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Analysis of Medicinal Plant Utilization by the Plosorejo Community, Indonesia

(Analisis Pemanfaatan Tumbuhan Obat oleh Masyarakat Plosorejo, Indonesia)

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ABSTRACT

Ethnobotany is a branch of science that traditionally studies the interaction between humans and plants. One area of ethnobotany is the use of medicinal plants. People who utilize plants as medicine have an essential role in maintaining and preserving the diversity of these plants. This study aims to determine the types of medicinal plants used by the community and their conservation status in Plosorejo Village. The data collection method is purposive snowball sampling. Data collection was conducted through interviews with 18 informants, namely, people who use medicinal plants. Types, organs, processing methods, and ways of using medicinal plants are expressed as percentages, while the Species Use Value (SUV) is calculated by comparing the number of plant species with the number of informants. The study's findings revealed 37 medicinal plant species, belonging to 25 families. The SUV calculations showed that ginger (Zingiber officinale), the most valuable plant species, had the highest utility value, with an SUV of 1. The most widely used plant habitus is herbaceous (57.89%). The most used way of using medicinal plants is drinking (68.85%). Based on the IUCN, the conservation status of medicinal plants includes least concern (21.62%), data deficient (16.22%), and not evaluated (62.16%). To safeguard medicinal plants, the community of Plosorejo Village must implement conservation measures. Effective maintenance of household gardens is a crucial community contribution and role that promotes food security, sustainability, and development.

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ABSTRAK

Etnobotani merupakan cabang ilmu yang mempelajari interaksi antara manusia dan tumbuhan secara tradisional. Salah satu kajian dalam etnobotani adalah pemanfaatan tumbuhan obat. Masyarakat yang memanfaatkan tumbuhan sebagai obat memiliki peran penting dalam menjaga dan melestarikan keanekaragaman tumbuhan tersebut. Penelitian ini bertujuan untuk mengetahui jenis-jenis tumbuhan obat yang digunakan oleh masyarakat serta status konservasi tumbuhan obat di Desa Plosorejo. Metode yang digunakan dalam pengumpulan data adalah purposive snowball sampling. Pengumpulan data dilakukan melalui wawancara terhadap 18 informan, yaitu masyarakat yang memanfaatkan tumbuhan obat. jenis, organ, metode pengolahan, dan cara penggunaan tumbuhan obat dihitung dalam bentuk persentase, sedangkan Species Use Value (SUV) dihitung dengan membandingkan jumlah spesies tumbuhan dengan jumlah informan. Hasil penelitian menunjukkan terdapat 37 spesies tumbuhan obat yang tergolong ke dalam 25 famili. Perhitungan SUV menunjukkan bahwa jahe (*Zingiber officinale*) sebagai spesies tumbuhan yang memiliki nilai utilitas maksimum dengan nilai SUV sebesar 1. Habitus tumbuhan yang paling banyak digunakan adalah herba (57,89%). Cara penggunaan tumbuhan obat yang paling umum adalah diminum (68,85%). Berdasarkan IUCN, status konservasi tumbuhan obat meliputi least concern (21,62%), data deficient (16,22%), dan not evaluated (62,16%). Untuk menjaga keberadaan tumbuhan obat, masyarakat Desa Plosorejo perlu melakukan upaya konservasi. Pemeliharaan kebun rumah tangga secara efektif merupakan kontribusi dan peran penting masyarakat dalam mendukung ketahanan pangan, keberlanjutan, dan pembangunan.

1. Introduction

Ethnobotany can be derived from the words ethno and botany; ethno means indigenous people or socio-cultural groups specifically because of descent, custom, religion, and language, while botany means plants (Voeks 2017). Ethnobotany is a branch of science that studies the interaction between humans and the plants around them. Traditionally, knowledge needs to be developed so that it is not lost amid modernization. Ethnobotany is specifically the study of the use of plants as food, protection, medicine, clothing, hunting, and traditional ceremonies (Pratiwi et al. 2013). The main objective in ethnobotanical research is to discover the primitive influence of plants on people's lives, customs, religions, thoughts, and practical daily affairs, as well as documenting. Additionally, ethnobotany facilitates the development of new eco-friendly medications (Aziz et al. 2018).

The utilization of medicinal plants is among the many interactions between humans and plants. Traditional medicine, as defined by Law No. 23 of 1992 on Health, comprises substances or herbs that have been employed for therapeutic purposes over generations. These substances or herbs may take the form of plants, animals, minerals, galenic preparations, or a combination thereof. Bioactive compounds found in medicinal plants positively impact human health (Ahmad et al. 2020). Products from medicinal plants are often known as traditional medicine. People living in remote areas generally rely on traditional knowledge of medicinal plants for treating various diseases because they lack access to professional medical services.

According to Mahendra (2005), over time the price of necessities has soared because it is influenced by increasing inflation. Traditional medicinal plants can be an alternative, because there are many advantages to using traditional medicine. People in Plosorejo Village still utilize plant species as medicine to treat diseases or maintain a healthy body. Medicinal plants from research results can be documented in the form of simplicia for further species identification. According to Musaicho et al. (2021), in conducting medicinal plant research, it is essential to carry out simplification activities in addition to documentation. Simplicia is used for further species identification, which aims to develop knowledge. Therefore, this research was conducted to obtain information (such as species diversity, uses, and conservation status of medicinal plants used by the community) to serve as a basis for literature on developing technology that utilizes medicinal plants.

2. Matherials and Methods

2.1. Study Area

This research was conducted from April to August 2023 in Plosorejo Village, Kerjo District, Karanganyar Regency, Central Java (**Figure 1**). Plosorejo Village has an area of 592.34 ha and is at an altitude of 515 meters above sea level. The topography of Plosorejo Village is both highland and lowland. Plosorejo Village covers an area of 592.34 ha consisting of 6 hamlets, namely: Plosorejo Hamlet, Wates Hamlet, Bono Hamlet, Nerang Hamlet, Banaran Hamlet, and Sintru Hamlet, the village is located at an altitude of 515 meters above sea level. Plosorejo Village has a Schmidt-Ferguson Type C climate, with an average rainfall of 2,500-3,000 mm/year and a temperature range of 20-27°C (Karanganyar Regency Bureau of Statistics, 2021). The distance between Plosorejo Village and the Kerjo Subdistrict government center is 6 km, while the distance between Plosorejo Village and the Karanganyar Regency government center is 26 km. The population in Plosorejo Village in 2020 was recorded at 2,303 people, resulting in a population density of 357 people/ km^2.

2.2. Data Collection

The method used during data collection was purposive snowball sampling. Purposive sampling, which is a technique of selecting informants with consideration of having more knowledge about medicinal plants (Sugiyono

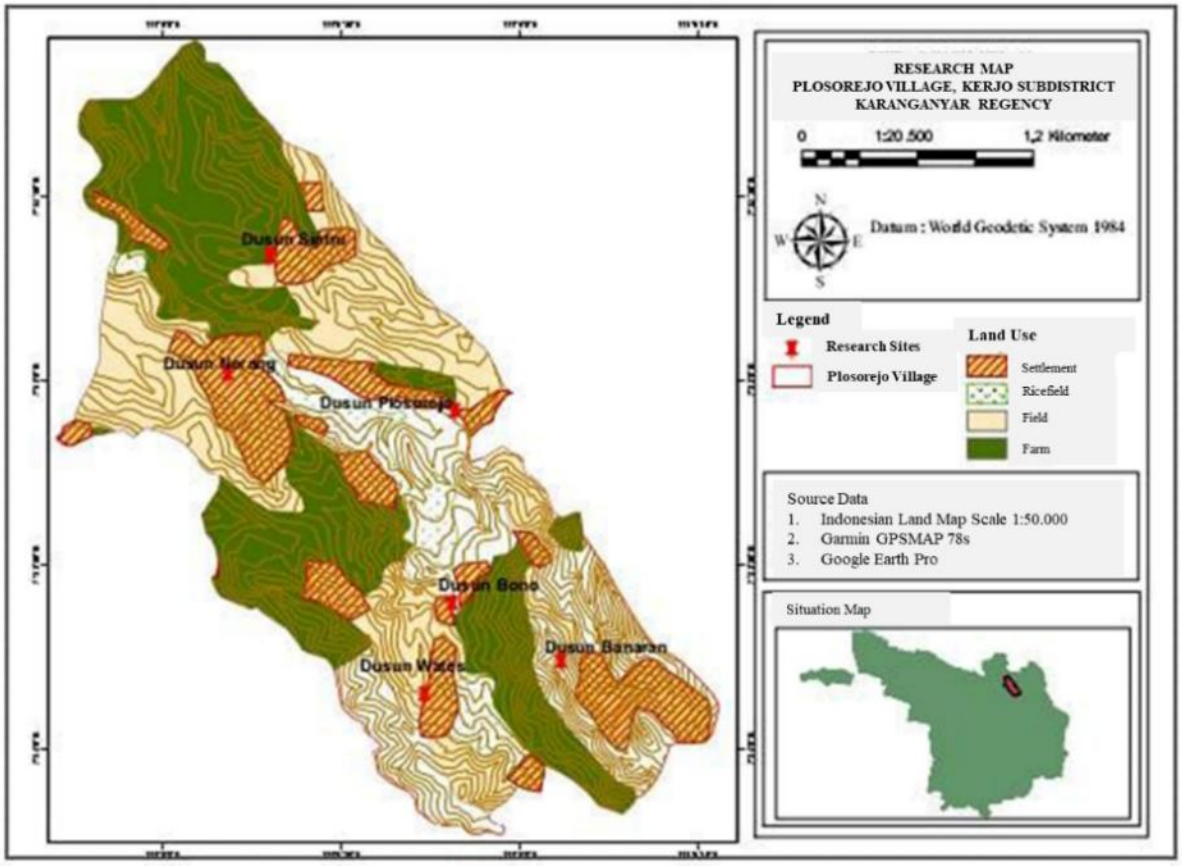

Figure 1. Research location in Plosorejo Village, Kerjo Subdistrict, Karanganyar Regency, Central Java Province

2007). In this study, the key informants were the village head, the hamlet head and the child shaman, while snowball was an informant selection technique based on recommendations from previous informants (Bernard 2002). If the data acquired has reached saturation, meaning that the information obtained is repetitive and already known, then the data collection process in the field is concluded.

Data collection techniques include observation, interviews, literature studies, documentation, and simplicia making methods. Observation is data collection carried out by observation accompanied by recording of the state or behavior of the object. Observation in this study was carried out by observing medicinal plants used by the people of Plosorejo Village, such as their characteristics and places of growth. Interviews were conducted with a questionnaire to 18 informants from the core sources (key informants), including the village head, hamlet head, and child shaman, then branched out into several sources of information. The scientific nomenclature of medicinal plants was determined by correlating their local names with the Atlas of Indonesian Medicinal Plants (Dalimartha 1999). To ensure accuracy, the scientific names were crosschecked using the International Plant Names Index (IPNI) website. The literature used to determine its conservation status can use the International Union for Conservation of Nature (IUCN) Red List. In the research, sampling and documentation of plants for making simplicia were carried out to obtain dry specimens.

2.3. Data Analysis

The data that has been obtained is analyzed by calculating the Species Use Value (SUV), which is the ratio of the number of plants per species to the total number of informants: UV =

0 (useless plant species) and UV = 1 (useful plant species) (Sembiring et al. 2022).

$$SUV = \frac{U}{V}$$

Description:
SUV = Use value of species
U = Number of plants per species
N = Total number of respondents

Then analyzed by calculating the percentage of types, parts, and ways of using these medicinal plants (Well 2021).

Plant organ (%) = $\frac{\Sigma Plant\ organ}{\Sigma\ All\ Plant\ Organs} \times 100\%$

Plant Habitus = $\frac{\Sigma Plant\ habitus}{\Sigma\ All\ Plant\ Habitus} \times 100\%$

Plant processing method (%) = $\frac{\Sigma Plant\ processing\ method}{\Sigma\ All\ Plant\ Processing\ Methods} \times 100\%$

How to use plants (%) = $\frac{\Sigma How\ to\ use\ plant}{\Sigma\ All\ how\ to\ use\ plants} \times 100\%$

Source of Acquisition (%) = $\frac{\Sigma Plant\ Source}{\Sigma\ All\ Plant\ Sources} \times 100\%$

3. Hasil Penelitian

3.1. Characteristics of Informants

There were 18 informants who utilized medicinal plants in Plosorejo Village (Table 1). The average age of informants is 57 years; older people have higher levels of ethnobotanical knowledge of medicinal plant use than younger people (Voeks 2007; Khadim et al. 2023). The respondents were mostly female (83,33%). This is related to the role of women as mothers, which will also affect the exchange of information, one of which is knowledge of medicinal plants, because a mother generally has responsibility for the health of children and other family members (Howard 2003). In addition, this pertains to the study by Nayaka et al. (2023), which found that women are more familiar with herbal medicine because they are involved in preparing the ingredients. The last level of education of the majority of informants was at the elementary level (38,88%). The utilization of medicinal plants is related to the level of education of informants, namely the lack of knowledge possessed by the community, which will affect the utilization of plants as medicine (Anggana 2011). Meanwhile, the majority of informant occupations are farmers (66.66%). The average rural community in Indonesia has a livelihood as a farmer. This work will further open up opportunities for community interaction with the surrounding nature, one of which is through the use of medicinal plants.

Table 1. Demographic characteristics of the informants

Factor	Category	Total number of persons	Percentage
Gender	Male	3	17,67
	Female	15	83,33
Age	40-50	3	16,67
	51-60	8	44,44
	61-70	6	33,33
	> 71	1	5,56
Education	Uneducated	5	27,78
	Elementary School	7	38,88
	Junior High School	5	27,78
	Senior High School	1	5,56
Profession	Village Chief	1	5,56
	Farmer	12	66,66
	Housewife	4	22,22
	Midwife	1	5,56

3.2. Use Value of Plant Species Utilized by the Community as Medicine

According to **Figure 2**, 37 plant species are grouped into 25 families. The medicinal plant species with the highest use value calculation is ginger (*Zingiber officinale*) (SUV of 1), which is commonly used by the people of Plosorejo Village to treat several diseases, including colds, chills, coughs, bloating, and body aches. According to the findings of Rahmatika et al. (2024), ginger was found to be the most useful among residents of Sedayu Village. Ginger is recognized for its numerous health advantages, including its anti-inflammatory and antioxidant properties, which are beneficial for overall well-being.

The types of plants that are widely used as medicine by the people of Plosorejo Village are influenced by the commodities available and cultivated around them. Ginger and turmeric are cultivated by the people of Kerjo Subdistrict, including in Plosorejo Village. The level of ginger production in Kerjo Subdistrict exceeds 400,000 quintals/year (Karanganyar Regency Bureau of Statistics 2021). In addition, the use of medicinal plants is influenced by public knowledge. Medicinal plants with the highest use value are used more often and have

properties more widely known by the community, while those with the lowest use value are used less often and have less widely known properties.

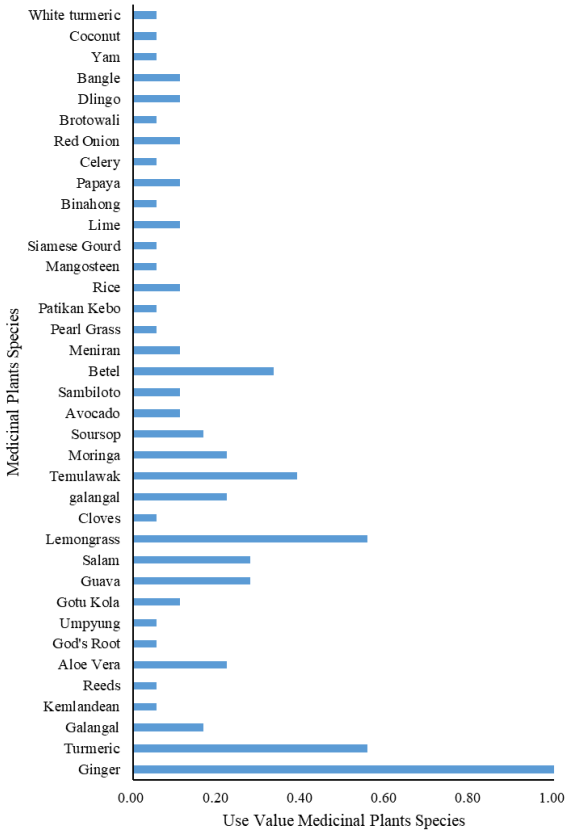

Figure 2. Use value medical plant species in Plosorejo Village

The medicinal plants used by the community in Plosorejo Village belong to 25 families. Most plants come from the Zingiberaceae family (18,92%); Poaceae, Myrtaceae (8,11%); and Euphorbiaceae, Asteraceae (5,41%) (Fig. 3). There are 7 species of medicinal plants from the Zingiberaceae family, including ginger (*Zingiber officinale*), turmeric (*Curcuma longa*), galangal (*Alpinia galanga*), kencur (*Kaempferia galanga*), temulawak (*Curcuma xanthorrhiza*), bangle (*Zingiber cassumunar*), and white turmeric (*Curcuma zeodaria*).

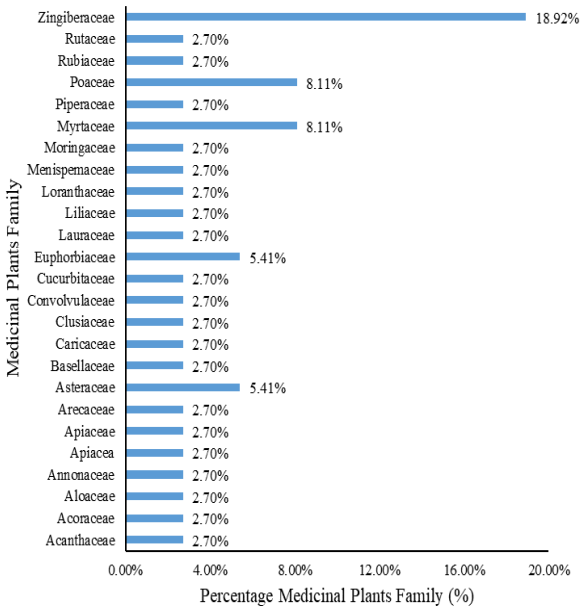

Figure 3. Percentage of medicinal plant families in Plosorejo Village

Several species from Zingiberaceae cultivated by the community in Plosorejo Village are planted in their yards and gardens and then sold. Zingiberaceae is a family that is often known as ginger by the people of Indonesia. The use of Zingiberaceae as a medicinal material in Indonesia, as it contains bioactive compounds that can inhibit the growth of microbes that cause various infectious diseases (Silalahi et al. 2022). The Zingiberaceae tribe includes long-lived plants with a herbaceous habitus, rhizomes below ground level that swell into tubers, and thick roots (Auliani et al. 2014). There are 37 species belonging to 25 plant families that are utilized as medicinal plants in Plosorejo Village, showing relatively low utilization compared to similar studies in other areas, because it is influenced by the degradation of local knowledge by incoming technology. Sujarwo et al. (2016) stated that the utilization of medicinal plants by the community is a cultural heritage, including plants as traditional medicines, but the knowledge that can be obtained from generation to generation is not well distributed.

3.3. Habitus of Plants Utilized as Medicine by the Community

The classification of medicinal plants based on their habitus can be divided into 6 habitus, namely trees, shrubs, herbs, lianas, vines, and bushes. The most widely used plant species are found in the herbaceous habitus group, which is 57.89%. The types of medicinal plants used were least in the bush and liana habitus groups, which amounted to 2.63% (**Figure 4**).

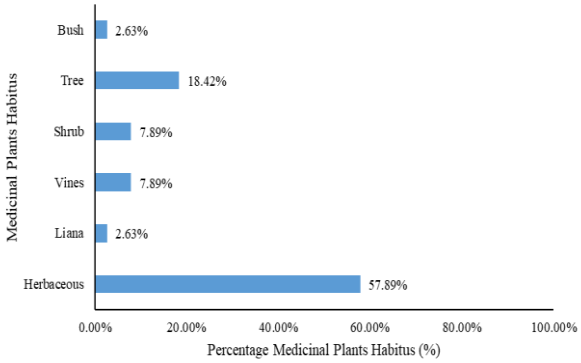

Figure 4. Percentage of medicinal plants habitus in Plosorejo Village

According to Tjitrosoepomo (2005), there are several classifications of habitus or life forms in plants, including trees, shrubs, bushes, herbs, lianas, and vines. Herbaceous habitus is widely used by the people of Plosorejo Village because herbs are non-woody plants with soft and juicy stems. Herbs grow a lot in the environment around the community, whether they are deliberately cultivated or grow wild in nature, and are relatively safe to use. Similarly, people in the Sougb Tribe utilize many types of herbaceous plants that are widely used as raw materials for traditional medicines by the local community (Oagay 2013).

3.4. Plant Organs Utilized as Medicine by the Community

Based on **Figure 5**, there are 9 plant organs that are utilized as medicinal plants by the people of Plosorejo Village, namely: leaves, rhizomes, fruits, tubers, stems, flowers, seeds, roots, and fruit peels. The plant organ that is most widely used as medicine is the leaf organ (47,37%), while the least utilized are roots (2,63%), seeds (2,63%), flowers (2,63%), and fruit peels (2,63%)

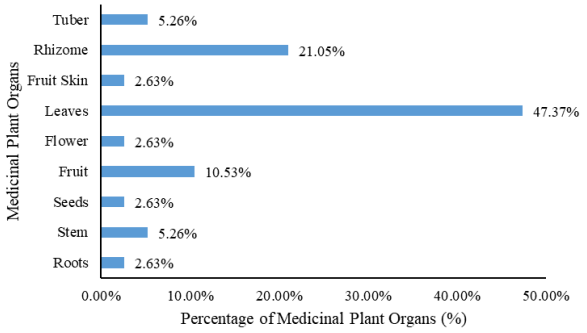

Figure 5. Percentage of medicinal plant organs in Plosorejo Village

People in Plosorejo Village utilize the leaves of several plants, namely: mladeh (*Dendrophthoe pentandra*), umpyung (*Gynura aurantiaca*), gotu kola (*Centella asiatica*), salam (*Eugenia polyantha*), moringa (*Moringa oleifera*), soursop (*Annona muricata*), avocado (*Persea americana*), sambiloto (*Andrographis paniculata*), betel (*Piper betle*), meniran (*Phyllanthus urinaria*), pearl grass (*Oldenlandia corymbosa*), patikan kebo (*Euphorbia hirta*), binahong (*Anredera cordifolia*), celery (*Apium graveolens*), papaya (*Carica papaya*), and yam (*Ipomea batatas*). All organs of plants are recognized for their therapeutic properties and have been used to treat various diseases. The various parts consumed have their respective benefits. Leaves are plant organs that are widely used as traditional medicine, because leaves are thought to contain certain chemical substances that have the power to cure diseases. Another study by Khadim et al. (2023), Rehman et al. (2023), and Sikuku et al. (2023) revealed that leaves are the most used part by the community.

Leaves contain vital nutrients, including essential oils, phenols, potassium compounds, and chlorophyll (Handayani 2003). The results of photosynthesis in leaves produce complex compounds called secondary metabolites. These compounds are generally found throughout the plant, especially in the leaves. The secondary metabolite compounds include

alkaloids, flavonoids, polyphenols, saponins, and terpenoids. These chemical compounds are efficacious as drugs to treat various diseases (Septiatin 2008).

In addition to leaves, the organs of medicinal plants used by the community in Plosorejo Village are rhizomes at 21,05%, plants that are used, namely: ginger (*Zingiber officinale*), turmeric (*Curcuma longa*), galangal (*Alpinia galanga*), kencur (*Kaempferia galanga*), temulawak (*Curcuma xanthorrhiza*), dlingo (*Acorus calamus*), bangle (*Zingiber purpureum*), and white turmeric (*Curcuma zedoaria*). The rhizome is a part of the plant that serves as a storage organ for food reserves and as a site for absorbing water and nutrients from the soil (Tjitrosoepomo 2005). Rhizomes contain various active compounds, including flavonoids, saponins, and essential oils containing camphene, sinensal, methyl cinnamate, galangal, galangin, and alpine. The content has many benefits, including improving blood circulation, stimulating bronchial glands, and inhibiting microbial growth (Hariana 2007).

Other organs utilized by the community in Plosorejo Village for treatment are fruits (10,56%). Plants often used for fruit include chayote (*Schium edule*), papaya (*Carica papaya*), and lime (*Citrus aurantifolia*). Utilization of stem organs by the community in Plosorejo Village amounted to 5.26%. The types of plants that are often utilized are: lemongrass (*Cymbopogon citratus*) and brotowali (*Tinoispora cirdifolia*). Another organ used is the root (2.63%). The plant used by the roots is reeds (*Imperata cylindrica*). Other organs used for treatment are flowers (2.63%), specifically clove buds (*Syzygium aromaticum*). Another part that is used for treatment in the form of seeds by 2.63%, namely rice (*Oryxza sativa*). **Figure 6** below shows several simplicia types of plant parts that are used for medicine.

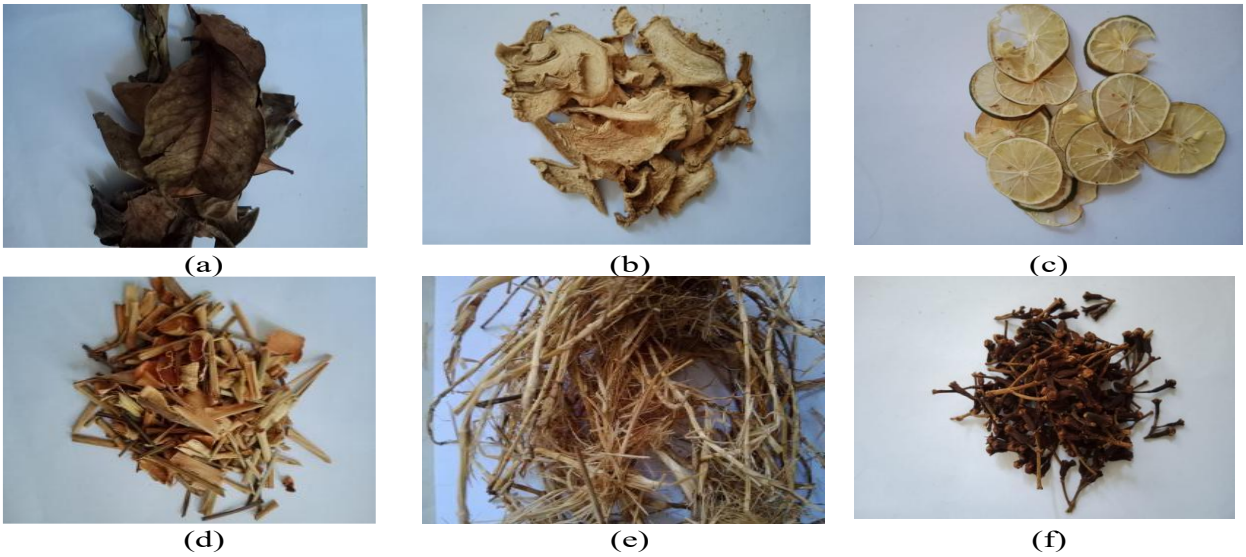

Figure 6. (a) salam (*Eugenia polyantha*), (b) ginger (*Zingiber officinale*), (c) lime (*Citrus aurantifolia*), (d) lemongrass (*Cymbopogon citratus*), (e) reeds (*Imperata cylindrica*), and (f) clove bud (*Syzygium aromaticum*)

3.5. Medicinal Plant Processing Technique

Based on **Figure 7**, people in Plosorejo Village indicated that there are 6 ways of processing plants as medicine, namely: pounded, grated, squeezed, boiled, crushed, and unprocessed. The highest way of processing medicinal plants by the community in Plosorejo Village is by boiling (39,34%), while the least is squeezing (1,64%).

The species processed by boiling in this study were: galangal, kemlandean leaves, reeds, umpyung leaves, bay leaves, lemongrass, cloves, temulawak, moringa leaves, soursop

leaves, avocado leaves, sambiloto leaves, betel leaves, gotu kola leaves, meniran leaves, pearl grass, patikan kebo leaves, mangosteen skin, chayote, binahong leaves, and coconut. The process of boiling facilitates the solubilization of beneficial plant compounds, particularly antioxidants, thereby enhancing their digestibility in the human body. Processing by boiling can soften and destroy plant cell walls to release phytochemicals in plants, which helps reduce the hardness or bitterness of plants (Hossain et al. 2021).

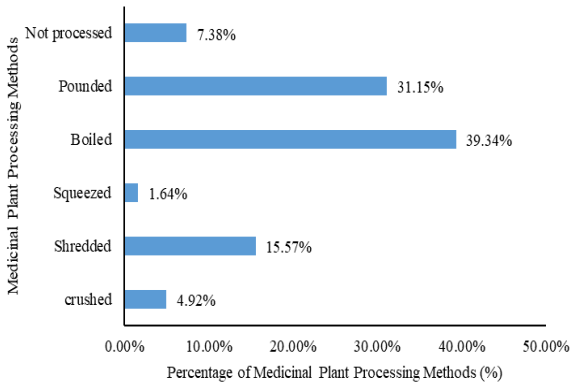

Figure 7. Percentage of medicinal plant processing methods in Plosorejo Village

According to Mohammadi et al. (2023), the most widely practiced processing of medicinal plants was by boiling (decoction), raw (fresh or dried), infusion, powdered and pulverized, cooked, soaking, syrup, smoking, and oil. Medicinal plants that contain toxins need to be boiled over low heat for a long time, namely 3-5 hours. This aims to reduce the level of poison contained in the plant to avoid the effects of poisoning after consumption of the herb (Puspitasari et al. 2016). According to Fitoni et al. (2013), turmeric rhizomes should be processed without heating or boiling. The filtrate in turmeric rhizomes contains tannins, which are compounds in neutral solutions that will form insoluble and astringent deposits. Tannin substances will cause density or narrowing of the outer layer, so that it can treat diarrhea. However, if heating occurs, the compound will denature or be damaged.

3.6. Methods for Ingesting Medicinal Plants

Figure 8 showed 8 ways in which people in Plosorejo Village utilize plants as medicine, namely: eaten, chewed, washed, smeared, rubbed, sticked, plugged, and drinked. The most common way of using plants as medicine is drinking, which is 68.85%. While the least way of use, namely rubbed and clogged at 0.82%.

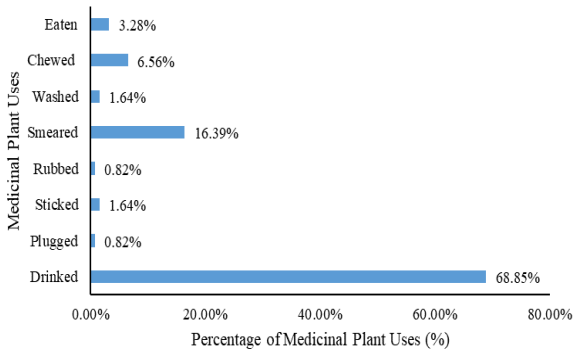

Figure 8. Percentage of medicinal plant uses in Plosorejo Village

People believe that drinking the decoction of medicinal plants is the most effective way to treat a particular disease. This finding aligns with the research of Gunadi et al. (2017) on ethnic Dayaks in Gerantung Village, Monterado District, Bengkayang Regency, indicating that 45% of medicinal plant usage is through drinking. According to Sangat (2000), in Indonesia, the use of traditional medicine varies widely, ranging from simple to complex. Every plant has a unique active chemical and usage method; therefore, using them incorrectly might lead to toxicity. When using plants as medicines, it's important to consider several factors beyond just the method of use. These include verifying the authenticity of the ingredients, ensuring the correct dosage, timing the use accurately, thoroughly reviewing information, avoiding misuse, and selecting the appropriate plant for specific health indications (Sarno, 2019).

3.7. Source of Acquisition of Medicinal Plants

Based on **Figure 9**, most medicinal plants used by the Plosorejo Village community were

cultivated (40, 54%). The lowest percentage was derived from wild plants, which accounted for 24,32%. The people of Plosorejo Village generally cultivate medicinal plants such as ginger, turmeric, galangal, kencur, temulawak, lemongrass, sambiloto, and papaya. This is influenced by the climate and soil conditions in Plosorejo Village, which are suitable for rhizome cultivation. Similar to research by Nurjannah et al. (2023) in the community of Beutong Ateuh Banggalang Subdistrict, Nagan Raya Regency, which shows that the primary source of medicinal plants is cultivation. Furthermore, in addition to commercializing agricultural products, the community also directly uses them for medicinal purposes. Cultivation is the intentional, planned act of planting vegetation. Through cultivation, the community will experience increased access to a particular resource, particularly in its use as medicine in daily life (Ashari, 2006).

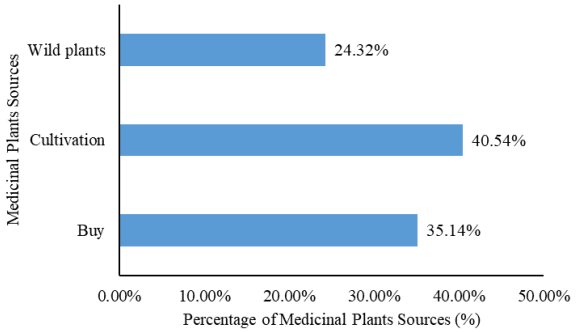

Figure 9. Percentage of medicinal plant sources in Plosorejo Village

3.8. Conservation Status of Medicinal Plants

According to the IUCN Red List of Threatened Species, 37 species of medicinal plants used by the community in Plosorejo Village were classified into three categories. Among these, the medicinal plants have two status categories: least concern (LC) and data deficient (DD). The remaining species have not been evaluated (NE). Based on Fig. 10, the first category is Least Concern (LC). Plant species included in Least Concern (LC) means that the condition of the species or plant species identified is stable or has a low risk of extinction. There are 21.62% of medicinal plants used by the community in Plosorejo Village classified as LC, including gotu kola (*Centella asiatica*), guava (*Psidium guajava*), moringa (*Moringa oleifera*), soursop (*Annona muricata*), avocado (*Persea americana*), pearl grass (*Oldenlandia corymbosa*), celery (*Apium graveolens*), and dlingo (*Acorus Calamus*)

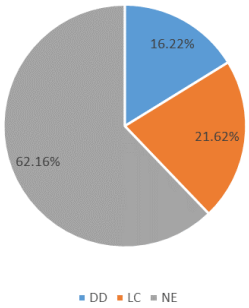

Figure 10. Percentage conservation status of medicinal plants in Plosorejo Village

The second category is Data Deficient (DD). It refers to a plant species that is only known from specimens or has been only slightly collected (1 or 2 times found based on information from flora publications). There are 16,22% of the species including ginger (*Zingiber officinale*), turmeric (*Curcuma longa*), kencur (*Kaempferia galanga*), papaya (*Carica papaya*), bangle (*Zingiber purpureum*), and white turmeric (*Curcuma zedoria*) are data deficient (DD). While the rest of it (62,16%) have not been evaluated (NE). The Not Evaluated (NE) category is a plant species whose conservation status has not been identified by IUCN (IUCN 2013).

None of the 37 species of medicinal plants utilized by the community of Plosorejo Village are classified as rare. Nevertheless, future conservation status increases for endangered species are a possibility. Medicinal plant species sourced from nature are susceptible to significant risks due to the potential for exploitation and harvesting. Conversely, the cultivation of plant species that permit harvesting and production to remain under control engenders low levels of threat (Sutomo & Mukaromah 2010). It has been reported that home garden management includes an

assortment of plant species to satisfy daily requirements. Family producers can manage home gardens and yards with minimal investment in modern technology and capital (Hakim 2014). In Plosorejo Village, the community must employ conservation strategies to preserve medicinal plants. In support of food security, sustainability, and development, household garden management is an essential community contribution and function.

4. Conclusion

There are 37 species of medicinal plants in Plosorejo Village which are grouped into 25 families with the calculation of Species Use Value (SUV) showing the highest use value of plant species, namely ginger (Zingiber officinale) with SUV worth 1. Based on the habitus of plants used for medicine there are 6 habitus, namely: herb (58.89%), tree (18.42%), vine (7.89%), shrub (7.89%), liana (2.63%), and bush (2.63%). Based on the parts of the plant used as medicine, there are 9 parts, from the most frequently used, namely: leaves (47.37%), rhizomes (21.05%), fruits (10.53%), stems (5.26%), tubers (5.26%), seeds (2.63%), fruit peels (2.63%), flowers (2.63%), and roots (2.63%). Based on how to process medicinal plants, there are 6 ways, namely: pounded (31.15%), boiled (39.34%), squeezed (1.64%), grated (15.57%), crushed (4.92%), and without processing (7.38%). Based on how to use medicinal plants, there are 8 ways, from the most frequently used, namely: drinked (68.85%), smeared (16.39%), chewed (6.56%), eaten (3.28%), washed (1.64%), sticked (1.64%), rubbed (0.82%), and plugged (0.82%). IUCN classifications for medicinal plant conservation were as follows: LC (21.62%), DD (16.22%), and NE (62.16%).

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