

Diversity of use of ethnobotanical knowledge of endemic/native culinary plants resources in Sri Lanka

Withanachchi R. K / Silva O.T.D / Jayathileke Y.D

Abstract

It is estimated that there are about 300,000 - 500,000 plant species on the planet, of which 30,000 are considered edible, and only 7000 are planted or collected as food. Concerning the Sri Lankan context, Sri Lanka is home to as many as 300 varieties of edible plants, some of which are exclusive to the island. In this ethnobotanical study, it's attempted to identify edible culinary plant species which are available in the natural setting? And to what extent do people consume them? Accordingly, the main objective of this study was to study the diversity of use of ethnobotanical knowledge of endemic/native culinary plant resources in Sri Lanka. The proposed research stands out with inductive approach. Observations and semi-structured interviews were the prime methods of data collection. It is covered 100 Divisional Secretariats Divisions, and the required data were collected from 1200 households through semi-structured interviews. This study was able to synopsis a

comprehensive corporation of 150 endemic/native culinary plant resources, which belong to 68 families. Most of the Sri Lankan culinary plant resources belong to the 'Fabaceae' family with 15 species. Concerning the results of the study widespread plant life form was trees and the percentage is 34%. Secondly widespread plant life form was the shrubs with 32 (21%) species followed by herbs with 20% percentage as the third largest life form of the edible plants in Sri Lanka. In reference to the culinary plant resources in Sri Lanka, 92% of the plants have been used as medicinal food. At a time when the world's population is passing the eight billion mark, many countries are struggling to meet the need for continuous food supply. At that point, responsible Sri Lankan authorities should take into account introducing or recommending the use value of these edible plants, which people can consume but do not consume today.

Keywords: Culinary plants, Plant resources, Medicinal food, Native plants, Food Culture

INTRODUCTION

As per the records, and fossil evidence, the modern *Homo sapiens* originated approximately 250,000 – 300,000 years back in Africa. Somewhere between 70,000 – 80,000 years back, they started to migrate from the African continent to Europe and Asia. During this evolutionary process, early humans tended to identify numerous edible plant species (Wrangham, 2009). Before discovering the fire, our earliest ancestors used to consume different plant species and different parts of the plants (Wrangham, 2009). Afterward, the food culture of humans drastically changed in several aspects with the discovery of fire (Harari, 2014). Accordingly, numerous plant species and other resources could not be consumed before started to consume (Wrangham, 2009). It is estimated that there have been around 30,000 edible plant species since the beginning of human evolution (Rajapaksha 1998). The early humans used to inhabit as hunter-gathers, lately they collected food from the forests and prepared food their own (Wrangham, 2009). The inception of agriculture was marked as a significant milestone for the entire mankind (Harari, 2014). About 8000 years ago, humans started to cultivate numerous plant species in different regions of the world by the time the industrial revolution ensued (Harari, 2014). At that time, the powerful effect of the agricultural revolution was the industrial revolution since people had invented machines, modified seed varieties, chemical fertilizers, etc. (Withanachchi, 2019). As a consequence of the agricultural revolution, a limited number of edible plant species started to cultivate as a monoculture. Today 95% of the food demand is fulfilled by only 25 – 30 edible plant species, though the world owns plenty of edible plant species (Rajapakse, 1998). It is estimated that there are about 300,000 - 500,000 plant species on the planet, of which 30,000 are considered edible, and only 7000 are planted or collected as food (Cheng et al., 2022). Though elderly generations had a strong-traditional knowledge base on utilizing edible plants for either medicinal purposes or consuming purposes, modern-day people seem to have inadequate knowledge and experience in consuming edible plants. Due to the geographical setting of Sri Lanka, it is considered a tropical Island lying on the Indian Ocean. Concerning the Sri Lankan context, Sri Lanka is home to as many as 200 varieties of edible green leaves, some of which are exclusive to the island (Daniel, 2017 and Withanachchi, 2019). Edible plants are pivotal not only for their role as a source of food, nutritional or medicinal but are also an integral part of the Sri Lankan culture and traditional communities, while they are receiving increasing recognition in tackling food security and nutrition at the international level (Leon-Lobos et al., 2022). In this ethnobotanical study, it's attempted to identify culinary plant species which are available in the natural setting? And to what extent do people consume them? Accordingly, the main objective of this

study was to study the diversity of use of ethnobotanical knowledge of endemic/native culinary plant resources in Sri Lankan culture.

RESEARCH METHODOLOGY

The proposed study was developed under the observational research category which deals with facts and observations. Referring to the type of inference, the proposed research stands out with inductive approach. Observations and semi-structured interviews were the prime methods of data collection. This study covered 100 Divisional Secretariats Divisions at the same time 4 DS Divisions were selected from all the districts (25N), each 12 households were selected from each DS division via purposive and 12 household from each DS Division were selected from the snow ball sampling method, required data were collected from 1200 households through semi-structured interviews. The semi-structured interview schedule contained 15 questions regarding the identification and use of edible plants. This study was carried out August, 2018 to October, 2022. Interviews conducted at particular field sites such as the participant's residence. And the researchers have used Sinhalese and Tamil language as the prime communication tool to conduct interviews which were lasted around 30 - 45 minutes yet it depended on the data contributor's willingness to share his/her knowledge.

RESULTS AND DISCUSSION

Sri Lanka owns diversified, rich edible plant families with a strong-traditional knowledge base on consumption. Even though scientists have identified nearly 150 - 200 edible plant varieties in Sri Lanka, people have been used to utilizing around 10% of edible plant species, especially in rural communities. The considerable fact is approximately 20% of edible plants are endemic (exclusive) to our island, and most of them are contained both nutritional and functional values. Though early villagers and communities had a strong-traditional knowledge base on utilizing edible plants for either medicinal purposes or consuming purposes, modern-day people seem to have inadequate knowledge and experience in utilization of endemic/native edible plants. As reported by Christenhusz and Byng, 2016, the currently known, described, and accepted number of plant species; 374,000, of which 30,000 are considered edible, and only 7000 are planted or collected as food in the global context (Cheng et al., 2022). Based on the Revised Handbook to the Flora of Ceylon, Senaratna (2000) has shown that there are 4143 plant species recorded from Sri Lanka distributed within 214 families and 1522 genera (Herat, 2007). Correspondingly, out of the total plant population, there are over 200 edible plant species in Sri Lanka. This ethnobotanical study was able to synopsis a

comprehensive corporation of endemic/native edible plant species in Sri Lanka. Accordingly, 150 plant species have been identified which belong to 68 families.

Table 1: The number of species per botanical families

<i>Botanical family</i>	Number of species	<i>Botanical family</i>	Number of species
<i>Apocynaceae</i>	1	<i>Moringaceae</i>	1
<i>Crassulaceae</i>	1	<i>Acanthaceae</i>	1
<i>Brassicaceae</i>	1	<i>Cucurbitaceae</i>	10
<i>Fabaceae</i>	15	<i>Alliaceae</i>	1
<i>Anacardiaceae</i>	2	<i>Elaeocarpaceae</i>	2
<i>Moraceae</i>	5	<i>Costaceae</i>	1
<i>Erythroxylum</i>	1	<i>Melastomaceae</i>	1
<i>Cannaceae</i>	1	<i>Geraniaceae</i>	1
<i>Lauraceae</i>	2	<i>Convolvulaceae</i>	4
<i>Solanaceae</i>	3	<i>Zingiberaceae</i>	3
<i>Araceae</i>	8	<i>Poaceae</i>	6
<i>Lamiaceae</i>	1	<i>Piperaceae</i>	3
<i>Dilleniaceae</i>	1	<i>Cyperaceae</i>	1
<i>Clusiaceae</i>	1	<i>Rhamnaceae</i>	1
<i>Apiaceae</i>	1	<i>Commelinaceae</i>	1
<i>Dipterocarpaceae</i>	1	<i>Asclepiadaceae</i>	1
<i>Asparagaceae</i>	1	<i>Periplocaceae</i>	1
<i>Aizoaceae</i>	3	<i>Pontederiaceae</i>	1
<i>Marantaceae</i>	1	<i>Asteraceae</i>	2
<i>Bombacaceae</i>	1	<i>Phyllanthaceae</i>	1
<i>Myrtaceae</i>	1	<i>Pteridaceae</i>	1
<i>Malvaceae</i>	3	<i>Sapotaceae</i>	2
<i>Rutaceae</i>	3	<i>Rubiaceae</i>	1
<i>Amaranthaceae</i>	7	<i>Nelumbonaceae</i>	1
<i>Disocoreaceae</i>	6	<i>Nymphaeaceae</i>	2
<i>Aponogetonaceae</i>	1	<i>Passifloraceae</i>	2
<i>Musaceae</i>	1	<i>Menispermaceae</i>	2
<i>Arecaceae</i>	5	<i>Santalaceae</i>	1
<i>Asphodelaceae</i>	1	<i>Tiliaceae</i>	1
<i>Euphorbiaceae</i>	5	<i>Sapindaceae</i>	1
<i>Boraginaceae</i>	1	<i>Hydrophyllaceae</i>	1
<i>Scrophulariaceae</i>	1	<i>Flacourtiaceae</i>	1
<i>Cycadaceae</i>	1	<i>Brassicaceae</i>	1
<i>Olacaceae</i>	2	<i>Pandanaceae</i>	1

Most of the Sri Lankan edible plant species belong to the ‘*Fabaceae*’ family with 15 species, and the least number of plant species belonged to 43 families with 1 species such as *Apocynaceae*, *Crassulaceae*, *Erythroxylum*, and *Apiaceae*, etc. The *Fabaceae* or *Leguminosae*, commonly known as the legume, pea, or bean family, are a large and economically important family of flowering plants and this group is the third largest land plant family (Rahman and Parvin, 2015). A similar study in ultramafic outcrops in Sri Lanka has revealed that the *Fabaceae* is the most species-rich family among the Sri Lankan plant species (Fernando et al., 2021). According to the results of the study the second large family was ‘*Cucurbitaceae*’ with 10 species and the ‘*Araceae*’ family was the third largest family with 8 species followed by the family *Cucurbitaceae*. Even though Sri Lankans owned ample knowledge of utilizing edible plant species, as previously mentioned, modern-day people don’t have adequate knowledge of utilizing edible plants. By concerning the inadequate knowledge (lack of traditional knowhow) of utilizing edible plant species, the below table illustrated to provide the insights into the identified Sri Lankan edible plant species with their ethnobotanical characteristics since it was the prime objective of this study.

Table 2: Endemic/native edible plant species of Sri Lanka and their ethnobotanical characteristics

No	Common Name	Scientific Name	Part of Use	Mode of Use
01	<i>Kiri aguna/</i> <i>Thittha aguna</i>	<i>Dregea volubilis</i>	Leaves/Pods	Mallung/Curry
02	<i>Akkapana</i> (Air plant, life plant)	<i>Kalanchoe pinnta</i>	Leaves	Curry/Kanda
03	<i>Aba</i> (Indian mustard)	<i>Brassica juncea</i>	Leaves/Seeds	Oil/Cream/ Mallung/Spicy
04	<i>Ehala</i>	<i>Casia pistula</i>	Leaves	Curry/Mallung
05	<i>Atamba</i>	<i>Mangifera</i> <i>zeylanica</i>	Fruits	Fruit/Curry/ Chatney
06	<i>Atthikka/Dibul/</i> <i>Attikka</i> (Country fig)	<i>Ficus racemosa</i>	Fruits/Leaves	Mallung/Curry/ Tea
07	<i>Batakirilla</i>	<i>Erythroxylum</i> <i>moonii</i>	Leaves/Fruit/ Bark	Leaf powder/ Curry/Mallung
08	<i>Mahaberaliya</i>	<i>Shorea</i> <i>megistophylla</i>	Fruits	Roti/Sweets/ Curry

09	Buthsarana (Indian bread)	<i>Canna indica</i>	Yam	Boiled yam/ Curry
10	Davul kurundu/ Val Kurundu	<i>Neolitsem cassia</i>	Young leaves	Sweets
11	Elabatu (Eggplant)	<i>Solanum surattense</i>	Fruits	Boiled herbs/ Kanda/Curry (leaves)
12	Gahala/Kandala/ Thadala/Dehiala (Taro, Cocoyam)	<i>Colocasia esculenta</i>	Yam/Pith	Boiled yam/ Curry
13	Amba (Mango)	<i>Mangifera indica</i>	Fruits	Fruit/Curry/ Chutney
14	Gatathumba	<i>Lucas Zeylanica</i>	Leaves/ Young leaves	Curry/Mallung/ Kanda(leaves)
15	Godapara (Dillenia Tree)	<i>Dillenia retusa</i>	Fruits/ Flowers	Curry/Salad/ Fruit
16	Goraka (Red mango)	<i>Garcinia cambogia</i>	Fruits	As a dried paste/ Curry(fruit)/ Jam(fresh fruits)
17	Gotukola (Indian pennywort)	<i>Centella asiatica</i>	Leaves	Mallung/Kanda / Sambol/Tea
18	Hal	<i>Vateria copallifera</i>	Fruits	Pittu/Roti
19	Hathavariya (Wild asparagus)	<i>Asparagus racemasus</i>	Leaves/Yam	Kanda/Boiled yam
20	Heensarana (Horse purslane)	<i>Trianthema portulacastrum</i>	Leaves	Curry/Gruel
21	Hulankeeriya (Arrowroot plant)	<i>Maranta arundinacea</i>	Yam	Gruel/Yam/ Powder
22	Imbul: Katu imbul/Ela imbul (Red silk cotton tree)	<i>Bombax ceiba</i>	Flour/Leaves	Curry (young leaves)
23	Pinijambu (Water rose apple)	<i>Syzygium aqueum</i>	Fruits	Fruit/Curry/Ja m
24	Kapukinissa (Musk Mallow)	<i>Abelmoschus moschatus</i>	Leaves/Pods/ Young	Dried/Grinded seeds/Curry

			leaves/ Roots/Seeds	
25	Karapincha/Kalu nimba/Karasimbiya (Curry - Leaf)	<i>Murraya koenigii</i>	Leaves/Bark/ Roots	Paste/Kanda/ Leaf juice/Herbs
26	Katarolu/ Katarodu (Asian pigeonwings)	<i>Clitoria ternatea</i>	Young leaves/ Pods/Roots/B ark Flowers/Seed s	Herbal drink/ Powder/Grinde d leaves/Kanda/ Curry(Pods)
27	Katuthampala (Prickly Amaranth)	<i>Amaranthus spinosus</i>	Leaves	Mallung/Curry
28	Katu ala (Buck yam)	<i>Dioscorea pentaphylla</i>	Yam/Flowers	Curry(flowers)/ Boiled yam/ Mallung
29	Kathurumurunga (Agthi)	<i>Sesbania gradiflora</i>	Leaves/Bark Flowers/Root s	Mallung/Curry/ Leaf juice/ Fried leaves
30	Kekatiya (Water chest nut)	<i>Aponogeton crispus</i>	Yam/Flowers	Yam boiled water Curry (flowers)/ Yam
31	Kesel/Ramba (Banana, Plantain)	<i>Musa sapientum</i>	Fruit/Flower/ Bud/Yam	Fruit/Curry/ Flower curry
32	Kiri ala/Kiri Habarala/Habarala (Giont tara)	<i>Alocasia macrorrhiza</i>	Yam/Leaves Stem/Roots	Boiled yam/ Curry/Pith curry
33	Kithul (Fish palm tree)	<i>Caryota urenes</i>	Bud/Flower/ Flour	Gruel (<i>Kithul</i> flour)/Flower curry/Jaggery
34	Komarika (Aleo plant)	<i>Aloe vera</i>	Leaves	Gruel/Crude
35	Kuppameniya/ Valniya/Kamaniya (India Acalypha)	<i>Acalypha indica</i>	Leaves/Roots	Mallung/Curry/ Kanda

36	Kurundu (Cinnamon)	<i>Cinnamomum zeylanicum</i>	Leaves/Sticks	Spices/Oil/Tea
37	Lolu/ Patharaja/ Patharanga (Sebesten plum, Indian Cherry)	<i>Cordia dicotoma</i>	Young leaves/ Fruits/Flowers/ Seeds/Bark	Curry/ Mallung
38	Lunuvila/Bambathiri/Bambithiriya (Thyme - laved gratiola)	<i>Bacopa monnieri</i>	Leaves	Curry/Mallung
39	Madu (Cycadales)	<i>Cycas circinalis</i>	Fruit/Young leaves/Seeds	Curry/Flour/Roti/ Kanda
40	Mahasarana	<i>Trianthema decandra</i>	Leaves	Mallung/Curry
41	Mea/Leema karal (Lima bean)	<i>Vigna marina</i>	Pods/Young leaves	Curry/Salad/ Mallung
42	Malla: i. <i>Kabomalla</i> ii. <i>Mugunumalla</i>	<i>Olex zeylanica</i>	Leaves	Mallung/Gruel/ Fried leaves
43	Mugunuvanna	<i>Alternanthera sessilis</i>	Leaves/Roots	Mallung/Leaf paste/Herbal drink/
44	Mung/Mung ata (Green gram)	<i>Phaseolus aureus</i>	Pods	Curry/Mung boiled water/ Sweets
45	Murunga (Drumstick tree)	<i>Moringa oleifera</i>	Leaves/Pods/ Flowers/Bark	Mallung/Curry/ Grinded leaves
46	Nelli/Ambulupala (Embleic myrobalan)	<i>Phyllanthus emblica</i>	Fruits/Leaves / Bark	Boiled water/Jam/ Chutney
47	Niyan Watakolu (Sponge gourd)	<i>Luffa cylindrica</i>	Young pods/ Leaves	Curry
48	Panithora/Hiwal thora (Fetid cassia)	<i>Cassia occidentalis</i>	Leaves/Seeds / Roots/Flowers/ s/	Mallung/Curry
49	Alupuhul	<i>Berincasa hispida</i>	Entire plant	Curry/Sweets

	(Wax gourd)			
50	Puvak (Areca nut, Betel nut)	<i>Areca catechu</i>	Bud/Flowers/ Fruits	Flower curry
51	Raja ala/Rata ala/ Kiri kodol (Greater yam, Water yam)	<i>Dioscorea alata</i>	Yam	Curry/Boiled yam
52	Ranavara (Mature tea tree)	<i>Cassia auriculata</i>	Leaves/Trunk / Seeds/Roots/ Bark/Flowers	Boiled herbs/ Gruel/Kanda/ Curry (leaves)
53	Karalhaba: Rath karalhaba/Gas karalhaba (Rongh chaff tree)	<i>Achyranthes aspera</i>	Entire plant	Mallung/Curry
54	Siyabala (Tamarind)	<i>Tamarindus indica</i>	Pods/Leaves	Fruit/Paste/ Kanda
55	Sudulunu/Helalunu (Garlic)	<i>Allium satium</i>	Bulb/Leaves	Curry/Food flavor and food preserve
56	Thumbakaravila	<i>Momordica dloica</i>	Fruit	Curry/Badun
57	Udala (Lesser yam, Chinese yam)	<i>Discorea bulbifera</i>	Yam	Boiled yam/Curry
58	Undu (Black gram)	<i>Phaseolus mungo</i>	Seeds	Flour/Seed curry/ Sweets
59	Badidel (Bread fruit)	<i>Artocarpus nobilis</i>	Fruits/Seeds	Curry/Fried seeds/Mallung
60	Val thibbatu	<i>Salanum trilobatum</i>	Fruits/Leaves / Seeds	Gruel/Curry
61	Dabala (Winged bean, Goa bean)	<i>Psophocarpus tetragonolobus</i>	Pods/Seeds/Y am/ Flowers/Leav es	Curry/Badun/ Salad/Mallung/ Yam curry
62	Kukulala (Potato yam)	<i>Dioscorea esculenta</i>	Yam	Boiled yam/ Curry
63	Gonala	<i>Dioscorea spicata</i>	Yam	Boiled yam/Curry

64	Veralu (Ceylon olive)	<i>Elaeocarpus serratus</i>	Fruits/Leaves	Fruit juice/Pickle/ Fruit/Curry/ Kanda (leaves)
65	Valuthampala (Tropical amaranth)	<i>Amaranthus pohygonoides</i>	Leaves	Curry
66	Karavila (Bitter gourd)	<i>Momordica charantia</i>	Pods	Curry/Salad/ Juice/Fried bitter gourd (badun)
67	Watakolu (Ridged gourd)	<i>Luffa acutangula</i>	Pods	Curry/Salad
68	Thebu	<i>Costus speciosus</i>	Young leaves/ Yam	Mallung/Salad
69	Kohila/Koyovila	<i>Lasia spinosa</i>	Yam/Young Leaves/ Flowers	Curry (yam, flowers & leaves)/ Kandha
70	Heen bovitiya	<i>Osbeckia octandra</i>	Young leaves/ Roots	Leaf juice/Gruel/ Curry/ Lunu mirisa
71	Biling (Bilimbi tree)	<i>Averhoa bilimbi</i>	Fruits	Chutney/Juice Curry/Fruit
72	Maila	<i>Bauhinia racemosa</i>	Young leaves/ Pods	As boiled herbs/ Curry/Leaf mallung
73	Heen Undupiyaliya (Creeping tick trefoil)	<i>Desmodium triflorum</i>	Entire plant	Gruel
74	Kaballa	<i>Aporusa lindleyana</i>	Bark/Bud/Yo ung leaves	Curry/Leaf paste
75	Thalkola	<i>Ipomoea obscura</i>	Leaves	<i>Embula</i> /Salad
76	Kankun (Kong Kong)	<i>Ipomoea aquatica</i>	Leaves	Deville <i>kankun</i> / Curry
77	Alanga	<i>Ipoemia bona</i>	Pods	Curry/Mallung

	(Moon flower)			(leaves)
78	Avara (Sword bean)	<i>Canavalia gladiata</i>	Pods	Curry/Badun/ Boiled seeds
79	Vee (Paddy, Rice)	<i>Oryza sativa</i>	Seeds	Rice/Kandha/ Sweets
80	Batukaravila (Bitter gourd)	<i>Momordordica charantia</i>	Pods	Curry
81	Bim pol	<i>Trichopus zeylanicus</i>	Fruits/Leaves	Fruit/Kandha (leaves)
82	Dehi (Lime)	<i>Citrus aurantifolia</i>	Fruits	Juice/Dried lemon peels/Food flavor
83	Desha ala/Rata ala (Alocesia)	<i>Alocasia indica</i>	Yam	Boiled yam/Curry
84	Diya thippili (Shiny bush)	<i>Peperomia pellucida</i>	Leaves/Sticks	Salad/Paste/ Tempering
85	Divul (Wood apple)	<i>Feronia limonia</i>	Fruits/Leaves / Glue/Seeds	Juice/Ice cream/ Kandha
86	Dummalla/Kemwal (Indrayan)	<i>Trichosanthes cucumerina</i>	Fruits/Leaves / Roots	Boiled as herbs/ Leaf juice
87	Koon (Ceylon oak)		Fruits	Chutney
88	Uk (Sugarcane)	<i>Sccharum officinarum</i>	Sticks/Leaves	Sugar/Jaggery/ Juice/Leaf juice/Sweets
89	Heen eraminiya	<i>Ziziphus oenoplia</i>	Fruits/Leaves	Fruit/Juice/Cur ry
90	Pota val (Climbing aroid)	<i>Pothos scandens</i>	Fruits/ Young leaves	Mallung/Leaf juice/Curry
91	Gammiris (Black pepper)	<i>Piper nigrum</i>	Seeds	Powder/Paste/ Spices
92	Genda sarana	<i>Boerhavia sp</i>	Leaves	Curry/Mallung
93	Ginithilla/Girithilla (Elephant creeper)	<i>Argyreia populifolia</i>	Fruits/Leaves	Fruit/Curry
94	Gira pala	<i>Commeline diffusa</i>	Leaves	Mallung/Curry/

	(Climbing dayflower)			Kandha
95	Gonika val (Hoya ovalifolia)	<i>Psychotria sarmentosa</i>	Leaves	Kandha
96	Inguru (Ginger)	<i>Zingiber officinale</i>	Yam	Paste/Juice/ Food flavor/ Curry (flowers)
97	Iramusu (Indian sarsaparilla)	<i>Hemidesmus indicus</i>	Roots/ Leaves	Kandha/Tea
98	Diyahabarala	<i>Monochoria hestata</i>	Stem	Kandha/Curry
99	Kadupahara	<i>Emilia sonchifolia</i>	Leaves	Kandha/Salad/ Mallung
100	Kaha (Turmeric)	<i>Curcuma domestica</i>	Yam	Powder/Paste/ Food coloring
101	Amu (Kodo millet)	<i>Paspalum scrobiculatum</i>	Seeds	Seeds/Flour
102	Kakilla (Wire fern)	<i>Gleichenia linearis</i>	Young leaves	Mallung
103	Heen kakiri (Chines white cucumber)	<i>Cucumis melo var conomon</i>	Fruits	Curry/Mallung (leaves)
104	Kara kola	<i>Canthium coromandelicum</i>	Fruits/Leaves / Roots	Mallung
105	Meemana			Curry/Badun
106	Katu kithul	<i>Oncosperma fasciculatum</i>	Bud	Curry
107	Katu pila	<i>Fluggea leucopyrus</i>	Leaves/Bark Fruits/Roots	Gruel/Curry/ Mallung
108	Kidaram (Elephant yam)	<i>Amorphophallus campanulatus</i>	Flowers/Yam	Boiled yam
109	Karon koku (Fern)	<i>Acrostichum aureum</i>	Young leaves	Curry/Badun
110	Kosdel (Breadfruit)	<i>Artocarpus camanis</i>	Fruits/Seeds/ Pith	Mallung/Curry/ Boiled seeds
111	Kos/Herali (Jackfruit)	<i>Artocarpus heterophyllus</i>	Fruits/Leaves / Seeds/Pith	Curry/Boiled/ Mallung/Tender jack fruit/Boiled

				seeds & curry/ Drinks/Sweets
112	Kovakka (Ivygourd)	<i>Coccinia grandis</i>	Fruits/Young leaves	Fruit/Curry
113	Kukul karamal (Woolflower)	<i>Celosia sp</i>	Young leaves	Mallung/Curry
114	Kuura thampala	<i>Amaranthus viridis</i>	Entire plant	Curry
115	Lavulu (Star apple)	<i>Chrysophyllum roxburghii</i>	Fruits	Curry/Jam/Drin ks
116	Malla kola	<i>Olax zeylanica</i>	Young leaves	Mallung/Grind ed dry leaves
117	Mee/Meek (Honey tree)	<i>Madhuca longifolia</i>	Fruits/Seeds Flowers/Bark	Oil/Herbal drink/ Fruit curry/Sweets
118	Monara kudumbiya (Little ironweed)	<i>Vernonia cinerea</i>	Leaves	Kandha/Mallun g before flowering/ Curry
119	Mussanda (Wild mussaenda)	<i>Musseanda frondosa</i>	Leaves/Roots /Seeds/Flowe rs	Fried leaves/ Kandha
120	Nelum (Chinese water lily)	<i>Nelumbo nucifera</i>	Yam/Seeds	Yam curry/ Salad/Fried/ Badun/Soup
121	Olu (Lotus)	<i>Nymphaea lotus</i>	Stem/Yam/ Seeds	Yam curry/Rice (seeds)/Boiled yam/Stem badun and curry
122	Val dodam (Passion fruit)	<i>Passiflora edulis</i>	Fruits/Leaves	Fruit/Mallung/ Kandha/Curry (fruit skin)
123	Pethi dabala/ Dabala/Kiri dabala	<i>Lablab purpurens</i>	Pods/Leaves/ Flowers	Pods curry & badun/Mallung (flowers)

124	Polpala/Puswana	<i>Aerva lanata</i>	Leaves	Kandha/Drink/ Mallung
125	Pol (Coconut)	<i>Cocos nucifera</i>	Fruits	Curry/Coconut milk/Sambal/O il
126	Ranathampala (Inca wheat)	<i>Amaranthus paniculatus</i>	Seeds/Leaves	Mallung/Curry
127	Rasakinda (Heart - leaved moonseed)	<i>Tinospora cordifolia</i>	Leaves/Roots	Leaf juice/Herbal drink
128	Sudu handun (Sandalwood)	<i>Samtalam album</i>	Young leaves/Stick	Mallung/Curry
129	Thanahal (Italian millet)	<i>Setaria italica</i>	Seeds	Gruel/Grinded seeds
130	Thibbatu	<i>Solanum indinm</i>	Fruits/Leaves	Curry/Mallung/ Leaf curry
131	Thittha thibbatu	<i>Solanum torrum</i>	Fruits	Anama/Leaf mallung
132	Wada mal	<i>Hibisus rosa - sinensis</i>	Flowers/ Leaves/Roots	Boiled herbs/Tea Flower paste/ Fried flowers
133	Kahata		Fruits	Curry
134	Penela (Ballon vine, Leaved heart pea)	<i>Cardiospermum microcarpum</i>	Leaves	Kandha/Mallun g
135	Wal kohila	<i>Phaphidophora deeursive</i>	Young leaves	Curry/Mallung
136	Weniwalla		Leaves	Curry
137	Wewal (Cane)	<i>Calamus rotang</i>	Shoot	Curry
138	Wishnukranthi (Round leaf bind weed)	<i>Evolvulus nummularius</i>	Leaves	Gruel
139	Dal batu/Pada wal (Wild water melon)	<i>Passiflora foetida</i>	Fruits/Roots/ Leaves	Curry/Mallung
140	Wel ala kola	<i>Alocasia sp</i>	Yam/Young leaves	Curry/Sauce
141	Yaki narang	<i>Atalantia Ceylanica</i>	Leaves	Kandha
142	Kahapethan	<i>Bauhinia</i>	Flowers	Fried flowers

	(Yellow bell orchid tree)	<i>tomentosa</i>		
143	Lovi (Batoko plum)	<i>Flacourtia inermis</i>	Fruits/Leaves	Mallung/Chutney/Jam
144	Thal		Shoot	Sweets/Boiled juice/Drinks
145	Rampe (Pandanus, Pandan)	<i>Pandanus amaryllifolium</i>	Leaves	Food flavor
146	Ratanelli/Ambullinelli (Star gooseberry)	<i>Phyllanthus acidus</i>	Fruits/Leaves	Drink/Jam/Syrup/Curry/Chutney
147	Thippili (Long pepper)	<i>Piper longum</i>	Pods	Herbal drink
148	Una (Bamboo tree)	<i>D. latiflorus/ D. oldhami</i>	Shoot	Shoot curry
149	Thel olu	<i>Nymphaea nouchali</i>	Yam/Stem	Curry/Mallung
150	Labu (Bottle gourd)	<i>Lagenaria siceraria</i>	Fruit	Curry/Leaf mallung

Based on the ethnobotanical data and information obtained from the study, identified edible plant species classified into 6 clumps; trees, shrubs, climbers, grass, herbs and vines (Fig.1). This preliminary identification and classification were done by referring to life form categories of plant species applied by John J. Ewel and Seth W. Bigelow (1996) in their study.

To be useful, a system would have to include at least the seven most-conspicuous categories: dicotyledonous trees; trees with one or few meristems; treelets; shrubs; giant herbs; vines; and epiphytes (Ewel, and Bigelow, 1996).

Accordingly, life form is the sum of adaptive characters in a species and thus is an expression of the harmony between a plant and its environment (Warming, 1990). Concerning the results of the study widespread plant life form was trees and the percentage is 34%. Secondly widespread plant life form was the shrubs with 32 (21%) species followed by herbs with 20% percentage as the third largest life form of the edible plants in Sri Lanka. The grass was the most limited life form, and it is 2%.

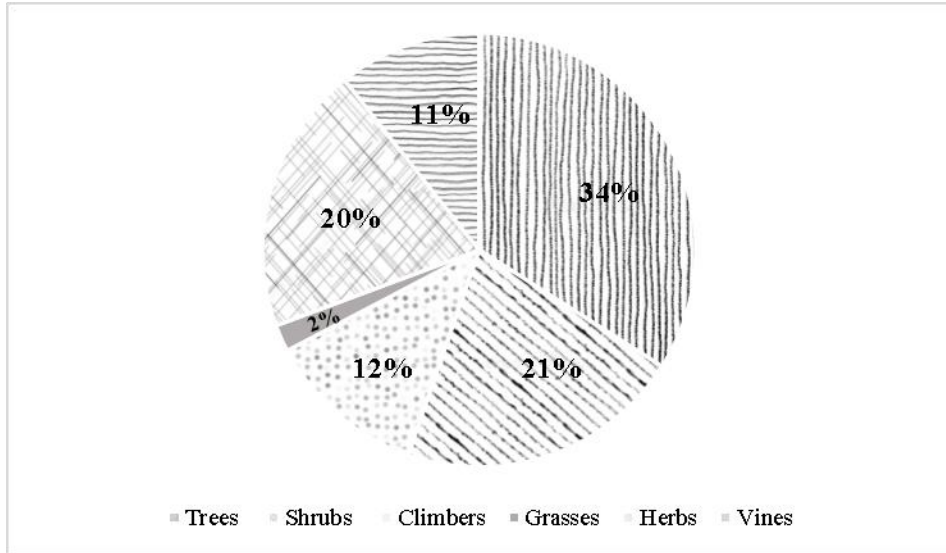


Fig. 1: Life forms of edible plant species

With reference to the used parts of the identified edible plants (Fig.2), the aerial part was the most commonly used part with 95 species, illustrating 38%. Plants utilized for the fruits come second with a percentage of 18% (45 plant species) and as previously mentioned the majority of these plants are trees, underground parts, 18% (44 plant species) recorded for the third place when concerning the used parts of edible plants in the Sri Lankan context. Other than that, seeds and flowers also ranked with higher numbers when compare to the use of entire plant, pods, and pith. Consequently, the majority of the edible plants in this study were used for their aerial parts, which agrees with the results of several authors who had carried out different research on edible plant species in the world (Molina et al; 2016, Ghanimi, 2022). Furthermore, more than one specific part of the plant had been consumed/utilized by the people, especially in Sri Lankan rural communities.

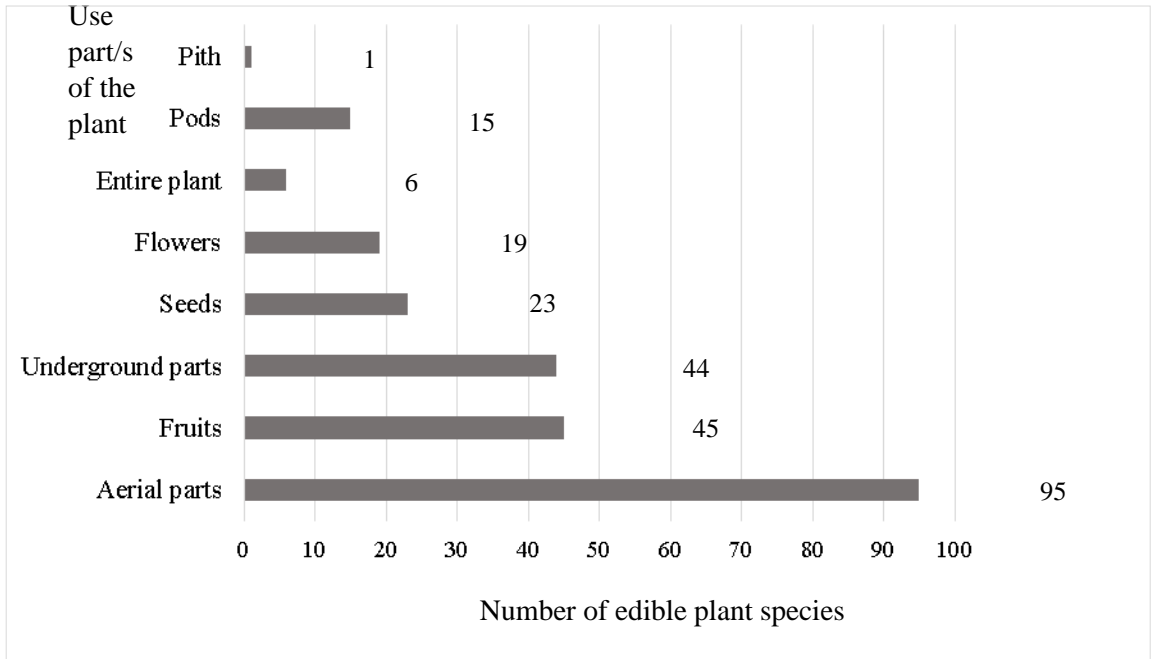


Fig.2: Use parts of edible plant species

Wild edible plants had several modes of consumption and preparation methods in different traditional recipes (Dagon et al., 2013). In reference to the edible plant species in Sri Lanka, most of the plants have been used as medicinal food (92%), but when comparing the numbers, 8% of plant species considered as non-medicinal food (when the similar studies where had been carried out in Turkey, Pakistan, Morocco, and India, researchers have perceived that he large part of these WEPs were eaten cooked, which can be explained by their use as vegetables (Dagon, 2013; Ghanimi, 2022).

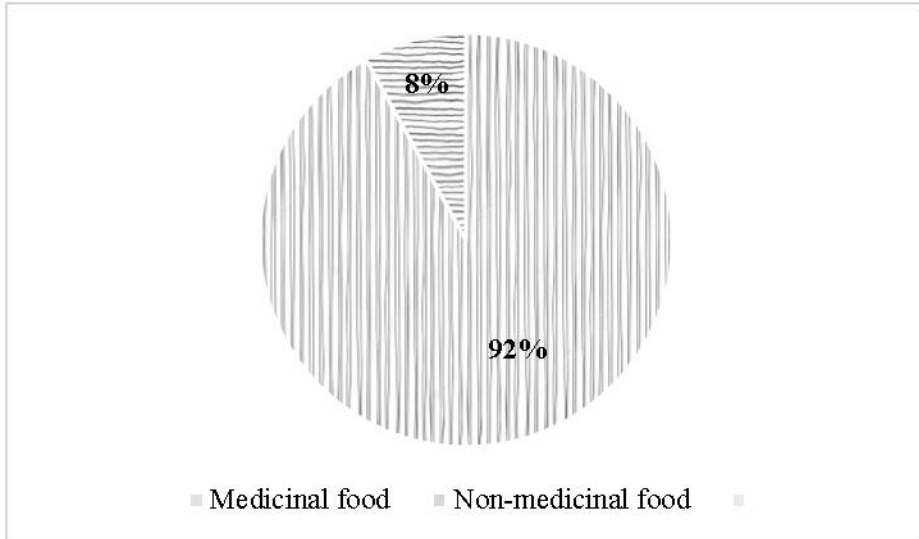


Fig.3: Use of value of the plants

CONCLUSION

Sri Lanka is home to more than 150 culinary plant species. Even though most of these endemic/native plant varieties comprise both culinary and medicinal values, but by now, these edible plant varieties have moved away from daily consumption. At a time when the world's population is passing the eight billion mark, many countries are struggling to meet the need for continuous food supply. At that point, responsible Sri Lankan authorities should take into account introducing or recommending the use value of these edible plants, which people can consume but do not consume today. It is not only a remedy for the food crisis that is predicted to occur in the modern future, but it is also an aid to the declining health of individuals.

ACKNOWLEDGEMENT

This work was supported by the Research Council [ASP/01/RE/HSS/2022/01], University of Sri Jayewardenepura and Waters Edge Hotel - Sri Lanka Battaramulla.

References

Cheng, Z., Lu, X., Lin, F., Naeem, A., and Long, C. (2022). Ethnobotanical Study on Wild Edible Plants used by Dulong People in Northwestern Yunnan, China.18.

Christenhusz, M. J. M. and J. W. Byng. (2016). The number of known plants species in the world and its annual increase. *Phytotaxa* 261 (3): 201–217.

Daniel, S. (2017). The not so famous edible leaves of Sri Lanka, Part – I. *roarmedia*.

Denise, R. M., Fernando A. van der Ent, Weerasinghe, A. S., Wijesundara, D. S. A., Gunawarna, W. A., Fernando, R., Fernando, A. E., Iqbal, M. C. M., Miranda, C. H., Gosse, J. M., Samithri, S., and Rajakaruna, N. (2021). Assessment of plant diversity and foliar chemistry on the Sri Lankan ultramafics reveals inconsistencies in the metal hyperaccumulator trait. National Geographic Society, Grant/Award Number: WW-R019-17; US-Sri Lanka Fulbright Commission.

Ewel, J. J. and Bigelow, S. W. (1996). *Plant Life-Forms and Tropical Ecosystem Functioning*. Vol.22. Department of Botany, University of Florida, USA. Springer-Verlag Berlin Heidelberg .

Ghanimi, R., Ouhammou, A., Ahouach, A., and Cherkaoui, M. (2022). Ethnobotanical study on wild edible plants traditionally used by Messiya people, Morocco. *Journal of Ethnobiology and Ethnomedicine* 18:16.

Guerrero, J. L. G. and Isasa, M. E. T. A. (2002). *Recent Progress in Medicinal Plants: Edible Wild Plants*. Tech Publishing LLC. 8:431 – 466.

Harari, Y. N. (2014). *Sapiens: A Brief History of Humankind*. Harper; Illustrated edition.

Herat, T. R. (2007). *Endemic Flowering Plants of Sri Lanka*. Department of Biology, Faculty of Applied Sciences, Rajarata University of Sri Lanka, Mihintale.

Rahman, A. H. M. M. and Parvin, M. I. A. (2015). Taxonomic Studies on the Family Fabaceae (Weeds) at Rajshahi University Campus. Vol. 3, No. 3, 2015, pp. 20-25.

Rajapakse, U. (1998). *Traditional Food Plants in Sri Lanka*. Hector Kobbekaduwa Agrarian Research and Training Institute, Colombo.

Tardio, J., De-Santayana, M. P., and Morales, R. (2006). Ethnobotanical review of wild edible plants in Spain. *Botanical Journal of the Linnean Society*. 152(1):27 – 71.

Tardio, J., De-Santayana, M. P., and Morales, R. (2006). Ethnobotanical review of wild edible plants in Spain. *Botanical Journal of the Linnean Society*. 152(1):27 – 71.

Withanacchi, R. K. (2019). A Study on Traditional Curries Types in Sri Lanka. 6th International Conference on Multidisciplinary Approaches (iCMA) 2019. Faculty of Graduate Studies, University of Sri Lanka.

Withanachchi, R. K. (2019). A Study on Usage of Traditional Sri Lankan Spices. In Proceedings of the 6th International Conference on Multidisciplinary Approaches (iCMA). Faculty of Graduate Studies, University of Sri Lanka.

Withanachchi, R. K. (2019). *Aharashaka Sanhithawa*. Vidudaya publications, Nugegoda.

Withanachchi, R. K. (2019) *Hela Rasabimanya*. Waters Edge Ltd, Colombo