

Diversity and traditional knowledge of medicinal plants in home gardens of Kampung Masjid Ijok, Perak, Malaysia

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Abstract. Ramli MR, Milow P, Malek S. 2021. Diversity and traditional knowledge of medicinal plants in home gardens of Kampung Masjid Ijok, Perak, Malaysia. *Biodiversitas* 22: 2458-2465. Medicinal plants and associated traditional knowledge are at risk of habitat modification, globalization, urbanization, and modernization. Though home gardens are recognized as a potential strategy for medicinal plant conservation, at the same time very limited efforts have been made for the documentation of ethnomedicinal plants. We explored and documented the diversity and population status of ethnomedicinal plants in the home gardens of Kampung Masjid Ijok along with its associated traditional knowledge. Field observation and semi-structured interviews were conducted to record for the medicinal uses of the medicinal plants in the home gardens. The information, i.e. local name, parts used, methods of preparation, and type of ailments, were also collected. The total numbers of medicinal plants recorded in the study area were 68 species belonging to 40 families. The families of Zingiberaceae, Asteraceae, Acanthaceae, and Fabaceae were recorded as having the highest number of medicinal plants. Herbs were the main source of medicinal plants in terms of species number followed by shrubs, trees, and climbers. *Cocos nucifera* L, *Carica papaya* L, *Areca catechu* L, and *Citrus aurantiifolia* (Chris. & Panz.) Swin were the most frequent species of medicinal plants. Shannon diversity index of medicinal plant species was 3.7. The most frequently utilized plant parts were the leaves followed by roots, fruits, rhizomes, whole plants, flowers, seeds, and barks. Gastrointestinal disorders including stomach ache, diarrhea, dysentery, indigestion, flatulence, worm infestation in children, and constipation were among the most frequent ailments treated with the medicinal plants. This study revealed that many medicinal plants are still broadly found in home gardens and used for treating various ailments. The information recorded in this study may form the basis for the conservation and sustainable use of ethnomedicinal plants and may also contribute to the preservation of cultural and genetic diversity.

Keywords: Diversity, home gardens, Kampung Masjid Ijok, medicine plants, traditional knowledge

INTRODUCTION

Malaysia's tropical forests are recognized as a hub for biodiversity, where a large number of medicinal plants are recorded which constitute an enormous potential source of plant-derived chemicals that are useful to humans. Almost 15,000 species of flowering plants have already been identified in the rainforests of Malaysia, and many more have not been identified and documented yet (Hussain et al. 2015). About 20 percent of these 15,000 flowering plants were documented as being used as traditional medicines by local communities mainly by the Malays, including the Orang Asli (Hussain et al. 2015). Azliza et al. (2012) reported that the Orang Asli of Ulu Kuang village in the state of Selangor used 49 species of medicinal plants. Zaki et al. (2019) recorded that the Orang Asli community in the state of Kelantan used 18 species of medicinal plants. Mohammad et al. (2012) recorded 39 species of medicinal plants were used for treating various ailments by the Orang Asli in Kampung Ulu Legong in the state of Kedah. Ong et al. (2012) indicated that the Orang Asli community in Kampung Pos Penderas in the state of Pahang used 53 species of medicinal plants. Ong et al. (2011a) recorded 56 medicinal plant used by the Malay community in Kampung Mak Kemas in the state of Terengganu.

Medicinal plants and associated traditional knowledge are at risk of habitat modification, globalization, urbanization, and modernization. According to Saynes-Vasquez et al. (2013), the main factors leading to the loss of traditional knowledge of medicinal plants were the presence of modern public healthcare, economic development, and current systems of formal education. The study by Hu et al. (2020) among the Mulam community in Guangxi, China indicated that the lack of written records, conservative inheritance patterns, rapid economic development, and low interest in traditional medicinal knowledge among young people were the factors that contributed to the loss on the traditional knowledge. Moreover, some medicinal plants are threatened with extinction from overharvesting and habitat destruction with the increasing human population and plant consumption. According to Pimm et al. (1995), the current loss of plant species is between 100 and 1000 times higher than the expected natural extinction rate, and that the Earth is losing at least one potential major drug source every two years.

Therefore, the role of local communities in the conservation, management, and utilization of medicinal plants should be recognized. A possible strategy for the conservation of medicinal plants is cultivation in the home gardens. Home gardens are less complex agroforests,

almost similar to natural forest ecosystems, and integrated into agricultural management systems located around houses (Mapongmetsem et al. 2012). According to Gao et al. (2012), medicinal plants in the home gardens are either intentionally cultivated or spontaneously grown as wild or weed species. Panyadee et al. (2019) indicated that there were 95 species of medicinal plants recorded in home gardens of four ethnic groups in Thailand. Pala et al. (2019) recorded 53 species of medicinal plants in home gardens of the Eastern Himalaya. Huai et al. (2011) reported that home gardens have been an important site for domestication of medicinal and fruit plants which constitute an important contribution to the conservation of rare, endangered, or over-exploited species. Though home gardens are recognized as a potential strategy for medicinal plant conservation, very limited efforts have been made for

the documentation of ethnomedicinal plants. We explored and documented the diversity and population status of ethnomedicinal plants in the home gardens of Kampung Masjid Ijok along with its associated traditional knowledge. The information and data generated in this study may form the basis for the conservation and sustainable use of ethnomedicinal plants and may also contribute to the preservation of cultural and genetic diversity.

MATERIALS AND METHODS

The present study was carried in the village of Kampung Masjid Ijok, Selama district in the state of Perak, Malaysia (Figure 1).

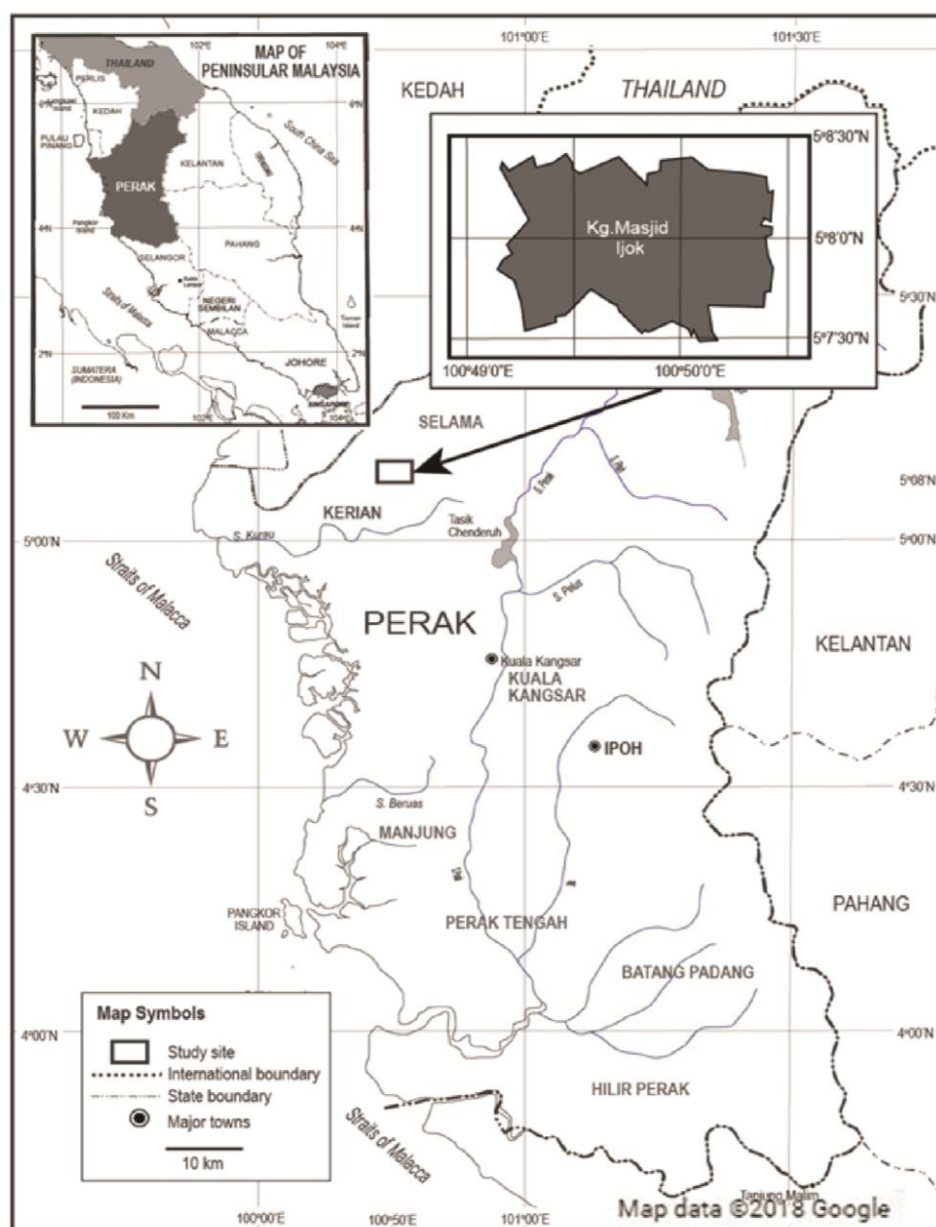


Figure 1. Study area in Village of Kampung Masjid Ijok, Selama District, State of Perak, Malaysia

The village is located between 5°07'0"N to 5°08'15" latitude and 100°49'15"E to 100°50'45" E longitude with an average altitude of 50 meters above sea level. Kampung Masjid Ijok is characterized by a tropical climate with temperatures recorded from 28°C to 32°C throughout the year, and 2,000 mm to 2,500 mm of annual precipitation. The population consists of 200 inhabitants belonging to 60 households and is only composed of the Malays. The economy is agriculture-based, rubber tree and palm oil are the major crops. The major occupation of the local people is farming. The villagers also depend heavily on home gardens for their daily needs, especially for day-to-day dietary and health supplements. Field observation in 40 home gardens and semi-structured interviews were used to gather information on traditional knowledge of medicinal plants regarding their uses, parts used, and mode of preparation. Photographs of each medicinal plant were taken for identification purposes and documentation. For each home garden, the numbers of individuals for each medicinal plant were recorded to determine frequency and Shannon-Wiener diversity index. The index is determined using the following formula:

$$\text{Frequency} = \frac{\text{No. of homegardens in which a species occurs}}{\text{Total no. of homegardens}}$$

$$H = - \sum_{i=1} (P_i * \ln P_i)$$

Where:

H : the Shannon-Wiener diversity index

P_i : fraction of the entire population made up of species i

S : numbers of species encountered

Σ : sum from species 1 to species S

RESULTS AND DISCUSSIONS

In the present study, a total of 68 plant species were recorded in 40 home gardens of Kampung Masjid Ijok belonging to 65 genera and 40 plant families (Table 1). The total species recorded in this study is higher compared to other Malays village in Terengganu and Negeri Sembilan. Ong et al. (2011a) reported that the Malays of Kampung Mak Kemas, Terengganu used 56 species of medicinal plants. Ong et al. (2011b) noted that the Malay in the Kampung Tanjung Sabtu, Terengganu used 52 species of medicinal plants. Aziz and Zakaria (2013) recorded 50 species of medicinal plants in Lenggong Valley, Perak. Compared to other native communities in Peninsular Malaysia, the overall species recorded in this study are also considered to be higher. Ramli et al. (2021) indicated that the Temuan community of Kampung Orang Asli Donglai Baru, Selangor used 39 species of medicinal plants in the treatment of various ailments. Temuan community in Kampung Ulu Kuang, Selangor used 49 species of medicinal plants (Azliza et al. 2012). In the village of Johor, Sabran et al. (2016) recorded 23 species of medicinal plants used by the Jakun community. Temiar

community in the village of Kelantan only used 18 species of medicinal plants (Zaki et al. 2019). Jah Hut community in Kampung Pos Penderas, Pahang used 53 medicinal plants (Ong et al. 2012a). Semai community in Kampung Batu 16, Perak used 37 species of medicinal plants (Ong et al. 2012b). A report by Milow et al. (2013) indicated that 28 species of medicinal plants were recorded in the Orang Asli home gardens in Negeri Sembilan. Mohammad et al. (2012) recorded 35 species of medicinal plants used by the Kensiu community in Kampung Lubuk Ulu Legong, Kedah. The high species of medicinal plants recorded in this study demonstrates the importance of home gardens as a repository of ethnomedicinal knowledge of the Malays community in Kampung Masjid Ijok. The differences in the total of medicinal plants recorded in other studies could be the result of different cultural or environmental factors. According to Quave and Pieroni (2015), the traditional knowledge of medicinal plants from different ethnic groups is restricted by cultural boundaries. Some plants are not only considered to have medicinal value by some ethnic groups, but also considered weeds by other ethnic groups, and vice versa.

The largest proportion of medicinal plants belonged to the families of Zingiberaceae (6 species), followed by Asteraceae (5 species), Acanthaceae (3 species), and Fabaceae (3 species). The present study is in line with other studies in Malays villages. Ong et al (2011a) indicated that Zingiberaceae, Euphorbiaceae, Acanthaceae, Lamiaceae, Piperaceae, and Poaceae were among the most common plant families in the Kampung Mak Kemas, Terengganu. Ong et al. (2011b) reported that Zingiberaceae and Poaceae were among the most plant families in the Kampung Tanjung Sabtu, Terengganu followed by Acanthaceae, Piperaceae, Rutaceae, and Solanaceae. In comparison to the Orang Asli community, Zingiberaceae is also recorded as the most common plant families. Among the Kensiu communities in Kampung Lubuk Ulu Legong, Mohammad et al. (2012) indicated that Zingiberaceae, Asparagaceae, Rubiaceae, and Sapindaceae were among the highest plant families of medicinal plants. The same pattern were also recorded by Ramli et al. (2021), Zaki et al. (2019), and Azliza et al. (2012) who observed that Zingiberaceae was the highest plant family used by Orang Asli in Kampung Donglai Baru Selangor, Kampung Pasik Kelantan, and Kampung Ulu Kuang Selangor respectively. This demonstrates that Zingiberaceae is the most common family of medicinal plants used by the Malays and Orang Asli communities in Peninsular Malaysia. The recognition of the medicinal properties of plants in the Zingiberaceae family is also common among many ethnic groups in other regions. In Thailand, the Karen which is the largest ethnic minority in the country cultivated many medicinal Zingiberaceae in their home gardens (Tangjitman et al. 2015). In Indonesia, Jadid et al. (2020) reported that the Zingiberaceae was the most abundant of plant family used by the Tengger tribe in the Ngadisari village.

Herbs were the main life-form of medicinal plants in terms of number of species (27 species), followed by shrubs (20 species), trees (19 species), and climbers (2

species) as shown in Figure 2. *Cocos nucifera* L, *Carica papaya* L, *Areca catechu* L, and *Citrus aurantiifolia* (Chris. & Panz.) Swin were the most frequent species. Bhat et al. (2014) also notified that coconut palm is the most dominant species in the home gardens of Karwar, India. According to Cruz-Garcia and Struik (2015), most of the plant species in home gardens were selected according to their owners' preferences. In this study, home gardens also function as experimental nurseries for propagating and domesticating some species from nearby forests. The best examples of this are *Eurycoma longifolia* Jack, *Garcinia atroviridis* Griff. ex T. Anders, *Nepenthes gracilis* Korth, *Parkia speciosa* Hassk, *Scorodocarpus borneensis* (Baill.) Becc, *Vitex pubescens* Vahl, and *Zingiber aromaticum* Vahl, which now, according to the local informants, are very rare in the forest because of land conversion to rubber tree and palm oil plantation. As a result, many villagers began to cultivate them for self-consumption in their home gardens and sometimes sold them to the nearest market as additional income. This finding is also in line with Eyasu et al. (2020) which noted that home gardens were an important reservoir of native plant species that were endangered or over-exploited in the forests near the villages. Some plants grow spontaneously in the home gardens and are not removed but protected by attaching them to a solid structure, or by laying stones around the plants. Such examples include *Oxalis barrelieri* L., *Phyllanthus pulcher* Wall. ex Müll. Arg, *Stachytarpheta jamaicensis* (L.) Vahl, and *Tacca integrifolia* Ker Gawler.

The total number of medicinal plant species per home garden ranged from 4 to 20 with a mean of 5.43 ± 5.10 with Shannon-Wiener Index 3.7. Shannon-Wiener Index in this present study corresponds with the value recorded in home gardens of Bangladesh (Rahman et al. 2013) and Sri Lanka (Mattsson et al. 2015) with ranges from 3.0 to 4.0. The index value recorded in this study is higher compared to the study in Sudan (Wiehle et al. 2014), and Ethiopia (Abebe et al. 2013) with the values recorded were 1.46 and 1.41 respectively. However, the study is lower compared to the study by Srithi et al. (2012) in home gardens of Northern Thailand with the Shannon-Wiener diversity index varied from 4.56 to 5.06. The finding of this study

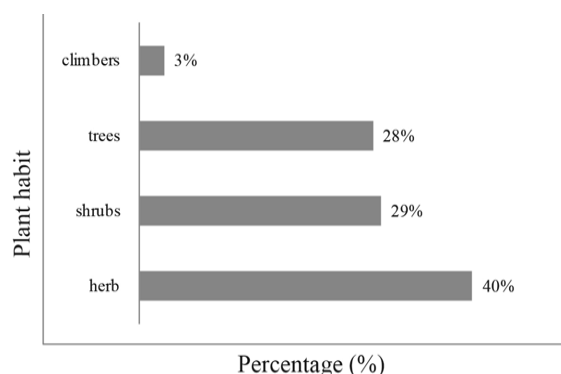


Figure 2. Diversity of life-form of medicinal plants

indicated that the home gardens of Kampung Masjid Ijok is rich with medicinal plant species and need to be considered for *in situ* conservation. Wezel and Ohl (2005) reported that about 55% of the medicinal plants that were noted in their study in the Amazon region were found in only one single home garden. The difficulty to get modern medicine in rural areas is also a main factor of the home gardens owners to use the plants as an alternative medicine to treat certain ailments. The plant parts used for medicinal preparations were leaves, roots, flowers, fruits, rhizomes, and in some cases the whole plants including the roots. The most frequently plant parts were the leaves (41%), followed by roots (26 %), fruit (15%), rhizome (9%), whole plants (6%), flowers (1%), seed (1%), and bark (1%) as shown in Figure 3. Leaves were the most frequently part plant used in this study which is similar to the report on other villages by Ong et al (2011b). This practice can be a sustainable way to exploit medicinal plants compared to harvesting of other plant parts and helps to reduce the rate of threat on plant species and subsequently conserve the medicinal plants.

Gastrointestinal disorders including stomach ache, diarrhea, dysentery, indigestion, flatulence, worm infestation in children, and constipation are among the most frequent ailments treated with medicinal plants (25% of all remedies). Then, the ailments are followed by respiratory problems, women-related health, hypertension, diabetes, fever, headache, and kidney stones. The most commonly used plant species in the treatment of gastrointestinal disorders include *Carica papaya* L, *Clinacanthus nutans* (Burm F.) Lindau, *Coleus blumei* Benth, *Psidium guajava* L, *Scorodocarpus borneensis* (Baill.) Becc, *Zingiber officinale* Roscoe, and *Zingiber aromaticum* Vahl. *Psidium guajava* L was also cited by other ethnobotanical studies in other locations in Malaysia to treat diarrhea and stomach-ache. For example, Ong et al. (2012a) reported the use of *Psidium guajava* to treat diarrhea and stomach-ache among the Orang Asli community in Kampung Pos Penderas, Pahang. Ramli et al. (2021) also reported that the Orang Asli community in Kampung Donglai Baru, Selangor also used *Psidium guajava* L to treat the same ailments.

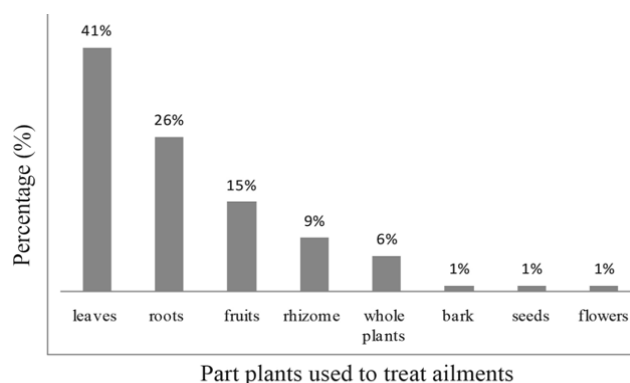


Figure 3. Parts of medicinal plants used to treat ailments

Table 1. Diversity of plant species obtained in the home gardens of Kampung Masjid Ijok

Species name	Family name	Local name	Habit	Part used	Freq. of occurrence	Use	Preparation/ administration
<i>Ageratum conyzoides</i> L.	Asteraceae	Pokok tahi babi	Herb	Leaves	1	Treat colic, colds, and fevers	Infusion/ orally
<i>Allium tuberosum</i> Rottler ex Spreng	Amaryllidaceae	Kuca	Herb	Leaves	4	Treating parasites in the intestines	Decoction/ orally
<i>Alpinia conchigera</i> Griff	Zingiberaceae	Lengkuas ranting	Herb	Leaves	10	Rheumatism	Poultice/ dressing
<i>Ananas nanus</i> L.B.	Bromeliaceae	Nanas batu	Shrub	Fruits	2	Kidney stones	Infusion/ orally
<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	Acanthaceae	Hempedu bumi	Herb	Whole plants	1	Hypertensions	Decoction/ orally
<i>Annona muricata</i> L.	Annonaceae	Durian belanda	Tree	Leaves	8	Fever	Infusion/ dressing
<i>Areca catechu</i> L.	Arecaceae	Pinang	Tree	Roots	18	Kidney stone	Decoction/ orally
<i>Barringtonia racemosa</i> (L.) Spreng	Lecythidaceae	Putat	Tree	Fruits	3	Cough, asthma	Infusion/ orally
<i>Blumea balsamifera</i> (L.) DC.	Asteraceae	Capa	Shrub	Leaves	4	Diarrhea	Decoction/ orally
<i>Carica papaya</i> L.	Caricaceae	Betik	Herb	Fruits	26	Constipation	Infusion/ orally
<i>Cassia tora</i> (L.) Roxb	Fabaceae	Geleng-gang kecil	Herb	Roots	2	Kidney stones	Decoction/ orally
<i>Centella asiatica</i> (L.) Urban	Mackinlayaceae	Pegaga	Herb	Whole plants	2	Aging	Infusion/ orally
<i>Chassalia curviflora</i> (Wallich) Thwaites	Rubiaceae	Beberas	Shrub	Roots	3	Coughs	Decoction/ orally
<i>Citrus aurantiifolia</i> (Chris. & Panz.) Swin	Rutaceae	Limau nipis	Tree	Fruits	15	Dysmenorrhea	Infusion/ orally
<i>Clerodendron paniculatum</i> L.	Lamiaceae	Pepanggil	Shrub	Roots	2	Asthma	Decoction/ orally
<i>Clidemia hirta</i> (L.) D. Don	Melastomataceae	Senduduk babi	Shrub	Roots	7	Poison antidote	Decoction/ orally
<i>Clinacanthus nutans</i> (Burm F.) Lindau	Acanthaceae	Belalai gajah	Shrub	Leaves	3	Gastrointestinal disorders	Decoction/ orally
<i>Cocos nucifera</i> L.	Arecaceae	Kelapa	Tree	Roots	28	Kidney stone	Decoction/ orally
<i>Coleus blumei</i> Benth	Lamiaceae	Ati-ati	Herb	Leaves	6	Diarrhea	Poultice/ dressing
<i>Curcuma aeruginosa</i> Roxb	Zingiberaceae	Kunyit hitam	Herb	Rhizome	2	Cough and asthma	Decoction/ orally
<i>Cymbopogon flexuosus</i> (Nees ex Steud.)	Gramineae	Serai hitam	Herb	Roots	1	Indigestion	Decoction/ orally
<i>Cyperus alternifolius</i> L.	Cyperaceae	Nerung	Shrub	Roots	3	Kidney stones	Decoction/ orally
<i>Dioscorea hispida</i> Dennst.	Dioscoreaceae	Ubi gadut	Herb	Rhizome	1	Sore feet	Poultice/ dressing
<i>Elettariopsis slamhong</i> C.K. Lim	Zingiberaceae	Halia kesing	Herb	Leaves	4	Treat post-partum	Poultice/ dressing
<i>Euphorbia hirta</i> L	Euphorbiaceae	Ara tanah	Herb	Whole plants	1	Gastrointestinal disorders	Decoction/ orally
<i>Eurycoma longifolia</i> Jack	Simaroubaceae	Tongkat ali	Tree	Roots	4	Low sexual energy	Decoction/ orally
<i>Ficus deltoidea</i> Jack	Moraceae	Mas cotek	Shrub	Leaves	1	Hypertension	Decoction/ orally
<i>Ficus obpyramidata</i> Miq	Moraceae	Kelempung	Tree	Fruits	3	Galactagogue (promotes lactation in human)	Eaten raw/orally
<i>Garcinia atroviridis</i> Griff. ex T. Anders	Clusiaceae	Gelugur	Tree	Fruits	4	Hypertension	Decoction/ orally
<i>Gynura sarmentosa</i> DC	Asteraceae	Sambung nyawa	Herb	Leaves	1	Dysentery	Decoction/ orally
<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Bunga raya	Shrub	Leaves	10	Fever	Infusion/ dressing
<i>Kaempferia galanga</i> L	Zingiberaceae	Cekur	Herb	Leaves	2	Womb healing after childbirth	Decoction/ orally
<i>Kalanchoe pinnata</i> (Lamk.) Pers	Crassulaceae	Setawar	Herb	Leaves	3	Headache	Poultice/ dressing
<i>Leucaena leucocephala</i> (Lamk) De Wit.	Leguminosae	Petai belalang	Tree	Seeds	4	Stomachache, contraception, abortifacient	Infusion/ orally

<i>Mallotus barbatulus</i> Müll.Arg	Euphorbiaceae	Pokok tapu	Tree	Roots	2	Gastrointestinal disorders	Decoction/ orally
<i>Mangifera foetida</i> Lour	Anacardiaceae	Machang	Tree	Leaves	7	Skin complaints	Poultice/ dressing
<i>Maranta arundinacea</i> L.	Marantaceae	Ubi larut	Herb	Roots	2	Poison antidote	Decoction/ orally
<i>Melastoma decemfidum</i> Roxb. ex Jack.	Melastomataceae	Senduduk	Shrub	Roots	6	Kidney stones	Decoction/ orally
<i>Mimosa pudica</i> L	Fabaceae	Semalu	Herb	Whole plants	1	Athlete's foot	Poultice/ dressing
<i>Mikania micrantha</i> Kunth ex H.B.K	Asteraceae	Selaput tunggul	Climber	Leaves	3	Stop minor external bleeding	Poultice/ dressing
<i>Molineria latifolia</i> (Dryand. ex W.T.Aiton)	Asteraceae	Remba	Herb	Roots	5	Menorrhagia	Decoction/ orally
<i>Morinda citrifolia</i> L.	Rubiaceae	Mengkudu	Tree	Leaves	6	Treat post-partum	Poultice/ dressing
<i>Nepenthes gracilis</i> Korth	Nepenthaceae	Periuk kera	Herb	Roots	1	Dysentery	Decoction/ orally
<i>Ocimum sanctum</i> L	Lamiaceae	Selasih	Herb	Leaves	2	Coughs	Decoction/ orally
<i>Oroxylum indicum</i> Vent.	Bignoniaceae	Beka	Tree	Leaves	12	Fever	Poultice/ dressing
<i>Orthosiphon aristatus</i> (Bl.) Miq	Lamiaceae	Misai kucing	Shrub	Leaves	2	Diabetes	Decoction/ orally
<i>Oxalis barrelieri</i> L.	Oxalidaceae	Belimbing tanah	Herb	Roots	3	Hypertension	Decoction/ orally
<i>Pandanus atrocarpus</i> Griff	Pandanaceae	Mengkuang	Shrub	Roots	3	Kidney stones	Decoction/ orally
<i>Parkia speciosa</i> Hassk.	Mimosaceae	Petai	Tree	Fruits	13	Diabetes	Infusion/ orally
<i>Passiflora edulis</i> Sims	Passifloraceae	Markisa	Climber	Flowers	1	Gastrointestinal disorders	Infusion/ orally
<i>Physalis minima</i> L	Solanaceae	Letup-letup	Herb	Leaves	1	Head-ache	Poultice/ dressing
<i>Piper betle</i> L.	Piperaceae	Sirih	Herb	Leaves	10	Stop internal bleeding in the nose	Poultice/ dressing
<i>Piper sarmentosum</i> Roxb. Ex hunt	Piperaceae	Kadok	Herb	Roots	11	Cough, asthma	Decoction/ orally
<i>Psidium guajava</i> L	Myrtaceae	Jambu biji	Tree	Leaves	3	Diarrhea, stomach-ache	Infusion/ orally
<i>Phyllanthus pulcher</i> Wall. ex Müll. Arg	Euphorbiaceae	Naga buana	Shrub	Leaves	1	Boils, carbuncles	Poultice/ dressing
<i>Ricinus communis</i> L	Euphorbiaceae	Pokok jarak	Shrub	Leaves	1	Rheumatism	Poultice/ dressing
<i>Rhinacanthus communis</i> (L.) Kurz	Acanthaceae	Ubat kurap	Shrub	Leaves	1	Skin complaints	Poultice/ dressing
<i>Scorodocarpus borneensis</i> (Baill.) Becc	Olacaceae	Kulim	Tree	Fruits	8	Indigestion	Infusion/ orally
<i>Sida rhombifolia</i> L	Malvaceae	Senanguri	Shrub	Roots	1	Fever	Decoction/ orally
<i>Solanum torvum</i> Swar.	Solanaceae	Terung ceweng	Shrub	Fruits	6	Hypertension	Infusion/ orally
<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Verbenaceae	Cabai tali	Shrub	Leaves	3	Scabies, abscess	Poultice/ dressing
<i>Tacca integrifolia</i> Ker Gawler	Dioscoreaceae	Keladi murai	Shrub	Rhizome	1	Skin complaints	Poultice/ dressing
<i>Tamarindus indica</i> L	Fabaceae	Asam jawa	Tree	Fruits	1	Fever, sore throat	Juice/ orally
<i>Typhonium flagelliforme</i> (Lodd) Blume	Araceae	Keladi tikus	Herb	Rhizome	1	Expectorant for respiratory disorders (cough/asthma)	Infusion/ orally
<i>Vernonia amygdalina</i> Del	Asteraceae	Ketum cina	Shrub	Leaves	4	Treatment of jaundice, diarrhea	Decoction/ orally
<i>Vitex pubescens</i> Vahl	Verbenaceae	Halban	Tree	Bark	1	Womb healing after childbirth	Decoction/ orally
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Halia	Herb	Rhizome	7	Flatulence	Decoction/ orally
<i>Zingiber aromaticum</i> Vahl	Zingiberaceae	Lempoyang	Herb	Rhizome	3	Worm infestation in children	Decoction/ orally

Similarly, medicinal uses of *Psidium guajava* have also been reported in previous ethnobotanical studies in other countries. For example, Tangjitman et al. (2015) and Jadid et al. (2020) reported the use of *Psidium guajava* to treat diarrhea by the Karen community of Northern Thailand, and the Tengger tribe in Ngadisari village of Indonesia respectively. The main administration routes of the remedies were taken orally (72%) and topical application (28%). The most common methods of preparation were decoction (50%), poultice (25%), and infusion (25%). Oral ingestion through the decoction method is the simplest way to take medicine. This method is applied to treat ailments by the most local community based on the previous ethnobotanical studies such as by the Tengger tribe in Indonesia (Jadid et al. 2020), the Karen tribe in Thailand (Tangjitman et al. 2015), the Jakun tribe in Malaysia (Sabran et al. 2016), and the Mulam tribe in China (Hu et al. 2020). However, there are a few medicine derived from decoction, applied externally by bathing, such as treatment for postpartum among women. Some plant parts were crushed to release active compounds before being applied directly to affected organs to treat wounds or inflammation.

In conclusion, the home gardens of Kampung Masjid Ijok, with their diverse medicinal plant collection, serve as important reservoirs for medicinal plant species and traditional knowledge. The knowledge is still practiced and disseminated among family members, and this makes the home gardens one of the important places to study ethnopharmacology. Medicinal plants in home gardens are used mostly to treat ailments in the categories of gastrointestinal disorders and respiratory issues. These are the most common health issues in rural areas. Thus, the findings of this study can be an important factor in the selection of medicinal plants to be planted and cared for in the home gardens.

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