

Community Knowledge about Medicinal Plants in Samudra Jaya and Pahlawan Setia Villages, North Bekasi

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ABSTRACT

The purpose of this study was to describe the knowledge and use of medicinal plants by the people of Samudra Jaya and Pahlawan Setia Villages, Tarumajaya Sub-district, North Bekasi. The research design is an exploratory survey and observation. The sample numbered 119 people, consisting of 69 people representing Pahlawan Setia Village and 50 people representing Samudra Jaya Village. The sampling technique used purposive random sampling. Variables in this study include the value of community knowledge about medicinal plants, the value of community knowledge about the use of medicinal plants, the organs of plants that are often used, the percentage of how to use medicinal plants, and the families and species of plants used as medicine. Data analysis was carried out descriptively. The results showed that the value of community knowledge about medicinal plants was 354 (classified as good), the value of community knowledge regarding the use of medicinal plants was 300.4 (classified as good), the organs of plants that were often used as medicine were leaves (95%), the percentage of how to use medicinal plants are more dominant by boiling (91%), there are 19 families with 22 species of plants used as medicine. The family includes Zingiberaceae, Polygonaceae, Liliaceae, Acanthaceae, Oxalidaceae, Talinaceae, Crassulaceae, Rubiaceae, Lamiaceae, Piperaceae, Basellaceae, Euphorbiaceae, Solanaceae, Caricaceae, Menispermaceae, Asparagaceae, Zingiberaceae, Myrtaceae, Rutaceae, Leguminosae, and Moraceae, with plant species: *kunyit* (*Curcuma domestica*), *jambu biji* (*Psidium guajava*), *sirih hijau* (*Piper betle*), *mengkudu* (*Morinda citrifolia*), *lidah buaya* (*Aloe vera*), *brotowali* (*Tinospora crispa*), *sambiloto* (*Andrographis paniculata*), *saga* (*Abrus precatorius*), *jahe* (*Zingiber officinale*), *belimbing wuluh* (*Averrhoa bilimbi*), *cocor bebek* (*Kalanchoe pinnata*), *ciplukan* (*Physalis peruviana*), *jeruk nipis* (*Citrus aurantiifolia*), *jarak pagar* (*Jatropha curcas*), *kumis kucing* (*Orthosiphon aristatus*), *gondola* (*Basella rubralin*), *pepaya* (*Carica papaya*), *ginseng jawa* (*Talinum paniculatum*), *telang* (*Clitoria ternatea*), *getih-getihan* (*Rivina humilis*), *tin* (*Ficus carica*), and *suji* (*Dracaena angustifolia*). The study concludes that the results of survey scores regarding the knowledge and use of medicinal plants by the people of Samudra Jaya and Pahlawan Setia Villages are classified as good. The species of medicinal plants that are most widely used are the Zingiberaceae family, with local names of plant species, namely *jahe* and *kunyit*. Both plants are used by boiling to relieve menstrual pain and treat bloating and colds.

Keywords: Bekasi, Medicinal Plant, Zingiberaceae

INTRODUCTION

Based on the results of research on community knowledge about medicinal plants, the knowledge score of the Indonesian people in knowing and using plants as traditional medicine is 3.5 - 6.3 on a scale of 0 - 10. This data shows that the Indonesian people's knowledge of preserving medicinal plants is still relatively low. From this data, the level of good knowledge about medicinal plants is mostly dominated by shamans and *paraji* (traditional birth attendants), with a percentage of 80%. At the same time, for modern youth, it is only 20% (Agaatsz and Sitompul, 2021). The introduction and use of medicinal plants by certain figures have the potential to cause the loss of local knowledge regarding medicinal plants in the future for the community, especially modern youth. The loss of local knowledge will affect future generations' concern for the preservation of medicinal plants in the surrounding environment (Silalahi, 2016).

Evidence of reduced local knowledge about medicinal plants in the current generation has been shown through a simple survey of 90 students studying botany, pharmacology, and phytochemistry, where only 10% of students recognize and know the practice of using plants obtained from their families. This survey was then continued with 20 high school students, which showed that only 5% of high school students recognized and knew the practice of using medicinal plants from their families. All the surveys reported that their knowledge about plants is more widely used as a cooking spice. This evidence is strengthened by the results of data analysis regarding the level of knowledge of the Baluwarti people in the Surakarta Hadiningrat palace environment, which shows a decrease in knowledge and use of traditional medicine in young people (aged 15-25 years) (Shanthi *et al.*, 2014)

Given the importance of the potential benefits of plants as raw materials for herbal medicine, it is necessary to collect data on medicinal plants in Indonesia. This form of data collection can be carried out using research in various regions in Indonesia, as well as a database that can be used as a source of information in introducing the potential of medicinal plants in the environment itself.

Several previous studies have provided information about community knowledge and practices regarding the use of medicinal plants, including research by Mustofa and Rahmawati (2019) on 19 ethnic groups in South Sulawesi, which reported that from 19 families, there were 30 species of medicinal plants used to treat diarrhoea. Mulyani *et al.* (2019) research regarding ethnopharmacological practices in communities in the villages of Warukin and Tanta Hulu, South Kalimantan, using observational methods and exploratory surveys provided information on 22 families, 28 species of medicinal plants are useful in treating a disease or maintaining health. Mulyani *et al.* (2020) research in West Java also showed that out of 27 families there were 40 species, with the most dominant medicinal plant family being Euphorbiaceae in Dawuan Subang Sub-district.

Referring to the methods and outputs of previous research, there has never been empirical data regarding the knowledge and practice of medicinal plants in the community in Bekasi, which is located in the Tarumajaya, specifically in Samudra Jaya and Pahlawan Setia Villages. The selection of the location was based on an initial survey that the people in the area had a habit of growing medicinal plants in their yards. The population in Tarumajaya Village is also classified as poor, so that in every house you can still find many elderly people who are classified as poor. The composition of each house causes people to prefer using medicinal plants as an alternative treatment because it does not require expensive costs and is guaranteed to be cured, so it was necessary to observe the level of knowledge about medicinal plants in the people in Samudra Jaya and Pahlawan Setia Villages, Tarumajaya Sub-district, North Bekasi.

METHODS

Study Area

This type of research is an exploratory survey. This research was conducted in Tarumajaya Sub-district, Bekasi, from February to April 2022. The temperature interval is 27-31 °C with humidity 20% – 40%. The population in this study were people who had been registered in Tarumajaya Sub-district, North Bekasi (Figure 1). There are eight villages in the Tarumajaya Sub-district, with a total population of 161.190 people. As for the eight villages, two villages were taken as research samples, namely Pahlawan Setia Village, with a total of 4.500 family cards and Samudra Jaya Village, with 2.450 family cards.

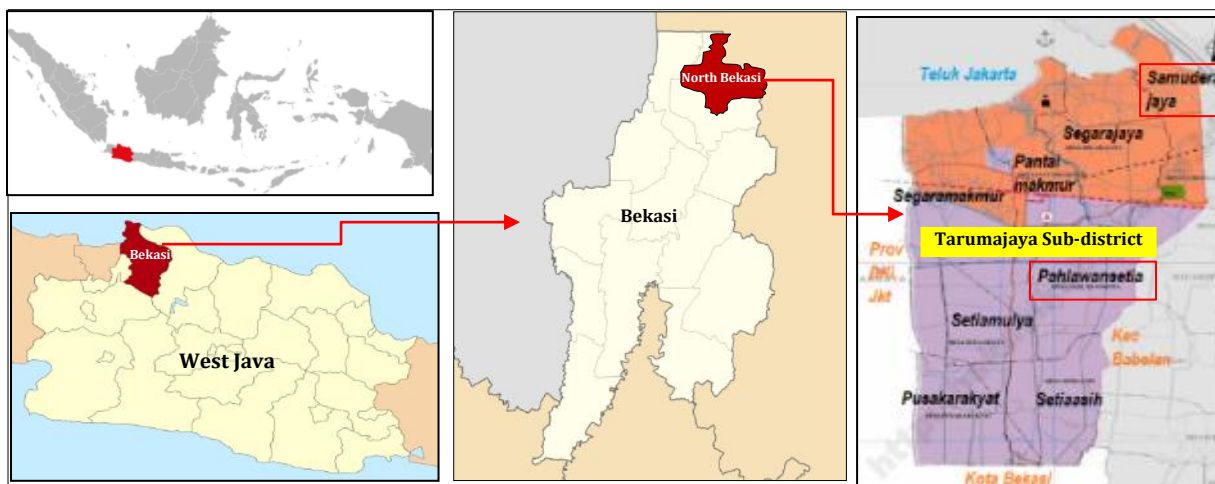


Figure 1. Location map of Samudera Jaya and Pahlawan Setia Villages, Tarumajaya Sub-district, North Bekasi Regency, Bekasi City, West Java, Indonesia

Data Collection

Determination of the number of samples is done by using the following formula:

$$\text{Square}\sqrt{N + 1}$$

Where: n = Number of respondents specified; N = Number of households (family card).

The number of samples for Pahlawan Setia Village:

$$\begin{aligned} &= \sqrt{4500 + 1} \\ &= \sqrt{4501} \\ &= 67 \end{aligned}$$

The number of samples for Samudera Jaya Village:

$$\begin{aligned} &= \sqrt{2450 + 1} \\ &= \sqrt{2451} \\ &= 49 \end{aligned}$$

Based on the calculations above, it can be seen that the total number of respondents as a sample in this study totaled 119 people, consisting of 69 people representing Pahlawan Setia Village and 50 people representing Samudera Jaya Village. Samples were then taken using a purposive sampling technique with criteria including age over 30 years, married women and men, married women and men, willing to be research respondents, women able to read and

write, and not sick and not experiencing mental or cognitive disorders such as epilepsy.

Data collection in this study was carried out by means of questionnaires, interviews, and documentation. The questionnaire was used to find out the demographics of the respondents (gender, age, occupation, and ethnicity), the level of knowledge of medicinal plants, and the level of knowledge regarding the use of medicinal plants, how to use plants, the parts of organs used, and how to obtain them. Data on the level of knowledge and use of medicinal plants were collected using a questionnaire containing 12 questions: seven questions for the category of community knowledge about medicinal plants and five questions for the category of community knowledge about the use of medicinal plants. The form of the question is a closed question, which the respondent answers using a Guttman scale in the form of "yes", "no" and "do not know". Respondents' answers were in the form of a score of Yes (3), no (2), and did not know (1). The number of respondents who gave answers to each choice multiplied by the rating score. The total score for each question answered by all respondents was grouped according to the criteria of enough (140-227), good (228-315), and very good (316-403). Documentation was carried out by taking pictures of medicinal plants, while interviews were conducted face to face by asking questions related to medicinal plants to respondents.

The working procedures for this research included applications for research permits, the interview process (Table 1), administration, guidance, and filling out questionnaires (Mulyani *et al.*, 2020) by respondents who were accompanied by researchers directly, taking pictures of plants with a 12-megapixel camera, identifying plant images with an identification application android-based plants (PlantNet), and creation of a database of image collections of medicinal plants that have been identified with plant morphology ATLAS (Table 2).

Table 1. List of community knowledge questionnaire questions regarding the utilization of medicinal plants

No	Questions	Answer Choice		
		Yes	No	Do not Know
	Utilization of Medicinal Plants			
1.	Have you ever used medicinal plants for the treatment and maintenance of health?			
2.	Do you use family medicinal plants to treat diseases and maintain health?			
3.	Do you make your traditional ingredients?			
4.	In your opinion, are traditional medicines efficacious?			
5.	Do you cultivate plants that can be used to treat diseases?			

Table 2. List of community knowledge questionnaire questions regarding knowledge of medicinal plants

No	Questions	Answer Choice		
		Yes	No	Do not Know
1.	Do you know that there are types of medicinal plants that can be used for medicine in this village?			
2.	Did you know about medicinal			

	plants for the first time from generations?
3.	Did you know about medicinal plants for the first time from media information?
4.	Are you aware of any medicinal plants used in traditional ceremonies?
5.	Are there still many medicinal plants in this village?
6.	Do you think herbal plants can cure Covid-19?
7.	Do you think herbal plants can increase immunity?

Data Analysis

Data analysis in this study was carried out by testing the validity and reliability of questionnaires on respondents, calculating scores on the level of knowledge and use of the community regarding medicinal plants, calculating the percentage of plant organs used by the community as medicine, how to use medicinal plants, tabulating demographic data, family and species of medicinal plants in table form. All data are then interpreted using a quantitative descriptive approach.

RESULTS AND DISCUSSION

The results obtained from this study include the demographics of respondents (gender, age, education level, and work), the level of public knowledge about medicinal plants and the use of medicinal plants, the percentage of plant organs used as medicine, how to use medicinal plants and tabulations and pictures of medicinal plants.

Table 3. Gender of research respondents

Gender	Number	Percentage
Male	56	40%
Female	84	60%

Table 3 shows that the gender of the respondents in this study consisted of 56 males (40%) and 84 females (60%). This proportion is more female than male because there were more females at home, so they had a higher opportunity to participate in this study; besides that, women consumed more decoctions from the medicinal plant *Simplicia* than males. Many studies state that there is a significant relationship between women and medicinal plants, according to Wahyuni (2010), Jennifer and Saptutyningsih (2015), and Yatias (2015) because women tend 1.39 times to suffer from degenerative diseases compared to men. Therefore, women have the initiative to manage, cultivate, and utilise medicinal plants in the garden or yard. Panero and Persico (2016) added that women care more about treatment with that level of knowledge better. In this age study, the research respondents were grouped into three age categories, as shown in Table 4.

Table 4. Age of respondents

Age	Number	Percentage
30-35	70	50
40-45	42	30
50-55	24	17

Table 4 shows that the highest number of respondents aged 30-35 years was 70 (50%), while those aged 50-55 years were 24 (17%). According to the Indonesian Ministry of Health in Kusuma (2019), respondents aged 16-25 years are included in the adolescent category, 26-45 years are included in adults, and 46-65 years are included in the elderly. Based on this, it can be seen that the age of the respondents in this study was included in the adult category. According to the age of the respondent is able to describe the information respondent's knowledge about the benefits, how to manage, how to get, and how to cultivate family medicinal plants. Lolita *et al.* (2017) added that increasing age and experience in the use of medicinal plants causes a person to know medicinal plants in treating degenerative diseases. Knowledge about medicinal plants will be better if a good level of education supports it. In this study, the education level of the respondents can be seen in Table 5.

Table 5. The education level of respondents

Level of Education	Number	Percentage
Primary School	38	27
Junior High School	38	27
Senior High School	55	39
College	9	6

Table 5 shows that the education level of respondents is more dominant, with senior high school 55 (39%) compared to college, which is nine (6%) of respondents. According to Panero and Persico in Kusuma (2019), the level of high school education is in the medium category. A person's education is very influential on the understanding, knowledge and family medicinal plant cultivation application, especially if it is supported by regular outreach regarding the benefits of medicinal plants held by the local health centre, which can make people's mindset change to utilise medicinal plants (*Smart Living*) in overcoming degenerative diseases for their families and themselves. Jennifer and Saptutyningasih (2015) added that different levels of community education can affect differences in the level of community knowledge, but according to Erlindawati (2015), regarding a survey of family medicinal plant knowledge, shows that the level of education supported by hereditary knowledge will produce a good level of knowledge about plants drug. Izzati *et al.* (2022) added that the factors of productive age, education, good comprehension, and the existence of hereditary information about the benefits of medicinal plants will affect the level of community knowledge about medicinal plants. The results of this study by Widyanata *et al.* (2021) show that the level of education is capable of producing a good level of knowledge; the difference is that in this study, the highest education level of the respondents was high school, while in the previous study, it was college. However, the dominant factor related to knowledge of medicinal plants was knowledge that people have had from their parents since ancient times. This is evidenced by the results of research by Ani *et al.* (2018) and Oktarlina *et al.* (2018), which shows that the level of community knowledge about medicinal plants is good, supported by knowledge passed down from ancestors for generations, family habits, information from neighbours, friends, relatives, or direct traditional medicine sellers. The existence of this knowledge triggers the community to carry out medicinal plant cultivation

activities in the garden or yard of the house. The results of the knowledge score regarding medicinal plants in the community in Samudera Jaya and Pahlawan Setia can be seen in Figure 2.

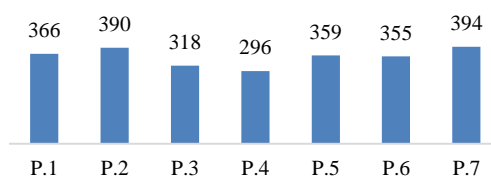


Figure 2. Total questionnaire value of community knowledge level about medicinal plants

Figure 2 shows that the community's knowledge of question 1, 2, 3, 5, 6, 7 is in the very good category. Question number 4 is included in the good category. As for questions regarding knowledge of medicinal plants, which were classified as very good, including questions no. 1 regarding the types of medicinal plants used as medicine, no. 2 regarding the origin of knowledge of medicinal plants from their ancestors, number 3 regarding the origin of knowledge of medicinal plants from social media, no. 5 regarding the abundance of medicinal plants, no. 6 regarding knowledge of medicinal plants as prevention of Covid-19, no. 7 regarding the knowledge of medicinal plants to maintain body immunity, whereas no. 4 regarding plant knowledge as a traditional ceremony included in the good category. In addition to the level of knowledge about medicinal plants, this research also collected knowledge data about the use of medicinal plants, which can be seen in Figure 3.

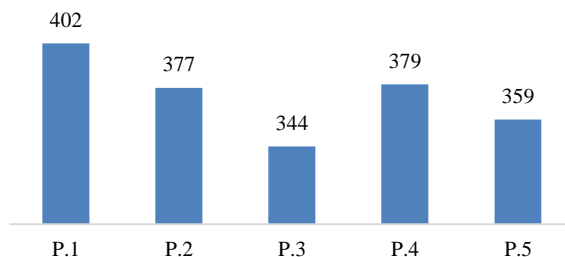


Figure 3. Total questionnaire value of community knowledge level regarding the utilization of medicinal plants

Figure 3 shows that the community's knowledge of questions 1, 2, 3, 4, and 5 is in the good category. As for the question of community knowledge regarding the use of medicinal plants, among others, no. 1 use of medicinal plants for the treatment and maintenance of the body, no. 2. utilisation of family medicinal plants to treat disease and maintain health, no. 3 utilisation of medicinal plants as traditional ingredients, no. 4 properties of medicinal plants, no. 5 cultivation of plants used as medicine. In general, the score comparison between knowledge and the use of medicinal plants can be seen in Figure 4.

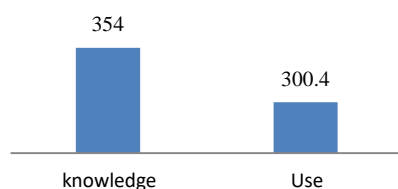


Figure 4. Comparison of the average value of the level of public knowledge about medicinal plants and the use of medicinal plants

Figure 4 shows that the community knowledge of both medicinal plants and the use of medicinal plants is classified as good, but the knowledge level score (354) is still better than utilization (300.4). A good score indicates that the people in Tarumajaya village not only have a good level of knowledge in the field of medicinal plants, but are also able to practice well in using medicinal plants for several diseases, such as coughs, fever, colds and minor cuts. The good knowledge and use of medicinal plants in this research is the Zingiberaceae family (ginger and turmeric). This is in accordance with Trianingsih *et al.* (2023), Sahada *et al.* (2022) research which reports that *Curcuma longa* and *Kaempferia galanga* are the most dominant families known and used as herbal medicines and planted as living pharmacies in the sustainable food yard, Depok City, West Java and Olele Village, Gorontalo. The parts (organs) of plants that are used as medicine by the people in the villages of Pahlawan Setia and Samudera Jaya include leaves, roots, stems, rhizomes, fruit, and other parts. The percentage of each part (organ) that is utilized as medicine can be seen in Figure 5.

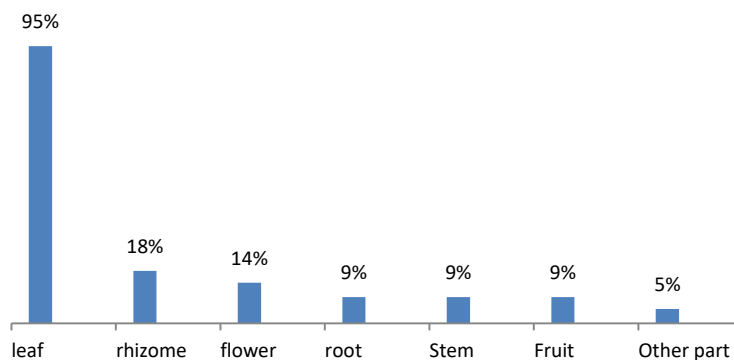


Figure 5. The percentage of each part (organ) that is utilized as medicine

Figure 5 shows that the percentage of plant parts (organs) taken as medicine includes leaf 95%, rhizome 18%, flower 14%, root 9%, fruit 9%, stems 9%, and all parts 5%. The percentage of the part of the plant that is most widely used as medicine is the leaves. According to Ifandi *et al.* (2016) and Tangjitman *et al.* (2015), leaves are plant organs that are most widely used in traditional medicine compared to other plant parts. This is because the leaves are the main photosynthetic organs of plants and the accumulation site for the synthesis of bioactive components or secondary metabolites which have medicinal properties. At the same time, the rhizome is a common part of the Zingiberaceae family, which contains essential oils and secondary metabolites that have the potential to treat various diseases Laili *et al.* (2022). The method of utilizing medicinal plants carried out by the community in the villages of Samudera Jaya and Pahlawan Setia is shown in Figure 6.

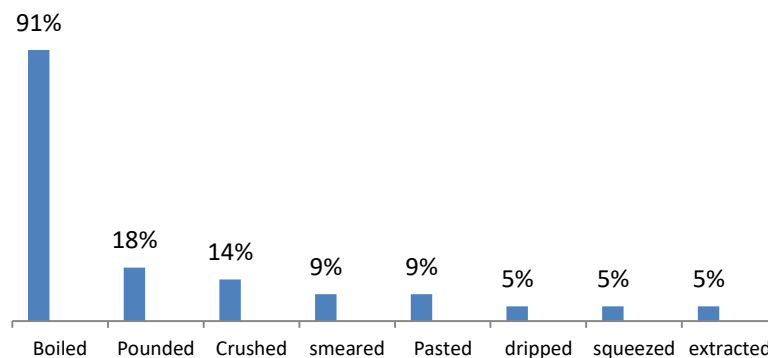


Figure 6. Utilization of plant parts (organs)

Figure 6 Shows that the percentage of ways to use plant parts (organs) as medicine includes boiling as much as 91%, pounding 18%, Crushing 14%, smearing 9%, pasting 9%, dripping 5%, squeezing 5%, and extracting 5%. In this study, the dominant way of making leaf simplicia was carried out by the people of Samudra Jaya and Pahlawan Setia Villages, namely by boiling. Boiling is done by boiling the simplicia leaves over low heat for 5-30 minutes. Related to this, according to Achmad *et al.* (2015), boiling Simplicia, which is carried out for 15 minutes using boiling water with a temperature of 90-98 °C over low heat, is called infusion, whereas if boiling Simplicia is carried out for 30 minutes using boiling water with a temperature of 90-98 °C over low heat is called dekokta. Argananta *et al.* (2016) added that the tools used to boil simplicia may not use metal except stainless steel. The tool for boiling Simplicia should be made of glass, ceramic, or porcelain, and the Simplicia used must be washed clean before further processing. However, in this study, the subject did boiling using an aluminium pan. Meanwhile, according to Utami *et al.* (2013), the traditional and simple boiling of medicinal plant simplicia is recommended to be carried out in a container made of clay so as not to change the phytochemical compounds contained in the simplicia. Adiyasa and Meiyanti (2021) suggest that the method of using medicinal plants by boiling is the most widely practised because boiling is easy to do, and people tend to like consuming medicinal plants in liquid form. The results of this study are by research: Gunarti and Nurlina (2019) reported that there were 23 plant species used as medicine by the community in Cigunungsari Village, Tegalwaru Sub-district, Karawang Regency, West Java with a description of the part of the plant that is often used is the leaves (69.7%), the most common method of use was drinking (73.91%), and the most common method of processing was boiling (56.52%).

Twenty-two types of plants are used as medicine by the people in Pahlawan Setia and Samudera Jaya villages consisting of 19 families, namely Zingiberaceae, polysonaceae, liliacea, acanthaceae, oxalidaceae, Solanaceae, Crassulaceae, Rubiaceae, Lamiaceae, pipecareae, basellaceae, Euphorbiaceae, Solanaceae, Caricaceae, Menispermaceae, Asparagaceae, Zingiberaceae, Myrtaceae, rutaceae, leguminosae, Moraceae and phytolacaceae. These plant species can be seen in Figure 7.

Based on Figure 7 it can be seen that of the 19 plant families consisting of 22 species of medicinal plants, Zingiberacea is the most dominant family found and known by the people of Tarumajaya Sub-district, both in Samudera Jaya and Pahlawan Setia Villages. The family of Zingiberaceae used by the Tarumajaya community are ginger (*jahe*) and turmeric (*kunyit*). The results of the interviews stated that the Tarumajaya community utilized the ginger rhizome by boiling it to relieve menstrual pain, colds, and coughs; the same was done for turmeric to relieve menstrual pain. In the same province, namely West Java, the results of this study are different from the research of Mariani *et al.* (2014) who reported that of the 28

plant families most widely used as medicine in Kampung Naga, Salawu Sub-district, Tasikmalaya Regency, West Java, Asteraceae, such as *babadotan* (*Ageratum conyzoides*), *jalantir* (*Conyza sumatrensis*), *karinyuh* (*Chromolaena odorata*), *tempuyung* (*Sonchus wightianus*), and *sembung* (*Blumea balsamifera*) as a stamina enhancer. In other provinces, namely Central Java, the results of the study by Diniatik et al. (2021) show that of the 24 plant families that are dominantly used as hyperlipidemia drugs in Dayeuhluhur Sub-district, Cilacap Regency is Acanthaceae (12.5%) and Annonaceae (12.5%) with the most widely used type being *pecah beling* (*Strobilanthes crispus*). The same results were also obtained in a study by Hartanto (2014), who reported that local people in Pangean Sub-district, Kuantan Singing Regency, Riau used more cultivation of the Zingiberaceae family to be used as a medicine to overcome pregnancy, postpartum, and hereditary problems.

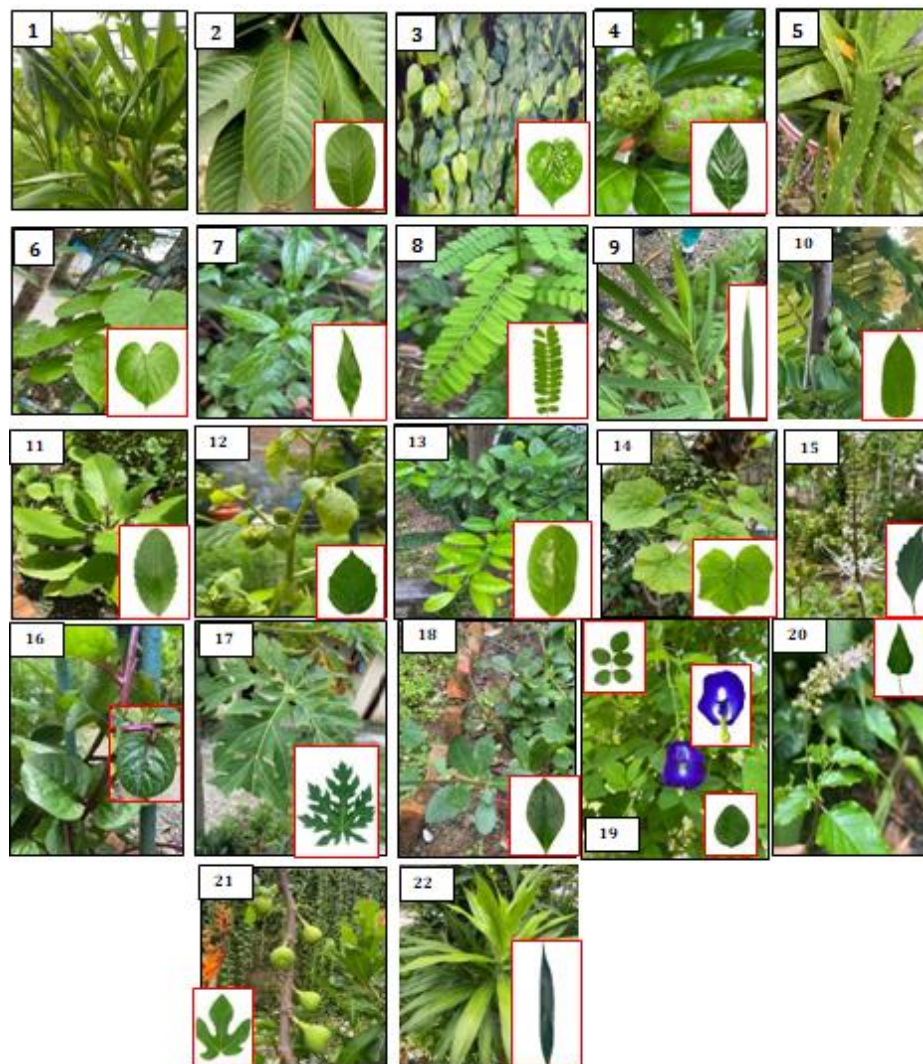


Figure 7. Leaf morphology of medicinal plants in Samudra Jaya and Pahlawan Setia Villages. 1. *Kunyit* (*Curcuma domestica*), 2. *Jambu Biji* (*Psidium guajava*), 3. *Sirih* (*Piper betle*), 4. *Mengkudu* (*Morinda citrifolia*), 5. *Lidah Buaya* (*Aloe vera*), 6. *Brotowali* (*Tinospora crispa*), 7. *Sambiloto* (*Andrographis paniculata*), 8. *Saga* (*Abrus precatorius*), 9. *Jahe* (*Zingiber officinale*), 10. *Belimbing wuluh* (*Averrhoa bilimbi*), 11. *Cocor Bebek* (*Kalanchoe pinnata*), 12. *Ciplukan* (*Physalis peruviana*), 13. *Jeruk Nipis* (*Citrus aurantiifolia*), 14. *Jarak* (*Jatropha curcas*), 15. *Kumis Kucing* (*Orthosiphon aristatus*), 16. *Gendola* (*Basella rubra*), 17. *Pepaya* (*Carica papaya*), 18. *Gingseng Jawa* (*Talinum paniculatum*), 19. *Kembang Telang* (*Clitoria ternatea*), 20. *Getih-getihan* (*Rivina humilis*), 21. *Tin* (*Ficus carica*), 22. *Suji* (*Dracaena angustifolia*)

The knowledge and use of the Tarumajaya community regarding Zingiberaceae, particularly ginger and turmeric, was described by Danciu *et al.* (2015) that Zingiberaceae has long been used as an antibacterial, anti-inflammatory and analgesic. Secondary metabolites consist of alkaloids, flavonoids, and terpenoids. In particular, the knowledge of people from various ethnic groups regarding the use of the Zingiberaceae family as traditional medicine is generally obtained from generation to generation. The part that is used as a traditional medicine is the rhizome, with the most dominant practice of using it by boiling and then taking the water to drink. Washikah (2016) mentions that there are several types of plants from the Zingiberaceae family that are dominantly used as medicine, including ginger (*Zingiber officinale*), turmeric (*Curcuma domestica*), lengkuas (*Alpinia galanga*), kencur (*Kaempferia galanga*), kecombrang (*Nicolaia speciosa*), temulawak (*Curcuma xanthorrhiza*), lempuyang (*Zingiber aromaticum*), temu giring (*Curcuma heyneana*).

Other families that are used by the community in Tarumajaya Sub-district, include *Aloe vera* leaves from the Liliaceae family which are used by smearing them as hair fertilizer and medicine for burns; *sambiloto* (*Androgaphis paniculata*) leaves from the Acanthaceae family which are used by boiling and pounding to treat itching and diabetes; *belimbing wuluh* fruit (*Averrhoa bilimbi*) from the Oxalidaceae family which is consumed directly to treat canker sores, coughs, and sore throats; *cocor bebek* leaves (*Kalanchoe pinnata*) from the Crassulaceae family which are used by cutting or grating them as a medicine for wounds; *mengkudu* fruit (*Morinda citrifolia*) in the Rubiaceae family which is used by pressing and filtering it as an anti-hypertensive drug; *kumis kucing* leaves (*Orthosiphon aristatus*) from the Lamiaceae family which is used by boiling it to treat gout and relieve coughs; *sirih hijau* leaves (*Piper betle*) in the Piperaceae family which is used by boiling it to treat leucorrhoea; *jarak* (*Jatropha curcas*) with the Euphorbiaceae family which is used by smearing it to treat toothache; *papaya* leaves (*Carica papaya*) with the Caricaceae family as a medicine for fever, stomach ache, lowering blood pressure, *jambu biji* leaves (*Psidium guajava*) with the Myrtaceae family which are used by boiling them as a medicine for diarrhea; *jeruk nipis* leaves (*Citrus aurantiifolia*) from the Rutaceae family are used by boiling them as a medicine for sprue and flu, *telang* flowers (*Clitoria ternateae*) from the Leguminosae family are used by boiling them to reduce eye inflammation.

The truth of the empirical efficacy of various medicinal plants used by the community in Samudra Jaya and Pahlawan Setia Villages is confirmed in scientific evidence from various studies, including the results of a literature review by Wicaksono (2018) regarding the ability of *Aloe vera* gel preparations as a wound healer in pre-clinical and clinical trials who informed that *Aloe vera* contains glucomannan, anthraquinones, saponins, and flavonoids which affect reducing infection, protecting wounds from microorganisms, cleaning wounds, as well as in preclinical trials of healing burns by reducing the inflammatory period and accelerating the maturation stage, due to the content of *Aloe vera* extract as an anti-inflammatory, antiseptic, pain reliever in addition to moisturiser, as well as a high level of safety from herbal preparations. However, the relation to *Aloe vera* as a hair enhancer has not been proven pre-clinically in the research of Masyitoh et al. (2019), which concluded that there was no significant difference in hair length growth between groups of mice that were smeared with *Aloe vera* gel and those that were not smeared with *Aloe vera* gel.

Regarding the effect of *cocor bebek* leaves as a wound medicine, it has been scientifically proven in the research of Putri *et al.* (2015) which concluded that the ethanol extract of *cocor bebek* leaves was proven to be able to accelerate the healing effect of cuts in male white rats with an effective concentration of 8.64 gr. The effect of *mengkudu* as an

antihypertensive has also been proven in the study of Indriawati and Hartono (2011) that regular consumption of *mengkudu* fruit capsules can reduce systolic and diastolic blood pressure in the elderly; Megawati and Hidayat (2015) added that *mengkudu* juice was able to lower blood pressure in 19 elderly respondents with hypertension at the Margo Mukti Rembang Social Rehabilitation Unit, so it was recommended to consume *mengkudu* juice appropriately as an alternative treatment in lowering blood pressure. The results of the literature review from Sari (2015) and Wahyudi *et al.* (2022) mention the presence of prexeronin compounds (endothelial vasoactive), scopoletin (vasodilation) that can reduce peripheral blood vessel tension, and xeronine compounds (diuretics) can have a diuretic effect which can increase urine volume. *Mengkudu* is also safe to consume because it belongs to the non-toxic fruit group. Sari *et al.* (2018) reported that the administration of *mengkudu* juice was able to reduce blood pressure in 10 respondents of hypertension patients at the health centre.

The use of *kumis kucing* leaves in this study which is believed to be able to reduce uric acid after being tested pre-clinically in the study of Moku *et al.* (2021) was proven to be able to reduce uric acid in male white rats that were given ethanol extract of *kumis kucing* leaves at a dose of 4.5 mg, 9 mg, and 18 mg, as well as clinical trials conducted by Ibrahim *et al.* (2019) were able to reduce uric acid levels in 16 people with gouty arthritis. As for the use of *jarak* as a toothache medicine after scientific confirmation in the research of Restina and Warganegara (2016), Tiwa *et al.* (2017) contain saponins, flavonoids, and tannins which work together to inhibit the growth of *Streptococcus mutans* bacteria (the cause of dental caries), to prevent dental caries. The use of sap of *jarak* for dental caries is by dripping one to two drops of sap into the tooth cavity. The results of Putri (2021) research explained that one of the people outside Java who still uses *jarak* leaves as a toothache medicine is the Talawi people, Ompang Tanah Sirah Village, Payakumbuh City. The community believes that the sap of *jarak* can relieve pain in aching teeth. The method of treatment is to drip 1-2 drops of sap on a broken young distance leaf stalk on cavities and then cover it with cotton. The same thing was conveyed by Daswi and Arisanty (2019), who stated that among the 11 types of medicinal plants (11 families) that the people of Gantarang Village use as a toothache remedy for pregnant women, the most frequently used are the sap of *jarak*, *cocor bebek* leaves, and broken bones leaf with the most processing method being smeared and boiled.

Telang is used by the people of Samudra Jaya and Pahlawan Setia Villages to treat eye inflammation. According to Budiasih (2017), *telang* flowers contain phytochemicals in the form of tannins, plebotanins, saponins, triterpenoids, phenols, flavonoids, alkaloids, anthraquinones, anthocyanins, flavonol glycosides, steroids, essential oils, and stigmas-4-ena-3,6-dion. The research results of Pebiana *et al.* (2020) reported that *telang* flower has been used to support the economic welfare of the Penglipuran traditional village community, Bali with the name *loloh telang*. *Loloh telang* is a drink made from *telang* flowers, rock sugar, and distilled water so that it turns purple. One of the benefits of the *loloh telang* drink is detoxification, treating various types of allergies, clearing the eyes, and lowering high blood pressure and eye pain, so it is suitable for use as a local drink that has health benefits. This study also found the use of *sambiloto* as a medicine for itching and diabetes. Results of pre-clinical trials by Mardiansyah (2020); Krisnawati (2020); Saputra (2021) regarding the effect of *sambiloto* extract on reducing blood glucose in white rats explained that *sambiloto* has antidiabetic activity because it contains andrographolide andrography, flavonoids, and penicillin which can increase the use of glucose in the muscles of rats induced diabetes through the process of stimulating the GLUT-4 transporter. Andrographolide causes an increase in the amount of mRNA expression and the level of GLUT-4 protein that penetrates cells. *Sambiloto* extract can also stimulate insulin release and inhibit glucose absorption

through the inhibition of the enzymes alpha-glucosidase and alpha-amylase; therefore, pre-clinically, *sambiloto* extract can reduce blood glucose in white rats. The results of clinical trials by Putri *et al.* (2021)) stated that giving *sambiloto* leaf decoction to 15 people with diabetes mellitus was able to reduce blood glucose levels. Ethnopharmacologically, according to a literature review on the practice of using *sambiloto* leaf in the Bungkudi ethnic group, Central Sulawesi, as a diabetes drug, it is done by boiling 10 pieces of *sambiloto* leaf in nine cups of water (2250 ml) until it boils until three cups of water remain. The results of the decoction are then filtered and cooled, then taken one glass three times a day.

Another plant that is used as a medicine for diarrhoea is *jambu biji* leaves, which are used by boiling. Related to *jambu biji* leaves as a medicine for diarrhoea, a study by Permatasari and Hartanti (2011) reported that the use of *jambu biji* leaves in the community as a medicine for diarrhoea and dengue fever was mixed with salt and then eaten as fresh vegetables, besides that *jambu biji* leaves can also be mixed with *kunyit*, then boiled, filtered, and drunk filter results. The presence of tannins in *jambu biji* leaves functions as an astringent because it can shrink the mucous membrane of the intestine, thereby reducing the discharge of diarrhea and dysentery.

CONCLUSION

The results of the survey scores regarding knowledge of medicinal plants and knowledge regarding the use of medicinal plants in the community in Samudra Jaya and Pahlawan Setia Villages were classified as Good. The score of community knowledge about medicinal plants is better than the score of community knowledge about the use of medicinal plants. The parts (organs) of plants that are widely used as medicine are leaves and rhizomes, with the most utilisation being done by boiling and drinking. The most widely used medicinal plant family is Zingiberaceae, with the local name of the plant species, namely ginger (*jahe*) and turmeric (*kunyit*). Both plants are used by boiling to relieve menstrual pain and treat bloating and colds.

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