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Original Article

Ethnobotanical Study Of Medicinal Plants In Panggungrejo, Blitar: Inventory And Potential Of Traditional Medicine To Treat Diseases

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Abstract

Ethnobotanical research was carried out to collect data regarding the use of medicinal plants by the people of Panggungrejo, Blitar Regency. There are Nine types of medicinal plants reported to be used locally for the treatment and control of diseases in humans and livestock. These plants include sangket leaves, betel leaves, jatropha leaves, dadap serep leaves, lamtoro leaves, aromatic ginger, randu leaves, chinese ketepeng leaves, and amethyst leaves. The results of this study indicate that the medicinal materials often used by the community are leaf organs. Most of the methods for making medicinal materials are done by pounding parts of the plant. Medicinal plants in this study were generally collected from the surrounding environment, gardens, and the wild. Although there are many modern medicines available, the Panggungrejo community, Blitar Regency, still relies heavily on traditional medicinal plants to treat various diseases. Therefore, the preservation of medicinal plants in this area is very necessary.

1. INTRODUCTION

The use of herbal plants by the community is an important form of interaction in ethnobotany [1]. Ethnobotany is a branch of science that studies the relationship between humans and plants, especially in the context of traditional uses which include medicine, economics, and traditional ceremonies [2]. Ethnobotanical studies have a significant role in preserving traditional culture and local knowledge passed down from generation to generation [3]. Preserving this culture is important not only to maintain local identity, but also to ensure that this knowledge remains relevant and can be utilized in a modern context [4].

Traditional medicine is an important aspect of ethnobotany that has long been an integral

part of people's lives. These medicinal practices are passed down orally from one generation to the next, which makes knowledge about medicinal plants very valuable [3]. This knowledge is often limited to direct experience without systematic documentation. However, the efficacy of medicinal plants in curing various diseases has been widely recognized, mainly due to the diverse active ingredients, long-term preferences, and high nutritional safety as well as the presence of secondary metabolite compounds or phytochemicals in plants [5]. Secondary metabolite compounds function as a plant's natural defense against various pathogens such as viruses, bacteria and fungi, which ultimately provide health benefits for humans who consume them [6].

Even though people have long known and used traditional plants for treatment, often people's knowledge about the secondary metabolite compounds contained in them is still limited. This does not prevent the widespread use of herbal plants, especially in areas such as Blitar Regency, which is known as one of the areas producing herbal plants with medicinal properties in East Java. Blitar Regency as an area rich in various types of medicinal plants, including ginger (*Zingiber officinale*), galangal (*Alpinia galanga* L.), ginger (*Curcuma zanthorrhiza*), aromatic ginger (*Kaempferia galanga*), and several others [7]. These plants are not only used for traditional medicine but also play a vital role in daily health maintenance and prevention practices.

However, even though the potential for medicinal plants in Blitar Regency is very large, observation results show that their use has not been properly documented and inventoried, especially in Panggungrejo District. This lack of documentation is a major challenge for the sustainability and development of the use of medicinal plants. Without a good inventory, this knowledge and practice risks being lost or forgotten, which in turn can threaten the preservation of culture and biodiversity [8]. Ethnobotanically, this society remains unexplored and there are no comprehensive records of traditional healing practices [9].

In this context, environmental preservation efforts can be carried out through various activities, such as plant exploration and creating plant collections [10], research on the ethnobotany of medicinal plants in Panggungrejo District is very important. Through this research, it is hoped that comprehensive data can be produced regarding the types of medicinal plants used, so that it can support efforts to preserve the diversity of medicinal plants and local knowledge related to them. This research aims to identify types of medicinal plants used by local communities, as well as to provide basic information needed for conservation efforts. Thus, this research not only contributes to the development of science, but also to the preservation of valuable local culture and heritage.

2. Materials and Methods

Study area

This research was carried out in April-July 2023, at Kalitengah Village and Kaligambir Village (Figure 1), Panggungrejo District, Blitar Regency. The selection of informants was carried out using purposive sampling, namely selecting informants based on special considerations, namely those who best understand medicinal plants, who were divided into two groups, namely key and non-key informants.

Figure 1. Location point of Kalitengah and Kaligambir villages, Panggungrejo District, Blitar Regency

Procedures

Data collection methods begin with observation, interviews, documentation studies, data analysis, verification, and drawing conclusions. Observations were carried out to collect information about people who still use medicinal plants, the types of plants used, and their sources. The interview aimed to obtain direct information from respondents regarding medicinal plants and their sources, using questionnaires that were in Javanese and Indonesian. Documentation is used to strengthen data from interviews and taking photos of plants at the research location.

Data analysis

Data were analyzed descriptively, presented in the form of narratives, tables and images. Descriptive analysis is used to describe data that has been collected without making general conclusions or generalizations

3. RESULTS

Types of Medicinal Plants used in Traditional Medicine in Panggungrejo, Blitar

The results of interviews with the community showed that several types of plants were used to treat various diseases. Plant types are presented in tables 1 and 2.

Table 1. Types of medicinal plants in Kalitengah Village

Local Name	*Scientific Name*	*Classification*	*Characteristics*	*Utilization*
Sangket	*Basilicum polytachyon*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Magnoliopsida Subclass: Asteridae Order: Lamiales Family: Lamiaceae Genus: Basilicum Species: *Basilicum polystachyon*	The shape of the sangket leaves is triangular and has a pointed tip. The leaf edges are finely serrated and the leaf color is green and has pinnate veins.	To neutralize fever when the child has fallen
Betel	*Piper betle*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Magnoliopsida Subclass: Magnoliidae Order: Piperales Family: Piperaceae Genus: Piper Species: *Piper betle*	Betel leaves are heart-shaped, have pointed tips, grow alternately, have stems, have a slightly rough texture when touched and give off a pleasant (aromatic) smell when squeezed.	To treat canker sores
Jatropha	*Jatropha curcas*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Magnoliopsida Subclass: Rosidae Order: Euphorbiales Family: Euphorbiaceae	Jatropha leaves are a single type with three notches and 3 or 5 angles. The leaves are spread along the stem. The upper and lower surfaces are paler than the upper	To overcome a bloated stomach

		Genus: Jatropha Species: *Jatropha curcas*	surface. The leaves are wide and heart-shaped or wide-ovate with a length of 5 – 15 cm. The leaves are incised, curved, and have tapered ends.	
Dadap Serep	*Erythrina lithosperma*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Magnoliopsida Subclass: Rosidae Order: Fabales Family: Fabaceae Genus: Erythrina Species: *Erythrina lithosperma*	The leaves of Dadap Serep bear three strands, are delta-shaped or round with a slightly tapered tip, the bottom of the leaf is rounded, and when squeezed, it feels soft in the hand. The top leaves are larger than the two supporting leaves	To reduce fever in children
Aromatic Ginger	*Kaemferia galanga*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Liliopsida Subclass: Commelinidae Order: Zingiberales Family: Zingiberaceae Genus: Kaempferia Species: *Kaempferia galanga*	The leaves of the kencur plant grow single, horizontally almost flush with the ground and wide. The number of leaves is around 8-10 pieces and has an elliptical shape that widens to round, these leaves have rather thick flesh.	For sprained feet
Lamtoro	*Leucaena leucocephala*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Magnoliopsida Subclass: Rosidae Order: Fabales Family: Fabaceae Genus: Leucaena Species: *Leucaena leucocephala*	Lamtoro leaves are of the compound type, trussed on a stalk, pinnate, even double and perfect, small leaflets consisting of 5-20 pairs, lanceolate in shape, pointed tip, flat edge, 6-12 mm long and 2-5 mm wide.	To stop the blood from coming out

Table 2. Types of medicinal plants in Kaligambir Village

Local Name	*Scientific Name*	*Classification*	*Characteristics*	*Utilization*
Randu	*Ceiba pentandra*	Kingdom: Plantae Subkingdoms: Viridiplantae Superdivision: Embryophyta Division: Tracheophyta Subdivision: Spermatophytina Class: Magnoliopsida Subclass: Dilleniidae Order: Malvales Family: Bombacaceae Genus: Ceiba Species: *Ceiba pentandra*	Randu has compound, finger-shaped leaves, alternate and clustered at the ends of the branches. The leaves are red at the base, slender, and hairless.	To relieve heat in sprained feet
Chinese Ketepeng	*Senna alata*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Magnoliopsida Subclass: Rosidae Order: Fabales Family: Fabaceae Genus: Senna Species: *Senna alata*	The leaves of Chinese Ketepeng are oval to breech-ovate, and are even-pinnate compound leaves that come in pairs of 5 – 12 rows. The leaves are pinnate with short, green leaf stalks.	To treat itchy body
Amethyst	*Datura metel*	Kingdom: Plantae Subkingdoms: Tracheobionta Superdivision: Spermatophyta Division: Magnoliophyta Class: Magnoliopsida Subclass: Asteridae Order: Solanales Family: Solanaceae Genus: Datura Species: *Datura metel*	The single flower resembles a trumpet and is white or violet in color. The flowers bloom at night, opening before sunset and closing the following evening.	For rheumatic pain

4. Discussion

There are Nine species of herbal plants found by researchers in research in the villages of Kalitengah and Kaligambir, namely sangket, betel, jatropha, dadap serep, aromatic ginger, lamtoro, randu, Chinese ketepeng, and amethyst. In Kalitengah Village we found the sangket plant (*Basilicum polystachyon*), betel (*Piper betle*), jatropha (*Jatropha curcas*), dadap serep (*Erythrina lithosperma*), aromatic ginger (*Kaemferia galanga*) and lamtoro (*Leucaena leucocephala*). The community uses many types of herbal plants found in Kalitengah village through making herbal concoctions (Figure 2). Each has different benefits, such as the sangket plant has the function of reducing fever in children, the betel plant has the function of drying the navel of newborn babies, the jatropha plant has the function of treating a bloated stomach, the dadap serep plant is a medicine for reducing fever in Children, the kencur plant has the function of curing pain in sprained legs and the lamtoro plant has the function of stopping blood from coming out when injured (table 1).

Furthermore, in Kaligambir Village the types of plants found were randu (*Ceiba pentandra*), chinese ketepeng (*Senna alata*) and amethyst (*Datura metel*). In Kaligambir Village, kapok plants are used mixed with kecur rice which has the function of reducing heat when sprained feet. Another plant is Chinese ketepeng which is able to treat itching on the body while the amethyst plant is used for rheumatic pain (table 2). The community uses many types of herbal plants found in Kaligambir village through making herbal concoctions (Figure 2).

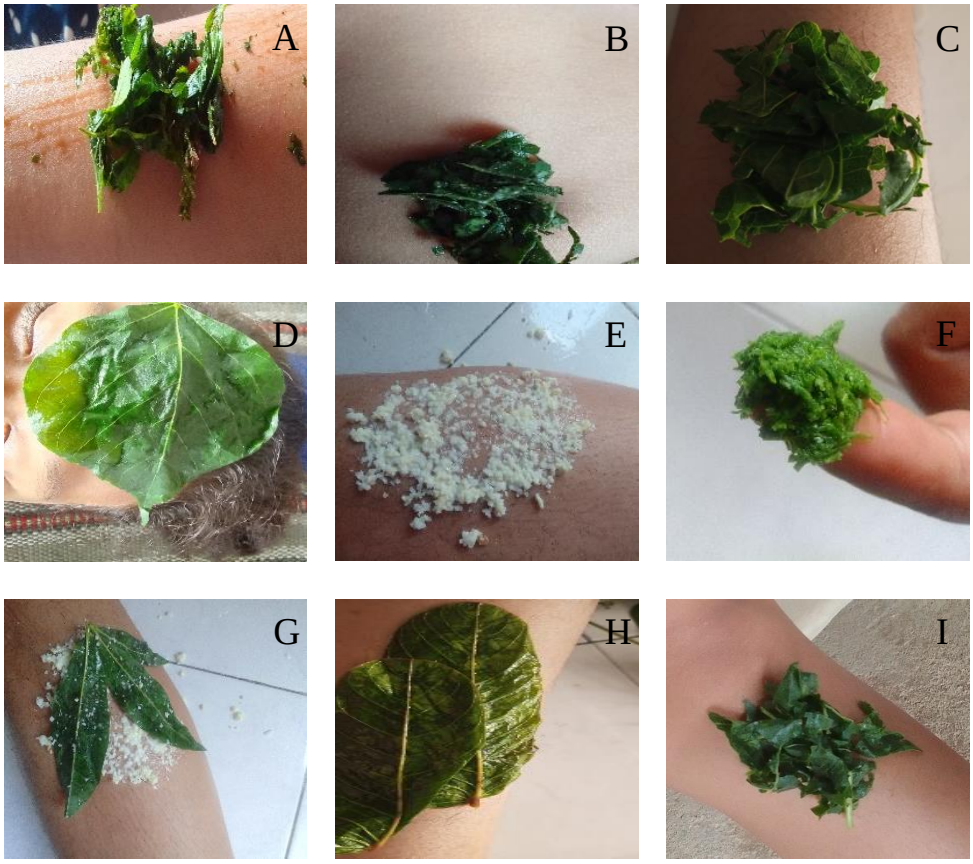

Figure 2. Herbal Ingredients *Basilicum polytachyon (A)*, *Piper betle (B)*, *Jatropha curcas (C)*, *Erythrina lithosperma (D)*, *Kaemferia galanga (E)*, *Leucaena leucocephala (F)*, *Ceiba pentandra (G)*, *Senna alata (H)* and *Datura metel (I)* for Traditional Medicine

The highest source of plant acquisition is from the area around the house, the same results, among others [11]. Some of the plants that come from the area around the house have been cultivated and some of them grow wild. Plant cultivation carried out by the community can help prevent disease early, because plant sources in the area around the house will facilitate the process of treating/curing the disease suffered. Apart from cultivated plants, types of plants that are useful as medicine are also found in gardens/fields and in the natural surroundings.

5. CONCLUSION

This research produced Nine species of plants which were used by the people of Kalitengah Village and Kaligambir Village, Panggungrejo District, Blitar Regency as traditional medicine. The plants found were sangket leaves, betel leaves, jatropha leaves, dadap serep leaves, lamtoro leaves, aromatic

ginger, randu leaves, chinese ketepeng leaves, and amethyst leaves. The plant parts used include leaves and rhizomes. The way to use herbal plants is by making herbal concoction (*bobok*), this plant is used to treat wounds by pounding and squeezing, then placing it on the part that has the wound/pain. The people of Panggungrejo District often find herbal plants in areas around houses, gardens/fields and in the natural surroundings..

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