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Ethnobotanical Study of Medicinal Plants Used to Treat Human Diseases In The Urban Forest Area Of Sangga Buana Cilandak Jakarta Selatan

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Abstract

Indonesia has abundant natural resources. Natural resources can be used as medicinal herbs. The use of natural resources using medicinal plants (medicinal herbs) has existed for a long time. Medicinal plants are spread all over Indonesia. The urban forest of Sanga Buana Cilandak in South Jakarta is widely used as a place for conservation, education, and nature-based tourism, and is selected as a research site because it is used by local people for food and medicine**.** The purpose of this study was to identify which plants were used as medicines by people in the Sangabuana area**.** Survey data collection is based on the results of surveys obtained through direct interviews with the community at the destination. Interviews were conducted using a purposive sampling method. Purposive sampling is sampling that is limited to a specific target group. We interviewed seven respondents working in the urban forests of Sangabuana**.** Our research has revealed 56 species of medicinal plants belonging to 30 families. The most commonly used part of the plant as a medicine is the leaves**,** and the most common processing method is boiled. Based on utility value (UV) and fidelity level (FL) calculations, red ginger (*Alpinia purpurata*) UV is shown to have 1.43 and FL to be 100%.

Keywords: Ethnobotany, Sangga Buana, Medicinal Plants, UV, FL

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INTRODUCTION

Indonesia is known as a country of megabiodiversity and is the second largest in the world after Brazil. A country of megabiodiversity is one in which that diversity lives more from other countries. Biodiversity is of great importance to humans as it is an economically and ecologically valued natural resource (Indrawan et al., 2012). Indonesia has a population of over 230 million and abundant natural resources, making it a source of food, shelter and medicine for its inhabitants (Fitri et al., 2018). A study by Jumiarni (2017) showed that 7,000 of Indonesia's 30,000 species of plants could be herbs. This medicinal plant is widespread throughout Indonesia and is used as an alternative medicine for pubic hair. Medicinal plants are used as a traditional remedy because they are relatively inexpensive, passed down from generation-to-generation, and habitual (Utami et al., 2019). According to Maulidiah (2020), most of the use of medicinal plants is based on user experience, not clinical trials. From ancient times, Indonesians have known that medicinal plants are used to maintain stamina to treat health problems. The use of medicinal plants can be used individually or formulated with several types of medicinal plants. This knowledge is taught by people who are genetically bound by society.

One of the places in Jakarta that still keep use medicinal plants is the people that live near the urban forest Sangga Buana **.** Urban forest Sangga Buana is still cultivated with many medicinal plants or grows in the wild. Urban forest Sangga Buana is one of the open green spaces in the middle of the city, located on the banks of the Lebak Bulus river in South Jakarta. It was built about 20 years ago and was managed by Abah Idin and Sangga Buana Farmer`s Group. Widely used as a place of conservation, education and nature-based tourism. Sangga Buana has many types of trees and various types of plants that can be harvested by the local community and used as food and medicine (Novianti.,et al., 2015).

The aim of the research to determine the use of medicinal plants in the urban forest Sangga Buana area. UV and FL calculations were performed to determine which plants have the highest utility and confidence value in society for the treatment of diseases.

METHOD

Study area

The present study was conducted in Urban forest Sangga Buana, Cilandak, South Jakarta (Figure 1).

Figure 1. Urban forest area of Sangga Buana, Cilandak, South Jakarta

The tools used in this survey include digital cameras, stationery and whiteboards. The identification documents used in this study include documents or reports, Flora C.G.G.J. van Steenis (1981) books and other literature. The variables used in this study are the role of the community in the use of medicinal plants, the composition of medicinal plants, the usage of medicinal plants.

Data analysis

Fidelity Level (FL) and Use Value (UV) indices were used to examine the ethnobotanical data collected (UV). This established a consensus on the effective species for curing diabetes and their relative importance. Also, it facilitated the understanding on the potential usefulness of each species.

1. *Use Value* (UV) is calculated based on the formula (Riadi *et al.* , 2019) : Calculating use value of a plant which used as medicine in the area of Sangga Buana .

$$UV = \frac{\Sigma UVis}{ni}$$

Description :

UV = Use Value
$\sum UVis$ = Total number of utilization mentioned from one species
Ni = Total number of interviewed respondents

2. *Fidelity Level* (FL) calculated based on formula (Riadi *et al* ., 2019) : To determine the types of plants that are most often used to treat certain disease categories by respondents from research area .

$$FL(\%) = \frac{Np}{N} \times 100$$

Description :

FL = Fidelity Level
Np = Total number of respondents who mentioned species for specific uses
N = Total number of respondents who mentioned species for a wide variety use

RESULTS

Demographic profile of Respondent

The survey interviewed seven respondents in the Sangabuana region of Chilandak, South Jakarta. The results of the grouping response are shown in Table 1.

Table 1. Characteristics of Respondents

No	Name	Type Gender (P/L)	Age	Work
1	Ranga	M	16	Student
2	Aryo	M	30	Manager
3	Nurlela	F	35	Housewife
4	Deden	M	42	Manager
5	Ismawati	F	42	Housewife
6	Sujiman	M	60	Manager
7	Idin	M	70	Founder and Manager

From the table 1 we could see that the total number of male respondents was 5 (71.43%) and female respondents was 2 (28.57%). The youngest age of the respondent wa 16 years old while the age of the oldest respondent was 70 years old .

Medicinal Plants of the study area

According to the results of the interview, there are 56 species of medicinal plants in the Sanga buana area. These medicinal plants are used as traditional medicine and are an alternative and first step to direct treatment and care from the urban forest, some of which are cultivated by locals. The medicinal plants used are from different families and can be seen in Figure 2 below.

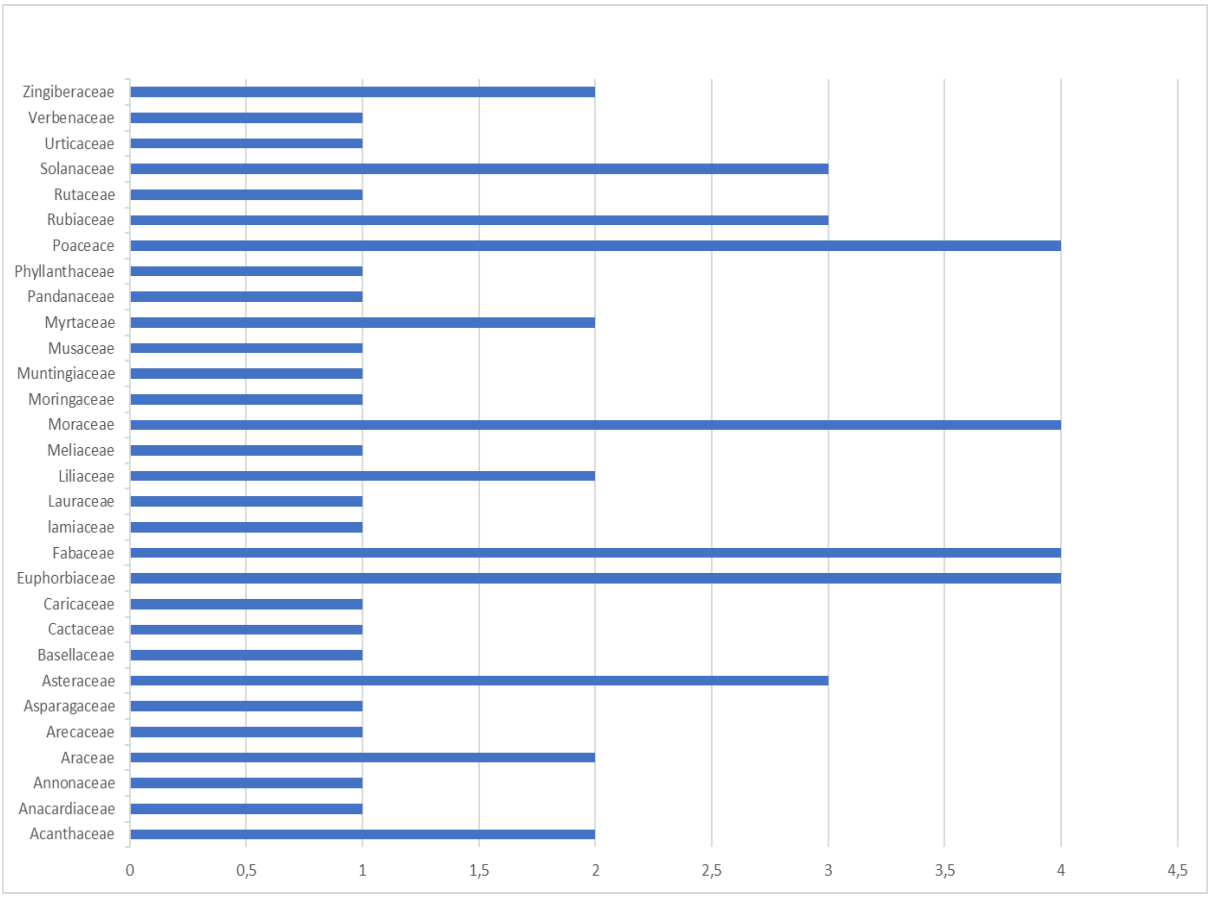

Figure 2. Diversity of medicinal plants in the study area

A total of 56 plants from 30 families were reported as being used to treat human diseases in Sangga Buana area. Euphorbiaceae, Fabaceae, Moraceae and Poaceae were the commonly plant families represented by 4 species, while most of families (26) are represented by 1-3 species.

Plants parts used to treat human diseases

As a result of the interview, the inhbitants of the study aea harvest differnet plant parts for the preparations of traditional remedies, e.g , leaves, fruits, roots, shoots, tubers, rhizomes, seeds, flowers, whole plant, stems, bark, sap, seen in Figure 3 below.

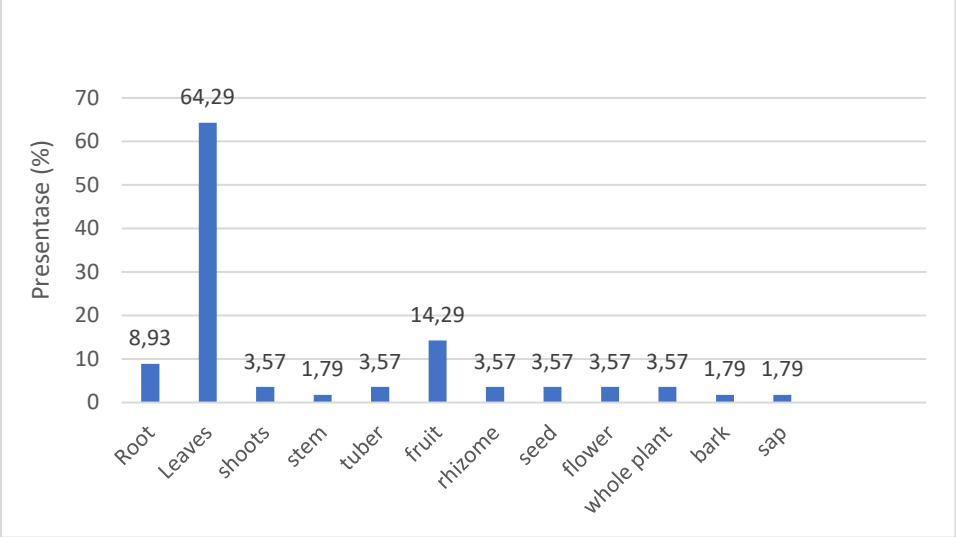

Figure 3. Plant parts used for the treatment of human ailment

It was discovered that 35 species (64.29%) of plants were harvested for their leaves, 8 species (14.29%) for fruits, 5 species (8.935) for roots, 2 species (3.57%) for flowers, seeds, rhizome, shoots, tubers and 1 species (1.79%) for stems, sap and bark of tree.

Method of preparations

The most frequently used mode of preparation was boiled (49%), unprocessed (11%), grind (10%), decoction (2%), rub (1%), fried (1%), roasted (1%) and burn (1%). (Figure 4).

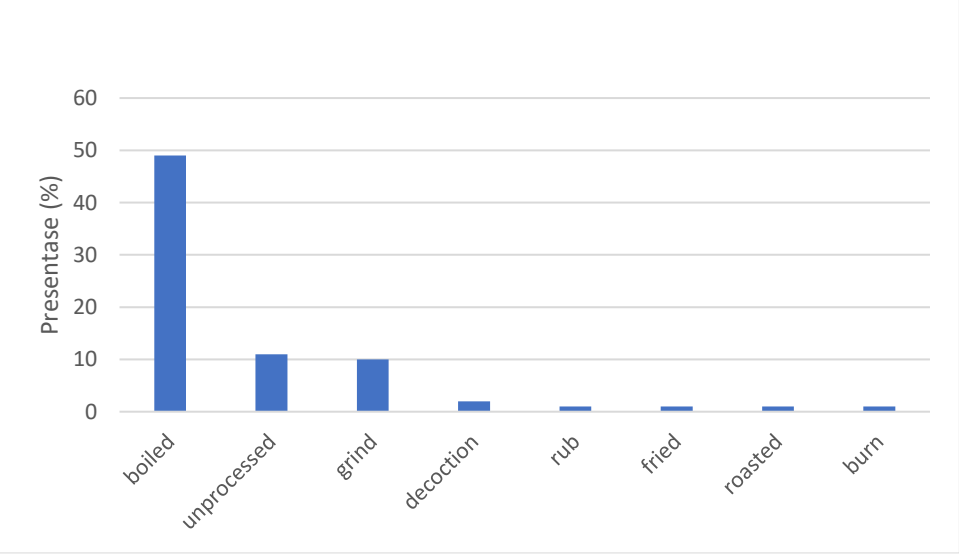

Figure 4. Mode of preparation of human medicinal plants in the study area

Treatment of ailment categories

Based on the results of interviews with respondents in the region of Sangga Buana area, people use medicinal plants to treat various diseases. People use medicinal plants to cure 56

types of diseases, namely high blood pressure (7%), fever (5%), baby fever (1%), diarrhea (5%), gout (4%), cough (4%), rheumatism (4%), stomach pain (4%),colds (3%), flatulence (3%), asthma (3%), kidney stones (2%), influenza (2%), burns (2%), boost the immune system (2%), toothache (2%), thrush (2%), anemia (1%), swelling (1%), bee sting swelling (1%), smallpox (1%), intestinal worms (1%), dengue (1%), gout (1%), indigestion (1%), respiratory disorders (1%), seizures (1%), urinating blood (1 %), internal wounds (1%), malaria (1%), improves blood circulation (1%) , bruises (1%), promote breast milk (1%), increase appetite (1%), eliminate body odor (1%), reduce stomach pain (1%), nosebleeds (1 %), vomiting blood (1%), joint pain (1%), heartburn (1%), aches (1%), menstrual laxative (1%), antidote (1%), postpartum care (1%), %), increase appetite (1%), eliminate body odor (1%), reduce stomach pain (1%), nosebleeds (1 %), vomiting blood (1%), joint pain (1%), heartburn (1%), aches (1%), menstrual laxative (1%), antidote (1%), postpartum care (1%), sore throat (1%), gonnorhoe (1%), constipation (1%), low blood pressure (1%), missed menstruation (1%), eye drops (1%) and hemorrhoids (1%).

The documented ethnomedicinal plants were used to treat 30 different ailments which were grouped into 6 different categories (Table 2).

Table 1 . Diseases treated in the study area

No	Category of diseases	Ailment/diseases	Number of species used
1.	Disease of the respiration system	9	18
2.	Disease of digestive system	5	23
3.	Disease of skin	4	13
4.	Chronic-degenerative disease	5	31
5.	Disease of the nervous system	5	12
6.	Immune diseases	2	10

Table 2 shows the group of diseases in the system that are most treated with a total of 18 plants that can treat tuberculosis, asthma, colds (influenza), nasal blood, inflammation, cough, shortness of breath, and colds. Digestion of a group of systemic diseases treated with 23 different plants that can treat hemorrhoids, abdominal pain, diarrhea, constipation, and stomach pain. The group of skin diseases can be treated with 13 different plants that can treat swelling, wounds, burns, smallpox and eczema. Internal illnesses can be treated with 31 different plants that can treat diabetes, delayed menstruation, anemia, cholesterol and kidney disease. The nerves of the systemic disease group can be treated with 12 different plants that can treat dizziness, toothache, pain, gout and pain. The immunity of the systemic disease group can be treated with 10 different plants that can treat rheumatic and ulcerative diseases.

Fidelity level index (FL) and use value (UV) of medicinal plants

Based on the calculation of value in use (UV) and fidelity level (FL) values, red ginger (Alpinia purpurata) shows the highest values in both categories: UV value 1.43 and FL value 100%. (Table 3).

Table 3. Inventory of Medicinal Plants Traditionally used by local people.

No	Scientific name	Local name	Family	Benefit	Parts used	Processing method	How to use	Technique		UV Value	FL Value (%)
								Single	Mixture		
1	*Abrus precatorius*	Saga	Fabaceae	Fever, cough,	Leaf	Boiled/ground	Drink boiled water	✓		0.57	42.86
2	*Ageratum conyzoides*	Bandotan	Asteraceae	Fever	stem	Boiled	Drink boiled water	✓		0.43	57.14
				Stomach pain and antiseptic on wounds	Leaf	Crushed/ground	Smeared on a sick stomach and smeared on the wound				
3	*Allium Cepa*	Bawang merah	Liliaceae	Baby fever	Bulbs	Pounded and added eucalyptus oil	Apply on the body		✓	0.14	71.43
4	*Allium sativum*	Bawang putih	Liliaceae	High blood pressure, asthma, tooth ache	Bulbs	Baked/cooked	eaten	✓		0.43	71.43
5	*Alpinia purpurata*	Jahe merah	Zingiberaceae	Rheumatism, cough, vertigo, digestive system disorders, alzaimer, cancer, asthma, cholesterol, stamina booster	Rhizome	Boiled, mixed with lemongrass and cinnamon	Drink boiled water		✓	1.43	100.00
6	*Amorphophallus muelleri*	Porang	Araceae	Nausea and cold medicine	Leaf	Pounded/ mashed	Attached / smeared on the stomach	✓		0.29	57.14
7	*Annona muricata*	Sirsak	Annonaceae	Diabetes, gout	Leaf	Boiled	Drink boiled water	✓		0.29	71.43
8	*Anredera cordifolia*	Binahong	Basellaceae	Heart, ulcer, gout, anti-cancer, anemia, diabetes, flatulence	Leaf	Boiled	Drink boiled water	✓		1.14	85.71
				Burns		Pounded/ mashed	Apply to burns				
9	*Artocarpus altilis*	Sukun	Moraceae	Diabetes, hypertension	Fruit	Fried or boiled	Consumed as a snack	✓		0.57	57.14

				Gout and rheumatism	Leaf	Boiled leaves	Breadfruit leaf decoction is drunk				
10	*Artocarpus heterophylus*	Nangka	Moraceae	Prevent cancer, heart	Leaf	Boiled	Drink boiled water	✓		0.29	85.71
11	*Bambusa vulgaris*	Bambu kuning	Poaceace	Treating jaundice	Shoots/ shoots	Boiled	Drink boiled water 2 times a day	✓		0.14	71.43
12	*Bambuso* sp.	Bambu	Poaceace	Cholesterol, cancer, stroke	Shoots/shoots	No processing or boiling	Eaten directly or made into processed food	✓		0.57	85.71
13	*Blumea balsamifera*	Sembung	Asteraceae	Antibacterial, blood circulation, anti-inflammatory, influenza	Leaf	Boiled	Drink boiled water	✓		0.57	42.86
14	*Caladium* sp.	Keladi	Araceae	Swelling, cancer stomach pain	Leaf	Boiled	Drink boiled water	✓		0.43	42.86
15	*Capsicum annum*	Cabai	Solanaceae	Vomiting blood, gout, ulcer	Leaf	No processing	Consumed instantly	✓		0.71	42.86
				Toothache	Fruit	No processing	Consumed instantly				
16	*Carica papaya*	Pepaya	Caricaceae	Digestion, immune system, heart skin and hair	Sap	Boiled	Drink the boiled sap	✓		0.71	71.43
17	*Curcuma domestica*	Kunyit	Zingiberaceae	Menstruation, internal injuries, bone pain, postpartum care	rhizome	Boiled or mashed	Drink boiled water or used as herbal medicine	✓		0.57	100.00
18	*Cinnamomum verum*	Kayu manis	Lauraceae	Cholesterol and jaundice	Tree bark	Boiled or puree	Drink boiled water or added to processed foods	✓		0.29	57.14

19	*Clitoria ternatea*	Telugu	Fabaceae	Eye drops	eagle flower	some flower petals are soaked and brewed with warm water until the water turns blue	used as eye wash	✓		0.29	100.00
				Diarrhea		Boiled flowers	Drink boiled water				
20	*Cocos nucifera veridis*	Kelapa ijo	Arecaceae	Diabetes	Root	Boiled, plus areca nut root, hamlet root, ciplukan, sembung leaves	Drink boiled water		✓	1.29	100.00
				Fever, diarrhea, stomach pain, smallpox, antidote, hair treatment, DHF	Fruit (water)	No processing	Consumed directly	✓			
21	*Coffea* sp.	Kopi	Rubiaceae	Cure swelling of bee sting	Leaf	Pounded	Apply on the swollen body	✓		0.71	85.71
				Boost the immune system, prevent diabetes, lower high blood pressure	Leaf	Boiled	Drink boiled water				
				Wound medicine	Seed	Pounded/ mashed	Apply to the injured body part				
22	*Cordyline fruticosa*	Andong	Asparagaceae	Swelling, bruising, blood urine, hemorrhoids, TB, late menstruation	Leaf	Boiled	Drink boiled water	✓		0.86	28.57
23	*Cymbopogon nardus*	Serai wangi	Poaceace	Diabetes, anemia, colds, flatulence, cholesterol	Leaf	Boiled with ginger	Drink boiled water		✓	0.71	100.00

24	*Euphorbia hirta*	Patikan kebo	Euphorbiaceae	Respiratory disorders, nourish the skin, increase the body's immune system, reduce abdominal pain, increase sexual desire, reduce swelling due to snake bites	Leaf	Boiled or young leaves are brewed with warm water combined with Chinese betel	Drink boiled water		✓	0.86	57.14
25	*Ficus racemosa*	Loa	Moraceae	Stomach pain medicine, rheumatism, asthma	Fruit	No processing	Consumption directly or used as fresh vegetables	✓		0.43	14.29
26	*Ficus variegata*	Gondang	Moraceae	Eczema and diarrhea	Fruit	Boiled with 2 cups of water until the remaining 1 cup, then filtered	Drink boiled water	✓		0.29	28.57
27	*Imperata cylindrica*	Alang-alang	Poaceace	Internal medicine, syphilis, bleeding, nosebleed, diabetes	Root	Boiled	Drink boiled water	✓		0.71	42.86
28	*Lantana camara*	Saliara/tembelekan	Verbenaceae	Diarrhea	Leaf	Boiled	Drink boiled water	✓		0.14	14.29
29	*Leucaena leucocephala*	Petai cina/lamtoro	Fabaceae	Diabetes	Seed	Roasted then ground	Brewed with hot water like coffee	✓		0.14	28.57
30	*Manihot utilissima*	Singkong	Euphorbiaceae	Stomach medicine	Young tubers	Take a slice of young tuber	Consumed directly	✓		0.43	71.43
				External wound medicine, low blood	Leaf	Take the sap	Apply to the wound				
31	*Mangifera indica*	Mangga	Anacardiaceae	Internal disease and hypertension	Leaf	Boiled	Drink boiled water	✓		0.29	71.43
32	*Mimosa pudica*	Putri malu	Fabaceae	Rheumatism, intestinal worms, shortness of breath, high fever	Leaf	Boiled	Drink boiled water	✓		0.57	42.86

33	*Muntingia calabura*	Kersen	Muntingiaceae	Diabetes	Fruits and leaves	No processing	Consumed directly	✓		0.14	42.86
34	*Morinda citrifolia*	Mengkudu	Rubiaceae	Jaundice, stomach pain, cough, high blood	Fruit	Boiled	Drink boiled water	✓		0.71	100.00
				External wound medicine	Leaf	Pure and mixed with coconut oil then boiled	Apply to the wound				
35	*Moringa oleifera*	Kelor	Moringaceae	Fever, kidney, cholesterol, dry skin, wound medicine, asthma, gout	Leaf	Boiled	Drink boiled water	✓		1.00	71.43
36	*Murraya paniculata*	Kemuning	Rutaceae	Cough	Leaf	Boiled	Drink boiled water	✓		0.14	57.14
37	*Musa paradisiaca*	Pisang	Musaceae	Heart	Banana heart	Boiled	Drink boiled water	✓		0.29	85.71
				Low blood pressure	Leaf	Boiled	Drink boiled water				
38	*Orthosiphon aristatus*	Kumis kucing	lamiaceae	urinary stones, malaria, kidney stones	Leaf	Boiled	Drink boiled water or used as herbal medicine	✓		0.43	71.43
39	*Pandanus amaryllifolius*	Pandan	Pandanaceae	Treating diabetes, as a repellent against the Aedes aegypti mosquito	Leaf	Boiled	Drink boiled water	✓		0.29	100.00
40	*Peperomia pellucida*	Sirih cina	Piperaceae	Rheumatism, joint pain, aches	Herbs	Boiled 10 Chinese betel plants with 2 cups of water to 1 cup and cleaned for consumption	Make vegetables or drink	✓		0.43	42.86
41	*Pereskia Sacharosa*	Jarum tujuh duri	Cactaceae	Overcome flatulence, heal external wounds, prevent infection, prevent cancer, hypertension, rheumatism, gout, ulcers	Leaf	Boiled leaves	Drink decoction of leaves	✓		1.14	42.86

42	*Pilea microphylla*	Katumpangan	Urticaceae	Kidney	Herbs	Boiled mixed with the leaves carrying the child	Drink boiled water		✓	0.14	14.29
43	*Piper betle*	Sirih	Piperaceae	Eliminate body odor, heal wounds on the skin, cholesterol, jaundice	Leaf	Boiled	Drink boiled water	✓		0.57	71.43
44	*Piper ornatumt*	Sirih merah	Piperaceae	Diabetes, kidney, stomach ache, ulcer	Leaf	Boiled	Drink boiled water	✓		0.57	57.14
45	*Psidium guajava*	Jambu biji	Myrtaceae	Colds, diarrhea, canker sores	shoots	No processing	Consumed directly	✓		0.43	85.71
46	*Phyllanthus urinaria*	Meniran	Euphorbiaceae	Fever and cough	Leaf	Boiled	Drink boiled water	✓		0.29	42.86
47	*Physalis angulata L.*	Ciplukan	Solanaceae	Lowering high blood pressure, diabetes mellitus,	Fruit	No processing	Consumed instantly	✓		0.71	71.43
				Toothache, canker sores, and bleeding gums	Root	Boiled the roots	Gargle the boiled water from the roots				
48	*Ricinus communis*	Jarak	Euphorbiaceae	hypertension, constipation, hemorrhoid medicine, vomiting medicine, toothache, canker sores	Leaf	Boiled	Drink boiled water	✓		0.86	28.57
49	*Ruellia tuberosa*	Bunga kencana/ pletekan	Acanthaceae	Diabetes	Leaf	Boiled	Drink boiled water	✓		0.14	42.86
50	*Sandoricum koetjape*	Kecapi	Meliaceae	Fever	Leaf	Boiled	Drink boiled water	✓		1.00	57.14
				Seizures, anti-diarrhea, flatulence, stomach pain, strengthens postnatal women, laxative sweat	Root						

51	*Sauropus androgynus*	Katuk	Phyllanthaceae	Flu Medicine, Streamlining Breast Milk	Leaf	Boiled	Drink boiled water or make vegetable preparations	✓		0.29	71.43
52	*Solanum torvum*	Tekokak	Solanaceae	Treating hepatitis, high blood pressure, increasing appetite, overcoming cough, anti-inflammatory	Leaf	Boiled leaves	Drink decoction of leaves	✓		0.71	14.29
53	*Strobilanthes crispus*	Pecah beling	Acanthaceae	Kidney stone medicine	Leaf	Boiled	Drink boiled water	✓		0.14	57.14
54	*Synedrella nodiflora*	Jotang kuda	Asteraceae	Bleeding gums, toothache medicine, sore throat	Flower	No processing	Flowers are consumed directly	✓		0.43	14.29
55	*Syzygium polyanthum*	Daun Salam	Myrtaceae	Diet, lower cholesterol, high blood pressure, diarrhea, ulcers, diabetes, gout	Leaf	Boiled	Drink boiled water	✓		1.00	71.43
56	*Uncaria tomentosa*	Gambir	Rubiaceae	Diabetes	Root	Boiled the roots	Drink boiled water	✓		0.14	42.86

DISCUSSION

The survey used purposive sampling method and interviewed up to seven people in total. The results of the interview show that younger respondents know less about the medicinal plants available around urban forest Sangga Buana than older respondents. The small number of respondents available due to the political government, i.e. to limit activity of community because of Covid (PPKM), so there is little community interaction or activity in the Sangga Buana area.

Based on the results of the interviews conducted total of 56 plants from 30 families were reported as being used to treat human diseases in Sangga Buana area. Euphorbiaceae, Fabaceae, Moraceae and Poaceae were the commonly plant families represented by 4 species, while most of families (26) are represented by 1-3 species. The results of this study are not significantly different from those conducted by Megawati et al (2021) at the Forest Campus of Tanjung Pura University in Pontianak. They found three dominant families of Legumes, Lauraceae and Euphorbiaceae.

This survey also reported that many of documented plants are prescribed for use in combination. Leaves are the most commonly used part to treat human diseases, followed by the fruit and roots. The use of leaves could be attributed to the presence of high amount of chemical compound, such as tannins, alkaloids, flavonoids and other organic coumpounds that are useful as drugs (Tima et al, 2020).

The local communities employ various method of preparations of traditional medicine for different types diseases. The principal methods of remedy preparations were reported through boiling (49%), unprocessed (11%), grind (10%), brewed (2%), rub, fried, roasted and burn 1% respectively. Boiling as the most common mode of preparation and intended to dissolve active substance into the water. With regards to the actual plants materials commonly used by the local community for treating various disorders, such as disease of the respiration system, disease of digestive system, disease of skin, Chronic-degenerative disease, Disease of the nervous system and immune diseases.

The highest number of ethnomedicinal species were to treat chronic-degenerative diseases (31 species), followed by treatment of diseases of digestive system (23 species), diseases of respiratory system (18 species), diseases of skin (13 species), diseases of the nervous system (12 species) and immune diseases (10 species). Disease of respiratory sytems include tuberculosis, asthma, cold, inflammation, cough and medicinal plants that were identified by respondents to be used in treating disease of respiratory system, e.g *Abrus precatorius Allium sativum, Alpinia purpurata, Amorphophallus muelleri, Cordyline fruticosa, Euphorbia hirta, Ficus racemosa, Morinda citrifolia Mimosa pudica, Moringa oleifera, Muntingia calabura, Phyllanthus urinaria, Psidium guajava, Sandoricum koetjape , Sauropus androgynous, and Solanum torvum.*

Disease of digestive system include hemorrhoids, stomach pain, diarrhea, constipation, and medicinal plants that were used by respondents in treating this diseases are *Ageratum conyzoides , Alpinia purpurata Anredera cordifolia,Cordyline fruticose , Euphorbia hirta, Clitoria ternatea , Cocos nucifera, Euphorbia hirta Ficus racemose , Manihot utilissima Piper ornatum,*and *Sanoricum koetjape.*

Diseases of skin include burns, eczema, smallpox, swelling and wounds and medicinal plants that were used by local community in treating these diseases are *Ageratum conyzoides, Anredera cordifolia, Carica papaya, Cordyline fruticosa, Euphorbia hirta, Ficus variegata, Manihot utilissima, Morinda citrifolia ,Moringa oleifera, Pereskia saccharosa.*

Chronic-degerative diseases include diabetes, anemia, cholesterol and kidney and medicinal plants that were used by local community in treating these diseases are *Allium sativum, Alpinia purpurata, Anredera cordifolia, Annona muricata, Artocarpus altilis Cinnamomum verum, Cocos nucifera, Cordyline fruticose, Curcuma domestica, Imperata cylindrica, Leucaena leucocephala, Mangifera indica, Morinda citrifolia, Moringa oleifera, Muntingia calabura, Orthosiphon aristatus , Pandanus amaryllifolius, Physalis angulata, Piper betle, Piper ornatum, Pilea microphylla, Pereskia saccharosa Ruellia tuberosa, Uncaria tomentosa, Ricinus communis, Solanum torvum, Strobilanthes crispus, Syzygium polyanthum*

Diseases of nervous system include headache, toothache, and gout and medicinal plants that were used by local communities in treating these diseases are *Alpinia purpurata, Allium sativum, Annona muricata , Anredera cordifolia, Artocarpus altilis Euphorbia hirta , Peperomia pellucida, Pereskia sacharosa, Physalis angulata, Ricinus communis, and Synedrella nodiflora.*

Immune diseases include rheumatism and ulcerative pain, and medicinal plants that were used by local communities in treating these diseases are *Alpinia purpurata, Artocarpus altilis. Ficus racemosa, Mimosa pudica, Peperomia pellucida, Pereskia sacharosa, Physalis angulata, Psidium guajava,* and *Ricinus communis.*

Using the ehnobotanical indices like UV and FL, the traditional knowledge on ethnomedicinal plants used in treatment of various human ailment wereanalyzed (Table 3). In the present study, UV ranged between 0.14-1.43. Based on UV data, the five most commonly used

ethnomedicinal plant species were *Alpinia purpurata* (1.43), *Cocos nucifera* viridis (1.29), *Pereskia sacharosa* (1.14), *Sandoricum koetjape* (1.0), *Moringa olifera* (1.0) and *Syzygium polyanthum* (1.0). The least used species were *Allium cepa* (0.14), *Bambusa vulgaris* (0.14), *Uncaria tomentosa* (0.14), *Murraya paniculata* (0.14), *Muntingia calabura* (0.14), *Strobilanthus crispus* (0.14), *Leucaena leucocephla* (0.14), *Ruellia tuberosa* (0.14) and *Lantana camara* (0.14). These species were used for diverse purposes,including to treat ulcer, gout, anemia, diabetes and stomach pain.

Fidelity level was calculated to highlight the importance of each plant for each ailment. For treatment various human ailment with respect to fidelity level, the most important species were *Alpinia purpurata* (FL= 100%), *Cocos nucifera* viridis (FL=100%), *Curcuma domestica* (FL=100%), *Morinda citrifolia* (FL=100%), *Pandanus amaryllifolius* (FL=100%) and *Clitoria ternatea* (FL=100%). These species were used for diverse porposes, including to treat diabetes, bone pain, cough and stomach pain.

Medicinal plant that have highest UV and FL values were *Alpinia purpurata* (Table 3). *Alpinia purpurata* contains higher essential oils compared to other species (Setiadi, 2014). Monoterpene compound contained in ginger essential oil red have ability to disturb function of bacterial cell membrane that cause disruption of nutrient transport (ionic compounds) which causes bacterial cells to undergo deficiency nutrients needed for growth (Handrianto, 2016). In addition, oleoresin compounds in red ginger contain gingerol, shogaol, zingerone and resins which have antibacterial and antimicrobial activity (Awanis & Mutmainnah, 2016). The in documenting 56 sp(such as fever and cold cough) (Aryanta, 2019).

CONCLUSIONS

A study on medicinal plant utilization in area revealed that the communities commonly use medicinal plant for maintaning their primary healthcare. The study resulted in documenting 56 medicinal plant species belong to 30 families. Documentation of medicinal plant used to treat various human ailment as a foundation for subsequent scientific research with a focus on plant with a high level of informant consensus. Nevertheless, plant that achieved low UV and FL also need bioactive testing to confirm their efficacy in treating various human ailment.

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