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Diversity and traditional knowledge of wild fruit used by *Muthuvan* tribes of Wayanad district, Kerala, India

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Abstract
Wild fruits are generally used as raw or processed, which help to compensate the day to- day requirement of calories. Wild fruits play a significant role in human nutrition, especially as sources of carbohydrates, proteins, vitamins, minerals, dietary fibre and enormous medicinal potential. Dietary use of wild fruits, nuts and seeds, appear in numerous historical records. Today, most human plant foods are based on limited number of crops. However, it is clear that in many parts of the world, the use of wild plants is not negligible. In India, the indigenous fruits collected from the wild sources are play a significant role in the health care, food and nutrient security of rural poor and tribals. Some of the wild fruits have been identified to have better nutritional value than cultivated fruits. The present study deals with the ethnobotanical exploration, identification and future potentialities of the wild edible fruits consumed by the *Muthuvan* tribes inhabited in the hilly areas of Wayanad district of Kerala. Fifty nine species of wild edible fruits belonging to 57 genera and 39 families used by *Muthuvans* were recorded. Due to the climate changes and environmental degradation, there is a high risk of biodiversity loss at a large scale. Under such circumstances, the knowledge and uses of nutritious, climatically adapted wild edible fruits will be irreversibly lost. Hence, research attention is needed to increase awareness on the use and management of wild edible fruits for their conservation.

Keywords: diversity, *Muthuvan* tribes, traditional knowledge, Wayanad, wild fruits

1. Introduction
India is one of the twelve mega diversity centre in the world. The Wayanad district, Kerala falls within the Western Ghats and is considered to be a home of more than 3500 species of wild plants. The forest of the Wayanad Wildlife Sanctuary provide a large number of plants whose fruits, seeds, tubers, shoots etc., make an important contribution to the diet of the people, particularly those living near forest and other rural areas. These plants not only provide in expensive food but several other useful products like medicine, fibre, fodder, dyes, etc., Historically wild fruits and vegetables have been used as medicinal agents. Wild fruits contain a significant level of biological active components that fruits are rich source of vitamins, minerals and other nutrients, but in contrast, wild fruits are often viewed with distrust. With the use of wild fruits not known, these people destroy the wild forest for cultivation purpose. Recent photochemical investigations in fruits have attracted a great deal of attention, with mainly concentrations on their role in preventing diseases caused as a result of malnutrition. Though there are many wild fruits in this region, there is no proper collection, identification, improvement and agro-techniques for these wild fruit. Hence much emphasis should be given to exploration and collection, in situ or ex situ conservation, studying nutritional and anti-nutritional properties, medicinal values. The fruits are nature's gift to mankind. These wild fruits are chief source of vitamins, minerals and proteins. These constituents are essential for normal physiological well being and help in maintaining healthy state through development of resistant against pathogens (Bal, 1997) [1].

Wild fruits are generally used as raw or processed, which help to compensate the day to- day requirement of calories. Wild fruits play a significant role in human nutrition, especially as sources of carbohydrates, proteins, vitamins [C (ascorbic acid), A, thiamine (B1), niacin (B3), pyridoxine (B6), folacin (also known as folic acid or folate) (B9), E], minerals, dietary fibre and enormous medicinal potential (Shrestha, 2006; Quebedeaux and Eisa 1990 and Wargovich, 2000) [2-4]. It is needed to state that the wild edible fruits contain relatively high quantity of nutrients essential elements like Fe, Cu, Ca, Mn etc, in addition to their proximate properties like protein, carbohydrate, sugar etc, (Hegazy *et al*. 2013) [5].

Fruit plants are playing a vital role in providing nutritional and economical security to the poor mass in rural areas but the commercial importance and market value of these wild fruits in unknown to them. Hence the present study was made to list out the naturally growing wild fruits were collected from forest areas to identification by the indigenous community *Muthuvan* tribes from Wayanad hill for food and medicine, and to conserve those plants for their future generations. A perusal of these reports suggested that the ethnobotanical survey in Wayanad is incomplete and traditional herbal healing knowledge of a large number of folk communities need documentation. There is no previous report in the records of ethnobotanical knowledge of wild fruits used for various ailments from *Muthuvan* tribals of Wayanad district forest of Kerala. An attempt has therefore been made to collect and document the folk knowledge from tribals, local herbal healers and knowledge able elder people of different castes and communities residing in certain forest area of Wayanad wildlife forest.

Map of the study area

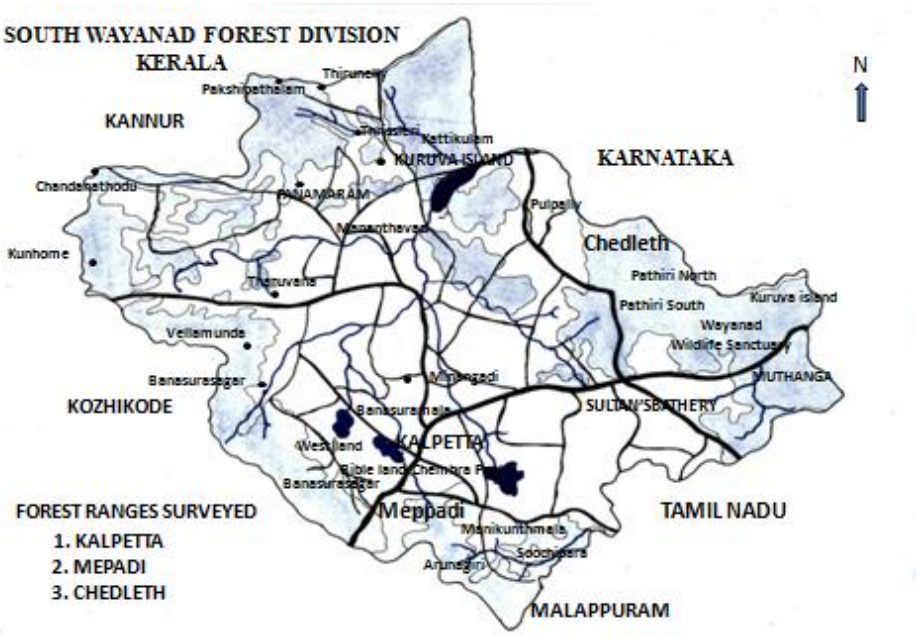

Fig 1

2. Study area

2.1 Wayanad District

The wayanad district lies between north latitude 11° 27' and 15° 58' and east longitude 75° 47' and 70° 27'. It is bounded on the east by Nilgiris and Mysore districts of Tamil Nadu and Karnataka respectively, on the North by Coorg district of Karnataka, on the South by Malappuram and on the West by Kozhikode and Kannur district. The Western Ghats Mountains in the Wayanad are rich in flora and fauna located at a distance of 76 km from the sea shores of Kozhikode. The altitude varies from 700-2100mts above sea level. The name Wayanad is believed that have been derived from the word Vayalnadu meaning the land of paddy fields. As for the forest vegetation are concern evergreen, semi evergreen, shola, deciduous, and dry deciduous forests are distributed all over the district. Annual rainfall is about 3000 to 4000 mm.

2.2 Wayanad Forest Division

Two forest divisions are there in wayanad district the South Wayanad forest division comprises of 3 forest ranges which is Kalpatta, Mepadi and Chedleth forest ranges. Particularly the forest areas Chambera, Attamalai and Manikunthmala in Mepadi range, Ladys smith, Bible land, and Padinarathra forest areas in Kalpetta range, Pampra, Pathiri South, and Kuruva island forest areas in Chedleth range are rich in floristic diversity.

The forest areas such as Chemberapeak, Arunagiri, Attamala, Manikunthmala, Parapanpara, Soochipara and Vengaishola forest areas in Meppadi Range, Lady's Smith, Meenmutti, Bibleland, Thandiodu, West land, Kuricharmala, Suganthagiri and Mandamala forest areas in Meppadi Range and Kuruva island, Padiri North, Padiri South forest areas in Chedleth Range were surveyed and carried out plant exploration activities. During the Ethnobotanical survey programme the climate in the study area was rainy, the annual rainfall was recorded about 3000-4000 mm in previous years. The tribal communities such as Irular, Kadas, Paniyas, Kattunayakans and Kuruchiars are settled in different part of the district. The survey team visited some of the tribal colonies such as Soochipara, Parapanpara in Meppadi Range, Kuttianvayal, Suganthagiri, Ampa in Kalpetta Range and Padiri South in Chedleth Range were surveyed. During the study the researchers interacted with the tribal and local peoples and recorded information on folk medicinal plants and wild fruits.

3. Present knowledge on local folk medicine

Ethnobotanical knowledge has been documented from various parts of Indian sub-continent. (Effiong and Udo 2010) [6]. In Kerala state, ethnomedicinal value of wild fruit plants in possession of various tribal and rural folk communities for treating various diseases have been done to some extent (Augustine Jomy 2005; Binu 2010 and Nazarudeen 2010) [7-9]. A perusal of the literature reveals that several ethnobotanical studies among various tribals have been reported from the various district of this state except Wayanad district, which has not yet been studied from ethnobotanical point of view.

4. Methodology

A preliminary survey of *Muthuvan* tribal villages in Wayanad district revealed that local communities used wild fruits as medicine for their healthcare extensively. Frequent field surveys were made in wayanad district. Each area was visited twice in different seasons in 2010-2011. Ethnobotanical data (Botanical name, local name, mode of consumsion and ethnobotanical uses) were collected through interviews and discussion with the tribal practitioners in and around the study area. Data were also collected through questionnaires in their local languages (Malayalam and Tamil). Informations were collected through interview with seventy two persons aged between 40-80, who had traditional knowledge of wild fruit

plants. In addition to the vernacular names, questions were also asked about each plant prescribed, such as part of the fruit used, medical uses, detailed information about mode of preparation (i.e., decoction, paste, pills, powder and juice); from the usage either fresh or dried and mixtures of other plants used as ingredients were also collected. The claims were compared with available important works on Indian ethnobotany and medicinal plants such as Jain (1991); Kirtikar and Basu (2001) and Nadkarni (1954) [10-12]. The medicinal fruit plants were identified (local names), photographed and sample specimens were collected for the preparation of herbarium documentation.

The collected wild fruit plant species were identified taxonomically using the Flora of Presidency of Madras (Gamble, 1936) [13] and the Flora of Tamil Nadu Carnatic (Matthew, 1983) [14]. The identified plant specimens were then confirmed through referral tour programme with herbaria of Botanical survey of India, Coimbatore. The specimens were deposited in the herbarium of survey of medicinal plant unit, Regional Research Institute of Unani Medicine, Chennai. The tribal information is also kept in the same institute, voucher specimens along with other details are given in Table-1.

5. Result

Wayanad District Wildlife forest has a variety of medicinal plants and wild fruits which are used by *Muthuvan* tribes for their primary health care. The present study identified tribal healers using 59 species of ethnomedicinal wild fruits distributed in 57 genera belonging to 39 families to treat various diseases and nutritional values also. The result of the survey presented in table-1, in which the wild fruit plants are arranged alphabetically by botanical names for each species. The following ethnobotanical information were provided; Botanical names, Family name, Voucher specimen numbers, Local names, mode of consuming and ethnobotanical Uses, Habit and Status of plant according to the informations collected. The mostly used 59 wild fruits plant among the tribals are habit wise analysed They are trees 33speies, climbing shrub 14 species, shrub 5 species, Small trees 2 species, Herb 2 species, Creeping shrub 1 species, Woody straggling shrub 1 species and floating herb 1 species. These are commonly occurring and medicinally important wild fruits used to treat various diseases like asthma, skin diseases, sex related problems, rheumatism, jaundice, diabetic, piles, ulcers, venereal diseases, tooth ache, bleeding gums, anaemia, insect catching fly glue, hair fall, paralysis, and wound healing etc,.

This is consistent with other general observations which have been reported earlier in relation to wild medicinal plants studies by the Indian system of medicines like Siddha, Ayurvedha and Unani (Kirtikar and Basu 1999) [11]., Anonymous, 1997., Asolkar *et al.,* 1992) [15-16]. Different types of preparation made from medicinally important plants include decoction, juice, powder, paste, oil and plant extract. Drugs are prescribed either single or in a combination of more than one plant / parts of same or different plants to the people suffering from various diseases. In Wayanad district, the local herbal healers and elder people rich in traditional knowledge depend on the natural resources of the area. Most of them still consider traditional herbal knowledge as traditional secrets. But, through repeated contacts, and discussions, they shared their traditional herbal knowledge. The wild fruit plants play an important role in providing knowledge to the researchers in the field of ethnobotany, ethnopharmacology and nutritional studies. The observation of present study shows that traditionaliy used wild fruits plays a significant role in the life of tribal people.

6. Discussion

The study of ethnomedicinal system and herbal medicinal as therapeutic agent is a paramount importance in addressing health problems of traditional communities and third world countries as well as industrialized societies. Previous reports on the ethnobotany of different states of India provide evidence for the presence of numerous ethnomedicinally used wild fruits plants used by various tribal communities (Sankaran *et al* 2006., Cyril *et al*,. 1993., Rathore,. 2009) [17-18]. The traditional knowledge about utilization of local plant species is vital in alternate health care system as well as for the self sustenance of local population. High costs coupled with numerous side effects of synthetic drugs are forcing people to depend on the locally available herbal medicine and wild fruit for their health care needs.

From the past, edible wild fruits have played a very vital part in supplementing the diet of the people. The dependence on these fruits has gradually decline as more exotic fruits have been introduced. But many people in tribal areas still use them as a supplement of their basic need of food. Some of them are preserved for use in dry period or sold in rural market. But the popularity of these wild forms has recently decreased. Apart from their traditional use of food, potentially they have many advantages. They are edible and having nutritional food value, which provides the minerals like sodium, potassium, magnesium, iron, calcium, phosphorus etc. They are immune to many diseases and often used in different formulation of Indian system of medicine and Indian Folk- medicine. They provide fibres which prevent constipation. It is consider that special attention should be paid in order to maintain and improve this important of food supply. In order to remedy, a wider and sustained acceptance of wild fruits as important dietary components must be stimulated.

The fruits are nature's gift to mankind. These wild fruits are chief source of vitamins, minerals and proteins. These constituents are essential for normal physiological well being and help in maintaining healthy state through development of resistant against pathogens (Bal, 1997) [1] ; Rathod and Valvi (2011) [20] studied the antinutritional factors of some wild edible fruits from Kolhapur district. Cyril *et al*. (1993) [18] reported less known edible fruit -yielding plants of Nilgiris. It is known that the intake of wild fruit reduces the rate of diseases and increases the rate of resistance and ageing. Fruit plants are playing a vital role in providing nutritional and economical security to the poor mass in rural areas but the commercial importance and market value of these wild fruits in unknown to them. Hence the present study was made to list out identification of underutilized wild edible fruits used by the indigenous community of *Muthuvan* from Wayanad forest, and to conserve those plants for their future generations.

Table 1: List of wild fruit plant, Local names, Mode of consumption and Ethnobotanical Uses, Habit and Status in Wayanad wild life Forest, Kerala, India.

S. No	Botanical Name/Family Name/ Voucher Specimen No:	Local Name	Mode of consumption and Ethnobotanical Uses	Habit/ Life form	Status
1	*Abrus precatorius* L./Fabaceae/ Voucher Specimen No: 8929	Kundumani	Seed paste applies externally for inflammation. Seed soaked in coconut oil to apply for hair growth, Seed jewels used for antiseptic and Skin diseases.	Climbing Shrub	Common
2	*Acacia sinuata* (Lour.) Merrill Mimosaceae / Voucher Specimen No: 11774	Shikakai	Fruit powder used for dandruff	Climbing Shrub	Common
3	*Adenanthera pavonina* L./ Mimosaceae/ Voucher Specimen No:11068	Manjadi/ Ananikundumani	Seeds paste externally used as antiseptic, seed jewels are wearing for antiseptic.	Tree	Rare
4	*Argyreia nervosa* (Burm.f.) Bojer / Convolvulaceae/ Voucher Specimen No:12721	Samuthurapachi	Unripe fruits soaked in neem oil then apply for Diabetic wound	Climbing Shrub	Common
5	*Averrhoa carambola* L./ Euphorbiaceae/ Voucher Specimen No:9963	Erumpuli	Fruit extract 20 ml orally given with honey to reduce obesity.	Tree	Rare
6	*Bombax ceiba* L./ Bombacaceae / Voucher Specimen No: 9755	Elavam	10g Unripe young fruit powder orally given daily with hot water for increase sperm counting.	Tree	Rare
7	*Bridelia retusa* (L.) A.Juss./ Euphorbiaceae/ Voucher Specimen No:9731	Mullu-vangai	Fruits eaten as raw for anaemia and improve blood countings.	Tree raw	Rare
8	*Caesalpinia crista* (L.) Roxb./ Caesalpiniaceae / Voucher Specimen No: 12524	Kachakai	Seed pastes with neem oil externally apply for skin rashes. Seed kernel 10 g orally given with hot water for stomach pain.	Climbing Shrub	Common
9	*Cardiospermum canescens* L./ Sapindaceae/ Voucher Specimen No: 8878	Kattu mudakathan	Seed soaked in coconut oil and used for dandruff and hair fall.	Climbing Shrub	Rare
10	*Calophyllum inophyllum* L. /Clusiaceae/ Voucher Specimen No:9016	Punnai Maram	Oil is externally used for ring worm, Seeds made in to jewel and wear as chain for skin diseases.	Tree	Rare
11	*Capparis zeylanica* L. / Capparaceae Voucher Specimen No:12321	Aatondai	Fruit used as pickle, eaten as raw also. Fruit juice 20ml orally given for reduces over menstrual bleeding.	Climbing Shrub	Common
12	*Careya arborea* Roxb. / Barring toniaceae/Voucher Specimen No: 9984	Pelamaram	10g Fruit powder made into 100ml decoction orally given for Stomach ulcers.	Tree	Rare
13	*Carissa carandas* L./Apocynaceae/ Voucher Specimen No:10089	Kilakai	Fruit used as pickle for indigestion, 20-50ml fruit juice orally given to urinary irritation.	Shrub	Common
14	*Cassia fistula* L./ Caesalpiniaceae / Voucher Specimen No:8923	Kondrai	Fruit yielding dark gum apply externally on sex organs for venereal diseases.	Tree	Common
15	*Catunaregam spinosa* (Thunb.) Tirveng. / Rubiaceae/ Voucher Specimen No: 12504	Karai	Fruit paste apply externally for prevent Leach bite in forest	Tree	Common
16	*Celastrus paniculatus* L. /Celastraceae/ Voucher Specimen No: 12242	Malkangani	Fruit juice 100ml daily orally given for nervous weakness. Seed soaked in coconut oil to apply externally as massage for paralysis.	Climbing Shrub	Rare
17	*Cipadessa baccifera* (Roth) Mig./Meliaceae/ Voucher Specimen No:11356	Pulipanchedi	Fruit juice used as gargle for bleeding and swelling gum.	Shrub	Common
18	*Cordia dichotoma* G. Forsk. Boraginaceae/Voucher Specimen No:12645	Naruvari	Fruit juice 30-50ml orally given for constipation Fruit pastes apply externally for skin irritation.	Tree	Rare
19	*Citrullus colocynthis* (L.) Schard./Cucurbitaceae/ Voucher Specimen No:12314	Athuthumati	Fresh fruit paste apply externally for joint pain Dried fruit powder 10g orally given with hot water for Diabetic.	Creeping Shrub	Common
20	*Crescentia cujete* L./ Bignoniaceae/ Voucher Specimen No:10943	Thiruvodu maram (Beggars bowl)	Fruit pod smoke inhaled for Asthma. Pod powder apply externally with neem oil for skin diseases.	Tree	Endangered
21	*Croton tiglium* L./ Euphorbiaceae/ Voucher Specimen No:11293	Neervelam	Fruit pastes externally apply for swellings and skin diseases. Fruit soaked in coconut oil externally apply for Paralysis.	Small tree	Rare
22	*Elaeagnus kologa* Schltdl. / Elaeagnaceae/ Voucher Specimen No:11493	Kattumunthiringa	Fruit eaten as raw for good health	Woody straggling shrub	Rare
23	*Debregeasia longifolia* (Burm.f.) Wedd./ Urticaceae/ Voucher Specimen No:9606	Cakavatitam/Kattu nochi	Fruit juice 100ml orally given for stomach ulcers.	Shrub	Rare
24	*Diospyros malabarica* (Desr.)Kostel. / Ebenaceae/ Voucher Specimen No:11216	Tumbika	50 ml Fruit juice orally given for reduce fever and chronic dysentery.	Tree	Rare
25	*Embelia ribes* Burm.f./ Primulaceae/ Voucher Specimen No:10173	Vayi Vilangai	100 ml Fruits decoction given for stomach problems and intestinal worms	Shrub	Rare
26	*Entada scandens Benth./* Fabaceae/ Voucher Specimen No:11460	Kurinjikai	20g Seed powder orally given with milk for sexual disorders.	Climbing Shrub	Rare
27	*Fagraea ceilanica* Thunb. / Gentianaceae/ Voucher Specimen No:11863	Marutankaimaram	Fruit paste uses as fly glue to control diseases transmitting fly.	Tree	Rare
28	*Garcinia gummi-gutta* (L.) Robs./Clusiaceae/ Voucher Specimen No:11154	Kodampuli	Fruit used as pickle and 10-20 ml of juice orally given for obesity.	Tree	Common

29	*Helicterus isora* L. / Sterculiaceae/ Voucher Specimen No:12288	Valampuri edampuri	Fruit soaked in coconut oil and apply hair for reduce hair fall.	Tree	Common
30	*Hugonia mystax* L./ Lianaceae/ Voucher Specimen No:10133	Mothira kanni	Unripe fruit paste apply externally for rheumatism swelling, Ripe fruit used as edible.	Climbing Shrub	Common
31	*Hydnocarpus wightiana* Blume./Flacourtiaceae/ Voucher Specimen No:11308	Maravetti	Fruit pastes apply externally for muscular pain and rheumatic pain.	Tree	Rare
32	*Mallotus philipensis* Mul.Arg./ Euphorbiaceae/ Voucher Specimen No: 10004	Senthuram	Fruit paste apply externally for Skin diseases.	Tree	Common
33	*Mimusops elengi* L./Sapotaceae/ Voucher Specimen No:10926	Magilam	Unripe fruit chewed for bleeding gum and teeth ache.	Tree	Common
34	*Mucuna atropurpurea* DC. /Fabaceae/ Voucher Specimen No:10283	Kattu punaikali	10g Seed powder orally given for improve semen counting and sexual disorders.	Climbing Shrub	Rare
35	*Mucuna pruriens* (L.) DC. / Fabaceae/ Voucher Specimen No:12194	Punaikali	10g Seed powder orally given for improve nervous weakness and sexual disorders.	Climbing Shrub	Rare
36	*Myristica dactyloides* Gaertn./ Myristicaceae/ Voucher Specimen No: 9954	Kattujathikai	Fruit bulb used as pickle for indigestion. 10 g Seed powder orally given for cough and cold.	Tree	Rare
37	*Oroxylum indicum* (L.)Vent./ Bignoniaceae/ Voucher Specimen No:11276	Palagapaimani	100ml fruit decoction orally given for mouth ulcers.	Tree	Endangered
38	*Pedalium murex* L./ Pedaliaceae/ Voucher Specimen No: 9761	Annainerunjil	100 ml fruit decoction orally given for kidney stone.	Herb	Common
39	*Persea macrantha* (Ness)Kosterm./Lauraceae/Voucher Specimen No:9669	Kolamavu	Fruit smoke inhaled for relief Asthma pain. Fruit paste apply externally for Rheumatic pain	Tree	Rare
40	*Phoenix sylvestris* (L.) Roxb./ Arecaceae/ Voucher Specimen No: 9331	Eichai	100 ml decoction of mature fruit powder orally given for Jest pain and heart related diseases.	Tree	Rare
41	*Pterospermum canescens* Roxb. / Sterculiaceae/ Voucher Specimen No:10289	Vennangu	Fruit pastes with neem oil externally apply for Skin rashes.	Tree	Rare
42	*Radermachera xylocarpa* (Roxb.) K. Schum./Bignoniaceae / Voucher Specimen No:9139	Vedanguruni	100ml fruit decoction orally given for birth control.	Tree	Rare
43	*Rhodomyrtus tomentosa* Wight./ Myrtaceae / Voucher Specimen No:11980	Koratta	Fruit edible, 100ml Fruit juice orally given daily for Bleeding piles.	Tree	Rare
44	*Rubia cordifolia* L./ Rubiaceae/ Voucher Specimen No:10241	Manjati	50-100 ml Fruit decoction orally given for Anaemic and general weakness .	Climbing Shrub	Rare
45	*Rubus ellipticus Smith.*/Rosaceae/ Voucher Specimen No:12358	Mullipallam	100 ml Fruit juice orally given for cough and sour throat	Climbing Shrub	Rare
46	*Sapindus emarginatus* Vahl. /Sapindaceae / Voucher Specimen No:12093	Puvathi	Seed coat smoke inhaled for Asthma	Tree	Common
47	*Sauropus androgynus (*L.) Merr. /Euphorbiaceae/ Voucher Specimen No:10285	Madurachera/ Thavasi Keerai	100 ml – 150ml Fruit decoction orally given daily for Jaundice.	Shrub	Rare
48	*Solanum virginianum* L./ Solanaceae / Voucher Specimen No: 12341		100 ml Fruit decoction orally given for Asthma Seed Smoke inhaled in mouth for Teeth ache.	Herb	Common
49	*Soymida febrifuga* (Roxb.) Juss. /Meliaceae/ Voucher Specimen No:9148	Sittathi	Fruit paste applies externally for rheumatic pain.	Tree	Rare
50	*Sterculia guttata* Roxb./ Sterculiaceae/ Voucher Specimen No:10409	Kavalam	Seed oil externally apply for inflammation and, Rheumatic pain.	Tree	Rare
51	*Stereospermum chelonoides* (L.fil.) DC. / Bignoniaceae/ Voucher Specimen No:10378	Pathiri	Fruit powder made into smoke and inhaled for asthma.	Tree	Rare
52	*Strychnos nux-vomica* L./ Loganiaceae / Voucher Specimen No: 12205	Eatti	5 g Seed powder mixed with 100 ml hot water orally given for jaundice	Tree	Rare
53	*Syzygium jambos* (L.) Alston- / Myrtaceae/ Voucher Specimen No:10157	Jambou	Fruit eaten as raw for good health	Tree	Rare
54	*Tamilnadia uliginosa* (Retz.)Tir&Sas. / Rubiaceae/ Voucher Specimen No:10186	Malankara	Fruit pastes apply externally on mouth for mouth ulcers.	Small Tree	Rare
55	*Terminalia bellirica* (Gaertn.) Roxb./ Combretaceae / Voucher Specimen No: 12224	Thandri	Seed paste with neem oil apply externally for venereal diseases	Tree	Rare
56	*Terminalia chebula* Retz./ Combretaceae / Voucher Specimen No: 9083	Kadukai	100 ml Seed decoction orally given for stomach ulcers and constipation.	Tree	Rare
57	*Toddalia asiatica* (L.) Lam. / Rutaceae/ Voucher Specimen No:9844	Milagarani	100 ml Fruit decoction orally given daily for chronic fever.	Climbing shrub	Common
58	*Trapa natan* L. / Trapaceae/ Voucher Specimen No:8861		Fruit powder orally given with hot water for Sexual debility	Floating herb	Rare
59	*Trema orientalis* (L.) Bl./ Canabinaceae/ Voucher Specimen No:9849	Payimunai	100 ml Fruit decoction orally given daily for Jaundice.	Tree	Endangered

7. Conclusion

The present study revealed that traditional medicines from wild fruit are still in common use by the *Muthuvan* tribal communities. Thus study ascertains the value of a great number of wild fruit plants used in tribal medicine for various diseases which could be of considerable interest in the

development of new drugs. The collected data show that majority of the medicines are taken orally and most of the reported preparations are obtained from a single plant; Mixtures are used rarely in other parts of the country and the use of mixtures of the plant species in treating particular ailments is fairly common in this area. Generally, the people of the study area still have strong belief in the efficacy and success of herbal medicine. The results of the present study provide evidence that the wild fruit plants continue to play an important role in the health care system of *Muthuvan* community. Finally to conclude, this research article will attract the attention of ethnobotanist, phytochemist, Nutrition analyst and pharmacologist for their critical investigation of wild fruit and medicinal plants present in the region of Wayanad district, Kerala, India.

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