology online.* 2011; 1:68-74.
- Shirwaikar A, Issac D, Malini S. Effect of *Aerva lanata* on cisplatin and gentamicin models of acute renal failure. *J Ethnopharmacol.* 2004; 90(1):81-86.
- Matthew KM. The flora of the Tamil Nadu Carnatic. The Rapinat Herbarium, St. Joseph's College, Tiruchirappalli, India, 1983.
- Nitin Bhajipale S. Evaluation of Anti-Arthritic Activity of Methanolic Extract of *Abutilon Indicum*. *International Journal of ayurvedic and herbal medicine.* 2012; 2(3):598-603.
- Nair NC, Henry AN, Flora of Tamil Nadu, India, Series I: Analysis, (Botanical Survey of India, Sourthern Circle, Coimbatore), 1983, I.
- Mohsenzadeh A, Ahmadipour SH, Ahmadipour S, Asadi-Samani M. A review of the most important medicinal plants effective on cough in children and adults. *Der Pharmacia Lettre.* 2016; 8:90-6.
- Saki K, Bahmani M, Rafieian-Kopaei M. The effect of most important medicinal plants on two important psychiatric disorders (Anxiety and depression)-a review. *Asian Pac J Trop Med.* 2014; 7:34-42. doi: 10.1016/s1995-7645(14)60201-7.
- Asadbeigi M, Mohammadi T, Rafieian-Kopaei M, Saki K, Bahmani M, Delfan B. Traditional effects of medicinal plants in the treatment of respiratory diseases and disorders: an ethnobotanical study in the Urmia. *Asian Pac J Trop Med.* 2014; 7:364-8. doi: 10.1016/s1995-7645(14)60259-
- Gupta A, Chaphalkar SR. Anti-inflammatory and immunosuppressive activities of some flavonoids from medicinal plants. *J HerbMed Pharmacol.* 2016; 5:120-4.
- Sarrafcchi A, Rafieian-Kopaei M. The role of community in discovery of new drugs from herbal medicines. *J Herbmed Pharmacol.* 2014; 3:69-70.